YAMAHA
Revs Your Heart

YAMAHA
ROBOT
CATALOG 2018

- 🟩 YA
- 🟦 LCM100
- 🟧 TRANSERVO
- 🟪 FLIP-X
- 🟦 PHASER
- 🟦 XY-X
- 🟦 YK-X
- 🟩 YP-X
- 🟩 CLEAN
- 🟥 CONTROLLER

ENGLISH

FULL LINEUP

ARTICULATED ROBOTS

YA Series

Features P. 8
Specifications P.109

6-axis

YA-RJ
YA-R3F
YA-R5F
YA-R5LF
YA-R6F

▶P.111

7-axis

YA-U5F
YA-U10F
YA-U20F

▶P.116

Controller for use with the YA series
YAC100

▶P.119

CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

TRANSERVO Series

Features P.16
Specifications P.129

SS Type (Slider type)
Straight model/Space-saving model

SS05H-S	SS05H-R (L)
SS05-S	SS05-R (L)
SS04-S	SS04-R (L)

▶P.132

SG Type (Slider type)

SG07

▶P.138

SR Type (Rod type)
Straight model/Space-saving model

SR05-S	SR05-R (L)
SR04-S	SR04-R (L)
SR03-S	SR03-R (L)

▶P.139

SR Type (Rod type with support guide)
Straight model/Space-saving model

SRD05-S	SRD05-U
SRD04-S	SRD04-U
SRD03-S	SRD03-U

▶P.142

STH Type
(Slide table type)
Straight model/
Space-saving model

STH04-S	STH04-R (L)
STH06-S	STH06-R (L)

▶P.152

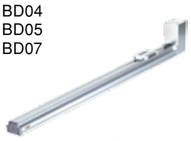
RF Type
(Rotary type)
Standard model/
High rigidity model

RF02
RF03
RF04

▶P.156

BD Type
(Belt type)
Straight model

BD04
BD05
BD07



▶P.168

SINGLE-AXIS ROBOTS

FLIP-X Series

Features P.22
Specifications P.171

T type　Frame-less structure model

T4L/T4LH
T5L/T5LH
T6L
T9/T9H

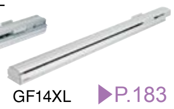
T4L

▶P.176

F type / GF type
High rigidity frame model

F8/F8L/F8LH/F10/F10H/F14/F14H/
F17/F17L/F20/F20N
GF14XL/GF17XL

F8

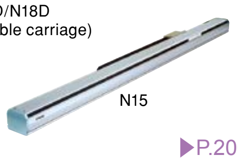


GF14XL

▶P.183

N type　Nut rotation type model

N15/N18
N15D/N18D
(Double carriage)



N15

▶P.200

R type　Rotation axis type model

R5
R10
R20

R5

▶P.214

B type　Timing belt drive model

B10
B14/B14H

B10

▶P.208

LINEAR CONVEYOR MODULES

LCM100

Features P.10
Specifications P.121

LCM100-4M/3M/2MT
(Linear module)

▶P.122

LCM100-4B/3B
(Belt module)

▶P.122

Controller LCC140 for Linear module

▶P.128

LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER Series

Features P.32
Specifications P.217

MF Type　Long stroke & high-power using flat motor with core

■ Double Carriges Standard on all Modules

MF7/7D
MF15/15D
MF20/20D
MF30/30D
MF75/75D

MF15

MF20

MF30D

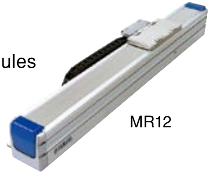
MF75

▶P.220

MR Type　Shaft motor drive is compact and lightweight

■ Double Carriges Standard on all Modules

MR12/12D



MR12

▶P.238

CARTESIAN ROBOTS

XY-X Series

Features P.36
Specifications P.241

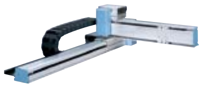
PXYx

▶P.252

FXYx

▶P.254

FXYBx

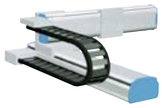


▶P.260

SXYx

▶P.266

SXYBx



▶P.284

MXYx

▶P.302

NXY

▶P.292

NXY-W

▶P.298

HXYx

▶P.312

HXYLx

▶P.318

Icons
in this catalog

- Products using a resolver as the motor position detector
- Products using 4-row circular arc groove 2-point contact guides
- Products meeting Class 10 cleanliness

SCARA ROBOTS

YK-TW Series / YK-XG Series / YK-XR Series YK-XGS / YK-XGP

Features P.40
Specifications P.369

Orbit type (Omni directional) [YK-TW]

Arm length: 350mm/500mm
Maximum payload: 5kg

YK350TW
YK500TW

YK500TW

▶P.372

Tiny (ultra-small) type [YK-XG]

Arm length: 120mm to 220mm
Maximum payload: 1kg

YK120XG
YK150XG
YK180XG
YK180X
YK220X

YK180XG

▶P.376

Small type [YK-XG]

Arm length: 250mm to 400mm
Maximum payload: 5kg

YK250XG
YK350XG
YK400XG

YK400XG

▶P.381

Small type [YK-XR]

Arm length: 400mm
Maximum payload: 3kg

YK400XR

YK400XR

▶P.387

Medium type [YK-XG]

Arm length: 500mm to 600mm
Maximum payload: 5kg to 20kg

YK500XGL/XG
YK600XGL/XG/XGH

YK500XGL

▶P.388

Large type [YK-XG/YK-X]

Arm length: 700mm to 1200mm
Maximum payload: 20kg to 50kg

YK700XG/XGL
YK800XG
YK900XG
YK1000XG
YK1200X

YK1200X

▶P.395

Wall-mount / inverse type [YK-XGS]

Arm length: 300mm to 1000mm
Maximum payload: 20kg

YK500XGS

▶P.401

Dust-proof & drip-proof type [YK-XGP]

Arm length: 250mm to 1000mm
Maximum payload: 20kg

YK250XGP

▶P411

PICK & PLACE ROBOTS

YP-X Series

Features P.48
Specifications P.429

2 axes type

YP220BX
YP320X

YP220BX

▶P.431

3 axes type

YP220BXR
YP320XR
YP330X

YP220BXR

▶P.433

4 axes type

YP340X

YP340X

▶P.436

CLEAN ROBOTS

CLEAN Type

Features P.50
Specifications P.437

Single-axis robots

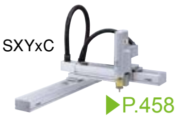
SSC04/05/05H
C4L/C4LH/
C5L/C5LH/C6L
C8/C8L/C8LH
C10/C14/C14H
C17/C17L/C20

C14

▶P.441

Cartesian robots

SXYxC
SXYxC (ZSC12)
SXYxC (ZSC6)
SXYxC (ZRSC12)
SXYxC (ZRSC6)


SXYxC

▶P.458

SCARA robots

YX180XC/	YK700XC/
YK220XC/	YK800XC/
YK250XGC	YK1000XC
YK350XGC/	
YK400XGC/	
YK500XGLC	
YK500XC/	
YK600XGLC/	
YK600XC/	

YK250XGC

▶P.464

ROBOTS CONTROLLER

Controllers

Features P.54
Specifications P.481

Single axis Robot positioner

TS-S2
TS-SH

TS-X
TS-P

▶P.492

Single axis Robot driver

<pulse train input only>

TS-SD

▶P.502

RDV-X
RDV-P

▶P.506

Single axis Robot controller

<small servo 24V · 30W>

ERCD

▶P.512

Single axis Robot controller

SR1-X
SR1-P

▶P.518

1 to 2 axis Robot controller

RCX221

RCX222

▶P.526

1 to 4 axes Robot controller

RCX240
RCX240S

RCX340

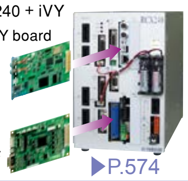
▶P.534

ROBOT VISION Robot with image processing functions

iVY System

Features P.74

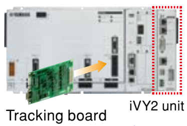
A robot-integrated vision system



▶P.574

iVY2 System

Features P.80



▶P.578

ELECTRIC GRIPPER

YRG Series

Features P.88
Specifications P.584

YRG-4225S

YRG-2810W

YRG-2840FS

YRG-2820T

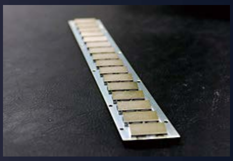
▶P.585

YAMAHA ROBOT
History and approach

30 years of proven reliability.

YAMAHA's robot development started as it was introduced in our motorcycle production line more than 30 years ago.
Since then, YAMAHA's industrial robots have supported production equipment in a wide variety of industries, such as assembly of electronic products, transfer of in-vehicle components, and manufacture of large-scale LCD panels.
Over the years YAMAHA has striven to develop and improve the market and this is a testament to YAMAHA's reliability.

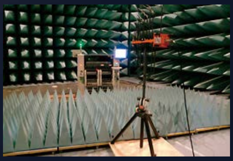
Technical development based on the originally developed technologies and focusing on the needs of the market



"Motor control technology" absolutely necessary for precise and high-speed operation "Controller development technology" is based on the highest evaluation standards and Signal processing technology allowing stable operation even under extreme environmental conditions.
Rigidity, durability, and operability are features of YAMAHA's products base on "Coretechnologies*" .

*Control boards, linear motors, and linear scales (position detectors), etc.

Evaluation system provides high reliability



YAMAHA continues to evaluate technology to assure product reliability.
In the product development phase, the evaluation test at "anechoic chamber"* (YAMAHA's equipment) was developed to ensure the high reliability and quality.

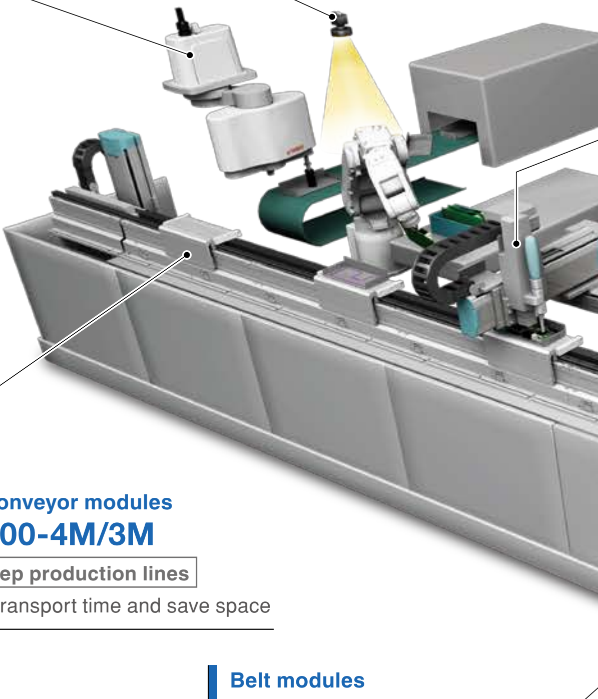
*Anechoic chamber: This equipment is intended to synthetically develop the EMC (Electro-Magnetic Compatibility) technologies for YAMAHA Group products and to share the developed technologies. This equipment can evaluate the compliance with each country's regulation in conformity with the international standards.

YAMAHA quality ensuring safety

Manufacturing, sales, and technology integrated system is utilized at its maximum level to establish a system that consistently performs a series of processes: inspection → manufacture → assembly → inspection → shipping. This can provide the customers with high quality, low price, and short delivery time.
Key components are manufactured through in-house processing and machining. YAMAHA as a robot manufacturer builds the components to the highest quality level.
Furthermore, the quality control based on the severe standards achieves the craftsmanship with high quality.

ALL YOU

Only Yamaha can provide a
We provide the best solution



Orbit type robots
YK-TW
High-speed transfer processing
Ideal for narrow or limited space

Integrated robot vision
iVY2 SYSTEM
Verify workpiece positioning
Unified control with only the robot program

Linear conveyor modules
LCM100-4M/3M
Multi-step production lines
Shorten transport time and save space

Belt modules
LCM100-4B/3B
Slider return
Reduce facility cost

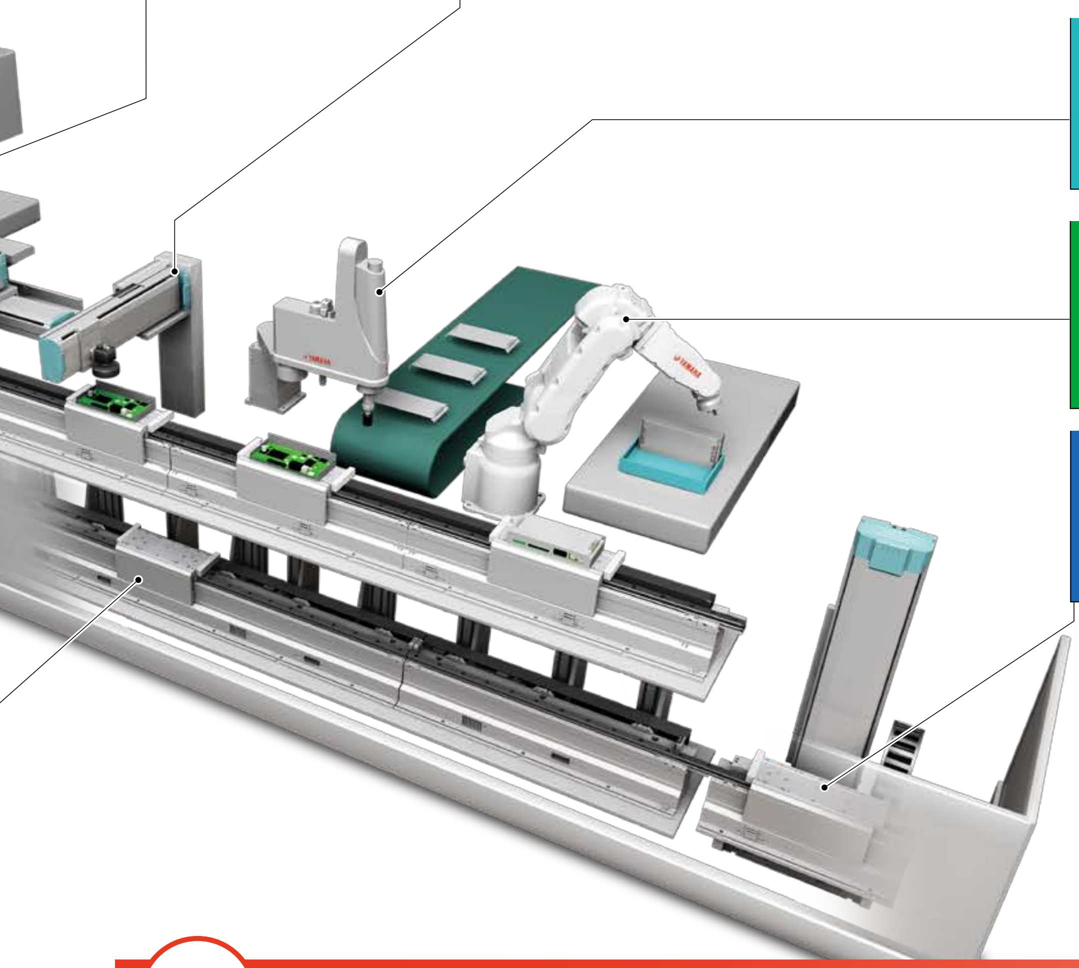
SPEC UP Major improvements

Linear conveyor module
LCM100

Repeat positioning accuracy	Max. payload	Reduced slider no-stop zone
Width 100μm ▼ ±0.015mm (single slider) width 0.1mm (mutual difference among all sliders)	5kg ▼ 15kg	65mm ▼ 6mm

ASSEMBLE

unified lineup from miniature actuators to articulated robots.
for a wide range of automation.



Cartesian robots (2-axis to 6-axis)
XY-X Series
Sealing work
High-rigidity guide ensures long life

Single-axis AC servo motor robot
FLIP-X Series
Board inspection work
A wide range of general-purpose robots

Linear motor single-axis robots
PHASER Series
For long-distance or high-mass transport

Closed loop stepping motor single-axis robots
TRANSERVO Series
Low-cost positioning equipment

Scara robots
YK-XG Series
Pick and place work
Completely beltless design for high rigidity and high precision

Articulated robots (6-axis·7-axis)
YA Series
Variable-orientation workpiece assembly work
Allows more complex work

Circulation module
LCM100-2MT
"Insert" and "eject" sliders
Reduce the number of steps for design and execution

NEW New products

Articulated robots
YA Series P.8

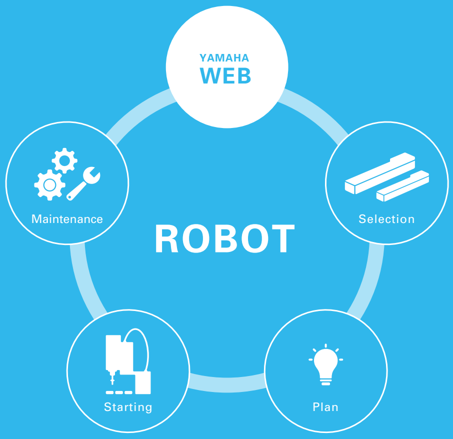
Belt modules
LCM100-4B/3B P.10

Single-axis robots
F10H P.188

Orbit type robots
YK350TW P.372

Scara robots
YK700XGL P.395

Robot driver
RDV-X / RDV-P P.506



YAMAHA ROBOT

WEB MEMBER SITE

YAMAHA Robot Member Site provides information you can utilize in the model selection or design phase when introducing industrial robots. Additionally, the contents necessary for the start-up or maintenance work are also prepared.

Selection

Before

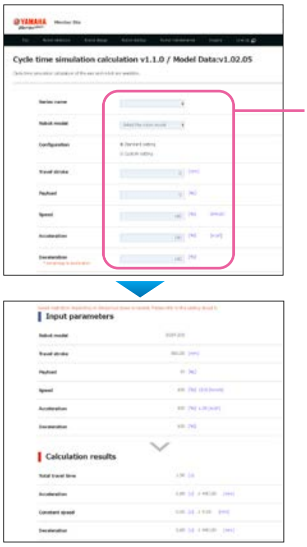
Plan

Selection

Plan

Cycle time simulation calculation

Use this when selecting models or calculating cycle time.


Cycle time simulation calculation v1.1.0 / Model Data:v1.02.05

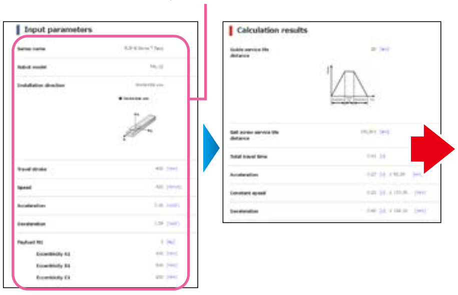
Input simple parameters
Input robot model, operating stroke, payload mass, and acceleration

Automatic calculation
- Total movement time
- Acceleration/deceleration time
- Acceleration/deceleration distance
- Constant speed time
- Constant speed distance

Robot life calculation

Use this when selecting models or calculating payload shape.

Input simple parameters
Enter the robot model, installation direction, operating stroke, speed setting, payload mass, eccentricity, etc.



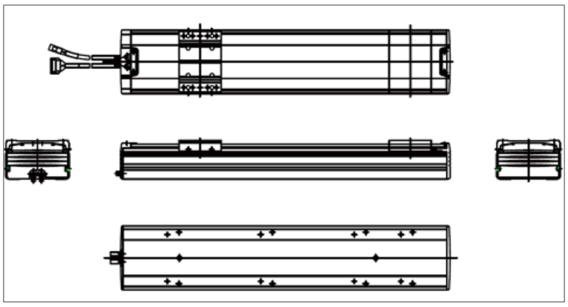
Automatic calculation
- Guide lifetime distance
- Ball screw movement distance
- Total movement time
- Acceleration/deceleration time
- Constant speed time
- Constant speed distance

2D/3D CAD data download

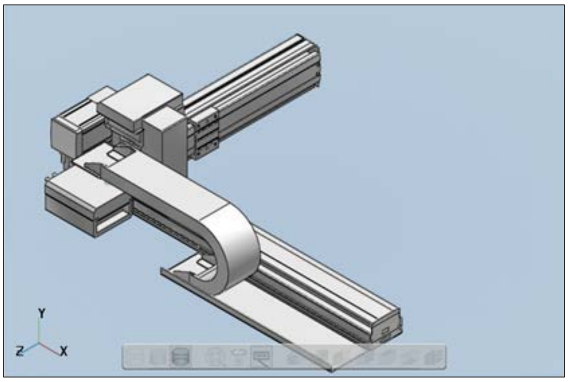
Use this for production line design and device design, and to check the layout and operating range.

You can download 2D/3D CAD data for Yamaha robots and controllers.

■ Download 2D CAD data



■ Download 3D CAD data

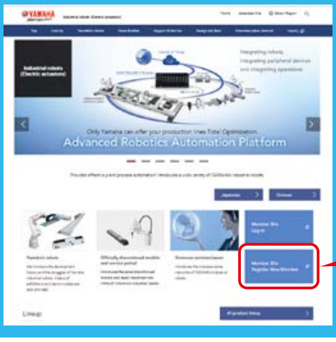


＼Accepting registrations from website／

Useful contents from model selections to design, start-up, and maintenance work are provided.

To register as a new member

Go to New Registration screen from the top page
https://global.yamaha-motor.com/business/robot/



Go to New Registration screen from here

Starting

After

Maintenance

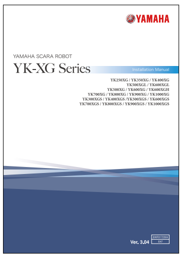
Starting

Maintenance

Manual download

User's Manual	Installation Manual	Maintenance Manual

Since this describes not only operating methods and setting methods but also robot placement and examples of external wiring for the controller, it will be helpful for pre-setup work. Since component replacement methods are also described, this also is useful for maintenance in conjunction with the parts list.



YAMAHA

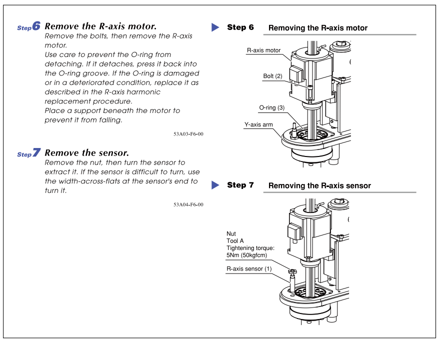
YAMAHA SCARA ROBOT

YK-XG Series

Installation Manual

YK250XG / YK350XG / YK400XG
YK500XGL / YK600XGL
YK500XG / YK600XG / YK600XGH
YK700XG / YK800XG / YK900XG / YK1000XG
YK300XGS / YK400XGS /YK500XGS / YK600XGS
YK700XGS / YK800XGS / YK900XGS / YK1000XGS

Ver. 3.04



Step 6 Remove the R-axis motor.

Remove the bolts, then remove the R-axis motor.
Use care to prevent the O-ring from detaching. If it detaches, press it back into the O-ring groove. If the O-ring is damaged or in a deteriorated condition, replace it as described in the R-axis harmonic replacement procedure.
Place a support beneath the motor to prevent it from falling.

53A03-F6-00

Step 7 Remove the sensor.

Remove the nut, then turn the sensor to extract it. If the sensor is difficult to turn, use the width-across-flats at the sensor's end to turn it.

53A04-F6-00

▶ **Step 6** Removing the R-axis motor

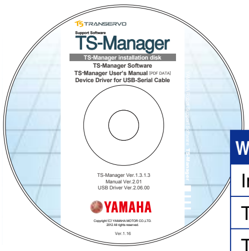
R-axis motor
Bolt (2)
O-ring (3)
Y-axis arm

▶ **Step 7** Removing the R-axis sensor

Nut
Tool A
Tightening torque:
5Nm (50kgfcm)
R-axis sensor (1)

TS-Manager

You have peace of mind even if a problem occurs. Even if the official version is not at hand, you can back up data or transfer data.


TRANSERVO
Support Software
TS-Manager
TS-Manager installation disk
TS-Manager Software
TS-Manager User's Manual [PDF DATA]
Device Driver for USB-Serial Cable
YAMAHA Robot Support Software TS-Manager
TS-Manager Ver.1.3.1.3
Manual Ver.2.01
USB Driver Ver.2.06.00
YAMAHA
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Ver.1.16

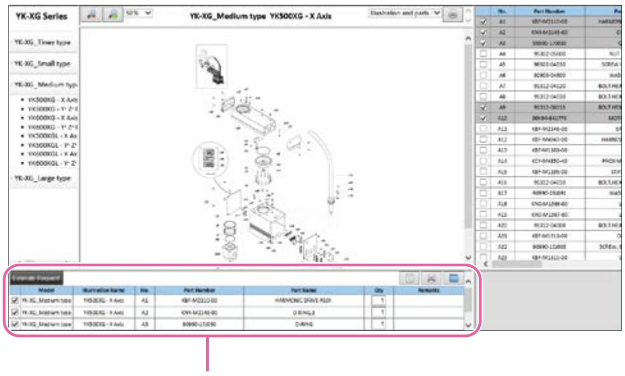
What you can do using TS-Manager (free version)
Initialize robot data
Transfer data from the controller to the PC
Transfer data from the PC to the controller
Obtain alarm history

Parts List and Exploded View

You can view parts lists, and request quotations.

Part lists for Yamaha robots are available.
For some parts, this shows associated parts for which replacement is required or recommended; this is helpful for maintenance activity.

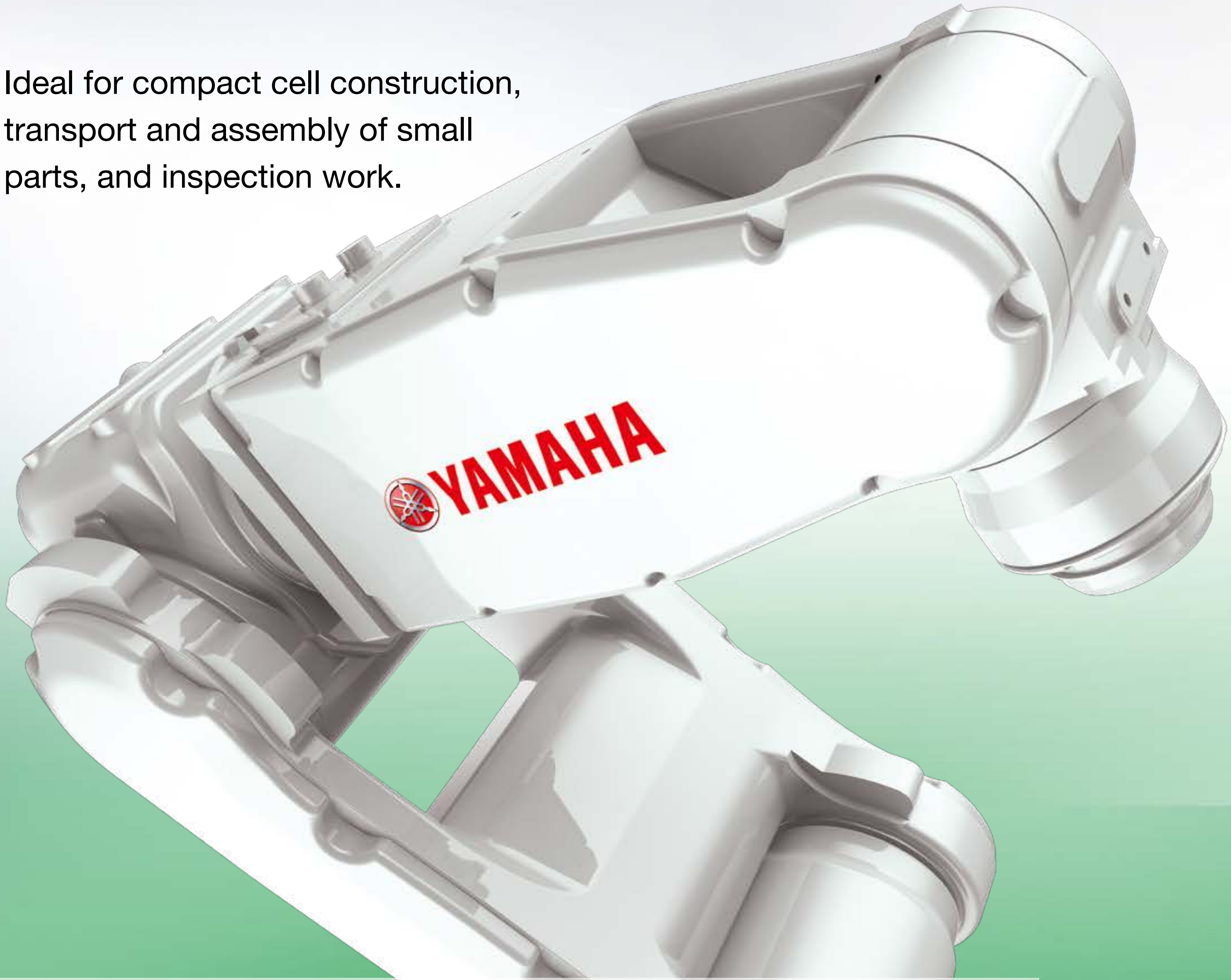
Parts are shown in detail ▶ **Very convenient for repair work**

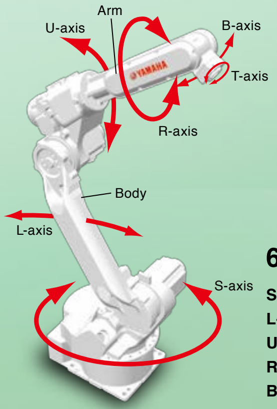


You can also request a price estimate for the selected part.

ARTICULATED ROBOTS

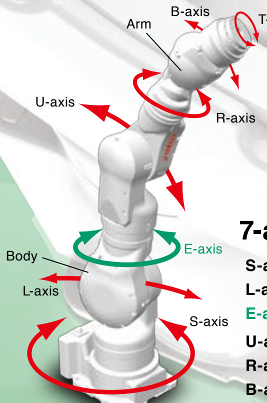
Ideal for compact cell construction, transport and assembly of small parts, and inspection work.





6-axis robots

S-axis: Rotate the body horizontally
L-axis: Move the body forward/backward
U-axis: Move the arm up/down
R-axis: Rotate the arm
B-axis: Move the tip of the arm up/down
T-axis: Rotate the tip of the arm



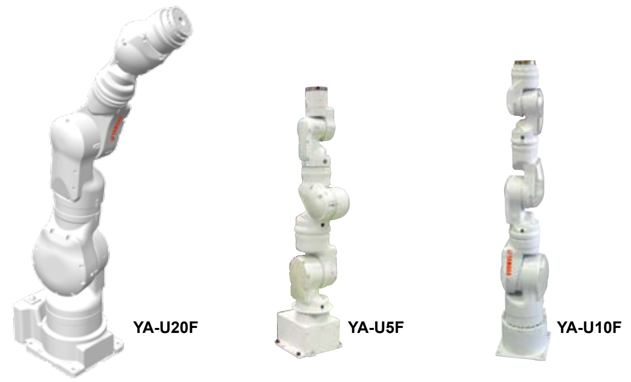
7-axis robots

S-axis: Rotate the body horizontally
L-axis: Move the body forward/backward
E-axis: Twist the arm
U-axis: Move the arm up/down
R-axis: Rotate the arm
B-axis: Move the tip of the arm up/down
T-axis: Rotate the tip of the arm

Reduce personnel, increase productivity

6-axis

7-axis



Type	Model	Application	Number of axes	Payload (kg)	Vertical reach (mm)	Horizontal reach (mm)	Page
6-axis	YA-RJ	Handling (general)	6-axis	1 kg (max. 2 kg Note)	909	545	P.111
	YA-R3F			3	804	532	P.112
	YA-R5F			5	1193	706	P.113
	YA-R5LF			5	1560	895	P.114
	YA-R6F			6	2486	1422	P.115
7-axis	YA-U5F	Assembly / Placement	7-axis	5	1007	559	P.116
	YA-U10F			10	1203	720	P.117
	YA-U20F			20	1498	910	P.118

Note. When a load is more than 1 kg, the motion range will be smaller. Use the robot within the recommended motion range.

POINT

High-speed operation reduces cycle time

Thanks to high-speed, low-inertia AC servo motors, an arm designed for light weight, and the latest control technology, these robots achieve an operating speed that is best in their class.From supply, assembly, inspection, and packing to palletization, all applications can enjoy shorter cycle time and improved productivity.

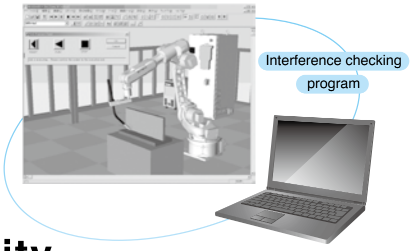
Workpieces with a high wrist load are also supported

With a wrist section that has the highest allowable moment of inertia in its class, these robots can support jobs involving a high wrist load, or simultaneous handling of multiple workpieces.

Robot simulator dramatically reduces startup time

We provide software that lets you use 3D CAD data to construct a production facility in virtual space in a personal computer, and easily perform engineering tasks such creating programs and checking for robot interference. Teaching can be performed even before the actual production line is completed, dramatically reducing line startup time.

Note. Optional support



Free arm movement further boosts productivity.

7-axis Reduced space allows sophisticated system layouts

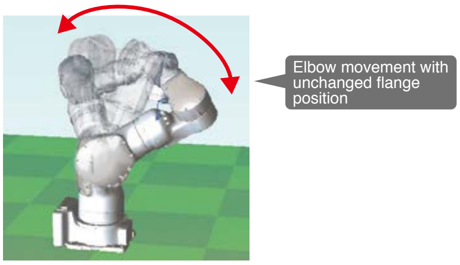
Since these robots can be installed close to workpieces or other equipment, you can reduce the space required for your production facility. By locating multiple robots close to each other, processing can be integrated and shortened.

7-axis Access the workpiece from the opposite side or from below

Rotation of the seventh axis enables flexible movement with the same freedom of motion as a human arm, allowing the workpiece to be accessed from the opposite side or from below. This allows the robot to enter narrow locations that a person could not fit in, or to approach the workpiece in a way that avoids obstructions, giving you more freedom to design the layout for shorter cycle time and reduced space.

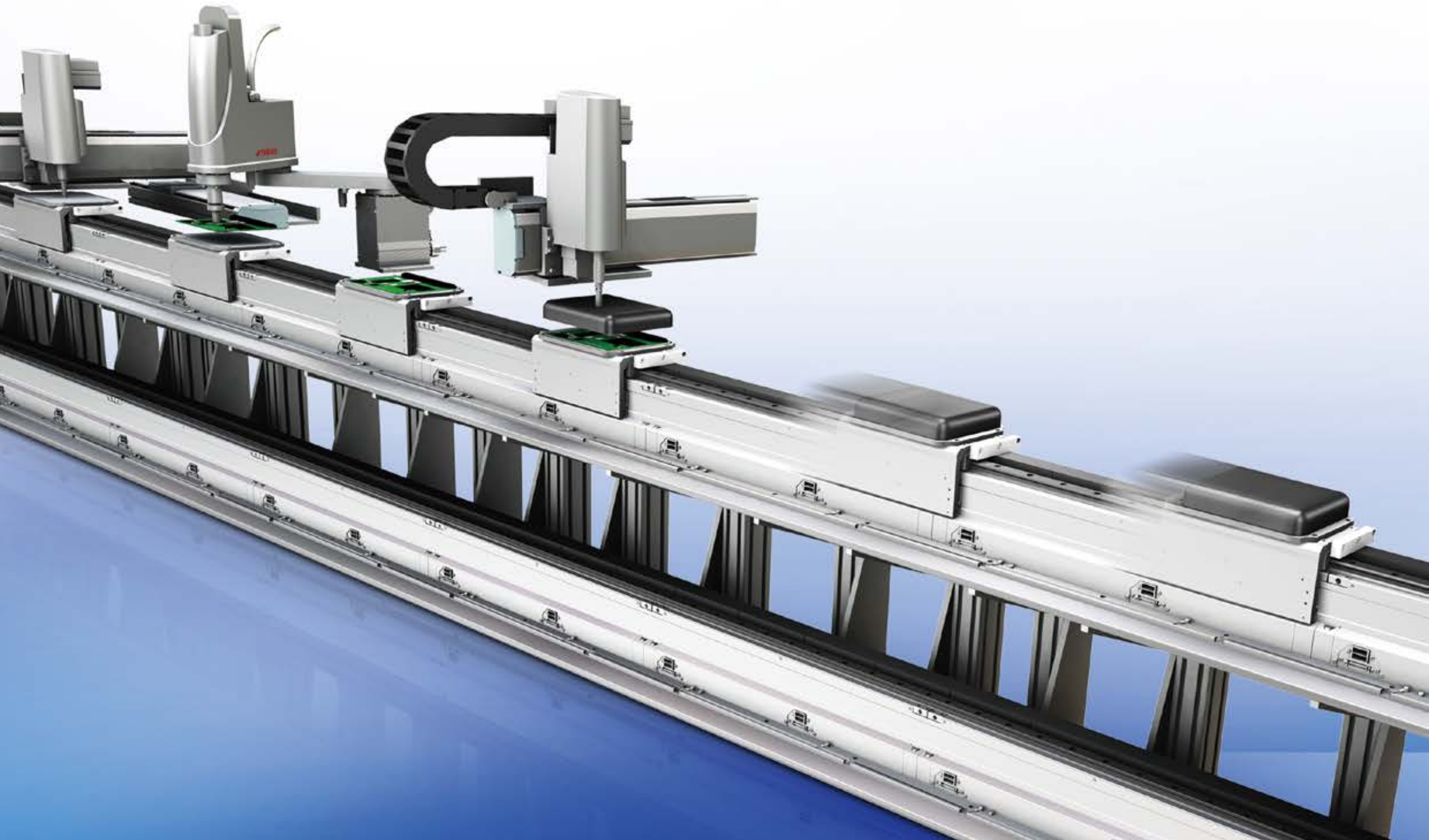
7-axis "Elbow movement" unique to 7-axis models allows optimal posture to be maintained

The 7-axis U-type robots allow "elbow movement," changing only the elbow angle without affecting the position or posture of the tool. This permits operation to avoid nearby obstructions.

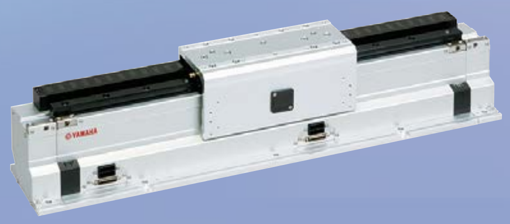


LINEAR CONVEYOR MODULES

From "flow" to "move"
Efficient transfer processes for increased profitability

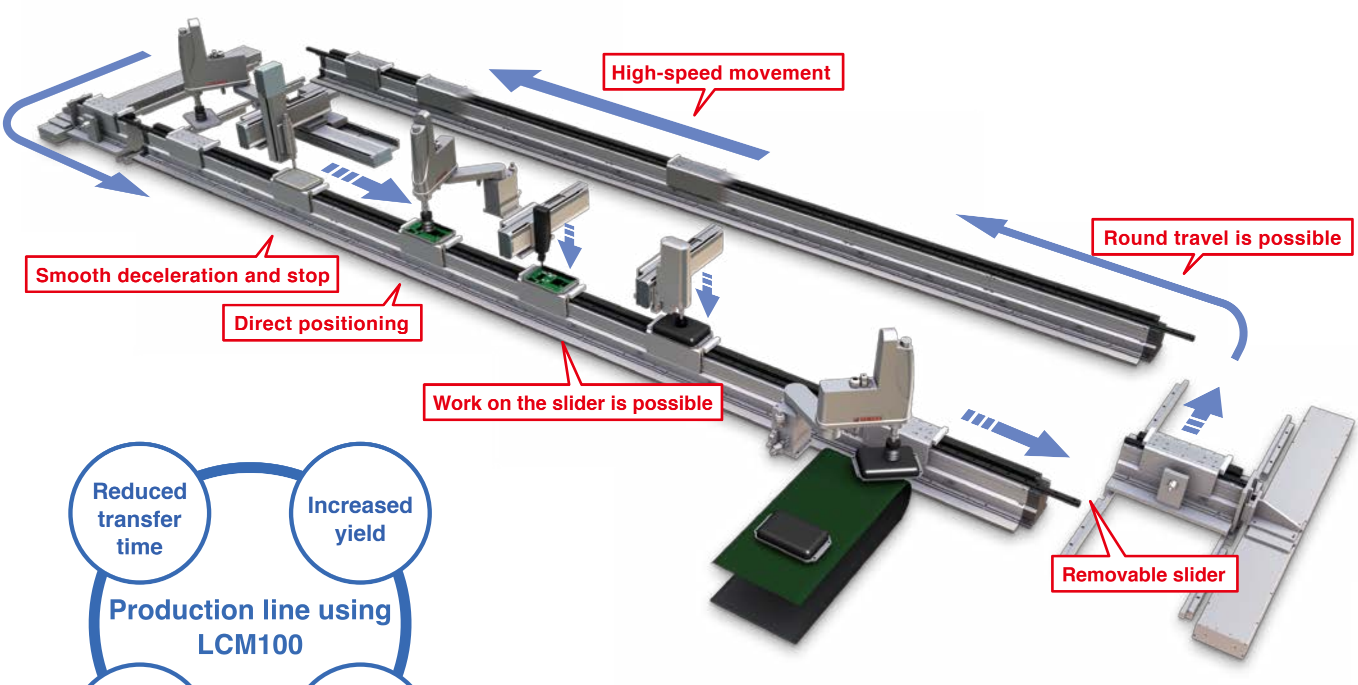


Linear conveyor module LCM100



Note. As the figure shown above illustrates CG images, they are different from the actual product.

Linear Conveyor Module LCM100
Constructing high-speed throughput lines.



Reduced transfer time

Increased yield

Production line using LCM100

Saves space

Lower total costs

High-speed and high-accuracy transfer

- Max. speed: **3000mm/sec**
- Max. acceleration: **2G**
- Max. load mass: **15kg**
- Repeated positioning accuracy: **±0.015mm (standalone slider)** Note

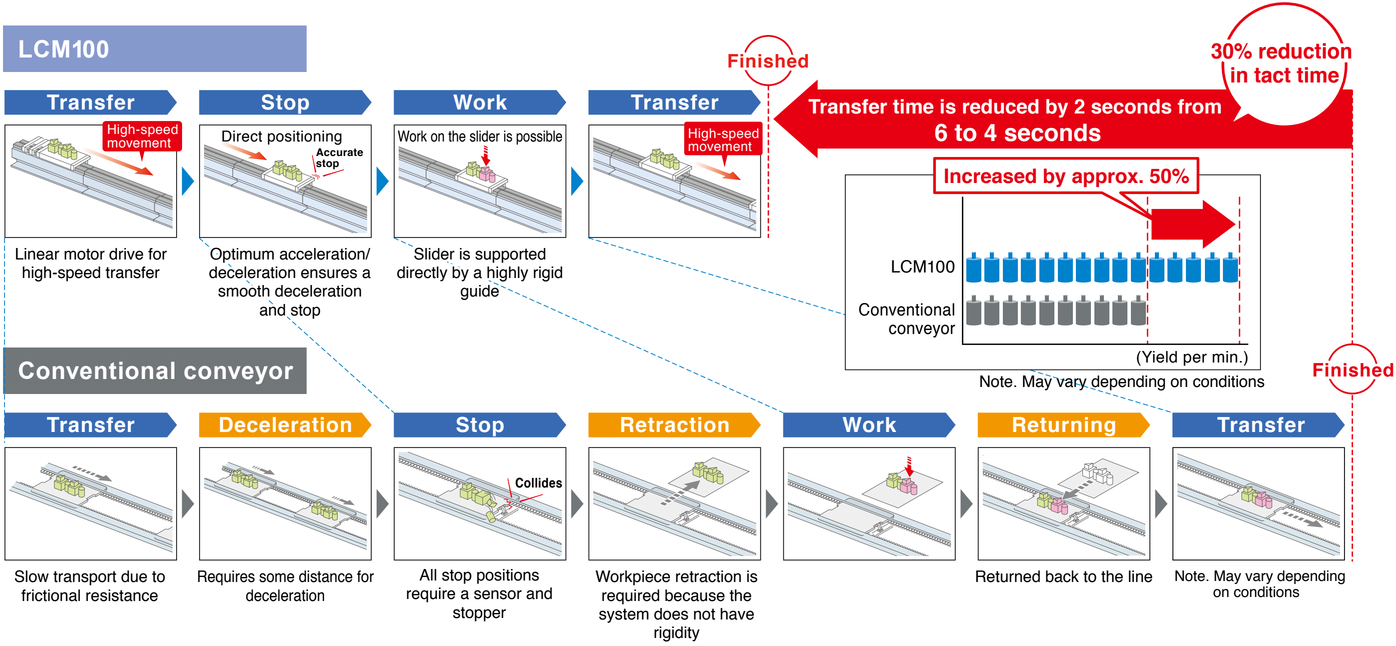
Note. This is the repeated positioning accuracy for a standalone slider when positioning from one direction (single-side approach).

Note. The positioning accuracy for the single-side approach after correction by RFID is 0.1 mm including the mutual difference between sliders.

POINT

Increase productivity by shortening transport time

- Comparison between LCM100 and a conventional conveyor



LCM100

Transfer: Linear motor drive for high-speed transfer

Stop: Optimum acceleration/deceleration ensures a smooth deceleration and stop

Work: Slider is supported directly by a highly rigid guide

Note. May vary depending on conditions

Conventional conveyor

Transfer: Slow transport due to frictional resistance

Deceleration: Requires some distance for deceleration

Stop: All stop positions require a sensor and stopper

Retraction: Workpiece retraction is required because the system does not have rigidity

Returning: Returned back to the line

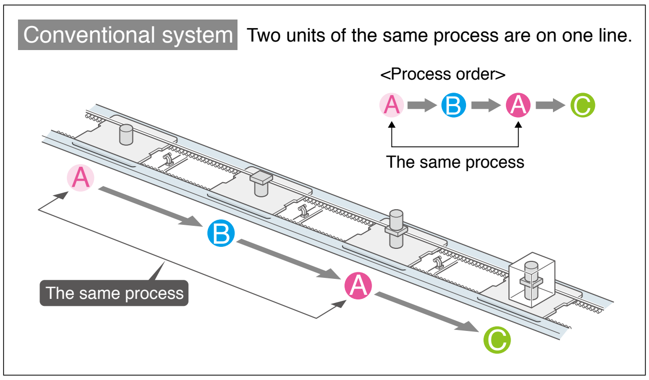
Transfer: Note. May vary depending on conditions

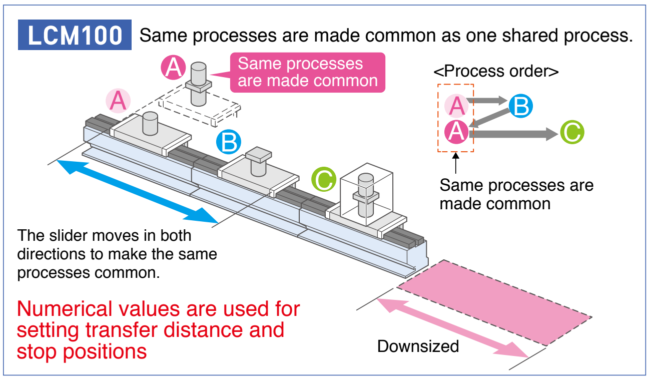
The length of the transfer line can be adjusted freely by adding modules.

POINT

Save equipment space.

- Since the movement direction can be changed, the same processes are made common. This makes the equipment compact and results in cost reduction.
- Forward and backward movement at a high speed can be set freely.
- Flexible actions such as moving only some sliders backward is possible.

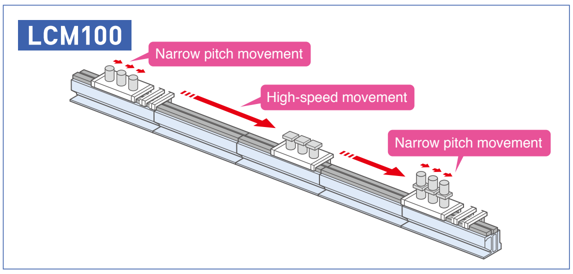

Conventional system Two units of the same process are on one line.


LCM100 Same processes are made common as one shared process.
A
Same processes are made common
A
B
C
<Process order>
A → B
A → C
Same processes are made common
The slider moves in both directions to make the same processes common.
Numerical values are used for setting transfer distance and stop positions
Downsized

POINT

Can be moved efficiently between processes with different tacts

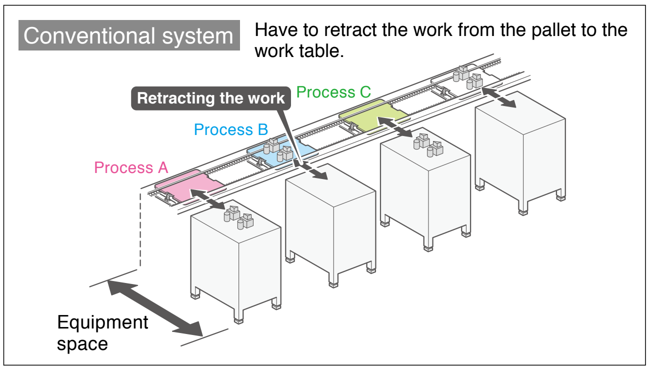
- Narrow pitch movement is possible.
- Movement time can be reduced by combining the use of different movements, such as using pitch-feed for the same processes in short-time processes while transferring three workpieces at the same time at a high speed in long-time processes.

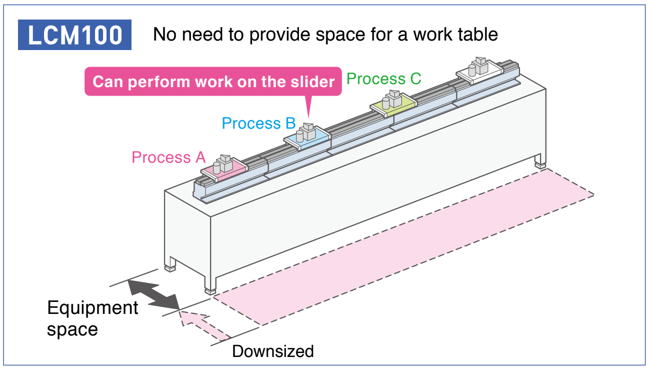

LCM100

POINT

Workpieces do not need to be retracted

- As the work moves down, you can assemble and process them on the transfer line.
- Eliminates having to retract the work from the pallet to the work table.
- Reduces costs.

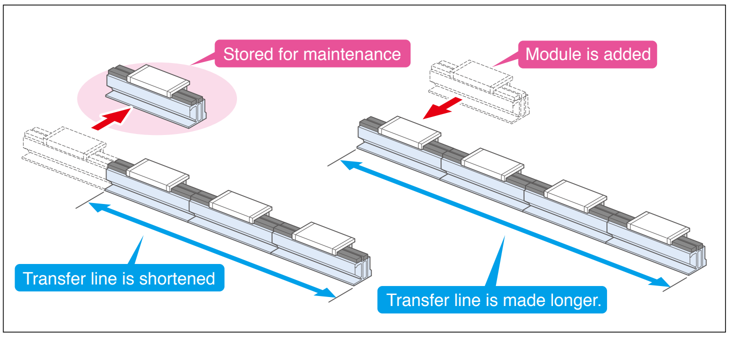

Conventional system Have to retract the work from the pallet to the work table.


LCM100 No need to provide space for a work table

POINT

Significant reduction of start-up time

- Just connect modules for easy construction of a transfer line.
- Lifting cylinders, sensors, stoppers, and other complex parts are not necessary.
- Operations can be performed by using only the LCC140 Controller.
- Economical as excess modules can be used for other lines or stored for maintenance.

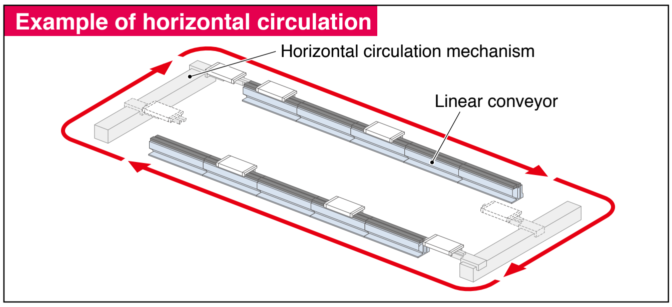


POINT

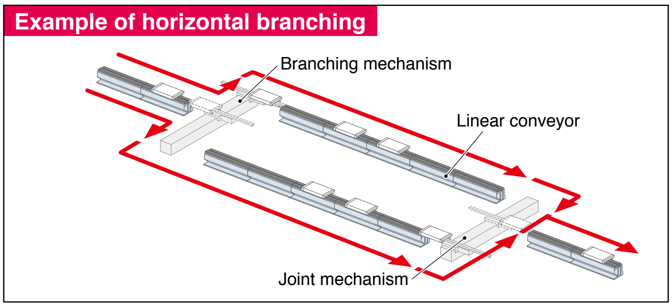
Construct branching lines, joint lines, and other lines in flexible configurations.

- Layout examples by combining modules with circulation mechanisms

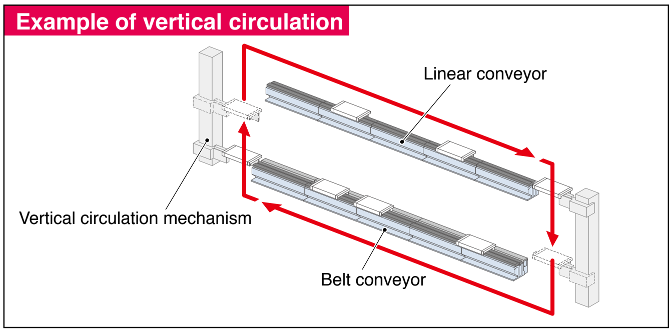
Example of horizontal circulation



Example of horizontal branching



Example of vertical circulation



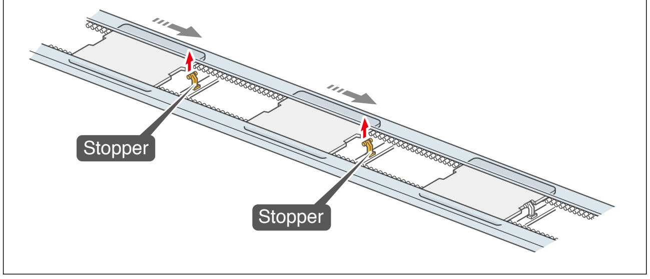
Note. The customer needs to prepare the return unit and the circulation mechanism.
Note. Modules convenient for the circulation are configured.

POINT

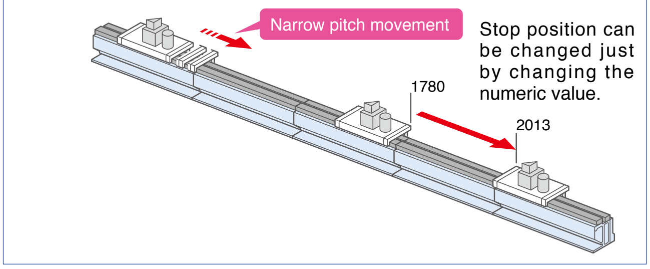
Optimal for small batch production of various product types

- No need for mechanical stoppers or sensors. Change layout easily.
- Reconstruction can be finished quickly by just changing the program to set a stop position.
- Frequent unit changes for different models can be handled flexibly.

Conventional system Requires stopper position adjustment



LCM100 Stop positions can be set just by changing the program settings.

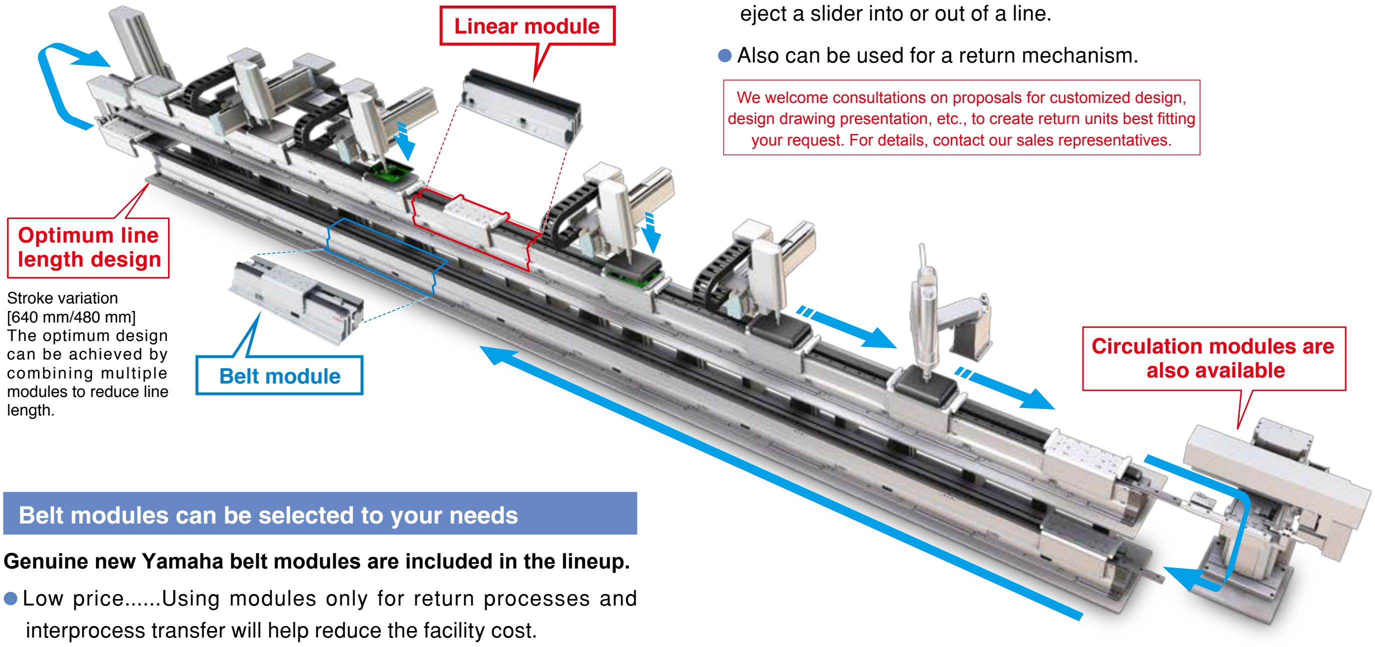

Narrow pitch movement
Stop position can be changed just by changing the numeric value.
1780
2013

Flexible set-up of the slider's acceleration/deceleration, forward/backward movement, positioning, and other actions. The variety of possible line structures has been greatly expanded to supersede conventional models.

Simpler design and fewer processing steps

- LCM100-2MT, a module for circulation, is available to insert or eject a slider into or out of a line.
- Also can be used for a return mechanism.

We welcome consultations on proposals for customized design, design drawing presentation, etc., to create return units best fitting your request. For details, contact our sales representatives.


Linear module
Optimum line length design
Belt module
Circulation modules are also available

Stroke variation
[640 mm/480 mm]
The optimum design can be achieved by combining multiple modules to reduce line length.

Belt modules can be selected to your needs

Genuine new Yamaha belt modules are included in the lineup.

- Low price......Using modules only for return processes and interprocess transfer will help reduce the facility cost.
- Easy control without controllers and no need to create robot programs

POINT

Quick recovery by replacing the slider when machine trouble occurs

- Parts can be replaced easily.
- Parts can be kept for maintenance as they are standardized.
- Possible to minimize the downtime of a production line.

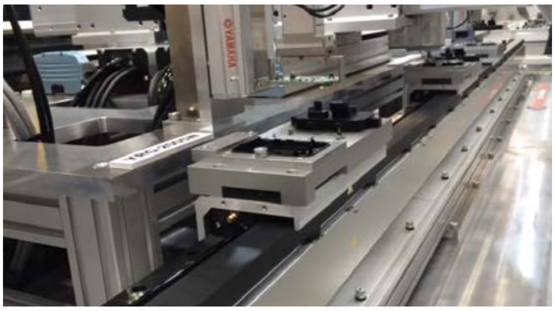
LCM100 module

Slider

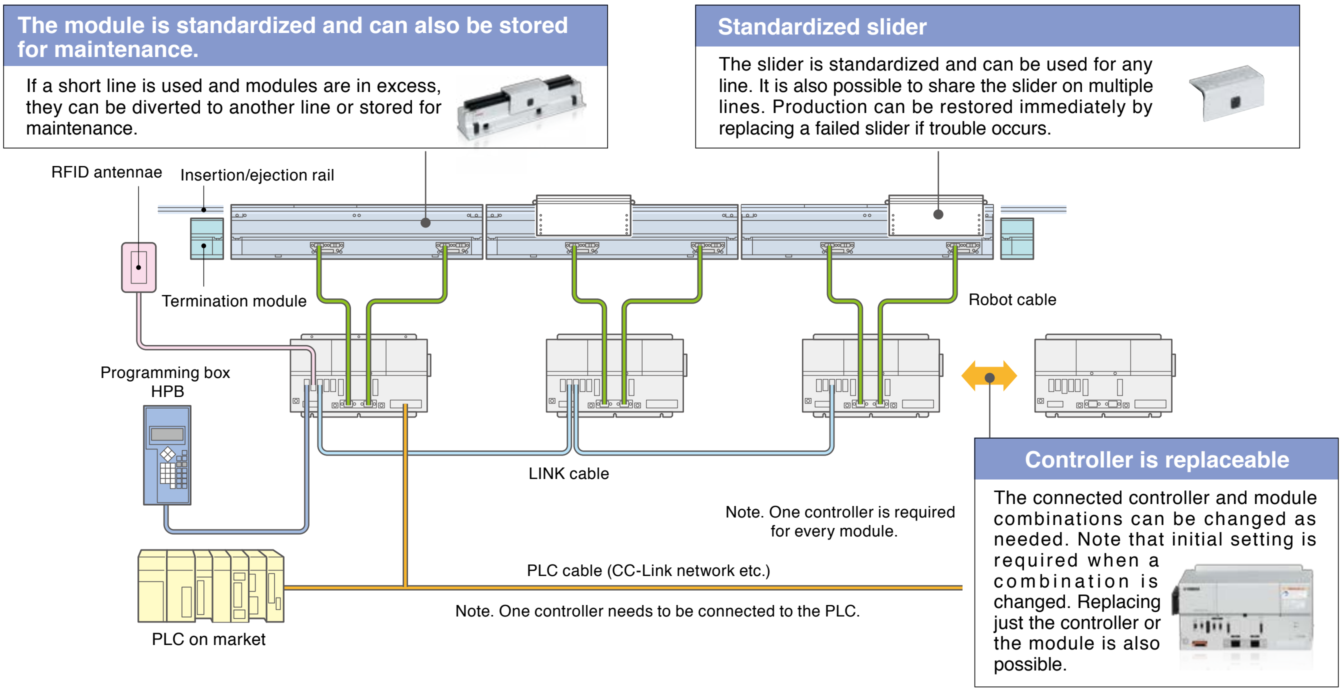
POINT

Easy maintenance

- Motors and scales do not make contact and are free from abrasion.
- As only the rails are sliding parts, dust generation is low.
- There are only a few consumable parts, which mean a long service life.



System configuration diagram (when 3 sliders are connected)


RFID antennae
Insertion/ejection rail
Termination module
Robot cable
Programming box
HPB
LINK cable
Note. One controller is required for every module.
PLC cable (CC-Link network etc.)
Note. One controller needs to be connected to the PLC.
PLC on market

The module is standardized and can also be stored for maintenance.

If a short line is used and modules are in excess, they can be diverted to another line or stored for maintenance.

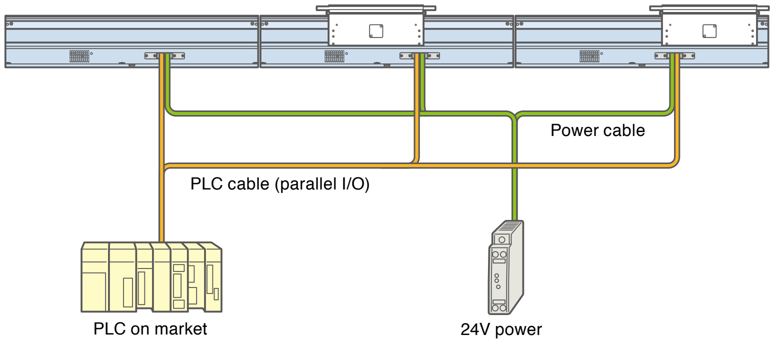
Standardized slider

The slider is standardized and can be used for any line. It is also possible to share the slider on multiple lines. Production can be restored immediately by replacing a failed slider if trouble occurs.

Controller is replaceable

The connected controller and module combinations can be changed as needed. Note that initial setting is required when a combination is changed. Replacing just the controller or the module is also possible.

Belt module



This interface allows the customer to supply 24V power and select just the necessary signals to use.[Note]

Note. The customer will need to prepare the wiring on the user side.

Linear module controller LCC140

Program operation

The LCC140 controller can perform operations using registered programs and operations using remote commands from the PLC.
In addition to the control of input/output signals such as movement or positioning, processes related to the insertion/ejection of sliders can be performed.

Controller-linking function

You can use the link cables dedicated to LCC140 controllers to connect the controllers when two or more modules are connected. You can handle multiple controllers as if they were one controller.

SR1 controller base operation system

The same user interface as the SR1 controller is incorporated, and specifications and functions specific to the linear conveyor module have been added based on this user interface. A very user friendly operation system is provided.[Note 1]

Position correction function using RFID

When multiple sliders are each stopped at a position of your choice, actual stop positions has an error width (machine difference) of 500 μm. This is because each slider has a different stopping accuracy. Link the RFID unit and LCC140 controller to suppress the machine difference of individual sliders to an error width of approximately 100 μm.[Note 2]

Note 1. Please note that some Yamaha single-axis controller SR1 functions are not available with the linear conveyor controller.

Note 2. All sliders stop within the width of 100μm that includes a teaching point.

CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

Excellent characteristics of both stepping motor and servomotor were combined.
Stepping motor single-axis robots "TRANSERVO" series breaking through existing conventions.

Robot positioner TS-S2/TS-SH P.492

This robot positioner is specialized for the I/O point trace input. The positioning or pushing operation can be performed using simple operation, only by specifying a point number from the host control unit and inputting the START signal.

Applicable models: SS SG$^{\text{Note}}$ SR STH RF BD

Note. SG07 is only applicable to TS-SH.

TS-S2

TS-SH

Robot driver TS-SD P.502

This robot driver omits the operation with robot languages and is dedicated to the pulse train input. This driver can be made applicable to the open collector method or line driver method using the parameter setting and signal wiring. So, you can match the robot driver to the host unit to be used.

Applicable models: SS SR STH$^{\text{Note}}$ RF$^{\text{Note}}$ BD

Note. Except for STH vertical specifications and RF sensor specifications.

TS-SD

Newly developed vector control method provides functions and performance similar to servomotors.

SS type (Slider type)

Straight model P.132

SS05H-S

Space-saving model (Side mounted motor model) P.133

SS05H-R (L)

SG type (Slider type)

Straight model P.138

SG07

SR type (Rod type standard)

Straight model P.139

Space-saving model (Side mounted motor model) P.140

SR type (Rod type with support guide)

Straight model P.142

Space-saving model (Side mounted motor model) P.143

Type	Model	Size (mm) Note 1	Lead (mm)	Maximum payload (kg) Note 2		Maximum speed (mm/sec.) Note 3	Stroke (mm)	Page
				Horizontal	Vertical			
SS type (Slider type) Straight model/ Space-saving model	SS04-S SS04-R (L)	W49 × H59	12	2	1	600	50 to 400	SS04-S: P.132 SS04-R (L): P.133
			6	4	2	300		
			2	6	4	100		
	SS05-S SS05-R (L)	W55 × H56	20	4	-	1000	50 to 800	SS05-S: P.134 SS05-R (L): P.135
			12	6	1	600		
			6	10	2	300		
	SS05H-S SS05H-R (L)	W55 × H56	20	6	-	1000	50 to 800	SS05H-S: P.136 SS05H-R (L): P.137
			12	8	2	600 (Horizontal) 500 (Vertical)		
			6	12	4	300 (Horizontal) 250 (Vertical)		
SG type (Slider type)	SG07	W65 × H64	20	36	4	1200	50 to 800	SG07: P.138
			12	43	12	800		
			6	46	20	350		
SR type (Rod type standard) Straight model/ Space-saving model	SR03-S SR03-R (L) SR03-U	W48 × H56.5	12	10	4	500	50 to 200	SR03-S: P.139 SR03-R (L): P.140 SR03-U: P.141
			6	20	8	250		
	SR04-S SR04-R (L)	W48 × H58	12	25	5	500	50 to 300	SR04-S: P.144 SR04-R (L): P.145
			6	40	12	250		
			2	45	25	80		
	SR05-S SR05-R (L)	W56.4 × H71	12	50	10		50 to 300	SR05-S: P.148 SR05-R (L): P.149
			6	55	20	150		
			2	60	30	50		
SR type (Rod type with support guide) Straight model/ Space-saving model	SRD03-S SRD03-U	W105 × H56.5	12	10	3.5	500	50 to 200	SRD03-S: P.142 SRD03-U: P.143
			6	20	7.5	250		
	SRD04-S SRD04-U	W135 × H58	12	25	4	500	50 to 300	SRD04-S: P.146 SRD04-U: P.147
			6	40	11	250		
			2	45	24	80		
	SRD05-S SRD05-U	W157 × H71	12	50	8.5	300	50 to 300	SRD05-S: P.150 SRD05-U: P.151
			6	55	18.5	150		
			2	60	28.5	50		

Note 1. The size shows approximate maximum cross sectional size.
Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.
Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.

■ **Allowable ambient temperature for robot installation**

SS/SR type 0 to 40 °C

As the slide table type, rotary type, and belt type were added to the product lineup, the design flexibility was extended.

STH type (Slide table type)

Straight model P.152

Space-saving model P.153

Type	Model	Size (mm) Note 1	Lead (mm)	Maximum payload (kg) Note 2		Maximum speed (mm/sec.) Note 3	Stroke (mm)	Page
				Horizontal	Vertical			
STH type **(Slide table type)** Straight model/ Space-saving model	STH04-S	W45 × H46	5	6	2	200	50 to 100	STH04-S: P.152
	STH04-R (L) Note 4	W73 × H51	10	4	1	400		STH04-R (L): P.153
	STH06	W61 × H65	8	9	2	150	50 to 150	STH06: P.154
	STH06-R (L)	W106 × H70	16	6	4	400		STH06-R (L): P.155

RF type (Rotary type)

Standard model P.156

High rigidity model P.157

Type	Model	Height (mm)	Torque type	Rotation torque (N • m)	Maximum pushing torque (N • m)	Maximum speed (mm/sec.) Note 3	Rotation range (°)	Page
RF type **(Rotary type)** Standard/High rigidity	RF02-N RF02-S	42 (Standard) 49 (High rigidity)	N: Standard	0.22	0.11	420	310 (RF02-N) 360 (RF02-S)	RF02-N: P.156 RF02-S: P.159
			H: High torque	0.32	0.16	280		
	RF03-N RF03-S	53 (Standard) 62 (High rigidity)	N: Standard	0.8	0.4	420	320 (RF03-N) 360 (RF03-S)	RF03-N: P.160 RF03-S: P.163
			H: High torque	1.2	0.6	280		
	RF04-N RF04-S	68 (Standard) 78 (High rigidity)	N: Standard	6.6	3.3	420	320 (RF04-N) 360 (RF04-S)	RF04-N: P.164 RF04-S: P.167
			H: High torque	10	5	280		

BD type (Belt type)

Straight model P.168

Type	Model	Size (mm) Note 1	Lead (mm)	Maximum payload (kg) Note 2		Maximum speed (mm/sec.) Note 3	Stroke (mm)	Page
				Horizontal	Vertical			
BD type **(Belt type)**	BD04	W40 × H40	48	1	-	1100	300 to 1000	BD04: P.168
	BD05	W58 × H48	48	5	-	1400	300 to 2000	BD05: P.169
	BD07	W70 × H60	48	14	-	1500	300 to 2000	BD07: P.170

Note 1. The size shows approximate maximum cross sectional size.
Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.
Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.
Note 4. STH04-R (L) with 50-stroke and brake is not supported.

■ **Allowable ambient temperature for robot installation**
STH/RF/BD type 5 to 40 °C

Common features of TRANSRVO Series

POINT 1

New control method combining the advantages of both the servomotor and stepping motor

The stepping motor provides features that its price is less expensive and hunting (minute vibration) does not occur during stopping. However, this motor has disadvantages that the positional deviation due to step-out occurs (in the open loop mode), the torque decreases greatly in the high speed area, and the power consumption is large during stopping. As YAMAHA's TRANSERVO uses the closed loop control, this ensures complete "no step-out". Furthermore, use of a newly developed vector control method ensures less torque decrease in the high speed area, energy saving, and low noise. The function and performance equivalent to the servomotor are achieved at a low cost even using the stepping motor.

	Stepping motor		Servomotor
○	• Simple & low cost • No vibration during stopping	+	• Smooth movement • Constant torque at any time • Energy saving
×	• High-pitched operation noise • Great torque decrease in high speed area • Large power consumption during stopping		• Tiny vibration during stopping • High cost

TRANSERVO combines both merits.

Energy saving

As the basic control is the same as the servomotor, waste power consumption is suppressed. This greatly contributes to the energy saving and CO_2 reduction.

No hunting during stopping

Stop mode without hunting can be set in the same manner as the general stepping motor. So, select this mode as required.

POINT 2

Closed loop control using excellent environment resistant resolver

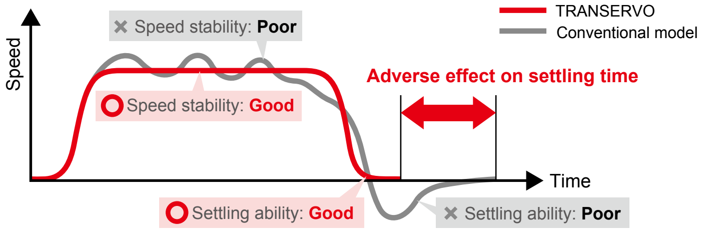
A resolver with excellent reliability is used to detect the motor position in the same manner as YAMAHA's upper model. The stable position detection can be made even in a poor environment where fine particle dusts or oil mists exist. Additionally, a high resolution of 20480 pulses per revolution is provided.

This resolver is a magnetic position detector. The resolver features a simple structure without using electronic components and optical elements, and less potential failure factors when compared to general optical encoders.
The resolver has **high environment resistance and low failure ratio**, and is used in a wide variety of fields aiming at reliability such as automobile or aircraft industry.

POINT 3

High resolution (4096, 20480 pulse/rev)

Use of a high resolution makes it possible to maintain excellent controllability. Variations in speed are small and settling time during deceleration stop can be shortened.



POINT 4

Return-to-origin is not needed to shorten the start-up time.

New type robot positioner TS-SH applicable to the high power was newly developed.
This robot positioner is applicable to the absolute position system and does not need any return-to-origin.
The work can be started quickly to shorten the start-up time.

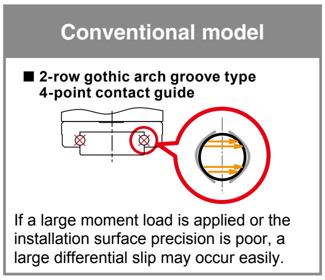
TS-SH

SS type (Slider type) Straight model/Space-saving model

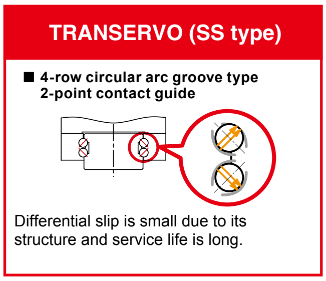
POINT

4-row circular arc groove type 2-point contact guide applicable to even large moment load

A newly developed module guide is employed with a 4-row circular arc groove type 2-point contact guide built into a very compact body similar to the conventional model. This guide maintains a satisfactory rolling movement with less ball differential slip due to its structure even if a large moment load is applied or the installation surface precision is poor, and has characteristics that are difficult to malfunction, such as unusual wear.



If a large moment load is applied or the installation surface precision is poor, a large differential slip may occur easily.



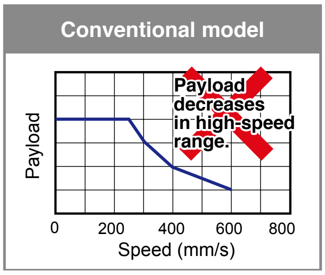
Differential slip is small due to its structure and service life is long.

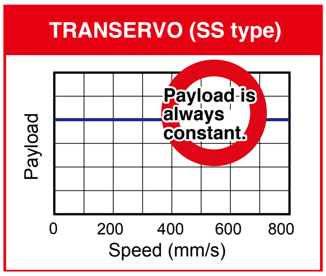
POINT

Tact is shortened by high-speed movement.

As advantages of the vector control method are utilized at maximum level, the TRANSERVO maintains a constant payload even in a high-speed range. This greatly contributes to shortening of the tact time. Additionally, by combining this feature with high-lead ball screws, the TRANSRERVO has achieved a maximum speed of 1 m/sec.[Note] which is faster than any single-axis servo motor.

Note. SS05-S/SS05H-S with 20 mm-lead specifications



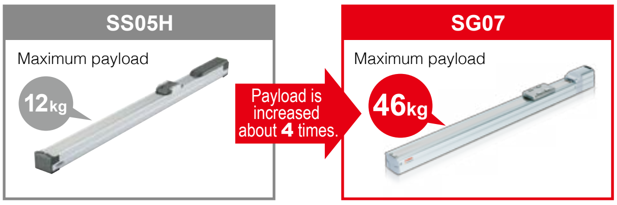


SG type (Slider type)

POINT

Maximum payload is 46 kg. A maximum payload of 20 kg is supported even with the vertical specifications.

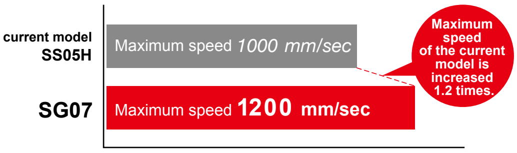
As rigid table slide and 56 ☐ motor are adopted, the payload is increased greatly. A maximum payload of 46 kg is achieved.
Up to 20 kg can be transferred even with the vertical specifications.



POINT

Maximum speed is 1200 mm/sec.

The maximum speed is made 1.2 times faster than that of the current model SS05H.
The tact-up of the equipment can be achieved.



SR type (Rod type) Standard model/Model with support guide

POINT

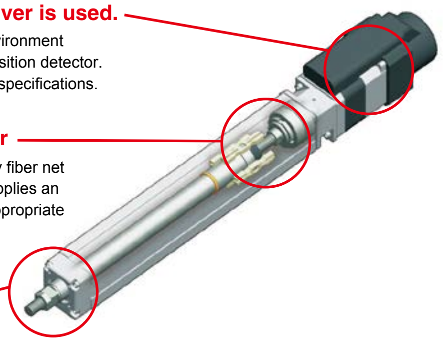
Long-term maintenance free is achieved.

A lubricator used in the ball screw and a contact scraper installed at the rod inlet and outlet provide maintenance-free operation.

Maintenance interval is greatly extended.

Normal grease lubrication on the ball screw loses a very small amount of oil as the ball screw moves.
The SR type has a lubricator that supplies grease lost over long periods to greatly extend the maintenance interval and ensure near maintenance-free operation[Note].

Note. The maintenance-free period is within the running life of the robot.



Highly reliable resolver is used.
A resolver with excellent environment resistance is used for the position detector.
All models can select brake specifications.

Ball screw lubricator
A lubricator with high density fiber net impregnated with grease supplies an adequate amount of oil to appropriate locations.

Laminated type contact scraper
A dual-layer scraper removes fine foreign objects sticking to the rod to prevent them from entering the inside and troubles caused by foreign objects. Rod rattle is suppressed effectively.

Environment-friendly lubrication system

The lubrication system is environment-friendly as it uses a high density fiber net and supplies an adequate amount of oil to appropriate locations to eliminate waste lubrication.

Prevention of foreign object entry

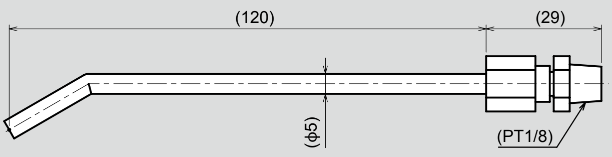
The dual-layer scraper is in contact with the front of the rod to ensure excellent fine contaminant particle removal performance. The scraper removes fine contaminant particles sticking to the rod through multi steps to prevent them from entering the inside and troubles caused by foreign objects. Additionally, oleo-synthetic foam rubber with a self-lubricating function ensures low-friction resistance.

■ Tip nozzle for grease application

When applying the grease to the ball screw of the SR type space-saving model SR03-UB or SRD03-UB, use a grease gun with the tip bent.

Model	KCU-M3861-00

Note. YAMAHA's recommended product. This tip nozzle can be attached to a generally available grease gun.

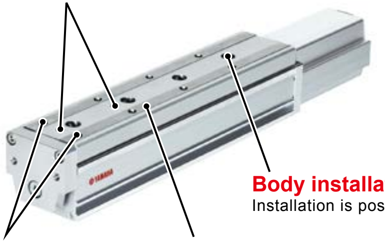


STH type (Slide table type) Straight model/Space-saving model

POINT

Use of a circulation type linear guide achieves the high rigidity and high accuracy.

- Guide rail is integrated with the table.
- Table deflection amount is small.
- Use of a circulation type linear guide achieves the high rigidity and high accuracy.
- STH06 provides an allowable overhang exceeding that of FLIP-X series T9.
- Space-saving model with the motor built-into the body is also added to the product lineup.
- Suitable for precision assembly.



Positioning pin hole

Workpiece installation reproducibility is improved.

Body installation through hole

Installation is possible from the top surface.

Workpiece installation tap

Guide rail is integrated with the table.

RF type (Rotary type) Standard model/High rigidity model

POINT

Rotation axis model, first in TRANSERVO series

- Rotation axis model, first in TRANSERVO series
- Thin and compact
- Can be secured from the top or bottom surface.
- Hollow hole, through which the tool wiring is passed, is prepared.
- Workpiece can be attached easily.
- Motor is built-into the body to achieve the space-saving.
- Standard model or high rigidity model can be selected.

Standard model

Use of highly rigid bearing makes it possible to reduce displacement amount in the radial thrust direction of the table.

High rigidity model

BD type (Belt type) Straight model

POINT

Belt type applicable to long stroke

- Applicable to up to 2000 mm-stroke.
- High speed movement at a speed of up to 1500 mm/sec. can be made.
- Maximum payload 14 kg
- Main body can be installed without disassembling the robot.
- Shutter is provided as standard equipment. This prevents grease scattering or entry of foreign object.

Shutter is provided as standard equipment.

This shutter covers the guide, ball screw, and belt. The shutter prevents grease scattering or entry of external foreign object.

FLIP-X
Series

Product Lineup

SINGLE-AXIS ROBOTS

General-purpose single-axis robots can be used for various applications, such as assembly and inspection work.
6 types and 29 models ranging from compact size to long-stroke robots are available.

Various custom specifications are also supported.

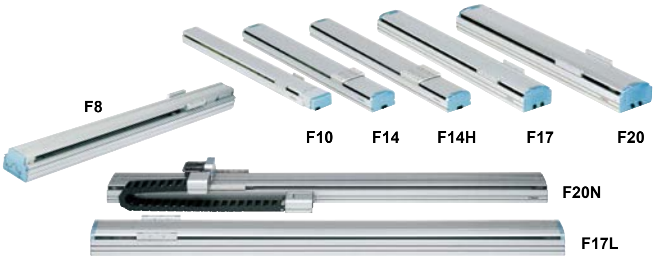
Various custom specifications, such as double-slider and wide slider are also supported.
For details, please consult YAMAHA.

Six types with high reliability and durability

T type Frame-less structure model P.176

- ■ Double appeal of compact body and low price.
- ■ Ideal in applications as an actuator directly installed on an installation base.

F type Model with high rigidity frame P.183

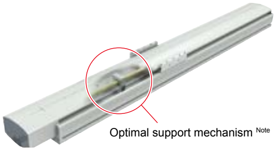


- ■ Tolerable load moment is large and highly resistant to the offset load.
- ■ Suitable for Cartesian robots needing rigid arm or moving arms that move the entire axis.

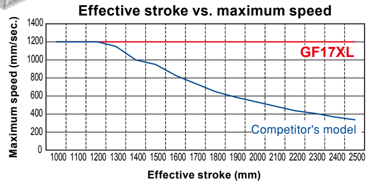
R type Rotation axis model P.214

- ■ Repeated positioning accuracy +/- 30 sec. (0.0083 °)
- ■ The robot can be used as the rotation axis when combined with other robots or utilized for a wide variety of applications, such as index tables.
- ■ High rigidity and high accuracy by harmonic drive.

GF type Long stroke model with high rigidity frame P.192



Optimal support mechanism Note

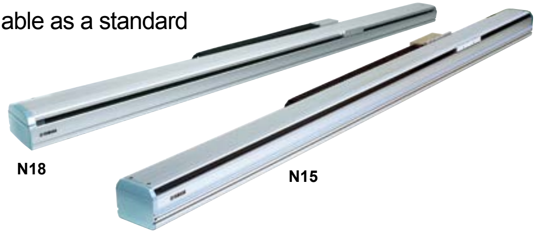


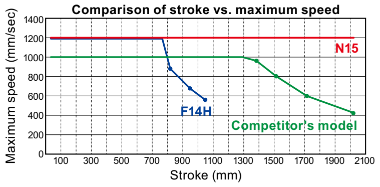
Note. Patent pending

- ■ Movable at 1200 mm/sec. in the whole area without critical speed.
- ■ Suitable for long distance transfer.

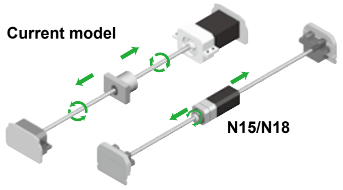
N type Nut rotation type model P.200

- ■ Repeated positioning accuracy +/- 0.01 mm
- ■ Maximum payload 80 kg
- ■ Double-carrier available as a standard

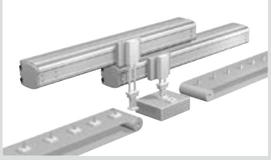




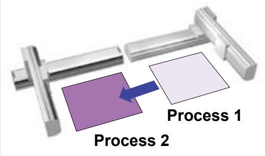
Critical speed is not restricted and high-speed transfer is possible.
Stroke: 2500 mm
Maximum speed: 1200 mm/sec.



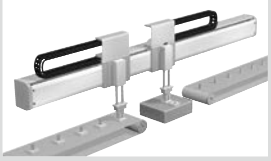
In this structure, the hollow motor is connected to the nut of the ball screw and the nut is rotated with the screw shaft secured to perform the movement.



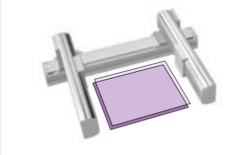
Layout using two conventional single-axis robots



Layout using two conventional cartesian robots

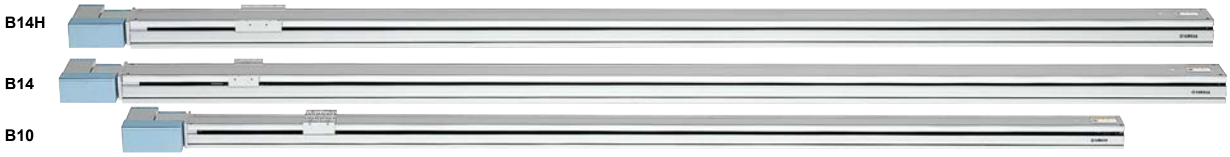


Space saving using double-carrier of N15/N18



Space saving and process integration using double-carrier of N15/N18

B type Timing belt drive model P.208



- ■ Maximum stroke is 3050 mm. Long-distance transfer between the processes is possible.

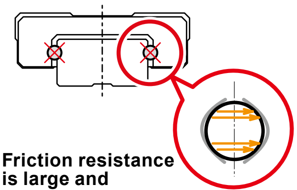
POINT 1

4-row circular arc groove type 2-point contact guide that is resistant to large moment load is adopted.Note 1

4-row circular arc groove type 2-point contact guide with less differential slip is used for the linear guide. This guide has less ball differential slip due to its structure when compared to the 2-row Gothic arch type 4-point contact guide and maintains a satisfactory rolling movement even if a large moment load is applied or the installation surface precision is poor. The guide has characteristics that are difficult to malfunction, such as unusual wear and provides excellent reliability.

Note 1. Except for T4L/T4LH and T5L/T5LH

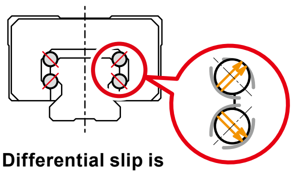
2-row gothic arch groove type 4-point contact guide



Friction resistance is large and differential slip is large.

- Easy to receive adverse effects of installation surface accuracy, friction, and elastic deformation.
- Breakage may occur before expiration of calculation service life.

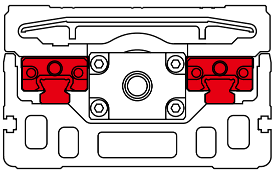
4-row circular arc groove type 2-point contact guide



Differential slip is small and self-centering function is high.

- Resistant to alignment changes and moment loads.
- Difficult to break.

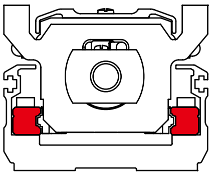
F/N/B type Note 2


(F14)

For the F type, N type, and B type, two guide frames are laid out on the high rigidity aluminum extruded material frame. Two bearing units per rail, four bearing units in total, support a large load firmly. As a large moment load is mainly converted into vertical force, the moment applied to one bearing unit becomes small to ensure excellent durability.

Note 2. Except for F8 series/F10/B10.

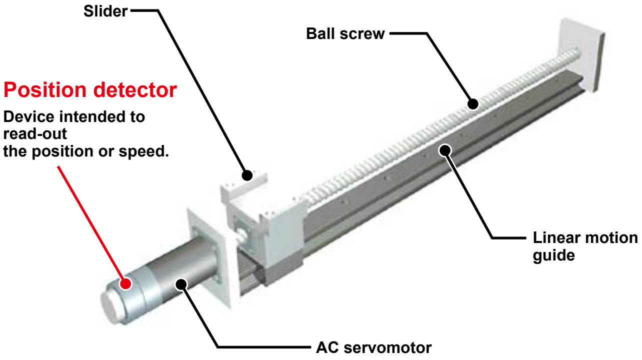
F8 series


(F8)

The F8 series uses a newly developed module guide to greatly reduce the cross-sectional area (70 % when compared to F10). The rail is laid out in the full width of the frame to ensure the high rigidity even with compact design. Of course, this series also uses the 4-row circular arc groove type 2-point contact guide.

POINT 2

Resolver with excellent environment resistance is used for the position detector.



Optical encoder

- Optical type
- Electronic components are required and structure is complicated.
- Damaged easily by electronic component breakdown, dew condensation on or oil sticking to the disk.

▼

Detection failure

Resolver

- Magnetic type
- Simple structure only with iron core and winding has less potential failure factors.
- Immune to shock and electric noise.

▼

High reliability

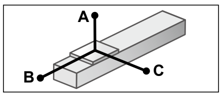
A resolver is used for the position detector. The resolver has a simple and rigid structure without using electronic components and optical elements. Detection problems due to electronic component breakdown, dew condensation on or oil sticking to the disk that may occur in optical encoders do not occur in the resolver. The resolver provides excellent durability. Additionally, as the absolute specifications and incremental specifications use the same mechanical specifications and common controller, desired specifications can be selected only by setting parameters. Furthermore, even when the absolute battery is consumed completely, the robot can still operate as the incremental specifications. So, even if a trouble occurs, the line stop is not needed to ensure the safe production line. Furthermore, the backup circuit has been completely renovated and now has a backup period of one year in the non-energizing state.

POINT 3

Long service life greatly reduces the maintenance cost.

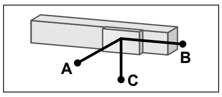
As the acceleration is determined by the weight parameter, the service life can be assured when the weight and position of center of gravity are known.

Allowable overhang Note



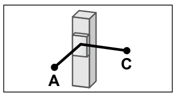
Horizontal installation (Unit: mm)

		A	B	C
Lead 30	5kg	864	501	383
	15kg	491	156	140
Lead 20	5kg	1292	505	462
	15kg	572	158	151
	30kg	455	73	75
Lead 10	20kg	617	119	127
	40kg	422	53	59
	55kg	420	36	40
Lead 5	50kg	722	42	47
	60kg	657	33	37
	80kg	577	23	25



Wall installation (Unit: mm)

		A	B	C
Lead 30	5kg	348	384	776
	15kg	87	40	306
Lead 20	5kg	416	388	1186
	15kg	92	42	386
	30kg	0	0	61
Lead 10	10kg	193	132	910
	20kg	53	0	400
	30kg	0	0	109
Lead 5	10kg	197	133	2360
	20kg	54	0	985
	30kg	0	0	427



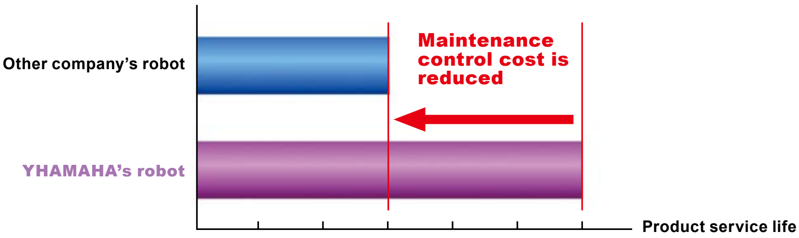
Vertical installation (Unit: mm)

		A	C
Lead 20	1kg	600	600
	2kg	1098	1098
	4kg	545	545
Lead 10	4kg	594	594
	8kg	280	280
	10kg	217	217
Lead 5	10kg	221	221
	15kg	135	135
	20kg	92	92

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

As YAMAHA's robot uses high rigidity ball screw or guide, it provides excellent durability. This greatly contributes to reduction of the customer's maintenance cost.

Cost reduction by high durability



POINT 4

Controllers suitable for applications are prepared.

In addition to the robot program operation and pulse train control, a positioner that is operated by specifying a point number was added to the product lineup. Additionally, multi specifications that control multiple robots using one controller are also supported. You can select an optimal controller suitable for your application.

Program				I/O point trace (Positioner)	Pulse-train control
SR1-X	**RCX222**	**RCX240/ RCX240S**	**RCX340**	**TS-X**	**RDV-X**
P.518	P.526	P.534	P.544	P.492	P.506

POINT 5

Various custom specifications are supported.

YAMAHA supports custom orders flexibility to meet the customers' various needs.

Addition of free slider	Free slider is added. Various applications, such as rigidity increase or use of two heads are supported.
Wide slider	To increase the slider rigidity, the standard slider is processed to the wide slider.
Specified stroke	A stroke smaller than the minimum stroke may be supported. For details, please consult YAMAHA.
Lead beyond catalog	The lead may be changed to that not stated in the catalog. For details, please consult YAMAHA.
Origin non-motor specifications	Even when not stated in the catalog, the origin may be changed to the non-motor side. For details, please consult YAMAHA.

YAMAHA has a wide variety of custom order results other than those shown above. If you have any requirement or request, please feel free to contact YAMAHA.

Type	Size (mm) Note 1	Model	Lead (mm)	Maximum payload (kg)		Maximum speed (mm/sec.)	Stroke (mm)	Page
				Horizontal	Vertical			
T type Frame-less structure model	W45 × H53	T4L/T4LH	12	4.5	1.2	720	50 to 400	T4L: P.176 T4LH: P.177
			6	6	2.4	360		
			2	6	7.2	120		
	W55 × H52	T5L/T5LH	20	3	-	1200	50 to 800	T5L: P.178 T5LH: P.179
			12	5	1.2	800		
			6	9	2.4	400		
	W65 × H56	T6L	20	10	-	1333	50 to 800	P.180
			12	12	4	800		
			6	30	8	400		
	W94 × H98	T9 (Standard)	30	15	-	1800	150 to 1050	P.181
			20	30	4	1200		
			10	55	10	600		
			5	80	20	300		
		T9H (High thrust)	30	25	-	1800	150 to 1050	P.182
			20	40	8	1200		
			10	80	20	600		
			5	100	30	300		
F type Model with high rigidity frame	W80 × H65	F8	20	12	-	1200	150 to 800	P.183
			12	20	4	720		
			6	40	8	360		
	W80 × H65	F8L	30	7	-	1800	150 to 1050	P.184
			20	20	4	1200		
			10	40	8	600		
			5	50	16	300		
	W80 × H65	F8LH	20	30	-	1200	150 to 1050	P.186
			10	60	-	600		
			5	80	-	300		
	W110 × H71	F10 (Standard)	30	15	-	1800	150 to 1050	P.187
			20	20	4	1200		
			10	40	10	600		
			5	60	20	300		
		NEW F10H (High thrust)	30	25	-	1800	150 to 1000	P.188
			20	40	8	1200		
			10	80	20	600		
			5	100	30	300		
	W136 × H83	F14 (Standard)	30	15	-	1800	150 to 1050	P.190
			20	30	4	1200		
			10	55	10	600		
			5	80	20	300		
		F14H (High thrust)	30	25	-	1800		P.191
			20	40	8	1200		
			10	80	20	600		
			5	100	30	300		
	W168 × H100	F17L	50	50	10	2200	1100 to 2050	P.195
		F17	40	40	-	2400	200 to 1450	P.193
			20	80	15	1200	200 to 1250	
			10	120	35	600		
	W202 × H115	F20	40	60	-	2400	200 to 1450	P.197
			20	120	25	1200	200 to 1250	
			10	-	45	600		
	W202 × H120	F20N	20	80	-	1200	1150 to 2050	P.199
GF type	W140 × H91.5	GF14XL	20	45	-	1200	750 to 2000	P.192
	W168 × H105.5	GF17XL	20	90	-	1200	850 to 2500	P.196
N type Nut rotation type model	W145 × H120	N15 (Single-carrier)	20	50	-	1200	500 to 2000	P.200
		N15D (Double-carrier)					250 to 1750	P.202
	W180 × H115	N18 (Single-carrier)		80	-		500 to 2500	P.204
		N18D (Double-carrier)					250 to 2250	P.206
B type Timing belt drive model	W100 × H81	B10	Belt drive	10	-	1875	150 to 2550	P.208
	W146 × H94	B14 (Standard)	Belt drive	20	-	1875	150 to 3050	B14: P.210
		B14H (High thrust)	Belt drive	30	-	1875		B14H: P.212
R type Rotation axis model	-	R5	-	0.12 kgm^2	-	360 °/sec	360 °	P.214
		R10		0.36 kgm^2	-			P.215
		R20		1.83 kgm^2	-			P.216

Note 1. The size shows approximate maximum cross sectional size.

Multi-robot

MULTI-FLIP/MULTI-PHASER

This robot has multi specifications that control multiple robots using one controller.

Advantages of control with multi-axis controller

- Sequence control is easy. System upgrades are easy at less expensive price.
- Compact and space saving when compared to the operation with multiple single-axis controllers.
- More advanced control is possible.
- RCX221, RCX240, RCX240S, and RCX340 provide mixed control of the FLIP-X series and PHASER series (linear single-axis).

Multi-robot ordering method

MLTX Note 1	–	1st unit Note 2	–	2nd unit Note 2	–	3rd unit Note 2	• • •	–		–		–	
Multi-robot model prefix	–	1st unit robot type	–	2nd unit robot type	–	3rd unit robot type		–	Cable length	–	Controller	–	Controller option
									3K: 3.5 m		RCX221/HP		
									5K: 5 m		RCX222/HP		
									10K: 10 m		RCX240/S		
											RCX340		

Up to 8 units can be controlled.

Note 1. When ordering a multi-robot, prefix "MLTX" to the top of the order model.
Note 2. Select either MULTI-FLIP or MULTI-PHASER shown below.
Note 3. For details about the controller and controller option models, please refer to relevant page of each controller.

MULTI-FLIP

Type	Model	Lead (mm)	Stroke (mm)
T type Frame-less structure model	T4L/T4LH	12	50 to 400
		6	
		2	
	T5L/T5LH	20	50 to 800
		12	
		6	
	T6L	20	50 to 800
		12	
		6	
	T9 (Standard)	30	150 to 1050
		20	
		10	
		5	
	T9H (High thrust)	30	150 to 1050
		20	
		10	
		5	
F type Model with high rigidity frame	F8	20	150 to 800
		12	
		6	
	F8L	30	150 to 1050
		20	
		10	
		5	
	F8LH	20	150 to 1050
		10	
		5	
	F10 (Standard)	30	150 to 1050
		20	
		10	
		5	
	NEW F10H (High thrust)	30	150 to 1000
		20	
		10	
		5	
	F14 (Standard)	30	150 to 1050
		20	
		10	
		5	
	F14H (High thrust)	30	
		20	
		10	
		5	
	F17L	50	1100 to 2050
	F17	40	200 to 1450
		20	200 to 1250
		10	
	F20	40	200 to 1450
		20	200 to 1250
		10	
	F20N	20	1150 to 2050
GF type	GF14XL	20	750 to 2000
	GF17XL	20	850 to 2500
N type Nut rotation type model	N15 (Single-carrier)	20	500 to 2000
	N15D (Double-carrier)		250 to 1750
	N18 (Single-carrier)		500 to 2500
	N18D (Double-carrier)		250 to 2250
B type Timing belt drive model	B10	Belt drive	150 to 2550
	B14 (Standard)	Belt drive	150 to 3050
	B14H (High thrust)	Belt drive	
R type Rotation axis model	R5	-	360 °
	R10		
	R20		

Type	Model	Lead (mm)	Stroke (mm)
C type Clean room model	C4L C4LH	12	50 to 400
		6	
		2	
	C5L C5LH	20	50 to 800
		12	
		6	
	C6L	20	50 to 800
		12	
		6	
	C8	20	150 to 800
		12	
		6	
	C8L	20	150 to 1050
		10	
		5	
	C8LH	20	150 to 1050
		10	
		5	
	C10	20	150 to 1050
		10	
		5	
	C14	20	150 to 1050
		10	
		5	
	C14H	20	150 to 1050
		10	
		5	
	C17	20	250 to 1250
		10	
	C17L	50	1150 to 2050
	C20	20	250 to 1250
		10	

MULTI-PHASER

Type	Model	Carrier	Stroke (mm)
MF type Flat type with core Linear motor specifications	MF7	Single	100 to 4000
	MF7D	Double	100 to 3800
	MF15	Single	300 to 4000
	MF15D	Double	100 to 3800
	MF20	Single	150 to 4050
	MF20D	Double	150 to 3850
	MF30	Single	100 to 4000
	MF30D	Double	150 to 3750
	MF75	Single	1000 to 4000
	MF75D	Double	680 to 3680
MR type Shaft type Linear motor specifications	MR12	Single	50 to 1050
	MR12D	Double	50 to 1050

Robot settings

2-robot settings

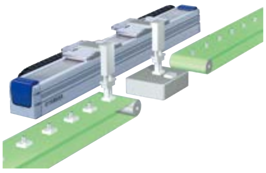
Use of 2-robot settings and multi-task program makes it possible to perform asynchronous independent operation. As the auxiliary axis setting is used together, more free axis assignment can be made.

Main auxiliary axis setting

This auxiliary axis setting is used when it is inconvenient that two axes move simultaneously by the MOVE command. The axis set for the main auxiliary axis does not operate by the MOVE command and it operates only by the DRIVE command (movement command in axis units). This setting is recommended for the axis that needs to be operated asynchronously from the main robot.

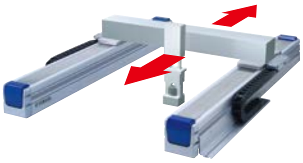
Double-carrier

In robot types that the motor runs separately, such as linear motor single-axis PHASER series or N type (nut rotation type) of FLIP-X series, two motors can be added to one axis.



Dual setting

This setting is used when performing the dual drive (2-axis synchronous control). This setting is used when the gantry type Cartesian robot with a long Y-axis stroke stabilizes the high acceleration/deceleration or when a high load or high thrust is needed.



Applicable controllers

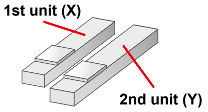
Name		1 to 2 axes controller		1 to 4 axes controller	1 to 4 axes controller
		RCX221	RCX222	RCX240/RCX240S	RCX340
Appearance		P.526	P.526	P.534	P.544
Position detection		Incremental	Absolute	Incremental/Absolute	Incremental/Absolute
Control model		FLIP-X and PHASER can be mixed.	FLIP-X	FLIP-X and PHASER can be mixed.	FLIP-X and PHASER can be mixed.
Maximum number of programs		100 programs		100 programs	100 programs
Maximum number of points		10,000 points		10,000 points	30,000 points
Number of input/ output points	**Standard**	Dedicated input 10 points/ dedicated output 12 points General-purpose input 16 points/ general-purpose output 8 points		Dedicated input 10 points/ dedicated output 11 points General-purpose input 16 points/ general-purpose output 8 points	Dedicated input 8 points/ dedicated output 9 points General-purpose input 16 points/ general-purpose output 8 points
	Expansion	General-purpose input 24 points/ general-purpose output 16 points		General-purpose input 24 points/ general-purpose output 16 points	General-purpose input 24 points/ general-purpose output 16 points
Network option		CC-Link, DeviceNet™, Ethernet, PROFIBUS		CC-Link, DeviceNet™, EtherNet/IP™, Ethernet, PROFIBUS	CC-Link, DeviceNet™, EtherNet/IP™, Ethernet, PROFIBUS, PROFINET

Examples of multi-robot ordering methods

Separate single axes

<Example> F14H and F10 are installed separately.

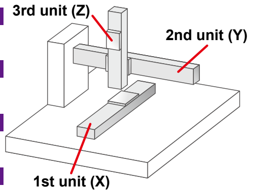
MLTX - F14H - 20 - U - 500	1st unit
- F10 - 20 - 300	2nd unit
- 5K - RCX222 - N - N1	Controller



2 axes + 1 axis

<Example> T6 is installed on the base for the 1st axis, C6 is secured to the upper portion for the 2nd axis, and CH4 is secured to the upper portion for the 3rd axis to assemble the C6 and C4H to the XZ. (Either 2 axes + 1 axis or 3 axes simultaneous control can be made by the setting.)

MLTX - T6 - 6 - 300	1st unit
- C6 - 6 - 300	2nd unit
- C4H - 6 - BK - 100	3rd unit
- 3K - RCX240S - N - BB	Controller



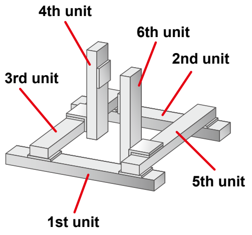
Note. When the customer combines each axis, it is recommended to use the cable terminal (relay cable) for the wiring among axes. For details about cable terminal, please contact YAMAHA.

Double-carrier/dual drive (2-axis simultaneous control)

Example of 8-axis control

<Example> Two double-carriers of the MF30 are arranged in parallel and two MF20 installed on the top are moved by the dual-drive.
T6 is attached to each tip of the MF20 and the robots are controlled using two controllers.

MLTX - MF30D - H - L - 950	1st unit
- MF30D - H - L - 950	2nd unit
- MF20 - H - 1350	3rd unit
- T6 - 6 - BK - 100	4th unit
- MF20 - H - 1350	5th unit
- T6 - 6 - BK - 100	6th unit
- 3K - RCX240 - R - N	Controller Note

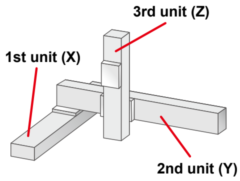


Note. For this specification, when writing one controller model, two controller will be arranged automatically.

3 axes combination

<Example> C17L, C14H, and C14H are used for the X-axis, Y-axis, and Z-axis, respectively to form a 3-axis XYZ combination.

MLTX - C17L - 50 - Z - 1500	1st unit
- C14H - 20 - 450	2nd unit
- C14H - 10 - BK - 150	3rd unit
- 3K - RCX240 - R - N - BB	Controller

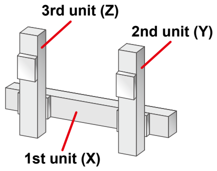


Double-carrier

Example of 4-axis control

<Example> Two T6 are assembled to the double-carrier of the MF20A, and they are used as XZ type and controlled using one controller.

MLTX - MF20AD - W - M - 850	1st unit
- T6 - 12 - BK - 100	2nd unit
- T6 - 12 - BK - 100	3rd unit
- 3K - RCX240S - N1 - B	Controller



Note. For the double-carrier, since one robot occupies two axes of the controller, the number of robots may differ from the number of controllable axes.

CAUTION

Conditions needing regenerative unit on multi-robot

- The total motor capacity exceeds 450 W.
- The total motor capacity of the vertical axis exceeds 240 W.
- The B14H performs the operation at a maximum speed of more than 1250 mm/s.
- When the vertical axis is 240 W or less, the conditions shown below are satisfied.
  - There is a 200 W-vertical axis.
  - A 100 W-vertical axis has a stroke of 700 mm or more.
  - There are two 100 W-vertical axes with a 5 mm-lead.

FLIP-X terminology

High lead

This term indicates models supporting ball screw leads that exceed the standard lead (12 mm or 20 mm). (The standard lead of the F17L and C17L is 50.)

Origin on non-motor side

This term indicates models that are applicable to the origin non-motor specifications as standard. The origin on the non-motor side in the standard state is not supported with a lead not stated in the catalog. If special specifications are needed, please consult YAMAHA.

Maximum speed

This term indicates the maximum transfer speed. YAMAHA's single-axis robots can transfer a workpiece at this speed regardless of the transfer weight as long as it is within the maximum payload. However, as the workpiece is heavier, the acceleration/deceleration curve becomes gentle. If the movement distance is short, the speed does not reach the maximum speed stated in the catalog.

CAUTION
When the stroke of the ball screw drive type is long, noise or vibration is produced due to resonance of the ball screw if moved at the maximum speed. If this happens, lower the speed to that stated in the note column. (It is also possible to lower the transfer speed of the entire program using the SPEED setting or make the adjustment for each movement command.)

Maximum payload

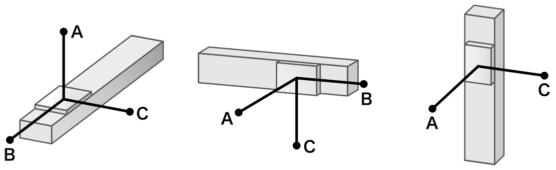
This term indicates the maximum weight that can be loaded on the slider and transferred. Select an appropriate model so that the total weight of the customer's tools (air cylinder or chuck) and workpiece is less than this data. When the center of gravity of the tool or workpiece is offset from the center of the slider, the allowable overhang needs to be taken into consideration. Additionally, when entering the total weight of the tool and workpiece for the payload parameter of the controller, optimal acceleration/deceleration and servo parameter are automatically set.

Rated thrust

This term indicates the force to be applied in the slider advancing direction in the slider stationary (hold) state. When using vertically, the weight of the loaded workpiece is subtracted from this value (when the force is applied downward from the top). The slider can move only at a low speed (approximately 10 % of the maximum speed), but this value becomes lower than the specification value. Additionally, the type B of the timing belt drive cannot be used for applications, in which thrust is applied.

Allowable overhang

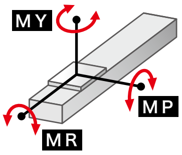
This term indicates an allowable overhang of an object to be transferred. In the specification data, this indicates the distance from the center of the top face of the slider to the center of gravity of an object to be transferred by the weight. This value is determined according to the service life of the linear guide. Under normal operation conditions[Note], the 90 %-service life of the linear guide is 10,000 km or more if gravity centers of the workpiece and tool are kept within the allowable overhang. When using with an overhang amount exceeding the specification data, it is necessary to install a separate support guide or restrict operating conditions (speed, acceleration) so that a load is not applied to the linear guide of the single-axis robot. For detail, please consult YAMAHA.



Note. Speed, acceleration 100 % (It is preconditioned that the weight parameters are set correctly.)
There shall be no impact load or excessive vibration during operation.
Additionally, the alignment is correct.

Static tolerance moment

This term indicates the load moment applied to the slider in the robot stationary state.



Critical speed

When the stroke of the ball screw drive type is long, noise or vibration is produced due to resonance of the ball screw if moved at the maximum speed. If this happens, lower the speed to that stated in the note column. (It is also possible to lower the transfer speed of the entire program using the SPEED setting or make the adjustment for each movement command.)

MEMO

PHASER
Series

Product Lineup

LINEAR MOTOR SINGLE-AXIS ROBOTS

No limit on critical speed even when using a long stroke of 4 m.
"PHASER" series delivers superb performance
during long distance transfer.

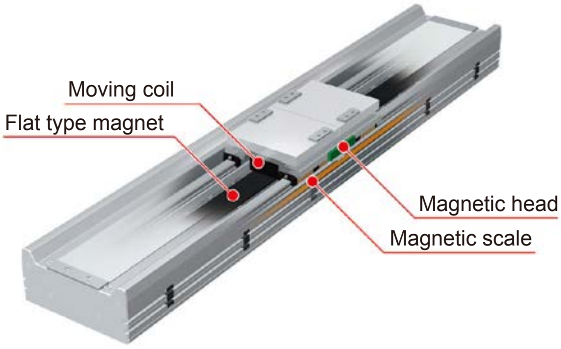
Critical speed is not restricted and high-speed long-stroke transfer is possible.

MF type

High-power and long-stroke using flat motor with core

P.220

- ■ Maximum stroke: 4050 mm
- ■ Maximum speed: 2500 mm/s
- ■ Repeated positioning accuracy: +/-5 µm
- ■ Maximum payload: 7 to 160 kg

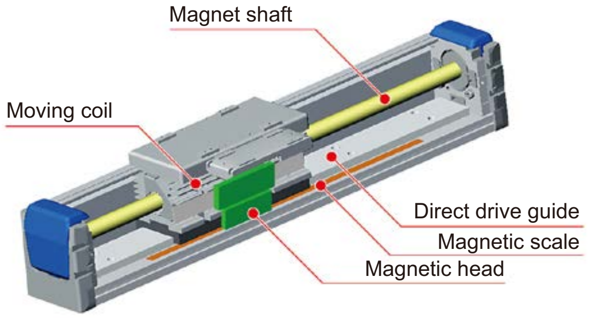


MR type

Lightweight, compact, and low cogging by shaft motor drive

P.238

- ■ Maximum stroke: 1050 mm
- ■ Maximum speed: 2500 mm/s
- ■ Repeated positioning accuracy: +/-5 µm
- ■ Maximum payload: 5 kg



Type	Size (mm) Note 1	Model	Carrier	Maximum payload (kg)	Maximum speed (mm/sec.)	Stroke (mm)	Page
MF type Flat type with core Linear motor specifications	W85 × H80	MF7	Single	10 (7) Note 2	2500	100 to 4000	P.220
		MF7D	Double			100 to 3800	
	W100 × H80	MF15	Single	30 (15) Note 2		100 to 4000	P.226
		MF15D	Double			100 to 3800	
	W150 × H80	MF20	Single	40 (20) Note 2		150 to 4050	P.230
		MF20D	Double			150 to 3850	
		MF30	Single	60 (30) Note 2		100 to 4000	P.233
		MF30D	Double			150 to 3750	
	W210 × H100	MF75	Single	160 (75) Note 2		1000 to 4000	P.236
		MF75D	Double			680 to 3680	
MR type Shaft type Linear motor specifications	W60 × H90	MR12	Single	5		50 to 1050	P.238
		MR12D	Double			50 to 1050	

Note 1. The size shows approximate maximum cross sectional size.

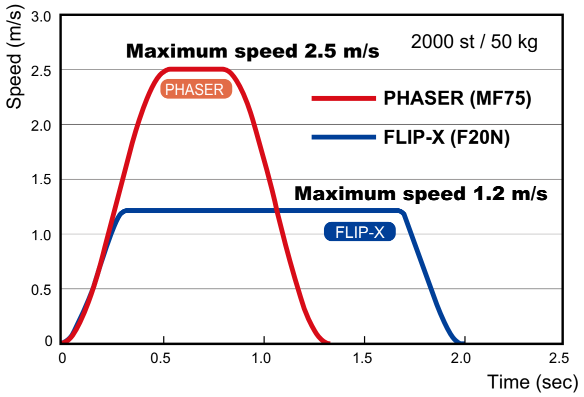
Note 2. When using at the maximum speed, the maximum payload becomes the value in ( ).

POINT 1

Maximum speed 2.5 m/sec. and no critical speed limit

The ultimate appeal of the linear motor single-axis robot is that there are restrictions on critical speed like ball screw. The maximum speed does not decrease even with long-distance transfer. Additionally, the maximum stroke of the MR type is set to up to 1050 mm and that of the MF type is set to up to 4000 mm with standard settings. In particular, the cycle time of the long-distance transfer is greatly improved.

Movement time comparison between linear single-axis robot PHASER and single-axis robot FLIP-X



POINT 2

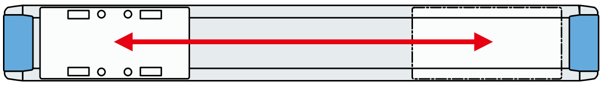
Suitable for heavy object transfer. Maximum payload 160 kg

The maximum payload of the MF type using a flat magnet is 160 kg. The robot can transfer a heavy object, such as large LCD panel at a high speed with high accuracy. (In the payload range of some MF types, the maximum speed may be restricted. For details, refer to the specification page of each model.)

POINT 3

Effective use of stroke

As the linear motor single-axis robot incorporates a coil that is the drive part inside the table, dead spaces are eliminated to maximize the stroke. Additionally, as the main body is symmetrical, the flexibility of the layout is improved.

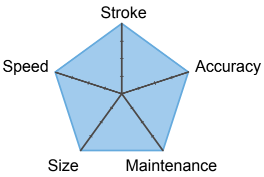


POINT 4

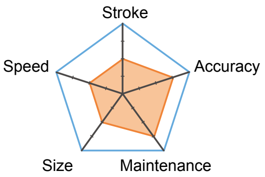
In-house manufacturing of major parts achieves low costs.

Magnetic scales are developed and manufactured at YAMAHA. In-house manufacturing of other major parts achieves large cost reduction. Nowadays, the linear motor is not a special mechanism. The customer can select the linear motor or ball screw in the similar way according to the customer's needs. In particular, when performing a high-speed and long-distance transfer of a light workpiece, selecting linear motor robots may reduce the cost.

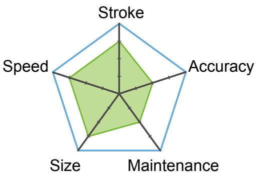
MF7: Linear motor



F17: Ball screw



B10: Belt type



■ Comparison of single-axis robot models

Model name	Main body price Note 1	Maximum speed (mm/sec.)	Maximum payload (kg)	Repeated positioning accuracy (μm)	Maximum stroke (mm)	Maximum cross-sectional dimension Note 2 (mm)
MF7-1500	🟦	**2500**	10 (7) Note 3	**+/- 5**	**4000**	W85 × H80
F17-40-1450	🟧	720 Note 4	40	+/- 10	1450	W168 × H100
B10-1450	🟩	1850	10	+/- 40	2550	W100 × H81

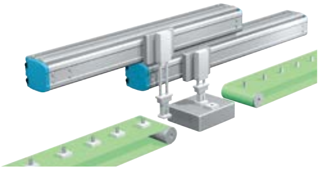
Note 1: The prices are compared with the strokes shown above.
Note 2: Cable carriers are not included.
Note 3: The payload is 7 kg when the maximum speed is 2500 mm/s. (10 kg-payload: 2100 mm/s)
Note 4: This value is obtained by considering the critical speed with a stroke of 1450 mm.

POINT 5

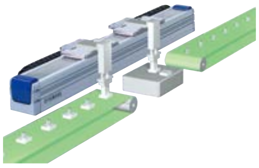
Double-carrier available as standard

Double-carrier specifications that operate two carriers on one robot are available as standard. High effects, such as space saving, cost reduction, and tact improvement are obtained when compared to two single-axis robots. Furthermore, no axis alignment is needed and tools are commonly used to shorten the setup time. (When using the RCX series controller, an anti-collision function can be used.)

■ Layout using two ball screw single-axis robots



■ Space saving using double-carrier



POINT 6

Linear scale developed by YAMAHA

YAMAHA originally developed a new linear scale based on its excellent magnetic signal detection technology.

Magnetic scale provides high environment resistance.

YAMAHA's magnetic scale is resistant to dirt and can be used in an environment where grease or cutting fluid sometimes splashes.

Semi-absolute specifications

The current position is obtained by reading the signal recorded in the linear scale. So, it is not necessary to perform a large return-to-origin movement before starting the operation after turning on the power (the slider moves up to 76 mm when reading the signals).

Cost reduction

In-house linear scale development and manufacturing achieves large cost reduction.

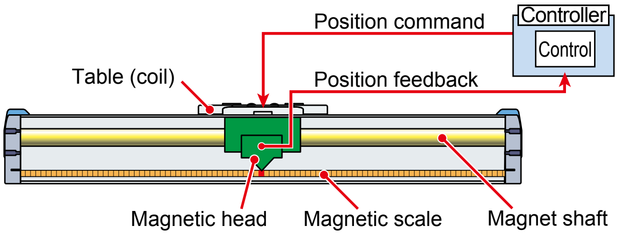
High resolution 1 μm

Magnetic signals recorded in the magnetic scale are detected and interpolated to achieve a highly accurate resolution of 1 μm.

Repeated positioning accuracy: +/-5 μm

A fully-closed control that always feeds back the table position provides high accuracy steadily.

Additionally, there are no mechanical backlashes, such as ball screws or timing belts.



POINT 7

Silence and long service life

Unlike ball screw type robots, there are few sliding and rotating parts. So, the operation is very quiet. Moreover, as the coil is not in contact with the magnet, they are not worn out and can be used for an extended period of time.

POINT 8

Dust-proof structure

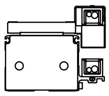
All YAMAHA's linear motor robots use a stainless steel shutter. This prevents entry of foreign objects. Additionally, these shutters are made of tough stainless steel with an extremely high fatigue strength to support high-speed and long-stroke operation.

POINT 9

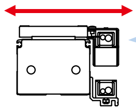
Flat type without cable carrier protrusion

For the MF7, as the main body is made compact, a flat type that the cable carrier becomes flat on the top surface of the table is prepared as standard. Please select this type according to the tool or workpiece shape, or installation method.

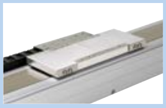
Standard type



Flat type

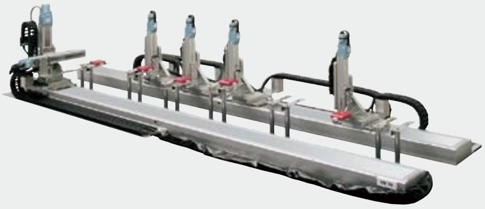


As the cable carrier does not protrude from the table upper surface in the flat type, a large tool can be installed easily.



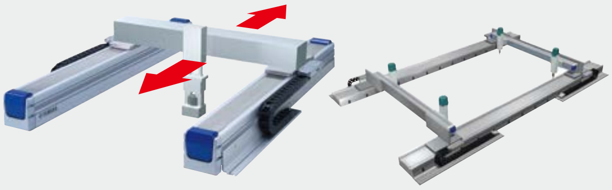
Applicable to multi-carrier operation

The PHASER series also supports "multi-carrier" operation that allows using three or more carriers on one robot. This "multi-carrier" operation drastically extends applications due to its high effect in improving tact time and saving space.



Applicable to dual-drive

As a dual-drive that simultaneously drives two axes, high-speed transfer and heavy object transfer are possible in a wide area. YAMAHA can propose an optimal control method according to the robot linkage rigidity.



CARTESIAN ROBOTS

Offering a full lineup of Cartesian robots that come with exact performances and sizes supports a wide variety of applications.

Fulfilling product lineups

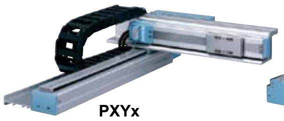
Fulfilling product lineups are provided, such as compact and low price PXYx type, HXYLx allowing long-distance transfer with a maximum payload of 50kg, and NXY with hollow servomotor used for the X-axis applicable to double-arm. Fulfilling arm and performance variations support the customers' various requests.
Additionally, various custom-order products other than models stated in the catalog are also supported. For detail, please feel free to consult YAMAHA.

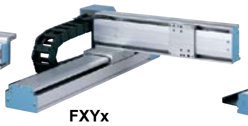
Fulfilling product lineups support a wide variety of applications.

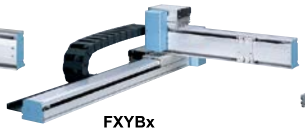
Various variations

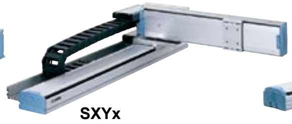
P.242

Models with 3 or more axes can be selected from:
- Z-axis clamped base and moving table type
- Z-axis clamped table and moving base type

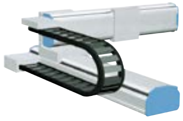

PXYx


FXYx


FXYBx


SXYx

MXYx


SXYBx

NXY

NXY-W

HXYx

HXYLx

Model	Applicable arm variations					Number of axes	Maximum payload (kg)	Maximum stroke (mm)	
	Arm	Gantry	Moving arm	Pole	XZ			X-axis	Y-axis
PXYx	●	-	-	-	-	2 axes	4.5	150 to 650	50 to 300
FXYx	●	-	-	-	-	2 axes/3 axes	12	150 to 1050	150 to 550
FXYBx	●	-	-	-	-	2 axes	7	150 to 2450	150 to 550
SXYx	●	-	●	●	●	2 axes/3 axes/4 axes	20	150 to 1050	150 to 650
SXYBx	●	-	-	-	●	2 axes/3 axes/4 axes	14	150 to 3050	150 to 550
MXYx	●	●	●	●	●	2 axes/3 axes/4 axes	30	250 to 1250	150 to 650
NXY	●	-	-	-	-	2 axes/3 axes	25	500 to 2000	150 to 650
NXY-W	●	-	-	-	-	4 axes/6 axes	25	250 to 1750	150 to 650
HXYx	●	●	●	●	●	2 axes/3 axes/4 axes	40	250 to 1250	250 to 650
HXYLx	●	●	-	-	-	2 axes	40	1150 to 2050	250 to 650

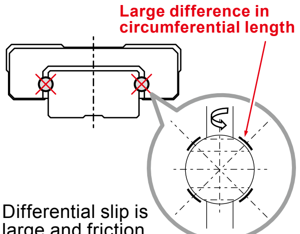
Note. The maximum payloads and maximum strokes shown above are values when using arm type/cable carrier specifications.

POINT 1

Use of 4-row circular arc groove type 2-point contact achieves high durability.

4-row circular arc groove type 2-point contact guide with less differential slip is adopted. When compared to the 2-row Gothic arch type 4-point contact guide, the robot provides features that it does not stop due to catching or overload and is difficult to malfunction even under poor conditions with low installation surface accuracy or large overhang amount. Guide rail type suitable for Cartesian robots, to which moment is always applied.

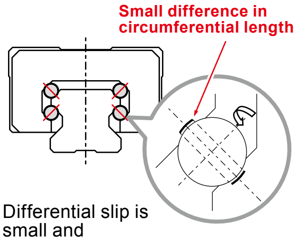
2-row gothic arch groove type 4-point contact guide



Differential slip is large and friction resistance is large.

- Easy to receive effects of poor installation surface accuracy, friction, and elastic deformation.
- Breakage may occur even within the calculated service life.

4-row circular arc groove type 2-point contact guide



Differential slip is small and self-centering function is high.

- Resistant to alignment changes and moment loads.
- Difficult to break.

POINT 2

Highly reliable resolver is used.

A resolver is used for the position detector. As the resolver uses a simple and rigid structure without using electronic components and optical elements, it features high environment resistance and low failure ratio. Detection problems due to electronic component breakdown, dew condensation on or oil sticking to the disk that may occur in optical encoders do not occur in the resolver due to its structure. Additionally, as the absolute specifications and incremental specifications use the same mechanical specifications and common controller, desired specifications can be selected only by setting parameters. Furthermore, even when the absolute battery is consumed completely, the robot can still operate as the incremental specifications. So, even if a trouble occurs, the line stop is not needed to ensure the safe production line. Furthermore, the backup circuit has been completely renovated and now has a backup period of one year in the non-energizing state.

POINT 3

Easy maintenance

Even when the built-in structure is used, the motor or ball screw can be replaced individually to ensure smooth maintenance work.

POINT 4

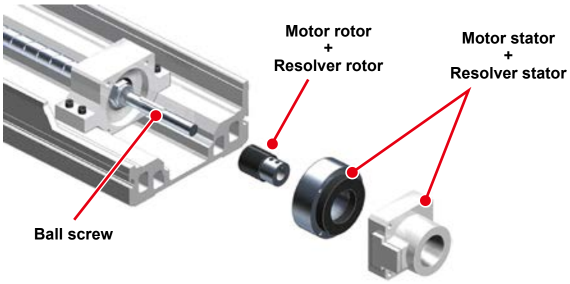
Low price

It was succeeded to reduce the number of parts while improving the basic performance. So, further cost reduction was achieved. Additionally, the resolver was used to eliminate the existing image "absolute specifications are expensive". Additionally, both the absolute specifications and incremental specifications use exactly same mechanical parts.

POINT 5

Lightweight and compact

The ball screw drive motor is renovated to a couplingless built-in structure to make dead spaces small and contribute to space saving.



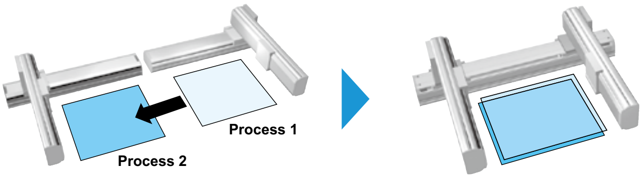
POINT 6

Double Y-axis available as standard

The NXY with nut rotation type structure supports a double Y-axis with two carriers arranged on the same axis. Two Cartesian robots can be made compact to improve the work efficiency at a low cost and ensures the space saving.

■ Layout using two conventional Cartesian robots

■ Space saving and process integration using NXY-W



Arm & cable variations

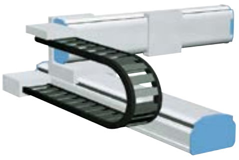
Cable variations

Two kinds of cable specifications, cable carrier and whipover (separate cable), are available. (PXYx uses only the cable carrier.)

● Cable carrier (C)

[User cable is provided as standard equipment.]
When adding cables into a cable carrier, carefully check the space factor (30 % or less), etc.

Note. User cable: 10-core, 0.3 sq



● Whipover (S)

[User cable and air tubing are provided as standard equipment.]
Be aware that sagging or faulty wiring may occur if a load is applied to the whipover. Additionally, sagging may also occur when using a long-stroke.

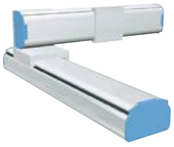
Note. User cable: 7-core, 0.2 sq
Note. User tubing: ϕ 4-air tube, 2 pcs.

Arm variations

2 axes combination

● Arm type

Type with Y-axis slider movement



● Moving arm type

Type with entire Y-axis arm movement

● XZ type

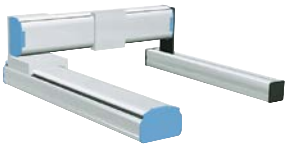
Type with combination of X-axis for horizontal movement and Z-axis for vertical movement

Clamped table/moving base

Clamped base/moving table

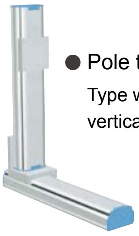
● Gantry type

Type with support guide attached to the Y-axis tip of the arm type



● Pole type

Type with Y-axis slider vertical movement



● Dual-robot (2 axes)

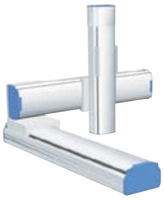
Type with synchronous drive between two axes

Note. The dual-robot is supported as a custom order.

3 axes combinations

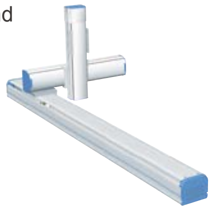
- Z-axis clamped base and moving table type

  ZR-axis model: ZT / ZF / ZFL / ZL



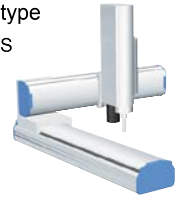
- Z-axis clamped table and moving base type

  ZR-axis model: ZFH / ZH



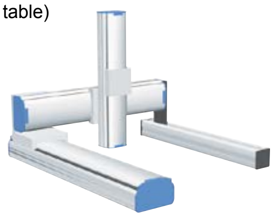
- Shaft up/down type

  ZR-axis model: ZS



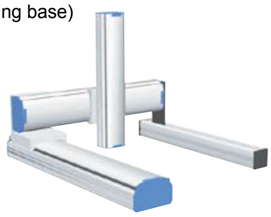
- X-Y Gantry + Z-axis

  (Clamped base/moving table)



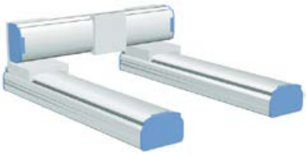
- X-Y Gantry + Z-axis

  (Clamped table/moving base)



- Dual-robot (3 axes)

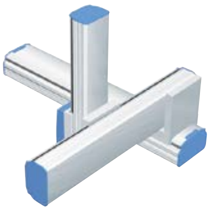
  Note. The dual-robot is supported as a custom order.



4 axes combinations

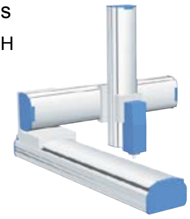
- Z-axis clamped base and moving table type + rotation axis

  ZR-axis model: ZRF / ZRFL / ZRL



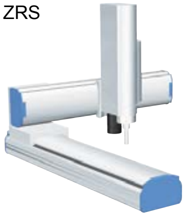
- Z-axis clamped table and moving base type + rotation axis

  ZR-axis model: ZRFH / ZRH



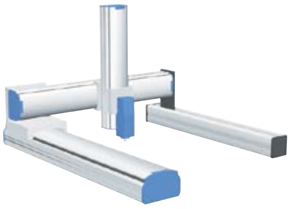
- ZR-axis integrated type

  ZR-axis model: ZRS



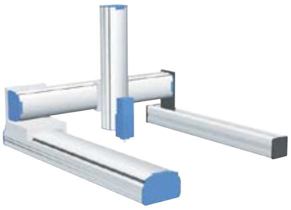
- X-Y Gantry + Z-axis

  (Clamped base/moving table) + rotation axis



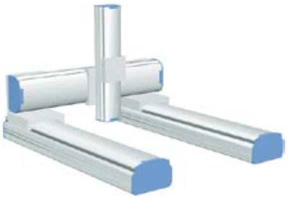
- X-Y Gantry + Z-axis

  (Clamped table/moving base) + rotation axis



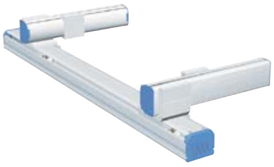
- Dual-robot (4 axes)

  Note. The dual-robot is supported as a custom order.



- Double Y-axis specifications

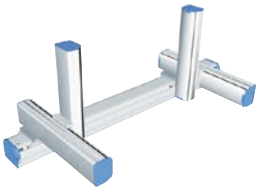
  Robot model: NXY-W



6 axes combination

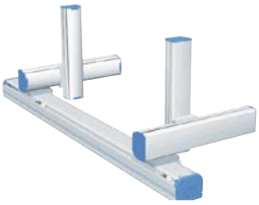
- Double Y-axis specifications/ Z-axis clamped base and moving table type

  Robot model: NXY-W-ZFL



- Double Y-axis specifications/ Z-axis clamped table and moving base type

  Robot model: NXY-W-ZFH



Special orders

YAMAHA supports models with strokes and payloads other than the standards as special orders. For detail, please feel free to consult YAMAHA.

Contact Us E-mail: robotn@yamaha-motor.co.jp

YK-X
Series

YK-TW	Omni directional model
YK-XG/YK-X	Completely beltless model Note
YK-XR	Low cost high performance model
YK-XGS	Wall mount/inverse model
YK-XGP	Dust-proof & drip-proof model

Note. Except for YK1200X

SCARA ROBOTS

Arm length of 120 mm to 1200 mm, full-selection of lineup is top in the world. Completely beltless structure pursues the features of SCARA robots to their utmost limits.

Low cost high performance model
YK400XR

History of 30 years

The first YAMAHA robots were SCARA robots. Since the first SCARA robot called "CAME" was produced in 1979, some 30 years of SCARA robot innovations have continually appeared. These SCARA robots have undergone countless modifications in an ever changing marketplace and amassed a hefty record of successful products making them an essential part of the YAMAHA robot lineup.

1979
<YK7000>

Comprehensive line of YAMAHA SCARA robots

Orbit type

P.372

- Arm length 350 mm / 500 mm
- Maximum payload 4 kg

YK500TW

Extra small type

P.376

- Arm length 120 mm to 220 mm
- Maximum payload 1 kg

YK120XG/YK150XG/YK180XG

YK180X/YK220X

Small type

P.381

- Arm length 250 mm to 400 mm
- Maximum payload 5 kg

Low cost high performance model
YK400XR

YK400XR

YK250XG/YK350XG/YK400XG

Medium type

P.388

- Arm length 500 mm to 600 mm
- Maximum payload 5 kg to 20 kg

YK500XGL

YK500XG

YK600XGL

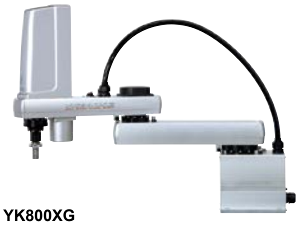
YK600XG/XGH

Large type

P.395

- Arm length 700 mm to 1200 mm
- Maximum payload 20 kg to 50 kg

YK700XG



YK800XG

YK900XG

YK1000XG

YK1200X

Wall mount/inverse model

P.401

YK300XGS to YK1000XGS

Wall mount type

Inverse type

- Wall mount type
  Type where the robot body is installed in the wall.
- Inverse type
  Type where the wall-mount type is installed upside down.

Dust-proof & drip-proof model

P.411

YK250XGP/YK350XGP/YK400XGP
YK500XGLP/YK600XGLP

YK500XGP to YK1000XGP

Plays active part in the working environment with a large amount of water or dust (protection class equivalent to IP65).

● Please consult YAMAHA for anti-droplet protection for fluids other than water.

YK-TW Orbit type

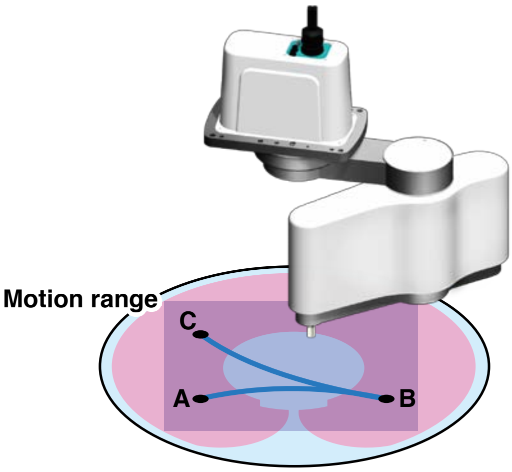
YK-TW POINT 1

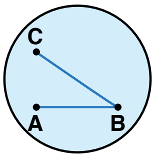
Layout design freedom

User: We want a smaller equipment footprint.

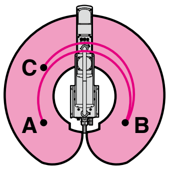
YK-TW can move anywhere through the full ϕ 1000 mm Note 2 work envelope.

Featuring a ceiling-mount configuration with a wide arm rotation angle, the YK-TW can access any point within the full ϕ 1000 mm downward range. This eliminates all motion-related restrictions with regard to pallet and conveyor placement operations, while dramatically reducing the equipment footprint.





Orbit type SCARA robot



Standard type SCARA robot

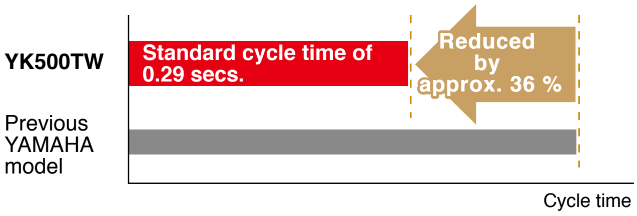
YK-TW POINT 2

Higher productivity

User: We need to reduce cycle time.

Standard cycle time of 0.29 secs. Note 2

Y-axis (arm 2) passes beneath the X-axis (arm 1) and it has a horizontal articulated structure, allowing it to move along the optimal path between points. Moreover, the optimized weight balance of the internal components reduces the cycle time by 36 % as compared to previous models.



The standard cycle time for moving a 1-kg load horizontally 300 mm and up/down 25 mm is shortened by approximately 36 % compared to existing YAMAHA models.

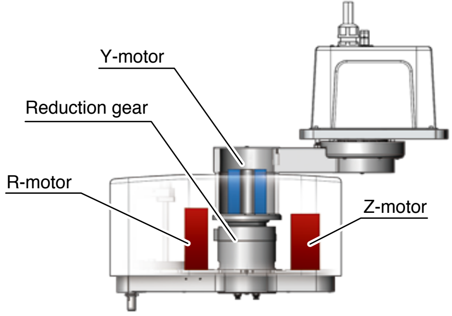
YK-TW POINT 3

High quality

User: We want a high precision assembly system.

YK-TW offers a repeated positioning accuracy of ±0.01 mm Note 1 (XY axes).

Higher repeated positioning accuracy than that offered by a parallel-link robot. This was accomplished by optimizing the robot's weight balance through an extensive re-design of its internal construction. The lightweight yet highly rigid arm has also been fitted with optimally tuned motors to enable high accuracy positioning.



Hollow construction

Y-motor and reduction gear feature a hollow construction which allows them to be housed inside the harness arm.

360 ° Rotation.

Optimized rotation center of gravity moment

Weight balance was optimized by placing the R-motor and Z-motor at the left and right sides respectively.

Reduced inertia enables high-speed motion.

YK-TW POINT 4

Suitable for a wide range of applications

User: We need to move heavy workpieces at high speeds.

YK-TW handles payloads up to 5 kg.

Handles loads up to 5 kg. Also accommodates arm-end tools which tend to be heavy, making it highly adaptable to various applications.

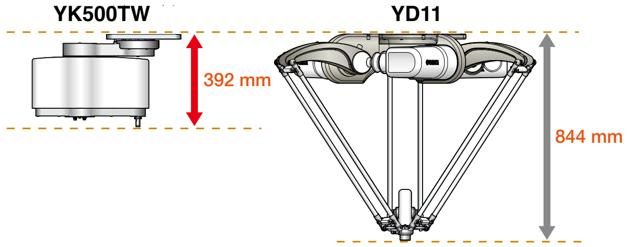
YK-TW POINT 5

Smaller equipment footprint

User: We want to reduce the height of our equipment.

YK-TW offers both a lower height and a smaller footprint.

YK-TW height is only 392 mm. This compact size enables more freedom in the equipment layout design.



Note 1. Applies to the YK350TW Note 2. Applies to the YK500TW

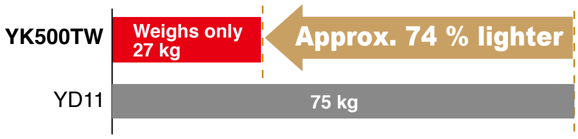
YK-TW POINT 6

Easy installation

User: Parallel-link robots require large frames which complicates installation…

YK-TW has a total height of only 392 mm, and weighs only 27 kg Note 2**.**

Lower inertia = Lighter frame



YK-TW POINT 7

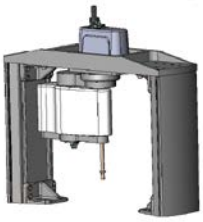
Reduce the number of steps

User: Preparing the frame is extra work.

We can optionally provide a dedicated frame for the YK-TW.

With no need for complex calculations of strength, startup steps can be reduced.

Note. For details on dimensions and price, please contact Yamaha.

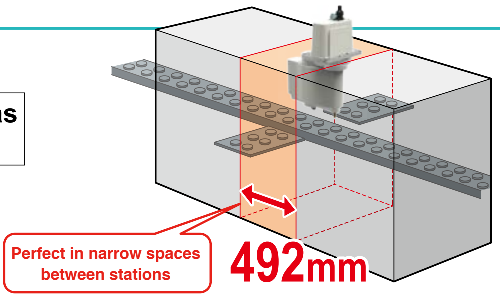


YK-TW POINT 8

Ideal for narrow space applications

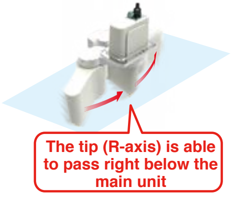
User: We need to install in limited space, such as between equipment.

Minimum installation width 492mm Note 1



Underpass motion

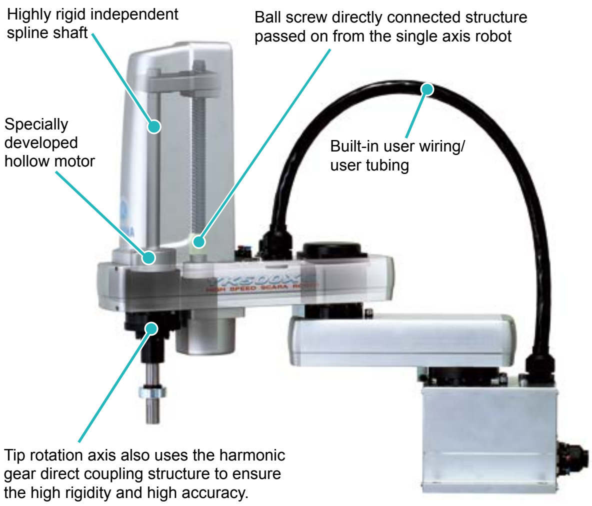
Optimize use of the space right below the main unit



YK-XG Completely beltless type

Integral structure designed for optimal operation

Note. The following shows an example of YK500XG.

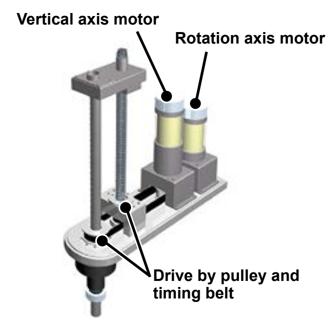

Highly rigid independent spline shaft
Ball screw directly connected structure passed on from the single axis robot
Specially developed hollow motor
Built-in user wiring/ user tubing
Tip rotation axis also uses the harmonic gear direct coupling structure to ensure the high rigidity and high accuracy.

YK-XG POINT 1

Completely beltless structure

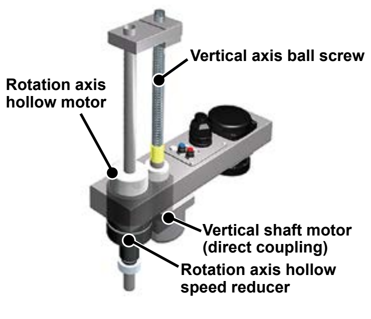
A completely beltless structure was achieved using a ZR-axis direct coupling structure. This completely beltless structure greatly reduces waste motion. This structure also maintains high accuracy for an extended period of time. Additionally, this structure ensures maintenance-free operation for an extended period of time without worrying about belt breakage, elongation, or secular deterioration (except for Orbit type and large type).

Conventional model



- Rigidity and accuracy are determined by belt.
- Secular change, such as belt elongation occurs.

YK-XG series

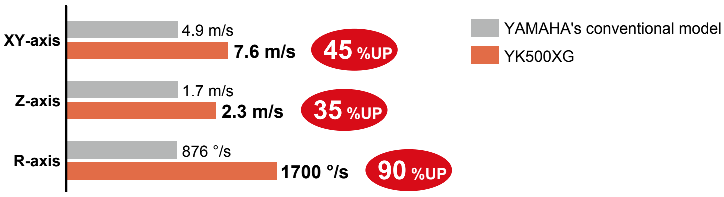

Vertical axis ball screw
Rotation axis hollow motor
Vertical shaft motor (direct coupling)
Rotation axis hollow speed reducer

- High rigidity and high accuracy
- No worry about belt elongation and breakage
- Maintenance free

YK-XG POINT 2

High speed

The standard cycle time is fast. Additionally, YAMAHA also places special emphasis on the tact time in the practical working area. The speed reduction ratio or maximum motor RPM was reviewed to greatly improve the maximum speed. This contributes to improvement of the tact time.



YK-XG POINT 3

Resolver is used for position detector.

As the resolver uses a simple and rigid structure without using electronic components and optical elements, it features high environment resistance and low failure ratio. Detection problems due to electronic component breakdown, dew condensation on or oil sticking to the disk that may occur in optical encoders do not occur in the resolver due to its structure. Additionally, as the absolute specifications and incremental specifications use the same mechanical specifications and common controller, the specifications can be changed only by setting parameters. Furthermore, even when the absolute battery is consumed completely, the robot can still operate as the incremental specifications. So, even if a trouble occurs, the line stop is not needed to ensure the safe production line. The backup circuit has been completely renovated and now has a backup period of one year in the non-energizing state.

Note. The resolver has a simple structure without using electronic components. So, the resolver is highly resistant to low and high temperatures, impacts, electrical noise, dust particles, and oil, etc., and is used in automobiles, trains, and aircrafts that particularly require the reliability.

Optical encoder

- Optical type
- Electronic components are required and structure is complicated.
- Electronic component malfunction, or dew condensation on or oily content sticking to disk may occur easily.

▼

Detection failure

Resolver

- Magnetic type
- Simple structure only with iron core and winding has less potential failure factors.
- Immune to shock and electric noise.

▼

High reliability

YK-XG POINT 4

Excellent maintenance ability

The covers of YAMAHA SCARA robot YK-XG series can be removed forward or upward. The cover is separated from the cable, so the maintenance work is easy. Additionally, the grease replacement of the harmonic gear needs many steps to disassemble the gear and may cause positional deviation. However, since the harmonic gear of the YAMAHA SCARA robot uses long-life grease, the grease replacement is not needed.

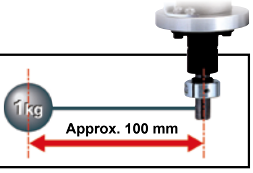
YK-XG POINT 5

Surprising R-axis tolerable moment of inertia

The SCARA robot performance cannot be expressed only by the standard cycle time. In actual operating environments, there are various workpieces, such as heavy workpiece or workpiece with large offset. At this time, since the robot with low R-axis tolerable moment of inertia needs to decrease the speed during operation, the cycle time decreases greatly. All YAMAHA SCARA robot YK-XG types have the tip rotation axis directly coupled to the speed reducer. Since the R-axis tolerable moment of inertia is very high when compared to a general structure in which the moment of inertia is transmitted by a belt after decelerating, the robot can operate at a high speed even with workpieces that have been offset.

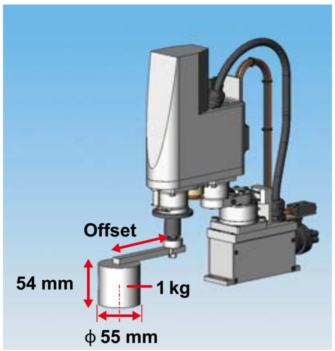
YK120XG
(R-axis tolerable moment of inertia: 0.1 kgfcm^2)

When the tip load weight is 1 kg,
it is possible to operate at **approx. 100 mm** offset.



R-axis tolerable moment of inertia: Comparison between YK120XG and other company's model

When the offset from the R-axis to the center of gravity of the load is large, the inertia becomes large and the acceleration during operation is restricted. The R-axis tolerable moment of inertia of YAMAHA XG series is exceedingly large when compared to other company's SCARA robots in the similar class, so it can operate at a high speed even in the offset state.



When the load weight is 1 kg (refer to the right in the figure,)

Offset (mm)	Inertia (kgfcms^2)	Operation	
		YK120XG	Company A
0	0.0039	○	○
45	0.025	○	×
97	0.1	○	×

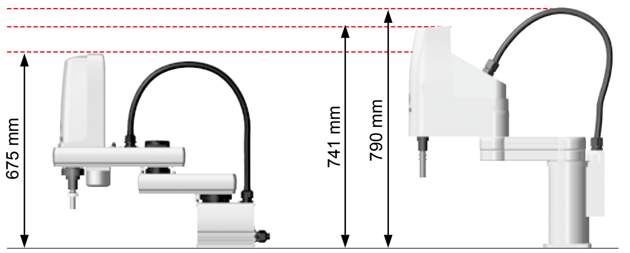
○: Operable ×: Out of catalog value tolerance range

◆ R-axis tolerable moment of inertia: YK120XG......... 0.1 kgfcms^2
Company A...... 0.0039 kgfcms^2

YK-XG POINT 6

Compact

As the cable layout is changed, the cable height becomes lower than the main body cover. Additionally, use of extruded material base and motor with low overall height achieves the lowest overall height in the same class.



YK500XG YAMAHA's conventional model

YK-XG POINT 7

Hollow shaft and tool flange options are selectable.

Hollow shaft that allows easy wiring to the tip tool and tool flange for tool mounting are provided as options.

Hollow shaft option convenient for routing of air tubes and harness wires

Note. YK250XG to YK400XG
YK500XGL/YK600XGL

Tool flange option for easy mounting of a tool to the tip

Note. YK250XG to YK1000XG

YK-XG POINT 8

Zone control (= Optimal acceleration/deceleration automatic setting) function

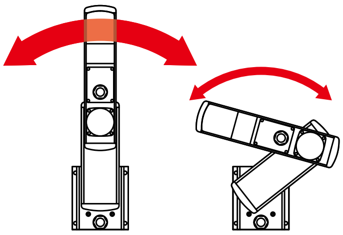
In the SCARA robot, the load applied to the motor and speed reducer in the arm folded state greatly differs from that in the arm extended state. YAMAHA SCARA robot automatically selects optimal acceleration and deceleration from the arm postures at operation start and operation end. Therefore, the robot does not exceed the tolerance value of the motor peak torque or speed reducer allowable peak torque only by entering the initial payload. So, full power can be extracted from the motor whenever needed and high acceleration/deceleration are maintained.

For X-axis of YK500XG

The torque in the arm folded state is 5 or more times different from that in the arm extended state.

▼

This may greatly affect the service life, vibration during operation, and controllability.



If the motor torque exceeds the peak value

→ This may adversely affect the controllability and mechanical vibration, etc.

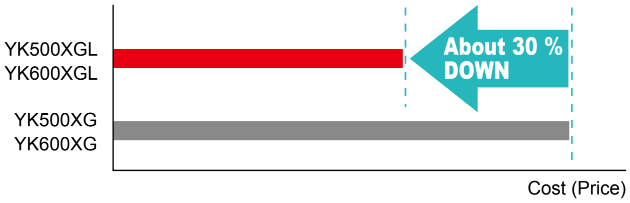
If the torque exceeds the tolerable peak torque value of the speed reducer

→ This may cause early breakage or shorten the service life extremely.

YK-XG POINT 9

Low price models with the arm length 500 mm/600 mm specifications are also added to the product lineup.

The customers require to use SCARA robots at a more affordable price. Models YK500XGL/YK600XGL were developed to meet these customer's requests. About 30 %-cost reduction was achieved when compared to the conventional models YK500XG/600XG.



YK-XR Low cost high performance model YK400XR

YK-XR POINT 1

Shortest cycle time in this class

A standard cycle time of 0.45 sec. is achieved by drawing out the robot performance to its maximum level.

YK-XR POINT 2

Superior cost performance

Most economical price in YAMAHA's similar robot class without sacrificing its existing features.

YK-XR POINT 3

With versatile and high performance controller RCX340.

Combination of YK400XR robot and new RCX340 controller enable operation up to 16 axes with simple easy networking.

YK-XGS Wall mount/inverse model

Hanging type is renewed. Completely beltless structure and high rigidity

As the conventional hanging type is changed to the wall mount type, the flexibility of the system design is improved. The production equipment can be downsized. Additionally, as an inverse type that allows upward operation is also added to the product lineup, the flexibility of the working direction is widened. Furthermore, use of a completely beltless structure achieves a maximum payload of 20 kg and a R-axis tolerable moment of inertia of 1 kgm^{2} Note that are the top in the class. A large hand can also be installed. So, this robot is suitable for heavy load work.

Note. YK700XGS to YK1000XGS

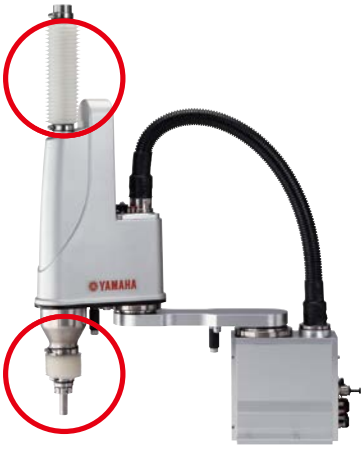
Inverse type

YK-XGP Dust-proof & drip-proof model

Up/down bellows structure improves the dust-proof and drip-proof performance.

The dust-proof and drip-proof type that can be operated even in a work environment where water or particle dust scatters was renewed to a completely beltless structure. The belt does not deteriorate and poor environment resistance is improved. Additionally, an up/down bellows structure is used to improve the dust-proof and drip-proof performance.

Note. YK250XGP to YK600XGLP



Protection class equivalent to IP65 (IEC60529)

Seals are added to the joints to maintain the dust-proof and drip-proof performance without air purging. The robot conforms to the protection class equivalent to IP65 (IEC60529).

IP 6 5

Class of protection against invasion of water: 5
Water injected from any direction does not affect adversely.
The standard pressure of the injected water is 30 KPa (30 KN/m^{2}, 0.3 kgf/cm).
The injection speed is 12.5 liters/min. and the injection time is 3 min.
Note. The water injected under conditions exceeding those shown above may enter the unit.

Class of protection against solid objects: 6
No invasion of particle dust.

Dust-proof and drip-proof connector for user wiring is provided as standard.

YK250XGP to 600XGLP (arm part)

YK250XGP to 600XGLP (base part)

Model/Type		Model	Arm length (mm)	Maximum payload (kg)	Standard cycle time (sec.)	Page
Omni directional model		YK350TW	350	5.0	0.32 (RCX340) 0.38 (RCX240)	P.372
		YK500TW	500	4.0 (3.0) Note 2	0.29	P.374
Completely beltless model	Micro-mini type (Tiny)	YK120XG	120	1.0	0.33	P.376
		YK150XG	150			P.377
		YK180XG	180			P.378
		YK180X	180		0.39	P.379
		YK220X	220		0.42	P.380
	Small type	YK250XG	250	5.0 (4.0) Note 2	0.49	P.381
		YK350XG	350			P.383
		YK400XG	400			P.385
Low cost high performance model		YK400XR	400	3.0 (2.0) Note 2	0.45	P.387
Completely beltless model	Medium type	YK500XGL	500	5.0 (4.0) Note 2	0.59	P.388
		YK500XG	500	10.0	0.45	P.390
		YK600XGL	600	5.0 (4.0) Note 2	0.63	P.391
		YK600XG	600	10.0	0.46	P.393
		YK600XGH	600	20.0 (19.0)	0.47	P.394
	Large type	YK700XGL	700	10.0 (9.0)	0.50	P.395
		YK700XG	700	20.0 (19.0)	0.42	P.396
		YK800XG	800		0.48	P.397
		YK900XG	900		0.49	P.398
		YK1000XG	1000			P.399
–		YK1200X	1200	50	0.91	P.400
Wall mount/inverse model		YK300XGS Note 1	300	5.0 (4.0) Note 2	0.49	P.401
		YK400XGS Note 1	400			P.403
		YK500XGS	500	10.0	0.45	P.405
		YK600XGS	600		0.46	P406
		YK700XGS	700	20.0	0.42	P.407
		YK800XGS	800		0.48	P.408
		YK900XGS	900		0.49	P.409
		YK1000XGS	1000		0.6	P.410
Dust-proof & drip-proof model		YK250XGP	250	5.0	0.49	P.411
		YK350XGP	350			P.413
		YK400XGP	400			P.415
		YK500XGLP	500	4.0	0.74	P.417
		YK500XGP	500	8.0	0.55	P.419
		YK600XGLP	600	4.0	0.74	P.420
		YK600XGP	600	8.0	0.56	P.422
		YK600XGHP	600	18.0	0.57	P.423
		YK700XGP	700		0.52	P.424
		YK800XGP	800		0.58	P.425
		YK900XGP	900		0.59	P.426
		YK1000XGP	1000			P.427

Note 1. The YK300XGS and YK400XGS are custom-order products. For details about the delivery time, please contact YAMAHA.

Note 2. For the option specifications (tool flange mount type and user wiring/tubing through spline type), the maximum payload becomes the value in ( ).

PICK & PLACE ROBOTS

Ideal for small components high-speed pick & place work.
Positioning is made by servo control, so no complex mechanical adjustments are needed.

Full lineup of 6 models in all from 2 axes to 4 axes

2 axes type P.431

YP220BX/YP320X

3 axes type P.433

YP220BXR/YP320XR/YP330X

4 axes type P.436

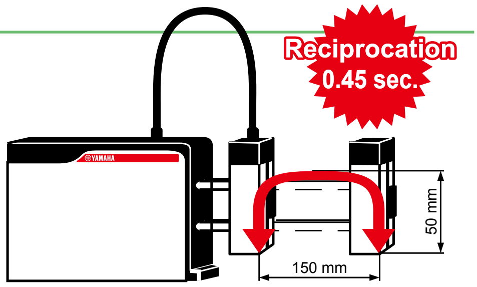
YP340X

Model	Axis	Structure				Maximum payload (kg)	Cycle time (sec.)	Page
		X-axis	Y-axis	Z-axis	R-axis			
YP220BX	2 axes	Belt	-	Belt	-	3	0.45	P.431
YP320X		Ball screw	-	Belt	-	3	0.57	P.432
YP220BXR	3 axes	Belt	-	Belt	Rotation axis	1	0.62	P.433
YP320XR		Ball screw	-	Belt	Rotation axis	1	0.67	P.434
YP330X		Ball screw	Ball screw	Belt	-	3	0.57	P.435
YP340X	4 axes	Ball screw	Ball screw	Belt	Rotation axis	1	0.67	P.436

POINT 1

High speed

Super high-speed pick & place operation with a standard cycle time of 0.45 sec. (YP220BX with up/down 50 mm, back/forth 150 mm, arch amount 50, load 1 kg) greatly contributes to improvement of the productivity. Since it is possible to output a signal to turn on/off any external equipment from any position while the axis is moving, the actual production cycle time is further improved.



POINT 2

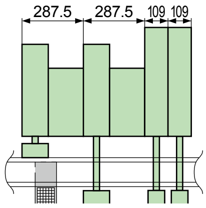
Compact

Use of a compact size with an overall with of 109 mm (YP220BX) makes it possible to make the production line compact and simple. The moving arm structure with less interference with surroundings contributes to space saving.

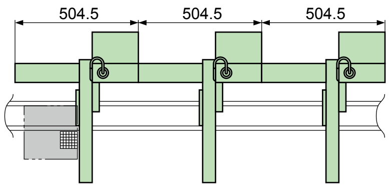
Reference examples of robot layout comparisons

The compactness can be checked by comparing the occupied spaces when the YP-X series and YAMAHA's Cartesian/SCARA robots are laid out.

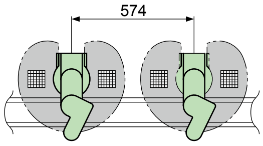
- Line using pick & place utilizing space saving



- Line using YAMAHA's compact Cartesian robot PXYx
  X-axis stroke: 250 mm
  Y-axis stroke: 250 mm



- Line using YAMAHA's compact SCARA robot YK250X



POINT 3

High accuracy

Both extremely high-speed performance and high repeated positioning accuracy of +/- 0.02 mm (YP320X, YP320XR, YP330X, YP340X) are assured.

POINT 4

Complete absolute position system

As the complete absolute position system is used, no return-to-origin operation is needed.

POINT 5

Versatility

Use of YAMAHA's unique servo system makes it possible to freely program the stop point and operation pattern settings. This robot is applicable to production of many models in small quantities that cannot be supported by the cam type robot.

CLEAN ROBOTS

Suitable for electronics component, food, and medical unit related work in clean room.
High sealing structure, dust generation prevention, and improvement of suction efficiency are achieved.
Both the high cleanliness degree and high performance are established.
Clean robots contribute to automation and labor saving of production systems in clean rooms.

Both high cleanliness degree and high performance were achieved. Clean single-axis, Cartesian, and SCARA robots were added to the product lineup.

Clean SCARA robots

YK-XGC/XC type

P.464

The Z-axis spline is covered with bellows made of materials with low dust generation and other sliding parts are sealed completely. Harnesses are also incorporated completely and the inside of the robot is sucked from the rear of the base to prevent dust generation.

■ Arm length:	180 mm to 1000 mm
■ Suction amount:	30 to 60 Nℓ/min.
■ Cleanliness degree:	CLASS ISO3 (ISO14644-1) CLASS10 (FED-STD-209D)
■ Maximum payload:	20 kg

POINT 1

Vertical bellows structure improves the reliability of the clean performance.

As a beltless structure is used, no dust generation caused by the belt occurs. Furthermore, as the YK-XGC type was renewed to a structure, in which the bellows are installed on the Z-axis vertically, the reliability of the clean performance was further improved.

Note. Except for YK500XC to YK1000XC

POINT 2

High durability

As a beltless structure is used, the robot can be operated without worry about belt elongation and secular change [Note]. Additionally, the bellows installed on the Z-axis use material with high durability to ensure the durability performance.

Note. Except for YK500XC to YK1000XC

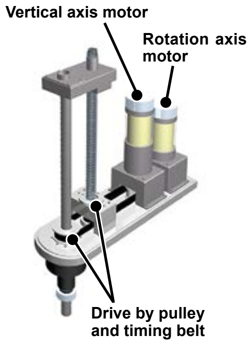
POINT 3

Completely beltless structure improves the rigidity.

A completely beltless structure was achieved using a ZR-axis direct coupling structure. As a speed reducer is coupled to the tip rotation axis, the R-axis tolerable moment of inertia is very high and the high-speed movement is possible even with a heavy workpiece or largely offset workpiece.

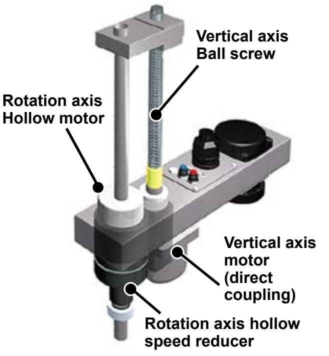
Note. Except for YK500XC to YK1000XC

Conventional model



- Rigidity and accuracy are determined by belt.
- Secular change, such as belt elongation occurs.

YK-XGC/XC type
(Including YK180XC/YK220XC)


Vertical axis Ball screw
Rotation axis Hollow motor
Vertical axis motor (direct coupling)
Rotation axis hollow speed reducer

- High rigidity and high accuracy
- No worry about belt elongation and breakage
- Maintenance free

Type	Model	Arm length (mm)	Maximum payload (kg)	Standard cycle time (sec.)	Beltless structure	Page
Micro-mini type	YK180XC	180	1	0.42	○	P.464
	YK220XC	220	1	0.45	○	P.465
Small type	YK250XGC	250	4	0.57	○	P.466
	YK350XGC	350	4	0.57	○	P.468
	YK400XGC	400	4	0.57	○	P.470
Medium type	YK500XC	500	10	0.53	-	P.474
	YK500XGLC	500	4	0.74	○	P.472
	YK600XC	600	10	0.56	-	P.477
	YK600XGLC	600	4	0.74	○	P.475
Large type	YK700XC	700	20	0.57	-	P.478
	YK800XC	800	20	0.57	-	P.479
	YK1000XC	1000	20	0.60	-	P.480

Clean single-axis robots

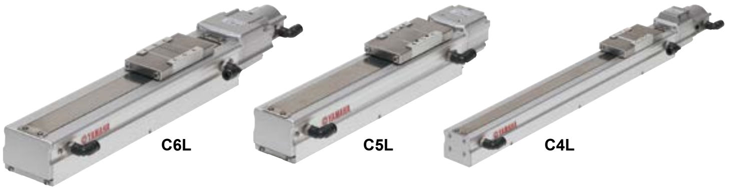
FLIP-XC type

P.444

The FLIP-XC type robots are single-axis robots "FLIP-X series" with clean room specifications. According to the applications, an optimal robot can be selected from 14 models from a lightweight and compact model to a large model with a maximum payload of 120 kg. As an air joint for suction is provided as standard equipment, grease with low dust generative characteristics is used, and stainless sheets with an excellent durability are used for the slide table surface, high cleanliness degree is achieved.

- ■ Stroke: 50 to 2050 mm
- ■ Suction amount: 15 to 90 Nℓ/min.
- ■ Cleanliness degree: CLASS10 Note
- ■ Maximum payload: 120 kg (When installed horizontally)

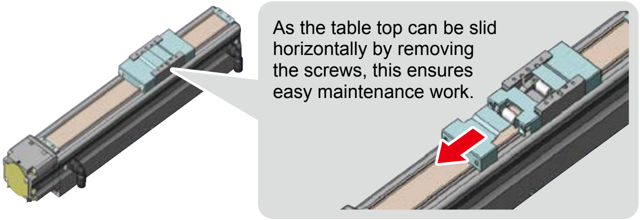
Note. C4L/C4LH, C5L/C5LH, and C6L are CLASS ISO3 (ISO14644-1).



POINT

Excellent maintenance ability

For C4L to C6L models, removing the screws from the side panel of the slider will allow replacement of the inner roller without detaching the tool. For C8 to C20 models, even when the direct coupling structure is used, the motor or ball screw can be replaced individually.



As the table top can be slid horizontally by removing the screws, this ensures easy maintenance work.

Model	Size (mm) Note	Lead (mm)	Maximum payload (kg)		Maximum speed (mm/sec.)	Stroke (mm)	Page
			Horizontal	Vertical			
C4L C4LH	W45 × H55	12	4.5	1.2	720	50 to 400	C4L : P.444 C4LH : P.445
		6	6	2.4	360		
		2	6	7.2	120		
C5L C5LH	W55 × H65	20	3	-	1000	50 to 800	C5L : P.446 C5LH : P.447
		12	5	1.2	800		
		6	9	2.4	400		
C6L	W65 × H65	20	10	-	1000	50 to 800	P.448
		12	12	4	800		
		6	30	8	400		
C8	W80 × H75	20	12	-	1000	150 to 800	P.449
		12	20	4	720		
		6	40	8	360		
C8L	W80 × H75	20	20	4	1000	150 to 1050	P.450
		10	40	8	600		
		5	50	16	300		
C8LH	W80 × H75	20	30	-	1000	150 to 1050	P.451
		10	60	-	600		
		5	80	-	300		
C10	W104 × H85	20	20	4	1000	150 to 1050	P.452
		10	40	10	500		
		5	60	20	250		
C14	W136 × H96	20	30	4	1000	150 to 1050	P.453
		10	55	10	500		
		5	80	20	250		
C14H	W136 × H96	20	40	8	1000	150 to 1050	P.454
		10	80	20	500		
		5	100	30	250		
C17	W168 × H114	20	80	15	1000	250 to 1250	P.455
		10	120	35	600		
C17L	W168 × H114	50	50	10	1000	1150 to 2050	P.456
C20	W202 × H117	20	120	25	1000	250 to 1250	P.457
		10	-	45	500		

Note 1. The size shows approximate maximum cross sectional size.

Clean single-axis robots

SSC type (TRANSERVO)

P.441

The SSC type robots are stepping motor single-axis robots "TRANSERVO series" with clean room specifications. Use of a newly developed vector control method achieves the function and performance equivalent to the servomotor at a low cost even using the stepping motor. As an air joint for suction is provided as standard equipment, grease with low dust generative characteristics is used and stainless sheets with an excellent durability are used for the slide table surface, the high cleanliness degree is achieved.

- Stroke: 50 to 800 mm
- Suction amount: 15 to 80 Nℓ/min.
- Cleanliness degree: CLASS10
- Maximum payload: 12 kg (When installed horizontally)

Model	Size (mm) $^{\text{Note 1}}$	Lead (mm)	Maximum payload (kg)		Maximum speed (mm/sec.)	Stroke (mm)	Page
			Horizontal	Vertical			
SSC04	W49 × H59	12	2	1	600	50 to 400	P.441
		6	4	2	300		
		2	6	4	100		
SSC05	W55 × H56	20	4	-	1000	50 to 800	P.442
		12	6	1	600		
		6	10	2	300		
SSC05H	W55 × H56	20	6	-	1000	50 to 800	P.443
		12	8	2	600 (horizontal) / 500 (vertical)		
		6	12	4	300 (horizontal) / 250 (vertical)		

Note 1. The size shows approximate maximum cross sectional size.

Clean Cartesian robots

XY-XC type

P.458

This Cartesian robot XY-XC type is applicable to clean rooms. As stainless sheets with excellent durability are used, the opening can be designed to be its minimum level and the robots area applicable to CLASS10 with less suction amount. Furthermore, as the ZR-axis of the SXYxC uses a super high speed unit of the SCARA robot, this achieves great reduction of the cycle time.

- Suction amount: 60 to 90 Nℓ/min.
- Cleanliness degree: CLASS10 $^{\text{Note}}$
- Maximum payload: 20 kg
- Maximum speed: 1000 mm/sec.

Note. User wiring: D-Sub 25-pin connector (Numbers 1 to 24 are already wired and number 25 is frame ground.)
Note. User tubing: ϕ 6-air tube, 3 pcs.

SXYxC

Type	Model	Axis	Movement range	Maximum speed (mm/sec.)	Maximum payload (kg)	Page
2 axes	SXYxC	X	150 to 1050 mm	1000	20	P.458
		Y	150 to 650 mm	1000		
3 axes	SXYxC (ZSC12)	X	150 to 1050 mm	1000	3	P.460
		Y	150 to 650 mm	1000		
		Z	150 mm	1000		
	SXYxC (ZSC6)	X	150 to 1050 mm	1000	5	P.461
		Y	150 to 650 mm	1000		
		Z	150 mm	500		
4 axes	SXYxC (ZRSC12)	X	150 to 1050 mm	1000	3	P.462
		Y	150 to 650 mm	1000		
		Z	150 mm	1000		
		R	360 °	1020 °/sec		
	SXYxC (ZRSC6)	X	150 to 1050 mm	1000	5	P.463
		Y	150 to 650 mm	1000		
		Z	150 mm	500		
		R	360 °	1020 °/sec		

CONTROLLERS

An optimal controller can be selected from various command input formats.
As servo parameters and deceleration patterns suitable for robots are pre-registered, robots can be operated quickly without complex settings.

High performance controllers supporting YAMAHA robots

		TRANSERVO Stepping motor	FLIP-X [T4L/T5L] Small type servomotor (24 V・30 W)	FLIP-X General-purpose servomotor (30 to 600 W)	PHASER Linear motor	
1 axis	● I/O point trace ● Remote command ● Online command	P **TS-S2** P **TS-SH**		P **TS-X**	P **TS-P**	**TS-S2/ TS-SH/ TS-X/TS-P** P.492
	● Pulse train	D **TS-SD**	C **ERCD** 	NEW D **RDV-X**	NEW D **RDV-P**	**TS-SD** P.502 **RDV-X/ RDV-P** P.506 **ERCD** P.512
	● Program (YAMAHA SRC language) ● I/O point trace ● Remote command ● Online command			C **SR1-X**	C **SR1-P**	**SR1-X/ SR1-P** P.518
2 axes	● Program (YAMAHA BASIC language) ● I/O command ● Remote command ● Online command			C **RCX222**	C **RCX221**	**RCX221/ RCX222** P.526
3, 4 axes	● Program (YAMAHA BASIC language) Note 1 ● I/O command Note 2 ● Remote command ● Online command			C **RCX240** **RCX240S** C **RCX340**		**RCX240/ RCX240S** P.534 **RCX340** P.544

Five or more axes can also be supported

5 to 8 axes

RCX240

YC-LINK couples single-axis controllers to a 4-axis controller

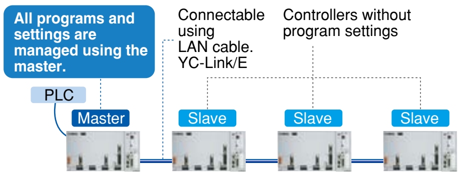
Note : Up to four SR1 series controllers can be connected to the RCX series controller.

up to 16 axes

RCX340

YC-Link/E

Up to four RCX340 controllers (up to 16 controllable axes) can be connected.


All programs and settings are managed using the master.
Connectable using LAN cable. YC-Link/E
Controllers without program settings
PLC
Master
Slave
Slave
Slave

Note 1. The RCX340 uses YAMAHA BASIC2 language.
Note 2. The I/O command is not applicable to the RCX340.

P : Robot positioner D : Robot driver C : Robot controller

POINT 1

Selectable from various control methods

Program input

A variety of operation settings, calculations, and conditional branching is possible

The single-axis robot controllers use the YAMAHA SRC language Note which is simple yet contains all required functions, such as I/O outputs and conditional branching, etc. The multi-axis controller RCX series uses the YAMAHA BASIC language capable of more sophisticated programming and includes all types of arithmetic operations, flexible variable settings, and various conditional branching, etc. Both are easy to use robot language conforming to the BASIC. These languages support various needs from simple operations to expert user's sophisticated work.

Note. The 2-axis controller DRCX also uses YAMAHA SRC language.

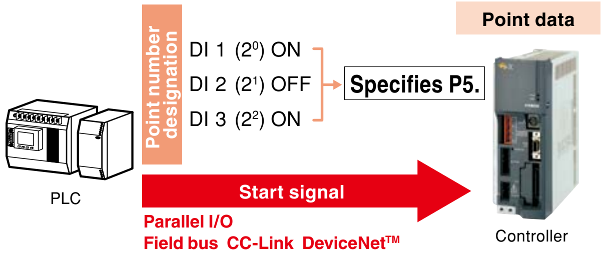
Single-axis robot controller	**YAMAHA SRC language <Example>**	**MOVA 1 , 100**	Moves to point number 1 at 100 %-speed.
		DO 1 , 1	Turns on general-purpose output number 1.
		WAIT 2 , 1	Waits until general-purpose input number 2 turns on.

Multi-axis robot controller	**YAMAHA BASIC language <Example>**	**IF DO(10)=1 THEN *END**	Jumps to *END if general-purpose input number 10 turns on. Otherwise, moves to the next line.
		MOVE P, P2, STOPON DI(1) =1	Moves to point number 2. Stops when general-purpose input number 1 turns on during movement.
		WAIT ARM	Waits until the robot arm operation ends.
		P3=WHERE	Writes the current position into point number 3.
		***END:**	Defines the label named "END".
		HOLD	Pauses the program.

I/O point trace

Program-less means easy

The host unit specifies a point number in binary format and the robot moves to the specified point when the start signal is input. The controller can operate only by teaching the point data without programs.

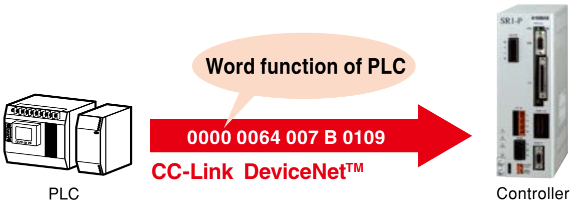


Remote command

Ideal for unified data management

The word function of the CC-Link or DeviceNet™ is used to issue various commands or data to the robot. The expandability of the word function from simple operation instructions to point data writing is fully utilized to freely use the robot controller functions from the host unit.

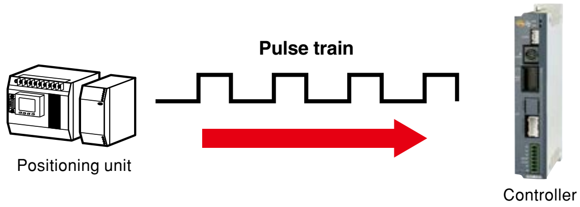
Note. This function is enabled when selecting an option network board.



Pulse train

Acceleration/deceleration curves can be created freely

The robot is controlled using pulse trains sent from the positioning unit. The controller does not need to have programs or point data. This pulse train is convenient when the control is centralized to the host unit.

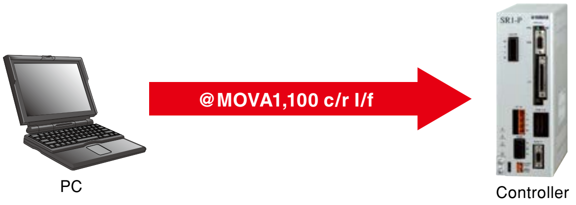


Online command

Execute everything from a PC

The PC can issue various commands or data to the controller or receive the data or status through the RS-232C or Ethernet Note. All executable operations from the teaching pendant can be executed from the PC.

Note. Ethernet is enabled when selecting an option network board.
(For the RCX340, Ethernet is provided as standard function.)

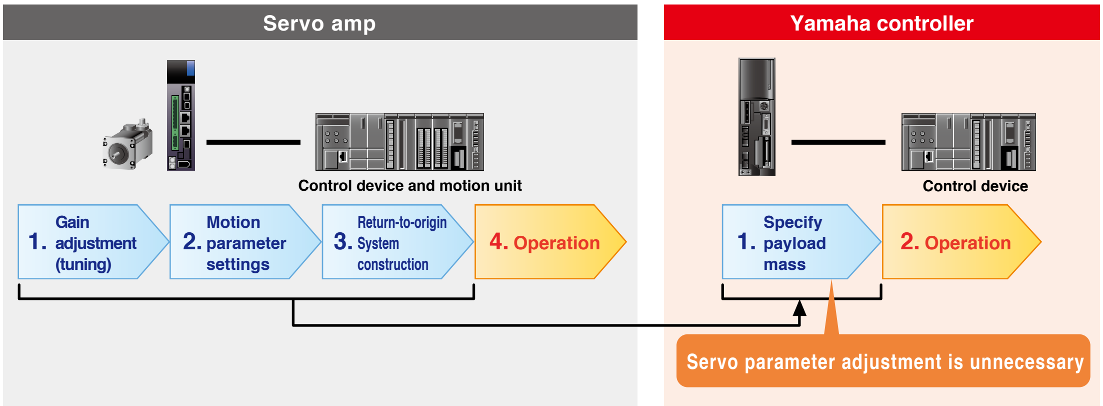


POINT 2

Easy optimal setup

Complicated parameter settings are unnecessary

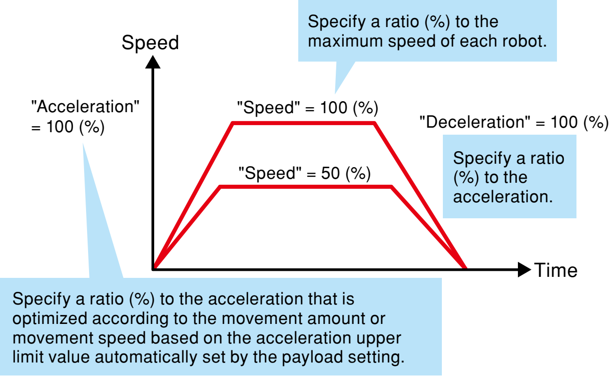
Robot controllers are specially designed for YAMAHA robots. Optimal values for servo parameters required for robot operation, such as gain are already registered beforehand. Start operating immediately without any need for complicated settings or tuning, even if you don't have knowledge or experience about control.


Servo amp
Control device and motion unit
1. Gain adjustment (tuning)
2. Motion parameter settings
3. Return-to-origin System construction
4. Operation
Yamaha controller
Control device
1. Specify payload mass
2. Operation
Servo parameter adjustment is unnecessary

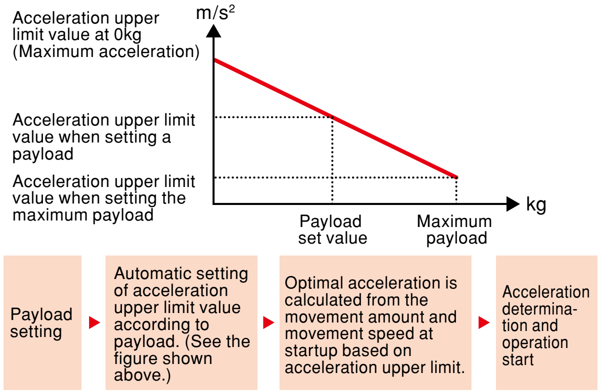
Easy acceleration/deceleration settings

The acceleration/deceleration is an important factor that affects the service life of the machine. If too high acceleration is set, this may cause the service life of the machine to shorten. If the acceleration is too low, the motor power cannot be used effectively, causing the tact time to lower. The acceleration/deceleration setting of YAMAHA robot controller is determined finely by load weight. Setting only payload parameters will automatically set optimal acceleration/deceleration by taking the service life of the machine and motor capability into consideration. Detailed robot knowledge from YAMAHA is what makes this possible. (Note: For the pulse train input, the customer may need to set the acceleration/deceleration.)

Concept of speed and acceleration



Acceleration calculation algorithm



Zone control (= Optimal acceleration/deceleration automatic setting) function

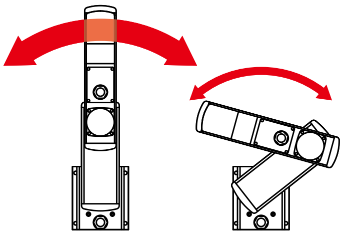
The SCARA robot also incorporates a zone control function that always operates the robot at its maximum performance level by considering changes in inertia due to the arm posture. Therefore, the robot does not exceed the tolerance value of the motor peak torque or speed reducer allowable peak torque only by entering the initial payload to bring out the full power of the motor and keep the high acceleration/deceleration.

For X-axis of YK500XG

The torque in the arm folded state is 5 or more times different from that in the arm extended state.

▼

This may greatly affect the service life, vibration during operation, and controllability.



If the motor torque exceeds the peak value

→ **This may adversely affect the controllability and mechanical vibration, etc.**

If the torque exceeds the tolerable peak torque value of the speed reducer

→ **This may cause early breakage or shorten the service life extremely.**

POINT 3

Multi-function and expandability

- Multi-axis controllers support up to 30,000 points (10,000 points for the RCX2 series, 1,000 points for the single-axis controller (255 points for the TS series)). Up to 100 programs can be created on each controller.
- Various field networks, CC-Link, DeviceNet™, PROFIBUS, and EtherNet/IP™ are supported.

  Note. Some models do not support all networks.

- The TS series, RD series, SR1 series, and RCX series use a dual-power supply system with separate control power supply and power supply.
- As the controllers conform to the CE marking that is safety standards in EU (Europe), they can be used safely even overseas.
  The TS series (except for TS-S), SR1 series, and RCX series conform to up to safety category 4.

For details about functions of each controller, refer to controller details pages from P.481.

Name	Type	Number of points	Number of programs	Applicable network						Compliance with CE
				CC-Link	DeviceNet™	Ethernet	EtherNet/IP™	PROFIBUS	PROFINET	
TS-S2/TS-SH	1 axis robot positioner	255	-	○	○	-	○	-	○	○
TS-X/TS-P		255	-	○	○	-	○	-	○	○
TS-SD	1 axis robot driver	-	-	-	-	-	-	-	-	○
RDV-X/RDV-P		-	-	-	-	-	-	-	-	○
ERCD	1 axis robot controller	1,000	100	-	-	-	-	-	-	-
SR1-X/SR1-P		1,000	100	○	○	○	-	○	-	○
RCX221/RCX222	1 to 2 axes controller	10,000	100	○	○	○	-	○	-	○
RCX240	1 to 4 axes controller	10,000	100	○	○	○	○	○	-	○
RCX340		30,000	100	○	○	○	○	○	○	○

RDV-X/RDV-P

P.506 **FLIP-X** **PHASER**

[Robot driver]

RDV-X

RDV-P

Operation method	Pulse train
Input power	Main power Single-phase/3-phase AC 200 V to 230 V Control power Single-phase AC 200 V to 230 V
Origin search method	Incremental

Dedicated pulse train control

The dedicated pulse train control has achieved a compact body and a low price.

Position setting time reduced by 40%

The response frequency is enhanced about two times in comparison with former models. The position setting time of uniaxial robots is reduced by about 40%.[Note 1]

Large cost reduction possible

It is easy to assemble them in automated machinery. You can save much labor in designing, parts selection, setting and more. A large cost reduction is possible.

Contributing to saving space for the whole control board

The compact design has reduced the width up to a maximum of 38% in comparison with former models. In addition, the improvement of radiation efficiency makes it possible to arrange the devices with less space in between. Multiple units can be installed side by side in a neat arrangement.

Easy replacement

The parameter settings and fastening-hole pitches are the same as those of former models. It is easy to replace the software and the hardware as well.

Command input: Line driver (2 Mpps)

Command output: ABZ-phase output (with a divider function)

Real-time operation status monitoring

You can have analog outputs for speed, amperage, and more information to know the operation status in real time. RDV-Manager, the dedicated support software, is also available for a graphical view of the status.

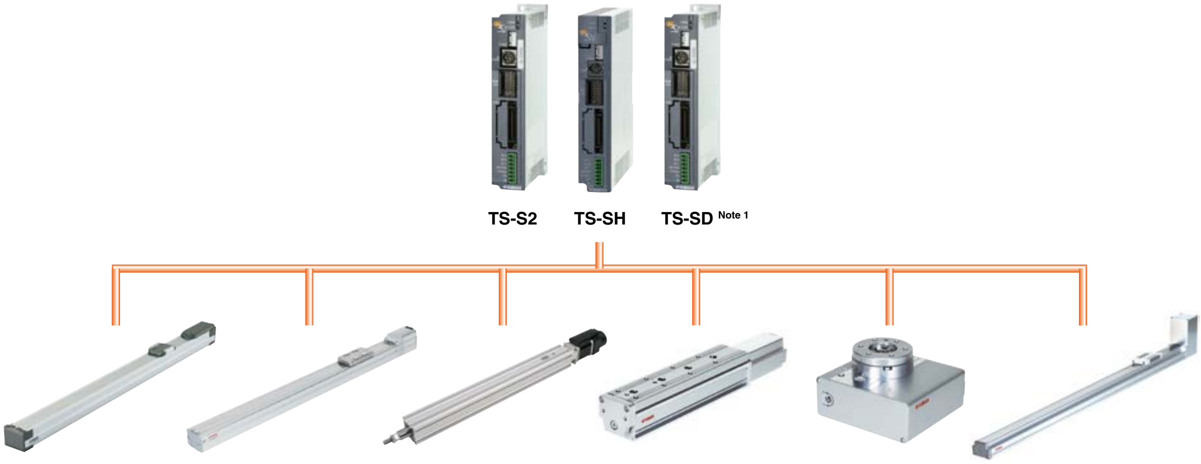
Main power: Single and three phases supported (200V)

The full-specification operation is available with a single-phase power supply.

Note 1. With a 400W servomotor, 20mm ball screw lead, and portability of 40kg.

TS-S2/TS-SH/TS-SD POINT

Usable for all TRANSERVO series models



SS type
Slider type

SG type Note 2
Slider type

SR type
Rod type

STH type
Slide table type

RF type
Rotary type

BD type
Belt type

Note 1. The STH type vertical specifications and RF type sensor specifications do not support the TS-SD.
Note 2. SG07 is only applicable to TS-SH.

TS-SD

P.502 **TRANSERVO**

[Robot driver]

TS-SD

Operation method	Pulse train	
Input power	Main power Control power	DC 24 V +/- 10 % DC 24 V +/- 10 %
Origin search method	Incremental	

Pulse train input driver dedicated to "TRANSERVO"

A robot driver dedicated to the pulse train input for "TRANSERVO".

Torque decrease in high-speed area is suppressed

As a vector control method is used, the torque decrease in high-speed area is small and high-speed operation even with high payload can be performed. This greatly contributes to shortening of the tact time.

Excellent silence

High-pitched operation sounds unique to the stepping motor are suppressed to achieve silent operation sounds similar to the AC servo.

Easy operation with support software TS-Manager

In the same manner as the robot positioner TS series, the operation can be performed with the TS-Manager (Ver.1.3.0 or later) having various convenient functions, such as robot parameter setting, backup, and real-time trace (The handy terminal "HT1" cannot use this TS Manager).

Applicable to a wide variety of pulse train command inputs

This robot driver can be made applicable to the open collector method or line driver method using the parameter setting and signal wiring. In the open collector method, a wide voltage range from 5 V to 24 V is supported. So, the robot driver can be matched to the specifications of the host unit to be used.

TS-Manager: Real-time trace function

The current position, speed, load factor, current value, and voltage value, etc. can be traced at real-time. Additionally, as trigger conditions are set, the data when the conditions are satisfied can be automatically acquired. Furthermore, as a range is specified from the monitor results, the maximum value, minimum value, and average value can be calculated. So, this is useful for the analysis if a trouble occurs.

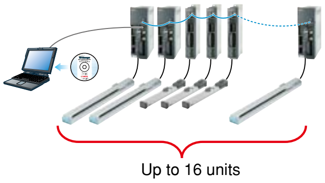
Real-time traceable items (up to four items)

- Voltage type
- Command speed
- Command current value
- Input/output I/O state
- Word input/output state Note 2
- Command position
- Current speed
- Current current value
- Input pulse count Note 1
- Current position
- Internal temperature
- Motor load factor
- Movement pulse count Note 1

Note. 1: TS-SD only Note. 2: TS controller only

Daisy chain function

As multiple TS series controllers and drivers are connected in a daisy chain, the data of a desired unit can be edited from the personal computer (up to 16 units).



TS-S2/TS-SH

P.492 **TRANSERVO**

[Robot positioner]

TS-S2 TS-SH

Operation method	Point trace Remote command Online command
Number of points	255 points
Input power	Main power DC 24 V +/- 10 % Control power DC 24 V +/- 10 %
Origin search method	TS-S2 Incremental TS-SH Absolute Incremental

TS-X/TS-P

P.492 **FLIP-X** **PHASER**

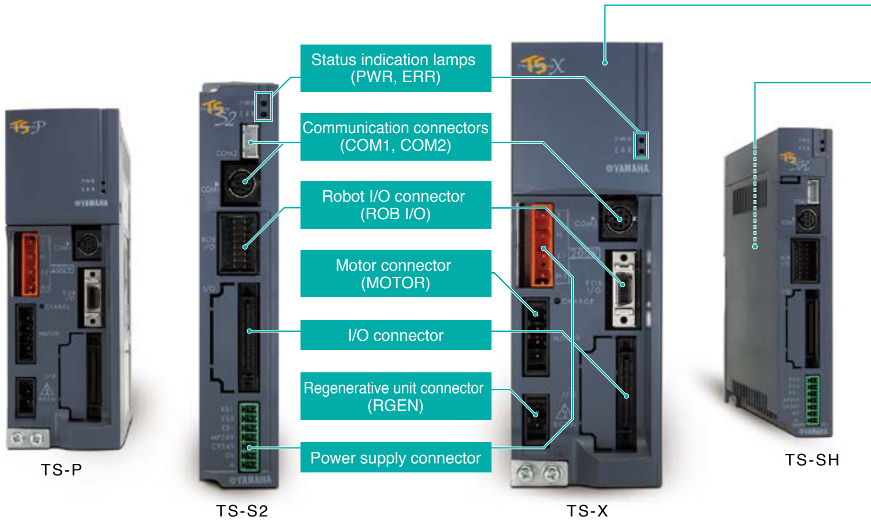
TS-X TS-P

Operation method	Point trace Remote command Online command
Number of points	255 points
Input power	AC 100 V / AC 200 V
Origin search method	TS-X Absolute Incremental TS-P Incremental Semi-absolute

Design that allows a clean installation

Unified installation sizes

Height and installation pitch are unified throughout the series. Units can be installed neatly within the control board.


Status indication lamps (PWR, ERR)
Communication connectors (COM1, COM2)
Robot I/O connector (ROB I/O)
Motor connector (MOTOR)
I/O connector
Regenerative unit connector (RGEN)
Power supply connector
TS-P
TS-S2
TS-X
TS-SH

Absolute battery is neatly accommodated

The absolute battery is stored inside the unit. Replacement can be performed easily from the front side. (TS-X and TS-SH supported)

TS-X

DIN rail installation

On-board installation is made easy by the DIN rail installation mechanism that is standard on the TS-SH. (Optionally installable on other models)

Selectable I/O interfaces

Two RS-232C ports provided

- **Connect support tools**

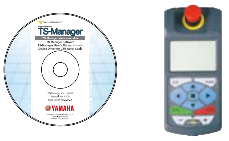
  Intuitive operation supports controller design and maintenance.

- **Daisy-chaining**

  Two ports can be used to daisy-chain up to 16 units.

- **Communication commands**

  Easily understood ASCII text strings can be used to perform robot operations.



Selectable 100V/200V

- The TS-X/P let you select AC100/200V as the power input. (The 20A model is 200V only.)
- The TS-S2/SH is DC24V input.

A variety of I/O interfaces

In addition to NPN and PNP, you can choose CC-Link, DeviceNet™, EtherNet/IP™, and PROFINET field networks.

CC-Link DeviceNet EtherNet/IP PROFINET

- **Positioner interface**

  Functionality has been condensed into an I/O interface with 16 inputs and 16 outputs. In addition to easy positioning, this also includes functionality that enhances interoperability with the control device.

- **Remote commands**

  Numerical data can be directly manipulated by using the four-word input and four-word output areas. You can add new direct positioning commands to further unify the data at the control device.

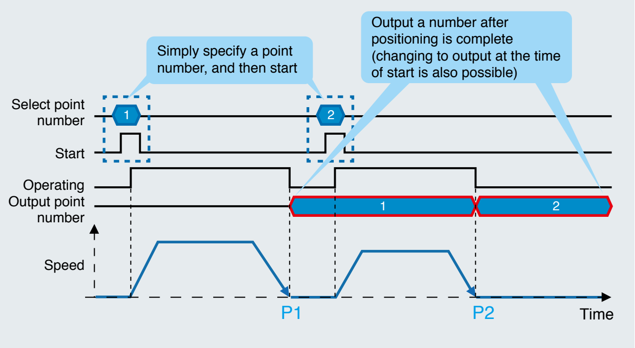
- **Gateway function**

  New types of connection are provided to reduce network costs. (CC-Link, EtherNet/IP™, and PROFINET are supported.)

Positional interface

"Positioner function" for easy positioning

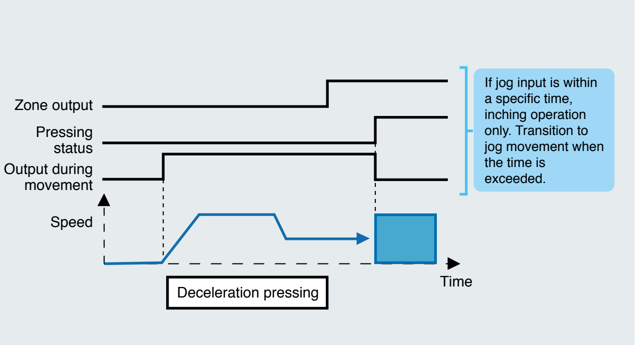
You can easily perform positioning operations by specifying the number of a point that is registered in the data, and entering a start command.


Simply specify a point number, and then start
Output a number after positioning is complete (changing to output at the time of start is also possible)
Select point number
1
2
Start
Operating
Output point number
1
2
Speed
P1
P2
Time

Number	Operation type	Position (mm)	Speed (%)	Acceleration (%)	Deceleration (%)	Branch	Timer (ms)
P1	ABS	100.00	100	100	100	0	0
P2	ABS	200.00	80	100	100	0	0

A variety of output functions

The TS controller provides a variety of status outputs that are linked with positioning operations. By selecting and using an output appropriate for the scene, this can contribute to cost-saving measures such as making the steps of the control device's program more efficient or by reducing the peripheral equipment.


Zone output
Pressing status
Output during movement
Speed
Time
Deceleration pressing
If jog input is within a specific time, inching operation only. Transition to jog movement when the time is exceeded.

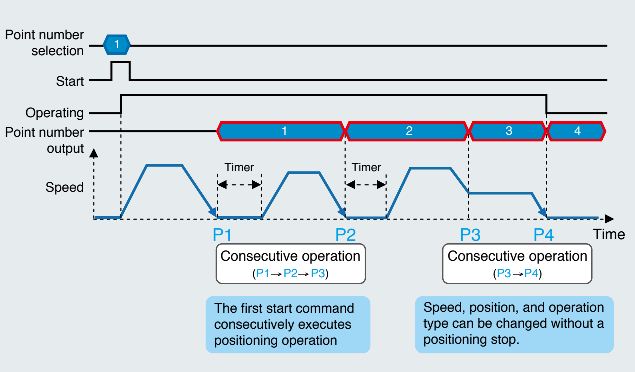
List of outputs

- Zone output....................Output ON when between the two specified points
- Near position output.......Output ON when entering the specified region from the goal position
- In movement output ....Output ON when above the specified speed
- Pressing status..............Output ON when specified pressing strength is reached

Also provided are return-to-origin completed status, manual mode status, warning output, and alarm number output, etc.

Consecutive operation, linked operation

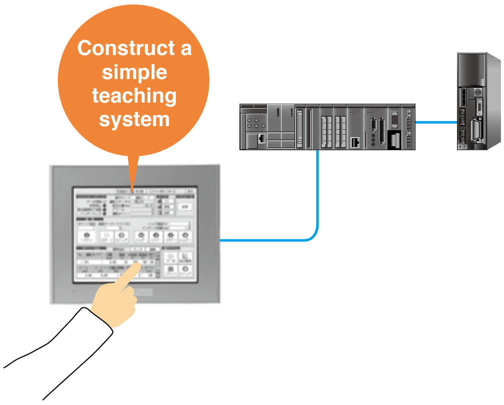
By specifying a branch destination, it is possible to execute positioning operations consecutively. Additionally, by specifying linked operation, operation with the branch destination can be executed while changing the speed without positioning stops; this allows control programming to be simplified and takt to be shortened.


Point number selection
1
Start
Operating
Point number output
1
2
3
4
Speed
Timer
Timer
P1
P2
P3
P4
Time
Consecutive operation (P1→P2→P3)
Consecutive operation (P3→P4)
The first start command consecutively executes positioning operation
Speed, position, and operation type can be changed without a positioning stop.

Number	Operation type	Position (mm)	Speed (%)	Acceleration (%)	Deceleration (%)	Branch	Timer (ms)
P1	ABS	100.00	100	100	100	2	500
P2	ABS	200.00	80	100	100	3	800
P3	ABS linked	300.00	100	100	100	4	0
P4	ABS	350.00	30	100	100	0	0

Jog and point teaching functions are provided as standard

Jog movement and point teaching functions are provided as standard for input signals. By linking these with buttons of a touch panel etc., a simple teaching system can be constructed.



TS-S2/TS-SH/TS-X/TS-P

Remote commands

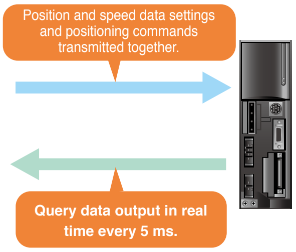
Ideal for unifying data management

Remote commands are functions by which the control device can directly handle data such as points and parameters using the word area of the field network.
Numerical data can be operated directly by using the word area. This promotes unification of data management.

WIN0	WIN1	WIN2	WIN3
Command	Speed data	Position data	

WOUT0	WOUT1	WOUT2	WOUT3
Status	–	Query data	

Data can be managed on the control device


Position and speed data settings and positioning commands transmitted together.
Query data output in real time every 5 ms.

Query data list

- Current position
- Current
- Internal temperature
- Point number being executed
- Current speed
- Voltage
- Load ratio

New function Direct positioning commands that directly specify position and speed data

As remote commands, "direct positioning commands" are provided, allowing the position and speed data to be specified directly and then positioning operations to be performed. In addition to unifying the positioning data on the control device, this allows it to be done with a single command, simplifying programming of the control device.

Consecutive queries for realtime update of various status information

Normally, remote commands only update data when responding, but if a consecutive query is issued, the data continues to be updated at a fixed interval until permission is given to stop. This is useful in various cases such as when it is desirable to obtain positioning data during operation for interoperation with peripheral devices, or to obtain current values in order to monitor the status of a robot.

Parallel processing of "positioner interface" and "remote commands"

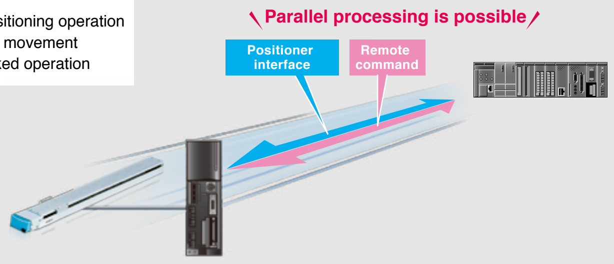
Since positioner interface and remote commands operate independently of each other, parallel processing is possible.

< Usage examples >

- Obtain the current position during positioning operation
- Obtain the current position during jog movement
- Change the target position during linked operation

		Positioner interface		Remote command
		Positioning operation	Jog movement	Positioning operation
Remote commands	Data write	○	○	–
	Data read	○	○	–
	Consecutive query	○	○	○

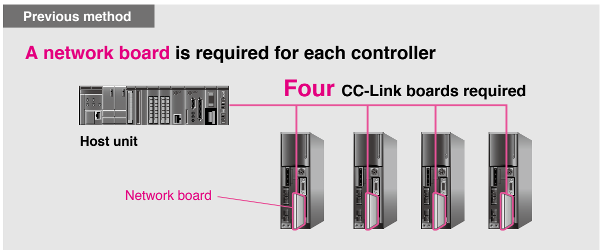
○ : Parallel processing possible

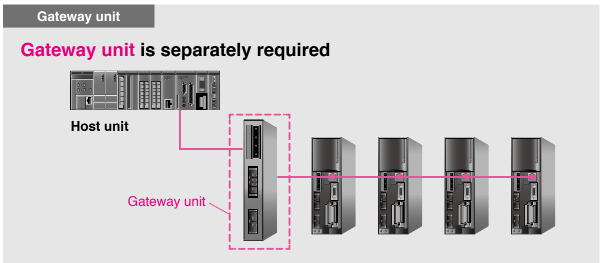


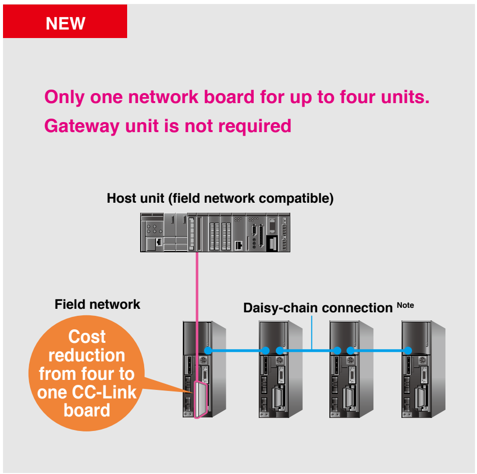
"Gateway function" — a new way to connect **New function**

Decrease network cost

One controller equipped with a field network board can provide unified management of up to four I/O interfaces via a daisy-chain connection. This allows network cost to be decreased while enabling the same type of I/O control as when one board is installed for each unit. (CC-Link and EtherNet/IP™ are supported)


Previous method
A network board is required for each controller
Four CC-Link boards required
Host unit
Network board



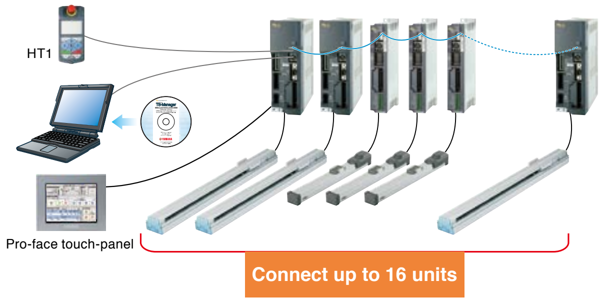

NEW
Only one network board for up to four units.
Gateway unit is not required
Host unit (field network compatible)
Field network
Daisy-chain connection Note
Cost reduction from four to one CC-Link board

Note. Daisy chain connection cable is required.

Daisy chain connection

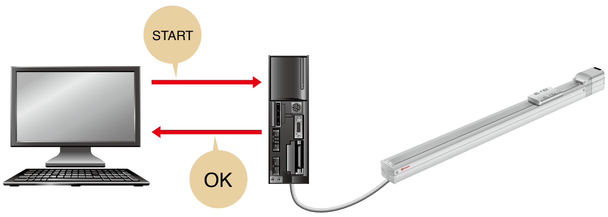
No need to connect or disconnect cables during operation (up to 16 units)

From a single PC, handy terminal, or touch-panel display, it is possible to specify point data and parameters, perform operations, and monitor the status for up to 16 axes on daisy-chained controllers. For everything from design to maintenance, a connection to only the first controller is sufficient; any desired controller can be accessed simply by switching the station number, without having to connect or disconnect cables.



Communication commands

An easily handled command protocol using ASCII text strings supports a wide range of needs from data editing to operation and status monitoring. By daisy-chaining multiple devices, simple multi-axis control can be performed.



"KEYENCE PROTOCOL STUDIO Lite" serial communication settings software

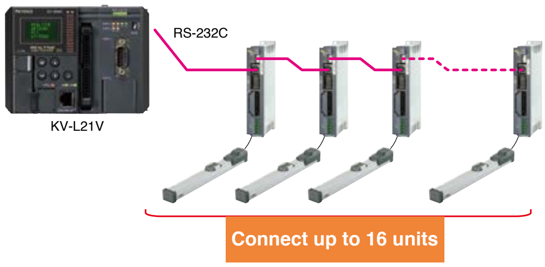
By loading a TS settings file into PROTOCOL STUDIO Lite, communication settings and main communication commands can be registered automatically. Ladder-less data editing and daisy-chaining can be easily accomplished.

Contact for questions regarding PROTOCOL STUDIO Lite

Keyence Corporation, www.keyence.co.jp/red/kv01/

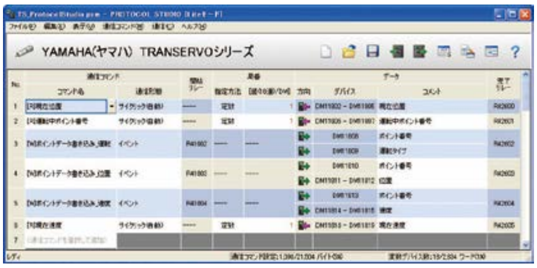
Daisy-chain connections (up to 16 axes)

Communication with the KV-L21V uses a Yamaha-made communication cable (D-sub type). By using daisy-chain connections, up to 16 axes can be managed together.



Automatic device assignment for each communication command

If the communication type is specified as cyclic, the desired information to be obtained is automatically stored in data memory.



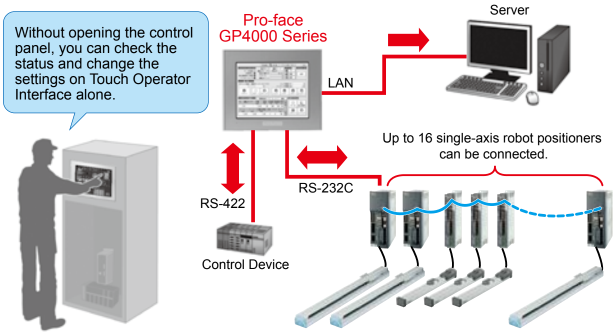
Touch operator interface "Pro-Face" GP4000 Series

Connecting GP4000 Series made by Pro-face to Robot Positioner, TS-S2, TS-SH, TS-X, TS-P enables you to use a lot of functions as well as basic operations on Touch Operator Interface.

Free download of the program file from the Pro-face home page
http://www.proface.com

Can easily check a state and change settings.

- Check the status (the current position, speed etc)
- Basic operations such as Jog operation, inching operation, return to origin, error reset etc.
- Set, edit, or back up point data and parameters
- Check triggered alarms and detailed descriptions of alarm history


Without opening the control panel, you can check the status and change the settings on Touch Operator Interface alone.
Pro-face GP4000 Series
Server
LAN
Up to 16 single-axis robot positioners can be connected.
RS-232C
RS-422
Control Device

Supports 3 languages

- Supports Japanese, English, and Chinese (simplified, traditional)

SR1-X/SR1-P

P.518 FLIP-X PHASER

[Single-axis robot controller]

SR1-X

SR1-P

Operation method	Program Point trace Remote command Online command
Number of points	1000 points
Input power	AC 100 V AC 200 V
Origin search method	SR1-X Absolute Incremental SR1-P Incremental Semi-absolute

Various command methods

An optimal method can be selected from various command methods, such as program, point trace, remote command, and online command. The program uses the YAMAHA SRC language that is similar to the BASIC. Various operations, such as I/O output and conditional branching, etc. can be executed using simple operations.

Applicable to complete absolute position system

The SR1-X is applicable to complete absolute position system. No return-to-origin is needed. (The backup period is one year in the non-energizing state.)

I/O assignment function

As the I/O assignment is changed, the point trace operation, point teaching, and trace operation by specifying coordinate values can be selected in addition to the normal program operation. Since the JOG movement through the I/O is possible in the point teaching mode, the point teaching can be performed from the host unit without the HPB.

Current position output function

The position data is output as feedback pulse or binary data. This allows the host unit to understand the current robot position at real-time. Furthermore, functions, zone output or point zone output to output near point number are incorporated.

Torque limiting

As this function limits the maximum torque command value at desired timing, it is effective in operations such as pushing and workpiece gripping operations. Furthermore, in addition to the torque limiting by the parameter data value, the torque limiting by the analog input voltage can be performed.

ERCD

P.512 T4L/T5L

[Single-axis robot controller]

ERCD

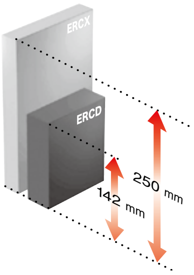
Operation method	Program Point trace Online command Pulse train
Number of points	1000 points
Input power	DC 24 V
Origin search method	Incremental

Four command formats

A desired command format can be selected from four command formats, program operation using various commands, point trace operation only by instructing a point number, online command, and pulse train input.

Compact design

Compact box size of W 44 × H 142 × D 117mm is achieved with the functions improved.
The volume ratio of the robot controller is downsized to approximately 62 % when compared to YAMAHA's conventional model ERCX. The flexibility of the installation space is improved.



Various input/output functions

As a feedback pulse output function is provided, the host control unit can easily manage the current position. Additionally, as the movement point number can be output in binary format during point trace, the operation can be checked easily. As a teaching function using the I/O is added, the flexibility and usability of the system configuration are further improved.
This output is enabled in the program or point trace operation and the number of outputs can be changed to a desired level using the division setting.

Various monitor functions

The controller status can be checked using the input/output status monitor, duty monitor, and LED status display.

Error history and alarm history

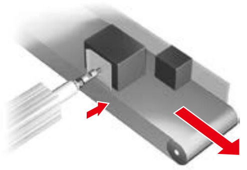
The error or alarm history that occurred in the past can be displayed and checked on the HPB or personal computer screen.

Robot number management

As the controller is initialized by the robot number of the robot to be controlled, parameters suitable for each robot model are automatically registered and no complicated servo adjustment is needed.

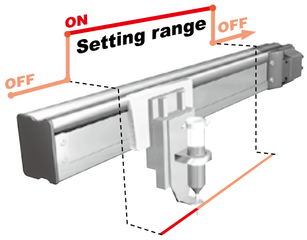
Torque limiting control

The torque limiting control can be performed using the program command. The axis can be stopped with the torque applied. This torque limiting control can be used for continuous positioning of workpieces with different sizes, press-fitting work, and workpiece holding operation.



Zone output function

The general-purpose output on/off setting between desired points can be performed using the parameter setting. The positive logic/negative logic setting can be made and the axis position can be easily judged by an external unit. Up to four patterns can be set.

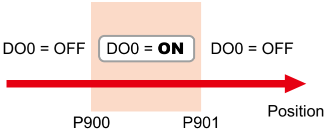


SR1-X/SR1-P/ERCD Various functions

Position data output function

Zone output

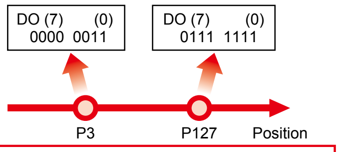
Outputs whether or not the robot position is within the specified range.



It is possible to reverse the output logic.

Point zone output

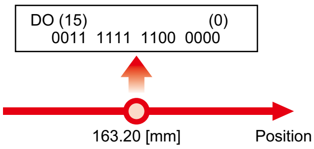
Outputs the point number near the robot position in binary format.



It is also possible to limit to only the moving point.

Binary output

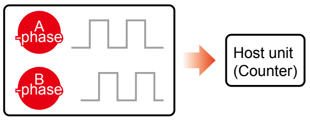
Outputs the current robot position in 16-bit binary format. (This function is available only in the SR1.)



It is possible to adjust the unit of the output position data to be output using parameters.

Feedback pulse output

Outputs the current position counter value of the robot through the A/B-phase line driver.



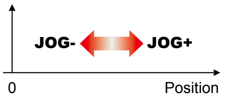
It is possible to perform the monitoring by host unit at real-time.
A frequency division function is built-in.

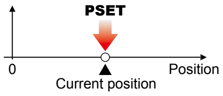
Point teaching

The JOG movement of the robot and the point reaching can be performed from the host unit.

■ Concept

- The robot is moved to the teaching position using the JOG+/JOG- command.
- The current position is registered into the point number specified by the PSET input.

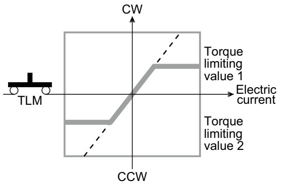




Torque limiting function

As the torque limiting is performed during operation, the operation, such as pushing and workpiece gripping can be performed.

■ Concept



■ Features

SR1

- Host unit manages the limiting time using the TLM input.
- Limiting status is understood using the torque limiting status output (TLON).
- Torque limit value is changed (up to 4 patterns) using the input.
- Torque can be limited using the program command.
- Torque can be limited using the analog input (0 to +10 V / 12 bit).

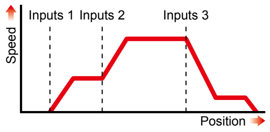
ERCD

- Torque can be limited using the T program command.

Movement data change function

The movement speed or target position can be changed during movement. (This function is available only in the SR1.)

■ Concept



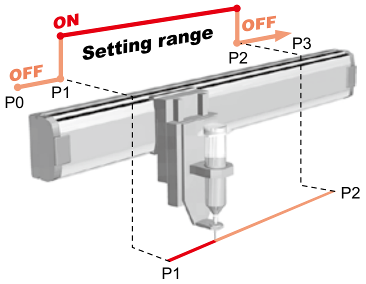
■ Features

- Host unit manages the limiting time using the movement command input.
- Movement command is ABS-PT (absolute movement command) or ABS-BN (binary specified movement command).
- Change speed can be specified in a range of 1 to 100 % (up to 4 patterns).
- Changing is disabled in the deceleration zone.

YAMAHA SRC language convenient functions

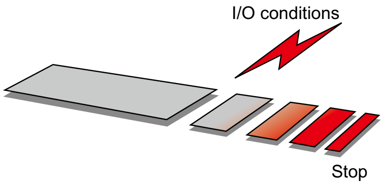
Multi-task function

This function can execute multi tasks, such as robot peripheral units in parallel at the same time. Up to four tasks can be executed. With the multi-task function combined with JMPP command, the I/O signals can be output when the robot passes through the specified point during movement.



Conditional stop function during movement

The arm can be decelerated and stopped using I/O conditions of the MOVF command while it is moving. This function is useful when searching for the target position with the sensor.



RCX2 series RCX221/222 P.526 RCX240/240S P.534

[Multi-axis robot controller]

RCX221

Operation method	Program Remote command Online command
Number of points	10000 points
Input power	AC 200 V
Origin search method	Incremental Semi-absolute

RCX222

Operation method	Program Remote command Online command
Number of points	10000 points
Input power	AC 200 V
Origin search method	Absolute Incremental

RCX240

Operation method	Program Remote command Online command
Number of points	10000 points
Input power	Single phase : AC200V to 230V +/-10% maximum
Origin search method	Absolute Incremental

Applicable to all YAMAHA robot models

The RCX series is applicable to all YAMAHA robot models, such as PHASER, FLIP-X, and XY-X, etc. As the single-axis robot (FLIP-X/PHASER) can be combined with the Cartesian robot freely, various applications can be supported (except for some compact single-axis robots).

Complete absolute position system

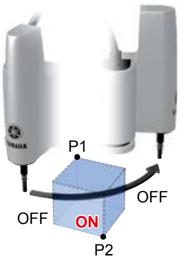
The RCX uses complete absolute specifications that need no return-to-origin when the power turns on. The completely same system can be applicable to the incremental specifications. (When the PHASER series uses the magnetic scale, it is applicable to the semi-absolute or incremental specifications.)

Extension of absolute data backup time

As the backup circuit is improved to the energy saving, the absolute position data retention period in the non-energizing state is greatly extended. The maximum one month of the conventional model is extended to approximately one year. The current position information is monitored during long vacations, equipment storage, or even during transportation, and no return-to-origin is needed when energized again. This allows quick production start.

Area check output function

This function can output the I/O signals when the robot enters a set area during operation. Up to eight check areas can be set.



Applicable to dual-drive

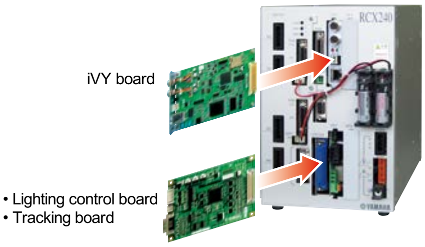
A dual-drive function is incorporated that controls two axes synchronously. This function is effective for heavy workpiece transfer or Y-axis long stroke of the Cartesian robot. The function can perform the operation using the high-speed and high acceleration/deceleration of YAMAHA robots.

Note. The dual-drive is supported as a custom order. For detail, please consult YAMAHA.

■ Example of dual-drive

Applicable to robot vision "iVY System"

The RCX series also supports the YAMAHA robot vision "iVY System" that is capable of easy setup and applicable to a wide variety of applications. As the vision board is incorporated into the controller main body, the calibration work requiring a long time and labor is then greatly simplified. As the position is corrected by the image recognition, the versatility and applicability of the equipment is widened greatly (only supported by the RCX240).

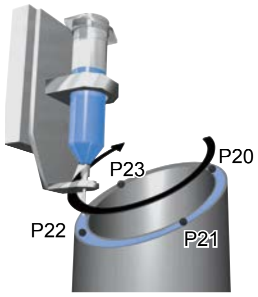


Double-carrier anti-collision function

When using the double-carrier, collisions between both carriers can be prevented by the control in the controller. Collision preventions by the zone judgments or external sensors are no longer needed to make the double-carrier easier to use.

3D linear/circular interpolation control

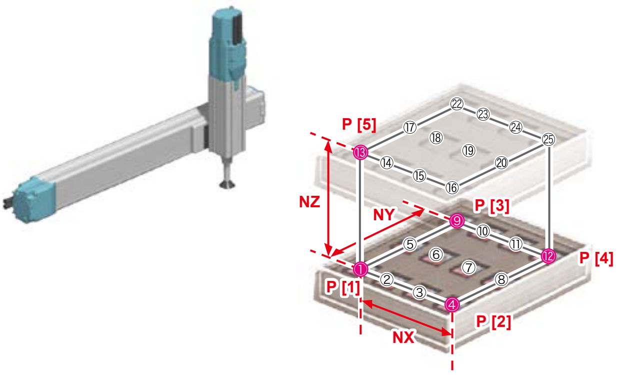
2D and 3D linear and circular interpolation controls are possible. This ensures the smooth and highly accurate operations suitable for the sealing work. (The 3D interpolation is not available in the RCX221/222.)



Palletizing function

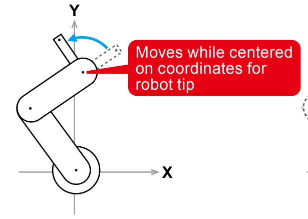
This function can easily define up to 20 kinds of pallets only by entering four corner positions on the pallet as the teaching points. When entering the teaching point in the height direction, even three-dimensional pallets are supported.

When specifying the defined pallet number and executing the movement command, the palletizing work is then performed. Various operations, one point → pellet, pallet → one point, and pallet → pallet, can be performed using the programs.

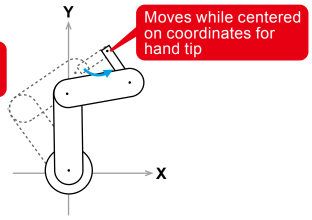


Hand definition

This function operates the robot based on coordinates of the offset tool tip when the tool is attached to the tip of the robot axis in the offset state. Particularly, this function is effective during tool rotation of SCARA robots or robots including the rotation axis.



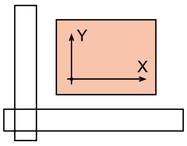
No hand definition



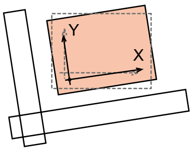
Hand definition

Shift coordinates

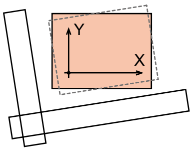
A deviation may occur in the coordinate system when re-installing or replacing the robot during maintenance work. In this case, the coordinate system can be corrected using the shift coordinate function. So, the point data can be used as it is. No re-teaching is needed.



Original coordinates



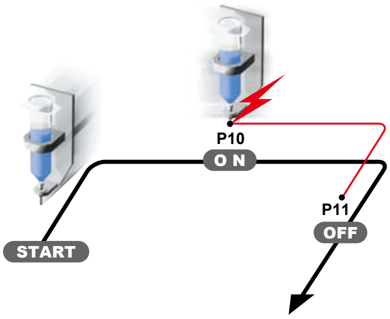
Coordinates after reinstallation



Correction with shift coordinates

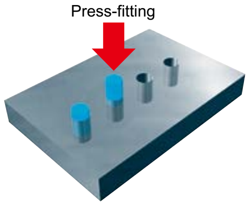
Passing point output control

The general-purpose output on/off can be controlled by specified points without stopping the axis operation during interpolation operation. The dispense can be turned on or off with the axis operated during sealing to allow smooth and stable dispensing.



Torque limiting function

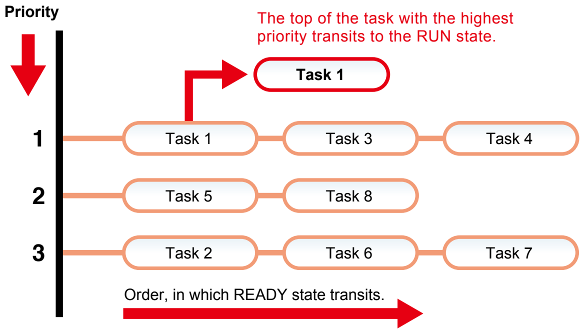
The motor torque can be limited during gripping or press-fitting.



Multi-task function

This function can execute multi tasks (up to eight tasks), such as robot peripheral units in parallel at the same time. When there are multiple tasks, the task can be changed by means of the time sharing method and a priority can be put on the task. Additionally, the priority can also be changed while the task is running. The multi-task function simplifies the control configuration of the entire system to improve the operation efficiency.

■ Task scheduling


Priority
The top of the task with the highest priority transits to the RUN state.
Task 1
1
Task 1
Task 3
Task 4
2
Task 5
Task 8
3
Task 2
Task 6
Task 7
Order, in which READY state transits.

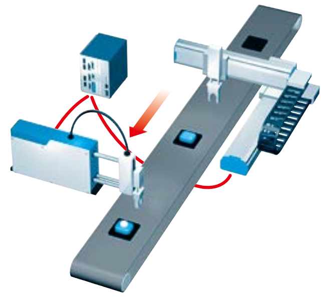
Sequence program

In addition to the normal task, a task to individually control the input/output (parallel, serial, memory, timer) can be executed.

As the sequence program can be enabled even in the manual mode, this is effective to construct a safety system linked with peripheral units.

2-robot control

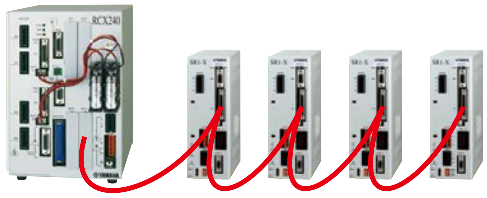
Two robots that are assigned to the main and sub robots can be simultaneously controlled using one controller. As this function is used together with the multi-task, advanced and smooth linking of two robots can be performed using one controller.



Applicable to auxiliary axis addition function "YC-Link system"

This YC-Link is a system that controls the single-axis robot controller SR1 from the multi-axis controller RCX series through the serial communication.

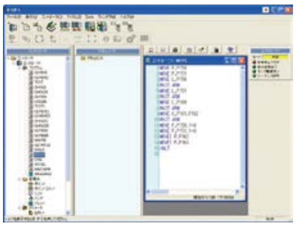
By installing the YC-Link system, the RCX series can be easily linked with the SR1 series. As multiple controllers can be linked as required, up to eight axes (up to six axes for simultaneous control) can be controlled.

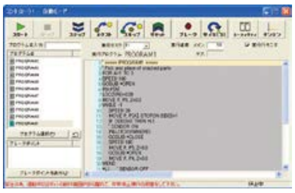


Powerful support software: VIP+ (plus)

This application software allows you to easily and visually operate the robot, create and edit programs, and teach points.

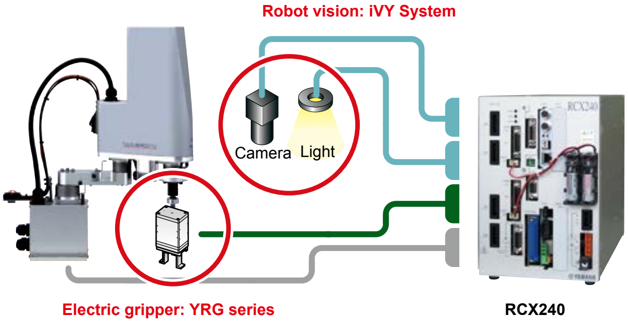
The user interface is greatly improved and made easier to use when compared to the conventional support software VIP.





Applicable to electric gripper "YRG series"

All grippers can be controlled using one RCX240 controller. Data exchanging with the host unit, such as PLC is not needed. The setup or startup is very easy.



RCX240/RCX340 POINT

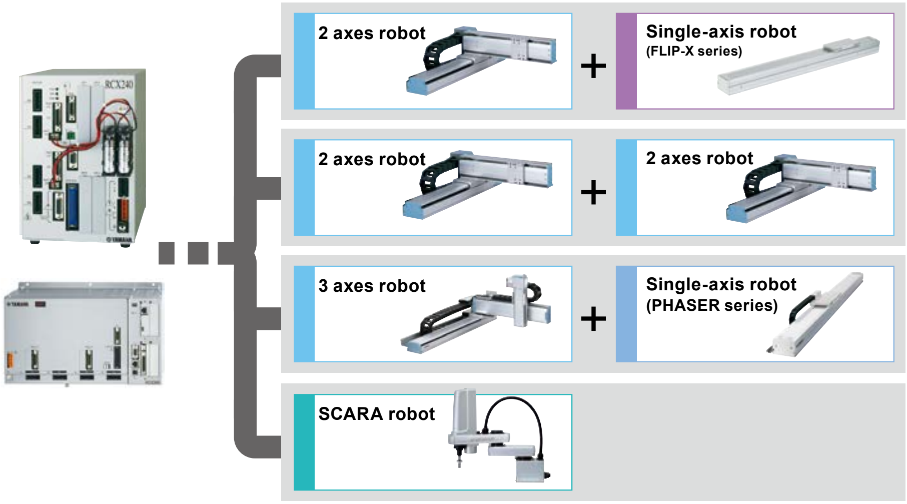
RCX240 and RCX340 are applicable to all single-axis, Cartesian, SCARA, and P&P robots [Note]

The 4-axis robot controller RCX240 and RCX340 are applicable to all robot models including single-axis, Cartesian, SCARA, and Pick & Place robots.

As the mixed control of the ball screw type FLIP-X series and linear motor type PHASER series can be performed, the robots can be combined freely according to the applications. Additionally, when preparing the robot controllers for the maintenance work of multiple robots, it is enough to prepare only one robot controller. This robot controller can be used for any model only by changing the setting.

Note. Except for 24 V specification models.

Robot configuration examples



RCX3 series RCX340 P.544

[Multi-axis robot controller]

RCX340

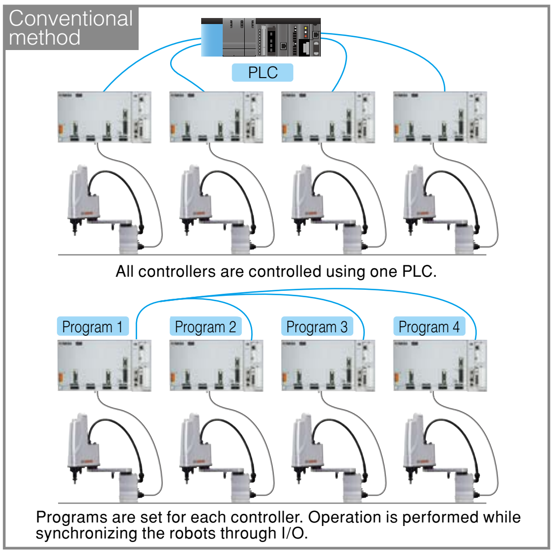
Operation method	Program Remote command Online command
Number of points	30000 points
Input power	Single phase : AC200V to 230V +/-10% maximum
Origin search method	Absolute Incremental Semi-absolute

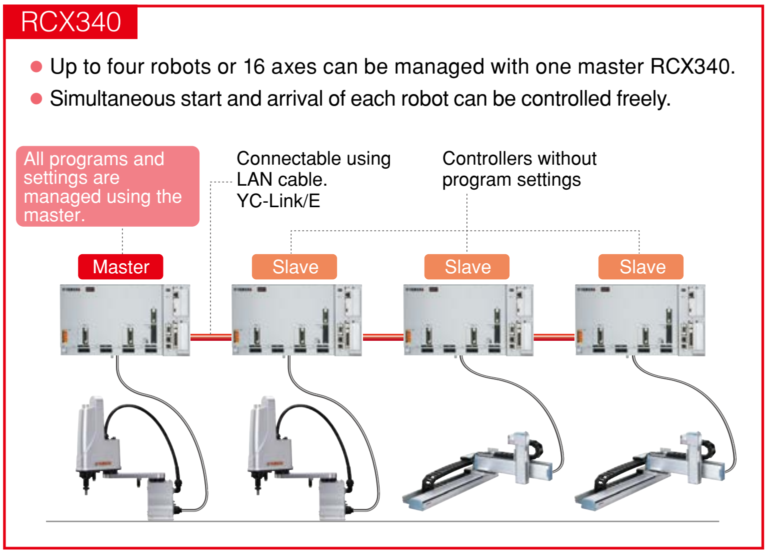
Advanced functionality allowing construction of high-level equipment

Multiple robots can be operated synchronously through the high-speed communication. Use of linking among controllers makes it possible to store programs into only one controller. Use of a newly developed algorithm achieves shortening of the positioning time and improvement of the tracking accuracy.

The control of multiple robots can be managed using one master controller

The RCX340 controller allows high-speed communication among the controllers. As the operation command can be sent to the controller of each slave from the master controller, the programs or points can be managed only using the host master controller. Additionally, as this controller supports multi tasks flexibly, data exchanging with the PLC can be simplified. Simultaneous start and simultaneous arrival of each robot can be controlled freely. Complicated and precision robot system using many axes can be constructed at a low cost.


Conventional method
PLC
All controllers are controlled using one PLC.
Program 1
Program 2
Program 3
Program 4
Programs are set for each controller. Operation is performed while synchronizing the robots through I/O.

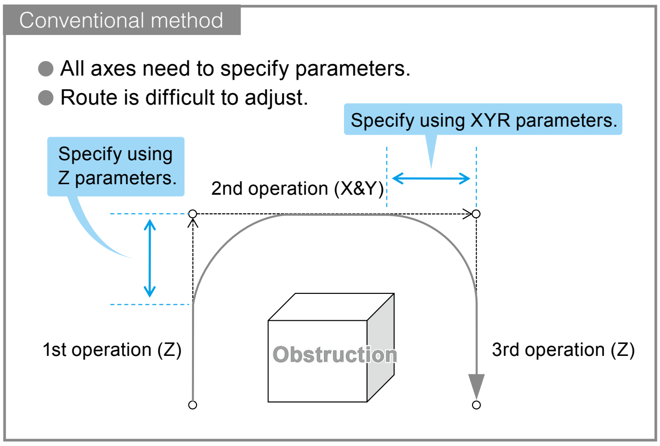


- Up to four robots or 16 axes can be managed with one master RCX340.
- Simultaneous start and arrival of each robot can be controlled freely.

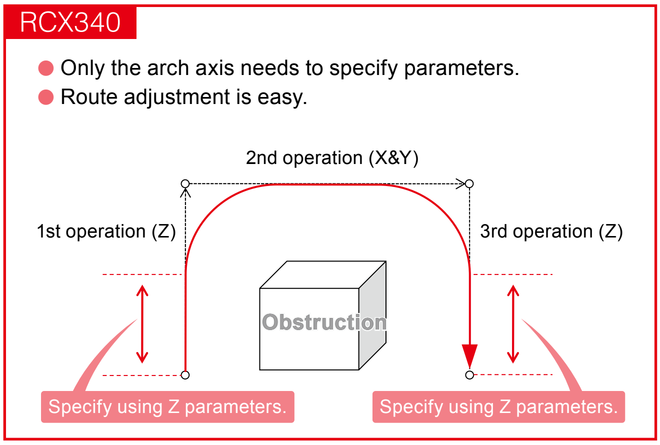
All programs and settings are managed using the master.
Connectable using LAN cable. YC-Link/E
Controllers without program settings
Master
Slave
Slave
Slave

Arch motion can be specified more intuitively

As the arch motion route designation method is changed and the designation method is simplified, the arch motion can be specified more intuitively.



- All axes need to specify parameters.
- Route is difficult to adjust.



- Only the arch axis needs to specify parameters.
- Route adjustment is easy.

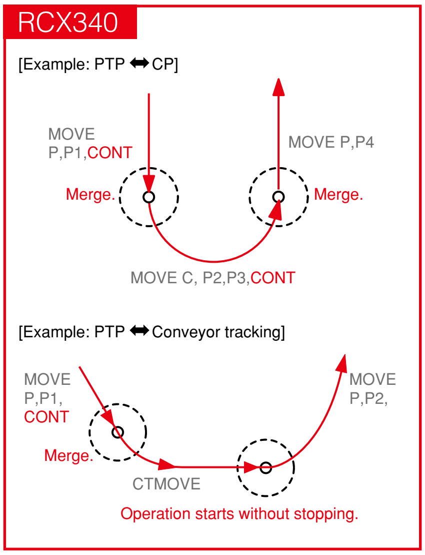
RCX340

Smooth movement is achieved by greatly improving motion functions

As a new servo motion engine is incorporated, various operations can be merged. Use of a newly developed algorithm achieves shortening of the positioning time and improvement of the tracking accuracy.

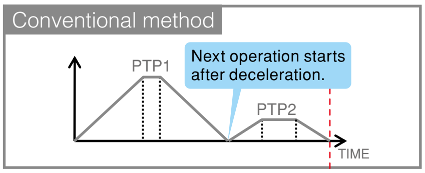
■ Expansion of CONT option function

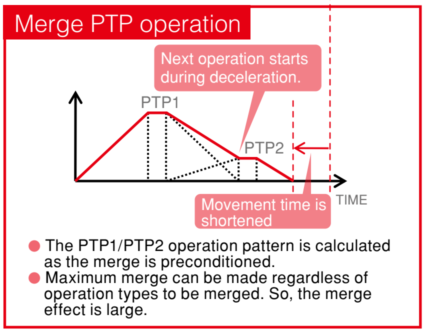
Different type operations, such as PTP, interpolation operation, and conveyor tracking, etc. are merged to improve the speed.



■ Improvement of operation speed Note

All operations can be merged as much as possible using the merge PTP.
As even operations with different acceleration or deceleration time are merged at maximum level with priority put on the operation time, the movement time is shortened greatly.

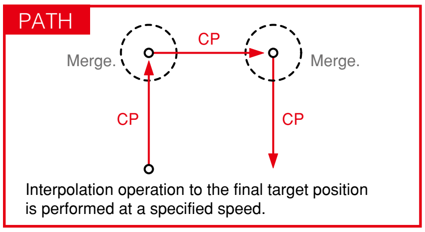



Merge PTP operation
Next operation starts during deceleration.
PTP1
PTP2
Movement time is shortened
TIME

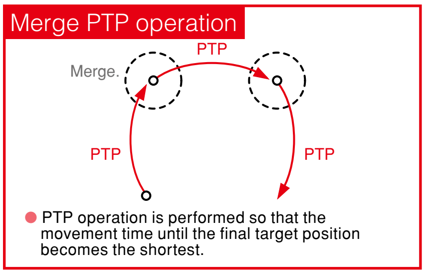
- ● The PTP1/PTP2 operation pattern is calculated as the merge is preconditioned.
- ● Maximum merge can be made regardless of operation types to be merged. So, the merge effect is large.

■ Proper use according to application Note

When performing the continuous operation, an optimal operation can be selected according the application, like traditional PATH is used for constant-speed operation, such as sealing and merge PTP is used for operation with priority put on the movement time.



Interpolation operation to the final target position is performed at a specified speed.

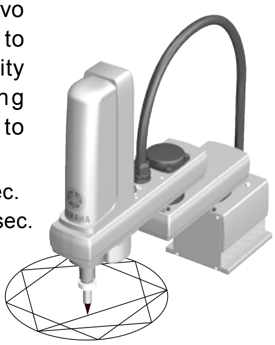


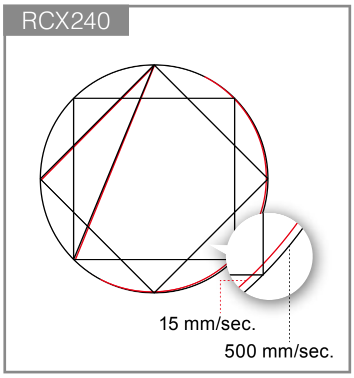
- ● PTP operation is performed so that the movement time until the final target position becomes the shortest.

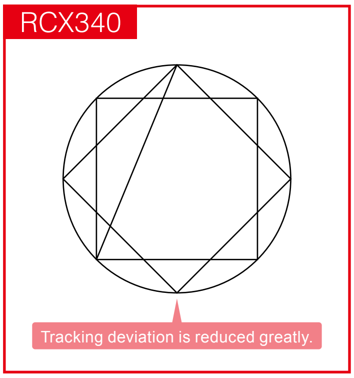
Note. It is necessary to upgrade the firmware to its latest version.

Improvement of tracking accuracy

Use of visualization with servo analyze function and high responsiveness with new servo function makes it possible to increase the follow-up ability and improve the tracking accuracy when compared to the conventional models.







Improved basic performance

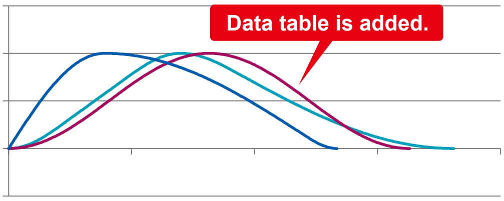
Functions, such as robot language, multi-task, sequence function, communication, and field bus are improved and made easier to use.

Motion optimization

The optimization of the motion to meet the operation pattern is further strengthened to bring out the robot performance at its maximum level. Higher quality robot operations, such as shortening of the operation time and suppression of vibrations during stopping are achieved.

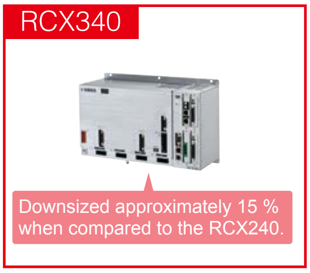
■ Optimal acceleration/deceleration motion

Acceleration/deceleration motion is generated that can perform the high-speed operation while suppressing vibrations.



Compact design

The outside dimensions are approximately 355 mm (W) × 195 mm (H) × 130 mm (D). The volume ratio is reduced to approximately 85 % and the body size is made compact when compared to the conventional 4-axis controllers so as to make the installation inside the control panel easy.

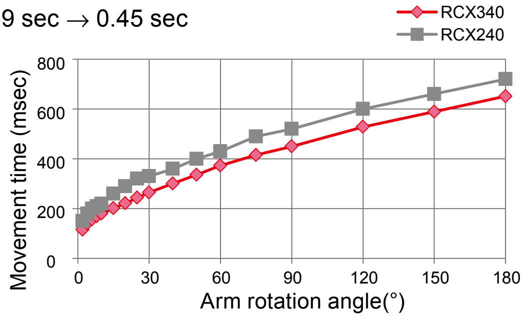


Improvement of cycle time

The speed-up of the YK-XG series is achieved.

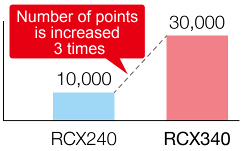
Example: YK400XG

- Standard cycle time operation
  0.49 sec → 0.45 sec



User memory capacity increase

- Number of points is greatly increased.



- Total capacity of program and point

RCX240		RCX340
364KB	▶	2.1MB

Built-in regenerative unit

As the regenerative unit (equivalent to RGU3) is built-in, no additional regenerative unit is needed when connecting to the existing robot.

Support tool with visibility and operability improved New support software RCX-Studio Pro

The program debug function is strengthened to support the multi-task. Use of convenient operability and program input support function makes it possible to perform the quick setup.

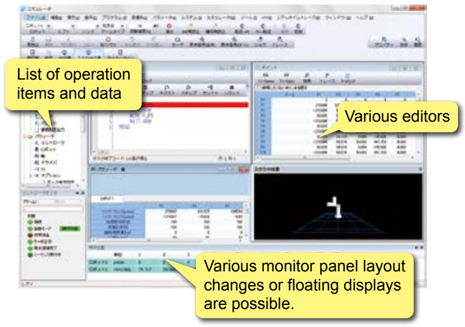
YAMAHA robot becomes easier to use, faster setup, efficient maintenance

Evaluation

- Emulator function provided
- Cycle time calculator

Design

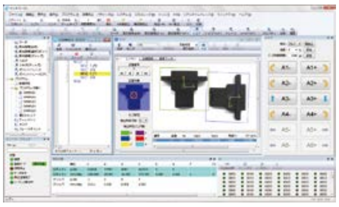
- Easy-to-use operating controls


List of operation items and data

Various editors

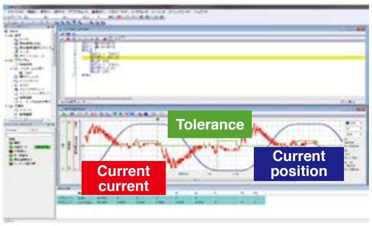
Various monitor panel layout changes or floating displays are possible.

- Inter-operation with other manufacturer's line simulators
- iVY2 editor provided

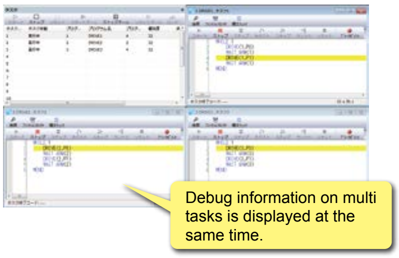


After installation

- Realtime trace

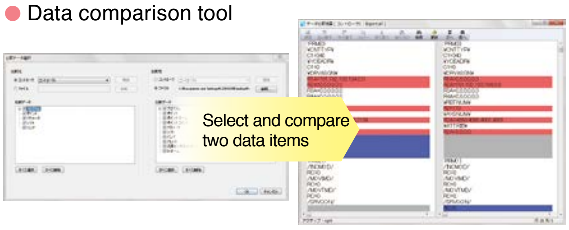


- Application debugging function


Debug information on multi tasks is displayed at the same time.

Maintenance

- Data comparison tool


Select and compare two data items

Programing box PBX

This programming box is applicable to three languages, "Japanese", "English", and "Chinese". Use of a color display makes it possible to improve the visibility.
Work to add or edit functions becomes easy, allowing even personnel without programming skill to operate this programming box.
A function to save the controller data into the USB memory is incorporated.

RCX340

Enhanced expandability

RS-232C and Ethernet ports are provided as standard equipment. A wide variety of high-speed and large capacity field networks, such as CC-Link, DeviceNet^{TM}, and EtherNet/IP^{TM} are supported as options. Connections with general-purpose servo amplifier or other company's VISION are easy. So, the RCX340 is called "connectable controller".

Communication between controllers

YC-Link/E

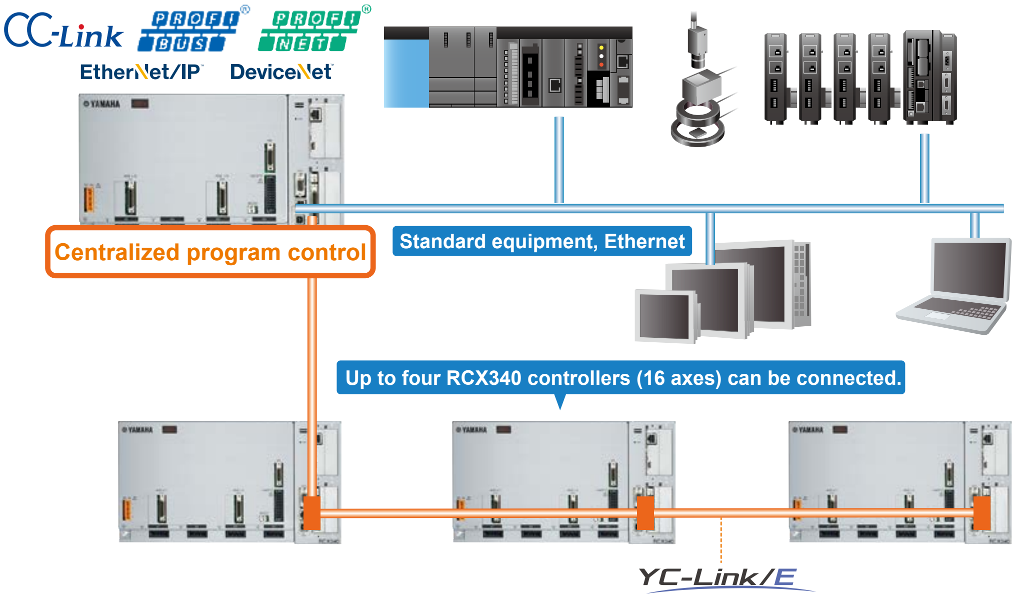
Up to four RCX340 controllers (up to 16 controllable axes) can be connected.

More flexible robot configuration	Centralized control of multiple robots
Easy programming	Cost reduction

Applicable to various field buses/centralized control of robots through connections of up to four controllers

RS-232C and Ethernet ports are provided as standard equipment. Additionally, fulfilling field buses, such as CC-Link, EtherNet/IP^{TM}, DeviceNet^{TM}, PROFIBUS, and PROFINET [Note 1] can be supported to connect and control a wide variety of devices. For 5 or more axes, use of YC-Link/E makes it possible to connect up to four RCX340 controllers so as to perform the centralized control of multiple robots. Additionally, when using YC-Link/E [Note 2], multiple robots can be handled as if they are operated using one controller. This ensures very easy robot programming and management.
Therefore, this robot controller contributes to reduction of unseen costs, such as labor cost necessary for the setup work.

Note 1. Supports PROFINET Ver. 2.2
Note 2. When ordering YC-Link/E, please specify what robot is connected to what number controller.


CC-Link
PROFIBUS
PROFINET
EtherNet/IP
DeviceNet
Centralized program control
Standard equipment, Ethernet
Up to four RCX340 controllers (16 axes) can be connected.
YC-Link/E

MEMO

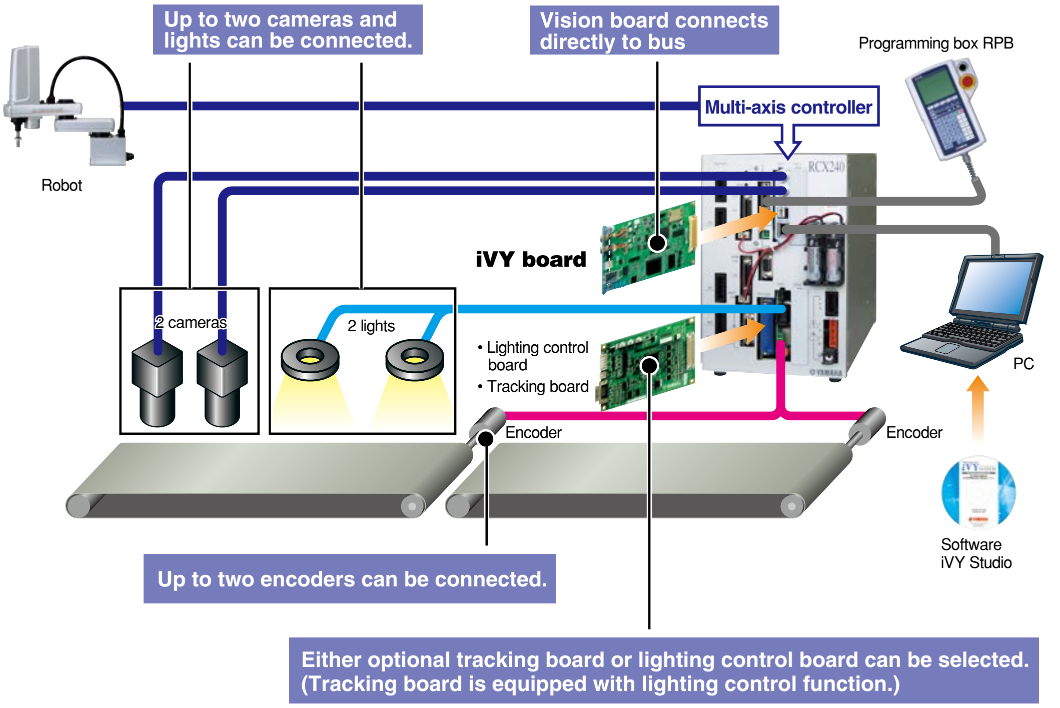
ROBOT VISION iVY RCX240

Easy to use and reduction of work steps.
"Finds and Picks up" and "Pursues and Picks up" without teaching.

Many robot users might think, "We tried vision recognition, but it seemed to take a lot of work" or
"we tried it before, but making adjustments was a tough job".
But YAMAHA iVY system solves these problems.
Anyone can make the setup easily to contribute to reduction of work steps.

iVY system layout

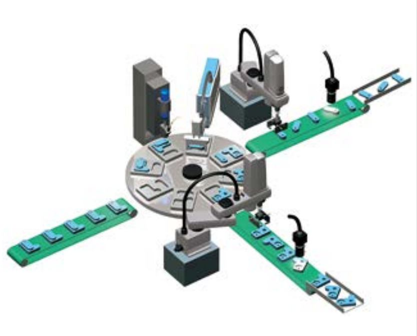
A robot controller with an image processing function is completed only by setting the iVY board in the 4-axis controller RCX240 or RCX240S. As "eye" is put in the robot, the robot finds and takes workpiece, checks deviations in workpiece position, and makes correction if the workpiece deviates largely. This expands the range of applications.


Up to two cameras and lights can be connected.
Vision board connects directly to bus
Programming box RPB
Multi-axis controller
RCX240
Robot
iVY board
2 cameras
2 lights
• Lighting control board
• Tracking board
PC
Encoder
Encoder
Software iVY Studio
Up to two encoders can be connected.
Either optional tracking board or lighting control board can be selected. (Tracking board is equipped with lighting control function.)

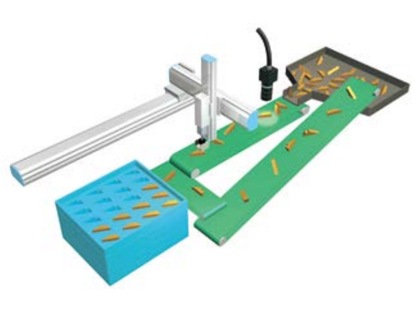
■ Options

- Lighting control board
- Tracking board
- CCD camera
- LAN cable (Shielded cross-cable)
- Camera cable
- Lens
- Close-up ring

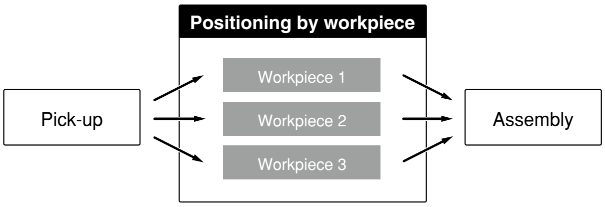
Tracking board


■ Positioning by searching for workpiece

■ Automatic correction even if the camera moves

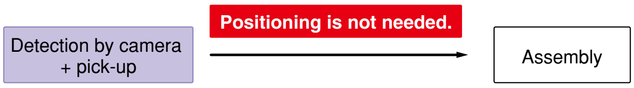

■ Applicable to conveyor tracking

Conventional system without robot vision



When the workpiece is changed, the positioning jig replacement work is needed.
In particular, when using a small lot of workpieces, the setup costs or jig manufacture and management costs are needed.

System with robot vision



Even when the workpiece is changed, it is flexibly supported only by changing the part type data.
Since no mechanical positioning is needed, cost reductions, such as equipment downsizing or jig cost reduction become possible.

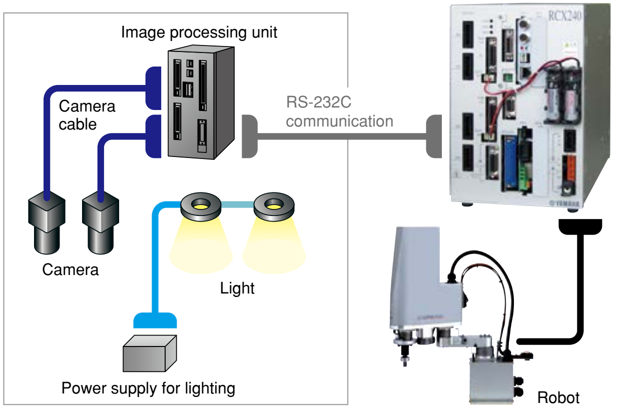
POINT 1

Easy for anyone to use, applicable to a wide variety of applications

When the system was upgraded by combining the robot with a generally available image processing unit, it took a long time conventionally to adjust the robot controller and image processing unit, and perform the correction calculation. In YAMAHA "iVY system", the vision board is integrated into the robot controller and the functions are limited to the positioning and position correction so as to greatly simplify the operability. This makes the system incredibly easy to use when compared to conventional vision systems. YAMAHA aimed at "a vision system that anyone can easily use". Please try to use YAMAHA's new robot vision.

Conventional robot vision

① Alignment with robot coordinates is difficult.
② Correction calculation is needed when the camera moves.
③ Operation deviation between the camera and robot due to comunication time.
④ Adjustment of communication format is needed.



✕
- Difficult to handle.
- Hard to actually operate.
- Installation and setup costs are high.
- Difficult to know emergency contact address.

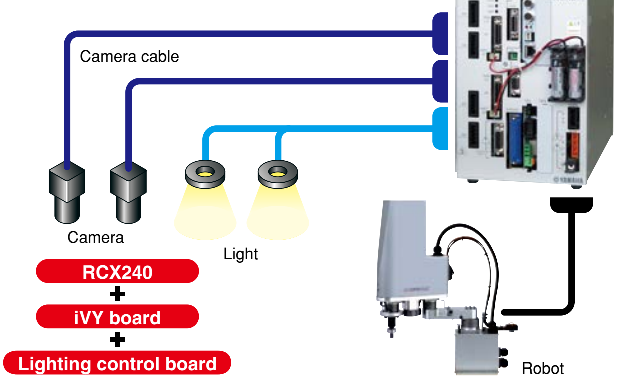
Special skills are required and many work steps are needed.

Connecting an external camera to the robot controller requires tasks such as coordinate alignment (calibration), and correction programs are needed, so the startup work is difficult. When using for simple applications, many work steps are needed. So, possible applications are limited.

iVY system

Point

① Simple calibration function is incorporated.
② Coordinates are corrected automatically even when the camera moves.
③ High-speed connections through dedicated bus line.
④ Controller is incorporated to provide the central operation.
⑤ Applicable to all models of YAMAHA robot lineup.



○
- Easy to use
- Various applications are supported using easy operation.
- Cost reduction by reducing work steps.
- YAMAHA gives you total support.

Easy operation extends applications

YAMAHA iVY system can be calibrated very simply
Furthermore, the coordinates are corrected automatically when a camera is installed on the robot. As iVY system can be used, it can be applied to various applications.

POINT 2

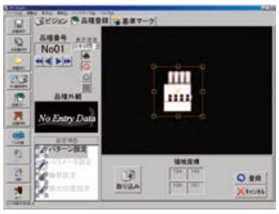
Easy workpiece registration only with 3 steps

YAMAHA aimed at "a vision system that anyone can easily use". But, image recognition itself has been around for a long time. However, conventional image recognition required complex tasks such as coordinate matching (calibration) or coordinate correction during camera movement, and it never became very popular. YAMAHA vision iVY System can be operated by anyone including machine designers or actual machine operators.

STEP. 1

Capture images.

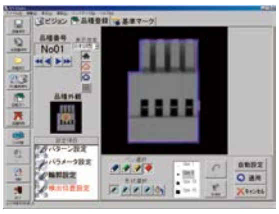
Put the workpiece within the camera field-of-view and specify an image capturing range.



STEP. 2

Set the contour.

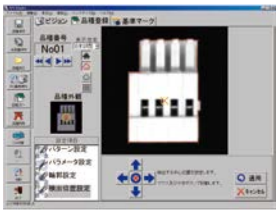
Contour is automatically extracted. Paint the necessary contour with a pen tool.



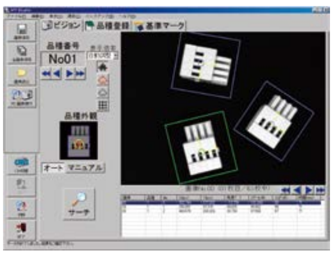
STEP. 3

Register the detection position.

Specify the detection position with the mouse. Desired positions can be set.



Search results



POINT 3

Dedicated software "iVY Studio" included

The iVY system includes dedicated software "iVY Studio". All operations related to the vision, such as registration of fiducial marks used for the calibration or workpieces (edge setting, various parameter setting, and image capturing range setting, etc.), backup, restore, and operation monitor can be performed only with this software.

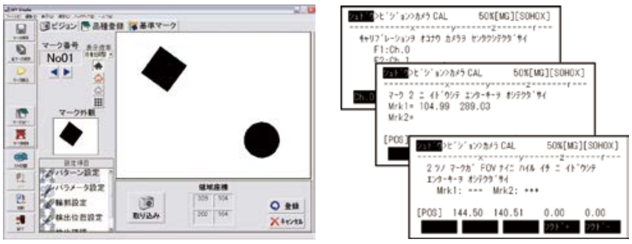
Support software iVY Studio

- **Search trial-run, part type registration**
- **Reference mark registration (for calibration)**
- **Up to 40 workpiece types can be registered.**
- **Workpiece can also be added easily.**
- **Up to 40 workpieces can be detected at once.**
- **Data backup**
- **This software functions as a monitor during program operation.**

POINT 4

Simple calibration function (coordinate matching alignment work) incorporated

Conventional equipment combining "image processing unit + robot" requires many steps in "calibration" that aligns the camera coordinates with the robot coordinates. In the iVY system, the operation is completed easily in a short time only by following interactive instructions using the programming box. Additionally, the coordinate values are corrected automatically even when the robot installation position is changed, such as upward clamping, downward clamping, robot Z-axis clamping, or SCARA robot Y-arm clamping.



```
ｼｭﾄﾞｳ>ﾋﾞｼﾞｮﾝ>ｶﾒﾗ CAL          50%[MG][SOHOX]
------------x-------y-------z-------r---
 ｷｬﾘﾌﾞﾚｰｼｮﾝｦ ｵｺﾅｳ ｶﾒﾗｦ ｾﾝﾀｸｼﾃｸﾀﾞｻｲ
   F1:Ch.0
Ch.0
```

```
ｼｭﾄﾞｳ>ﾋﾞｼﾞｮﾝ>ｶﾒﾗ CAL          50%[MG][SOHOX]
------------x-------y-------z-------r---
 ﾏｰｸ 2 ﾆ ｲﾄﾞｳｼﾃ ｴﾝﾀｰｷｰｦ ｵｼﾃｸﾀﾞｻｲ
 Mrk1= 104.99  289.03
 Mrk2=

[POS]
```

```
ｼｭﾄﾞｳ>ﾋﾞｼﾞｮﾝ>ｶﾒﾗ CAL          50%[MG][SOHOX]
------------x-------y-------z-------r---
 2ﾂﾉ ﾏｰｸｶﾞ FOV ﾅｲﾆ ﾊｲﾙ ｲﾁ ﾆ ｲﾄﾞｳｼﾃ
 ｴﾝﾀｰｷｰｦ ｵｼﾃｸﾀﾞｻｲ
   Mrk1: ---  Mrk2: ***

[POS]  144.50  140.51    0.00    0.00
                                ｿｸﾄﾞ+  ｿｸﾄﾞ-
```

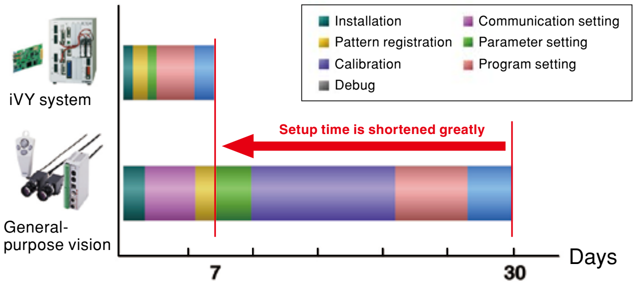
Just follow instructions on Wizards

POINT 5

Setup time reduced greatly

When using a general vision, a coordinate conversion program needs to be created in the robot controller since the robot coordinate data differs from the vision format.
Since the robot controller is integrated into the iVY system, the robot coordinate data can be stored into the robot point data using single process. This ensures very simple operation. Additionally, the unified control of the camera control and light control can be performed using the robot program. The control becomes easy and the number of start-up steps can also be reduced.

Comparison of setup time

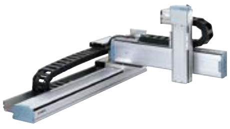


POINT 6

Free selection from YAMAHA robot lineup

This robot vision is applicable to all YAMAHA robots that can be operated by the RCX controller.
According to the applications, an appropriate robot can be selected from the single-axis robots FLIP-X series, linear single-axis robots PHASER series, Cartesian robots XY-X, and SCARA robots YK-XG. A low-cost and easy-to-use robot vision system can be constructed with an optimal model suitable for applications.

■ Cartesian robots XY-X



■ SCARA robots YK-XG

■ Linear motor single-axis robots PHASER

■ Single-axis robots FLIP-X

POINT 7

Workpiece handling without teaching

When the robot handles a workpiece, the teaching work to the correct position is absolutely required. If the workpiece position deviates, the correct handling cannot be performed.

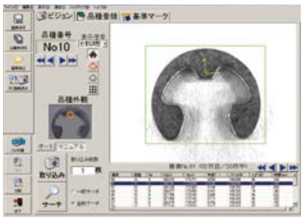
Use of iVY system makes it possible to detect the correct position through the image recognition after coarse positioning. The workpiece can be transferred without teaching, so the start-up steps are reduced and workpiece can be changed or added flexibly.

POINT 8

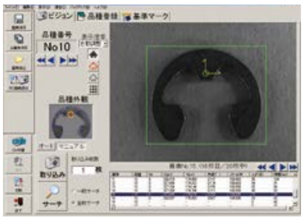
Edge search engine with excellent stability

The gray search (normalized correlation search) that was frequently used for conventional visions is vulnerable to adverse effects, such as lighting conditions, or workpiece chipping or contamination. The environments and applications are restricted.

The iVY system incorporates an "edge search engine" that performs the search process using information on contour shape. This contour search is resistant to effects on external environment and the range of applications is extended.



Search is made with good lighting.



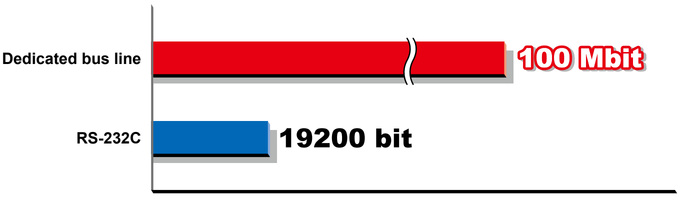
Search is correct even with insufficient lightning.

POINT 9

High-speed connections through dedicated bus line

By directly connecting the robot controller and CPU board through the bus, a data communication speed approximately 5,000 times higher than that of the serial communication speed with general vision is achieved.

Programming also becomes easy since the time lag due to communication does not need to be considered. Additionally, this robot vision supports the conveyor tracking that requires high-speed processing.



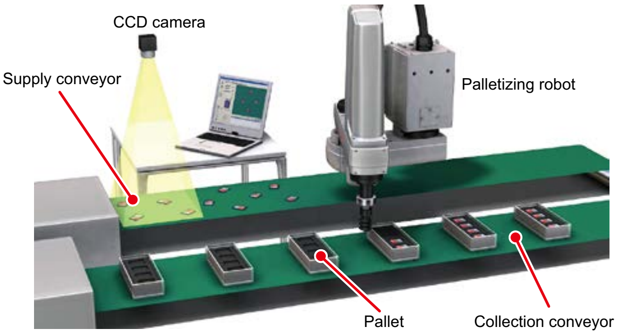
Data transmission volume per second

POINT 10

Applicable to conveyor tracking

The iVY system is applicable to the conveyor tracking only by adding the tracking board. As the pulses (AB-phase) are taken from the encoder installed on the conveyor, the workpiece that is flowing can be picked up without stopping the conveyor.

As up to two encoders for the camera, lighting, and conveyor can be connected, the iVY system is applicable to movement between the conveyors.



POINT 11

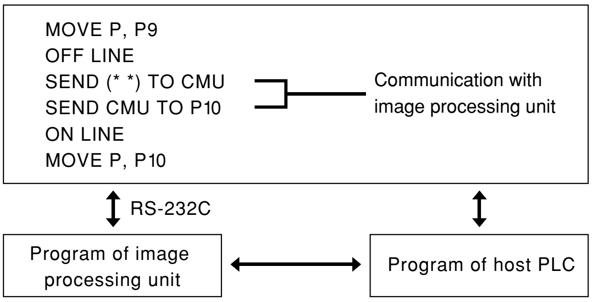
Vision is also controlled easily with robot programs.

The robot program executes all vision controls including camera switching, image capturing, and workpiece search.
Program creation is simple when compared to general vision systems since the operations from the robot movement to the camera control are performed consistently.
Furthermore, the debug work can be performed efficiently to greatly reduce the total number of work steps.

■ Example of robot vision language

Command name	Function
VCAPTURE	Captures images from the camera.
VSEARCH	Searches for the specified part type.
VMONITOR	Switches the monitor mode between on and off.
VGETCNT	Acquires the number of parts that were found.
VGETPOS	Acquires the position data.
VGETTIME	Acquires a period of time used for the search command that was executed.
VGETSCR	Acquires judgment values for the detected workpiece.
VSAVEIMG	Saves images in BMP format.

Conventional robot vision

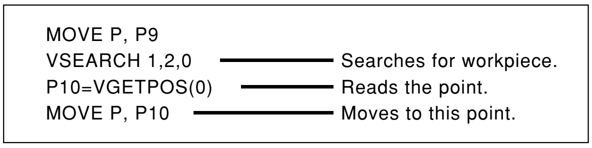


```
MOVE P, P9
OFF LINE
SEND (* *) TO CMU
SEND CMU TO P10
ON LINE
MOVE P, P10
```

Communication with image processing unit
RS-232C
Program of image processing unit
Program of host PLC

Controls using different programs

iVY system



```
MOVE P, P9
VSEARCH 1,2,0
P10=VGETPOS(0)
MOVE P, P10
```

MERITS

- No communication time lag
- Controllable only with the robot program.
- Needs only few command lines.
- Simple and easy to understand

Centralized controls using robot programs

So, the iVY system can solve such problems.

Number of teaching steps needs to be reduced.

Robot teaching work requires a lot of labor and time. The iVY system acts as "robot eye". The final fine positioning can be automated to greatly reduce the teaching time that was required for the conventional models.

Positioning mechanism needs to be simplified.

In the current trend toward small-lot production of multiple models, a larger number of models means that positioning and other aspects of setup will require more time and trouble. Use of the iVY system makes it possible to greatly reduce costs necessary for manufacture, management, and replacement of positioning jigs.

Random workpieces need to be handled.

Use of a position detection function of the iVY system makes it possible to simply construct operations, such as "workpiece is directly placed from the parts feeder" and "workpiece in the pallet is gripped and transferred".

Workpiece flowing on the conveyor is picked up.

The iVY system is applicable to conveyor tracking. The position of the flowing workpiece is continuously recognized according to the signals from the encoder. The workpiece can be picked up without stopping the conveyor.

Consultation destination is not found if a trouble occurs.

When a generally available image processing unit is combined with the robot, various problems such as being unable to capture images, unable to write data, or position deviation occur. YAMAHA iVY system will solve such troubles. The iVY system delivers total support for tasks ranging from capturing of images from the camera to operating the robot.

ROBOT VISION iVY2 RCX340

Integrated Robot Vision System with "plug-and-play" simplicity
Basic specifications have been dramatically enhanced while retaining the current iVY system's ease of use.

Simplicity

Setup is completed as little as eight minutes after power-on.
Auto-calibration makes setup easy.

Sophistication

With up to five million pixels, a variety of workpieces can be supported.
Improve throughput to 100 CPM with conveyor tracking.

Assurance

Comprehensive support covers everything from camera image acquisition to the operation of the gripper and robot.
With support that only the robot manufacturer can provide, you can relax.

Basic specifications have been dramatically enhanced while retaining the current iVY system's ease of use.

Camera

Supports from 300,000 to

5 million pixels

Megapixel camera support

Number of registered types

Increased to

254 types

Previously 40 types

Shorter search time

Approximately

50 % less

With capture: 30–40% less
Search only: approximately 50% less

Note. Time depends on the workpiece.

Longer cables usable

Cables can be as long as

20 m

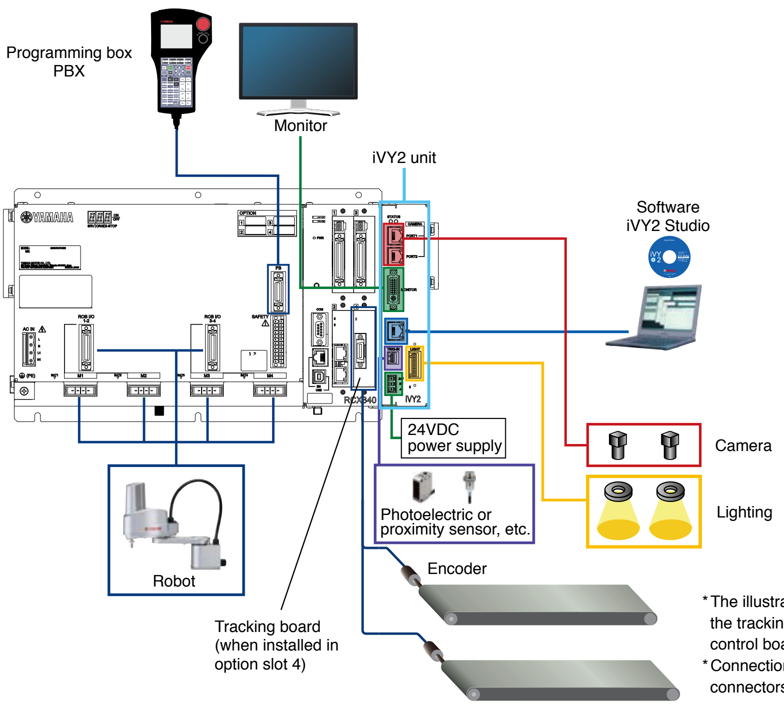
Previously 9.5 m

Monitoring

Monitor output is provided

Enables operating status to be monitored without a PC

iVY2 System configuration illustration



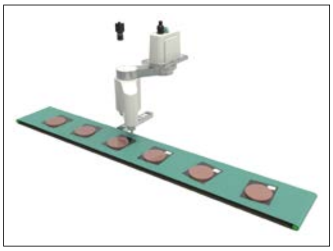
* The illustration left shows an example system with the tracking board and an iVY2 unit (when the lighting control board option is selected).

* Connections to the STD.DIO, ACIN, and SAFETY connectors are not shown in the left illustration.

POINT 1

Various application examples

● Labeling device
(affixing labels to food packages)



- ■ Industry: food
- ■ Robot used: YK500TW omnidirectional robot

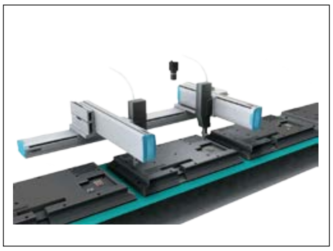
Even if the incoming workpieces are irregularly spaced or positioned, labels can be affixed at the same position.

● Sealant touch-up
(engine block sealant)

- ■ Industry: automotive
- ■ Robot used: SXYX Cartesian robot

Even if the workpiece is skewed from its correct position, the skew and angle are detected, and the application path is automatically compensated.

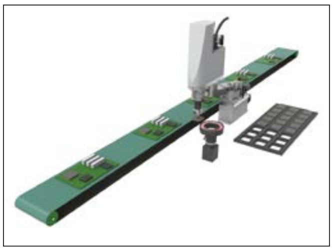
● Screw attachment position detection
(television panel screw attachment)



- ■ Industry: electronics
- ■ Robot used: NXY Cartesian robot

Hole position is detected, and screws are fastened accurately.

● Position compensation with upward-facing camera
(installing irregularly-shaped parts on a circuit board)



- ■ Industry: electronics
- ■ Robot used: YK150XG SCARA robot

The roughly-positioned circuit board connector is picked up, the upward-facing camera is used to apply position compensation, and the part is mounted directly on the circuit board.

POINT 2

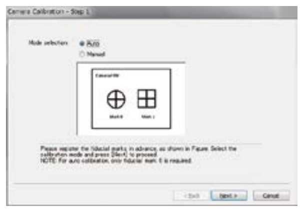
Auto-calibration

Easily complete high-precision calibration just by following a wizard! Even if equipment becomes misaligned, execute auto-calibration and resume operation.

Requires as little as 5 minutes

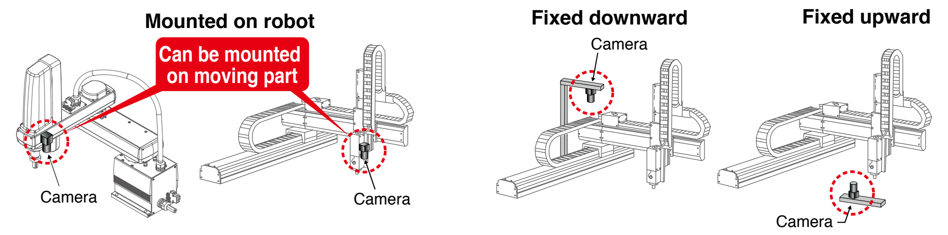
STEP 1

Register the desired fiducial mark



STEP 2

Select the camera mounting method



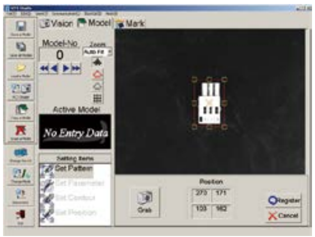
POINT 3

Easy workpiece registration

From image acquisition, registration takes just three steps.

Requires as little as 3 minutes

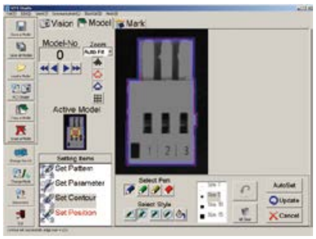
STEP 1



Capture images.

Put the workpiece within the camera field-of-view and specify an image capturing range.

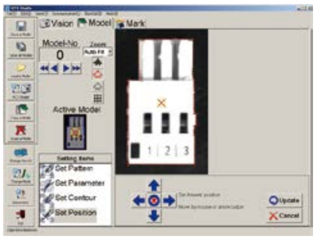
STEP 2



Set the contour.

Contour is automatically extracted. Paint the necessary contour with a pen tool.

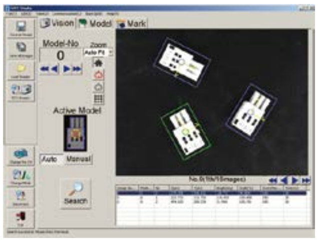
STEP 3



Register the detection position.

Specify the detection position with the mouse. Desired positions can be set.

Search results

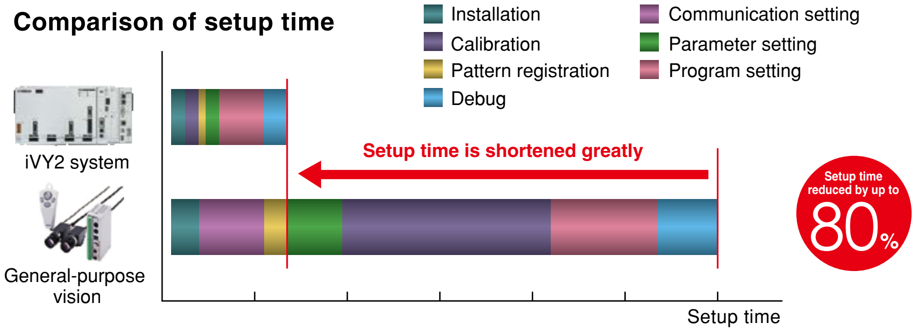


POINT 4

No need to make time-consuming connection settings. Dramatic reduction in setup time.

From image acquisition, registration takes just three steps.

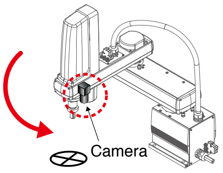
Comparison of setup time



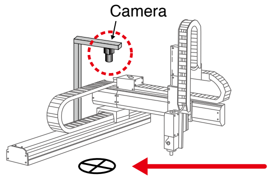
STEP 3

Align fiducial mark position

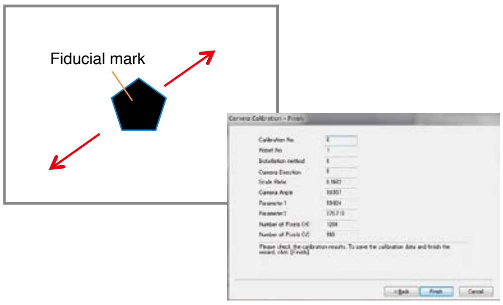
If camera is movable, move the robot



If camera is fixed, attach fiducial mark to robot, and move it



Execute auto-calibration



Please check the calibration results. To save the calibration data and finish the wizard, click [Finish].

POINT 5

No need to create a coordinate conversion program.

Dedicated robot language for vision is provided.

General robot vision

```
MOVE P, P9
OFF LINE
SEND (* *) TO CMU
SEND CMU TO P10
ON LINE
MOVE P, P10
```

Communication with image processing unit

RS-232C

Program of image processing unit ↔ Program of host PLC

Camera and robot have separate programs

iVY2 system

```
MOVE P, P9
VSEARCH 1,2,0      ———— Searches for workpiece.
P10=VGETPOS(0)     ———— Reads the point.
MOVE P, P10        ———— Moves to this point.
```

MERITS

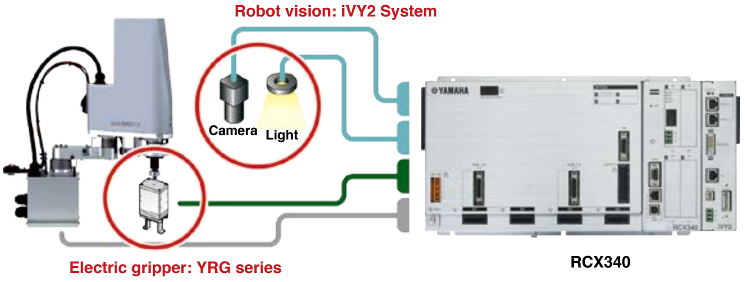
- No communication time lag
- Needs only few command lines.
- Simple and easy to understand

Centralized control using only the robot program

POINT 6

Easy inter-operation with peripheral equipment

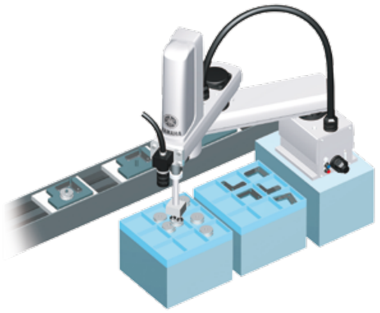
The same controller provides unified control of robot, gripper, and lighting.



POINT 7

Also supports moving camera

Even if the camera is mounted on the robot, coordinates are automatically converted according to the robot's movement.



POINT 8

Conveyor tracking

Conveyor tracking reaches **100** CPM per unit

Ideal for high-speed packaging arrangement high-speed transport of multiple types of items such as pharmaceuticals, cosmetics, and food products.
The vision camera detects the position and orientation of parts moving on the conveyor, and the robot picks them up.

Previous RCX240 controller

Example program (RCX240)

① PTP command	MOVE P,P1
② CTMOVE	CTMOVE (1)
③ CTDRIVE	CTDRIVE(10.0)

Executed using multiple operation commands

Unify movement commands

New RCX340 controller

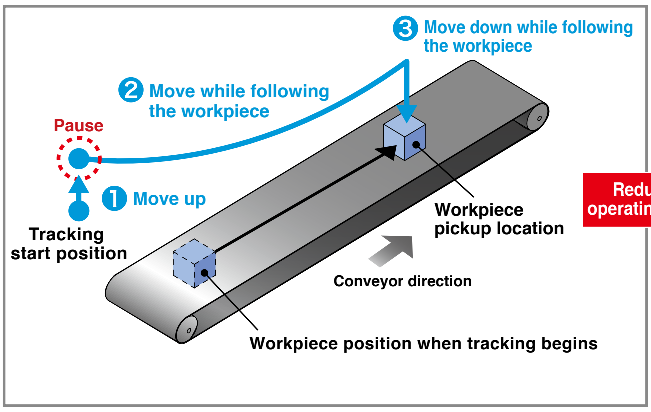
Example program (RCX340)

① New CTMOVE   CTMOVE (1),Z=0.0,CTZ=10.0

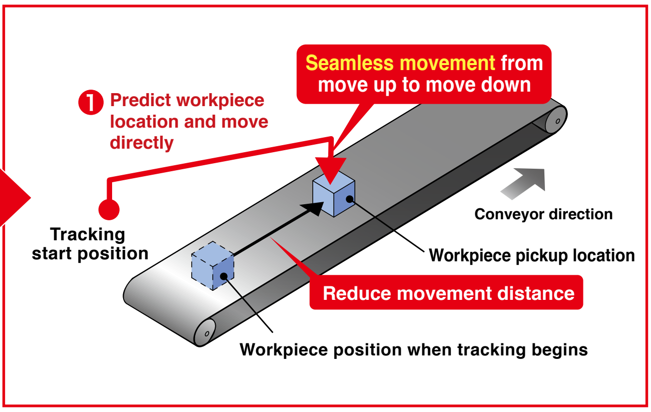
Can be executed with a single command

Multiple operating takt required

Unify the move up command, follow workpiece command, move down command


③ Move down while following the workpiece
② Move while following the workpiece
Pause
① Move up
Tracking start position
Workpiece pickup location
Conveyor direction
Workpiece position when tracking begins

Reduce operating takt


Seamless movement from move up to move down
① Predict workpiece location and move directly
Tracking start position
Conveyor direction
Workpiece pickup location
Reduce movement distance
Workpiece position when tracking begins

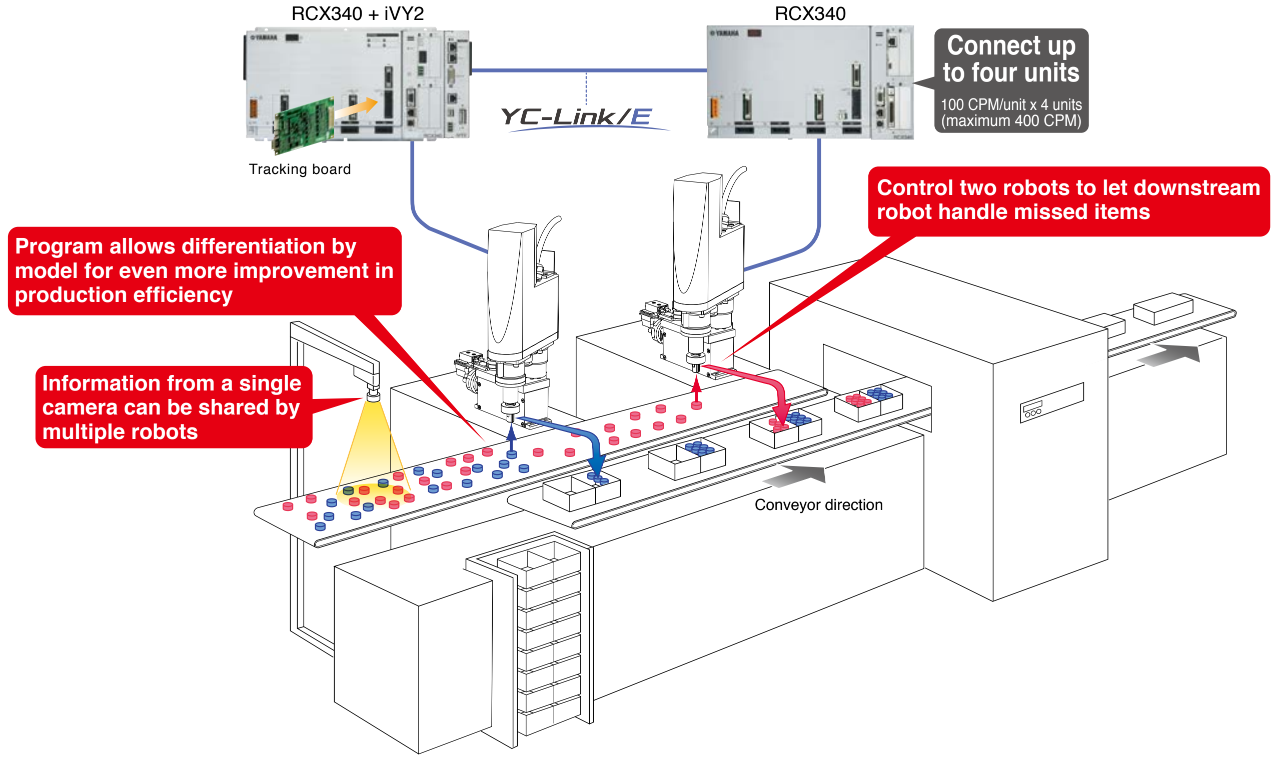
Operating conditions: YK500XG / payload 1 kg (total of workpiece and tool) / horizontal movement 250 mm / vertical movement 1 mm / conveyor speed 100 mm/sec

POINT 9

Control multiple robots for even more improvement in production efficiency.

Shortened cycle time

Improve throughput



Connect up to four units
100 CPM/unit x 4 units (maximum 400 CPM)

Control two robots to let downstream robot handle missed items

Program allows differentiation by model for even more improvement in production efficiency

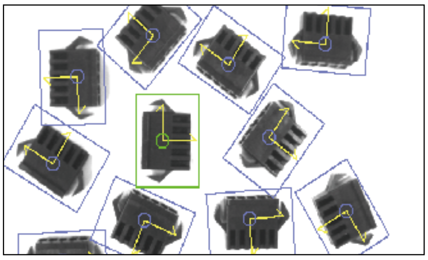
Information from a single camera can be shared by multiple robots

POINT 10

Approximately double the search speed (compared to previous model)

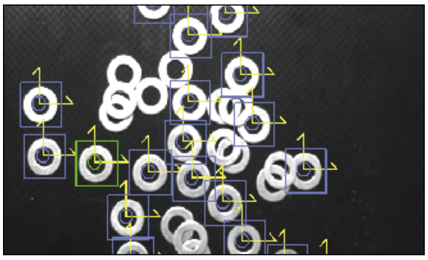
Even a large number of workpieces can be detected at high speed. The search speed is approximately double that of the previous model. This can be used for a wide variety of applications, including molded plastic parts or food items.

Sample workpiece ① Connector-shaped workpiece



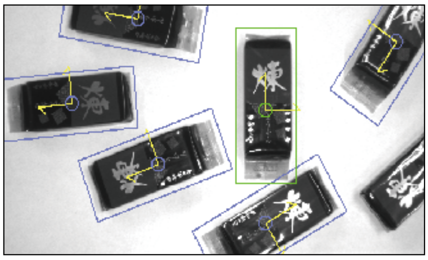
RCX240 + iVY	RCX340 + iVY2
158.7 ms →	83.8 ms

Sample workpiece ② Washer-shaped workpiece



RCX240 + iVY	RCX340 + iVY2
200.2 ms →	91.7 ms

Sample workpiece ③ Food item workpiece



RCX240 + iVY	RCX340 + iVY2
149.8 ms →	91.1 ms

POINT 11

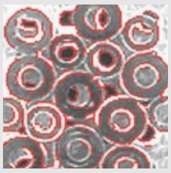
Support for five-megapixel cameras

(Choose from 300,000 pixel, 1.3 megapixel, and 2 megapixel, and 5 megapixel)

● Stable workpiece detection

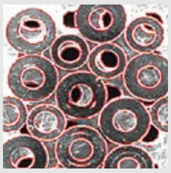
Detailed edge detection is possible even if workpieces are touching each other or have a complex shape.

● Previous: 300,000 pixel camera



(partial detail illustration)

● New: 1.3 megapixel camera

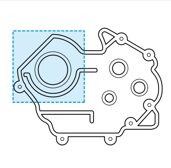


(partial detail illustration)

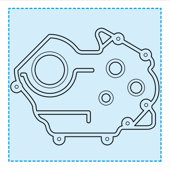
● Decreased number of search detections

A single search allows detection even for a large workpiece, improving takt.

● Previous: 300,000 pixel camera



● New: two-megapixel camera

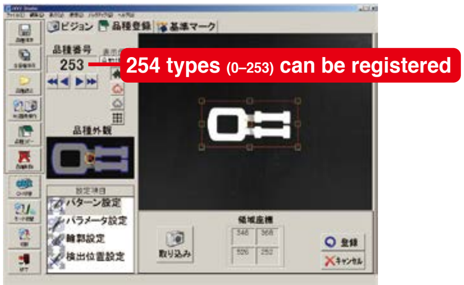


Field of vision

POINT 12

254 types can be registered

Setup changes require only that part numbers be changed. Setup changes are easy.

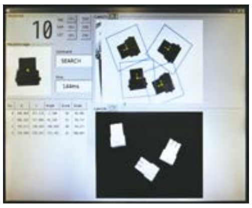


POINT 13

Monitor output is provided

● Monitor the operating status

Monitor the search status while making calibration settings or during automatic operation.



Contents of output

- Selected type / Captured image
- Search result (position, score, scale)
- Executed command
- Time required by command

Output method

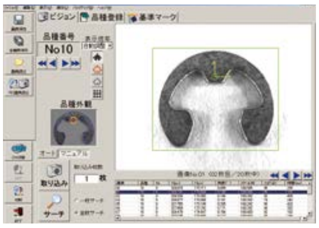
- DVI-I (supports digital monitor or analog monitor)

POINT 14

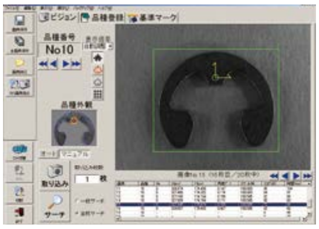
High-precision search even under low light

● Edge search engine is built-in

Supports a variety of applications while being minimally affected by the external environment.



When lighting is sufficient

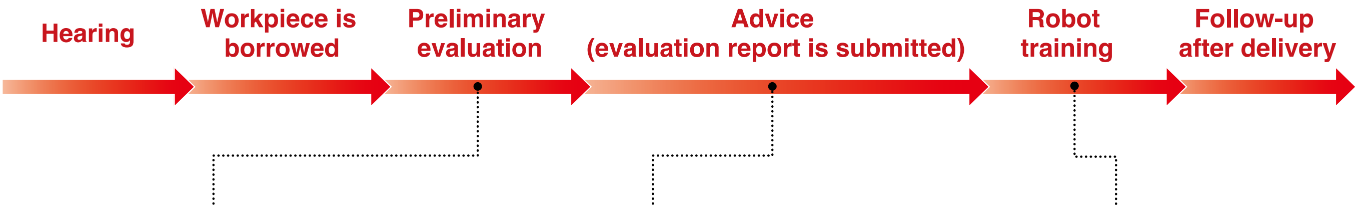


Accurate search even if lighting is insufficient

POINT 15

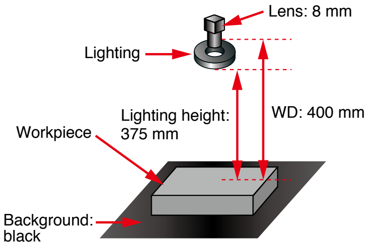
Preparatory evaluation and advice give you peace of mind

We borrow the workpiece from you, evaluate it, and submit an evaluation report.
In addition, we draw on our wealth of experience and evaluation results to provide advice and training regarding selection and installation of robots and peripheral equipment.



Preliminary evaluation

■ **Evaluation conditions (example)**



We borrow a workpiece from you and conduct an evaluation.

Advice (evaluation report is submitted)

The results of our preliminary evaluation regarding camera, lens, lighting selection, and setup are summarized as a report and submitted.

Robot training

Training can be performed according to the content of the customer's application.

POINT 16

Choose freely from Yamaha's lineup of robots

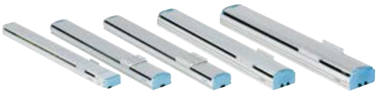
A low-cost and convenient robot vision system can be constructed using the models that are optimal for the customer's application.

■ XY-X Cartesian robots

■ YK-XG SCARA robots

■ YK-TW orbit type robots

■ FLIP-X single-axis robots



Note. The YA series is not supported.

ELECTRIC GRIPPERS

Electric grippers dedicated to the RCX240/RCX340 controller. Easy operation is achieved as YAMAHA robot language gives unified control.

Gripping force control

Gripping force can be set in 1 % steps from 30 to 100 %.

Measuring

Workpiece can be measured using position detection function.

Speed control

Speed can be set in 1 % steps from 20 to 100 % and acceleration can be set in 1 % steps from 1 to 100 %.

Multi-point position control

Up to 10,000 positioning points can be set.

Workpiece check function

Workpiece gripping mistake or workpiece drop can be checked by the HOLD output signal without using sensor.

Plenty of lightweight and compact model variations

S type Single cam type

P.585

Lightweight, compact, high-speed

Small single cam

YRG-2005SS

YRG-2010S

YRG-2815S

YRG-4225S

Single cam structure

Use of an unique cam structure achieves the simple and compact design. As the self-lock is not activated, the fingers can be operated using an external force.

W type Double cam type

P.587

High gripping force

YRG-2005W

YRG-2810W

YRG-4220W

Double cam structure

Unique double cam structure with gear. Use of a simple structure achieves high gripping force with compact body.

Screw type Straight shape

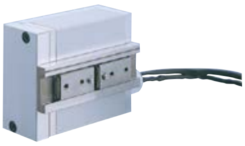
P.588

High accuracy, long stroke

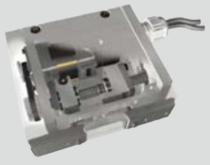
YRG-2020FS/YRG-2840FS

Screw type "T" shape

P.589



YRG-2020FT/YRG-2840FT



Ball screw structure

As the ground ball screw is driven by the belt, the long stroke with high efficiency and high accuracy is achieved.

Three fingers type

P.590

Compact, high rigidity, long stroke

YRG-2004T

YRG-2013T

YRG-2820T

YRG-4230T

Compact ball guide structure

Use of a special cam provides lightweight and compact electric grippers. These electric grippers are suitable for transfer of round workpieces made of glass or similar materials.

Type	Model	Gripping force(N)	Open/close stroke (mm)	Maximum speed (mm/sec.)	Repeated positioning accuracy (mm)	Main body weight (g)	Page
Compact single cam	YRG-2005SS	5	3.2	100	+/- 0.02	90	P.585
Single cam	YRG-2010S	6	7.6	100	+/- 0.02	160	P.586
	YRG-2815S	22	14.3	100	+/- 0.02	300	
	YRG-4225S	40	23.5	100	+/- 0.02	580	
Double cam	YRG-2005W	50	5	60	+/- 0.03	200	P.587
	YRG-2810W	150	10	60	+/- 0.03	350	
	YRG-4220W	250	19.3	45	+/- 0.03	800	
Screw type Straight shape	YRG-2020FS	50	19	50	+/- 0.01	420	P.588
	YRG-2840FS	150	38	50	+/- 0.01	880	
Screw type "T" shape	YRG-2020FT	50	19	50	+/- 0.01	420	P.589
	YRG-2840FT	150	38	50	+/- 0.01	890	
Three fingers type	YRG-2004T	2.5	3.5	100	+/- 0.03	90	P.590
	YRG-2013T	2	13	100	+/- 0.03	190	P.591
	YRG-2820T	10	20	100	+/- 0.03	340	
	YRG-4230T	20	30	100	+/- 0.03	640	

- ● Gripping force control: 30 to 100 % (1 % steps)
- ● Speed control: 20 to 100 % (1 % steps)
- ● Acceleration control: 1 to 100 % (1 % steps)
- ● Multi-point position control: Maximum 10,000 points
- ● Workpiece size judgment: 0.01 mm steps (by ZON signal)

POINT 1

Electric grippers achieve highly accurate gripping force, and position, and speed controls.

The YRG series provides the gripping force control, speed and acceleration controls, multi-point control, and workpiece measurement that were difficult by conventional air-driven devices. The YRG series flexibly supports various applications.

Gripping force control

The gripping force can be set in 1 % steps. Workpieces that are easy to break or deform, such as glass or spring can be gripped. The gripping force is constant even when the finger position changes.

Air pressure type

Fine adjustment of the regulator is difficult.

Electric type

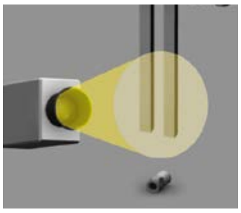
Gripping force can be set in 1 % steps from 30 % to 100 %.

Workpiece presence check function

The electric gripper outputs the HOLD signal. Workpiece gripping mistake or workpiece drop during transfer can be checked. No external sensors are needed.

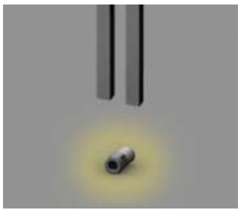
Air pressure type

Workpiece gripping mistake or drop is judged using the sensor or image processing unit.



Electric type

Workpiece drop can be judged. No external sensor is needed.



Speed control

The speed and acceleration can be set in a range of 20 to 100 mm/sec. in 1 % steps (singe cam and three fingers type). The gripper can gently touch workpieces that are vulnerable to impact, such as lenses or electronic components.

POINT 2

Gripper can be controlled with controller commands.

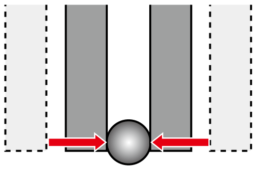
The gripper controls can be performed with one multi-axis controller RCX240/RCX340. Data exchanging with the host unit, such as PLC is not needed. The setup or startup can be made easily.

Multi-point position control

The finger can be set to a desired position according to the workpiece size. This contributes to efficiency improvement of lines with different workpiece sizes and materials mixed and lines with many setup steps.

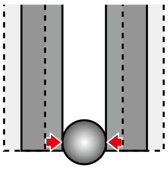
Air pressure type

Loss is generated in the stroke.



Electric type

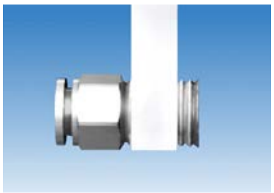
Loss is not generated in the stroke as optimal positioning accuracy is maintained.



Contributes to tact improvement.

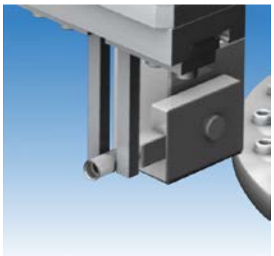
Measuring function

The gripped workpiece can be measured using the position detection. Use of this function makes it possible to correctly judge what portion of the workpiece is gripped.



Zone range function

Use of this zone range function makes it possible to judge the size OK/NG and check for slant insertion.



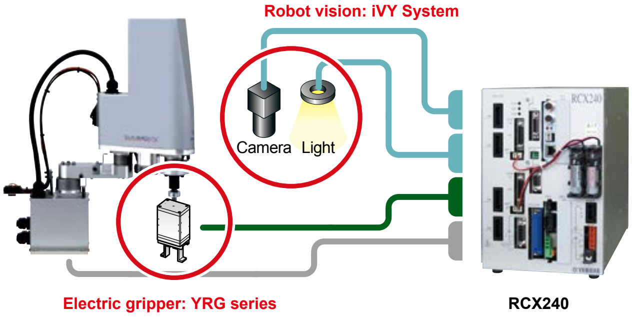
List of robot languages (example)

Language name	Function
GDRIVE	Absolute position movement
GDRIVEI	Relative position movement
GHOLD	Absolute position gripping movement
GHOLDI	Relative position gripping movement
GOPEN	Constant speed gripping movement (open)
GCLOSE	Constant speed gripping movement (close)
GORIGIN	Gripper axis return-to-origin
GSTATUS	Status acquisition
ORIGIN	Return-to-origin
WHERE	Main group current position acquisition (joint coordinate: pulse)
WHERE2	Sub group current position acquisition (joint coordinate: pulse)
WHRXY	Main group current position acquisition (Cartesian coordinate: mm, degree)
WHRXY2	Sub group current position acquisition (Cartesian coordinate: mm, degree)

POINT 3

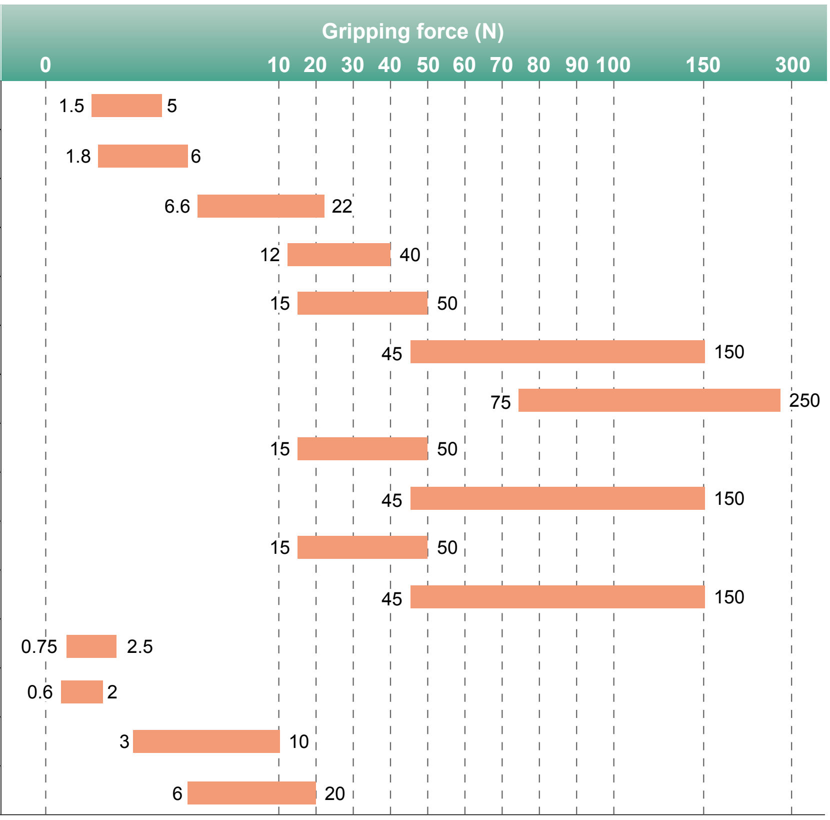
Combination with a vision system supports a wide variety of applications.

As the YRG series is combined with controller integrated robot vision "iVY System", the operations from the positioning using the camera to workpiece handling can be controlled in the batch mode using the RCX240/RCX340 controller. Sophisticated systems can be easily configured.



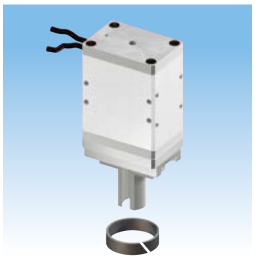
Gripping force comparison of electric gripper models

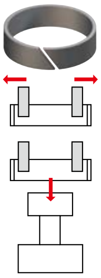
Type	Model	Open/close stroke (mm)	Gripping force (N)	
Compact single cam	YRG-2005SS	3.2	1.5	5
Single cam	YRG-2010S	7.6	1.8	6
	YRG-2815S	14.3	6.6	22
	YRG-4225S	23.5	12	40
Double cam	YRG-2005W	5	15	50
	YRG-2810W	10	45	150
	YRG-4220W	19.3	75	250
Screw type Straight shape	YRG-2020FS	19	15	50
	YRG-2840FS	38	45	150
Screw type "T" shape	YRG-2020FT	19	15	50
	YRG-2840FT	38	45	150
Three fingers type	YRG-2004T	3.5	0.75	2.5
	YRG-2013T	13	0.6	2
	YRG-2820T	20	3	10
	YRG-4230T	30	6	20



Application examples

Deformation prevention transfer of resin rings, etc.

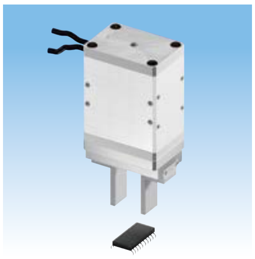


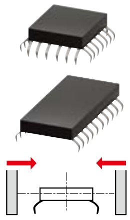


● Measuring function	(Maintains workpiece shape.)
● Gripping force control	(Maintains workpiece shape and prevents scratches.)
● Speed control	(Maintains workpiece shape and prevents scratches.)
● Multi-point position control	(Applicable to many part types of workpieces.)

Note. Air unit cannot control the gripping force and speed, causing workpiece to be scratched or tact time not to be shortened.

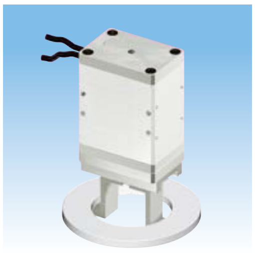
Chip assembly transfer Deformation prevention and lead protrusion dimension check

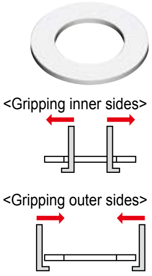




● Measuring function	(Checks lead protrusion dimensions.)
● Gripping force control	(Maintains workpiece shape and prevents scratches.)
● Speed control	(Maintains workpiece shape and prevents scratches.)
● Multi-point position control	(Applicable to many part types of workpieces.)

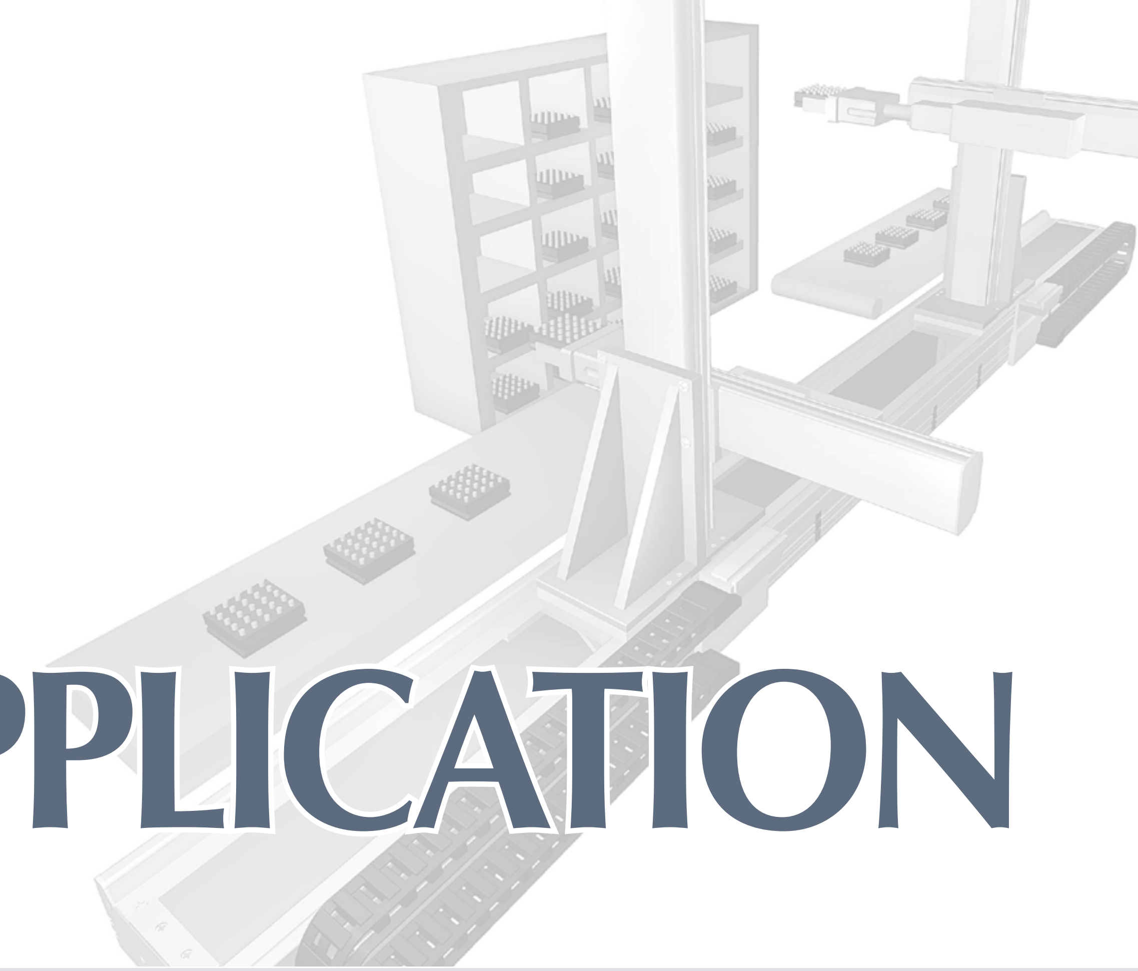
Transfer and dimension check of flexible workpieces with different sizes





● Measuring function	(Checks lead protrusion dimensions.)
● Gripping force control	(Prevents workpiece deformation.)
● Speed control	(Prevents scratches.)
● Multi-point position control	(Applicable to many part types of workpieces.)
● Reduction of setup work	(Improves productivity.)

MEMO



APPLICATION

CONTENTS

STEPPING MOTOR SINGLE-AXIS ROBOTS TRANSERVO

SINGLE-AXIS ROBOTS FLIP-X

LINEAR MOTOR SINGLE-AXIS ROBOTS PHASER

CARTESIAN ROBOTS XY-X

SCARA ROBOT YK-X

PICK & PLACE ROBOTS YP-X

ROBOT VISION iVY/iVY2

YAMAHA STEPPING MOTOR SINGLE-AXIS ROBOTS

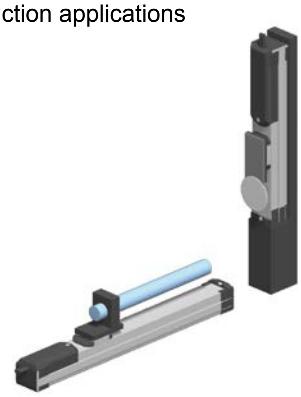
TRANSERVO
Series

P.129

Pressing and cutter machines

- Cuts plastic lens material
- Pressing function applications

MOVIE
Web site



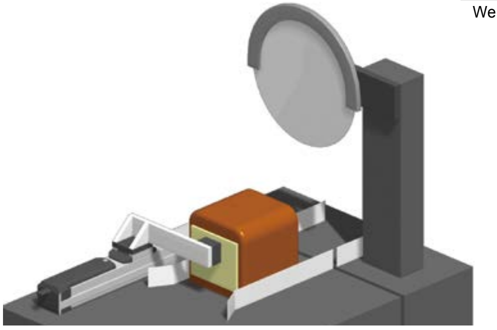
POINT

1. Cutting tasks using the TRANSERVO (TS-S, TS-X, TS-P) pressing function
2. Pressing torque is adjustable, and time-out time and operation after reaching specified torque can be selected as desired (continuous pressing, position hold).
3. Host control can be simplified by setting multiple continuous operation points.

Pressing and pitch feed

- Positioning for bread loaf slicing
- Pressing function and pitch feed applications

MOVIE
Web site



POINT

1. Measures bread thickness with robot and identifies bread type. (TS positioner can send feedback on current position.)
2. Varies the pitch feed quantity to match workpiece type.
3. Pressing torque is adjustable to match the workpiece type.

YAMAHA SINGLE-AXIS ROBOTS

FLIP-X
Series

P.171

Clean, dustproof / dripproof, high-speed conveying unit

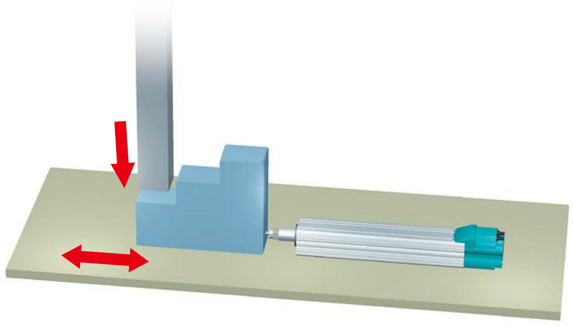
- Transfer and conveyance in the clean environment.
- Transfer and conveyance in the harsh environment.

POINT

1. Belt drive type robot complying with cleanliness requirement.
2. With a large payload, it is optimum for conveying panels.
3. Provided with specifications for cleanliness and applicable to long stroke.
4. With the payload and moment permissible value at high level, it is applicable to the Cartesian combination.
5. Equivalent to B10 (YAMAHA model) .

Contact stopper height change unit

- Change of stopper height in multiple number of steps.

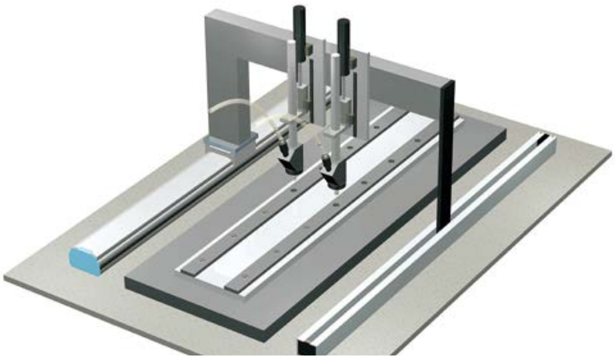


POINT

1. The stop position for the stopper block is positioned by the cylinder type robot.
2. It is possible to make set-up done by single touch operation or automatically.

Screw tightening device

- Tightening screws arranged on a straight line.

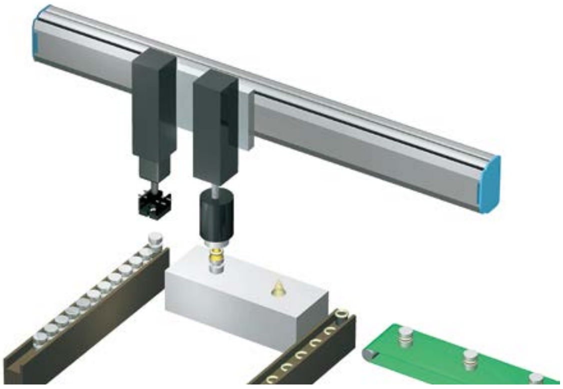


POINT

1. High rigidity with a support axis added.
2. Pitch selectable freely in the moving axis direction.

O-ring fitting device

- Handling workpieces to assembly units arranged on a straight line.

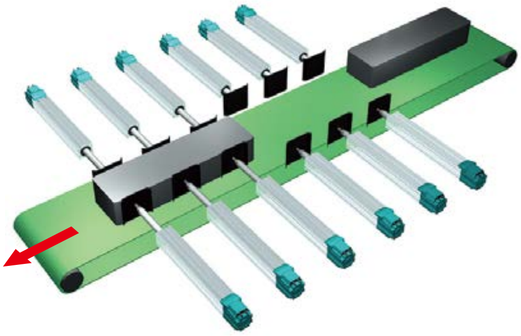


POINT

1. Assembly jigs arranged on a straight line under the single axis robot.

Device to shift workpiece in width direction

- Positioning of workpieces flowing on the conveyor.

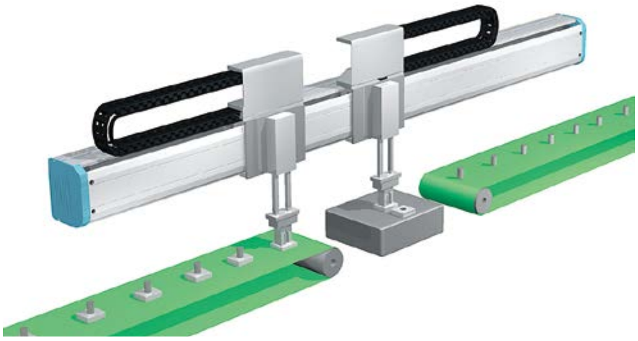


POINT

1. Arrangement of multiple number of compact robots.
2. Pulse string control from the upper controller.

Carrying and transferring equipment

- Handling parts

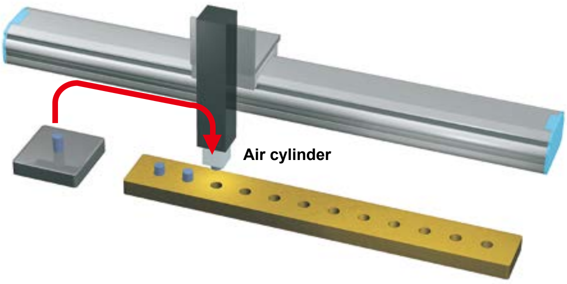


POINT

1. Space saving layout using double carrier. (N15 / N18)

Press-fitting device

- Workpieces are press-fitted in holes arranged on a straight line.

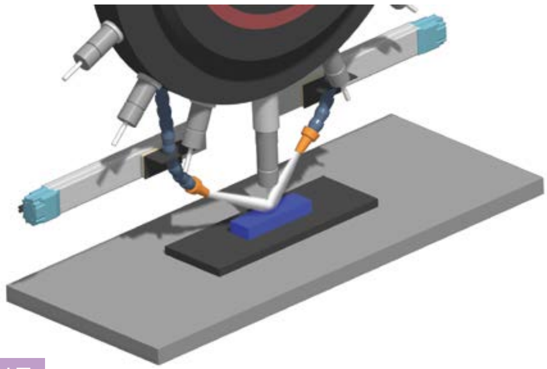


POINT

1. Highly rigid frame.
2. Applicable to work positions arranged linearly.

Jig and tool positioning mechanism

- Adjustment of cutting fluid nozzle position of machining center
- Positioning under harsh working environments



POINT

1. The adoption of a magnetic accuracy detection resolver allows use even under adverse conditions.

Painting by combining multiple single-axis robots

- Interpolation control of multiple single-axis robots is performed for painting work.

MOVIE
Web site

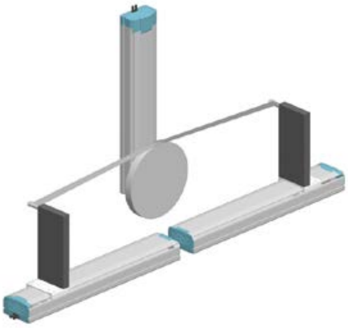
POINT

1. As single-axis robots are controlled with the multi-axis controller, such as RCX240, the linear or circular interpolation operation can be performed with combined coordinates.
2. A layout, such as desktop type that is different from the normal Cartesian robot can be configured.
3. Optimal specifications can be selected from the versatile single-axis robot lineup and they can be combined.

Tape affixing to circular workpieces

- Interpolation control of multiple single-axis robots is performed for tape affixing to circular workpieces

MOVIE
Web site



POINT

1. Multiple single-axis robots are controlled with one multi-axis controller (multi-robot).
2. Use of an interpolation function of the multi-axis controller makes it possible to synchronize each axis.
3. As each axis is synchronized, a tension applied to the tape is kept constant to provide tape affixing without elongation or sagging.

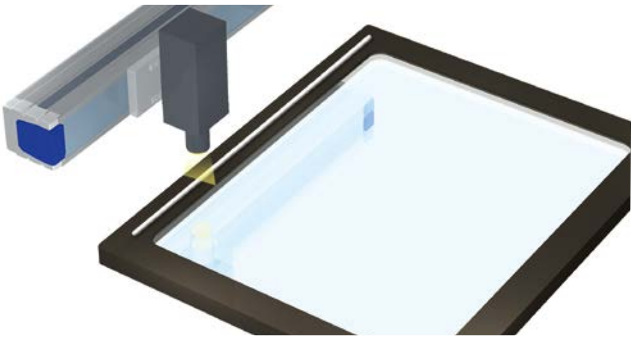
YAMAHA LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER
Series

P.217

Check camera moving unit

- Checking with moving camera.
- Multi-point check with a camera.
- Drawing created with line sensor and moving axes.

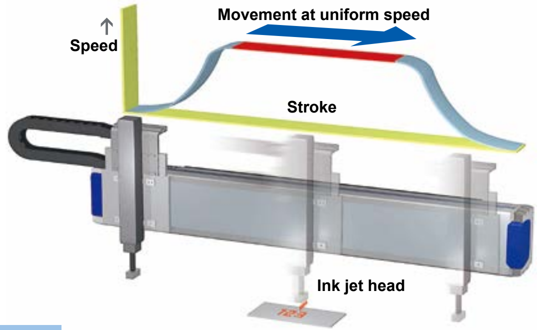


POINT

1. Allows movement with minimal speed fluctuations.
2. Compact size.

Ink jet printer

- Ink jet feeding mechanism.

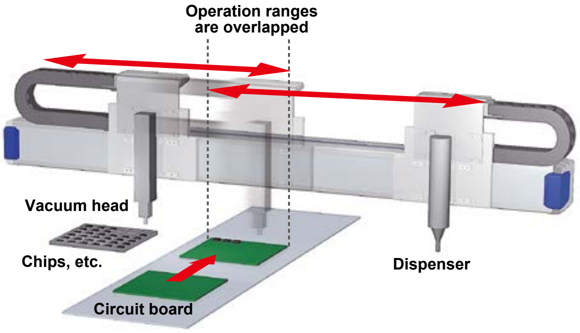


POINT

1. Allows movement with minimal speed fluctuations.
2. Capable of coping with a request for high speed. (Max. 2,500mm/sec)
3. Allows setting long constant-speed sections, with large acceleration.

Chip mounter

- Bonding and chip mounting on circuit board.
- Electronic part mounting process.

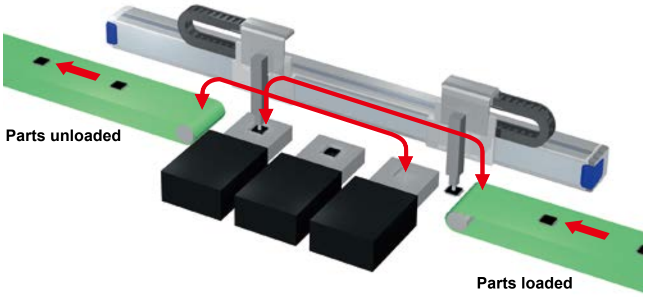


POINT

1. Double carrier structure enabled compact size.
2. Layout designing is easy as different workpieces can be carried onto the same axis.
3. Clean specification requirement can be coped with easily.

Check device

- Handling to multiple number of check devices.

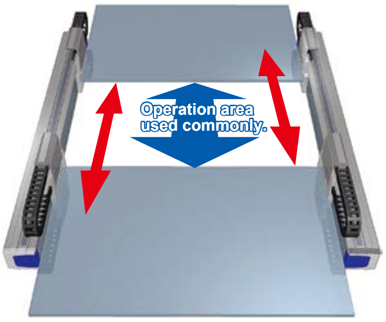


POINT

1. 2 heads can be installed to the same axis compactly.
2. High speed operation.

Open / close device

- Wide open/close of shutter.

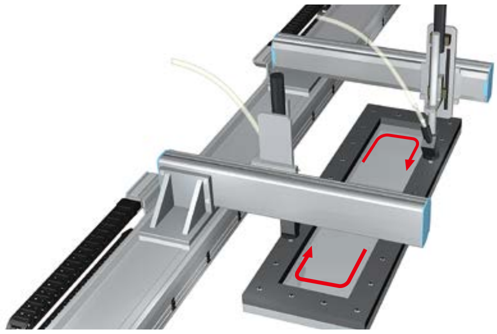


POINT

1. It is possible to drive a work with a large width (shutter) using the dual drive method.
2. Various advantages (such as center layout, higher open / close speed, sharing of effective stroke) are available due to adoption of the double carrier mechanism.
3. Drives with the dual drive mechanism with 2 units of double carrier PHASER in parallel and fixing them with sliders respectively.
4. RCX240 can control 4 axes in all.

High-speed screw tightening unit

- Positioning 2 nut runners at the same time for a large work piece.
- 2 screws at opposite locations tightened at the same time.

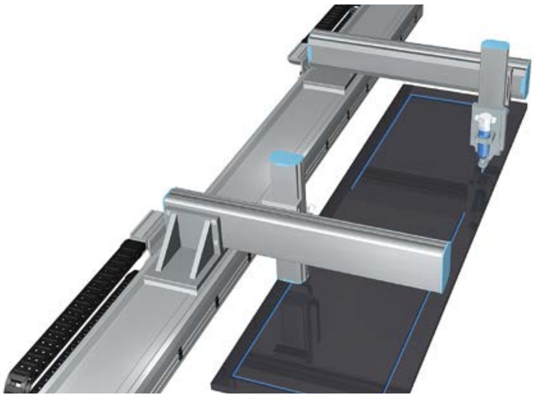


POINT

1. Performs high-speed, high-accuracy screw tightening on large work pieces such as large construction materials.

High-speed applicator (1)

- Application to a large size workpiece such as liquid crystal circuit board and the like.

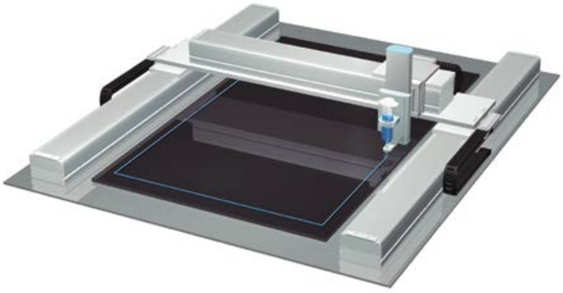


POINT

1. Capable of applying to a large size work such as a flat panel display.

High-speed applicator (2)

- Application to a large size workpiece such as liquid crystal circuit board and the like.



POINT

1. Capable of applying to a large size work such as a flat panel display.
2. It is possible to drive a work with a large width using the dual drive method.

High-speed pick & place unit

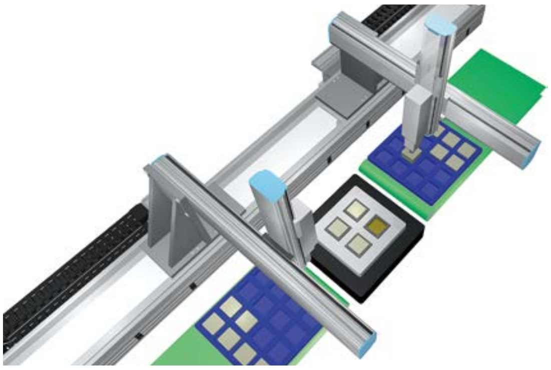
- Pick & place operation from the rack for large size parts.

POINT

1. Capable of carrying over a long distance between processes in various production facilities.

High-speed loading / unloading robot

- The loading unit and unloading unit are mounted on the same axis.



POINT

1. Utilizing double-carriers allows building systems that are highly efficient in saving space.

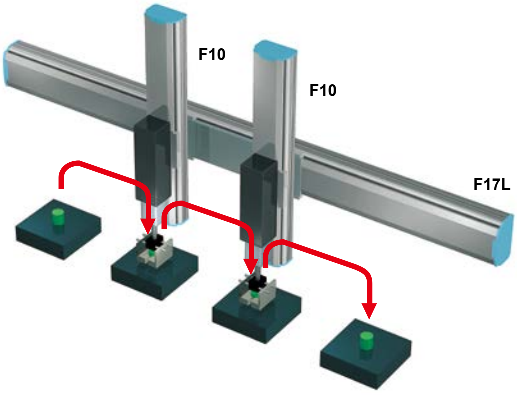
YAMAHA CARTESIAN ROBOTS

XY-X Series

P.241

Conveyor (2 parts simultaneously)

- Conveyance with high efficiency using double arms.

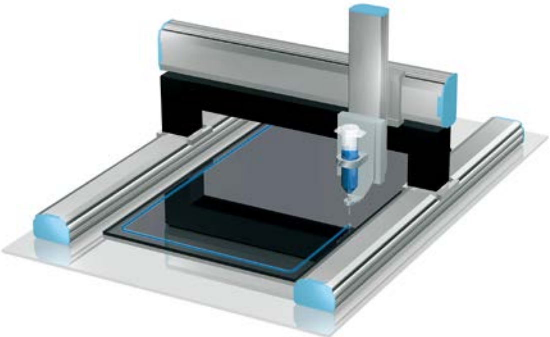


POINT

1. Setting 2 units on the Z-axis intersecting XZ drastically cuts the total tact time and reduces the required installation space.
2. Customization only possible because a highly rigid frame and guide are used.

Application of adhesive agent

- Application of adhesive agent within a large size liquid crystal surface processing unit.

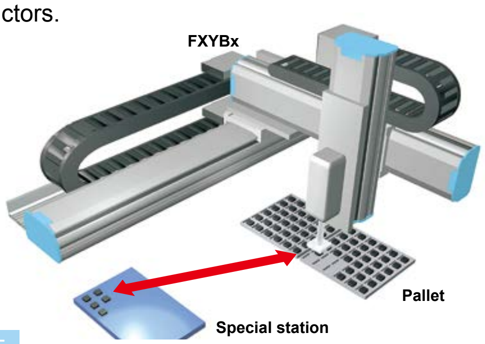


POINT

1. Capable of handling large size workpieces.
2. Also applicable to cutting work with a cutter, surface check with a camera, etc.

IC palletizing within the unit

- ICs are taken out of the pallet and parts are transferred to the specified place by the XYZ Cartesian robot.
- Application as a part of the machine used in the process where a die is attached to the circuit board using thermocompression bonding in the manufacture of semi-conductors.

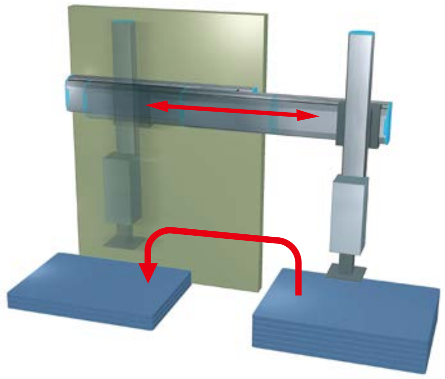


POINT

1. By using the RCX controller, it is possible to use the result of the operation based on variables during palletizing.

Transfer and stacking device within the unit

- Used in the sheet metal processing unit.

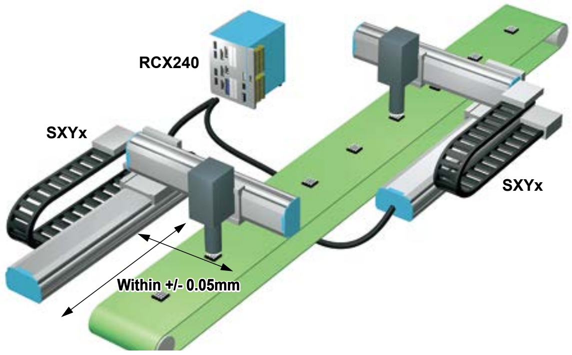


POINT

1. X1 and X2 axes are superposed for space efficiency.
2. The unit layout is easy even for the doubled stroke.

Tester (2 Cartesian robots controlled simultaneously)

- Use as a tester in the post-process of manufacturing electronic parts.

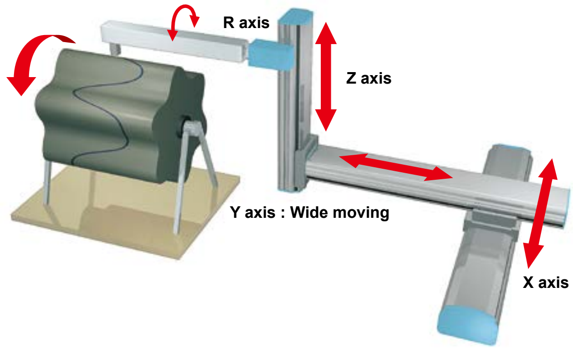


POINT

1. 2 units of SXYx are operated using 1 unit of RCX240 with settings for 2 robots.
2. The vertical traveling accuracy of XY axes of both 2 units of SXYx is within +/- 0.05mm.

Dispenser

- Spreading adhesive agent to drums.

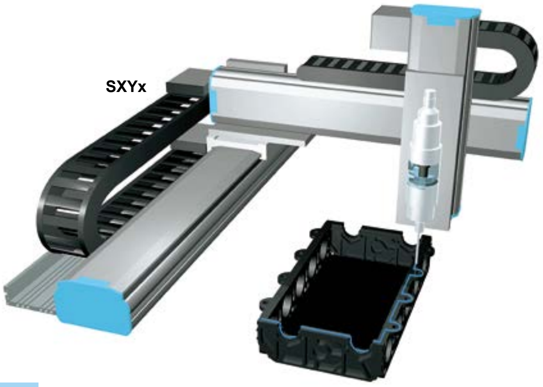


POINT

1. Boosting the R axis strength allows 3-dimensional interpolation + R operation.
2. Each axis has high rigidity and so can easily withstand harsh conditions such as on the moving arm (handles 100mm/sec).

Sealing

- Spreading sealant to mating faces of the cases.

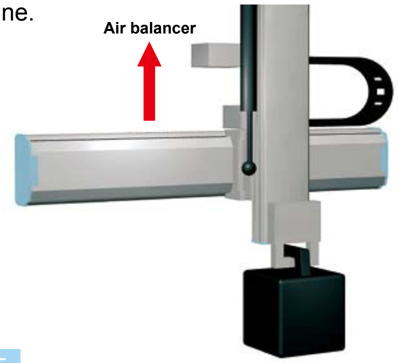


POINT

1. Three dimensional application using 3 axes Cartesian robot. Cartesian robot incorporated with special purpose machine.

Insertion unit
(Tare weight cancellation using moving Z + air balancer)

- Heavy workpiece inserted in the pallet, etc.
- Heavy workpiece before processing set in the processing machine.

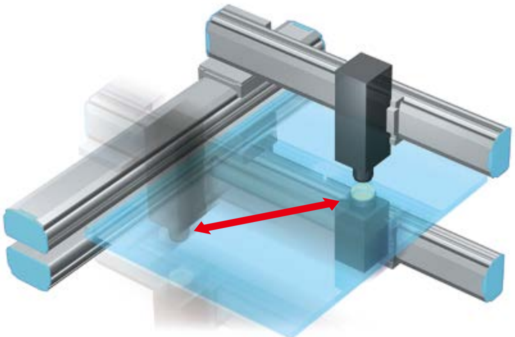


POINT

1. Z axis moving type: The heavy workpiece is cancelled by the air balancer and moved up and down.

Assembler & tester base machine
(Simultaneous operation at upper and lower levels)

- Tester (upper and lower probes, camera with lighting) .
- Precision spot welding machine.
- Simultaneous assembly at upper and lower levels (caulking parts, screw tightening) .



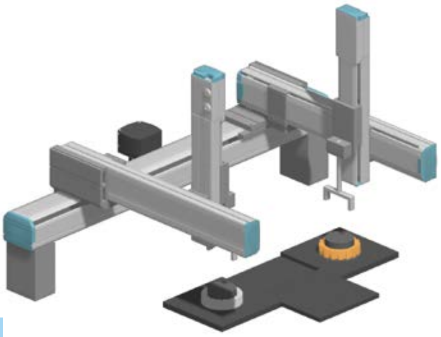
POINT

1. Simultaneous control of 2 Cartesian robots.
2. Levelness of upper and lower robots assured (custom specification) .

Part assembly machine

- Automotive clutch assembly
- Efficient alternate assembly of two different parts

MOVIE
Web site



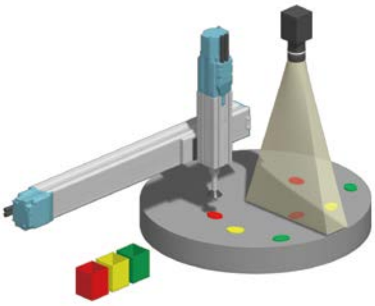
POINT

1. Double-arm ensures a short tact time along with a space-saving footprint.
2. Double-arm specifications selectable as standard feature.
3. Y axis and Z axis strokes are selectable separately for left and right. (Special orders available)
4. Nut rotation type X axis supports long stroke and also maintains maximum speed.

Part pick and place

- Pick and place of parts from index

MOVIE
Web site



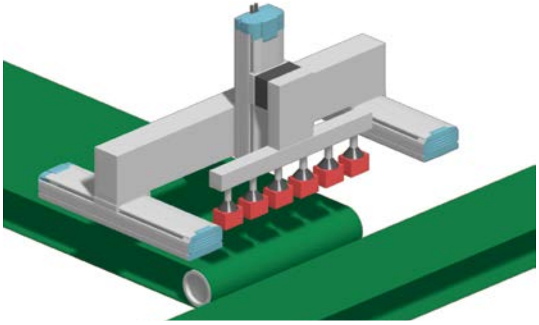
POINT

1. Vision system recognizes parts on index, and robot extracts and sorts the parts.
2. Vision system identifies the type and position and directs robot to operating position.
3. Robot shifts not only to pre-instructed teaching position but also to any position based on data sent from external device.
4. Fieldbus to communicate with controller is selectable from RS-232C, Ethernet or CC-Link.

Dual-drive transport between processes

- Uses dual-drive to convey large and heavy workpieces

MOVIE
Web site



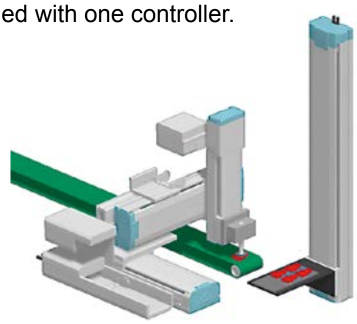
POINT

1. Dual-drive allows synchronized operation of two single-axis robots of the same type.
2. Using dual-drive even allows conveying heavy items or large size parts and products.
3. Enhanced acceleration also helps cut tact time.

Application example of combination with auxiliary single-axis

- Cartesian robot and single-axis robot are controlled with one controller.

MOVIE
Web site



POINT

1. Multiple robots can be controlled simultaneously with one controller. Up to 8 axes of maximum 2 groups can be expanded.
2. As multiple robots are controlled with one controller, the linking can be performed without using the I/O of the PLC or between the controllers. Therefore, there are merits that the number of control program creation steps is reduced to shorten the equipment startup time and reduce the labor cost.

Application example of long-stroke and dual-drive

- Long-stroke axis is combined with Cartesian axis using the dual-drive control.

MOVIE
Web site

POINT

1. As the dual drive (simultaneous 2 axes) control is applied, a Y-axis long-stroke of up to 2m can be supported. This is applicable to long-distance transfer and heavy workpiece transfer specifications.
2. As the vertical axis is combined, this can be applied to the inspection with large LCD glass panels arranged vertically.
3. According to required repeated accuracy, YAMAHA proposes optimal combination mechanism and control method.

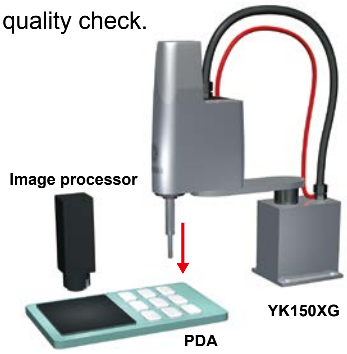
YAMAHA SCARA ROBOT

YK-X Series

P.369

Finished product inspection, touch-panel type evaluation machine

- Finished product function test.
- Developed software evaluation.
- Push-button type quality check.

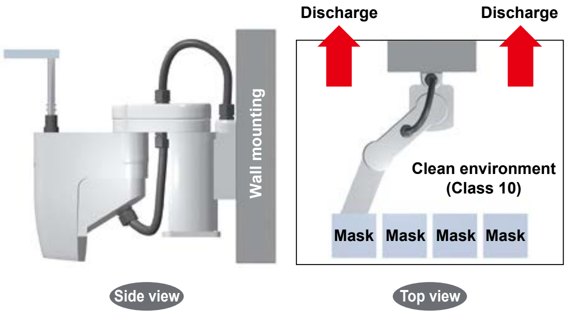


POINT

1. Supports a variety of systems in a product lineup that is top class in its field with arm lengths from 120mm to 1200mm.
2. Space saving.
3. Using SCARA, judgment is made through image processing by pushing each button.

Conveying masks for wafers

- Replacing wafer mask from the stocker.

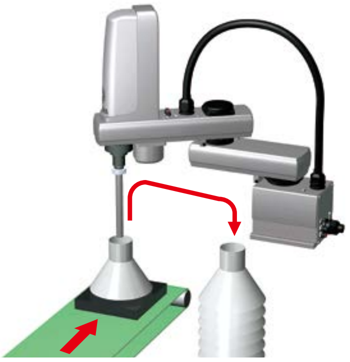


POINT

1. Drive section installed beneath work pieces has clean specs + inverted structure.
2. If the cylindrical coordinate type robot is used, a running axis is necessary for this application. However, if SCARA with the interpolation function is used, the fixed type is usable.

Tall work pieces conveying and stacking machine

- Tall workpieces stacked by utilizing long Z axis.

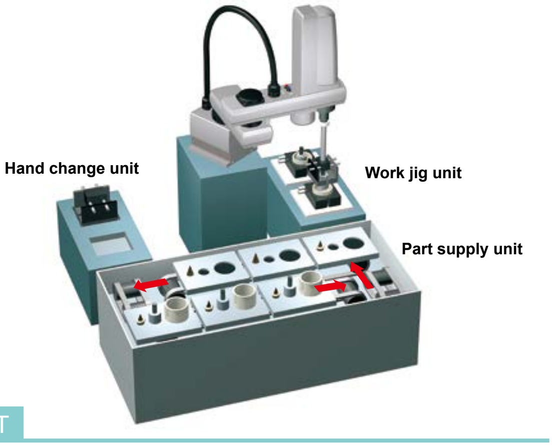


POINT

1. Z-axis long stroke is also accepted as special order.
   If a stroke longer than the standard stroke shown below is needed, consult YAMAHA.
   Standard Z-axis stroke
   [YK120XG to YK180XG] 50mm
   [YK250XG to YK600XGL] 150mm
   [YK600XGH to YK1000XG].. 200mm/400mm
   [YK180X to YK220X]........ 100mm
   [YK500XG to YK600XG] .. 200mm/300mm
   [YK1200X]....................... 400mm
2. SCARA robot is used by utilizing its advantages, such as X/Y-axis speed and space saving installation.

Assembly cell (independent cell)

- Base machine of independent type assembly cell.

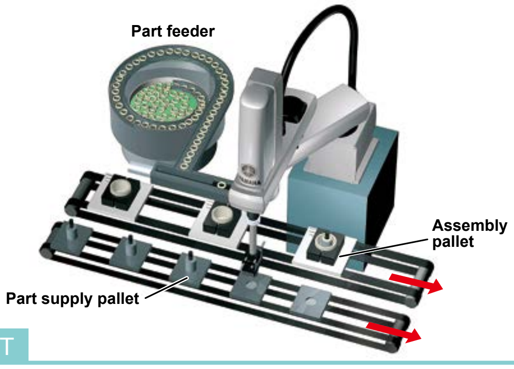


POINT

1. Optimum for multi type variable quantity production.
2. Setting up reception places forms a construction of multiple number of cells.

Assembly cell (line cell)

- Base machine of line type assembly cell.

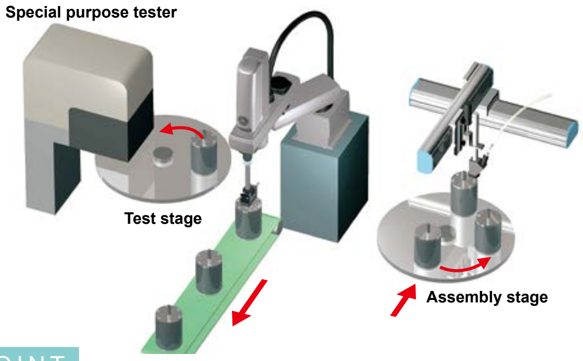


POINT

1. Utilization of advantages of SCARA with a wide operation range.
2. Form a line to any length by coupling these cells together.

Assembly cell (Handling unit for special purpose tester)

- When placed between 2 turn tables, handling of both tables is possible.



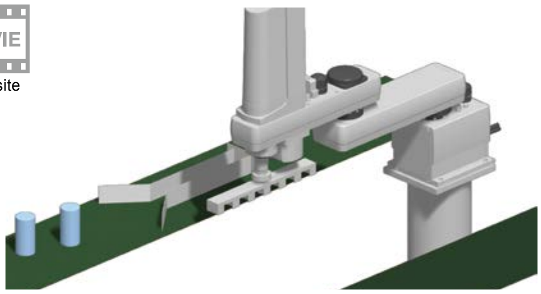
POINT

1. Utilization of advantages of SCARA which has a wide operation range.

Inter-process transport

- Conveys large and heavy workpieces

MOVIE
Web site



POINT

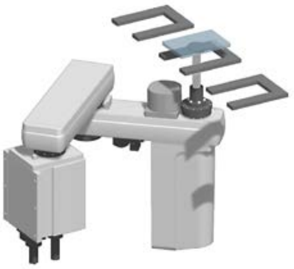
1. Built-in structure with no timing belt achieves high allowable moment-of-inertia on R axis.
2. High allowable moment-of-inertia on R axis permits using large hand on robot. So more workpieces can be conveyed per one time which makes operation more efficient.
3. R axis can be driven at high acceleration during low moment-of-inertia. This shortens the tact time.
4. Uses a harmonic gear as XYR axis speed reducers. No periodic greasing is required due to sealed grease.

Note: Available for YK500XG to YK1000XG.

Inter-process transport with inverse specifications applied

- Workpiece inter-process transport with inverse specifications applied

MOVIE
Web site



POINT

1. As the inverse specifications are applied, the workpieces can be held from the lower portion to prevent foreign objects from dropping onto workpieces being transported.
2. The performance of the robot mechanical section is similar to the standard specifications. The high performance of the YK-XG series can be utilized.
3. YAMAHA SCARA robot can select three installation patterns, standard floor installation, wall-mount, inverse specifications [Note]. YAMAHA proposes various ideas about equipment design.

Note. If the robot with the standard specifications, normal ceiling-mount specifications, or wall-mount specifications is installed upside down, this may cause a malfunction. When considering the installation like this, be sure to use the robot with the dedicated inverse specifications (YK-XS-U).

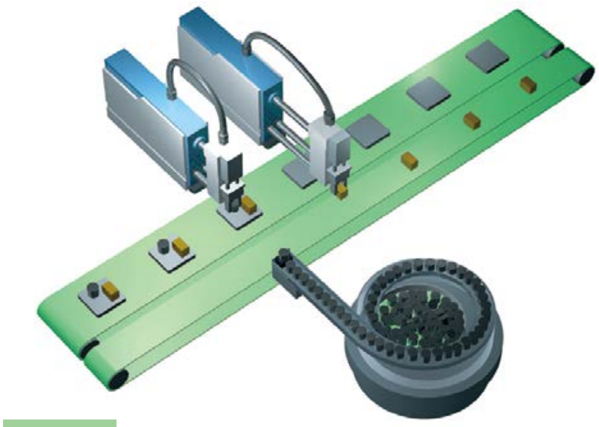
YAMAHA PICK & PLACE ROBOTS

YP-X
Series

P.429

Precision part assembler (1)

- Assembly of small size precision parts.

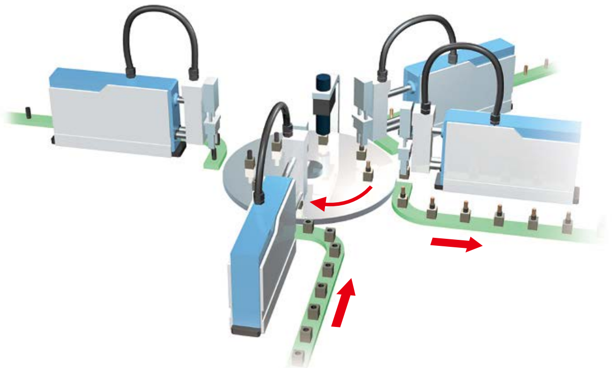


POINT

1. High speed assembly.
2. Narrow machine width, and settable with a tiny pitch.

Precision part assembler (2)

- Assembly of small size precision parts.



POINT

1. Speed increased even more when used in combination with a rotary table.

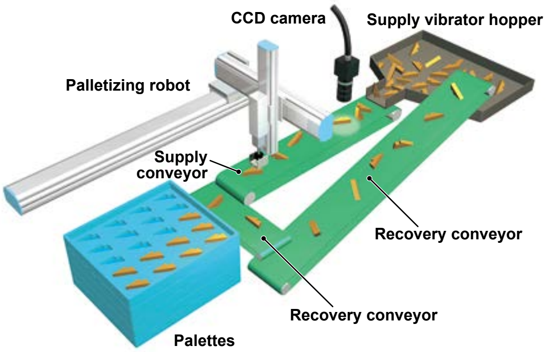
YAMAHA ROBOT VISION

iVY/iVY2 System

iVY P.574 / iVY2 P.578

Small part palletizing

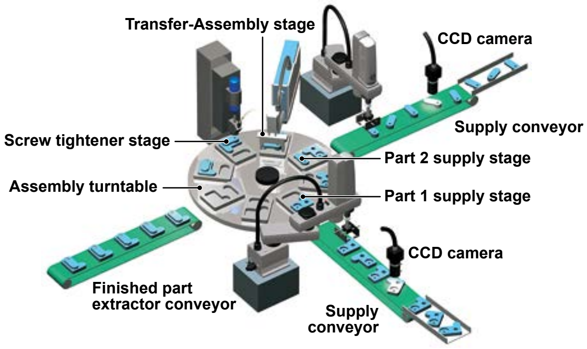
- Assemble a sorting pallet for the automated machine in the next process.



POINT

Loading parts into assembler machine

- Loads unsorted parts or components into automated equipment.

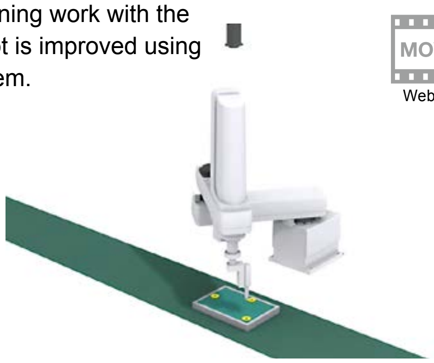


POINT

Screw tightening work with SCARA robot

- Screw tightening work with the SCARA robot is improved using the iVY system.

MOVIE
Web site



POINT

1. As the position detection function using the iVY system is added, the robot is applicable to various conditions.
   For example, if the screw hole position varies, the workpiece position on the conveyor is not constant, or various workpieces are supplied, the robot can be installed easily.
2. Use of iVY system makes it possible to perform the calibration using system operation. As the teaching steps can be reduced, the equipment startup time is shortened and labor cost can be reduced.

Pick & place work

- Component pick & place work is improved using iVY system.

MOVIE
Web site

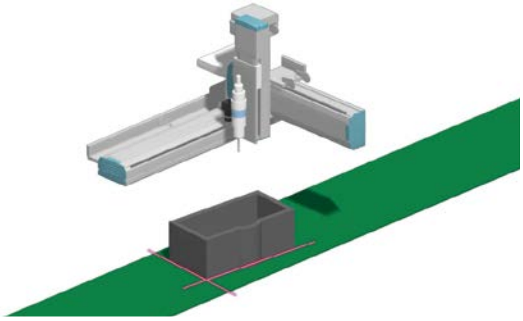
POINT

1. As the position detection function using the iVY system is added, components on soft pallets or pallets with low accuracy can be gripped correctly.
2. Therefore, merits are provided that the pallet manufacture cost is reduced, positioning mechanism is simplified, and equipment cost is reduced.
3. Two camera input channels are provided on one controller.
4. The camera can be incorporated into the robot or secured outside the robot.
   Simple calibration work can be performed under either of the conditions.

Sealing correction

- Sealing tasks for placing gaskets or applying adhesives in parts
- Coating trajectory correction using iVY system

MOVIE
Web site

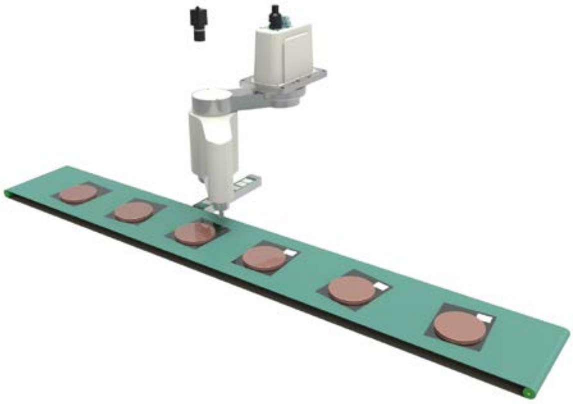


POINT

1. Use of iVY system makes corrections to Cartesian robot sealing tasks.
2. iVY system detects deviations and tilting even if workpiece strayed from its main position, and automatically corrects the coating trajectory.
3. Maintains high coating quality even during low positioning accuracy on component side.

Labeling device

■ Affixing labels to food packages

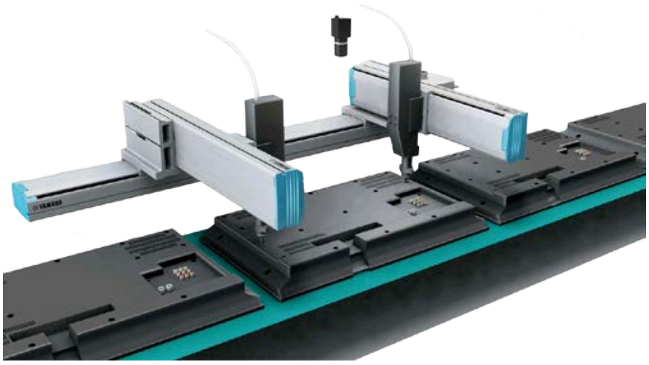


POINT

1. Even if the incoming workpieces are irregularly spaced or positioned, labels can be affixed at the same position.

Screw attachment position detection

■ Television panel screw attachment

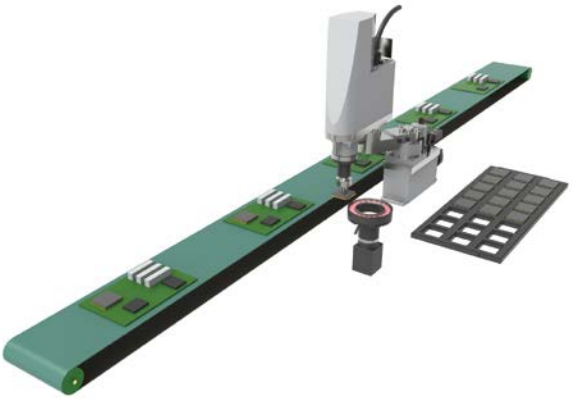


POINT

1. Hole position is detected, and screws are fastened accurately.

Position compensation with upward-facing camera

■ Installing irregularly-shaped parts on a circuit board



POINT

1. The roughly-positioned circuit board connector is picked up, the upward-facing camera is used to apply position compensation, and the part is mounted directly on the circuit board.

Officially discontinued models and service period

Models listed in the current model column are equivalent items. Since these might not be compatible in some cases, please contact Yamaha if you are considering replacement.
E-MAIL robotn@yamaha-motor.co.jp

Single-axis robots

Series	Model	Sale discontinued time	Service period	Current model (equivalent)
FLIP-X	YMS45	Dec. 2013	Dec. 2020	-
	YMS55			
	T4	Dec. 2012	Dec. 2019	T4L
	T4H			T4LH
	T5			T5L
	T5H			T5LH
	T6			T6L
	C4			C4L
	C4H			C4LH
	C5			C5L
	C5H			C5LH
	C6			C6L
	T7	Dec. 2009	Dec. 2016	-
	F17 (Former model)	Sep. 2002	Sep. 2009	F17 (Latter model)
	F17 (Latter model)	-	-	On sale
	F20 (Former model)	Sep. 2002	Sep. 2009	F20 (Latter model)
	F20 (Latter model)	-	-	On sale
	T9 (Former model)	Oct. 2001	Oct. 2008	T9 (Latter model)
	T9 (Latter model)	-	-	On sale
	T9H (Former model)	Oct. 2001	Oct. 2008	T9H (Latter model)
	T9H (Latter model)	-	-	On sale
	F10 (Former model)	Oct. 2001	Oct. 2008	F10 (Latter model)
	F10 (Latter model)	-	-	On sale
	F14 (Former model)	Oct. 2001	Oct. 2008	F14 (Latter model)
	F14 (Latter model)	-	-	On sale
	F14H (Former model)	Oct. 2001	Oct. 2008	F14H (Latter model)
	F14H (Latter model)	-	-	On sale
PHASER	MR16/16D	Dec. 2011	Dec. 2018	MF15/15D
	MR16H/16HD			
	MR20/20D			MF20/20D
	MR25/25D			MF30/30D
	MF50/50D	Mar. 2011	Mar. 2018	MF75
	MF100/100D			
Pico	T4P	Dec. 2009	Dec. 2016	-
	T5P			
FLIPt	FSt	Jan. 2002	Jan. 2009	F10
	BFSt			B10
	LTt			T9
	LSt			F14
	BLSt			B14
	LRt			-
	LTHt			T9H
	LSHt			F14H
	BLSHt			B14H
	MSt			F17
	HSt			F20
	HSLt			F20N
	BHS			-
	FROP-Ft			R5
	FROP-St			R10
	FROP-Mt			R20
	TR			-
	FTt			-
Economy Type	BPS	Jan. 2002	Jan. 2009	-
	PS			
	BSt			
FLIP AC	BFSA	Jul. 1998	Jul. 2005	B10
	BLSA			B14
	BSA			-
	FROP-FA			R5
	FROP-HA			-
	FROP-MA			R20
	FSA			F10
	FTA			-
	HSA			F20
	HSC			C20
	HSLA			F20N

Continues on next page ▶

Single-axis robots (continued)

Series	Model	Sale discontinued time	Service period	Current model (equivalent)
FLIP AC	LRA	Jul. 1998	Jul. 2005	-
	LSA			F14
	LTA			T9
	MS			-
	MSA			F17
	MTA			T9H
FLIP DC	BFS	Jul. 1998	Jul. 2005	B10
	BLSII			B14
	BS			-
	FROP-F			R5
	FROP-M			R20
	FROP-H			-
	FS			F10
	FT			-
	FTB			
	HS			
	HSL			
	LR			
	LS/LSII/LSB/LSI			F14
	LT/LTB/LTI			T9
	MS			F17
	MT			T9H

Cartesian robots

Series	Model	Sale discontinued time	Service period	Current model (equivalent)
XY-X	MXYX 3 axis ZF	Jan. 2005	Jan. 2012	MXYX 3 axis ZFL/ZFH
	MXYX 4 axis ZRF			MXYX 4 axis ZRFL/ZRFH
	MXYX pole type ZPM			MXYX pole type
	TXYX	Mar. 2004	Mar. 2011	PXYX
	SXYX (Former model)	Oct. 2001	Oct. 2008	SXYX (Latter model)
	SXYX (Latter model)	-	-	On sale
	MXYX (Former model)	Oct. 2001	Oct. 2008	MXYX (Latter model)
	MXYX (Latter model)	-	-	On sale
	HXYX (Former model)	Sep. 2002	Sep. 2009	HXYX (Latter model)
	HXYX (Latter model)	-	-	On sale
XYt	FXYt	Jan. 2002	Jan. 2009	FXYBX
	SXYt-C SXYt-S			SXYX
	SXYLt			SXYBX
	MXYt-C MXYt-S			MXYX
	HXYt-C HXYt-S			HXYX
	HXYLt			HXYLX
XY AC	SXYA	Jan. 1999	Jan. 2006	SXYX
	SXYLA			SXYBX
	MXYA			MXYX
	HXYA			HXYX
	HXYLA			HXYLX
XY DC	FXY	Jan. 1999	Jan. 2006	-
	FXYL			
	SXY			SXYX
	SXYI			
	SXYL			-
	MXY	Oct. 1995	Oct. 2002	-
	MXYL			

Pick & place robots

Series	Model	Sale discontinued time	Service period	Current model (equivalent)
YP	YPX220	Apr. 2001	Apr. 2008	YP220BX
YP AC	YP320A	Apr. 2001	Apr. 2008	YP320X
	YP340A			YP340X
	YP330A			YP330X
YP DC	YPS21	Jul. 1998	Jul. 2005	-
	YP340	May 1996	May 2003	YP340X
	YP330			YP320X
	YP320			

SCARA robots

Series	Model	Sale discontinued time	Service period	Current model (equivalent)
YK-XP	YK500XP	Dec. 2013	Dec. 2020	YK500XGP
	YK600XP			YK600XGP
	YK700XP			YK700XGP
	YK800XP			YK800XGP
	YK1000XP			YK1000XGP
	YK250XP	Dec. 2012	Dec. 2019	YK250XGP
	YK350XP			YK350XGP
	YK400XP			YK400XGP
YK-XC	YK250XC(H)	Dec. 2012	Dec. 2019	YK250XGC
	YK350XC(H)			YK350XGC
	YK400XC(H)			YK400XGC
YK-XS	YK300XHS	Dec. 2012	Dec. 2019	YK300XGS
	YK400XHS			YK400XGS
	YK500XS			YK500XGS
	YK600XS			YK600XGS
	YK700XS			YK700XGS
	YK800XS			YK800XGS
	YK1000XS			YK1000XGS
YK-X	YK250X(H)	Dec. 2012	Dec. 2019	YK250XG
	YK350X(H)			YK350XG
	YK400XH			YK400XG
	YK550X(H)	Dec. 2009	Dec. 2016	-
	YK120X	Dec. 2008	Dec. 2015	YK120XG
	YK150X			YK150XG
	YK400X			YK400XG
	YK500X			YK500XG
	YK600X			YK600XG
	YK700X			YK700XG
	YK800X			YK800XG
	YK1000X			YK1000XG
YK AC (SANYO motor model)	YK550H	Mar. 2003	Mar. 2010	YK550X(H)
	YK420A-I/420ALZ-I/440A-I	Mar. 2001	Mar. 2008	YK400XG
	YK540A-I/541A-I			YK500XG
	YK520A-I			
	YK640A-I/641A-I			YK600XG
	YK620A-I			
	YK740A-I/741A-I			YK700XG
	YK720A-I			
	YK840A-I/841A-I			YK800XG
	YK820A-I			
	YK1041A-I			YK1000XG
	YK1043A-I			-
	YK1243A-1			YK1200X
YK AC (YASUKAWA motor model)	YK420A/420ALZ/440A	Dec. 1995	Dec. 2002	YK400XG
	YK520A/540A/541A			YK500XG
	YK620A/640A/641A			YK600XG
	YK720A/740A/741A			YK700XG
	YK820A/840A/841A			YK800XG
	YK1041A			YK1000XG
	YK1043A			-
	YK1243A			YK1200X
YK DC	YK5020/5021	May 1997	May 2004	Replacement unavailable
	YK7011/7012/7022			
	YK4000/4000LZ/4040			YK400XG
	YK420/420LZ/440			
	YK520/540/541			YK500XG
	YK620/640/641			YK600XG
	YK720/740/741			YK700XG
	YK820/840/841			YK800XG
	YK1041			YK1000XG
	YK1200			YK1200X
CAME	YK5012	Mar. 1990	Mar. 1997	-
	YK8050			
	YK8080			

Software

Model	Usage	Sale discontinued time	Current model (equivalent)
POPCOM	ERC series / SRC series / DRC series / SR1 series	Jul. 2013	POPCOM+
VIP	For multi-axis controller	Dec. 2009	VIP+
YPB-Win	Pico series	Dec. 2009	-

Controllers

Model	Sale discontinued time	Service period	Service availability	Replacing models for maintenance	Current model (equivalent)
RDX/RDP	Aug. 2015	Aug. 2022	Being continued	RDV-X/RDV-P	RDV-X/RDV-P
TS-S	Sep. 2013	Sep. 2020	Being continued	TS-S2	TS-S2
DRCX	Dec. 2012	Dec. 2019	Being continued	-	-
ERCX	Jul. 2011	Jul. 2018	Being continued	-	-
SRCP30	Mar. 2011	Mar. 2018	Being continued	-	-
PRC	Dec. 2009	Dec. 2016	Already discontinued	Replacement unavailable	No current model
RCX141	Dec. 2008	Dec. 2015	Already discontinued	RCX240	RCX240
RCX142					
RCX142-T				Replacement unavailable	No current model
SRCX	Apr. 2008	Apr. 2015	Already discontinued	SR1-X	SR1-X
SRCP05/10/20				SR1-P RDP	SR1-P RDP
SRCD				SR1-X RDX	SR1-X RDX
TRCX				RCX240	RCX240 Note. 2
RCX40	Oct. 2005	Oct. 2012	Already discontinued	RCX240	RCX240
QRCX	Mar. 2002	Mar. 2009	Already discontinued	RCX240	RCX240
QRCX-E					RCX240-E
SRCH	Jan. 2002	Jan. 2009	Already discontinued	Replacement unavailable	SR1-X
DRCH					RCX222
TRCH3					RCX240
TRCH4					
DRC-R	Apr. 2001	Apr. 2008	Already discontinued	Replacement unavailable	No current model
QRCH	Mar. 2001	Mar. 2008	Already discontinued	Replacement unavailable	RCX240
QRCH-E					
QRCH-P					
MRCH					No current model Note. 1
MRCH-E					No current model Note. 1
SRCA (Latter model)	Oct. 1999	Oct. 2006	Already discontinued	Replacement unavailable	SR1-X
DRCA (Latter model)					RCX222
ERC					SR1-X
MRCA	Nov. 1997	Nov. 2004	Already discontinued	Replacement unavailable	No current model Note. 1
DRC	Sep. 1997	Sep. 2004	Already discontinued	Replacement unavailable	RCX222
SRC-1					SR1-X
SRC-2					
QRC	May 1997	May 2004	Already discontinued	Replacement unavailable	RCX240
QRCA					
SRC-3	Dec. 1995	Dec. 2002	Already discontinued	Replacement unavailable	SR1-X
SRC-4					
SRCA (Former model)					
DRCA (Former model)					RCX222
MRCA					RCX240
MRC					
RCH20	Mar. 1994	Mar. 2001	Already discontinued	Replacement unavailable	RCX240
SRC2A					SR1-X
SRC4A					
RCH40	Mar. 1992	Mar. 1999	Already discontinued	Replacement unavailable	RCX240
RCH41					
RCS40	Mar. 1990	Mar. 1997	Already discontinued	Replacement unavailable	RCX240
RCS41					
LP					SR1-X

If a replacing model for maintenance is available, it can be used as a set including the controller and the cable for conversion.
When replacing with the current model, it is necessary to replace the robot and the controller as a set.

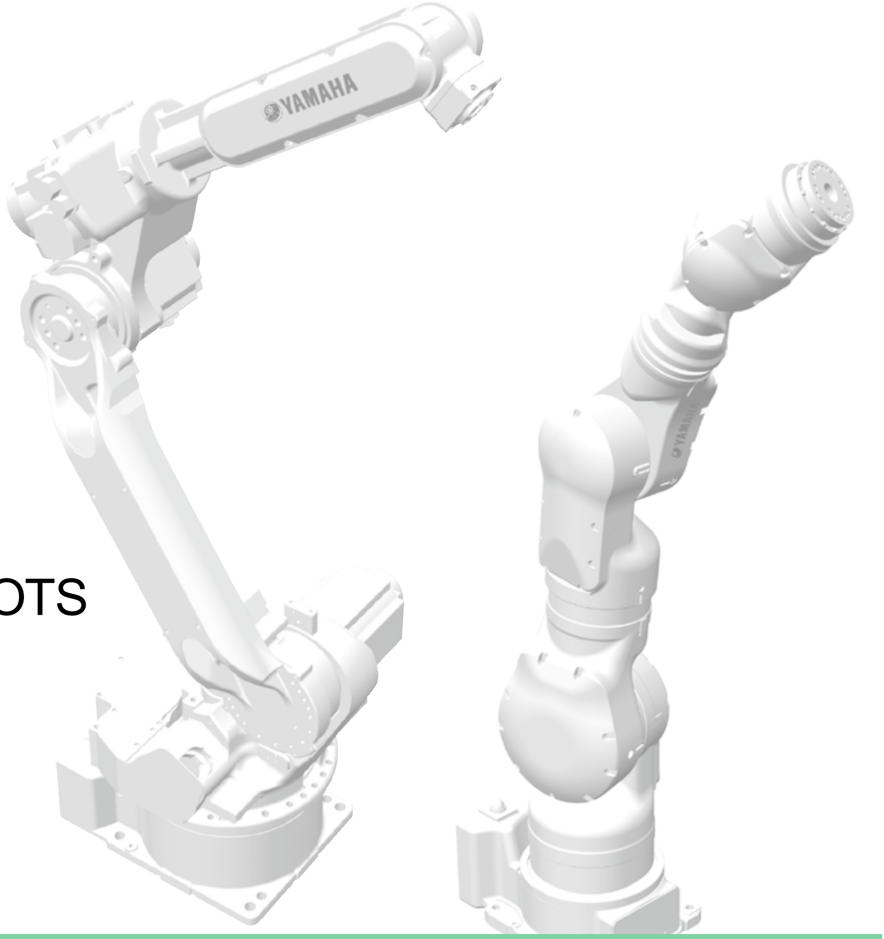
Note 1. Replacement with the current model is possible under certain conditions.
Note 2. Depending on specifications, replacement with the current model may not be possible.

Programming box

Model	Sale discontinued time	Service period	Service availability	Current model (equivalent)
TP-2	Dec. 2009	Dec. 2016	Already discontinued	-
MPB	Jan. 2009	Jan. 2016	Already discontinued	RPB Note
TP-1	Oct. 2005	Oct. 2012	Already discontinued	TP-2
TPB	Jun. 2005	Jun. 2012	Already discontinued	HPB
DPB	Jan. 1999	Jan. 2006	Already discontinued	HPB
YPU20	Mar. 1994	Mar. 2001	Already discontinued	-
SPB-2	Aug. 1992	Aug. 1999	Already discontinued	-
YPU1	Mar. 1992	Mar. 1999	Already discontinued	-
YPU2				-
YPU3				-
SPB	Jan. 1990	Jan. 1997	Already discontinued	-

Note. Customers using the RCX40/RCX141/RCX142 controllers will use a connector adaptor cable.

ARTICULATED ROBOTS
YA SERIES



CONTENTS

6-axis

7-axis

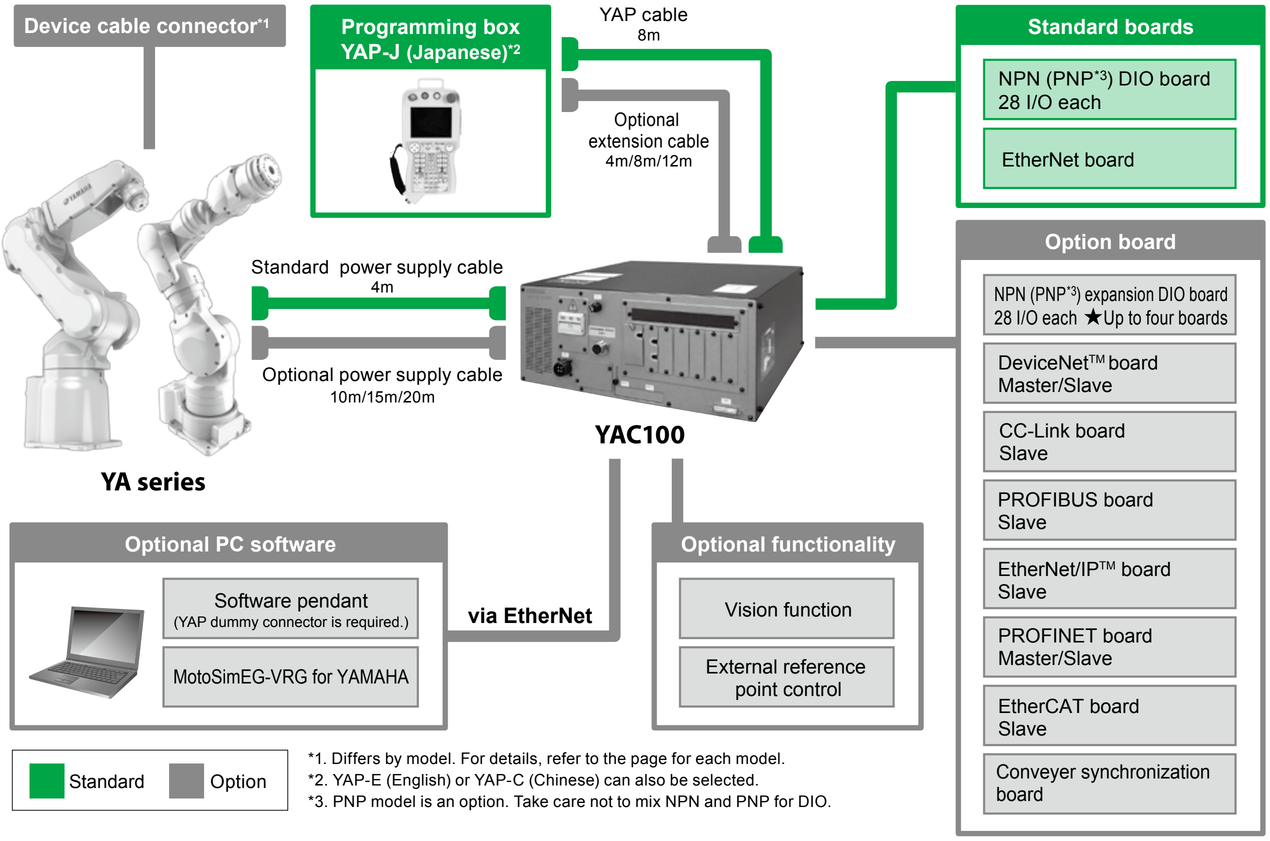
Main functions ▶ P.8

YA SERIES MANIPULATOR SPECIFICATIONS

		6-axis					7-axis		
Applications		Handling (general)					Assembly / Placement		
		 YA-RJ	 YA-R3F	 YA-R5F	 YA-R5LF	 YA-R6F	 YA-U5F	 YA-U10F	 YA-U20F
Number of axes		6	6	6	6	6	7	7	7
Payload		1 kg (max. 2 kg[Note 2])	3 kg	5 kg	5 kg	6 kg	5 kg	10 kg	20 kg
Vertical reach		909 mm	804 mm	1193 mm	1560 mm	2486 mm	1007 mm	1203 mm	1498 mm
Horizontal reach		545 mm	532 mm	706 mm	895 mm	1422 mm	559 mm	720 mm	910 mm
Repeatability		±0.03 mm	±0.03 mm	±0.02 mm	±0.03 mm	±0.08 mm	±0.06 mm	±0.1 mm	±0.1 mm
Range of Motion	**S-axis (turning)**	-160° to +160°	-160° to +160°	-170° to +170°	-170° to +170°	-170° to +170°	-180° to +180°	-180° to +180°	-180° to +180°
	L-axis (lower Arm)	-90° to +110°	-85° to +90°	-65° to +150°	-65° to +150°	-90° to +155°	-110° to +110°	-110° to +110°	-110° to +110°
	E-axis (elbow twist)	-	-	-	-	-	-170° to +170°	-170° to +170°	-170° to +170°
	U-axis (upper arm)	-290° to +105°	-105° to +260°	-136° to +255°	-138° to +255°	-175° to +250°	-90° to +115°	-135° to +135°	-130° to +130°
	R-axis (wrist roll)	-180° to +180°	-170° to +170°	-190° to +190°	-190° to +190°	-180° to +180°	-180° to +180°	-180° to +180°	-180° to +180°
	B-axis (wrist pich/yaw)	-130° to +130°	-120° to +120°	-135° to +135°	-135° to +135°	-45° to +225°	-110° to +110°	-110° to +110°	-110° to +110°
	T-axis (wrist twist)	-360° to +360°	-360° to +360°	-360° to +360°	-360° to +360°	-360° to +360°	-180° to +180°	-180° to +180°	-180° to +180°
Maximum Speed	**S-axis (turning)**	160°/s	200°/s	376°/s	270°/s	220°/s	200°/s	170°/s	130°/s
	L-axis (lower Arm)	130°/s	150°/s	350°/s	280°/s	200°/s	200°/s	170°/s	130°/s
	E-axis (elbow twist)	-	-	-	-	-	200°/s	170°/s	170°/s
	U-axis (upper arm)	200°/s	190°/s	400°/s	300°/s	220°/s	200°/s	170°/s	170°/s
	R-axis (wrist roll)	300°/s	300°/s	450°/s	450°/s	410°/s	200°/s	200°/s	200°/s
	B-axis (wrist pich/yaw)	400°/s	300°/s	450°/s	450°/s	410°/s	230°/s	200°/s	200°/s
	T-axis (wrist twist)	500°/s	420°/s	720°/s	720°/s	610°/s	350°/s	400°/s	400°/s
Allowable Moment	**R-axis (wrist roll)**	3.33 N·m	5.39 N·m	12 N·m	12 N·m	11.8 N·m	14.7 N·m	31.4 N·m	58.8 N·m
	B-axis (wrist pich/yaw)	3.33 N·m	5.39 N·m	12 N·m	12 N·m	9.8 N·m	14.7 N·m	31.4 N·m	58.8 N·m
	T-axis (wrist twist)	0.98 N·m	2.94 N·m	7 N·m	7 N·m	5.9 N·m	7.35 N·m	19.6 N·m	29.4 N·m
Allowable Inertia (GD^2/4)	**R-axis (wrist roll)**	0.058 kg·m^2	0.1 kg·m^2	0.30 kg·m^2	0.30 kg·m^2	0.27 kg·m^2	0.45 kg·m^2	1.0 kg·m^2	4.0 kg·m^2
	B-axis (wrist pich/yaw)	0.058 kg·m^2	0.1 kg·m^2	0.30 kg·m^2	0.30 kg·m^2	0.27 kg·m^2	0.45 kg·m^2	1.0 kg·m^2	4.0 kg·m^2
	T-axis (wrist twist)	0.005 kg·m^2	0.03 kg·m^2	0.1 kg·m^2	0.1 kg·m^2	0.06 kg·m^2	0.11 kg·m^2	0.4 kg·m^2	2.0 kg·m^2
Mass		15 kg	27 kg	27 kg	29 kg	130 kg	30 kg	60 kg	120 kg
Power Requirements[Note 1]		0.5 kVA	0.5 kVA	1.0 kVA	1.0 kVA	1.0 kVA	1.0 kVA	1.0 kVA	1.5 kVA
Detailed info page		**P.111**	**P.112**	**P.113**	**P.114**	**P.115**	**P.116**	**P.117**	**P.118**

Note 1. Varies in accordance with applications and motion patterns.
Note 2. When a load is more than 1 kg, the motion range will be smaller. Use the robot within the recommended motion range. For details, refer to the dimensional diagram on P.111.

■ YA series basic system contents



Device cable connector*1

Programming box YAP-J (Japanese)*2

YAP cable
8m

Optional extension cable
4m/8m/12m

Standard boards

NPN (PNP*3) DIO board
28 I/O each

EtherNet board

Option board

NPN (PNP*3) expansion DIO board
28 I/O each ★Up to four boards

DeviceNet™ board
Master/Slave

CC-Link board
Slave

PROFIBUS board
Slave

EtherNet/IP™ board
Slave

PROFINET board
Master/Slave

EtherCAT board
Slave

Conveyor synchronization board

Standard power supply cable
4m

Optional power supply cable
10m/15m/20m

YAC100

YA series

Optional PC software

Software pendant
(YAP dummy connector is required.)

MotoSimEG-VRG for YAMAHA

via EtherNet

Optional functionality

Vision function

External reference point control

🟩 Standard ▨ Option

*1. Differs by model. For details, refer to the page for each model.
*2. YAP-E (English) or YAP-C (Chinese) can also be selected.
*3. PNP model is an option. Take care not to mix NPN and PNP for DIO.

YA-RJ

6-axis

- Maximum payload 2 kg
- Longest Reach R545 mm

Ordering method

YA-RJ	4L	YAC100				
Model	**Power cable length**	**Controller**	**Safety standard**	**Language setting**	**Option I/O**	**Network option**
	4L: 4m		N: Normal	JE: Japanese/English	N, P: Standard I/O 28/28	No entry : None
			E: CE marking	JC: Japanese/Chinese	N1, P1: 56/56 points	CC: CC-Link
				EJ: English/Japanese	N2, P2: 84/84 points	DM: DeviceNet master
				EC: English/Chinese	N3, P3: 112/112 points	DS: DeviceNet slave
					N4, P4: 140/140 points	PB: PROFIBUS
						EP: EtherNet/IP™
						PM: Profinet master
						PT: Profinet slave
						ES: EtherCAT slave

Note. This unit is ideal for small tabletop devices or for education.
Note. The ultra-light, compact YA-RJ features portability and easy installation for simplified system integration.
Note. Each axis uses a motor of 80 W or less.
Note. This unit can also be used in combination with a travel axis or other external axis. Please contact us.

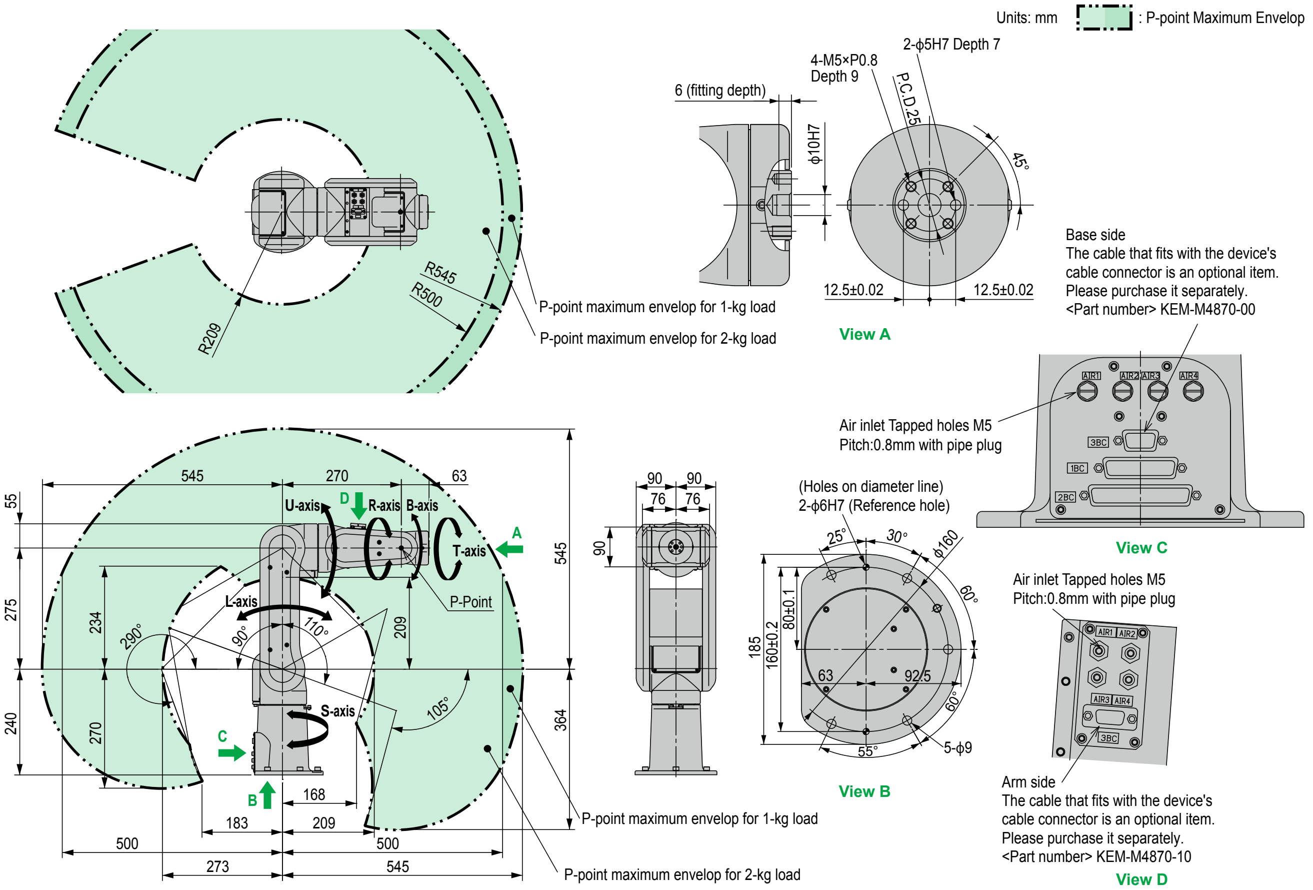
Specifications

Controlled Axis		6
Payload		1 kg (max. 2 kg Note 1)
Repeatability		±0.03 mm
Range of Motion	**S-axis (turning)**	-160° to +160°
	L-axis (lower Arm)	-90° to +110°
	U-axis (upper arm)	-290° to +105°
	R-axis (wrist roll)	-180° to +180°
	B-axis (wrist pich/yaw)	-130° to +130°
	T-axis (wrist twist)	-360° to +360°
Axis with brake Note 2		L-axis, U-axis
Maximum Speed	**S-axis (turning)**	2.79 rad/s, 160°/s
	L-axis (lower Arm)	2.27 rad/s, 130°/s
	U-axis (upper arm)	3.49 rad/s, 200°/s
	R-axis (wrist roll)	5.23 rad/s, 300°/s
	B-axis (wrist pich/yaw)	6.98 rad/s, 400°/s
	T-axis (wrist twist)	8.72 rad/s, 500°/s

Allowable Moment	**R-axis (wrist roll)**	3.33 N·m
	B-axis (wrist pich/yaw)	3.33 N·m
	T-axis (wrist twist)	0.98 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.058 kg·m^2
	B-axis (wrist pich/yaw)	0.058 kg·m^2
	T-axis (wrist twist)	0.005 kg·m^2
Mass		15 kg
Ambient Conditions	**Ambient Temperature**	During operation: 0 to +40˚C, During storage: -10 to +60˚C
	Relative Humidity	90% max. (non-condensing)
	Vibration Acceleration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)
Power Requirements Note 3		0.5 kVA

Note 1. When a load is more than 1 kg, the motion range will be smaller. Use the robot within the recommended motion range. (See diagrams below)
Note 2. The S-, R-, B-, and T-axes do not have any brakes. Make sure that the operation does not require brakes.
Note 3. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-RJ



Base side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4870-00

Arm side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4870-10

Controller YAC100 ▶ 119

YA-R3F

6-axis

- Maximum payload 3 kg
- Longest Reach R532 mm

Ordering method

Model	Power cable length	Controller	Safety standard	Language setting	Option I/O	Network option
YA-R3F	4L	YAC100				
	4L: 4m		N: Normal	JE: Japanese/English	N, P: Standard I/O 28/28	No entry : None
			E: CE marking	JC: Japanese/Chinese	N1, P1: 56/56 points	CC: CC-Link
				EJ: English/Japanese	N2, P2: 84/84 points	DM: DeviceNet master
				EC: English/Chinese	N3, P3: 112/112 points	DS: DeviceNet slave
					N4, P4: 140/140 points	PB: PROFIBUS
						EP: EtherNet/IP™
						PM: Profinet master
						PT: Profinet slave
						ES: EtherCAT slave

Note. The YA-R3F, a compact manipulator with a motor of 80 W or less mounted on all axes, requires minimal space (baseplate: 240 mm × 170 mm). No fence is required for robot's working area. The robot can be used in applications such as automated guided vehicles (AGVs), testing equipment, and educational tools.
Note. Standard models include four air hoses (diameter: 4 mm), and an internal user I/O wiring harness (0.2 mm² × 10) running through the U-arm. This structure simplifies wiring and tubing for easier system construction.
Note. Floor-mounted, wall-mounted, and ceiling-mounted types are available. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. This unit can also be used in combination with a travel axis or other external axis. Please contact us.

Specifications

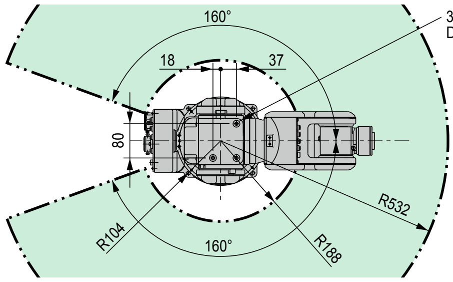
Controlled Axis		6
Payload		3 kg
Repeatability		±0.03 mm
Range of Motion	**S-axis (turning)**	-160° to +160° Note 1
	L-axis (lower Arm)	-85° to +90°
	U-axis (upper arm)	-105° to +260°
	R-axis (wrist roll)	-170° to +170°
	B-axis (wrist pich/yaw)	-120° to +120°
	T-axis (wrist twist)	-360° to +360°
Maximum Speed	**S-axis (turning)**	3.49 rad/s, 200°/s
	L-axis (lower Arm)	2.62 rad/s, 150°/s
	U-axis (upper arm)	3.32 rad/s, 190°/s
	R-axis (wrist roll)	5.24 rad/s, 300°/s
	B-axis (wrist pich/yaw)	5.24 rad/s, 300°/s
	T-axis (wrist twist)	7.33 rad/s, 420°/s

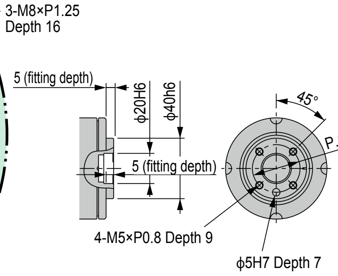
Allowable Moment	**R-axis (wrist roll)**	5.39 N·m
	B-axis (wrist pich/yaw)	5.39 N·m
	T-axis (wrist twist)	2.94 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.1 kg·m²
	B-axis (wrist pich/yaw)	0.1 kg·m²
	T-axis (wrist twist)	0.03 kg·m²
Mass		27 kg
Ambient Conditions	**Temperature**	0 to +40°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s² or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)
Power Requirements Note 2		0.5 kVA

Note 1. For wall-mounted installation, the S-axis operating range is ±25°.
Note 2. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

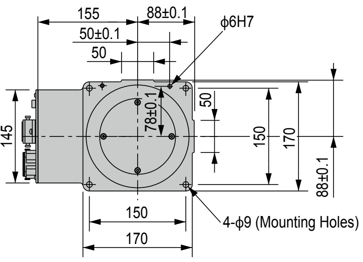
YA-R3F

Units: mm ▭ : P-point Maximum Envelop

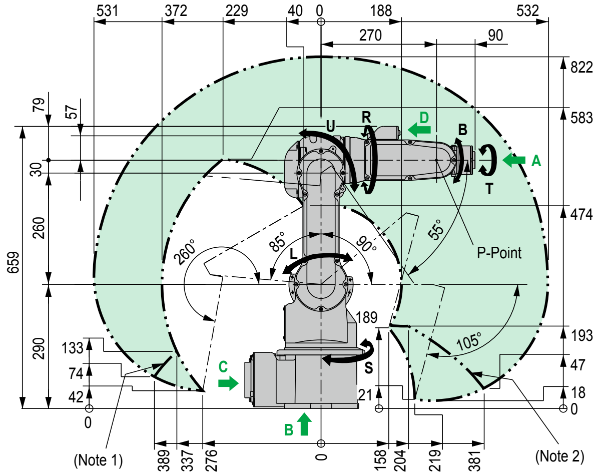


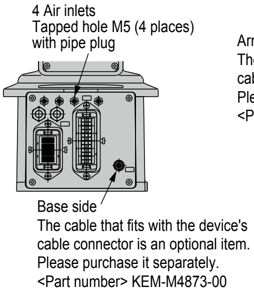


View A



View B

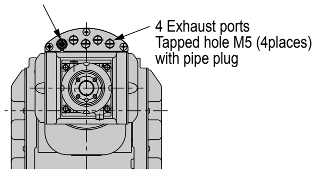




The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4873-00

View C

Arm side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4874-00



View D

Note 1. Motion range of point P when the S-axis is between -40° to +40°.
Note 2. Motion range of point P when the S-axis is between -125° to -160° or +125° to +160°.

YA-R5F

6-axis

● Maximum payload 5 kg ● Longest Reach R706 mm

Ordering method

Model	Power cable length	Controller	Safety standard	Language setting	Option I/O	Network option
YA-R5F	4L	YAC100				
	4L: 4m		N: Normal E: CE marking	JE: Japanese/English JC: Japanese/Chinese EJ: English/Japanese EC: English/Chinese	N, P: Standard I/O 28/28 N1, P1: 56/56 points N2, P2: 84/84 points N3, P3: 112/112 points N4, P4: 140/140 points	No entry : None CC: CC-Link DM: DeviceNet master DS: DeviceNet slave PB: PROFIBUS EP: EtherNet/IP™ PM: Profinet master PT: Profinet slave ES: EtherCAT slave

Note. Thanks to the higher control rate of the YAC100 controller and vibration-damping control of the arm, we have reduced the residual vibration when the arm stops moving, while shortening the cycle time and achieving the fastest speed in this class.
Note. Longest reach in a respective class (706 mm)
Note. Floor-mounted, wall-mounted, and ceiling-mounted types are available. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. This unit can also be used in combination with a travel axis or other external axis. Please contact us.

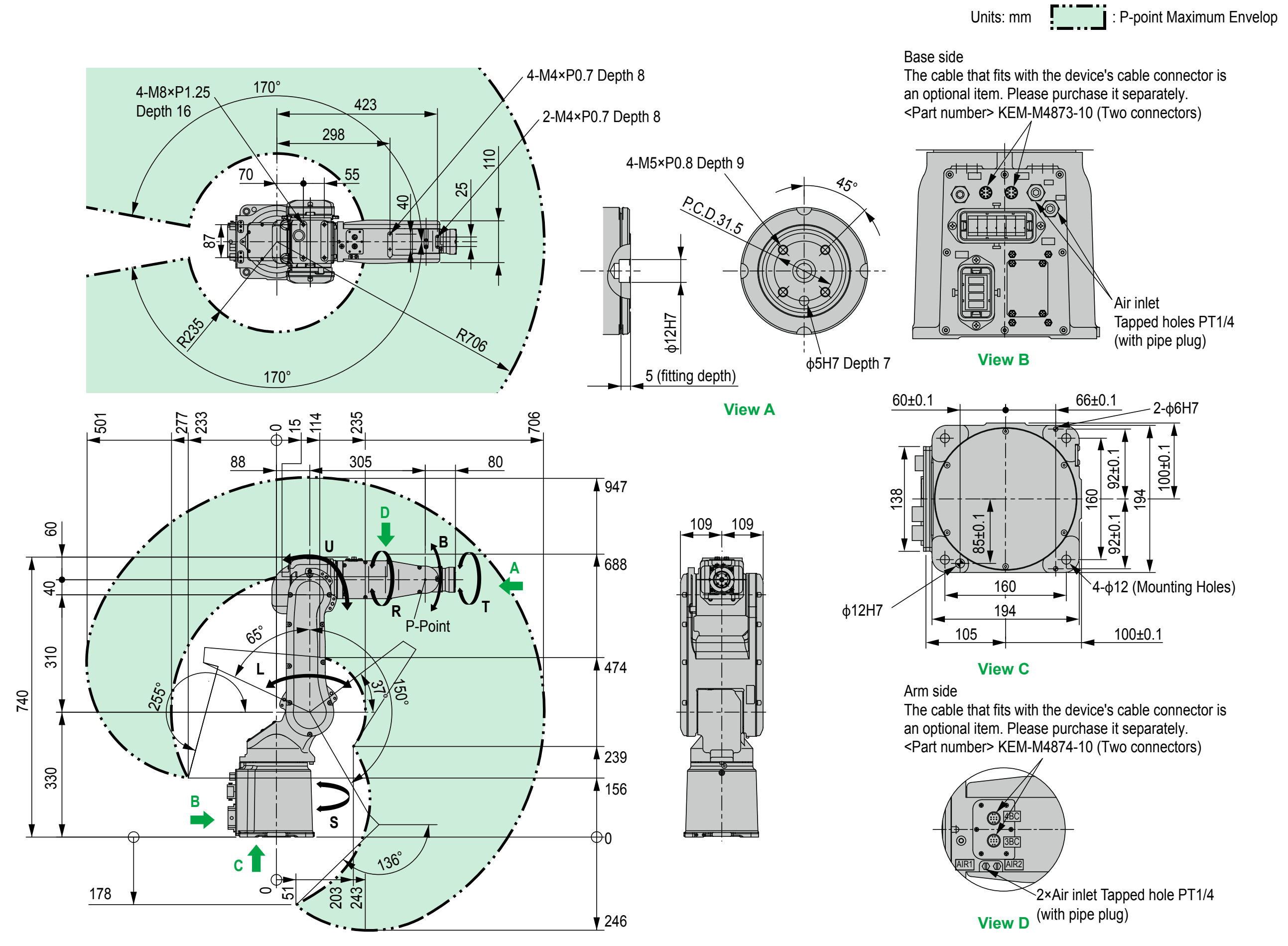
Specifications

Controlled Axis		6
Payload		5 kg
Repeatability		±0.02 mm
Range of Motion	**S-axis (turning)**	-170° to +170° Note 1
	L-axis (lower Arm)	-65° to +150°
	U-axis (upper arm)	-136° to +255°
	R-axis (wrist roll)	-190° to +190°
	B-axis (wrist pich/yaw)	-135° to +135°
	T-axis (wrist twist)	-360° to +360°
Maximum Speed	**S-axis (turning)**	6.56 rad/s, 376°/s
	L-axis (lower Arm)	6.11 rad/s, 350°/s
	U-axis (upper arm)	6.98 rad/s, 400°/s
	R-axis (wrist roll)	7.85 rad/s, 450°/s
	B-axis (wrist pich/yaw)	7.85 rad/s, 450°/s
	T-axis (wrist twist)	12.57 rad/s, 720°/s

Allowable Moment	**R-axis (wrist roll)**	12 N·m
	B-axis (wrist pich/yaw)	12 N·m
	T-axis (wrist twist)	7 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.3 kg·m^2
	B-axis (wrist pich/yaw)	0.3 kg·m^2
	T-axis (wrist twist)	0.1 kg·m^2
Mass		27 kg
Ambient Conditions	**Temperature**	0 to +45˚C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)
Power Requirements Note 2		1.0 kVA

Note 1. For wall-mounted installation, the S-axis operating range is ±30°.
Note 2. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-R5F



Base side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4873-10 (Two connectors)

Arm side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4874-10 (Two connectors)

YA-R5LF

6-axis

- Maximum payload 5 kg
- Longest Reach R895 mm

Ordering method

Model	Power cable length	Controller	Safety standard	Language setting	Option I/O	Network option
YA-R5LF	4L	YAC100				
	4L: 4m		N: Normal E: CE marking	JE: Japanese/English JC: Japanese/Chinese EJ: English/Japanese EC: English/Chinese	N, P: Standard I/O 28/28 N1, P1: 56/56 points N2, P2: 84/84 points N3, P3: 112/112 points N4, P4: 140/140 points	No entry : None CC: CC-Link DM: DeviceNet master DS: DeviceNet slave PB: PROFIBUS EP: EtherNet/IP™ PM: Profinet master PT: Profinet slave ES: EtherCAT slave

Note. Thanks to the higher control rate of the YAC100 controller and vibration-damping control of the arm, we have reduced the residual vibration when the arm stops moving, while shortening the cycle time and achieving the fastest speed in this class.
Note. Longest reach in a respective class (895 mm)
Note. Floor-mounted, wall-mounted, and ceiling-mounted types are available. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. This unit can also be used in combination with a travel axis or other external axis. Please contact us.

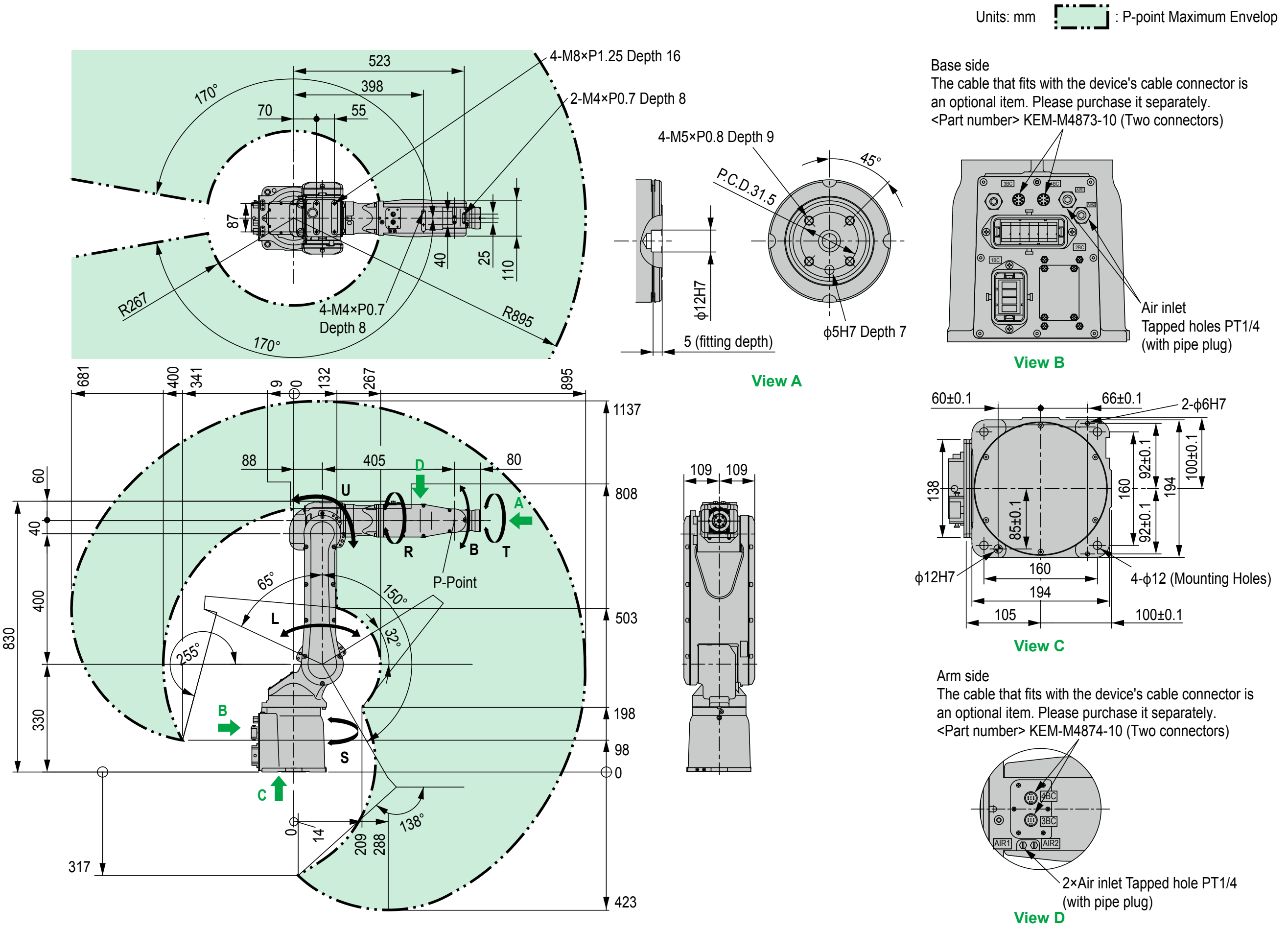
Specifications

Controlled Axis		6
Payload		5 kg
Repeatability		±0.03 mm
Range of Motion	**S-axis (turning)**	-170° to +170° Note 1
	L-axis (lower Arm)	-65° to +150°
	U-axis (upper arm)	-138° to +255°
	R-axis (wrist roll)	-190° to +190°
	B-axis (wrist pich/yaw)	-135° to +135°
	T-axis (wrist twist)	-360° to +360°
Maximum Speed	**S-axis (turning)**	4.71 rad/s, 270°/s
	L-axis (lower Arm)	4.89 rad/s, 280°/s
	U-axis (upper arm)	5.24 rad/s, 300°/s
	R-axis (wrist roll)	7.85 rad/s, 450°/s
	B-axis (wrist pich/yaw)	7.85 rad/s, 450°/s
	T-axis (wrist twist)	12.57 rad/s, 720°/s

Allowable Moment	**R-axis (wrist roll)**	12 N·m
	B-axis (wrist pich/yaw)	12 N·m
	T-axis (wrist twist)	7 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.3 kg·m^2
	B-axis (wrist pich/yaw)	0.3 kg·m^2
	T-axis (wrist twist)	0.1 kg·m^2
Mass		29 kg
Ambient Conditions	**Temperature**	0 to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)
Power Requirements Note 2		1.0 kVA

Note 1. For wall-mounted installation, the S-axis operating range is ±30°.
Note 2. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

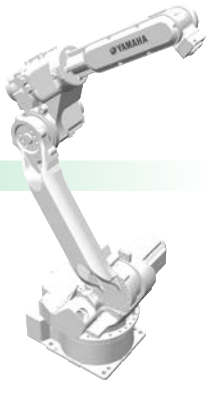
YA-R5LF



Base side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4873-10 (Two connectors)

Arm side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4874-10 (Two connectors)

YA-R6F 6-axis



- Maximum payload 6 kg
- Longest Reach R1422 mm

Ordering method

YA-R6F	4L	YAC100				
Model	**Power cable length**	**Controller**	**Safety standard**	**Language setting**	**Option I/O**	**Network option**
	4L: 4m		N: Normal	JE: Japanese/English	N, P: Standard I/O 28/28	No entry : None
			E: CE marking	JC: Japanese/Chinese	N1, P1: 56/56 points	CC: CC-Link
				EJ: English/Japanese	N2, P2: 84/84 points	DM: DeviceNet master
				EC: English/Chinese	N3, P3: 112/112 points	DS: DeviceNet slave
					N4, P4: 140/140 points	PB: PROFIBUS
						EP: EtherNet/IP™
						PM: Profinet master
						PT: Profinet slave
						ES: EtherCAT slave

Note. Thanks to the higher control rate of the YAC100 controller and vibration-damping control of the arm, we have reduced the residual vibration when the arm stops moving, while shortening the cycle time and achieving the fastest speed in this class.
Note. Longest reach in its class (1422 mm) and increased moment capacity of the wrist.
Note. Floor-mounted, wall-mounted, and ceiling-mounted types are available. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. This unit can also be used in combination with a travel axis or other external axis. Please contact us.

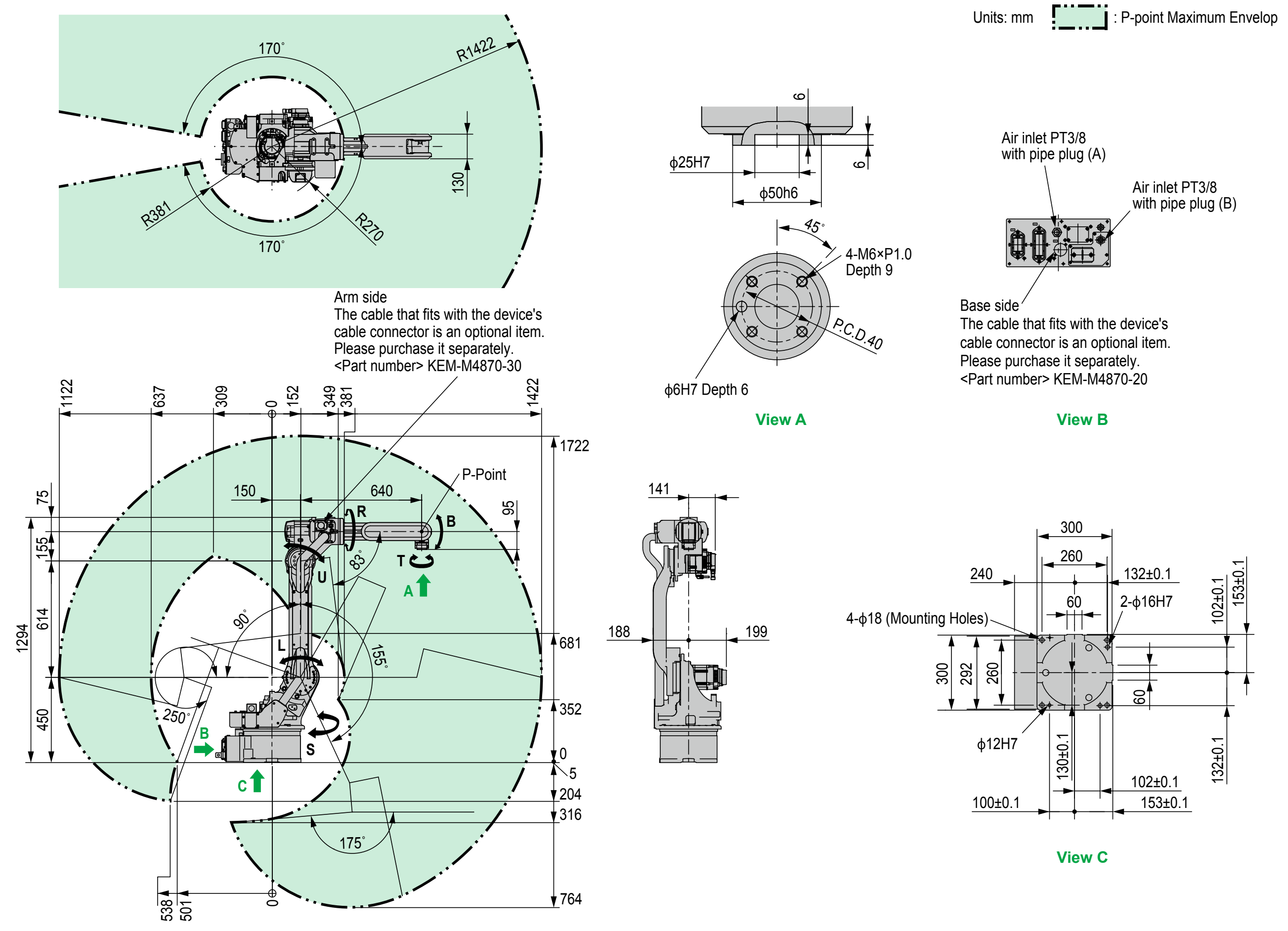
Specifications

Controlled Axis		6
Payload		6 kg
Repeatability		±0.08 mm
Range of Motion	**S-axis (turning)**	-170° to +170° Note 1
	L-axis (lower Arm)	-90° to +155°
	U-axis (upper arm)	-175° to +250°
	R-axis (wrist roll)	-180° to +180°
	B-axis (wrist pich/yaw)	-45° to +225°
	T-axis (wrist twist)	-360° to +360°
Maximum Speed	**S-axis (turning)**	3.84 rad/s, 220°/s
	L-axis (lower Arm)	3.49 rad/s, 200°/s
	U-axis (upper arm)	3.84 rad/s, 220°/s
	R-axis (wrist roll)	7.16 rad/s, 410°/s
	B-axis (wrist pich/yaw)	7.16 rad/s, 410°/s
	T-axis (wrist twist)	10.65 rad/s, 610°/s

Allowable Moment	**R-axis (wrist roll)**	11.8 N·m
	B-axis (wrist pich/yaw)	9.8 N·m
	T-axis (wrist twist)	5.9 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.27 kg·m^2
	B-axis (wrist pich/yaw)	0.27 kg·m^2
	T-axis (wrist twist)	0.06 kg·m^2
Mass		130 kg
Ambient Conditions	**Temperature**	0 to +45˚C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)
Power Requirements Note 2		1.0 kVA

Note 1. For wall-mounted installation, the S-axis operating range is ±30°.
Note 2. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-R6F



Arm side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4870-30

Base side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4870-20

YA-U5F

7-axis

● **Maximum payload 5 kg**

Ordering method

YA-U5F	4L	YAC100				
Model	**Power cable length**	**Controller**	**Safety standard**	**Language setting**	**Option I/O**	**Network option**
	4L: 4m		N: Normal	JE: Japanese/English	N, P: Standard I/O 28/28	No entry : None
			E: CE marking	JC: Japanese/Chinese	N1, P1: 56/56 points	CC: CC-Link
				EJ: English/Japanese	N2, P2: 84/84 points	DM: DeviceNet master
				EC: English/Chinese	N3, P3: 112/112 points	DS: DeviceNet slave
					N4, P4: 140/140 points	PB: PROFIBUS
						EP: EtherNet/IP™
						PM: Profinet master
						PT: Profinet slave
						ES: EtherCAT slave

Note. High degree of motion like a human arm with its 7-axis arm.
Note. The arm has been slimmed by employing a newly developed miniaturized actuator for the wrist section, greatly reducing the interference of the arm with the workpiece.
Note. The narrowing of the motion range that usually results when downsizing a robot is avoided by an ingenious mechanism used for the arm joints, so maximum range is maintained.
Note. Light and weighs only 30 kg, so many installation choices are available: floor, ceiling, or wall. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. By utilizing internal user I/O wiring harness and air lines integrated in the arm, layout can be planned offline without worrying about peripheral interference.
(Internal user I/O wiring harness and air lines specifications: two air lines and eight-core cables)
External axis specification for a hand can be accommodated. Contact YAMAHA regarding your requirements.

Specifications

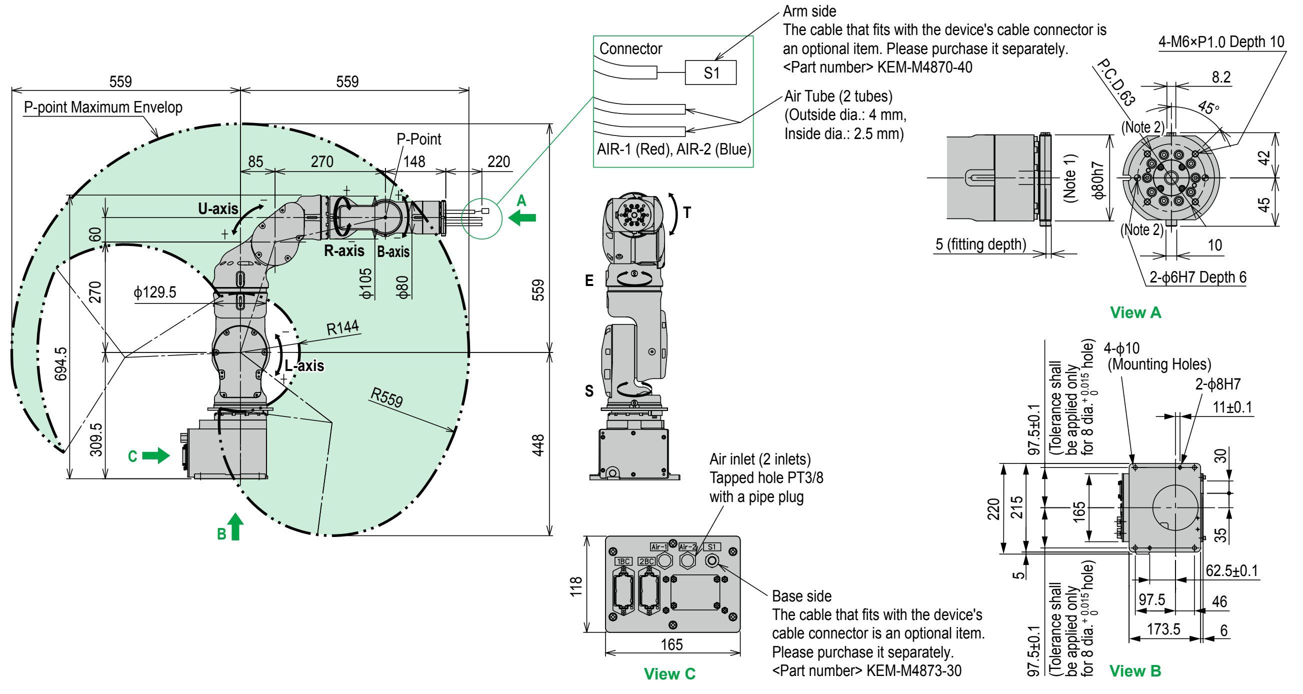
Controlled Axis		7
Payload		5 kg
Repeatability		±0.06 mm
Range of Motion	**S-axis (turning)**	-180° to +180°
	L-axis (lower Arm)	-110° to +110°
	E-axis (elbow twist)	-170° to +170°
	U-axis (upper arm)	-90° to +115°
	R-axis (wrist roll)	-180° to +180°
	B-axis (wrist pich/yaw)	-110° to +110°
	T-axis (wrist twist)	-180° to +180°
Maximum Speed	**S-axis (turning)**	3.49 rad/s, 200°/s
	L-axis (lower Arm)	3.49 rad/s, 200°/s
	E-axis (elbow twist)	3.49 rad/s, 200°/s
	U-axis (upper arm)	3.49 rad/s, 200°/s
	R-axis (wrist roll)	3.49 rad/s, 200°/s
	B-axis (wrist pich/yaw)	4.01 rad/s, 230°/s
	T-axis (wrist twist)	6.11 rad/s, 350°/s

Allowable Moment	**R-axis (wrist roll)**	14.7 N·m
	B-axis (wrist pich/yaw)	14.7 N·m
	T-axis (wrist twist)	7.35 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	0.45 kg·m^2
	B-axis (wrist pich/yaw)	0.45 kg·m^2
	T-axis (wrist twist)	0.11 kg·m^2
Mass		30 kg
Power Requirements [Note 1]		1.0 kVA
Ambient Conditions	**Temperature**	0 to +40°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)

Note 1. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-U5F

Units: mm ▭ : P-point Maximum Envelop



Arm side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4870-40

Air Tube (2 tubes)
(Outside dia.: 4 mm,
Inside dia.: 2.5 mm)

Air inlet (2 inlets)
Tapped hole PT3/8
with a pipe plug

Base side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4873-30

Note 1. The flange is equipped with a cable through hole. When mounting equipment such as an attachment, ensure that no foreign liquid, oil, or dust go into hole.
Note 2. A bolt is mounted for T-axis grease replenished. When attaching an attachment to 80 dia. -0.035/0 part of the T-axis, enough space for the grease zerk (A-MT6X1) is required to the shape of the attachment.

Controller YAC100 ▶ 119

YA-U10F

7-axis

● Maximum payload 10 kg

Ordering method

YA-U10F - **4L** - **YAC100** - ☐ - ☐ - ☐ - ☐

Model	Power cable length	Controller	Safety standard	Language setting	Option I/O	Network option
YA-U10F	4L: 4m	YAC100	N: Normal	JE: Japanese/English	N, P: Standard I/O 28/28	No entry : None
			E: CE marking	JC: Japanese/Chinese	N1, P1: 56/56 points	CC: CC-Link
				EJ: English/Japanese	N2, P2: 84/84 points	DM: DeviceNet master
				EC: English/Chinese	N3, P3: 112/112 points	DS: DeviceNet slave
					N4, P4: 140/140 points	PB: PROFIBUS
						EP: EtherNet/IP™
						PM: Profinet master
						PT: Profinet slave
						ES: EtherCAT slave

Note. High degree of motion like a human arm with its 7-axis arm.
Note. The high flexibility of motion makes operation possible even in narrow spaces inaccessible to humans.
Note. Folds to compact size when not in use.
Note. Many installation options: on the floor, on the wall or on the ceiling. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. Optimal for handling small objects.
Note. By utilizing internal user I/O wiring harness and air lines integrated in the arm, layout can be planned offline without worrying about peripheral interference.
(Internal user I/O wiring harness and air lines specifications: two air hoses and twelve-core cables)
External axis specification for a hand can be accommodated. Contact YAMAHA regarding your requirements.

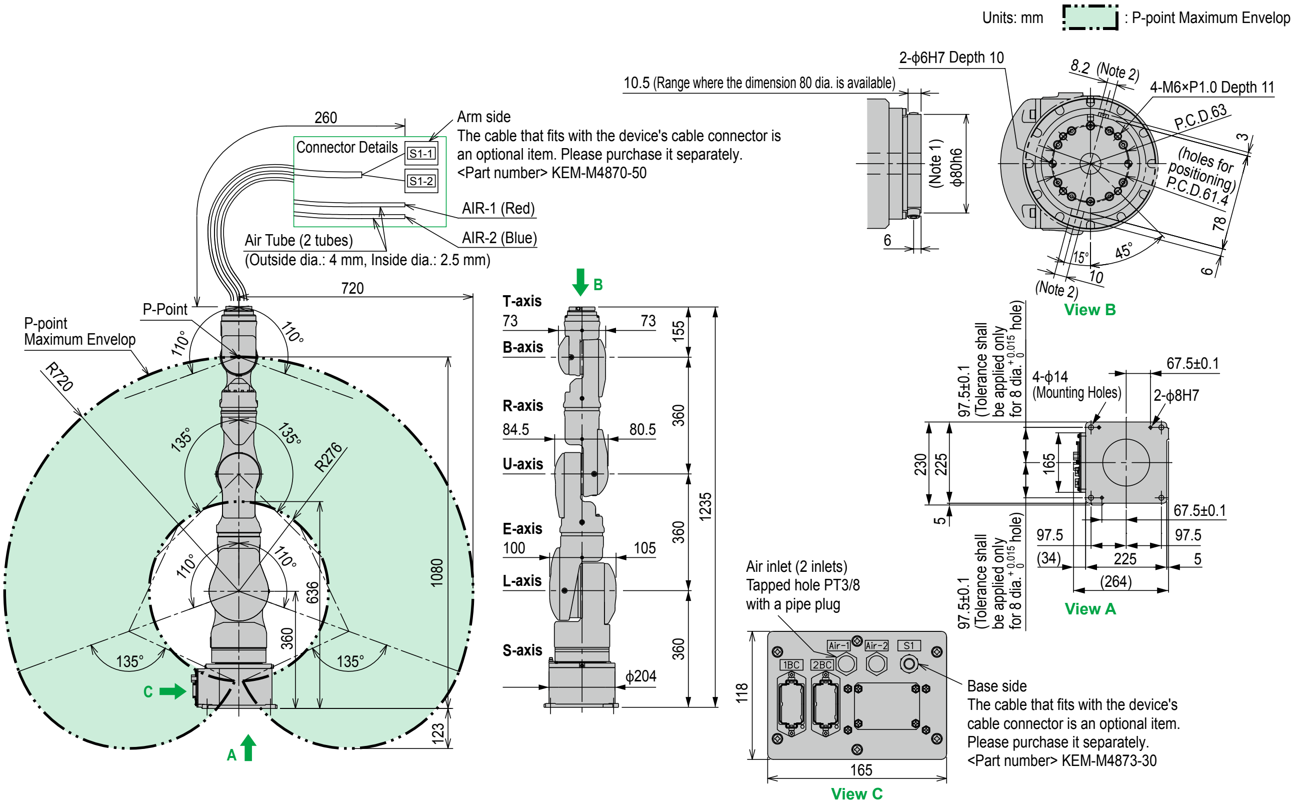
Specifications

Controlled Axis		7
Payload		10 kg
Repeatability		±0.1 mm
Range of Motion	**S-axis (turning)**	-180° to +180°
	L-axis (lower Arm)	-110° to +110°
	E-axis (elbow twist)	-170° to +170°
	U-axis (upper arm)	-135° to +135°
	R-axis (wrist roll)	-180° to +180°
	B-axis (wrist pich/yaw)	-110° to +110°
	T-axis (wrist twist)	-180° to +180°
Maximum Speed	**S-axis (turning)**	2.97 rad/s, 170°/s
	L-axis (lower Arm)	2.97 rad/s, 170°/s
	E-axis (elbow twist)	2.97 rad/s, 170°/s
	U-axis (upper arm)	2.97 rad/s, 170°/s
	R-axis (wrist roll)	3.49 rad/s, 200°/s
	B-axis (wrist pich/yaw)	3.49 rad/s, 200°/s
	T-axis (wrist twist)	6.98 rad/s, 400°/s

Allowable Moment	**R-axis (wrist roll)**	31.4 N·m
	B-axis (wrist pich/yaw)	31.4 N·m
	T-axis (wrist twist)	19.6 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	1.0 kg·m²
	B-axis (wrist pich/yaw)	1.0 kg·m²
	T-axis (wrist twist)	0.4 kg·m²
Mass		60 kg
Power Requirements Note 1		1.0 kVA
Ambient Conditions	**Temperature**	0 to +40°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s² or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)

Note 1. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-U10F

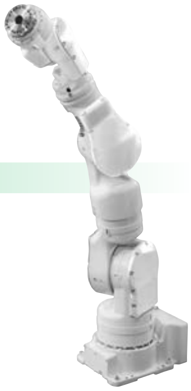

Units: mm
: P-point Maximum Envelop
2-ϕ6H7 Depth 10
10.5 (Range where the dimension 80 dia. is available)
8.2 (Note 2)
4-M6×P1.0 Depth 11
P.C.D.63
(holes for positioning) P.C.D.61.4
(Note 1)
ϕ80h6
6
3
78
15°
45°
10
6
(Note 2)
View B
260
Connector Details
S1-1
S1-2
Arm side
The cable that fits with the device's cable connector is an optional item. Please purchase it separately.
<Part number> KEM-M4870-50
AIR-1 (Red)
AIR-2 (Blue)
Air Tube (2 tubes)
(Outside dia.: 4 mm, Inside dia.: 2.5 mm)
720
P-Point
P-point Maximum Envelop
110°
110°
R720
135°
135°
R276
110°
110°
636
1080
360
135°
135°
C
A
123
B
T-axis
73
73
B-axis
155
R-axis
84.5
80.5
360
U-axis
1235
E-axis
100
105
360
L-axis
S-axis
360
ϕ204
Air inlet (2 inlets)
Tapped hole PT3/8
with a pipe plug
Air-1
Air-2
S1
1BC
2BC
118
165
View C
Base side
The cable that fits with the device's cable connector is an optional item.
Please purchase it separately.
<Part number> KEM-M4873-30
97.5±0.1 (Tolerance shall be applied only for 8 dia. +0.015 0 hole)
4-ϕ14 (Mounting Holes)
67.5±0.1
2-ϕ8H7
230
225
165
5
67.5±0.1
97.5
97.5
(34)
225
5
(264)
97.5±0.1 (Tolerance shall be applied only for 8 dia. +0.015 0 hole)
View A

Note 1. The flange is equipped with a cable through hole. When mounting equipment such as an attachment, ensure that no foreign liquid, oil, or dust go into hole.
Note 2. A bolt is mounted for T-axis grease replenished. When attaching an attachment to 80 dia. -0.035/0 part of the T-axis, enough space for the grease zerk (A-MT6X1) is required to the shape of the attachment.

YA-U20F

7-axis

Maximum payload 20 kg



Ordering method

Model	Power cable length	Controller	Safety standard	Language setting	Option I/O	Network option
YA-U20F	4L	YAC100				
	4L: 4m		N: Normal E: CE marking	JE: Japanese/English JC: Japanese/Chinese EJ: English/Japanese EC: English/Chinese	N, P: Standard I/O 28/28 N1, P1: 56/56points N2, P2: 84/84 points N3, P3: 112/112 points N4, P4: 140/140 points	No entry : None CC: CC-Link DM: DeviceNet master DS: DeviceNet slave PB: PROFIBUS EP: EtherNet/IP™ PM: Profinet master PT: Profinet slave ES: EtherCAT slave

Note. High degree of motion like a human arm with its 7-axis arm.
Note. The high flexibility of motion makes operation possible even in narrow spaces inaccessible to humans.
Note. Folds to compact size when not in use.
Note. Many installation options: on the floor, on the wall or on the ceiling. Please contact us separately regarding wall-mounted or ceiling-mounted installations.
Note. Assembles and handles heavy objects up to 20 kg.
Note. By utilizing internal user I/O wiring harness and air lines integrated in the arm, layout can be planned offline without worrying about peripheral interference.
(Internal user I/O wiring harness and air lines specifications: two air hoses and sixteen-core cables)
External axis specification for a hand can be accommodated. Contact YAMAHA regarding your requirements.

Specifications

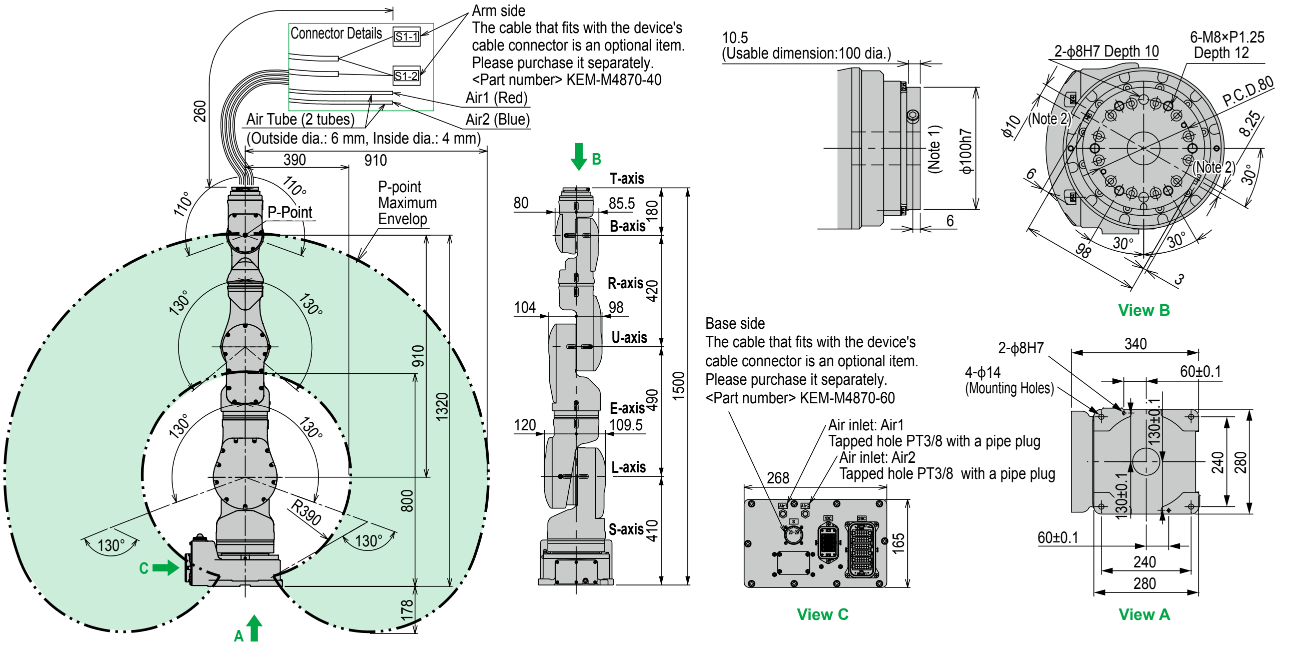
Controlled Axis		7
Payload		20 kg
Repeatability		±0.1 mm
Range of Motion	**S-axis (turning)**	-180° to +180°
	L-axis (lower Arm)	-110° to +110°
	E-axis (elbow twist)	-170° to +170°
	U-axis (upper arm)	-130° to +130°
	R-axis (wrist roll)	-180° to +180°
	B-axis (wrist pich/yaw)	-110° to +110°
	T-axis (wrist twist)	-180° to +180°
Maximum Speed	**S-axis (turning)**	2.27 rad/s, 130°/s
	L-axis (lower Arm)	2.27 rad/s, 130°/s
	E-axis (elbow twist)	2.97 rad/s, 170°/s
	U-axis (upper arm)	2.97 rad/s, 170°/s
	R-axis (wrist roll)	3.49 rad/s, 200°/s
	B-axis (wrist pich/yaw)	3.49 rad/s, 200°/s
	T-axis (wrist twist)	6.98 rad/s, 400°/s

Allowable Moment	**R-axis (wrist roll)**	58.8 N·m
	B-axis (wrist pich/yaw)	58.8 N·m
	T-axis (wrist twist)	29.4 N·m
Allowable Inertia ($GD^2/4$)	**R-axis (wrist roll)**	4.0 kg·m^2
	B-axis (wrist pich/yaw)	4.0 kg·m^2
	T-axis (wrist twist)	2.0 kg·m^2
Mass		120 kg
Power Requirements Note 1		1.5 kVA
Ambient Conditions	**Temperature**	0 to +40°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s^2 or less
	Others	•Free from corrosive gasses or liquids, or explosive gasses •Free from exposure to water, oil, or dust •Free from excessive electrical noise (plasma)

Note 1. Varies in accordance with applications and motion patterns.
Note. SI units are used for specifications.

YA-U20F

Units: mm 🟩 : P-point Maximum Envelop



Note 1. The flange is equipped with a cable through hole. When mounting equipment such as an attachment, ensure that no foreign liquid, oil, or dust go into hole.
Note 2. A bolt is mounted for T-axis grease replenished. When attaching an attachment to 80 dia. -0.035/0 part of the T-axis, enough space for the grease zerk (A-MT6X1) is required to the shape of the attachment.

Controller for use with the YA series

YAC100 Specifications

■ YAC100 controller specifications

Configuration	Standard: IP20 (open structure)
Dimensions	470 mm (W) × 420 mm (D) × 200 mm (H) (Protrusions are not included.)
Mass	20 kg
Cooling System	Direct cooling
Ambient Temperature	During operation: 0˚C to +40˚C During storage : -10˚C to +60˚C
Relative Humidity	90% max. (non-condensing)
Power Supply Note	Single-phase 200/230 VAC (+10% to -15%), 50/60 Hz Three-phase 200/220 VAC (+10% to -15%), 50/60 Hz
Grounding	Grounding resistance: 100 Ω or less
Digital I/Os	Specialized signals: 8 inputs and 11 output General signals : 16 inputs and 16 outputs Max. I/O (optional) : 1,024 inputs and 1,024 outputs
Positioning System	By serial encoder
Programming Capacity	JOB: 10,000 steps, 1,000 instructions CIO ladder: 1,500 steps
Expansion Slots	MP2000 bus × 5 slots
LAN (Connection to Host)	1 (10BASE-T/100BASE-TX)
Interface	RS-232C: 1ch
Control Method	Software servo control
Drive Units	Six axes for robots. Two more axes can be added as external axes. (Can be installed in the controller.)
Painting Color	Munsell notation 5Y7/1 (reference value)

Note. YA-R6F: Three-phase only.

■ YAP programming pendant specifications

Dimensions	169 mm (W) × 314.5 mm (H) × 50 mm (D)
Mass	0.990 kg
Material	Reinforced plastics
Operation Device	Select keys, axis keys (8 axes), numerical/application keys, Mode switch with key (mode: teach, play, and remote), emergency stop button, enable switch, compact flash card interface device (compact flash is optional.), USB port (1 port)
Display	640 × 480 pixels color LCD, touch panel (Alphanumeric characters, Chinese characters, Japanese letters, Others)
IEC Protection Class	IP65
Cable Length	Standard: 8 m, 4 m / 8 m / 12 m extension cable (maximum 20 m)

■ Optimum controller for handling and assembly

The YAC100 is a compact controller with improved performance and functions optimized for handling and assembly.

- Fits in a 19-inch rack and can be installed under conveyors.
- Commands specifically designed for workpiece handling with synchronized conveyors.

Hardware Options

- External axis (max.: 2 axes)
- I/O module (28 points, NPN or PNP)
- Major fieldbus interface boards DeviceNet™ (master/slave), CC-Link (slave), PROFIBUS (slave), EtherNet/IP™ (slave, I/O communications), EtherCAT (slave)

Optional Functions

- Conveyor synchronization
- Vision function
- External reference point control
- Software pendant

■ Regarding the concurrent I/O ladder program

The YAC100 controller is equipped with an NPN (or PNP) for standard I/O. Dedicated input/output is assigned to this standard I/O board. For this reason, if dedicated input/output is to be assigned to various types of field bus, concurrent I/O ladder program settings must be made.

Sample programs can be downloaded from our website.Note
http://global.yamaha-motor.com/business/robot/

Note. The member site requires registration.

A robot simulator that implements the same functionality as the actual controller

MotoSim EG-VRG for YAMAHA

Virtual programming before the actual line is completed allows major reduction in line startup time.

■ Modeling layout
Models of workers and workpieces can be easily laid out.

■ Intuitive control of models
Models can be moved intuitively, simply by using the mouse.

■ Programming and debugging
Automatic generation of robot operating programs, job editing, and job analysis can be performed easily.

■ Intuitive robot operation
The robot's posture can be operated intuitively, allowing more efficient teaching.

■ Robot simulation
The robot can be watched as it operates, allowing visual verification.

Accessories and part options

YA Series

Standard accessories

YAP programming box (with 8m cable)

Name	Model	Language
YAP-J	KEN-M5110-0J	Japanese
YAP-E	KEN-M5110-0E	English
YAP-C	KEN-M5110-0C	Chinese

Parts for the YAC100 controller

Name	Model
Power supply connector	KEN-M4871-00
Power supply cable clamp	KEN-M4836-00
Dummy connector for shorting safety signal	KEN-M5370-00
Power supply protection fuse	KEN-M5853-00
Standard I/O connector (STD.IO)	KBH-M4420-00
	KEN-M4420-00

Power cable (robot cable)

Manipulator name	Model	Cable length	Cable diameter		Bending radius
YA-RJ	KEM-M4710-40	4 m	Signal wire	ϕ8.5 mm	85.0 mm
			Power wire	ϕ13.5 mm	140.0 mm
YA-R3F	KEM-M4711-40	4 m	Signal wire	ϕ17.5 mm	180.0 mm
			Power wire	ϕ19.5 mm	200.0 mm
YA-R5F/R5LF/R6F	KEM-M4712-40	4 m	Signal wire	ϕ17.5 mm	180.0 mm
			Power wire	ϕ19.5 mm	180.0 mm
YA-U5F/U10F	KEM-M4713-40	4 m	Signal wire	ϕ17.5 mm	180.0 mm
			Power wire	ϕ16.1 mm	180.0 mm
YA-U20F	KEM-M4714-40	4 m	Signal wire	ϕ17.5 mm	180.0 mm
			Power wire	ϕ26.0 mm	260.0 mm

Options

Power cable (robot cable)

Manipulator name	Model			Cable diameter		Bending radius
	Cable length (10 m)	Cable length (15 m)	Cable length (20 m)			
YA-RJ	KEM-M4710-A0	KEM-M4710-F0	KEM-M4710-L0	Signal wire	ϕ8.5 mm	85.0 mm
				Power wire	ϕ13.5 mm	140.0 mm
YA-R3F	KEM-M4711-A0	KEM-M4711-F0	KEM-M4711-L0	Signal wire	ϕ17.5 mm	180.0 mm
				Power wire	ϕ19.5 mm	200.0 mm
YA-R5F/R5LF/R6F	KEM-M4712-A0	KEM-M4712-F0	KEM-M4712-L0	Signal wire	ϕ17.5 mm	180.0 mm
				Power wire	ϕ19.5 mm	180.0 mm
YA-U5F/U10F	KEM-M4713-A0	KEM-M4713-F0	KEM-M4713-L0	Signal wire	ϕ17.5 mm	180.0 mm
				Power wire	ϕ16.1 mm	180.0 mm
YA-U20F	KEM-M4714-A0	KEM-M4714-F0	KEM-M4714-L0	Signal wire	ϕ17.5 mm	180.0 mm
				Power wire	ϕ26.0 mm	260.0 mm

Device cable connector (connector for user wiring)

Manipulator name	Part position	Model	Remarks
YA-RJ	Base side	KEM-M4870-00	
	Arm side	KEM-M4870-10	
YA-R3F	Base side	KEM-M4873-00	
	Arm side	KEM-M4874-00	
YA-R5F/R5LF	Base side	KEM-M4873-10	Two connectors
	Arm side	KEM-M4874-10	Two connectors
YA-R6F	Base side	KEM-M4870-20	
	Arm side	KEM-M4870-30	
YA-U5F	Base side	KEM-M4873-30	
	Arm side	KEM-M4870-40	
YA-U10F	Base side	KEM-M4873-30	
	Arm side	KEM-M4870-50	
YA-U20F	Base side	KEM-M4870-60	
	Arm side	KEM-M4870-40	

Extension cable for YAP (extension cable for programming box)

Name	Model	Cable length
Extension cable for YAP	KEN-M531F-10	4 m
	KEN-M531F-20	8 m
	KEN-M531F-30	12 m

Dummy connector for YAP

Name	Model
YAP dummy connector	KEN-M5163-00

Maintenance parts

Name	Model
Battery unit for YA-RJ/R3F	KEM-M53G3-10
YA-R5F/R5LF/R6F Battery unit for YA-U5F/U10F/U20F	KEM-M53G3-00
Battery unit for YAC100 controller	KEN-M53G3-00
AC fan motor	KEN-M6175-00

LINEAR CONVEYOR MODULES
LCM100

CONTENTS

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION

Main functions ▶ P.10

LCM100 basic specifications

Basic specifications of linear conveyor module

Model	LCM100-4M / 3M / 2MT
Drive method	Moving magnet type, Linear motor with flat core
Repeat positioning accuracy	+/-0.015mm (single slider) Note 1 / width 0.1mm (mutual difference among all sliders) Note 2
Scale	Electromagnetic type / resolution 5μm
Max. speed	3000mm/sec
Max. acceleration	2G
Max. payload	15kg Note 3 Note 4
Rated thrust	48N
Total module length	640mm (4M) / 480mm (3M) / 400mm (for 2MT circulation)
Max. number of combined modules	16 (total length: 10240 mm)
Max. number of sliders	16 (when 16 modules are combined)
Min. pitch between sliders	420mm
Mutual height difference between sliders	0.08mm
Max. external size of body cross-section	W136.5mm x H155mm (including slider)
Bearing method	1 guide rail / 2 blocks (with retainer)
Module weight	12.5kg (4M) / 9.4kg (3M) / 7.6kg (2MT)
Slider weight	2.4kg / 3.4kg (when the belt module is used.)
Cable length	3m / 5m
Controller	LCC140

Note 1. Repeated positioning accuracy when positioning in the same direction (pulsating).
Note 2. Positioning accuracy in the pulsating when using the position correction function with the RFID.
Note 3. Weight per single slider.
Note 4. When used together with the belt module, the max. payload becomes 14kg since the parts dedicated to the belt are attached to the slider.

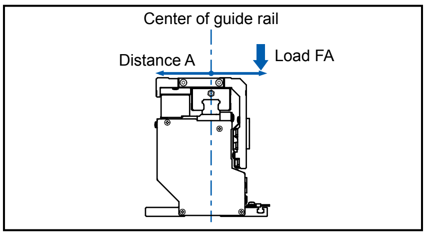
Basic specifications of belt module

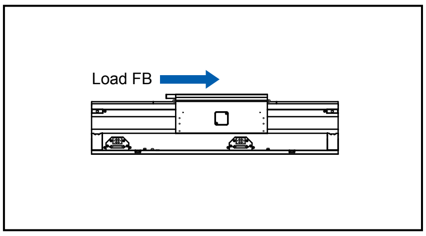
Model	LCM100-4B / 3B
Drive method	Belt back surface pressing force drive Note 5
Bearing method	1 guide rail / 2 blocks (with retainer)
Max. speed	560mm/sec
Max. payload	14kg
Module length	640mm (4B) / 480mm (3B)
Max. number of sliders	1 slider / 1 module
Main unit maximum cross-section outside dimensions	W173.8mm×H155mm (including slider)
Cable length	None
Controller	Dedicated driver (Included)
Power supply	DC24V 5A
Communication I/F	Dedicated input/output 16 points
Module weight	11.2kg (4B) / 8.8kg (3B)

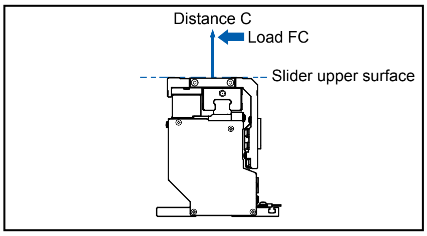
Note 5. Because the belt module works on the principle of using the friction of the belt to move the slider, the belt will be abraded and generate dust, making it unsuitable for environments that require a degree of cleanliness.

Static tolerable load of slider

Static loads shown below are tolerable as references when performing the screw tightening, part assembly, or light press-fitting on the slider.







FA (Unit: N)

A (mm)	Payload		
	5 kg	10 kg	15 kg
0	2550	1560	1270
10	1790	1280	1170
20	1380	780	630
30	1130	520	420
40	900	390	310
50	720	310	250
60	600	260	210

Note. The loads shown above are tolerable loads at a position "A"mm away from the center of the guide rail.

FB (Unit: N)

Payload		
5 kg	10 kg	15 kg
	38	

FC (Unit: N)

C (mm)	Payload		
	5 kg	10 kg	15 kg
0	1190	850	780
10	970	710	650
20	760	610	560
30	630	530	490
40	540	480	430
50	470	430	390
60	410	390	360

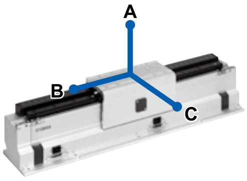
Note. The loads shown above are tolerable loads at a position "C"mm away from the slider upper surface.

Allowable overhang

Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km.

(Unit: mm)

	A	B	C
5kg	677	325	325
10kg	533	146	146
15kg	468	90	90



Ordering method

Linear module

LCM100 - ☐ - ☐ - LCC140 - 10 - ☐

Model	Cable length Note 1	Controller	Current sensor	Network option Note 2
4M: 640mm	3L : 3m		10 : 10A	No entry : None
3M: 480mm	5L : 5m			CC : CC-Link
2MT: Module for circulation	3K: 3m (Flexible cable)			DN : DeviceNet™
	5K: 5m (Flexible cable)			EP : EtherNet/IP™

The above shows "one module + one controller" ordering method.
When connecting modules, please separately inform the number of necessary modules.

Note 1. The cable for 2MT has flexible specifications.
Note 2. For 2MT, be sure to select an appropriate network option.

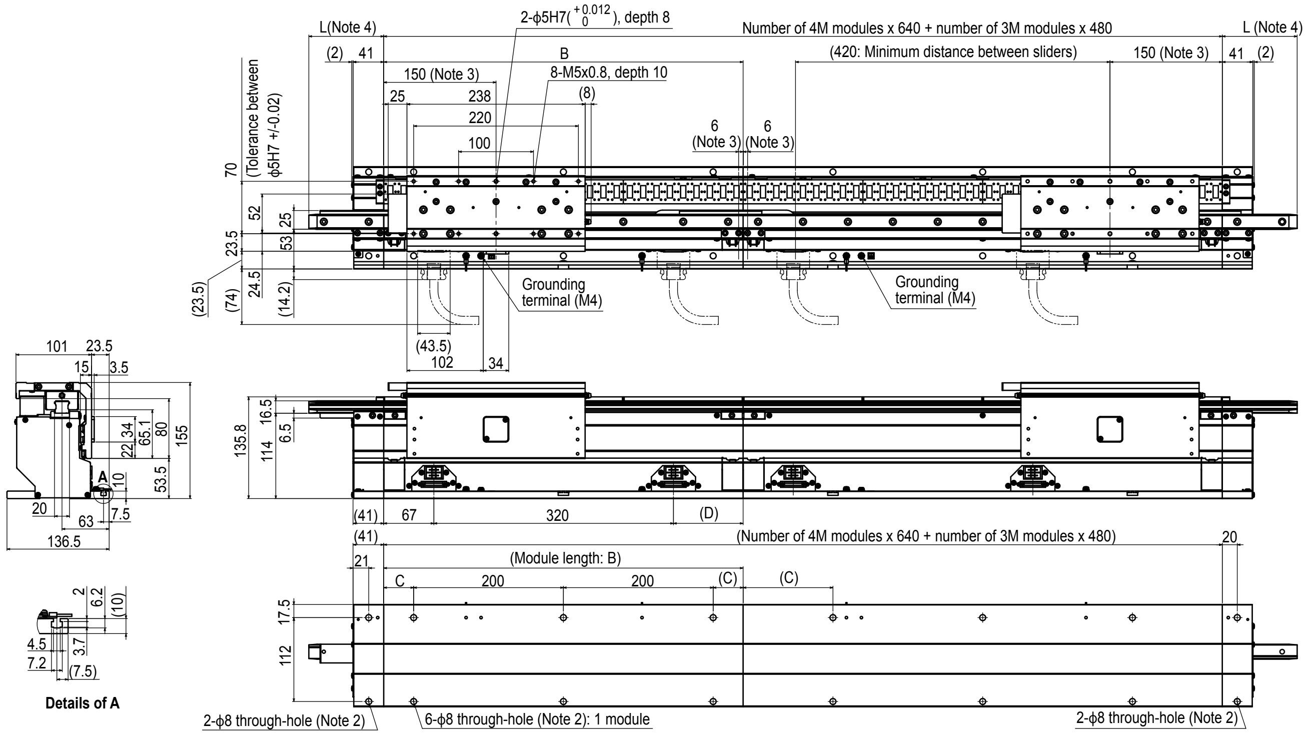
Belt module

LCM100 - ☐ - ☐

Model	Termination module for belt module Note 1
4B: 640mm	No entry : None
3B: 480mm	R: Linear module is connected to the right.
	L: Linear module is connected to the left.
	RL: Linear module is connected to both sides.

Note 1. Parts necessary to connect the belt module and linear module.
Parts are incorporated into the belt module.

LCM100-4M/3M Linear conveyor module (640mm/ 480mm)



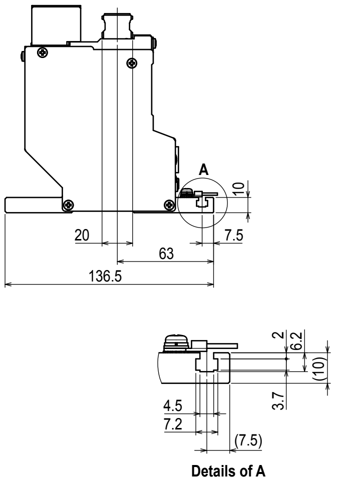
Insertion/ejection rail length selection table

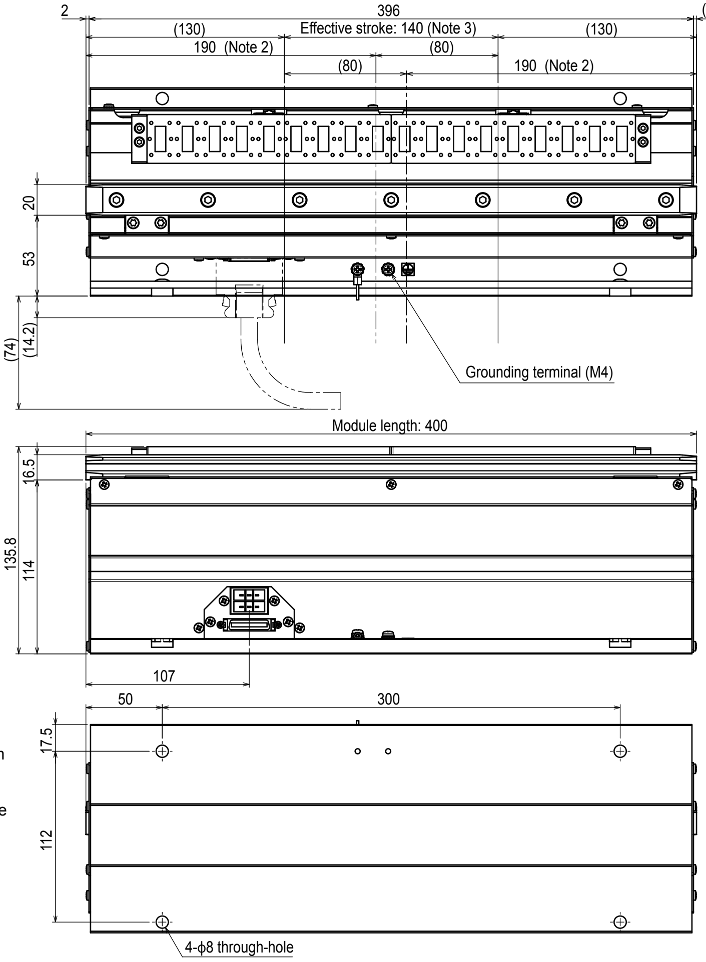
	L
Insertion/ejection rail (mm)	44
	100
	340

Stroke variations	B	C	D
4M	640	120	253
3M	480	40	93

Note 1. All sliders and modules have the same dimensions.
Note 2. Use M6 hex socket head bolts to install the main body.
Note 3. An area of +/-6mm from both ends of each connected module and an area of 150mm from the line end become slider stop inhibited areas. (These dimensions are obtained when the slider is located at its center position.)
Note 4. Select an appropriate rail length of the insertion/ejection rail option from the "Insertion/ejection rail length selection table" shown on the left.
Note 5. The LCM100 is installed only in the horizontal direction.
Note 6. Module variations can be combined freely within the same line. (This figure shows that 3M on the left is combined with 4M on the right.)
Note 7. It is recommended to install rail support parts on the insertion/ejection rail. When no support parts are installed, the rail may be deflected by the slider's own weight, leading to poor rail accuracy or short service life of the guide.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

LCM100-2MT Module for circulation

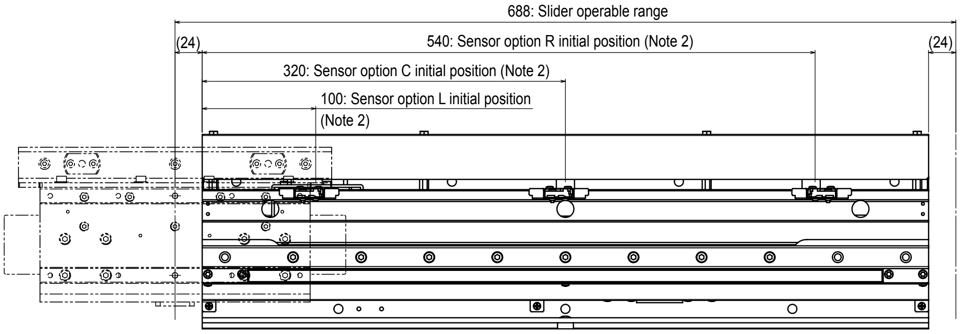


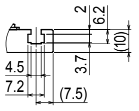


Note 1. Use M6 hex socket head bolts to install the main body.
Note 2. For the stop point when the slider enters, specify a point 190mm or more away from the module end face.
When ejecting the slider, eject the slider after it has been stopped at a point 190mm or more away from the end face of the module on the ejection side. Otherwise, the slider may not be stopped or ejected correctly.
Note 3. The movement range above the module is 140mm around the center.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

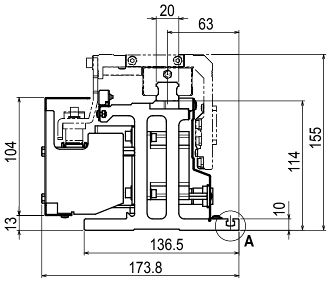
LCM100

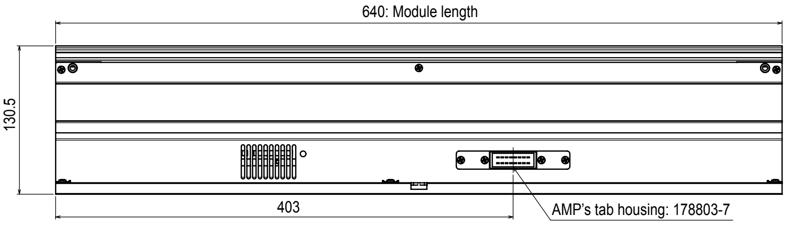
LCM100-4B Belt module (640mm)


688: Slider operable range
(24)
540: Sensor option R initial position (Note 2)
(24)
320: Sensor option C initial position (Note 2)
100: Sensor option L initial position
(Note 2)

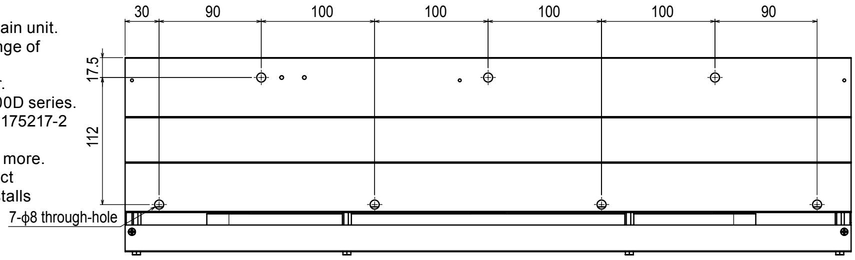


Detailed drawing A

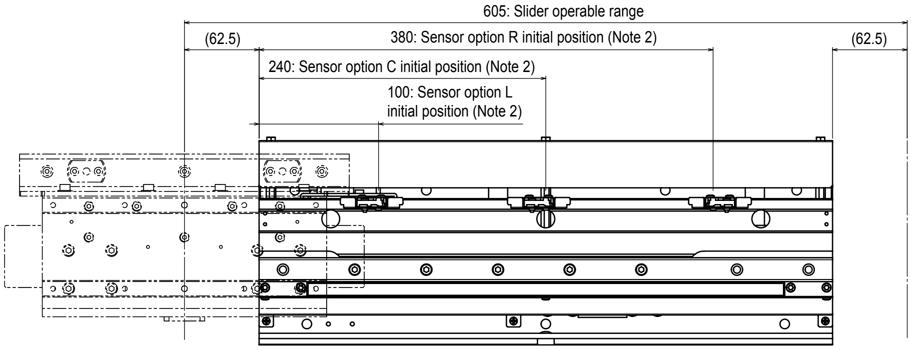


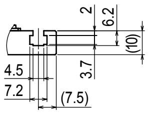


Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
The connector is AMP's dynamic connector D-3100D series.
Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
Note 4. Select 24V power supply with a capacity of 5A or more.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

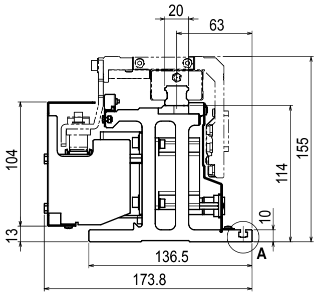


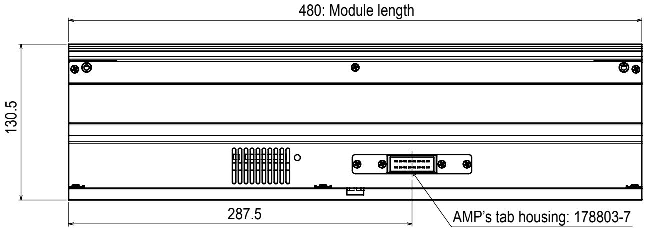
LCM100-3B Belt module (480mm)

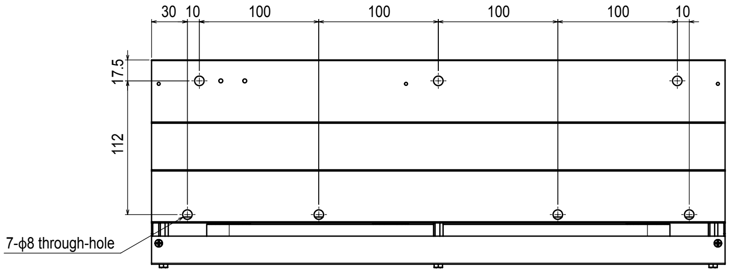

605: Slider operable range
(62.5)
380: Sensor option R initial position (Note 2)
(62.5)
240: Sensor option C initial position (Note 2)
100: Sensor option L
initial position (Note 2)



Detailed drawing A







Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
The connector is AMP's dynamic connector D-3100D series.
Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
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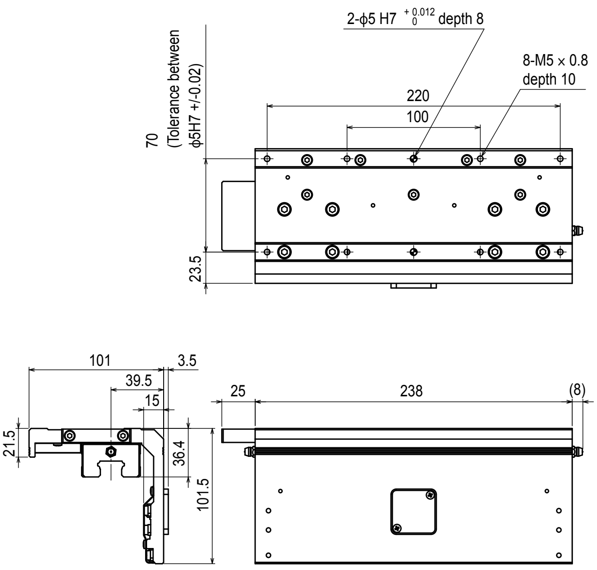
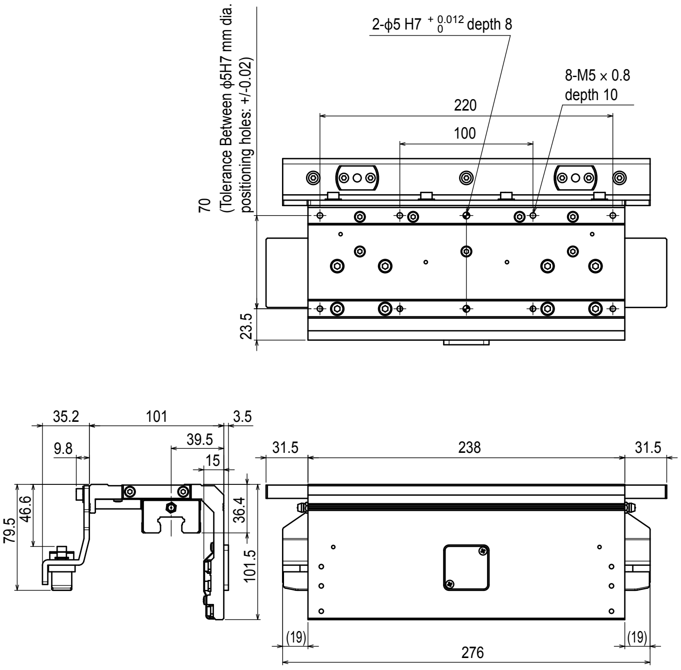
Linear module slider



Belt module slider



■ Belt module outline diagram of input/output signal wiring

● Connector on front panel

Pin No.	Signal name	Function
A1	+24V	Power supply connection DC24V (+/-10%)
A2	GND	
A3	(Blank)	
A4	Option sensor L	Detection output
A5	Option sensor C	Detection output
A6	Option sensor R	Detection output
A7	ALARM	Alarm output
A8	SPEED	Speed output
B1	ALARM-RESET	Alarm reset input ON [L]: Reset OFF [H]: Normal
B2	INT.VR/EXT	Speed setting unit change-over input ON [L]: Internal OFF [H]: External
B3	CW/CCW	Rotation direction change-over input ON [L]: CW OFF [H]: CCW
B4	RUN/BRAKE	Brake input ON [L]: Run OFF [H]: Instantaneous stop
B5	START/STOP	Start/stop input ON [L]: Start OFF [H]: Stop
B6	VRH	(When using the dedicated speed setting unit)
B7	VRM	Minus (-) side DC power supply for speed setting
B8	VRL	Plus (+) side DC0 to 5V, 1mA or more

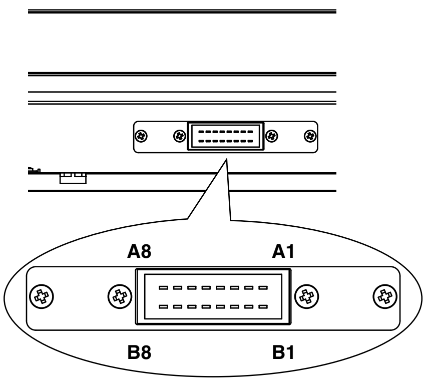
Note. For each input, a side to be connected to GND by the external switch is ON (L level).

Note. When both the START/STOP and RUN/BRAKE signals are turned ON (L level), the motor starts rotating. In this case, when the CW/CCW signal is turned ON (L level), the slider moves to the left as viewed from the connector side.
Conversely, when this signal is turned OFF (H level), the slider moves to the right.

Note. When the START/STOP signal is turned OFF (H level) in the RUN/BRAKE signal ON (L level) state, the motor stops naturally.
According to the operation speed, the slider may overrun several tens to hundreds of millimeters.

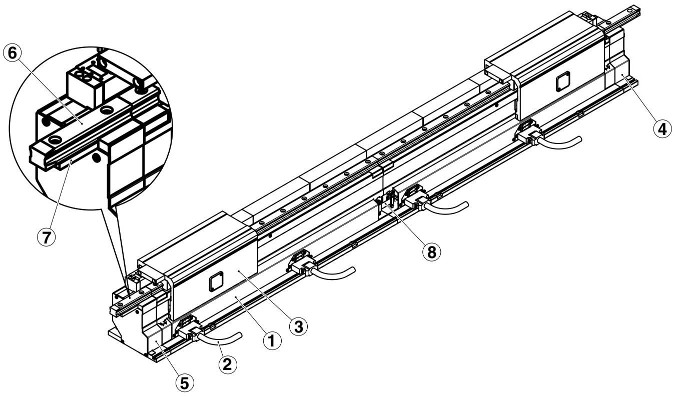
Note. When the RUN/BRAKE signal is turned OFF (H level) in the START/STOP signal ON (L level) state, the motor stops instantaneously to suppress the slider overrun to its minimal level.

● Pin assignment drawing



When investigating the linear conveyor module LCM100 actually, it is necessary to discuss the specifications and restrictions in detail. So, please contact YAMAHA or your dealer to hold hearings regarding your requests.

LCM100/LCC140 Accessory parts



①	Module
②	Robot cable
③	Slider
④	Termination module (R side)
⑤	Termination module (L side)
⑥	Insertion/ejection rail
⑦	Module connection block (with fastening bolts)
⑧	Module connection cable

LCM100 main body

LCM100 module

①

Linear module

Model	LCM100-4M
	KDJ-M2020-40 (640mm)
	LCM100-3M
	KDJ-M2020-30 (480mm)
	LCM100-2MT (for circulation)
	KDJ-M2022-20 (400mm)

Belt module

Model	LCM100-4B
	KDJ-4K111-40 (640mm)
	LCM100-3B
	KDJ-4K111-30 (480mm)

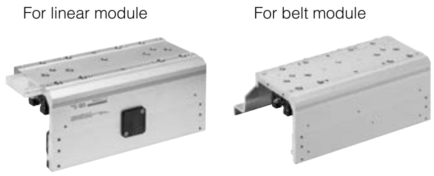
Robot cable for linear module

Robot cables for the number of modules are required.

②

Model	For LCM100-4M/3M
	KDJ-M4710-30 (3m×2 pcs.)
	KDJ-M4710-50 (5m×2 pcs.)
	For LCM100-2MT
	KDJ-M4721-30 (3m×1 pc.)
	KDJ-M4721-50 (5m×1 pc.)

Slider



③

Linear module

Model	KDJ-M2264-00

Belt module

Model	KDJ-M2264-10

Parts for LCM100

Termination module for linear module (R side)

This part is attached to the right end of the module. One termination module per line is required. [Note 1] Additionally, even when using only one module without connections, one termination module is required.

④

Model	KDJ-M2021-R0

Termination module for linear module (L side)

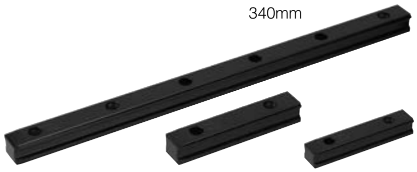
This part is attached to the left end of the module. One termination module per line is required. [Note 1] Additionally, even when using only one module without connections, one termination module is required.

⑤

Model	KDJ-M2021-L0

Insertion/ejection rail

Tapered rail.
Up to two rails per line can be installed.[Note 1]



⑥

Model	44mm : KDJ-M6200-00 (With a dedicated 44mm connection block)
	100mm : KDJ-M2222-10
	160mm : KDJ-M2222-20 Note
	220mm : KDJ-M2222-30 Note
	280mm : KDJ-M2222-40 Note
	340mm : KDJ-M2222-50

Note. Not in stock. We require some lead time for delivery.

Module connection block (with fastening bolts)

This block connects modules.
([Number of modules making up the line[Note 1]] - 1) blocks are required.
Additionally, when installing insertion/ejection rails, one block per rail is required.

⑦

Model	KDJ-M6100-00

Module connection cable

This cable connects modules.
([Number of modules] - 1) cables per line are required.[Note 1]

⑧

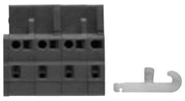
Model	KDJ-M4811-00

Note 1. A state, in which multiple modules are connected, is called “line”.

Parts for LCC140 controller

Power connector + connection lever

One set of parts per LCC140 is required.



Model	KAS-M5382-00

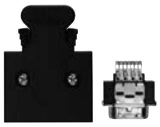
HPB dummy connector

When performing the operation with the programming box HPB removed, connect this dummy connector to the HPB connector.
One connector per LCC140 is required.

Model	KDK-M5163-00

SAFETY connector

One connector per LCC140 is required.



Not wired (plug + shell kit)

Wired Note

Model	Not wired : KDK-M5370-10 Wired Note : KDK-M5370-00

Note. The wired connector is that the wiring for the emergency stop cancel was performed inside the connector. Select this model when performing the operation check or debugging with single linear conveyor.

Parts for line configuration

LINK cable

([Number of modules] - 1) cables per line are required.

Model	1m : KDK-M5361-10
	3m : KDK-M5361-30
	5m : KDK-M5361-50

Terminator connector

When connecting modules, two connectors per line are required.

Model	KDK-M5361-00

Dust cover (for LINK connector)

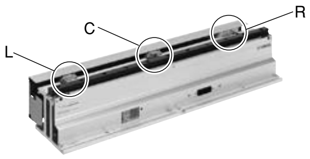
This dust cover is attached to the insertion port, into which the the LINK cable terminator connector is not inserted.
When using only one module without connections, two dust covers are required.

Note. The dust cover is essential for the 2MT.

Model	KDK-M658K-00 (for MDR20 pin)

Selection parts

Proximity sensor for belt module



Model	L (Left): KDJ-M2205-L0
	C (Center): KDJ-M2205-C0
	R (Right): KDJ-M2205-R0

Programming box HPB/HPB-D

All operations, such as robot manual operation, program input or edit, teaching, and parameter setting can be performed with this programming box.
As an interactive interface with the screen display is used, even personnel who use this programming box for the first time can easily understand how to operate it.

Model	HPB: KBB-M5110-01
	HPB-D: KBB-M5110-21 (CE specifications / with 3-position enable switch)

HPB-D

Backside of HPB-D
(with enable switch)

Support software POPCOM+

● PC supporting software POPCOM+

POPCOM+ software model	KBG-M4966-00

● POPCOM+ environment

OS	Microsoft Windows XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit) / 8, 8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/LCC140 Note 1

Note 1. LCC140 is applicable to Ver. 2.1.1 or later.
Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

● Data cables (5m)

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

RFID

RFID (manufactured by BALLUFF GmbH)

Reader/writer cable

Model	KDK-M6300-00

RFID (manufactured by OMRON)

Antenna amplifier controller cable

Model	KDK-M6300-A0

Dust cover (for RFID)

This cover is attached to the insertion port if RFID is not used. (Included as standard)

Model	KDK-M658K-10(for MDR26 pin)

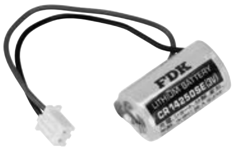
Whether or not the RFID system can be used may vary depending on the destination place (country).
Before selecting a RFID system, please contact YAMAHA.

Maintenance parts

Robot cable for LCM100

Model	KDJ-M4751-30 (3m×1 pc.) KDJ-M4751-50 (5m×1 pc.)
	KDJ-M4755-30 (Flexible cable 3m×1 pc.) KDJ-M4755-50 (Flexible cable 5m×1 pc.)

Lithium battery for system backup



Model	KDK-M4252-00

Replacement filter for LCC140 (5 pcs. in package)

Model	KDK-M427G-00

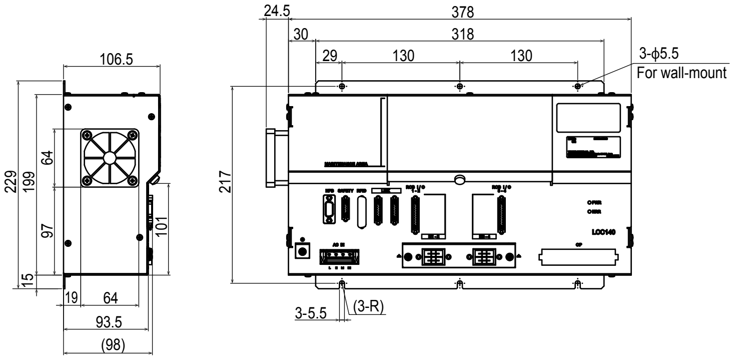
Controller for linear module

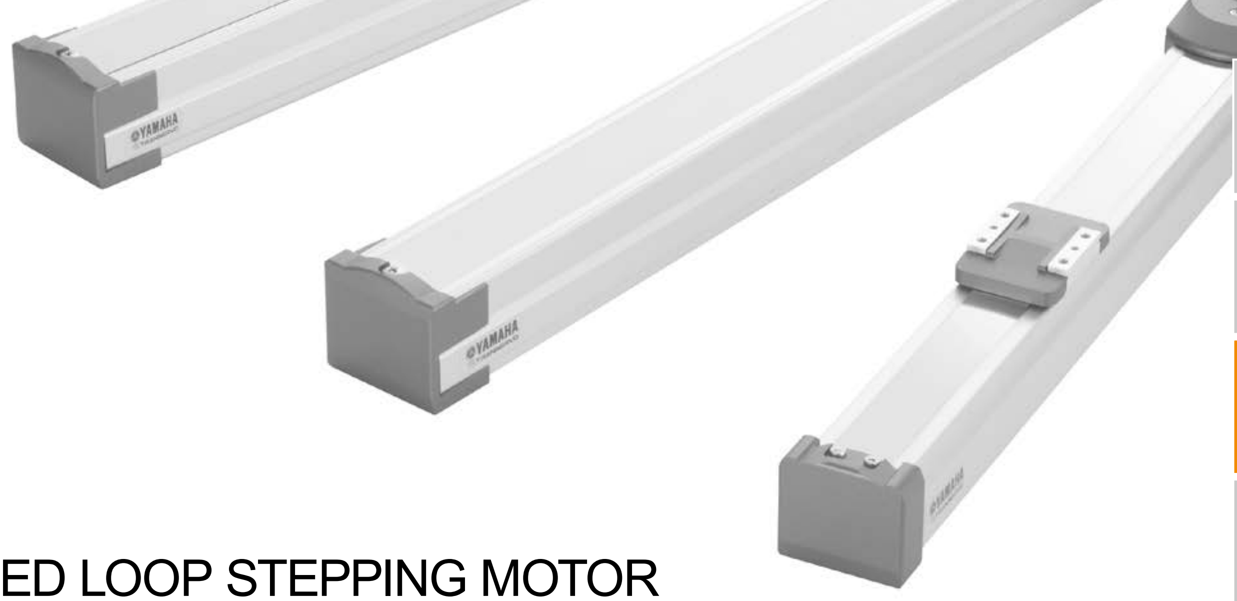
LCC140 basic specifications

Basic specifications of LCC140 controller

Controllable robot	Linear conveyor module LCM series
Outside dimensions	W402.5×H229×D106.5mm
Main body weight	4.8kg
Input power voltage	Single-phase AC200 to 230V +/-10% or less (50/60Hz)
Maximum power consumption	350VA (LCM100-4M 1 slider is driven.)
External input/output	SAFETY
	RS-232C (dedicated to RFID)
	RS-232C (for HPB / doubles as POPCOM+)
Network option	CC-Link Ver. 1.10 compatible, Remote device station (2 stations)
	DeviceNet™ Slave 1 node
	EtherNet/IP™ adapter 2 ports
Programming box	HPB, HPB-D (Software version 24.01 or later)

External view of LCC140





CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS
TRANSERVO
SERIES

CONTENTS

TRANSERVO

Main functions ▶ P.16

TRANSERVO SPECIFICATION SHEET

Type	Model	Size (mm) Note 1	Lead (mm)	Maximum payload (kg) Note 2		Maximum speed (mm/sec) Note 3	Stroke (mm)	Detailed info page
				Horizontal	Vertical			
SS type (Slide type) Straight model/ Space-saving model	SS04-S SS04-R (L)	W49 × H59	12	2	1	600	50 to 400	P.132 - P.133
			6	4	2	300		
			2	6	4	100		
	SS05-S SS05-R (L)	W55 × H56	20	4	-	1000	50 to 800	P.134 - P.135
			12	6	1	600		
			6	10	2	300		
	SS05H-S SS05H-R (L)	W55 × H56	20	6	-	1000	50 to 800	P.136 - P.137
			12	8	2	600 (Horizontal) 500 (Vertical)		
			6	12	4	300 (Horizontal) 250 (Vertical)		
SG type (Slide type)	SG07	W65 × H64	20	36	4	1200	50 to 800	P.138
			12	43	12	800		
			6	46	20	350		
SR Type (Rod type) Straight model/ Space-saving model	SR03-S SR03-R (L) SR03-U	W48 × H56.5	12	10	4	500	50 to 200	P.139 - P.141
			6	20	8	250		
	SR04-S SR04-R (L)	W48 × H58	12	25	5	500	50 to 300	P.144 - P.145
			6	40	12	250		
			2	45	25	80		
	SR05-S SR05-R (L)	W56.4 × H71	12	50	10	300	50 to 300	P.148 - P.149
			6	55	20	150		
			2	60	30	50		
SR Type (Rod type with support guide) Straight model/ Space-saving model	SRD03-S SRD03-U	W105 × H56.5	12	10	3.5	500	50 to 200	P.142 - P.143
			6	20	7.5	250		
	SRD04-S SRD04-U	W135 × H58	12	25	4	500	50 to 300	P.146 - P.147
			6	40	11	250		
			2	45	24	80		
	SRD05-S SRD05-U	W157 × H71	12	50	8.5	300	50 to 300	P.150 - P.151
			6	55	18.5	150		
			2	60	28.5	50		
STH Type (Slide table type) Straight model/ Space-saving model	STH04-S	W45 × H46	5	6	2	200	50 to 100	P.152 - P.153
	STH04-R (L) Note 4	W73 × H51	10	4	1	400		
	STH06	W61 × H65	8	9	2	150	50 to 150	P.154 - P.155
	STH06-R (L)	W106 × H70	16	6	4	400		

Type	Model	High (mm)	Torque type	Rotational torque (N • m)	Maximum pushing torque (N • m)	Maximum speed (mm/sec) Note 3	Rotation range (°)	Detailed info page
RF Type (Rotary type) Standard model/ High rigidity model	RF02-N RF02-S	42 (Standard) 49 (High rigidity)	N:Standard	0.22	0.11	420	310 (RF02-N) 360 (RF02-S)	P.156 - P.159
			H:High torque	0.32	0.16	280		
	RF03-N RF03-S	53 (Standard) 62 (High rigidity)	N:Standard	0.8	0.4	420	320 (RF03-N) 360 (RF03-S)	P.160 - P.163
			H:High torque	1.2	0.6	280		
	RF04-N RF04-S	68 (Standard) 78 (High rigidity)	N:Standard	6.6	3.3	420	320 (RF04-N) 360 (RF04-S)	P.164 - P.167
			H:High torque	10	5	280		

Type	Model	Size (mm) Note 1	Lead (mm)	Maximum payload(kg) Note 2		Maximum speed (mm/sec) Note 3	Stroke (mm)	Detailed info page
				Horizontal	Vertical			
BD Type (Belt type)	BD04	W40 × H40	48	1	-	1100	300 to 1000	P.168
	BD05	W58 × H48	48	5	-	1400	300 to 2000	P.169
	BD07	W70 × H60	48	14	-	1500	300 to 2000	P.170

Note 1. The size shows approximate maximum cross sectional size.
Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.
Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.
Note 4. STH04-R (L) with 50-stroke and brake is not supported.

⚠ Precautions for use

■ Handling
Fully understand the contents stated in the "TRANSERVO User's Manual" and strictly observe the handling precautions during operation.

■ Allowable installation ambient temperature
[SS/SR type] 0 to 40 ºC
[STH/RF/BD type] 5 to 40 ºC

SR/SRD/STH type Speed vs. payload table

SR03

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
10	450	90
5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
20	225	90
15	237.5	95
10	250	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
4	300	60
2	432	86
1	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
8	150	60
5	200	80
2	250	100

SRD03

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
10	450	90
5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
20	225	90
15	237.5	95
10	250	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
3.5	300	60
1.5	432	86
0.5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
7.5	150	60
4.5	200	80
1.5	250	100

SR04

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
25	320	64
20	363	72
15	407	81
5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
40	200	80
30	225	90
20	250	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
45	80	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
5	200	40
2	350	70
1	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
12	125	50
5	200	80
2	250	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
25	60	75
5	80	100

SRD04

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
25	320	64
20	363	72
15	407	81
5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
40	200	80
30	225	90
20	250	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
45	80	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
4	200	40
3	250	50
0.5	500	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
11	120	48
4	200	80
1	250	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
24	60	75
14	70	87
4	80	100

SR05

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
50	168	56
40	198	66
30	249	83
20	300	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
55	135	90
40	150	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
60	50	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
10	69	23
5	168	56
1	300	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
20	48	32
15	75	50
2	150	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
30	30	60
5	50	100

SRD05

Horizontal

Lead 12		
Payload (kg)	Speed (mm/sec)	%
50	168	56
40	198	66
30	249	83
20	300	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
55	135	90
40	150	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
60	50	100

Vertical

Lead 12		
Payload (kg)	Speed (mm/sec)	%
8.5	90	30
5.5	138	46
0.5	300	100

Lead 6		
Payload (kg)	Speed (mm/sec)	%
18.5	48	32
8.5	102	68
0.5	150	100

Lead 2		
Payload (kg)	Speed (mm/sec)	%
28.5	30	60
5	50	100

STH04

Horizontal

Lead 10		
Payload (kg)	Speed (mm/sec)	%
4	400	100
2	400	100
1	400	100

Lead 5		
Payload (kg)	Speed (mm/sec)	%
6	200	100
3	200	100
1	200	100

Vertical

Lead 10		
Payload (kg)	Speed (mm/sec)	%
1	220	62
0.75	220	62
0.3	350	100

Lead 5		
Payload (kg)	Speed (mm/sec)	%
2	150	75
1	150	75
0.5	200	100

STH06

Horizontal

Lead 16		
Payload (kg)	Speed (mm/sec)	%
6	400	100
3	400	100
1	400	100

Lead 8		
Payload (kg)	Speed (mm/sec)	%
9	150	100
5	150	100
1	150	100

Vertical

Lead 16		
Payload (kg)	Speed (mm/sec)	%
2	200	80
1.5	200	80
1	250	100

Lead 8		
Payload (kg)	Speed (mm/sec)	%
4	100	66
3	100	66
2	140	93
1	150	100

Robot ordering method description

In the order format for the YAMAHA single-axis robots TRANSERVO series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

Mechanical ▶ SS05

- Lead ▷ 6mm
- Model ▷ Straight
- Brake ▷ Yes
- Origin position ▷ Standard
- Grease ▷ Standard
- Stroke ▷ 600mm
- Cable length ▷ 1m

Controller ▶ TS-S2

- Input /Output selection ▷ NPN

Ordering Method

SS05-06SB-NN-600-1K - S2NP

Mechanical section / Controller section

To find detailed controller information see the controller page.
TS-S2 ▶ P.492, TS-SH ▶ P.492, TS-SD ▶ P.502

SS type / SG type (Slider type)

Model	– Lead	Model	Brake	– Origin position	Grease option	– Stroke	– Cable length
SS04	02 2mm	S Straight model	N With no brake	N Standard	N Standard grease		1K 1m
SS05	06 6mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	C Clean room grease		3K 3m
SS05H	12 12mm	L Space-saving model (motor installed on left)					5K 5m
SG07	20 20mm						10K 10m

SR type (Rod type)

Model	– Lead	Model	Brake	– Origin position	Bracket plate	– Stroke	– Cable length
SR03	02 2mm	S Straight model	N With no brake	N Standard	N No plate		1K 1m
SRD03	06 6mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	H With plate		3K 3m
SR04	12 12mm	L Space-saving model (motor installed on left)			V With flange		5K 5m
SRD04		U Space-saving model (motor installed on top)					10K 10m
SR05							
SRD05							

STH Type (Slide table type)

Model	– Lead	Model	Brake	– Origin position	Bracket plate	– Stroke	– Cable length
STH04	05 5mm	S Straight model	N With no brake	N Standard	N No plate		1K 1m
STH06	08 8mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	H With plate		3K 3m
	10 10mm	L Space-saving model (motor installed on left)					5K 5m
	16 16mm						10K 10m

RF Type (Rotary type / Limit rotation specification, Rotary type / Sensor specification)

Model	– Return-to-origin method	Bearing	Torque	– Cable entry location	– Rotation direction	– Cable length
RF02-N	N Stroke end (Limit rotation)	N Standard	N Standard torque	R From the right	N CCW	1K 1m
RF02-S	S Sensor (Limitless rotation)	H High rigidity	H High torque	L From the left	Z CW	3K 3m
RF03-N						5K 5m
RF03-S						10K 10m
RF04-N						
RF04-S						

BD Type (Belt type)

Model	– Lead	Brake	– Origin position	– Stroke	– Cable length
BD04	48 48mm	N With no brake	N Standard		1K 1m
BD05					3K 3m
BD07					5K 5m
					10K 10m

Rod type: Bracket plates

SR03/SRD03 bracket plates

Feet (horizontal mount)

Flange (vertical mount)

Type	Model No.
Feet (2 plates per set)	KCU-M223F-00
Flange (1 piece)	KCU-M224F-00

SR04/SRD04 bracket plates

Feet (horizontal mount)

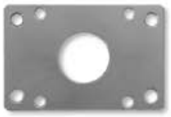
Flange (vertical mount)

Type	Model No.
Feet (2 plates per set)*	KCV-M223F-00
Flange (1 piece)	KCV-M224F-00

* Comes with 12 mounting nuts for feet.

SR05/SRD05 bracket plates

Feet (horizontal mount)



Flange (vertical mount)

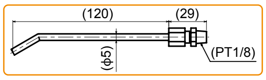
Type	Model No.
Feet (2 plates per set)*	KCW-M223F-00
Flange (1 piece)	KCW-M224F-00

* Comes with 8 mounting nuts for feet.

Rod type: Grease gun nozzle tube for space-saving models

When greasing the ball screw in the SR03-UB or SRD03-UB (motor installed on top / with brake), use a grease gun with a bent nozzle tube as shown below.

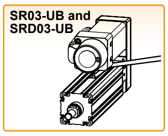
Grease gun nozzle tube (YAMAHA recommended nozzle tube)

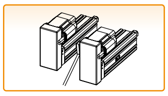


Model	KCU-M3861-00

Note. This nozzle tube can be attached to a commercially available ordinary grease gun.

This nozzle tube is even usable when there is little space around the grease port.
For example, when the SR04 or SR05 space-saving model is used with the motor facing up, the grease port is positioned on the side of the robot body. This may make it difficult to refill grease depending on the positions of other robots or peripheral units.





Rod type: Running life distance to life time conversion example

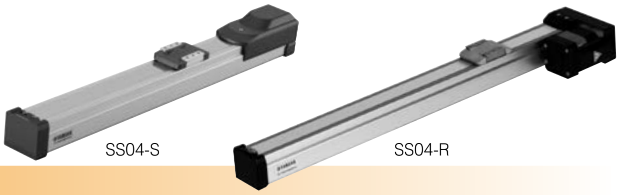
This is an example of life time converted from the running life distance listed on each model page for the SR type.

Model	SR04-02SB, Vertical mount, 25 kg payload
Life distance	500 km → Life time : Approx. 3 years
Operating conditions	100mm back-and-forth movement, shuttle time 16 seconds (duty: 20%)
Word conditions	16 hours per day
Work days	240 days per year

Note. Make sure that the rod is not subjected to a radical load.

SS04 Slider type

- CE compliance
- Origin on the non-motor side is selectable


SS04-S
SS04-R

Ordering method

SS04 - ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length Note 2
SS04	12: 12mm	S: Straight model	N: With no brake	N: Standard Note 1	N: Standard grease	50 to 400 (50mm pitch)	1K: 1m
	06: 6mm	R: Space-saving model (motor installed on right)	B: With brake	Z: Non-motor side	C: Clean room grease		3K: 3m
	02: 2mm	L: Space-saving model (motor installed on left)					5K: 5m
							10K: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 Note 3	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SD - **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

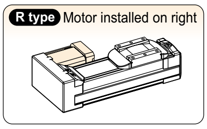
Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 2. The robot cable is flexible and resists bending.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

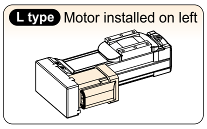
Basic specifications

Motor		42☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Maximum motor torque (N·m)		0.27		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		600	300	100
Maximum payload (kg)	**Horizontal**	2	4	6
	Vertical	1	2	4
Max. pressing force (N)		45	90	150
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+216		
	Vertical	Stroke+261		
Maximum outside dimension of body cross-section (mm)		W49 × H59		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

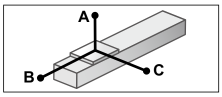
Note 1. Positioning repeatability in one direction.

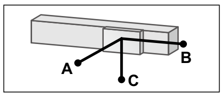
Motor installation (Space-saving model)

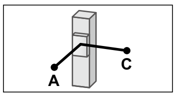

R type Motor installed on right


L type Motor installed on left

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 12	1kg	807	218	292
	2kg	667	107	152
Lead 6	2kg	687	116	169
	3kg	556	76	112
	4kg	567	56	84
Lead 2	4kg	869	61	92
	6kg	863	40	60

Wall installation (Unit: mm)

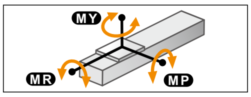
		A	B	C
Lead 12	1kg	274	204	776
	2kg	133	93	611
Lead 6	2kg	149	102	656
	3kg	92	62	516
	4kg	63	43	507
Lead 2	4kg	72	48	829
	6kg	39	29	789

Vertical installation (Unit: mm)

		A	C
Lead 12	0.5kg	407	408
	1kg	204	204
Lead 6	1kg	223	223
	2kg	107	107
Lead 2	2kg	118	118
	4kg	53	53

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 400mm stroke models).

Static loading moment



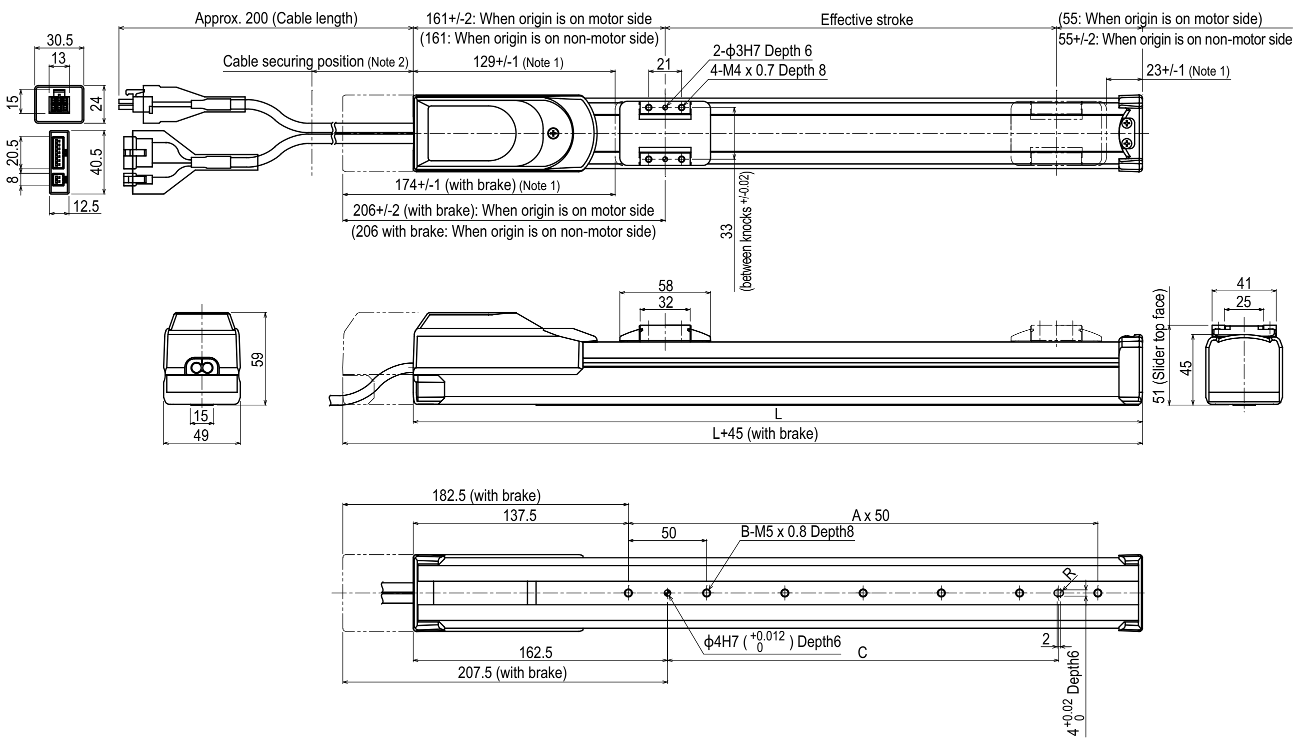
(Unit: N·m)

MY	MP	MR
16	19	17

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

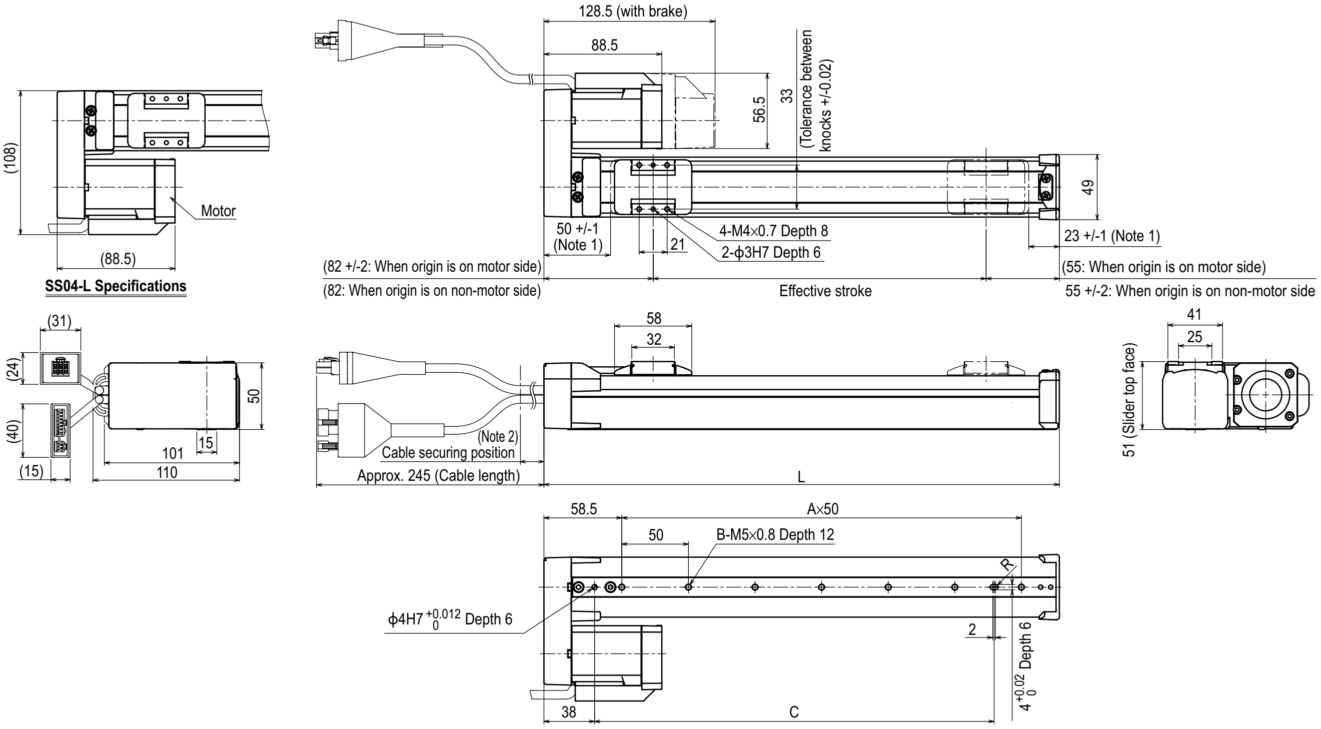
SS04 Straight model S


30.5
13
15
24
20.5
8
40.5
12.5
Approx. 200 (Cable length)
Cable securing position (Note 2)
161+/-2: When origin is on motor side
(161: When origin is on non-motor side)
129+/-1 (Note 1)
21
2-ϕ3H7 Depth 6
4-M4 x 0.7 Depth 8
Effective stroke
(55: When origin is on motor side)
55+/-2: When origin is on non-motor side
23+/-1 (Note 1)
174+/-1 (with brake) (Note 1)
206+/-2 (with brake): When origin is on motor side
(206 with brake: When origin is on non-motor side)
33 (between knocks +/-0.02)
58
32
41
25
59
15
49
L
L+45 (with brake)
51 (Slider top face)
45
182.5 (with brake)
137.5
A x 50
50
B-M5 x 0.8 Depth8
ϕ4H7 (+0.012 0) Depth6
C
2
162.5
207.5 (with brake)
4 +0.02 0 Depth6

Effective stroke	50	100	150	200	250	300	350	400
L	266	316	366	416	466	516	566	616
A	2	3	4	5	6	7	8	9
B	3	4	5	6	7	8	9	10
C	50	100	150	200	250	300	350	400
Weight (kg) Note 4	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is R30.
Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

SS04 Space-saving model R L



Effective stroke	50	100	150	200	250	300	350	400
L	187	237	287	337	387	437	487	537
A	2	3	4	5	6	7	8	9
B	3	4	5	6	7	8	9	10
C	100	150	200	250	300	350	400	450
Weight (kg) Note 4	1.2	1.4	1.5	1.6	1.7	1.8	1.9	2.1

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is R30.
Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 5. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

SS05 Slider type

● High lead: Lead 20 ● CE compliance ● Origin on the non-motor side is selectable

Ordering method

SS05 - ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐ -

Model	Lead	Model	Brake Note 1	Origin position	Grease option	Stroke	Cable length Note 3
	20: 20mm	S: Straight model	N: With no brake	N: Standard Note 2	N: Standard grease	50 to 800 (50mm pitch)	1K: 1m
	12: 12mm	R: Space-saving model (motor installed on right)	B: With brake	Z: Non-motor side	C: Clean room grease		3K: 3m
	06: 6mm	L: Space-saving model (motor installed on left)					5K: 5m
							10K: 10m

S2 ☐

Robot positioner	I/O
S2: TS-S2 Note 4	NP: NPN
	PN: PNP
	CC: CC-Link
	DN: DeviceNet™
	EP: EtherNet/IP™
	PT: PROFINET
	GW: No I/O board Note 5

SH ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN	B: With battery (Absolute)
	PN: PNP	N: None (Incremental)
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 5	

SD **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

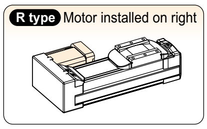
Note 1. Brake-equipped models can be selected only when the lead is 12mm or 6mm.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

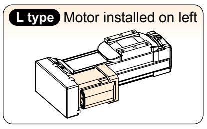
Basic specifications

Motor		42☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Maximum motor torque (N·m)		0.27		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 **(mm/sec)**		1000	600	300
Maximum payload (kg)	**Horizontal**	4	6	10
	Vertical	–	1	2
Max. pressing force (N)		27	45	90
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+230		
	Vertical	Stroke+270		
Maximum outside dimension of body cross-section (mm)		W55 × H56		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

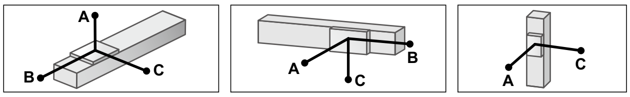
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

Motor installation (Space-saving model)


R type Motor installed on right


L type Motor installed on left

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	413	139	218
	4kg	334	67	120
Lead 12	4kg	347	72	139
	6kg	335	47	95
Lead 6	4kg	503	78	165
	8kg	332	37	79
	10kg	344	29	62

Wall installation (Unit: mm)

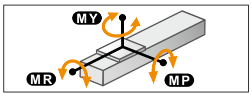
		A	B	C
Lead 20	2kg	192	123	372
	4kg	92	51	265
Lead 12	4kg	109	57	300
	6kg	63	31	263
Lead 6	4kg	134	63	496
	6kg	76	35	377
	8kg	47	22	355

Vertical installation (Unit: mm)

		A	C
Lead 12	0.5kg	578	579
	1kg	286	286
Lead 6	1kg	312	312
	2kg	148	148

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

Static loading moment



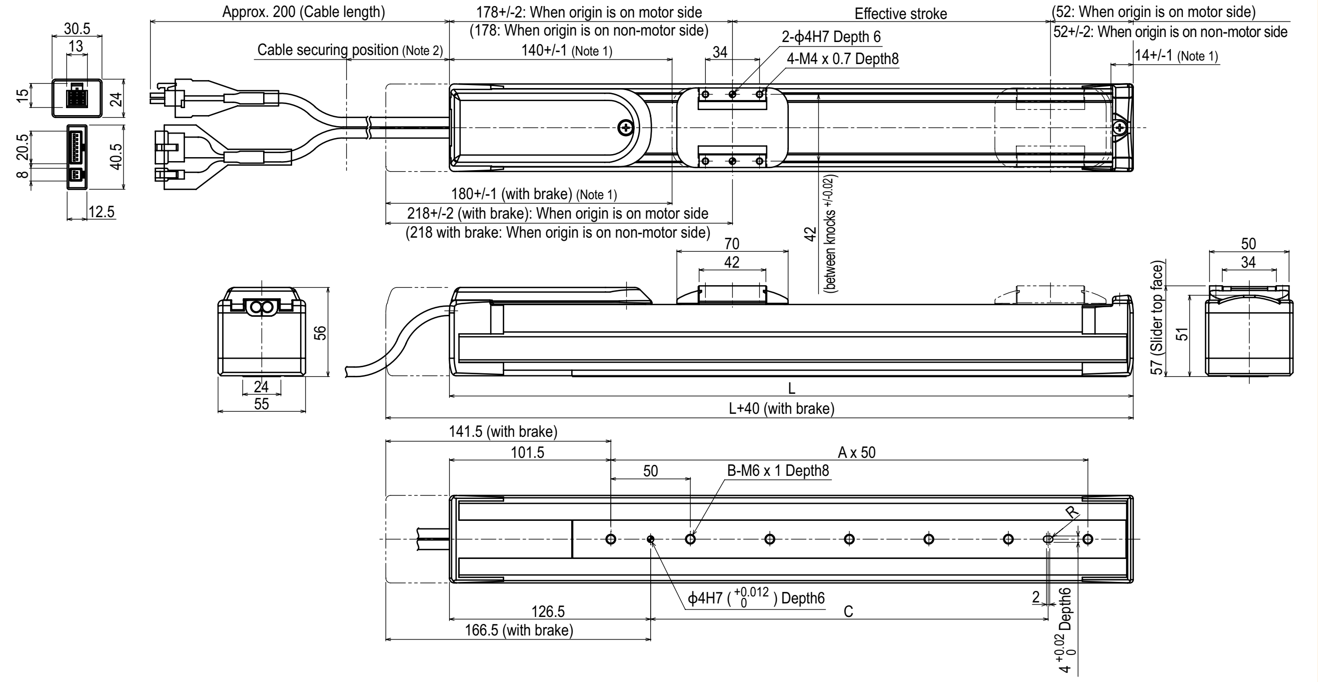
(Unit: N·m)

MY	MP	MR
25	33	30

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

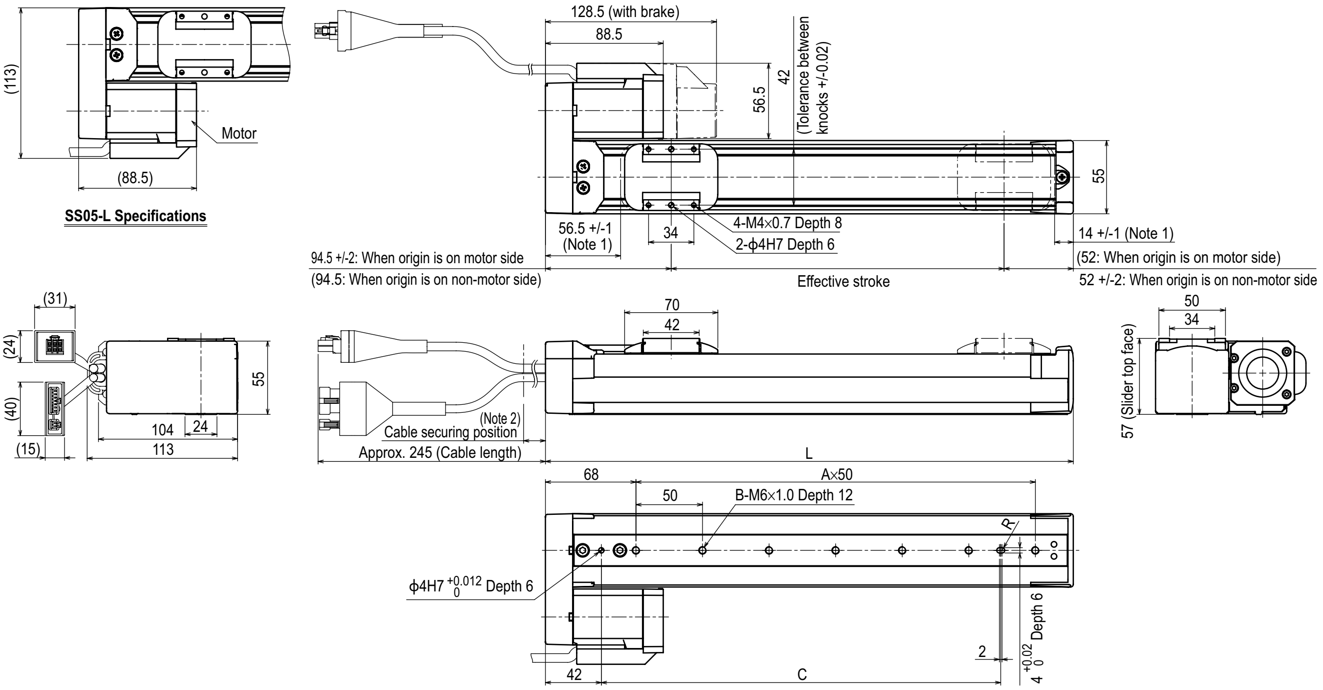
SS05 Straight model S


30.5
13
15
24
8
20.5
40.5
12.5
Approx. 200 (Cable length)
Cable securing position (Note 2)
178+/-2: When origin is on motor side
(178: When origin is on non-motor side)
140+/-1 (Note 1)
34
Effective stroke
2-ϕ4H7 Depth 6
4-M4 x 0.7 Depth8
(52: When origin is on motor side)
52+/-2: When origin is on non-motor side
14+/-1 (Note 1)
180+/-1 (with brake) (Note 1)
218+/-2 (with brake): When origin is on motor side
(218 with brake: When origin is on non-motor side)
70
42
42 (between knocks +/-0.02)
50
34
57 (Slider top face)
51
56
24
55
L
L+40 (with brake)
141.5 (with brake)
101.5
A x 50
50
B-M6 x 1 Depth8
R
ϕ4H7 (+0.012 0) Depth6
C
2
4 +0.02 0 Depth6
126.5
166.5 (with brake)

Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		280	330	380	430	480	530	580	630	680	730	780	830	880	930	980	1030
A		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) Note 4		2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0
Maximum speed for each stroke Note 5 **(mm/sec)**	**Lead20**	1000												933	833	733	633
	Lead12	600												560	500	440	380
	Lead6	300												280	250	220	190
	Speed setting	–												93%	83%	73%	63%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is R30.
Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SS05 Space-saving model R L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		196.5	246.5	296.5	346.5	396.5	446.5	496.5	546.5	596.5	646.5	696.5	746.5	796.5	846.5	896.5	946.5
A		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) Note 4		1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.1	4.3	4.5
Maximum speed for each stroke Note 5 (mm/sec)	Lead20	1000												933	833	733	633
	Lead12	600												560	500	440	380
	Lead6	300												280	250	220	190
	Speed setting	–												93%	83%	73%	63%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.

Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.

Note 3. The cable's minimum bend radius is R30.

Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Note 6. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

SS05H Slider type

● High lead: Lead 20 ● CE compliance ● Origin on the non-motor side is selectable

Ordering method

SS05H - ☐ ☐ - ☐ - ☐ - ☐ - ☐ - ☐ -

Model	Lead	Model	Brake [Note 1]	Origin position	Grease option	Stroke	Cable length [Note 3]
SS05H	20: 20mm 12: 12mm 06: 6mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard [Note 2] Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 [Note 4]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]	B: With battery (Absolute) N: None (Incremental)

SD - **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

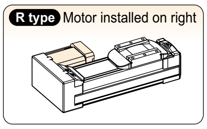
Note 1. Brake-equipped models can be selected only when the lead is 12mm or 6mm.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

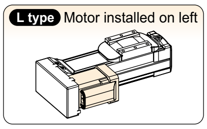
Basic specifications

Motor		42 ☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability [Note 1] **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Maximum motor torque (N·m)		0.47		
Ball screw lead (mm)		20	12	6
Maximum speed [Note 2] **(mm/sec)**	**Horizontal**	1000	600	300
	Vertical	–	500	250
Maximum payload (kg)	**Horizontal**	6	8	12
	Vertical	–	2	4
Max. pressing force (N)		36	60	120
Stroke (mm)		50 to 800 (50pitch)		
Overall length (mm)	**Horizontal**	Stroke+286		
	Vertical	Stroke+306		
Maximum outside dimension of body cross-section (mm)		W55 × H56		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

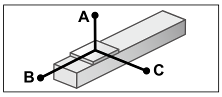
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

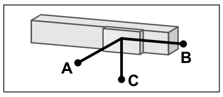
Motor installation (Space-saving model)

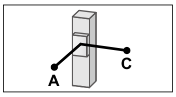

R type Motor installed on right


L type Motor installed on left

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	599	225	291
	4kg	366	109	148
	6kg	352	71	104
Lead 12	4kg	500	118	179
	6kg	399	79	118
	8kg	403	56	88
Lead 6	6kg	573	83	136
	8kg	480	61	100
	10kg	442	47	78
	12kg	465	39	64

Wall installation (Unit: mm)

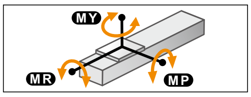
		A	B	C
Lead 20	2kg	262	203	554
	4kg	118	88	309
	6kg	71	49	262
Lead 12	4kg	146	96	449
	6kg	85	55	334
	8kg	55	34	305
Lead 6	6kg	101	62	519
	8kg	64	39	413
	10kg	43	26	355
	12kg	28	17	338

Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	458	459
	2kg	224	224
Lead 6	2kg	244	245
	4kg	113	113

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

Static loading moment



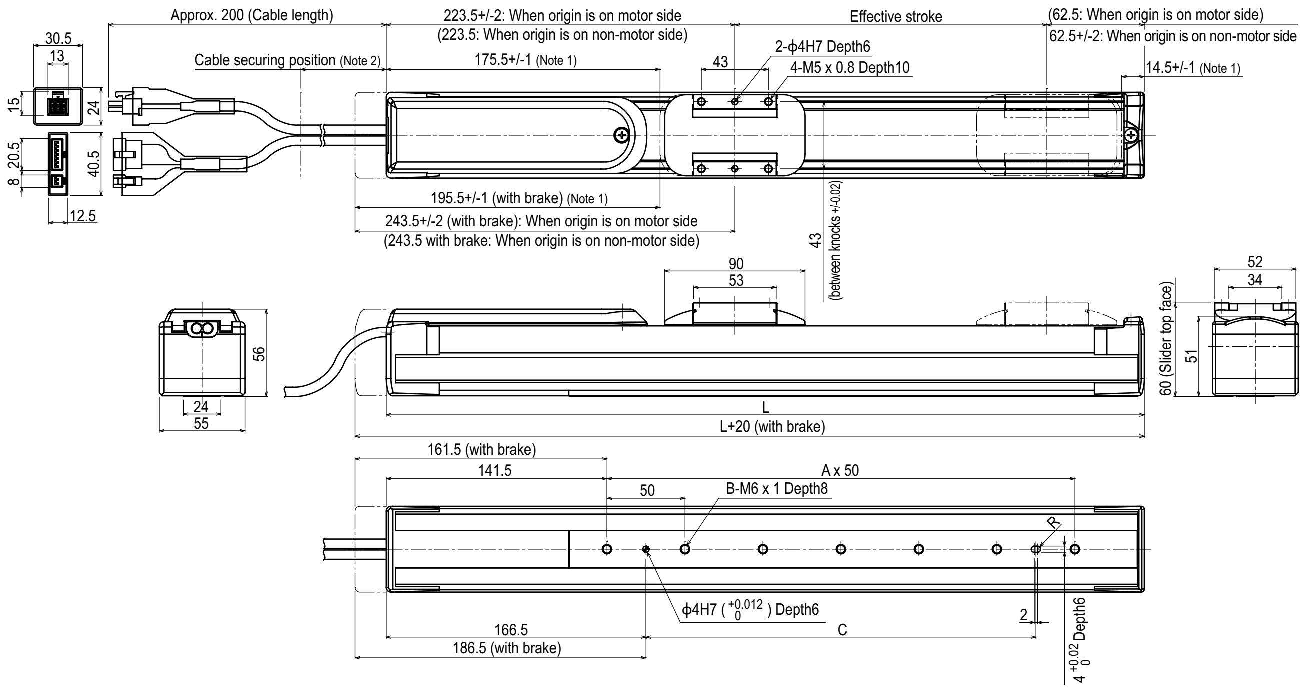
(Unit: N·m)

MY	MP	MR
32	38	34

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

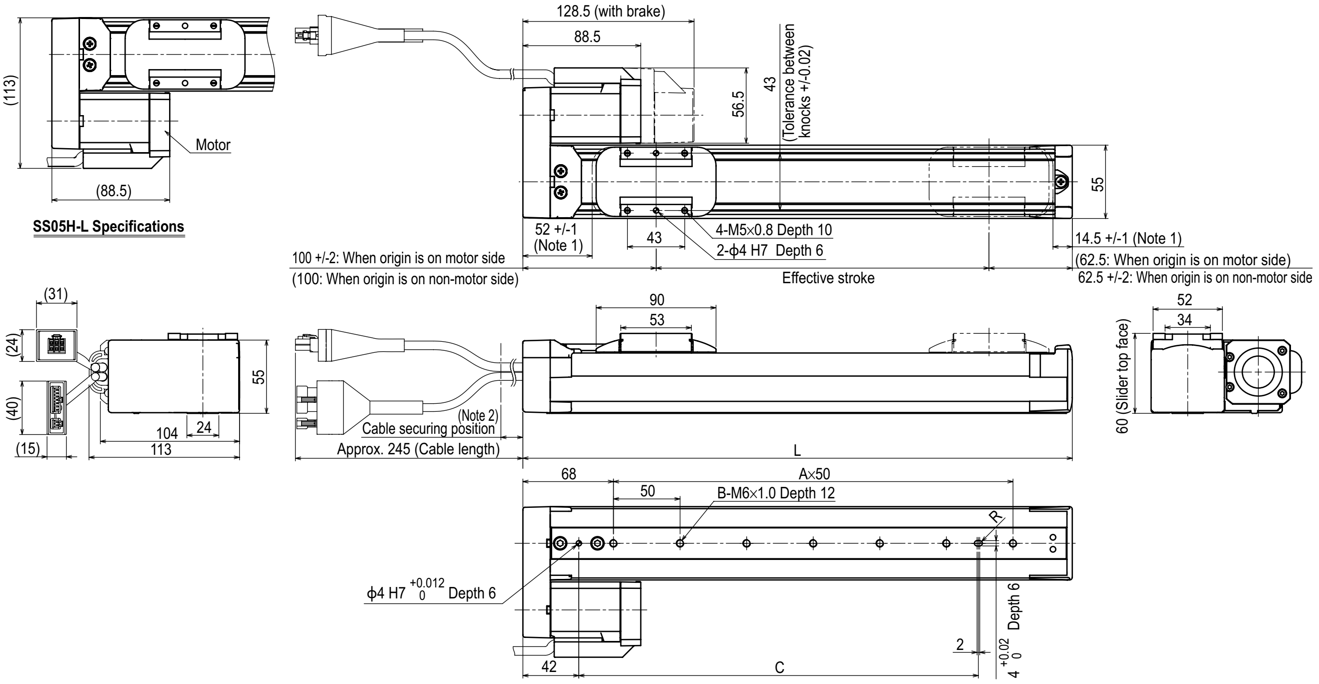
SS05H Straight model S


Approx. 200 (Cable length)
223.5+/-2: When origin is on motor side
(223.5: When origin is on non-motor side)
Effective stroke
(62.5: When origin is on motor side)
62.5+/-2: When origin is on non-motor side
30.5
13
Cable securing position (Note 2)
175.5+/-1 (Note 1)
43
2-ϕ4H7 Depth6
4-M5 x 0.8 Depth10
14.5+/-1 (Note 1)
15
24
20.5
8
40.5
12.5
195.5+/-1 (with brake) (Note 1)
243.5+/-2 (with brake): When origin is on motor side
(243.5 with brake: When origin is on non-motor side)
43 (between knocks +/-0.02)
90
53
52
34
56
24
55
L
L+20 (with brake)
60 (Slider top face)
51
161.5 (with brake)
141.5
A x 50
50
B-M6 x 1 Depth8
R
ϕ4H7 ($^{+0.012}_{0}$) Depth6
2
166.5
C
186.5 (with brake)
4 $^{+0.02}_{0}$ Depth6

Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		336	386	436	486	536	586	636	686	736	786	836	886	936	986	1036	1086
A		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) [Note 4]		2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.3
Maximum speed for each stroke [Note 5] (mm/sec)	Lead20	1000												933	833	733	633
	Lead12 (Horizontal)	600												560	500	440	380
	Lead12 (Vertical)	500														440	380
	Lead6 (Horizontal)	300												280	250	220	190
	Lead6 (Vertical)	250														220	190
	Speed setting	–												93%	83%	73%	63%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is R30.
Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SS05H Space-saving model R L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		212.5	262.5	312.5	362.5	412.5	462.5	512.5	562.5	612.5	662.5	712.5	762.5	812.5	862.5	912.5	962.5
A		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) Note 4		1.7	1.9	2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6
Maximum speed for each stroke Note 5 (mm/sec)	Lead20	1000												933	833	733	633
	Lead12 (Horizontal)	600												560	500	440	380
	Lead12 (Vertical)	500														440	380
	Lead6 (Horizontal)	300												280	250	220	190
	Lead6 (Vertical)	250														220	190
	Speed setting	–												93%	83%	73%	63%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.

Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.

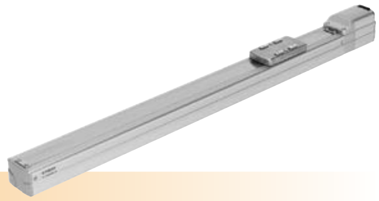
Note 3. The cable's minimum bend radius is R30.

Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Note 6. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

SG07 Slider type



- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable.

Ordering method

SG07 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - **SH** - ☐ - ☐

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length Note 2	Robot positioner	I/O	Battery
SG07	20: 20mm 12: 12mm 06: 6mm	S: Straight model	N: With no brake B: With brake	N: Standard Note 1 Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m	SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

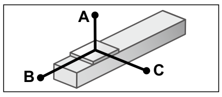
Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 2. The robot cable is flexible and resists bending.
Note 3. Select this selection when using the gateway function. For details, see P.62.

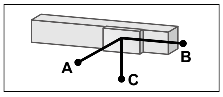
Basic specifications

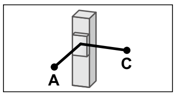
Motor		56☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 Note 3 **(mm/sec)**		1200	800	350
Maximum payload (kg)	**Horizontal**	36	43	46
	Vertical	4	12	20
Max. pressing force (N)		60	100	225
Stroke (mm)		50 to 800 (50pitch)		
Overall length (mm)	**Horizontal**	Stroke+288		
	Vertical	Stroke+328		
Maximum outside dimension of body cross-section (mm)		W65×H64		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. It is necessary to change the maximum speed according to the payload. For details, see the "Speed vs. payload" graph shown below.
Note. Position detectors (resolvers) are common to incremental and absolute specifications.
If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	10kg	3572	458	486
	25kg	2971	220	245
	36kg	3150	140	160
Lead 12	15kg	3703	363	406
	30kg	1962	172	196
	43kg	1430	114	131
Lead 6	15kg	3853	363	414
	30kg	2105	172	197
	46kg	1500	106	122

Wall installation (Unit: mm)

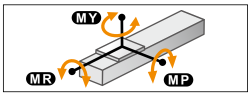
		A	B	C
Lead 20	10kg	450	402	3261
	25kg	117	155	2943
	36kg	98	85	2520
Lead 12	15kg	351	307	3403
	30kg	134	117	1663
	43kg	68	59	1070
Lead 6	15kg	353	307	3541
	30kg	134	117	1752
	46kg	58	50	1100

Vertical installation (Unit: mm)

		A	C
Lead 20	2kg	2303	2303
	4kg	1147	1147
Lead 12	4kg	1386	1386
	12kg	442	442
Lead 6	7kg	781	781
	20kg	252	252

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).
Note. Calculated by the speed corresponding to the payload.

Static loading moment



(Unit: N·m)

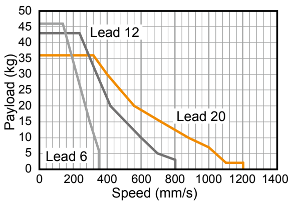
MY	MP	MR
101	114	101

Controller

Controller	Operation method
TS-SH	I/O point trace / Remote command

Speed vs. payload

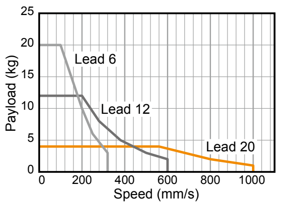
Horizontal



Quick reference

Lead 20			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
36	320	26	43	240	30	46	140	40
30	400	33	40	255	31	42	155	44
25	480	40	35	295	36	40	165	47
20	560	46	30	340	42	35	190	54
15	720	60	25	380	47	30	200	57
10	800	66	20	420	52	25	245	70
9	900	75	15	500	62	20	270	77
8	950	79	10	600	75	15	300	85
7	1000	83	9	615	76	10	325	92
6	1020	85	8	635	79	9	330	94
5	1035	86	7	655	81	8	335	95
4	1055	87	6	675	84	7	340	97
3	1075	89	5	700	87	6	350	100
2	1100	91	4	750	93			
1	1200	100	3	800	100			

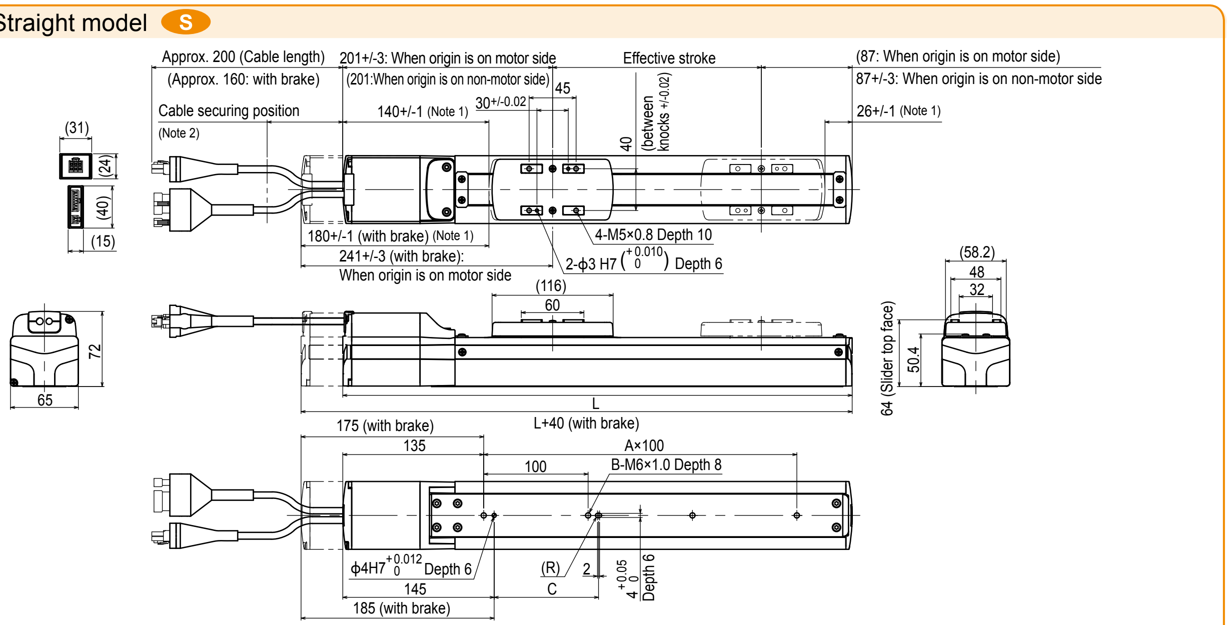
Vertical



Quick reference

Lead 20			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
4	560	56	12	200	33	20	100	31
3	680	68	10	240	40	15	150	46
2	800	80	9	260	43	12	180	56
1	1000	100	8	280	46	10	200	62
			7	310	51	9	210	65
			6	345	57	8	225	70
			5	380	63	7	235	73
			4	435	72	6	250	78
			3	500	83	5	270	84
			2	600	100	4	295	92
						3	320	100

SG07 Straight model S



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088
A		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
B		2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10
C		100	100	100	100	100	100	400	400	400	400	400	400	700	700	700	700
Weight (kg) Note 4		2.9	3.2	3.4	3.6	3.9	4.1	4.3	4.6	4.8	5.0	5.3	5.5	5.7	5.9	6.1	6.3
Maximum speed for each stroke Note 5 **(mm/sec)**	**Lead20 (Horizontal)**	1200												1020	900	780	720
	Lead20 (Vertical)	1000												1000			
	Lead12 (Horizontal)	800												578	510	442	408
	Lead12 (Vertical)	600															
	Lead6 (Horizontal)	350												298	263	228	210
	Lead6 (Vertical)	320															
	Speed setting	–												85%	75%	65%	60%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is R30.
Note 4. These are the weights without a brake. The weights are 0.7kg heavier when equipped with a brake.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the below.

SR03 Rod type

- CE compliance
- Origin on the non-motor side is selectable

SR03-S

SR03-R

Ordering method

SR03 - [Lead] [Model] [Brake] - [Origin position] - [Bracket plate] - [Stroke] - [Cable length Note 3]

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length Note 3
SR03	12: 12mm	S: Straight model	N: With no brake	N: Standard Note 2	N: No plate	50 to 200 (50mm pitch)	1K: 1m
	06: 6mm	R: Space-saving model Note 1 (motor installed on right)	B: With brake	Z: Non-motor side	H: With plate		3K: 3m
		L: Space-saving model Note 1 (motor installed on left)			V: With flange		5K: 5m
		U: Space-saving model Note 1 (motor installed on top)					10K: 10m

S2		
Robot positioner	**I/O**	
S2: TS-S2 Note 4	NP: NPN	
	PN: PNP	
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 5	

SH		-
Robot positioner	**I/O**	**Battery**
SH: TS-SH	NP: NPN	B: With battery (Absolute)
	PN: PNP	N: None (Incremental)
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 5	

SD	1
Robot driver	**I/O cable**
SD: TS-SD	1: 1m

Note 1. See P.131 for grease gun nozzles.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

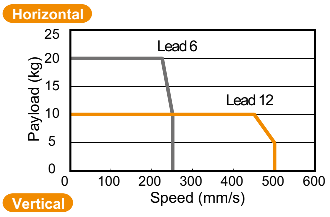
Basic specifications

Motor		42☐ Step motor	
Resolution (Pulse/rotation)		20480	
Repeatability (mm)		+/-0.02	
Deceleration mechanism		Ball screw ϕ8 (Class C10)	
Ball screw lead (mm)		12	6
Maximum speed Note 1 **(mm/sec)**		500	250
Maximum payload (kg)	**Horizontal**	10	20
	Vertical	4	8
Max. pressing force (N)		75	100
Stroke (mm)		50 to 200 (50pitch)	
Lost motion		0.1mm or less	
Rotating backlash (°)		+/-1.0	
Overall length (mm)	**Horizontal**	Stroke+236.5	
	Vertical	Stroke+276.5	
Maximum outside dimension of body cross-section (mm)		W48 × H56.5	
Cable length (m)		Standard: 1 / Option: 3, 5, 10	

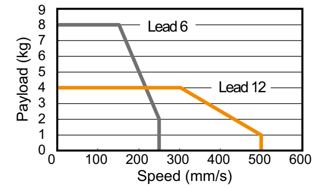
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.
For details, see P. 130.

Speed vs. payload

Horizontal



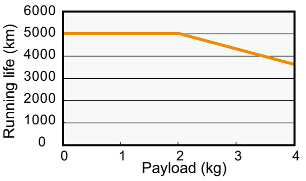
Vertical



Running life

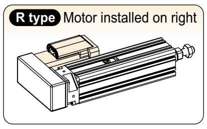
5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

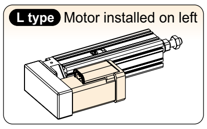
Vertical Lead 12

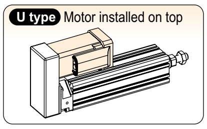


Note. See P.131 for running life distance to life time conversion example.

Motor installation (Space-saving model)


R type Motor installed on right


L type Motor installed on left

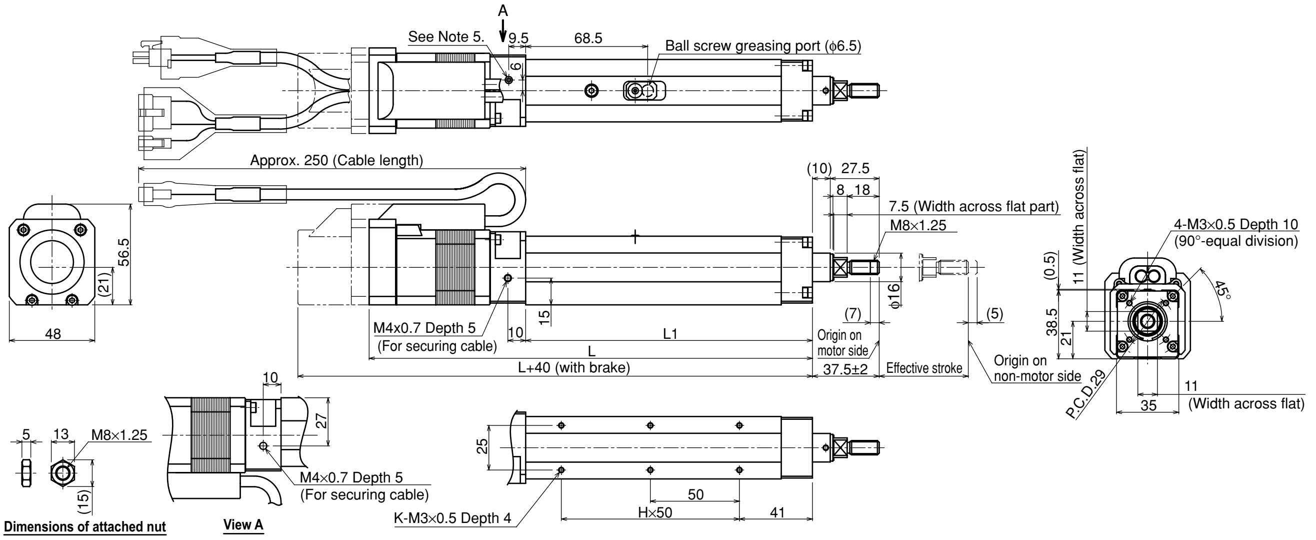

U type Motor installed on top

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

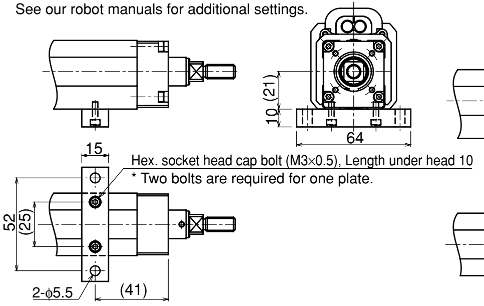
Controller	Operation method
TS-SD	Pulse train control

SR03 Straight model S



Option: Horizontal installation plate (foot)

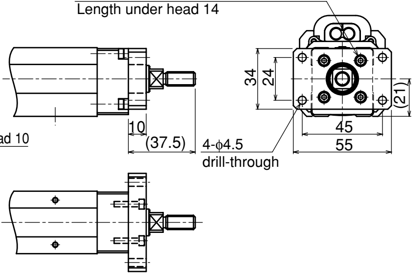
* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.



Hex. socket head cap bolt (M3×0.5), Length under head 10
* Two bolts are required for one plate.
* See the bottom installation tap position.

Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M3×0.5),
Length under head 14



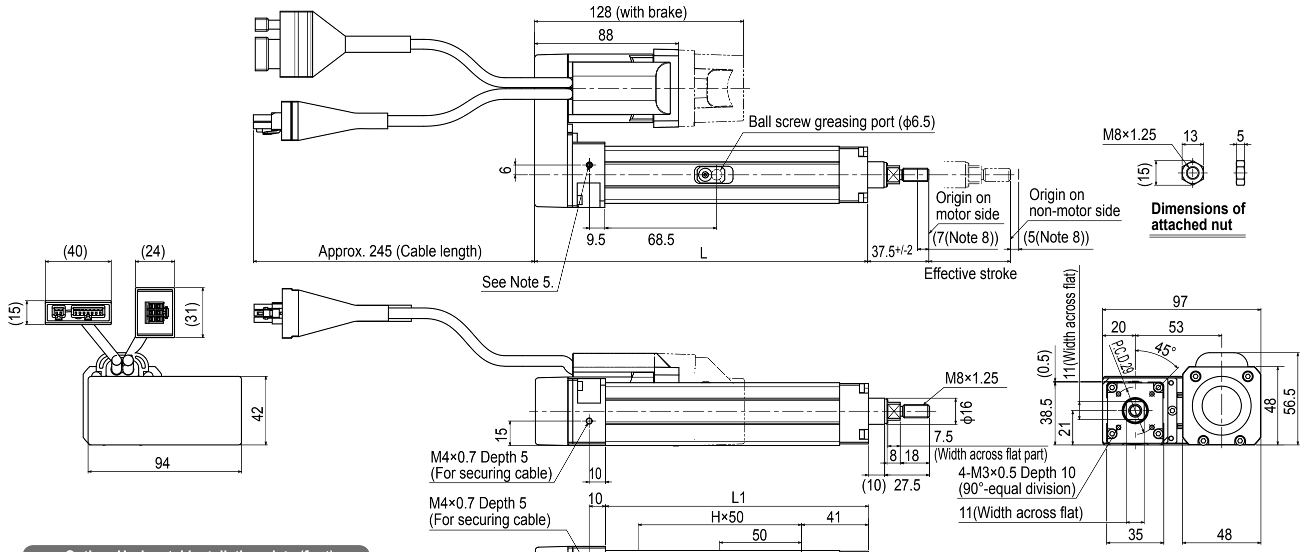
Effective stroke	50	100	150	200
L1	161	211	261	311
L	249	299	349	399
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 7	1.1	1.3	1.4	1.6

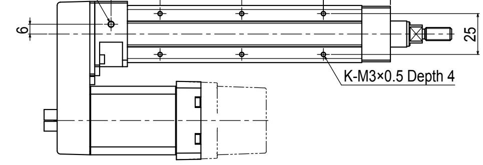
Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

Controller TS-S2 ▶ 492 TS-SH ▶ 492 TS-SD ▶ 502

SR03

SR03 Space-saving model (motor installed on right) R

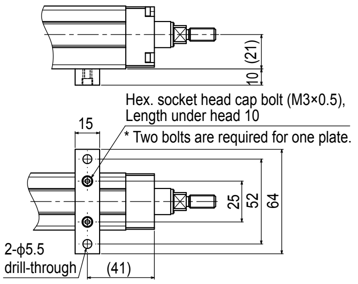




Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 7	1.3	1.5	1.6	1.8

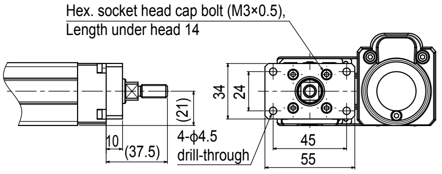
Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.


(21)
10
Hex. socket head cap bolt (M3×0.5),
Length under head 10
15
* Two bolts are required for one plate.
25
52
64
2-ϕ5.5
drill-through
(41)

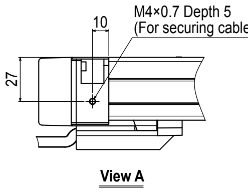
* See the bottom installation tap position.

Option: Vertical installation plate (flange)

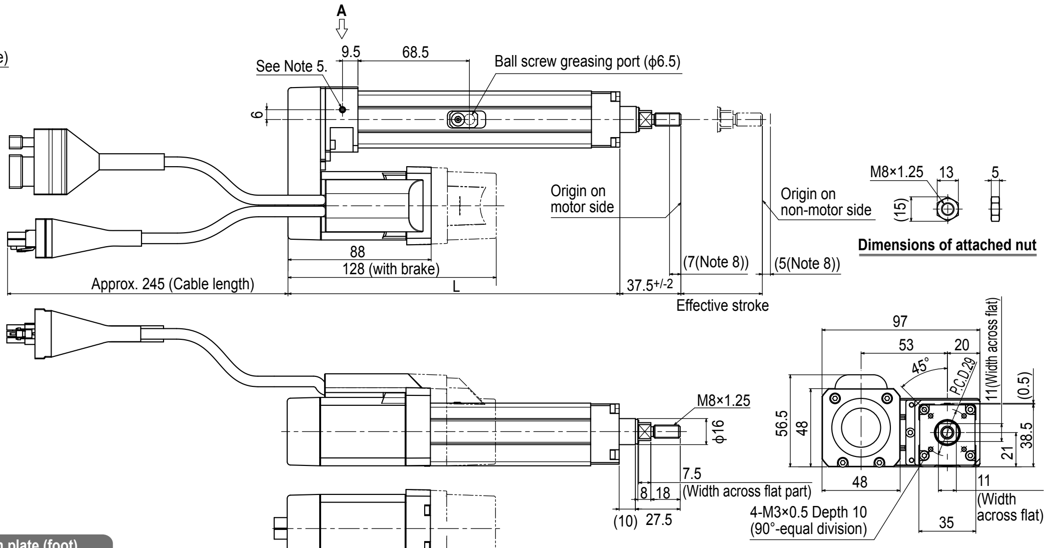


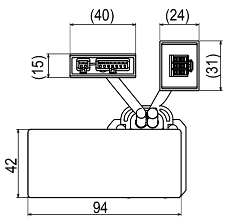
Note 1. It is possible to apply only the axial load. Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

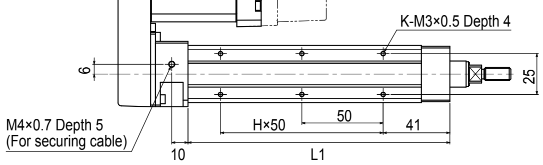
SR03 Space-saving model (motor installed on left) L



View A



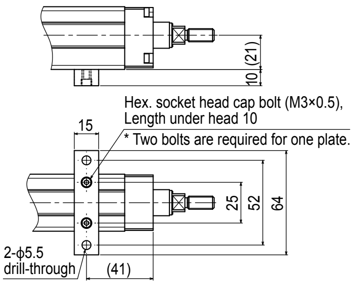




Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 7	1.3	1.5	1.6	1.8

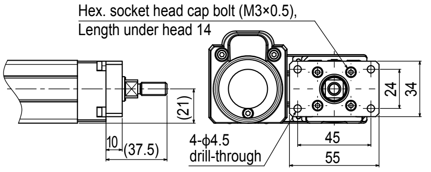
Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.


(21)
10
Hex. socket head cap bolt (M3×0.5),
Length under head 10
15
* Two bolts are required for one plate.
25
52
64
2-ϕ5.5
drill-through
(41)

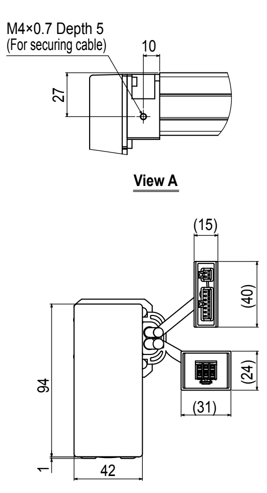
* See the bottom installation tap position.

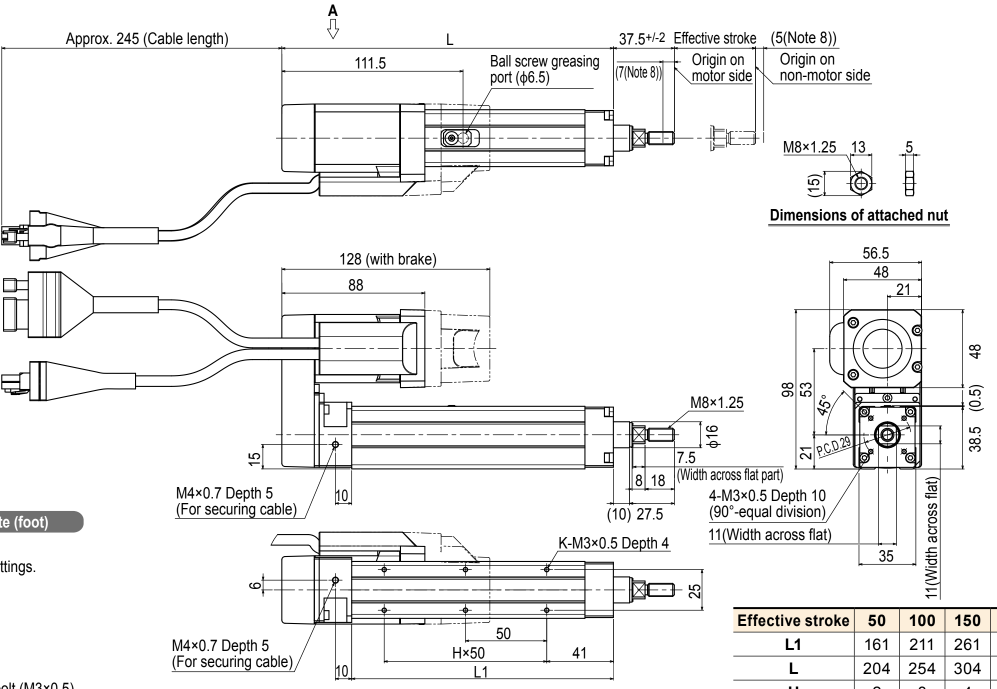
Option: Vertical installation plate (flange)



Note 1. It is possible to apply only the axial load. Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

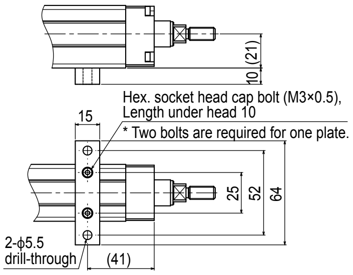
SR03 Space-saving model (motor installed on top) U





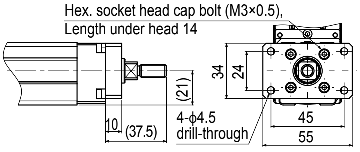
Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.


10
(21)
Hex. socket head cap bolt (M3×0.5),
Length under head 10
* Two bolts are required for one plate.
15
25
52
64
2-ϕ5.5
drill-through
(41)

* See the bottom installation tap position.

Option: Vertical installation plate (flange)



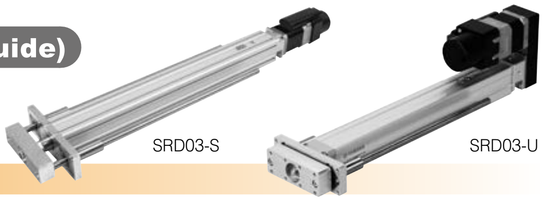
Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 7	1.3	1.5	1.6	1.8

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables.
(Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

SRD03

Rod type (With support guide)

● CE compliance ● Origin on the non-motor side is selectable: Lead 6, 12



Ordering method

SRD03 - ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐ - S2 ☐ / SH ☐ - ☐ / SD 1

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length Note 3
SRD03	12: 12mm	S: Straight model	N: With no brake	N: Standard Note 2	N: No plate	50 to 200 (50mm pitch)	1K: 1m
	06: 6mm	U: Space-saving model Note 1 (motor installed on top)	B: With brake	Z: Non-motor side	H: With plate		3K: 3m
							5K: 5m
							10K: 10m

S2

Robot positioner	I/O
S2: TS-S2 Note 4	NP: NPN
	PN: PNP
	CC: CC-Link
	DN: DeviceNet™
	EP: EtherNet/IP™
	PT: PROFINET
	GW: No I/O board Note 5

SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN	B: With battery (Absolute)
	PN: PNP	N: None (Incremental)
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 5	

SD **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

Note 1. See P.131 for grease gun nozzles.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

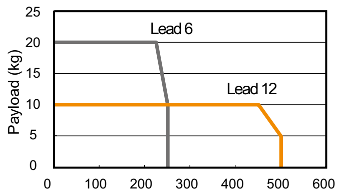
Basic specifications

Motor		42☐ Step motor	
Resolution (Pulse/rotation)		20480	
Repeatability (mm)		+/-0.02	
Deceleration mechanism		Ball screw ϕ8 (Class C10)	
Ball screw lead (mm)		12	6
Maximum speed Note 1 (mm/sec)		500	250
Maximum payload (kg)	Horizontal	10	20
	Vertical	3.5	7.5
Max. pressing force (N)		75	100
Stroke (mm)		50 to 200 (50pitch)	
Lost motion		0.1mm or less	
Rotating backlash (°)		+/-0.05	
Overall length (mm)	Horizontal	Stroke+236.5	
	Vertical	Stroke+276.5	
Maximum outside dimension of body cross-section (mm)		W48 × H56.5	
Cable length (m)		Standard: 1 / Option: 3, 5, 10	

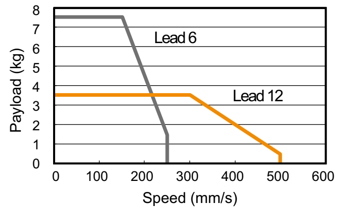
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.
For details, see P. 130.

Speed vs. payload

Horizontal



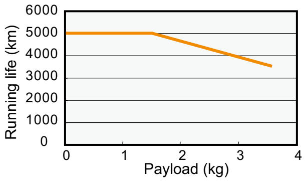
Vertical



Running life

5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Vertical Lead 12



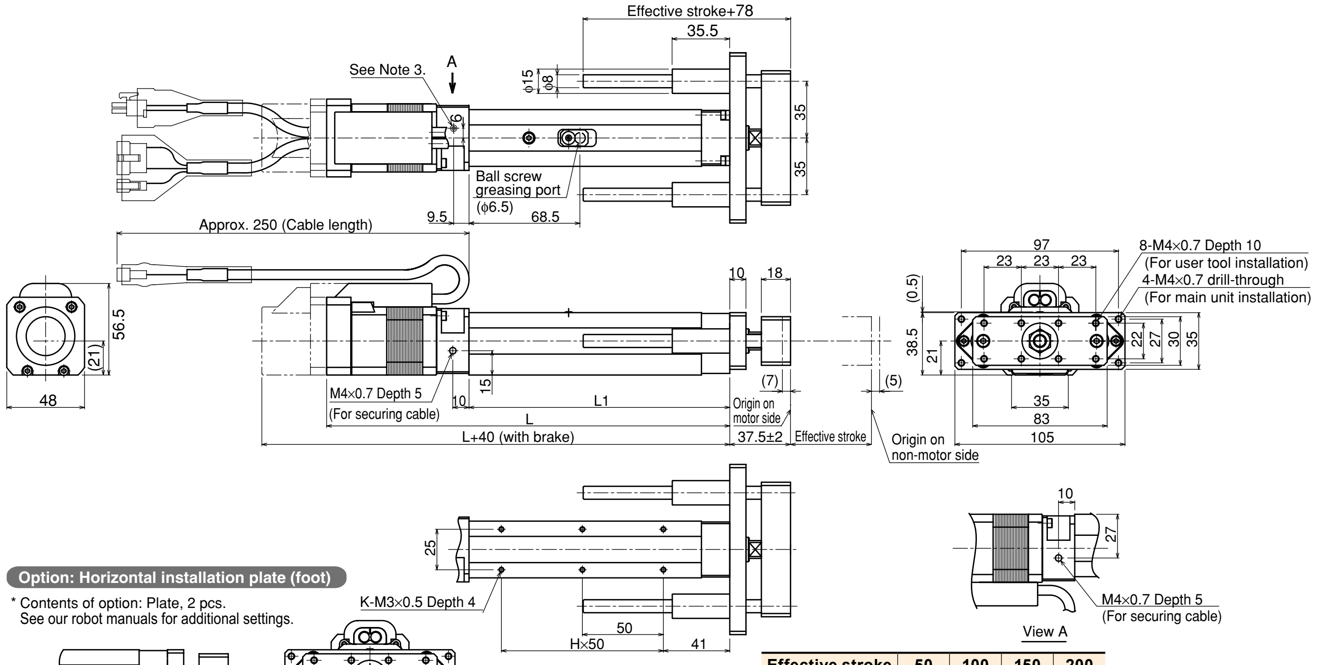
Note. See P.131 for running life distance to life time conversion example.

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

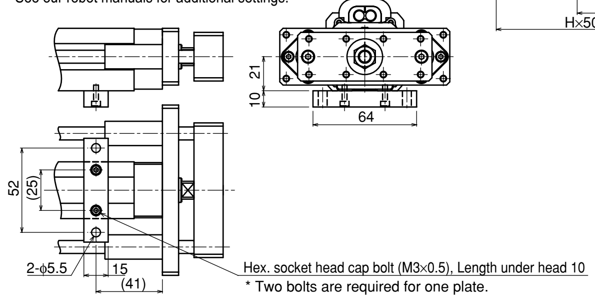
Controller	Operation method
TS-SD	Pulse train control

SRD03 Straight model S



Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.

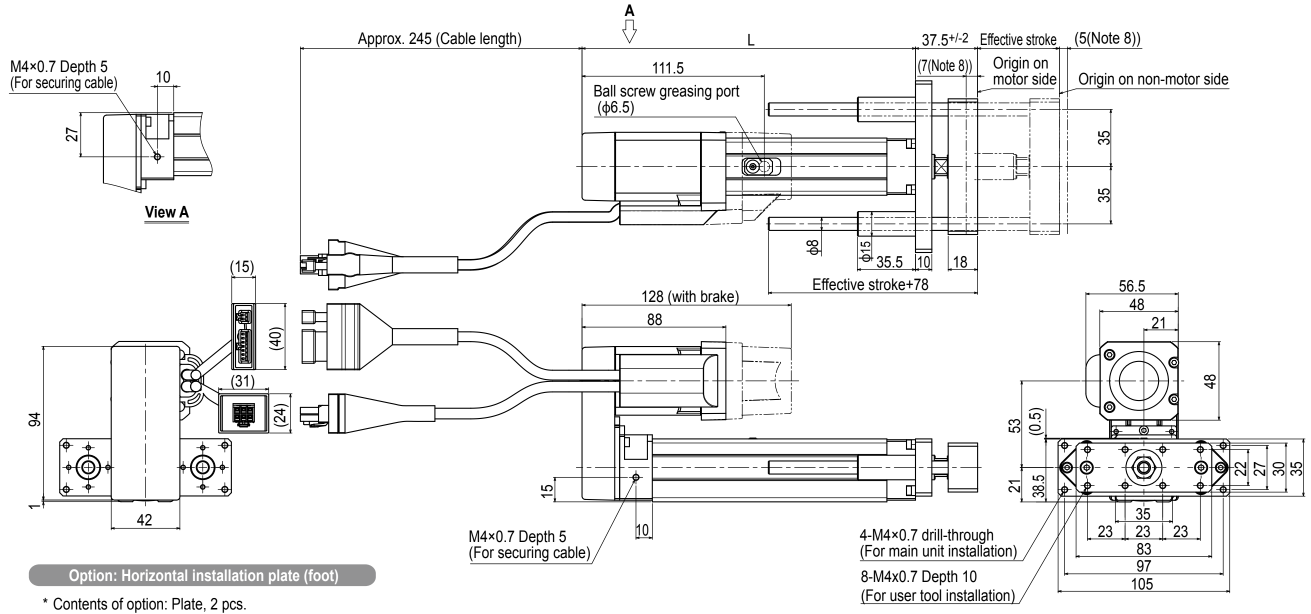

21
10
64
52
(25)
2-ϕ5.5
15
(41)
Hex. socket head cap bolt (M3×0.5), Length under head 10
* Two bolts are required for one plate.

* See the bottom installation tap position.

Effective stroke	50	100	150	200
L1	161	211	261	311
L	249	299	349	399
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 5	1.5	1.7	1.9	2.1

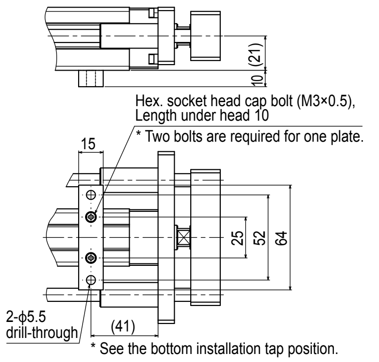
Note 1.It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2.When running the cables, secure cables so that any load is not applied to them.
Note 3.Remove the M4 hex. socket head cap set bolts and use them to secure the cables.
(Effective screw thread depth 5)
Note 4.The cable's minimum bend radius is R30.
Note 5.Models with a brake will be 0.2kg heavier.
Note 6.Distance to mechanical stopper.

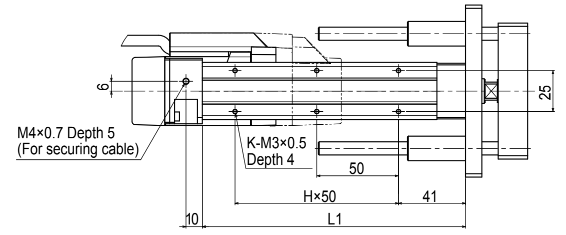
SRD03 Space-saving model (motor installed on top) U



Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.


(21)
10
Hex. socket head cap bolt (M3×0.5),
Length under head 10
* Two bolts are required for one plate.
15
25
52
64
2-ϕ5.5
drill-through
(41)
* See the bottom installation tap position.



Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) Note 7	1.7	1.9	2.1	2.3

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

SR04 Rod type

● CE compliance ● Origin on the non-motor side is selectable: Lead 6, 12

Ordering method

SR04 - [Lead] [Model] [Brake] - [Origin position] - [Bracket plate] - [Stroke] - [Cable length] — S2 [I/O] / SH [I/O] - [Battery] / SD 1

Model	Lead	Model	Brake	Origin position Note 2	Bracket plate	Stroke	Cable length Note 4
SR04	12: 12mm	S: Straight model	N: With no brake	N: Standard Note 3	N: No plate	50 to 300 (50mm pitch)	1K: 1m
	06: 6mm	R: Space-saving model Note 1 (motor installed on right)	B: With brake	Z: Non-motor side	H: With plate		3K: 3m
	02: 2mm	L: Space-saving model Note 1 (motor installed on left)			V: With flange		5K: 5m
							10K: 10m

S2

Robot positioner	I/O
S2: TS-S2 Note 5	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6

SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6	B: With battery (Absolute) N: None (Incremental)

SD 1

Robot driver	I/O cable
SD: TS-SD	1: 1m

Note 1. See P.131 for grease gun nozzles.
Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).
Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.500 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function. For details, see P.62.

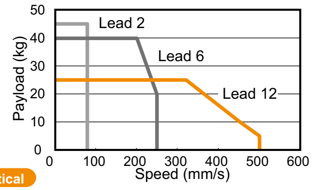
Basic specifications

Motor		42☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		Ball screw ϕ10 (Class C10)
Ball screw lead (mm)		12	6	2
Maximum speed Note 1 **(mm/sec)**		500	250	80
Maximum payload (kg)	**Horizontal**	25	40	45
	Vertical	5	12	25
Max. pressing force (N)		150	300	600
Stroke (mm)		50 to 300 (50pitch)		
Lost motion		0.1mm or less		
Rotating backlash (°)		+/-1.0		
Overall length (mm)	**Horizontal**	Stroke+263		
	Vertical	Stroke+303		
Maximum outside dimension of body cross-section (mm)		W48 × H58		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

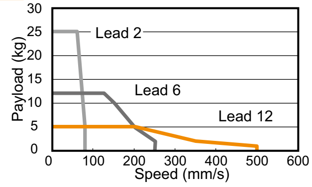
Note 1. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 130. Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw. See the maximum speed table shown at the lower portion of the drawing.

Speed vs. payload

Horizontal



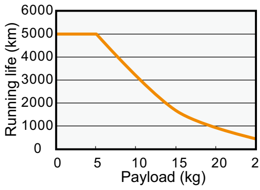
Vertical



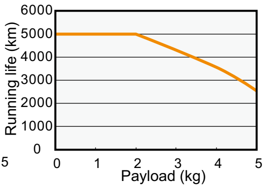
Running life

5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Vertical Lead 2



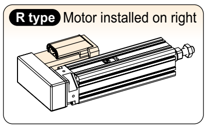
Vertical Lead 12



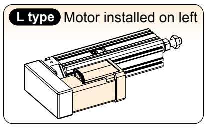
Note. See P.131 for running life distance to life time conversion example.

Motor installation (Space-saving model)

R type Motor installed on right



L type Motor installed on left

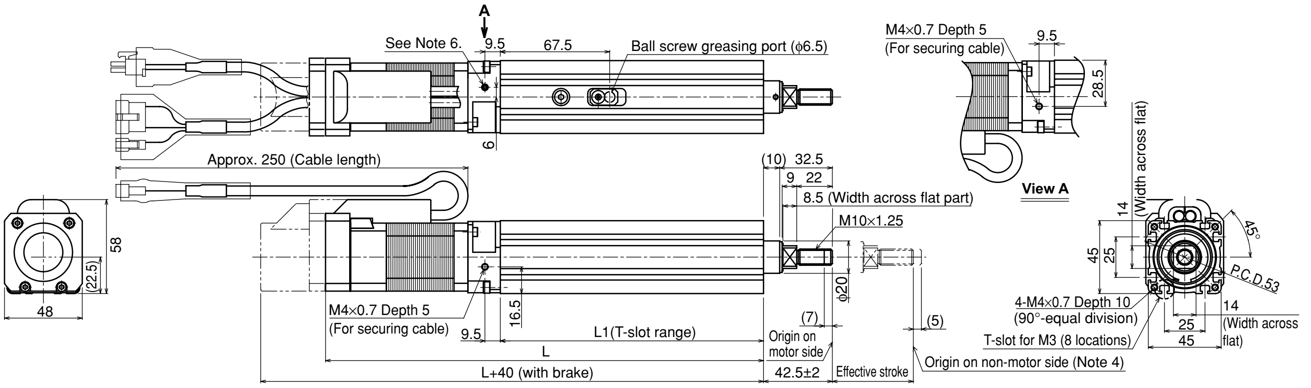


Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

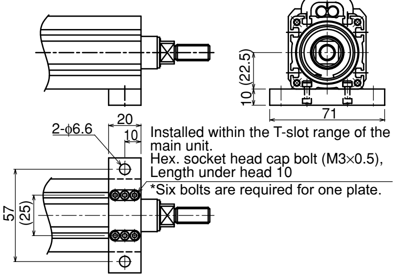
Controller	Operation method
TS-SD	Pulse train control

SR04 Straight model S



Option: Horizontal installation plate (foot)

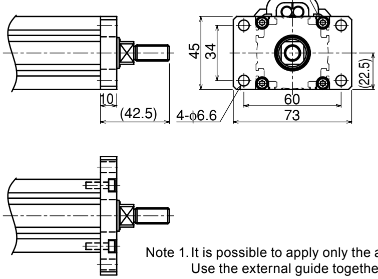
* Contents of option: Plate, 2 pcs., Nut, 12 pcs.
See our robot manuals for additional settings.

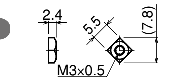


Installed within the T-slot range of the main unit.
Hex. socket head cap bolt (M3×0.5), Length under head 10
*Six bolts are required for one plate.

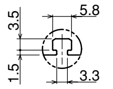
Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M4×0.7), Length under head 14

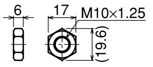




Dimensions of attached square nut for T-slot (6 pcs.)



Details of T-slot

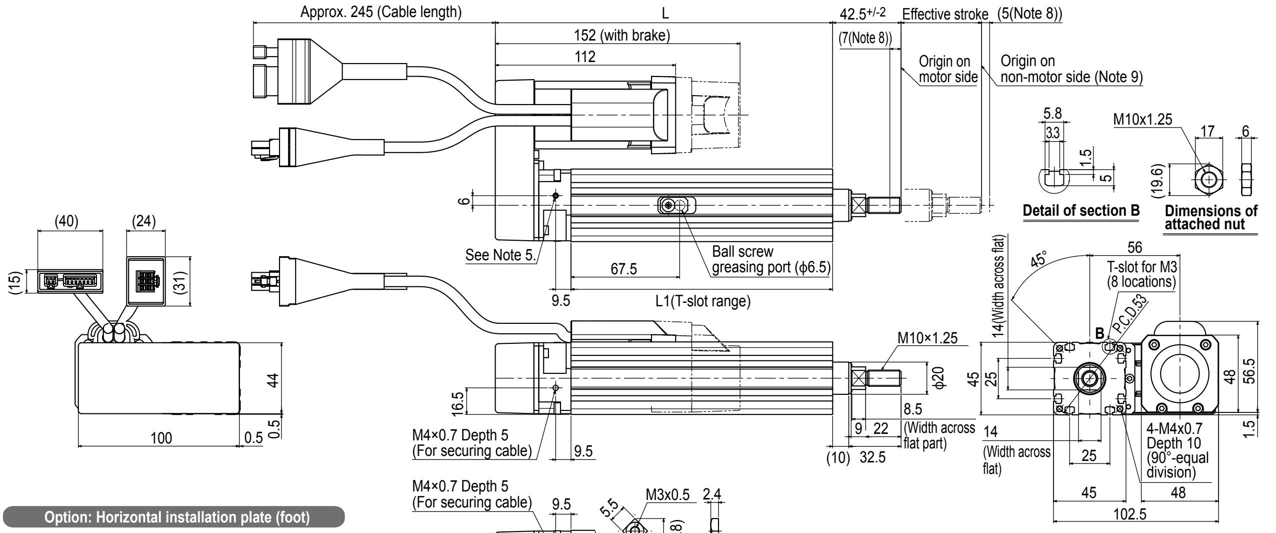


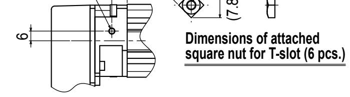
Dimensions of attached nut

Effective stroke		50	100	150	200	250	300
L1		162.5	212.5	262.5	312.5	362.5	412.5
L		270.5	320.5	370.5	420.5	470.5	520.5
Weight (kg) Note 8		1.4	1.7	1.9	2.2	2.4	2.7
Maximum speed for each stroke (mm/sec)	**Lead 12**	500				440	320
	Lead 6	250				220	160
	Lead 2	80				72	53

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 5. When running the cables, secure cables so that any load is not applied to them.
Note 6. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 7. The cable's minimum bend radius is R30.
Note 8. Models with a brake will be 0.2kg heavier.
Note 9. Distance to mechanical stopper.

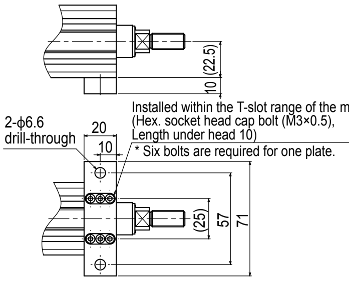
SR04 Space-saving model (motor installed on right) R



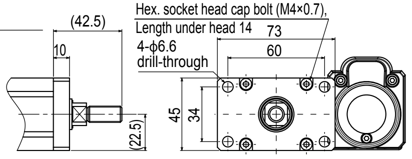

M4×0.7 Depth 5 (For securing cable)
9.5
6
5.5
M3x0.5
2.4
(7.8)
Dimensions of attached square nut for T-slot (6 pcs.)

Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 12 pcs.
See our robot manuals for additional settings.


10
(22.5)
2-ϕ6.6 drill-through
20
10
Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M3×0.5), Length under head 10)
* Six bolts are required for one plate.
(25)
57
71

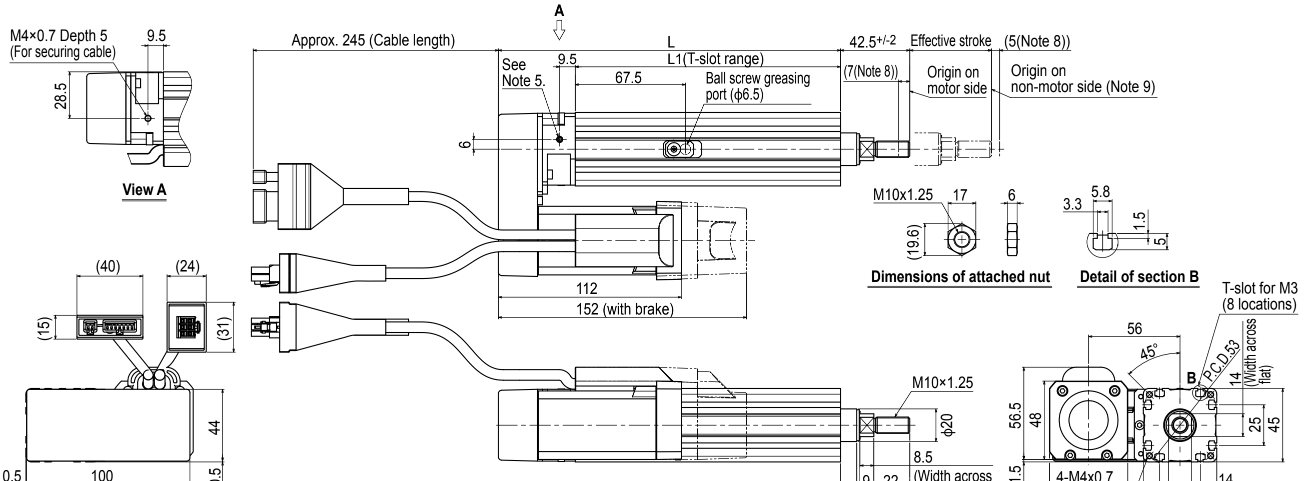
Option: Vertical installation plate (flange)

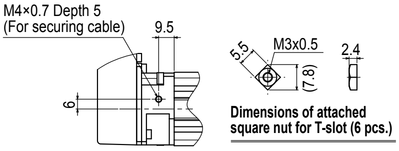


Effective stroke		50	100	150	200	250	300
L1		162.5	212.5	262.5	312.5	362.5	412.5
L		209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) Note 7		1.6	1.9	2.1	2.4	2.6	2.9
Maximum speed for each stroke (mm/sec)	Lead 12	500				440	320
	Lead 6	250				220	160
	Lead 2	80				72	53

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).

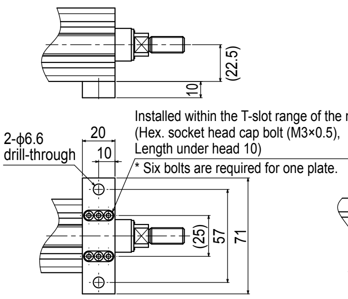
SR04 Space-saving model (motor installed on left) L



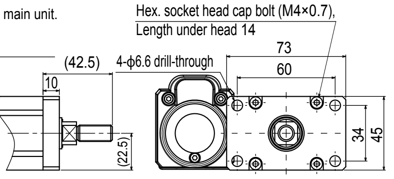

M4×0.7 Depth 5 (For securing cable)
9.5
6
5.5
M3x0.5
2.4
(7.8)
Dimensions of attached square nut for T-slot (6 pcs.)

Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 12 pcs.
See our robot manuals for additional settings.


10
(22.5)
2-ϕ6.6 drill-through
20
10
Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M3×0.5), Length under head 10)
* Six bolts are required for one plate.
(25)
57
71

Option: Vertical installation plate (flange)



Effective stroke		50	100	150	200	250	300
L1		162.5	212.5	262.5	312.5	362.5	412.5
L		209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) Note 7		1.6	1.9	2.1	2.4	2.6	2.9
Maximum speed for each stroke (mm/sec)	Lead 12	500				440	320
	Lead 6	250				220	160
	Lead 2	80				72	53

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).

SRD04

Rod type (With support guide)

● CE compliance

● Origin on the non-motor side is selectable: Lead 6, 12

SRD04-S
SRD04-U

Ordering method

SRD04 – ☐ ☐ ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead	Model	Brake	Origin position Note 2	Bracket plate	Stroke	Cable length Note 4
SRD04	12: 12mm 06: 6mm 02: 2mm	S: Straight model U: Space-saving model Note 1 (motor installed on top)	N: With no brake B: With brake	N: Standard Note 3 Z: Non-motor side	N: No plate H: With plate	50 to 300 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2 – ☐

Robot positioner	I/O
S2: TS-S2 Note 5	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6

SH – ☐ – ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6	B: With battery (Absolute) N: None (Incremental)

SD **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

Note 1. See P.131 for grease gun nozzles.
Note 2. When “2mm lead” is selected, the origin position cannot be changed (to non-motor side).
Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.500 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function. For details, see P.62.

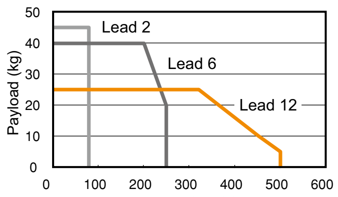
Basic specifications

Motor		42☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		Ball screw ϕ10 (Class C10)
Ball screw lead (mm)		12	6	2
Maximum speed Note 1 (mm/sec)		500	250	80
Maximum payload (kg)	Horizontal	25	40	45
	Vertical	4	11	24
Max. pressing force (N)		150	300	600
Stroke (mm)		50 to 300 (50pitch)		
Lost motion		0.1mm or less		
Rotating backlash (°)		+/-0.05		
Overall length (mm)	Horizontal	Stroke+263		
	Vertical	Stroke+303		
Maximum outside dimension of body cross-section (mm)		W48 × H58		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

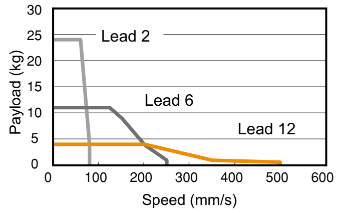
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the “Speed vs. payload” graph shown on the right. For details, see P. 130.
Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw.
See the maximum speed table shown at the lower portion of the drawing.

Speed vs. payload

Horizontal



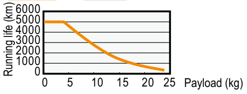
Vertical



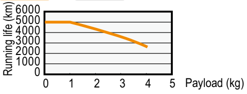
Running life

5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Vertical Lead 2



Vertical Lead 12



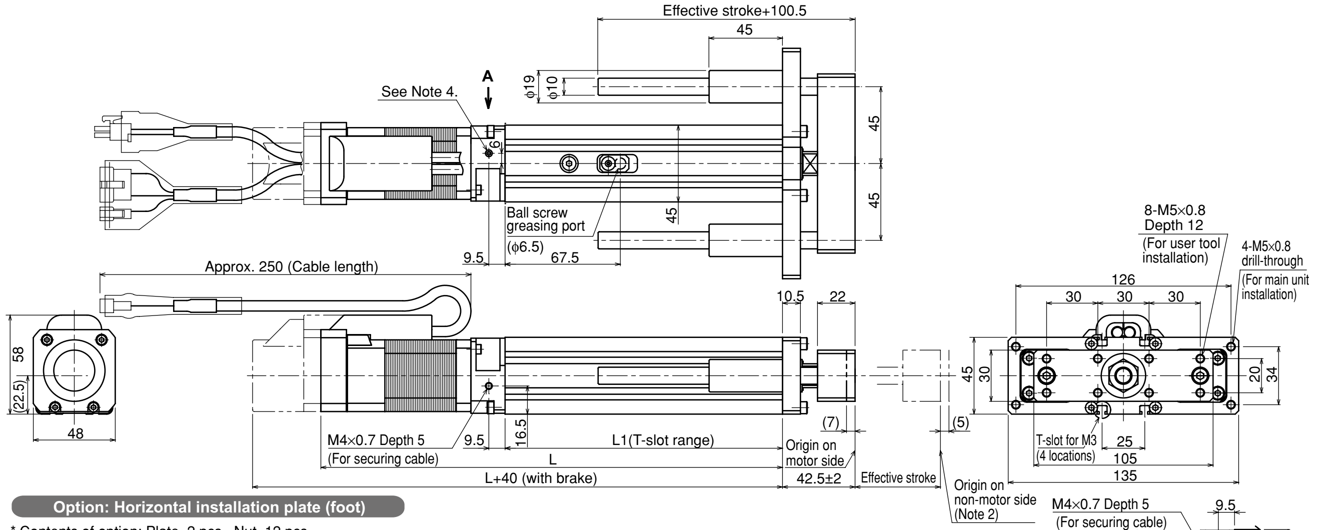
Note. See P.131 for running life distance to life time conversion example.

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

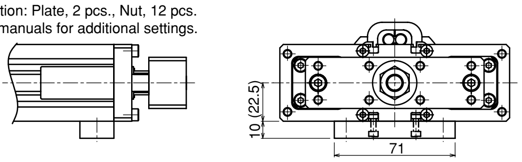
Controller	Operation method
TS-SD	Pulse train control

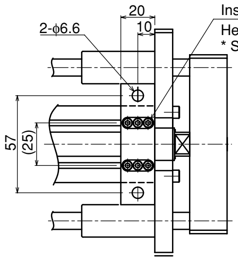
SRD04 Straight model S



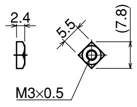
Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 12 pcs.
See our robot manuals for additional settings.

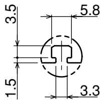




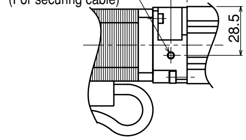
Installed within the T-slot range of the main unit.
Hex. socket head cap bolt (M3×0.5), Length under head 10
* Six bolts are required for one plate.



Dimensions of attached square nut for T-slot (6 pcs.)



Details of T-slot



View A

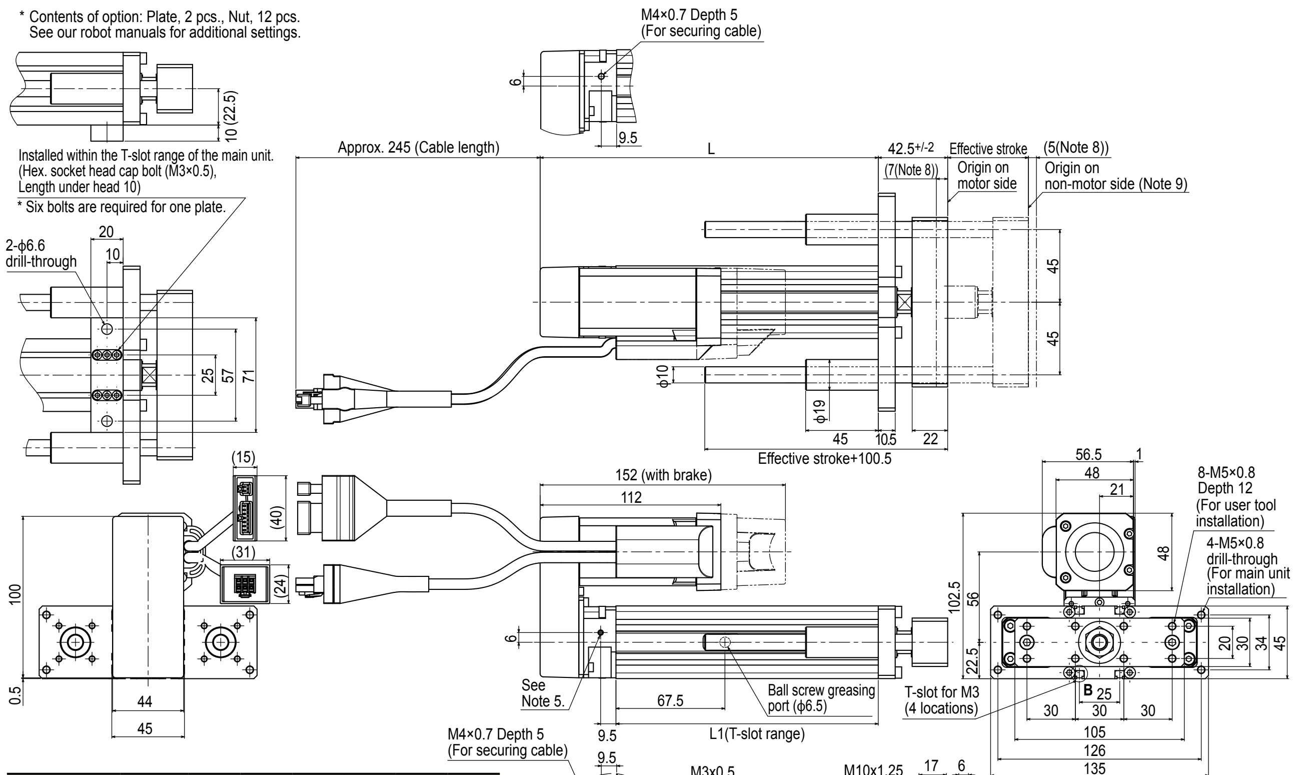
Effective stroke		50	100	150	200	250	300
L1		162.5	212.5	262.5	312.5	362.5	412.5
L		270.5	320.5	370.5	420.5	470.5	520.5
Weight (kg) Note 6		2.0	2.4	2.7	3.0	3.3	3.7
Maximum speed for each stroke (mm/sec)	Lead 12	500				440	320
	Lead 6	250				220	160
	Lead 2	80				72	53

Note 1.It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2.For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 3.When running the cables, secure cables so that any load is not applied to them.
Note 4.Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 5.The cable’s minimum bend radius is R30.
Note 6.Models with a brake will be 0.2kg heavier.
Note 7.Distance to mechanical stopper.

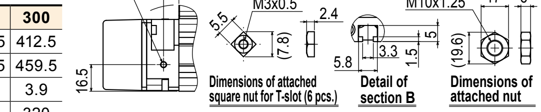
SRD04 Space-saving model (motor installed on top) U

Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 12 pcs.
See our robot manuals for additional settings.



Effective stroke		50	100	150	200	250	300
L1		162.5	212.5	262.5	312.5	362.5	412.5
L		209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) Note 7		2.2	2.6	2.9	3.2	3.5	3.9
Maximum speed for each stroke (mm/sec)	Lead 12	500				440	320
	Lead 6	250				220	160
	Lead 2	80				72	53



Dimensions of attached square nut for T-slot (6 pcs.)

Detail of section B

Dimensions of attached nut

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.

SR05 Rod type

● CE compliance ● Origin on the non-motor side is selectable: Lead 6, 12

Ordering method

SR05 - ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐ —

Model	Lead	Model	Brake	Origin position Note 2	Bracket plate	Stroke	Cable length Note 4
SR05	12: 12mm	S: Straight model	N: With no brake	N: Standard Note 3	N: No plate	50 to 300 (50mm pitch)	1K: 1m
	06: 6mm	R: Space-saving model Note 1 (motor installed on right)	B: With brake	Z: Non-motor side	H: With plate		3K: 3m
	02: 2mm	L: Space-saving model Note 1 (motor installed on left)			V: With flange		5K: 5m
							10K: 10m

S2 ☐

Robot positioner	I/O
S2: TS-S2 Note 5	NP: NPN
	PN: PNP
	CC: CC-Link
	DN: DeviceNet™
	EP: EtherNet/IP™
	PT: PROFINET
	GW: No I/O board Note 6

SH ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN	B: With battery (Absolute)
	PN: PNP	N: None (Incremental)
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 6	

SD 1

Robot driver	I/O cable
SD: TS-SD	1: 1m

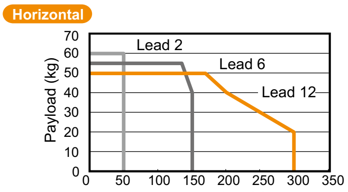
Note 1. See P.131 for grease gun nozzles.
Note 2. When “2mm lead” is selected, the origin position cannot be changed (to non-motor side).
Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.500 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function. For details, see P.62.

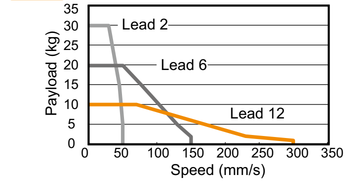
Basic specifications

Motor		56☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed Note 1 (mm/sec)		300	150	50
Maximum payload (kg)	**Horizontal**	50	55	60
	Vertical	10	20	30
Max. pressing force (N)		250	550	900
Stroke (mm)		50 to 300 (50pitch)		
Lost motion		0.1mm or less		
Rotating backlash (°)		+/-1.0		
Overall length (mm)	**Horizontal**	Stroke+276		
	Vertical	Stroke+316		
Maximum outside dimension of body cross-section (mm)		W56.4 × H71		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

Note 1. The maximum speed needs to be changed in accordance with the payload.
See the “Speed vs. payload” graph shown on the right.
For details, see P. 130.

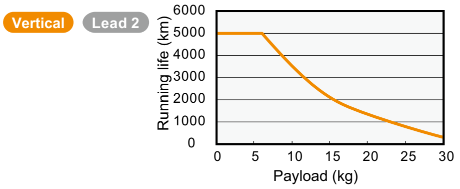
Speed vs. payload





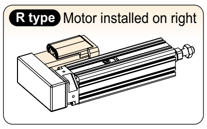
Running life

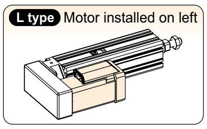
5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.



Note. See P.131 for running life distance to life time conversion example.

Motor installation (Space-saving model)



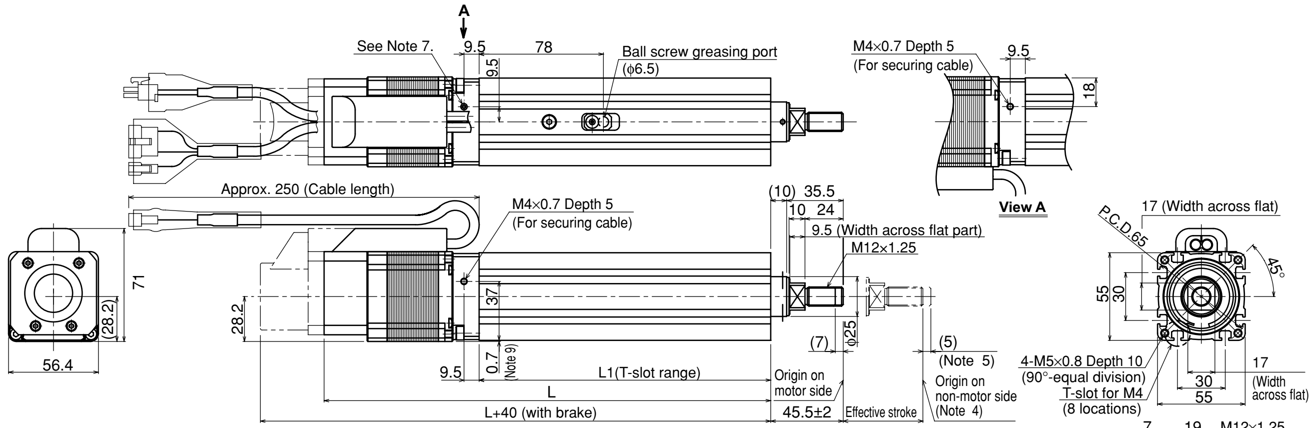


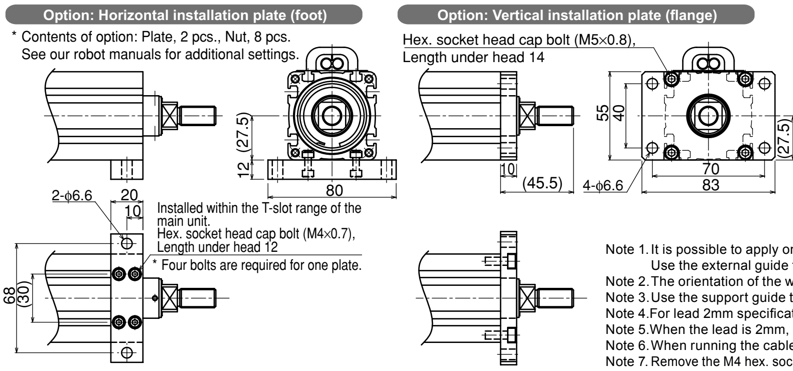
Controller

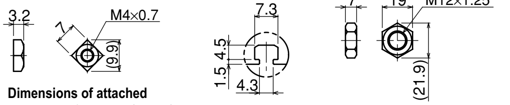
Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

Controller	Operation method
TS-SD	Pulse train control

SR05 Straight model S




Option: Horizontal installation plate (foot)
* Contents of option: Plate, 2 pcs., Nut, 8 pcs.
See our robot manuals for additional settings.
(27.5)
12
80
2-ϕ6.6
20
10
Installed within the T-slot range of the main unit.
Hex. socket head cap bolt (M4×0.7),
Length under head 12
* Four bolts are required for one plate.
68
(30)
Option: Vertical installation plate (flange)
Hex. socket head cap bolt (M5×0.8),
Length under head 14
10
(45.5)
55
40
4-ϕ6.6
70
83
(27.5)

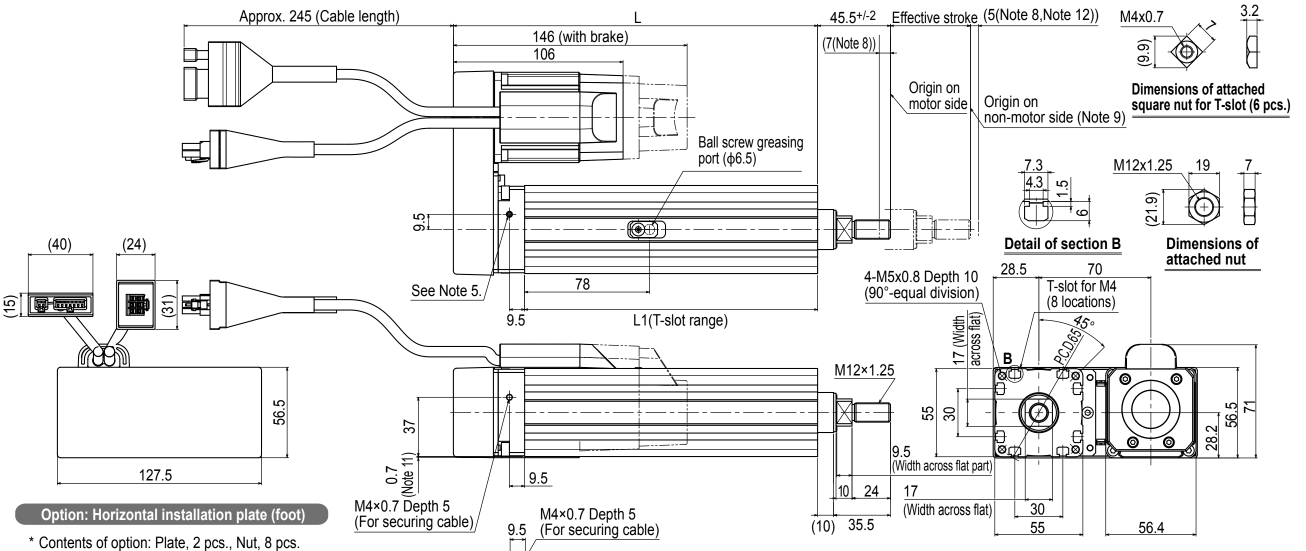


Dimensions of attached square nut for T-slot (6 pcs.) **Details of T-slot** **Dimensions of attached nut**

Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	280.5	330.5	380.5	430.5	480.5	530.5
Weight (kg) Note 10	2.2	2.6	3.0	3.3	3.7	4.1

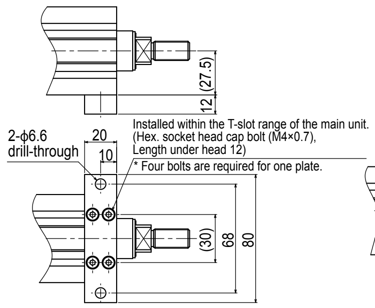
Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 5. When the lead is 2mm, this dimension is 27mm.
Note 6. When running the cables, secure cables so that any load is not applied to them.
Note 7. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 8. The cable’s minimum bend radius is R30.
Note 9. Take great care as the outer case of the motor projects from the bottom of the main unit.
Note 10. Models with a brake will be 0.2kg heavier.
Note 11. Distance to mechanical stopper.

SR05 Space-saving model (motor installed on right) R

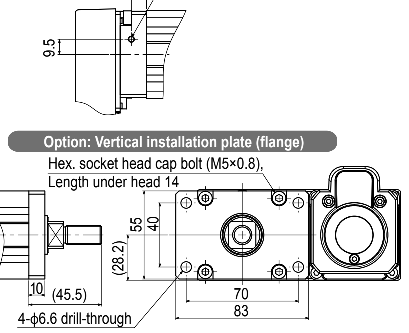


Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 8 pcs.
See our robot manuals for additional settings.


(27.5)
12
2-ϕ6.6 drill-through
20
10
Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M4×0.7), Length under head 12)
* Four bolts are required for one plate.
(30)
68
80

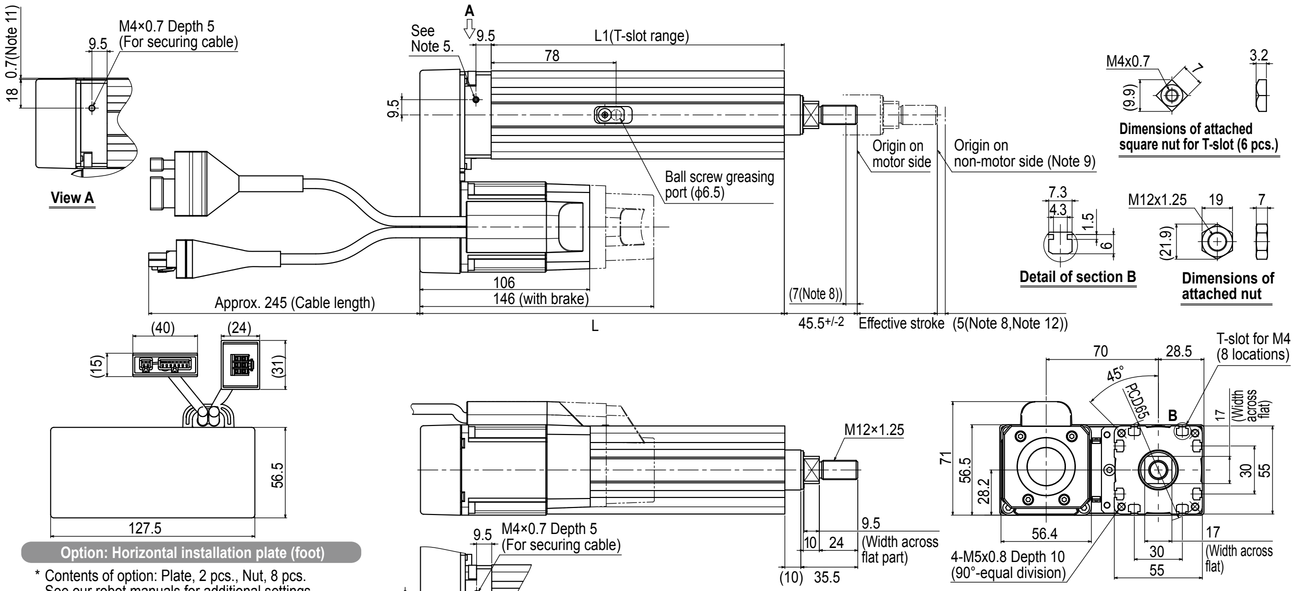
Option: Vertical installation plate (flange)



Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	227.5	277.5	327.5	377.5	427.5	477.5
Weight (kg) Note 7	2.4	2.8	3.2	3.5	3.9	4.3

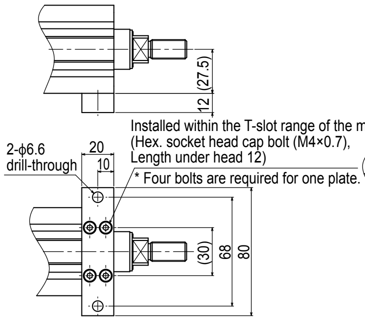
Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).
Note 11. Take great care as the outer case of the motor and cover belt projects from the bottom of the main unit.
Note 12. When the lead is 2mm, this dimension is 27mm.

SR05 Space-saving model (motor installed on left) L

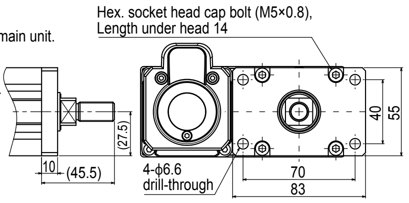


Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 8 pcs.
See our robot manuals for additional settings.


(27.5)
12
2-ϕ6.6 drill-through
20
10
Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M4×0.7), Length under head 12)
* Four bolts are required for one plate.
(30)
68
80

Option: Vertical installation plate (flange)



Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	227.5	277.5	327.5	377.5	427.5	477.5
Weight (kg) Note 7	2.4	2.8	3.2	3.5	3.9	4.3

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).
Note 11. Take great care as the outer case of the motor and cover belt projects from the bottom of the main unit.
Note 12. When the lead is 2 mm, this dimension is 27 mm.

SRD05 Rod type (With support guide)

● CE compliance ● Origin on the non-motor side is selectable: Lead 6, 12

SRD05-S SRD05-U

Ordering method

SRD05 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead	Model	Brake	Origin position Note 2	Bracket plate	Stroke	Cable length Note 4
SRD05	12: 12mm 06: 6mm 02: 2mm	S: Straight model U: Space-saving model Note 1 (motor installed on top)	N: With no brake B: With brake	N: Standard Note 3 Z: Non-motor side	N: No plate H: With plate	50 to 300 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 Note 5	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6	B: With battery (Absolute) N: None (Incremental)

SD - **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

Note 1. See P.131 for grease gun nozzles.
Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).
Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.500 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function. For details, see P.62.

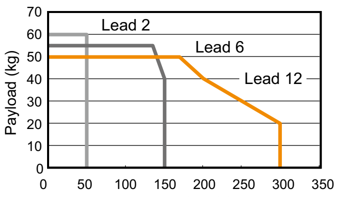
Basic specifications

Motor		56 ☐ Step motor		
Resolution (Pulse/rotation)		20480		
Repeatability (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed Note 1 (mm/sec)		300	150	50
Maximum payload (kg)	**Horizontal**	50	55	60
	Vertical	8.5	18.5	28.5
Max. pressing force (N)		250	550	900
Stroke (mm)		50 to 300 (50pitch)		
Lost motion		0.1mm or less		
Rotating backlash (°)		+/-0.05		
Overall length (mm)	**Horizontal**	Stroke+276		
	Vertical	Stroke+316		
Maximum outside dimension of body cross-section (mm)		W56.4 × H71		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		

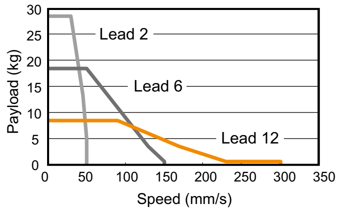
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.
For details, see P. 130.

Speed vs. payload

Horizontal



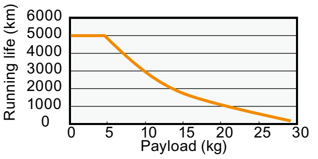
Vertical



Running life

5000 km on models other than shown below.
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Vertical Lead 2



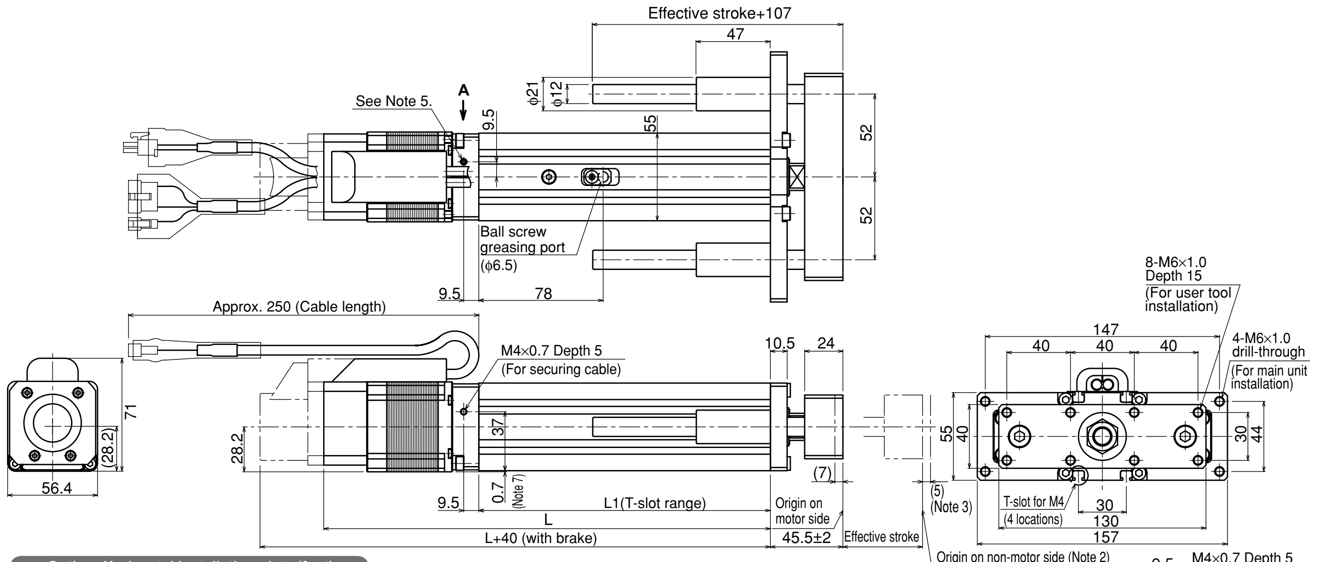
Note. See P.131 for running life distance to life time conversion example.

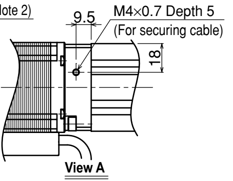
Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command

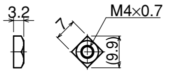
Controller	Operation method
TS-SD	Pulse train control

SRD05 Straight model S

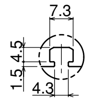

Effective stroke+107
47
See Note 5.
A
ϕ21
ϕ12
9.5
55
52
52
Ball screw greasing port (ϕ6.5)
9.5
78
Approx. 250 (Cable length)
M4×0.7 Depth 5 (For securing cable)
10.5
24
71
28.2
56.4
(28.2)
37
0.7
(Note 7)
9.5
L1(T-slot range)
L
L+40 (with brake)
(7)
Origin on motor side
45.5±2
Effective stroke
(5) (Note 3)
Origin on non-motor side (Note 2)
8-M6×1.0 Depth 15 (For user tool installation)
147
40
40
40
4-M6×1.0 drill-through (For main unit installation)
55
40
30
44
T-slot for M4 (4 locations)
30
130
157



View A



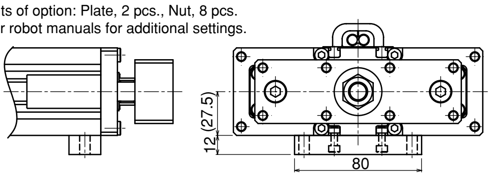
Dimensions of attached square nut for T-slot (6 pcs.)

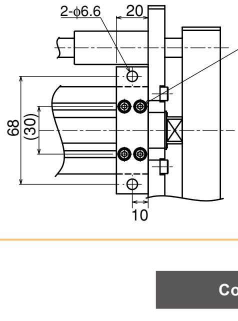


Details of T-slot (2:1)

Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 8 pcs.
See our robot manuals for additional settings.



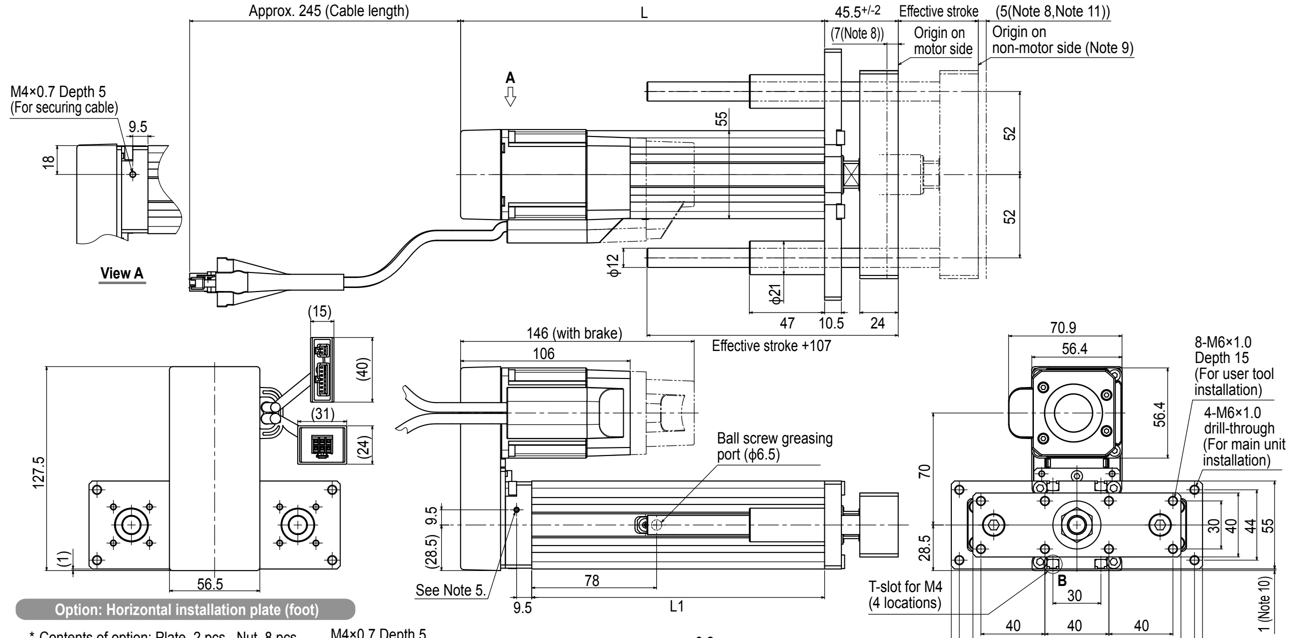


Installed within the T-slot range of the main unit.
Hex. socket head cap bolt (M4×0.7), Length under head 12
* Four bolts are required for one plate.

Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	280.5	330.5	380.5	430.5	480.5	530.5
Weight (kg) Note 8	3.1	3.6	4.1	4.5	5.0	5.5

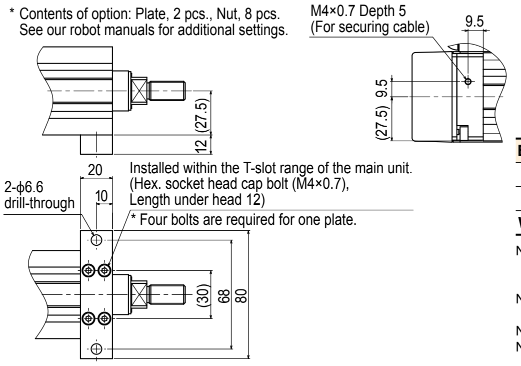
Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 3. When the lead is 2mm, this dimension is 27mm.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Take great care as the outer case of the motor projects from the bottom of the main unit.
Note 8. Models with a brake will be 0.2kg heavier.
Note 9. Distance to mechanical stopper.

SRD05 Space-saving model (motor installed on top) U

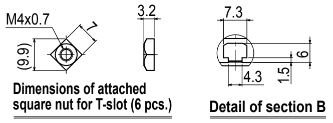


Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs., Nut, 8 pcs.
See our robot manuals for additional settings.



Installed within the T-slot range of the main unit.
(Hex. socket head cap bolt (M4×0.7),
Length under head 12)
* Four bolts are required for one plate.



Dimensions of attached square nut for T-slot (6 pcs.)

Detail of section B

Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	227.5	277.5	327.5	377.5	427.5	477.5
Weight (kg) Note 7	3.3	3.8	4.3	4.7	5.2	5.7

Note 1. It is possible to apply only the axial load. Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 6. The cable's minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 10. Take great care as the outer case of the cover belt projects from the bottom of the main unit.
Note 11. When the lead is 2 mm, this dimension is 27 mm.

STH04 Slide table type

● CE compliance ● Origin on the non-motor side is selectable

Ordering method

STH04 - ☐ ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead	Model	Brake [Note 1]	Origin position	Bracket plate [Note 3]	Stroke	Cable length [Note 4]
STH04	05: 5mm 10: 10mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard [Note 2] Z: Non-motor side	N: No plate H: With plate	50: 50mm 100: 100mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 [Note 5]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 7]

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 7]	B: With battery (Absolute) N: None (Incremental)

SD - **1**

Robot driver	I/O cable
SD: TS-SD [Note 6]	1: 1m

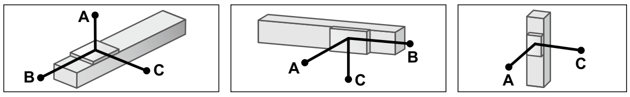
Note 1. For the space saving models (R and L), the specifications with brake are applicable to only 100mm strokes.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. Space-saving models (R and L) with the plate cannot be selected.
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.500 for DIN rail mounting bracket.
Note 6. The robot with the brake cannot use the TS-SD.
Note 7. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

Motor		28 ☐ Step motor	
Resolution (Pulse/rotation)		4096	
Repeatability [Note 1] **(mm)**		+/-0.05	
Drive method	**Straight**	Slide screw	
	Space-saving	Slide screw + belt	
Ball screw lead (mm)		5	10
Maximum speed [Note 2] **(mm/sec)**		200	400
Maximum payload (kg)	**Horizontal**	6	4
	Vertical	2	1
Max. pressing force (N)		55	30
Stroke (mm)		50/100	
Maximum outside dimension of body cross-section (mm)	**Straight**	W45 × H46	
	Space-saving	W74.5 × H51	
Cable length (m)		Standard: 1 / Option: 3, 5, 10	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed needs to be changed in accordance with the payload.
See the “Speed vs. payload” graph shown on the right.
For details, see P. 130.

Allowable overhang [Note]



Horizontal installation (Unit: mm)

		A	B	C
Lead 10	2kg	1534	611	415
	3kg	949	374	255
	4kg	656	255	175
Lead 5	2kg	1534	611	415
	4kg	656	255	175
	6kg	364	137	95

Wall installation (Unit: mm)

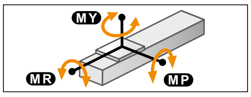
		A	B	C
Lead 10	2kg	435	595	1504
	3kg	263	359	920
	4kg	177	241	629
Lead 5	2kg	435	595	1504
	4kg	177	241	629
	6kg	91	123	337

Vertical installation (Unit: mm)

		A	C
Lead 10	0.5kg	2000	2000
	0.75kg	1558	1558
	1kg	1165	1164
Lead 5	1kg	1165	1164
	1.5kg	771	771
	2kg	574	574

Note. Overhang at travelling service life of 3000km.
(Service life is calculated for 75mm stroke models.)

Static loading moment

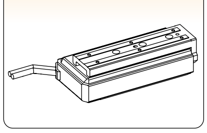


(Unit: N·m)

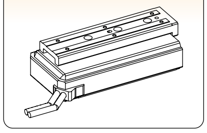
Stroke	MY	MP	MR
50mm	26	26	48
100mm	43	43	

Motor installation (Space-saving model)

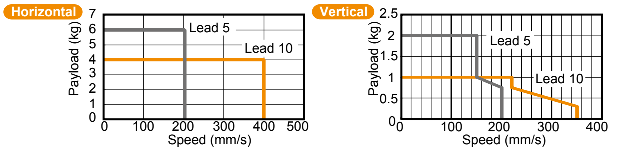
R type Motor installed on right



L type Motor installed on left



Speed vs. payload

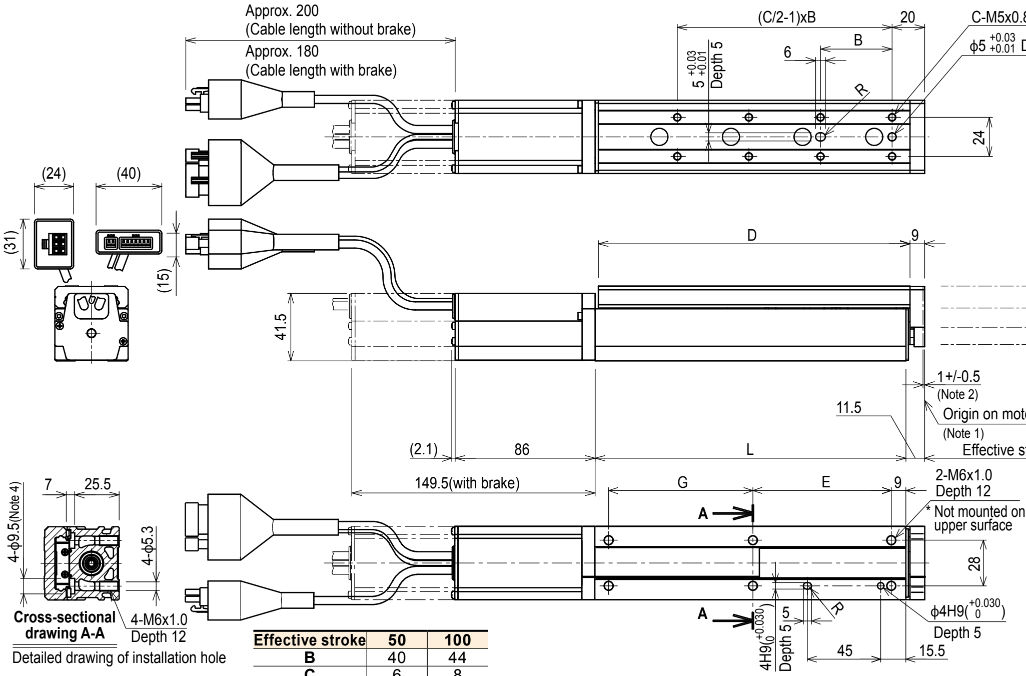


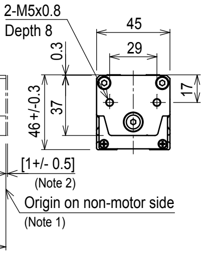
Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD [Note]	Pulse train control

Note. The robot with the brake cannot use the TS-SD.

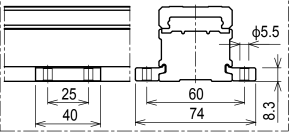
STH04 Straight model S





Option: Installation plate

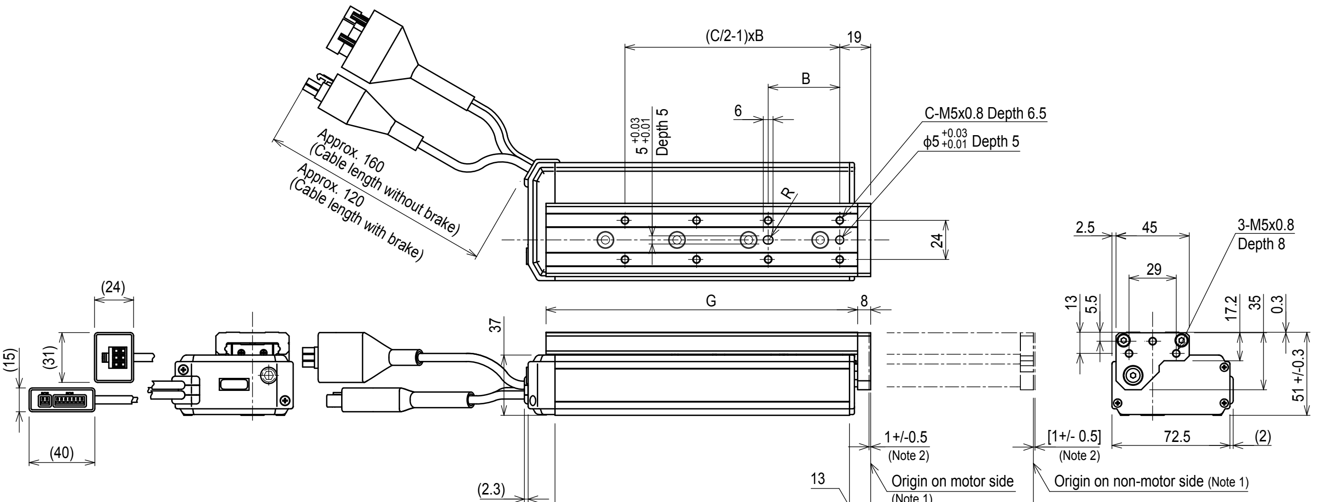
Contents of option: Plate, 4 pcs.
* For additional settings, contact your distributor.

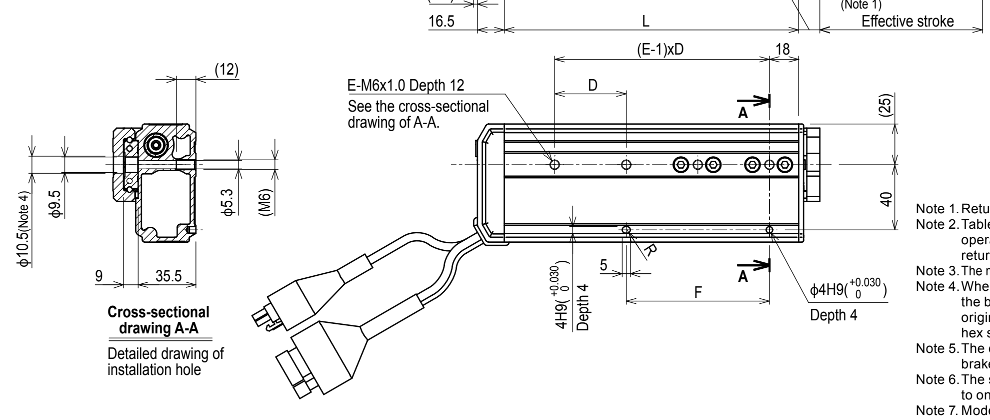


Effective stroke	50	100
B	40	44
C	6	8
D	116.5	191.5
E	65	85
G	39.5	88.5
L	122	191
Weight (kg) [Note 6]	1.25	1.7

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, use the hex socket head cap M5 bolts.
Note 5. The installation hole positions of the main unit with the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.11kg heavier.

STH04 Space-saving model (motor installed on right) R

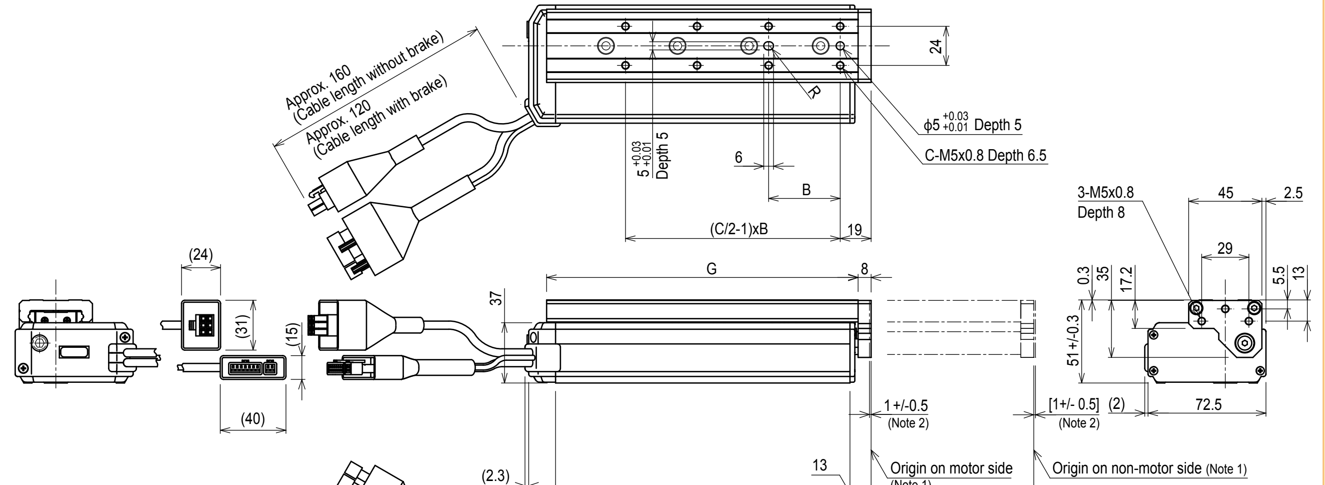


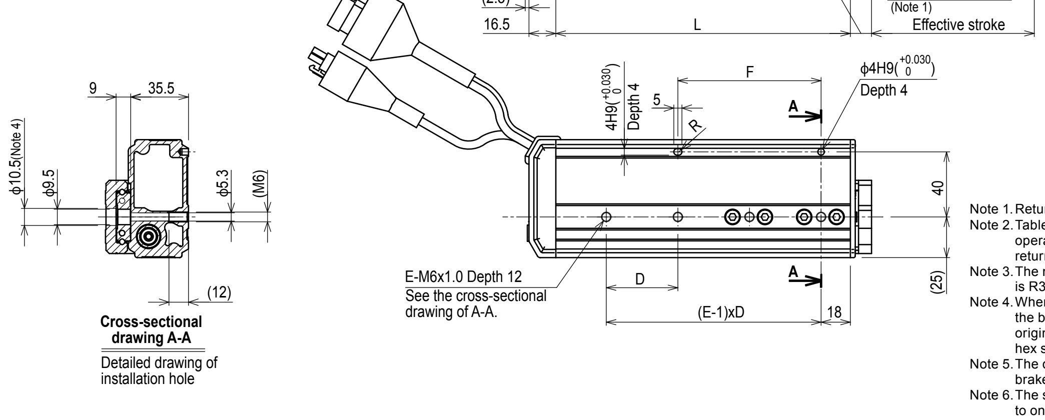


Effective stroke	50	100
B	40	44
C	6	8
D	45	44
E	2	4
F	45	88
G	116.5	191.5
L	106	181
Weight (kg) Note 7	1.15	1.6

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M5) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. The specifications with the brake are applicable to only 100 strokes.
Note 7. Models with a brake will be 0.11kg heavier.

STH04 Space-saving model (motor installed on left) L





Effective stroke	50	100
B	40	44
C	6	8
D	45	44
E	2	4
F	45	88
G	116.5	191.5
L	106	181
Weight (kg) Note 7	1.15	1.6

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M5) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. The specifications with the brake are applicable to only 100 strokes.
Note 7. Models with a brake will be 0.11kg heavier.

STH06 Slide table type

- CE compliance
- Origin on the non-motor side is selectable

Ordering method

STH06 - ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐ -

Model	Lead	Model	Brake	Origin position	Bracket plate [Note 2]	Stroke	Cable length [Note 3]
STH06	08: 8mm	S: Straight model	N: With no brake	N: Standard [Note 1]	N: No plate	50: 50mm	1K: 1m
	16: 16mm	R: Space-saving model (motor installed on right)	B: With brake	Z: Non-motor side	H: With plate	100: 100mm	3K: 3m
		L: Space-saving model (motor installed on left)				150: 150mm	5K: 5m
							10K: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 [Note 4]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 6]

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 6]	B: With battery (Absolute) N: None (Incremental)

SD **1**

Robot driver	I/O cable
SD: TS-SD [Note 5]	1: 1m

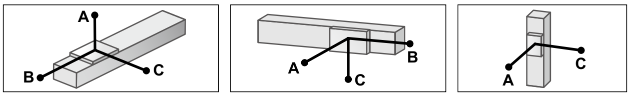
Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 2. Space-saving models (R and L) with the plate cannot be selected.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. The robot with the brake cannot use the TS-SD.
Note 6. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

Motor		42☐ Step motor	
Resolution (Pulse/rotation)		20480	
Repeatability [Note 1] (mm)		+/-0.05	
Drive method	Straight	Slide screw	
	Space-saving	Slide screw + belt	
Ball screw lead (mm)		8	16
Maximum speed [Note 2] (mm/sec)		150	400
Maximum payload (kg)	Horizontal	9	6
	Vertical	4	2
Max. pressing force (N)		180	100
Stroke (mm)		50/100/150	
Maximum outside dimension of body cross-section (mm)	Straight	W61 × H65	
	Space-saving	W108 × H70	
Cable length (m)		Standard: 1 / Option: 3, 5, 10	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 130.

Allowable overhang [Note]



Horizontal installation (Unit: mm)

		A	B	C
Lead 16	2kg	3000	2123	1436
	4kg	2493	1001	680
	6kg	1571	627	428
Lead 8	3kg	3000	1375	932
	6kg	1571	627	428
	9kg	956	378	260

Wall installation (Unit: mm)

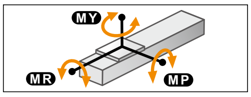
		A	B	C
Lead 16	2kg	1500	2091	3000
	4kg	710	975	2443
	6kg	440	603	1524
Lead 8	3kg	979	1347	3000
	6kg	440	603	1524
	9kg	260	355	912

Vertical installation (Unit: mm)

		A	C
Lead 16	1kg	3000	3000
	1.5kg	2458	2457
	2kg	1837	1837
Lead 8	2kg	1837	1837
	3kg	1217	1216
	4kg	907	906

Note. Overhang at travelling service life of 3000km.
(Service life is calculated for 100mm stroke models.)

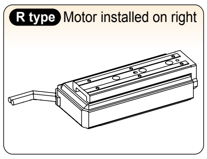
Static loading moment

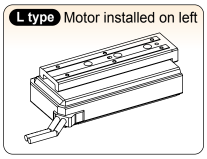


(Unit: N·m)

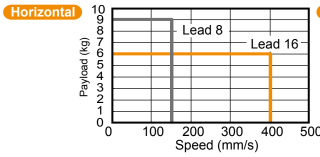
Stroke	MY	MP	MR
50mm	77	77	146
100mm	112	112	177
150mm	155	155	152

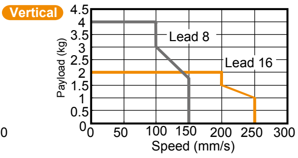
Motor installation (Space-saving model)


R type Motor installed on right


L type Motor installed on left

Speed vs. payload



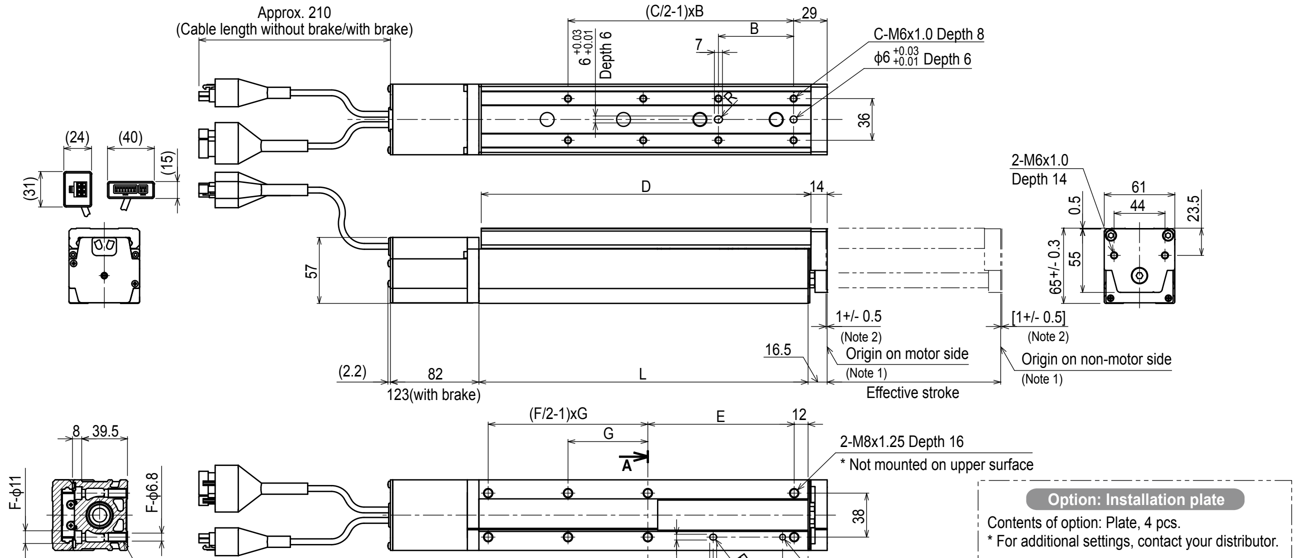


Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD [Note]	Pulse train control

Note. The robot with the brake cannot use the TS-SD.

STH06 Straight model S



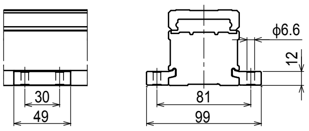
F-M8x1.25 Depth 16

Cross-sectional drawing A-A

Detailed drawing of installation hole

Option: Installation plate

Contents of option: Plate, 4 pcs.
* For additional settings, contact your distributor.

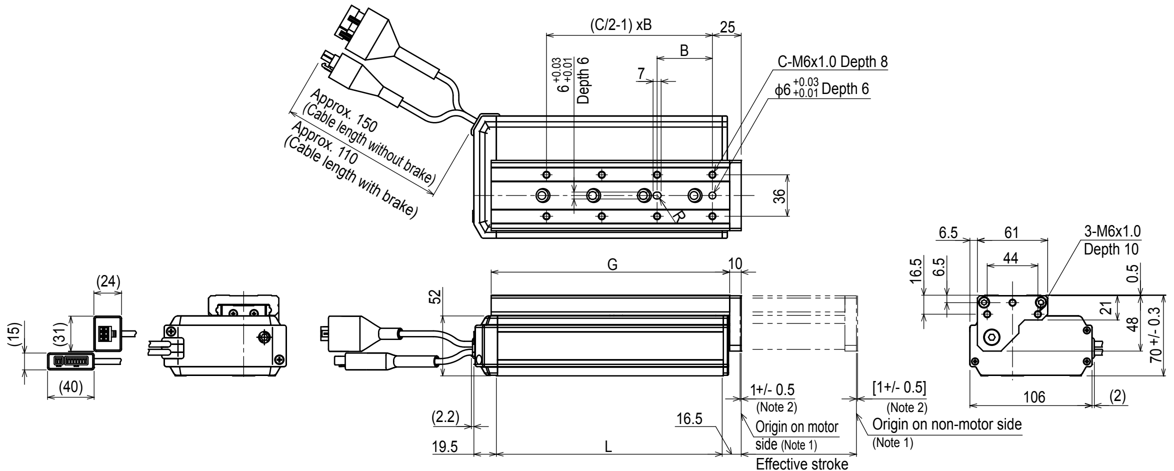


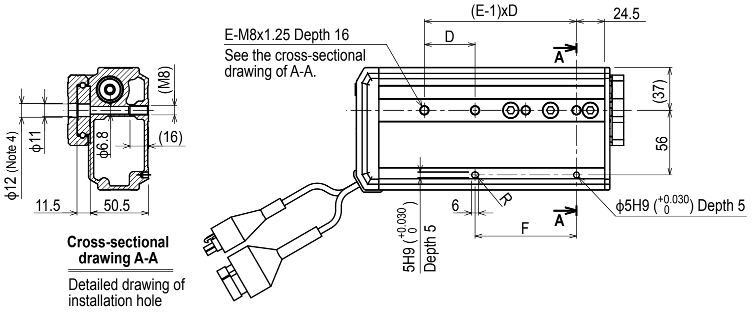
Effective stroke	50	100	150
B	75	48	65
C	4	8	8
D	143	207	285
E	84	98.5	126.5
F	4	4	6
G	40.5	88	69
L	144.5	206.5	284.5
Weight (kg) [Note 6]	2.52	3.27	3.6

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, use the hex socket head cap M6 bolts.
Note 5. The installation hole positions of the main unit with the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.34kg heavier.

Controller TS-S2 ▶ 492 TS-SH ▶ 492 TS-SD ▶ 502

STH06 Space-saving model (motor installed on right) R

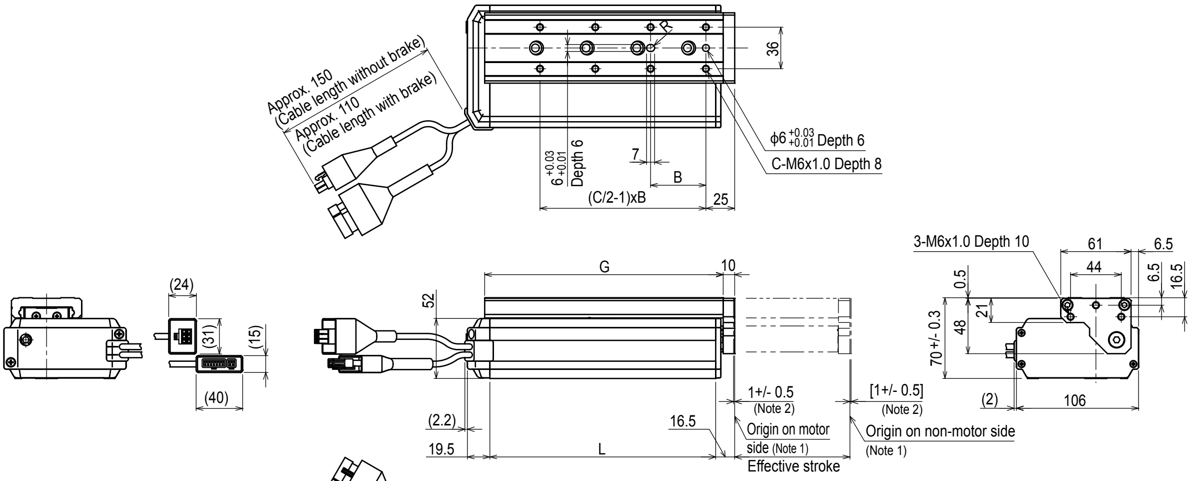


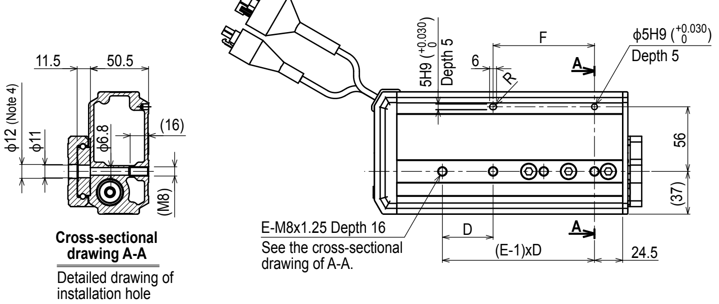


Effective stroke	50	100	150
B	75	48	65
C	4	8	8
D	80	44	66
E	2	4	4
F	80	88	132
G	143	207	285
L	132	196	274
Weight (kg) Note 6	2.5	3.3	4.26

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M6) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.34kg heavier.

STH06 Space-saving model (motor installed on left) L





Effective stroke	50	100	150
B	75	48	65
C	4	8	8
D	80	44	66
E	2	4	4
F	80	88	132
G	143	207	285
L	132	196	274
Weight (kg) Note 6	2.5	3.3	4.26

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M6) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.34kg heavier.

RF02-N

Rotary type / Limit rotation specification

● CE compliance ● Rotation range : 310°

Ordering method

RF02 – N ☐ ☐ – L ☐ – ☐ – S2 ☐ / SH ☐ – ☐ / SD 1

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length [Note 1]
RF02	N: Stroke end (Limit rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Robot positioner	I/O
S2: TS-S2 [Note 2]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

Robot driver	I/O cable
SD: TS-SD	1: 1m

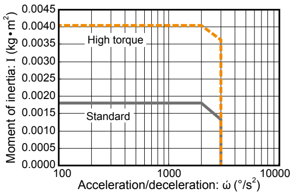
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

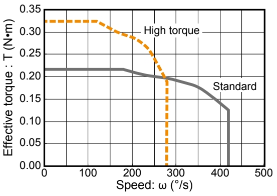
Motor	20☐ Step motor	
Resolution (Pulse/rotation)	4096	
Repeatability [Note 1] **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed [Note 2] **(°/sec)**	420	280
Rotating torque (N•m)	0.22	0.32
Max. pushing torque (N•m)	0.11	0.16
Backlash (°)	+/-0.5	
Max. moment of inertia [Note 3] **(kg•m²)**	0.0018	0.004
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	310	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

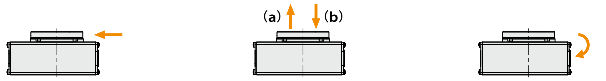
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
78	86	74		78	107	2.4	2.9

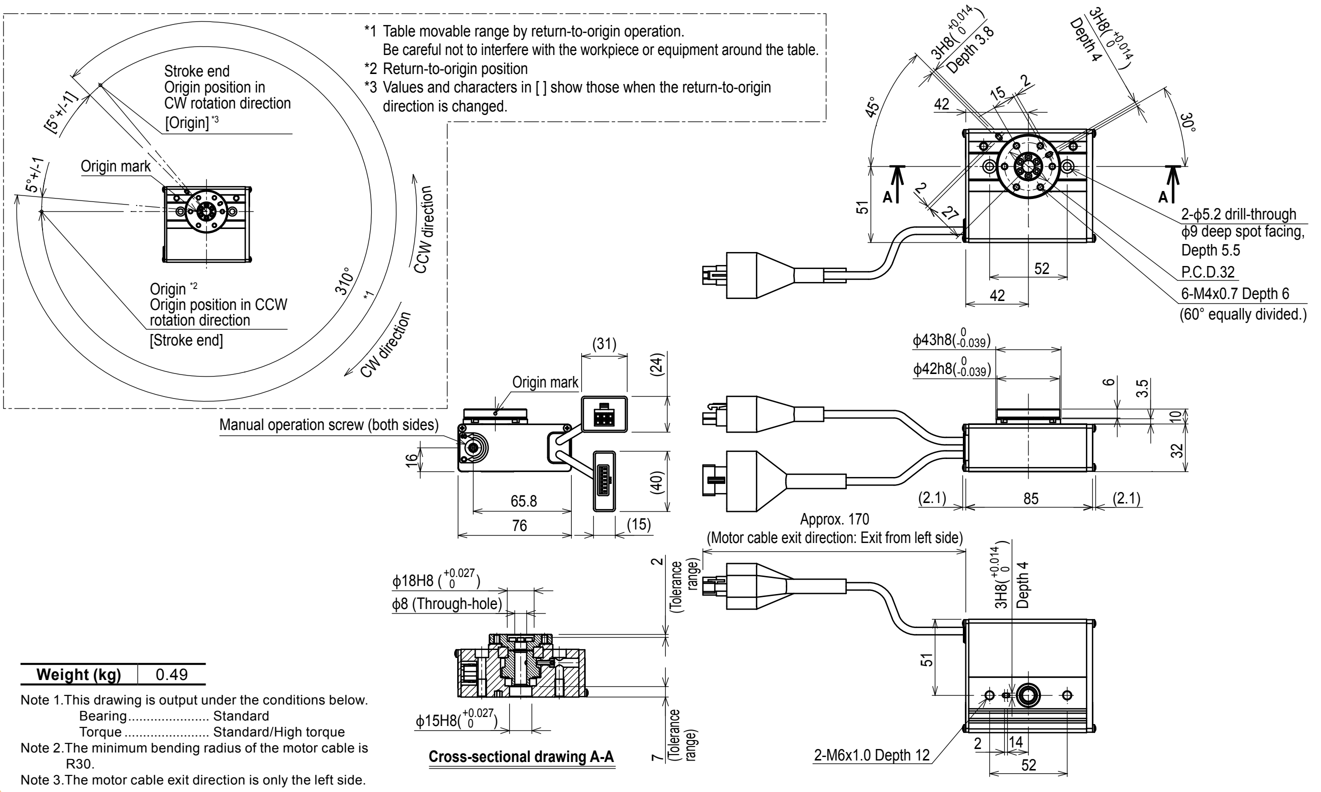
Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

RF02-NN Limit rotation specification – Standard model

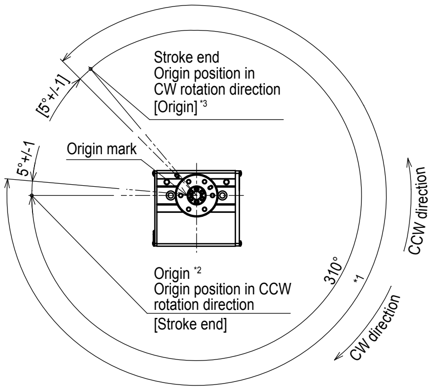
*1 Table movable range by return-to-origin operation.
Be careful not to interfere with the workpiece or equipment around the table.
*2 Return-to-origin position
*3 Values and characters in [ ] show those when the return-to-origin direction is changed.



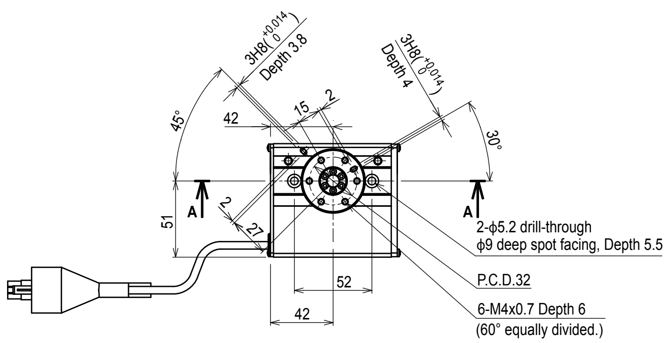
Weight (kg)	0.49

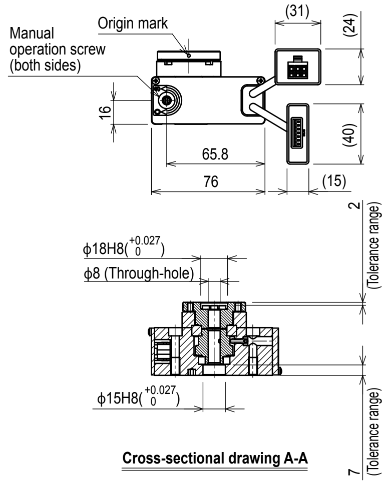
Note 1.This drawing is output under the conditions below.
Bearing...................... Standard
Torque .... Standard/High torque
Note 2.The minimum bending radius of the motor cable is R30.
Note 3.The motor cable exit direction is only the left side.

RF02-NH Limit rotation specification – High rigidity model

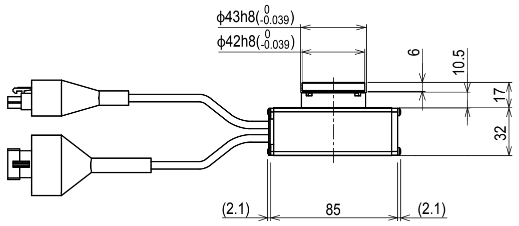


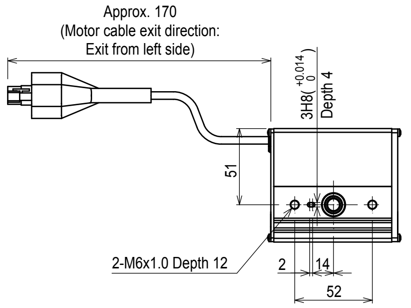
*1 Table movable range by return-to-origin operation.
Be careful not to interfere with the workpiece or equipment around the table.
*2 Return-to-origin position
*3 Values and characters in [ ] show those when the return-to-origin direction is changed.





Cross-sectional drawing A-A





Weight (kg)	0.52

Note 1.This drawing is output under the conditions below.
Bearing...................... High rigidity
Torque .... Standard/High torque
Note 2.The minimum bending radius of the motor cable is R30.
Note 3.The motor cable exit direction is only the left side.

RF02-S

Rotary type / Sensor specification

● CE compliance ● Limitless rotation

Ordering method

RF02 - S - ☐ - ☐ - L - ☐ - ☐ - S2 ☐ / SH ☐ - ☐

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length Note 1
RF02	S: Sensor (Limitless rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

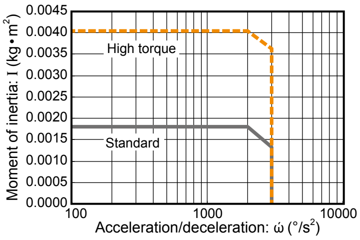
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

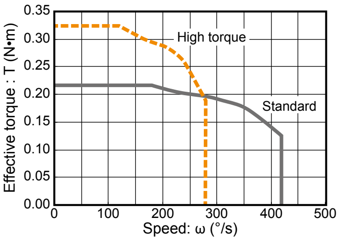
Motor	20 ☐ Step motor	
Resolution (Pulse/rotation)	4096	
Repeatability Note 1 **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed Note 2 **(°/sec)**	420	280
Rotating torque (N•m)	0.22	0.32
Max. pushing torque (N•m)	0.11	0.16
Backlash (°)	+/-0.5	
Max. moment of inertia Note 3 **(kg•m²)**	0.0018	0.004
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	360	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

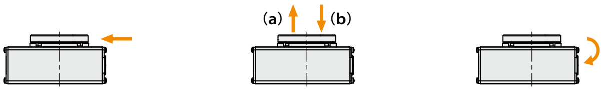
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



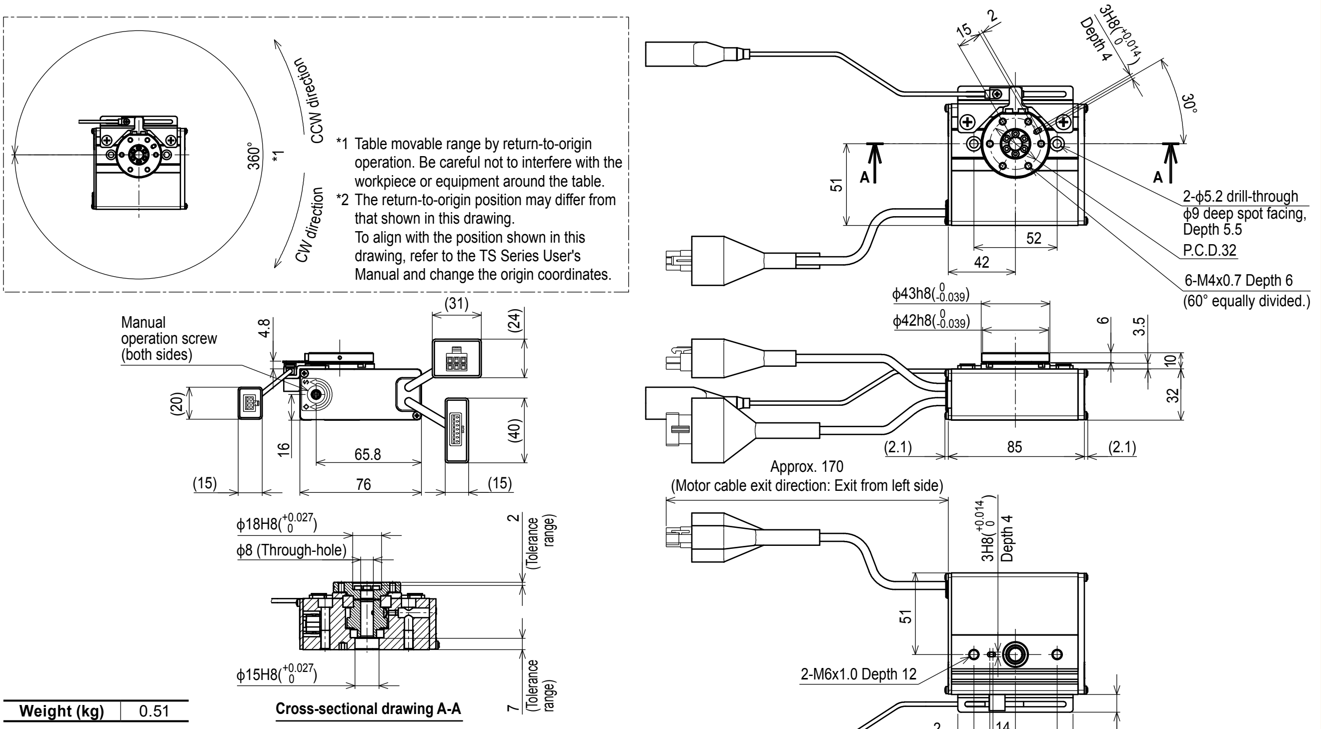
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
78	86	74		78	107	2.4	2.9

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

Controller

Controller	Operation method
TS-S2S TS-SHS	I/O point trace / Remote command

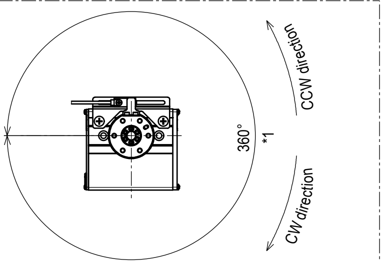
RF02-SN Sensor specification – Standard model


360°
*1
CCW direction
CW direction
*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 The return-to-origin position may differ from that shown in this drawing.
To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.
Manual operation screw (both sides)
4.8
(31)
(24)
(20)
(40)
16
65.8
(15)
76
(15)
φ18H8(+0.027 0)
φ8 (Through-hole)
φ15H8(+0.027 0)
2 (Tolerance range)
7 (Tolerance range)
Cross-sectional drawing A-A
15
2
3H8(+0.014 0) Depth 4
30°
51
A
A
2-φ5.2 drill-through φ9 deep spot facing, Depth 5.5
P.C.D.32
52
42
6-M4x0.7 Depth 6 (60° equally divided.)
φ43h8(0 -0.039)
φ42h8(0 -0.039)
6
3.5
10
32
(2.1)
85
(2.1)
Approx. 170
(Motor cable exit direction: Exit from left side)
3H8(+0.014 0) Depth 4
51
2-M6x1.0 Depth 12
2
14
11
52
72
Approx. 300
(Sensor cable exit direction: Exit from left side)

Weight (kg)	0.51

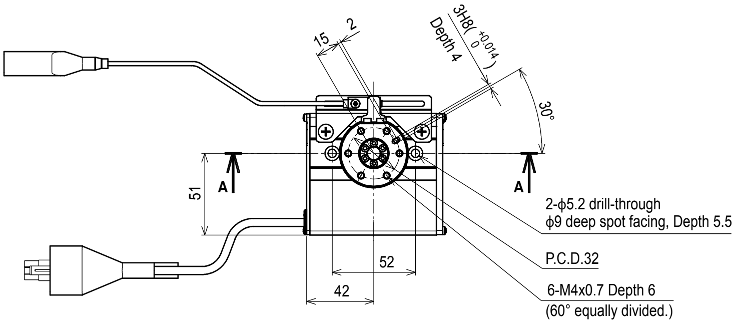
Note 1. This drawing is output under the conditions below.
Bearing...................... Standard
Torque....................... Standard/High torque
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.
Note 3. The motor cable exit direction is only the left side.

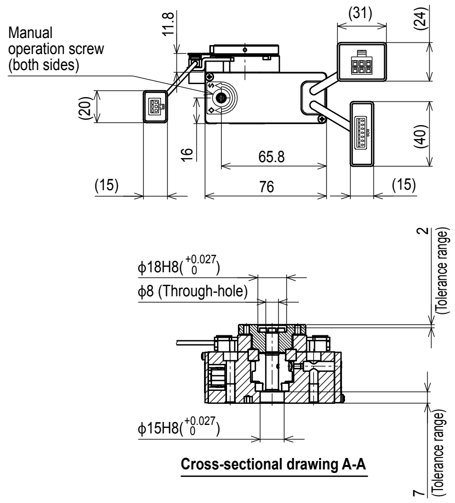
RF02-SH Sensor specification – High rigidity model



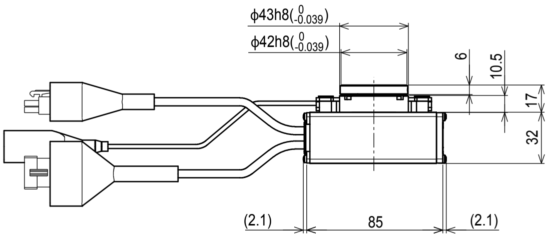
*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.

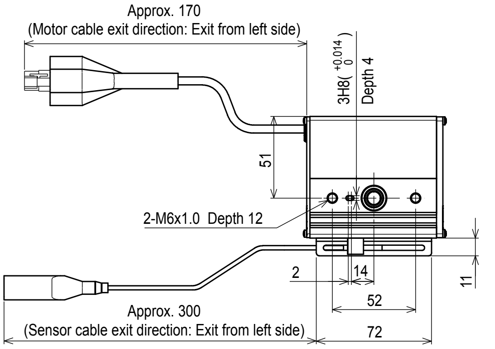
*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.





Cross-sectional drawing A-A




Approx. 170
(Motor cable exit direction: Exit from left side)
3H8(+0.014/0)
Depth 4
51
2-M6x1.0 Depth 12
2
14
11
52
Approx. 300
(Sensor cable exit direction: Exit from left side)
72

Weight (kg)	0.55

Note 1. This drawing is output under the conditions below.
Bearing...................... High rigidity
Torque....................... Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

Note 3. The motor cable exit direction is only the left side.

RF03-N

Rotary type / Limit rotation specification

● CE compliance ● Rotation range : 320°

Ordering method

RF03 - **N** - ☐ - ☐ - ☐ - ☐ - ☐ - **S2** ☐ / **SH** ☐ - ☐ / **SD** **1**

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length Note 1
RF03	N: Stroke end (Limit rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	R:From the right L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

Robot driver	I/O cable
SD: TS-SD	1: 1m

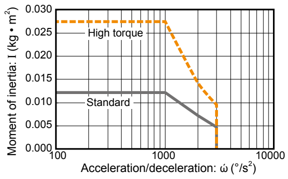
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

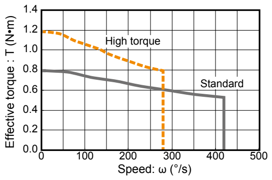
Motor	28 ☐ Step motor	
Resolution (Pulse/rotation)	4096	
Repeatability Note 1 **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed Note 2 **(°/sec)**	420	280
Rotating torque (N•m)	0.8	1.2
Max. pushing torque (N•m)	0.4	0.6
Backlash (°)	+/-0.5	
Max. moment of inertia Note 3 **(kg•m²)**	0.012	0.027
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	320	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

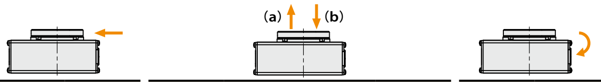
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



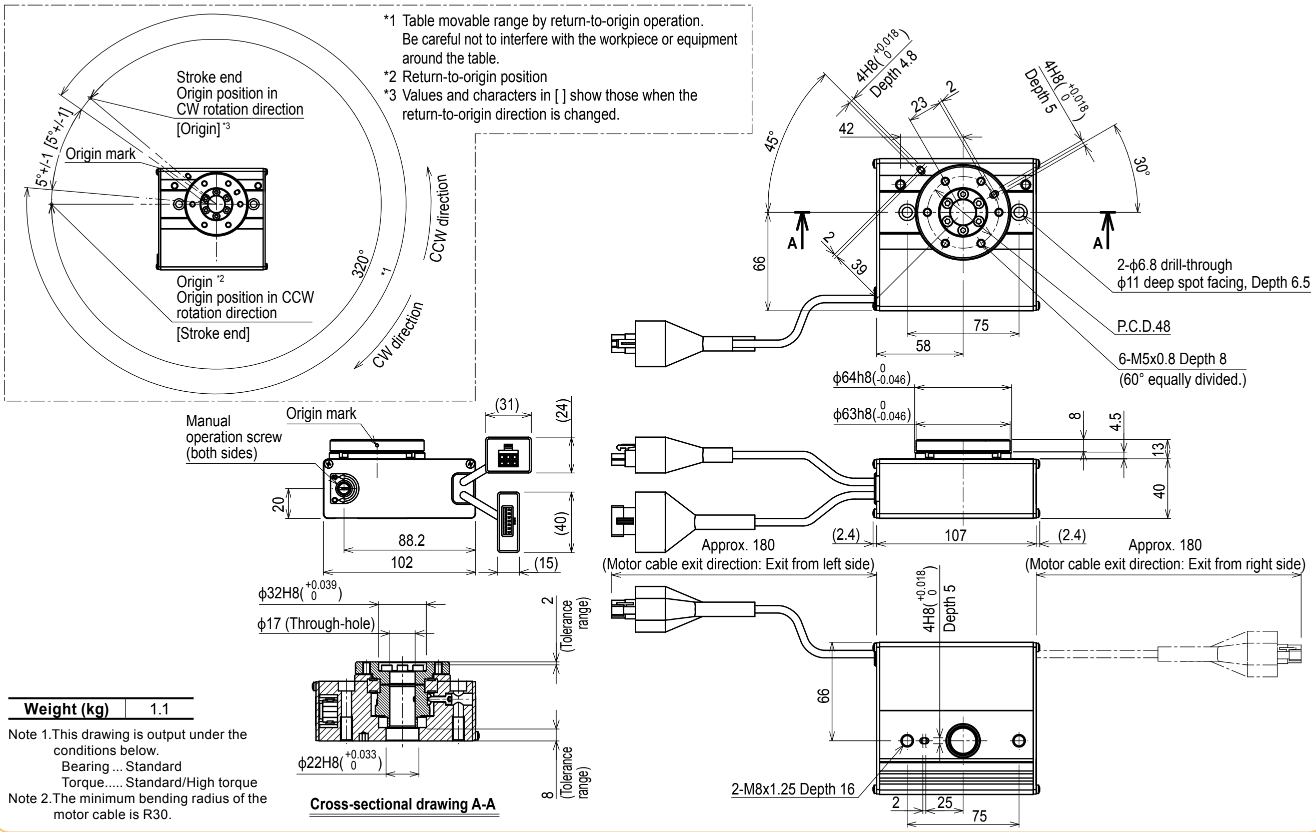
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
196	233	197		363	398	5.3	6.4

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

RF03-NN Limit rotation specification – Standard model

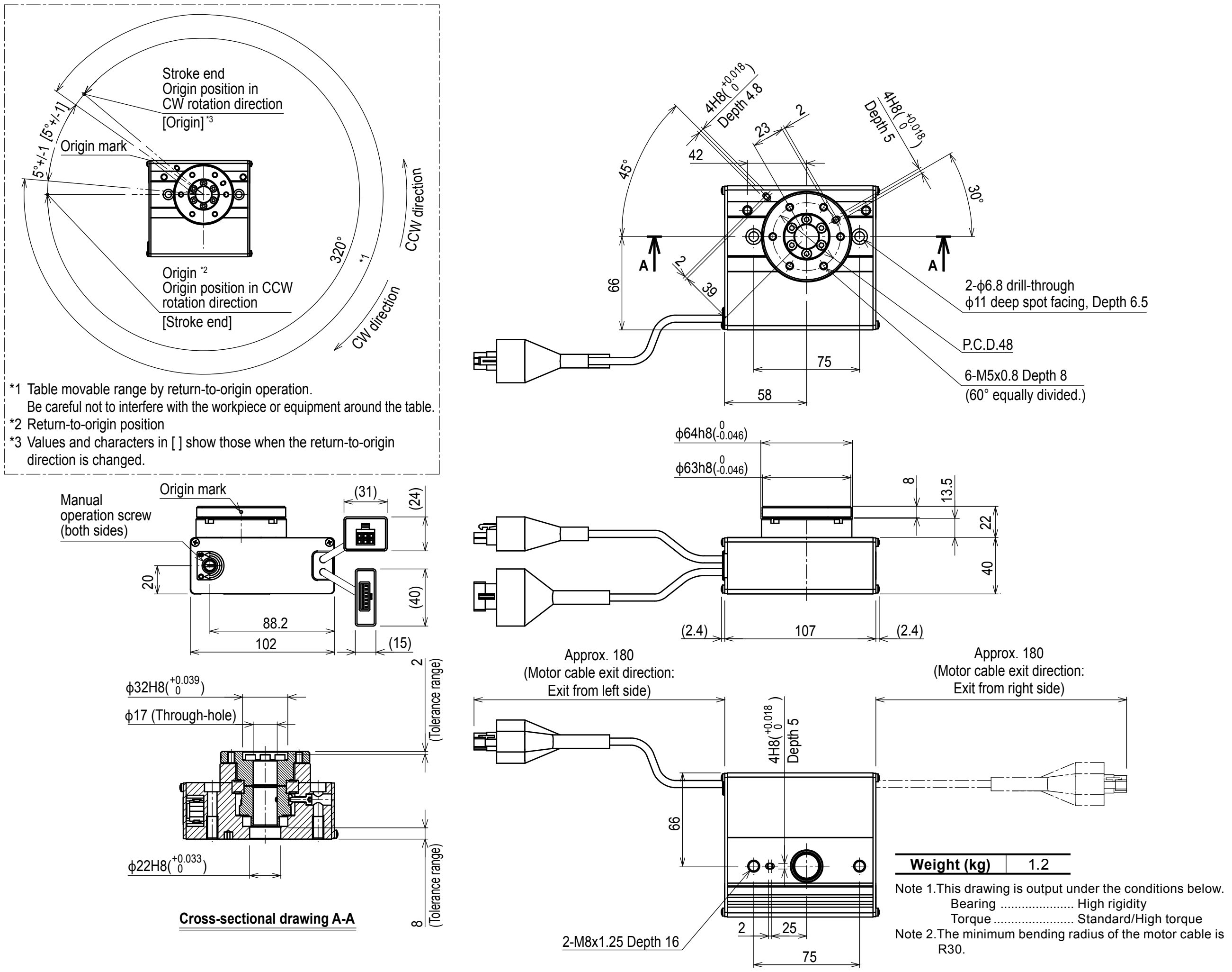


*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 Return-to-origin position
*3 Values and characters in [ ] show those when the return-to-origin direction is changed.

Weight (kg)	1.1

Note 1.This drawing is output under the conditions below.
Bearing ... Standard
Torque..... Standard/High torque
Note 2.The minimum bending radius of the motor cable is R30.

RF03-NH Limit rotation specification – High rigidity model



*1 Table movable range by return-to-origin operation.
Be careful not to interfere with the workpiece or equipment around the table.

*2 Return-to-origin position

*3 Values and characters in [ ] show those when the return-to-origin direction is changed.

Weight (kg)	1.2

Note 1.This drawing is output under the conditions below.
Bearing .... High rigidity
Torque .... Standard/High torque

Note 2.The minimum bending radius of the motor cable is R30.

RF03-S

Rotary type / Sensor specification

● CE compliance ● Limitless rotation

Ordering method

RF03 - S - ☐ - ☐ - ☐ - ☐ - ☐ - S2 ☐
RF03 - S - ☐ - ☐ - ☐ - ☐ - ☐ - SH ☐ - ☐

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length Note 1
RF03	S: Sensor (Limitless rotation)	N: Standard	N: Standard torque	R: From the right	N: CCW	1K: 1m
		H: High rigidity	H: High torque	L: From the left	Z: CW	3K: 3m
						5K: 5m
						10K: 10m

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN
	PN: PNP
	CC: CC-Link
	DN: DeviceNet™
	EP: EtherNet/IP™
	PT: PROFINET
	GW: No I/O board Note 3

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN	B: With battery (Absolute)
	PN: PNP	N: None (Incremental)
	CC: CC-Link	
	DN: DeviceNet™	
	EP: EtherNet/IP™	
	PT: PROFINET	
	GW: No I/O board Note 3	

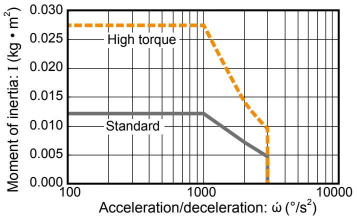
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

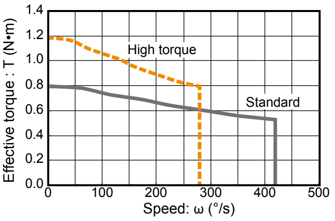
Motor	28☐ Step motor	
Resolution (Pulse/rotation)	4096	
Repeatability Note 1 **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed Note 2 **(°/sec)**	420	280
Rotating torque (N•m)	0.8	1.2
Max. pushing torque (N•m)	0.4	0.6
Backlash (°)	+/-0.5	
Max. moment of inertia Note 3 **(kg•m^2)**	0.012	0.027
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	360	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

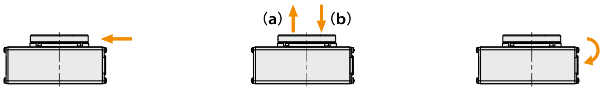
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



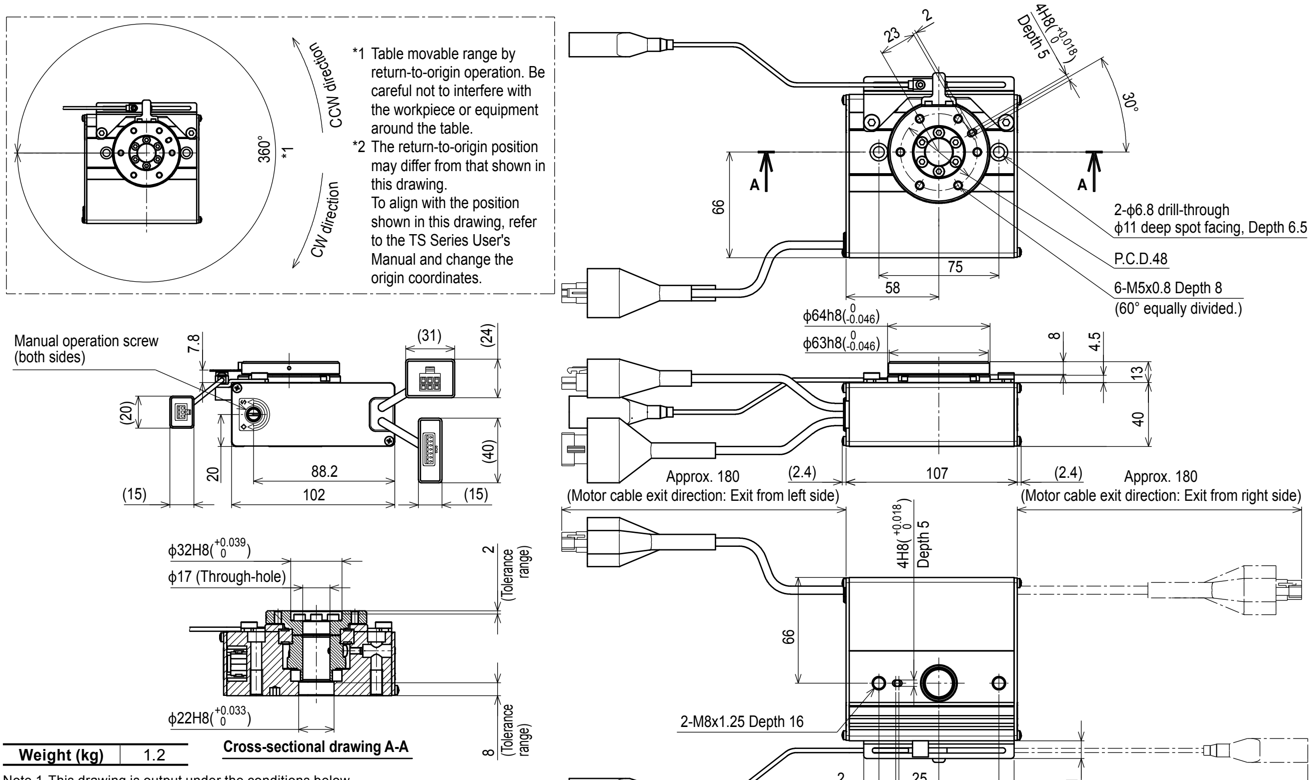
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
196	233	197		363	398	5.3	6.4

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

Controller

Controller	Operation method
TS-S2S TS-SHS	I/O point trace / Remote command

RF03-SN Sensor specification – Standard model

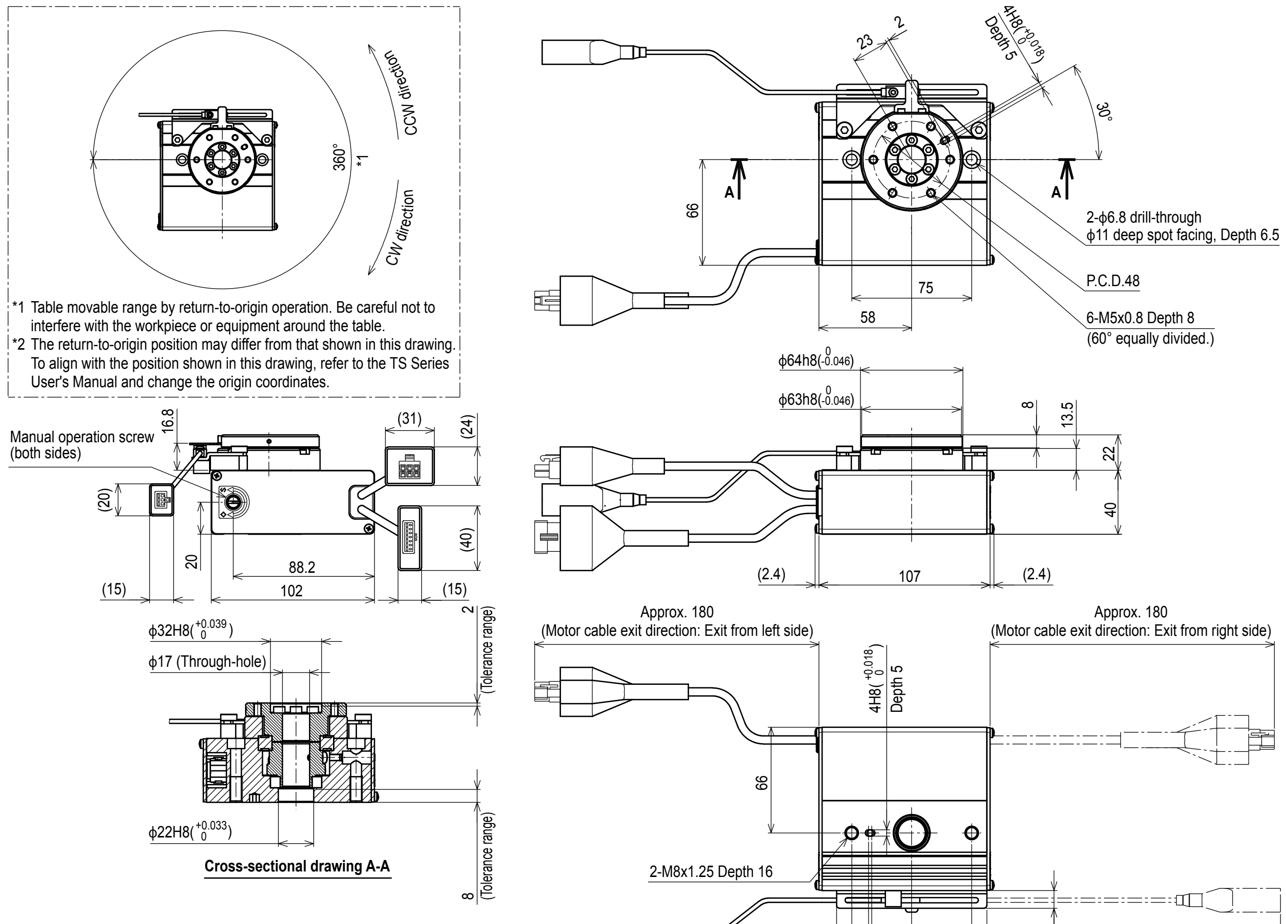


*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.

Weight (kg)	1.2

Note 1. This drawing is output under the conditions below.
Bearing...................... Standard
Torque....................... Standard/High torque
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

RF03-SH Sensor specification – High rigidity model



*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.

*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.

Weight (kg)	1.3

Note 1. This drawing is output under the conditions below.
Bearing .... High rigidity
Torque .... Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

RF04-N

Rotary type / Limit rotation specification

● CE compliance ● Rotation range : 320°

Ordering method

RF04 – **N** ☐ ☐ – ☐ – ☐ – ☐ –

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length Note 1
RF04	N: Stroke end (Limit rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	R:From the right L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2 ☐

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3

SH ☐ – ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SD **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

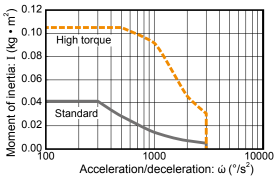
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

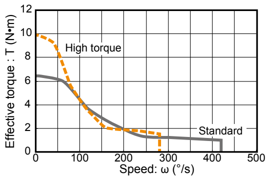
Motor	42 ☐ Step motor	
Resolution (Pulse/rotation)	20480	
Repeatability Note 1 **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed Note 2 **(°/sec)**	420	280
Rotating torque (N•m)	6.6	10
Max. pushing torque (N•m)	3.3	5
Backlash (°)	+/-0.5	
Max. moment of inertia Note 3 **(kg•m^2)**	0.04	0.1
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	320	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

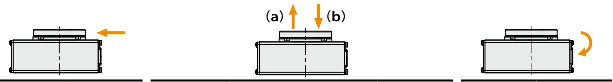
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



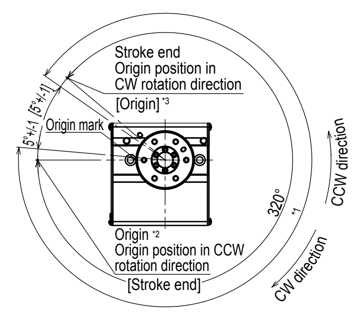
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
314	378	296		398	517	9.7	12.0

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

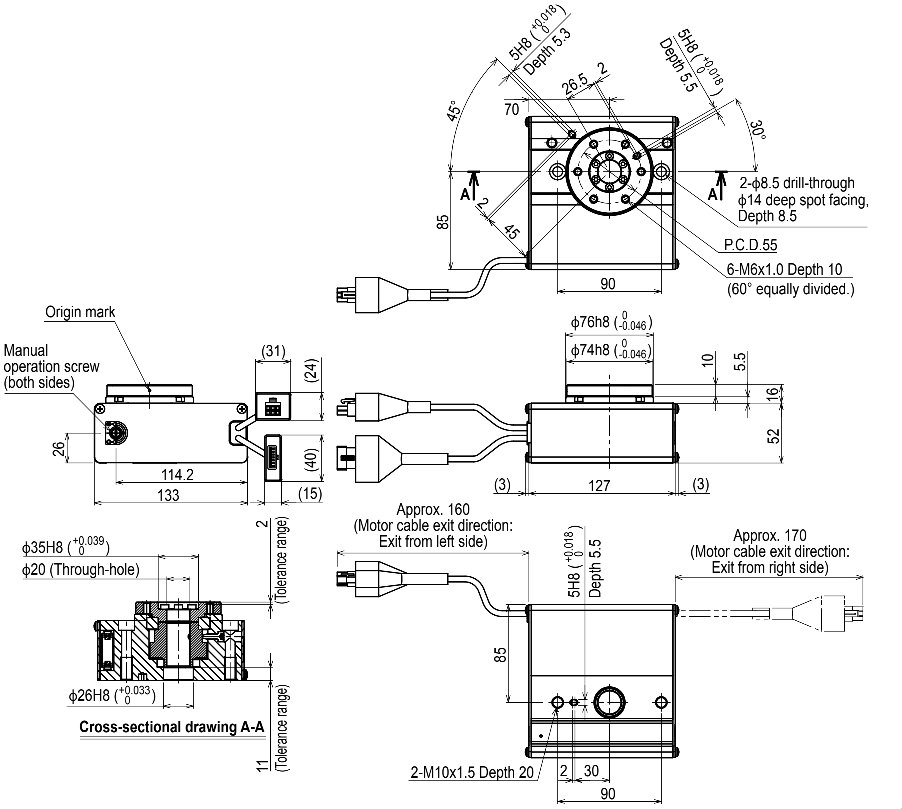
Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

RF04-NN Limit rotation specification – Standard model



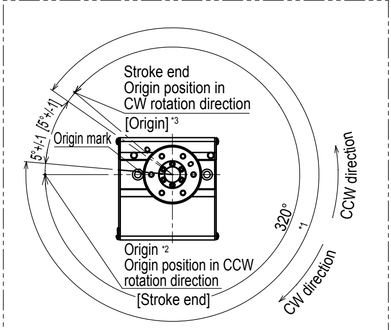
*1 Table movable range by return-to-origin operation.
Be careful not to interfere with the workpiece or equipment around the table.
*2 Return-to-origin position
*3 Values and characters in [ ] show those when the return-to-origin direction is changed.



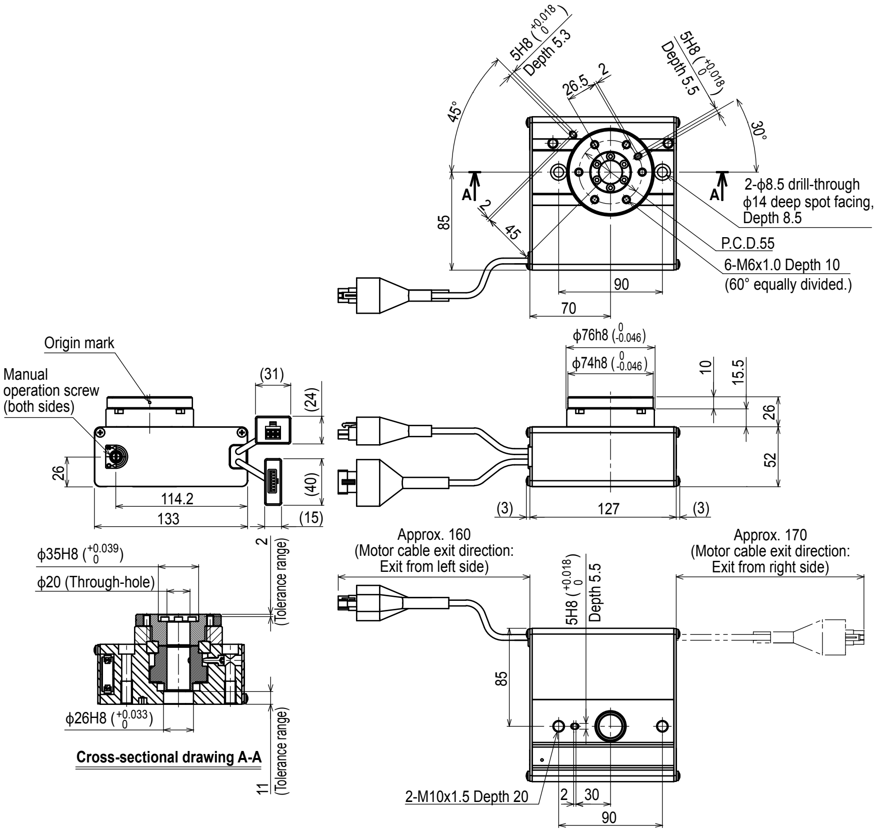
Weight (kg)	2.2

Note 1.This drawing is output under the conditions below.
Bearing...................... Standard
Torque...................... Standard/High torque
Note 2.The minimum bending radius of the motor cable is R30.

RF04-NH Limit rotation specification – High rigidity model



*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 Return-to-origin position
*3 Values and characters in [ ] show those when the return-to-origin direction is changed.



Weight (kg)	2.4

Note 1.This drawing is output under the conditions below.
Bearing...................... High rigidity
Torque .... Standard/High torque
Note 2.The minimum bending radius of the motor cable is R30.

RF04-S

Rotary type / Sensor specification

● CE compliance ● Limitless rotation

Ordering method

RF04 - S - ☐ ☐ - ☐ - ☐ - ☐ ┬ S2 ☐
└ SH ☐ - ☐

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length Note 1
RF04	S: Sensor (Limitless rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	R: From the right L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

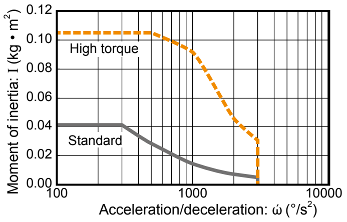
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

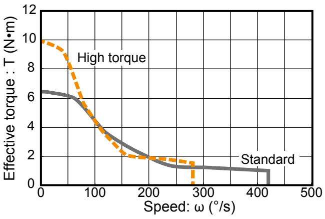
Motor	42 ☐ Step motor	
Resolution (Pulse/rotation)	20480	
Repeatability Note 1 **(°)**	+/-0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed Note 2 **(°/sec)**	420	280
Rotating torque (N•m)	6.6	10
Max. pushing torque (N•m)	3.3	5
Backlash (°)	+/-0.5	
Max. moment of inertia Note 3 **(kg•m^2)**	0.04	0.1
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	360	

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

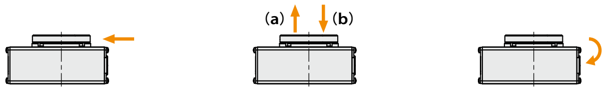
Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load



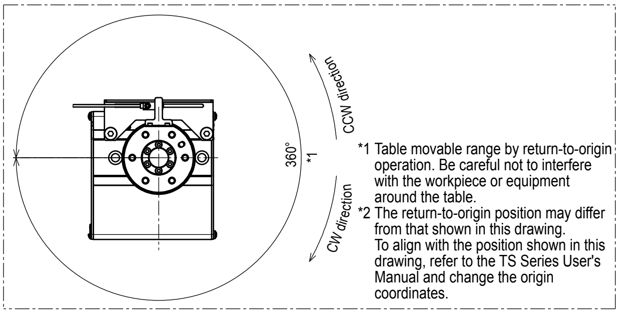
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
314	378	296		398	517	9.7	12.0

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.
For details, please refer to the TRANSERVO Series User's Manual.

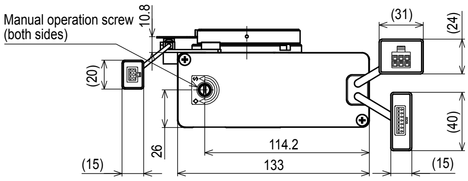
Controller

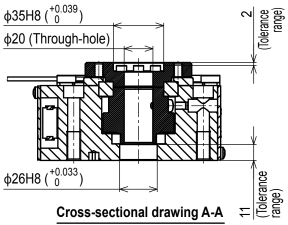
Controller	Operation method
TS-S2S TS-SHS	I/O point trace / Remote command

RF04-SN Sensor specification – Standard model

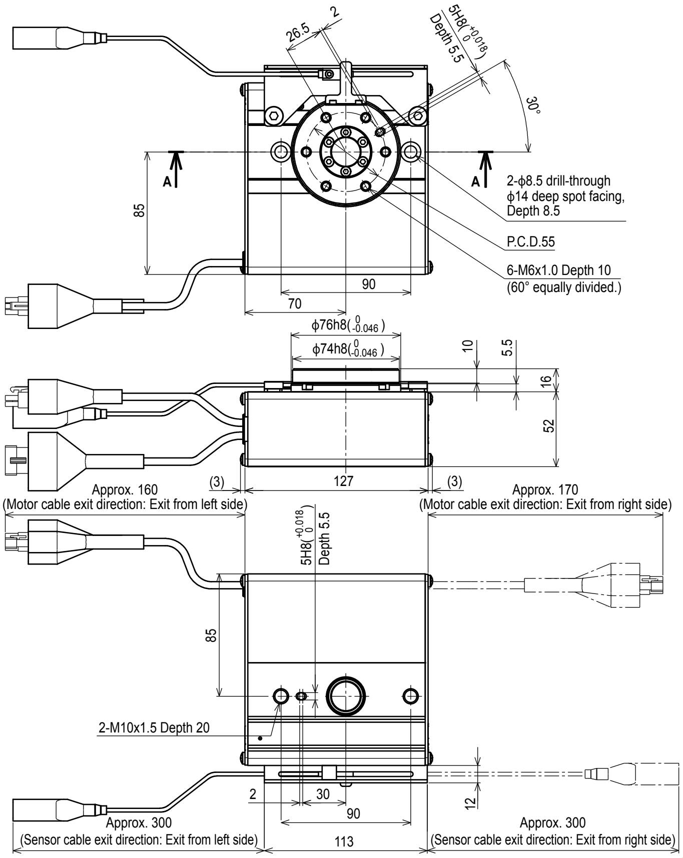


*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 The return-to-origin position may differ from that shown in this drawing.
To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.





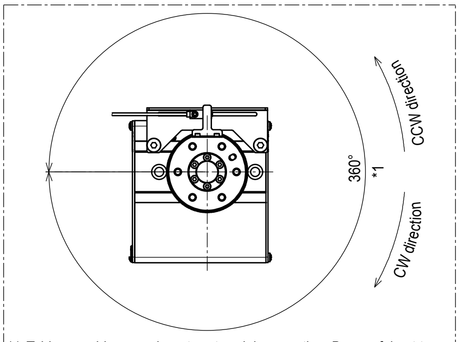
Cross-sectional drawing A-A


26.5
2
5H8($^{+0.018}_{0}$) Depth 5.5
30°
A
A
85
2-ϕ8.5 drill-through
ϕ14 deep spot facing,
Depth 8.5
P.C.D.55
6-M6x1.0 Depth 10
(60° equally divided.)
90
70
ϕ76h8($^{0}_{-0.046}$)
ϕ74h8($^{0}_{-0.046}$)
10
5.5
16
52
(3)
127
(3)
Approx. 160
(Motor cable exit direction: Exit from left side)
Approx. 170
(Motor cable exit direction: Exit from right side)
5H8($^{+0.018}_{0}$) Depth 5.5
85
2-M10x1.5 Depth 20
2
30
90
12
113
Approx. 300
(Sensor cable exit direction: Exit from left side)
Approx. 300
(Sensor cable exit direction: Exit from right side)

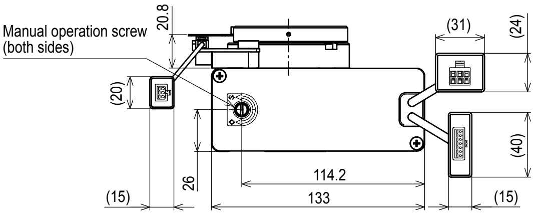
Weight (kg)	2.3

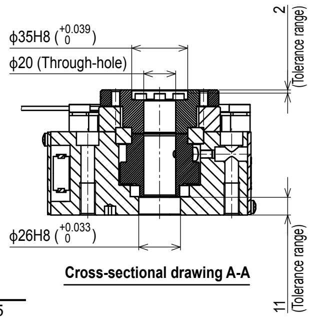
Note 1. This drawing is output under the conditions below.
Bearing...................... Standard
Torque .... Standard/High torque
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

RF04-SH Sensor specification – High rigidity model

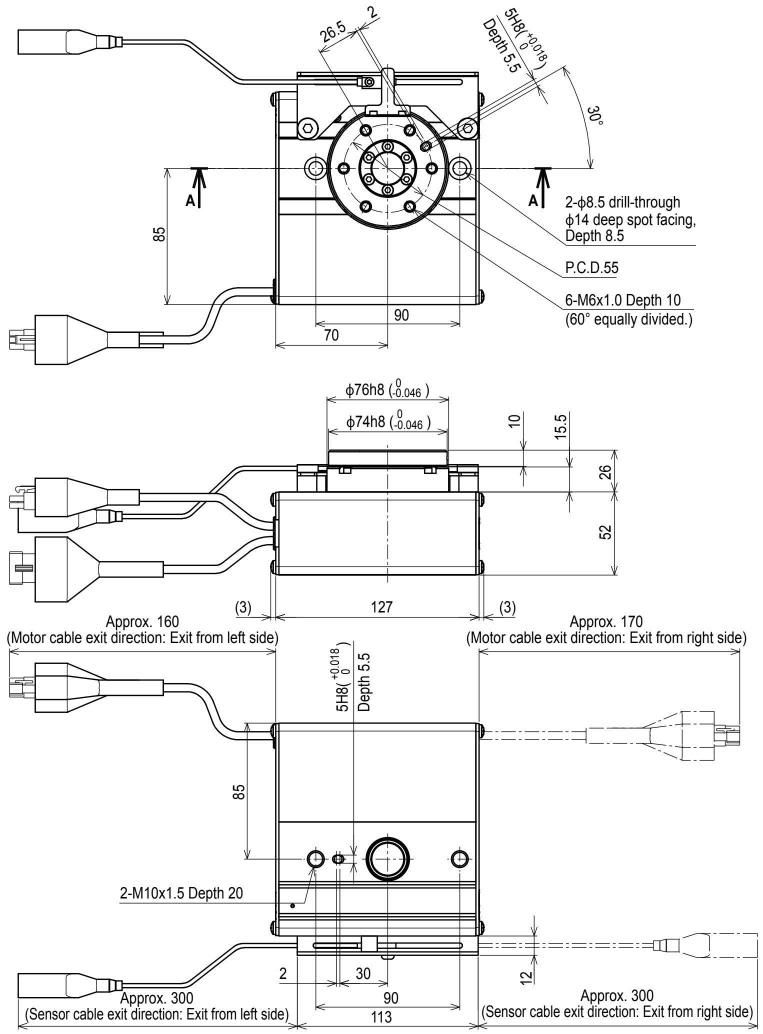


*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.





Cross-sectional drawing A-A



Weight (kg)	2.5

Note 1. This drawing is output under the conditions below.
Bearing...................... High rigidity
Torque....................... Standard/High torque
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

BD04 Belt type

CE compliance

Ordering method

BD04 - **48** - **N** - **N** - ☐ - ☐ -

Model	Lead	Brake	Origin position	Stroke	Cable length [Note 1]
BD04	48: 48mm	N: With no brake	N: Standard	300: 300mm	1K: 1m
				500: 500mm	3K: 3m
				600: 600mm	5K: 5m
				700: 700mm	10K: 10m
				800: 800mm	
				900: 900mm	
				1000: 1000mm	

S2 - ☐

Robot positioner	I/O
S2: TS-S2 [Note 2]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

SD - **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

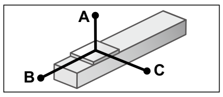
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

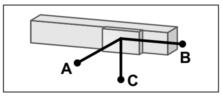
Basic specifications

Motor	28 ☐ Step motor
Resolution (Pulse/rotation)	4096
Repeatability [Note 1] (mm)	+/-0.1
Drive method	Belt
Equivalent lead (mm)	48
Maximum speed [Note 2] (mm/sec)	1100
Maximum payload (kg)	1
Stroke (mm)	300/500/600/700/800/900/1000
Overall length (mm) (Horizontal installation)	Stroke + 195.5
Maximum outside dimension of body cross-section (mm)	W40 × H101.9
Cable length (m)	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right.

Allowable overhang [Note]





Horizontal installation (Unit: mm)

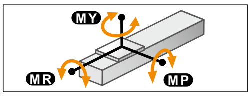
	A	B	C
0.5kg	8036	1950	1504
1kg	3933	968	747

Wall installation (Unit: mm)

	A	B	C
0.5kg	1614	1942	8013
1kg	798	961	3969

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

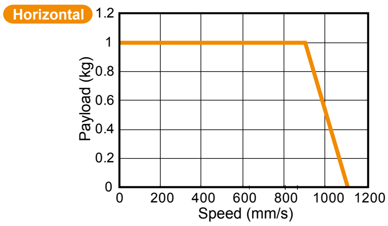
Static loading moment



(Unit: N·m)

MY	MP	MR
10	10	20

Speed vs. payload



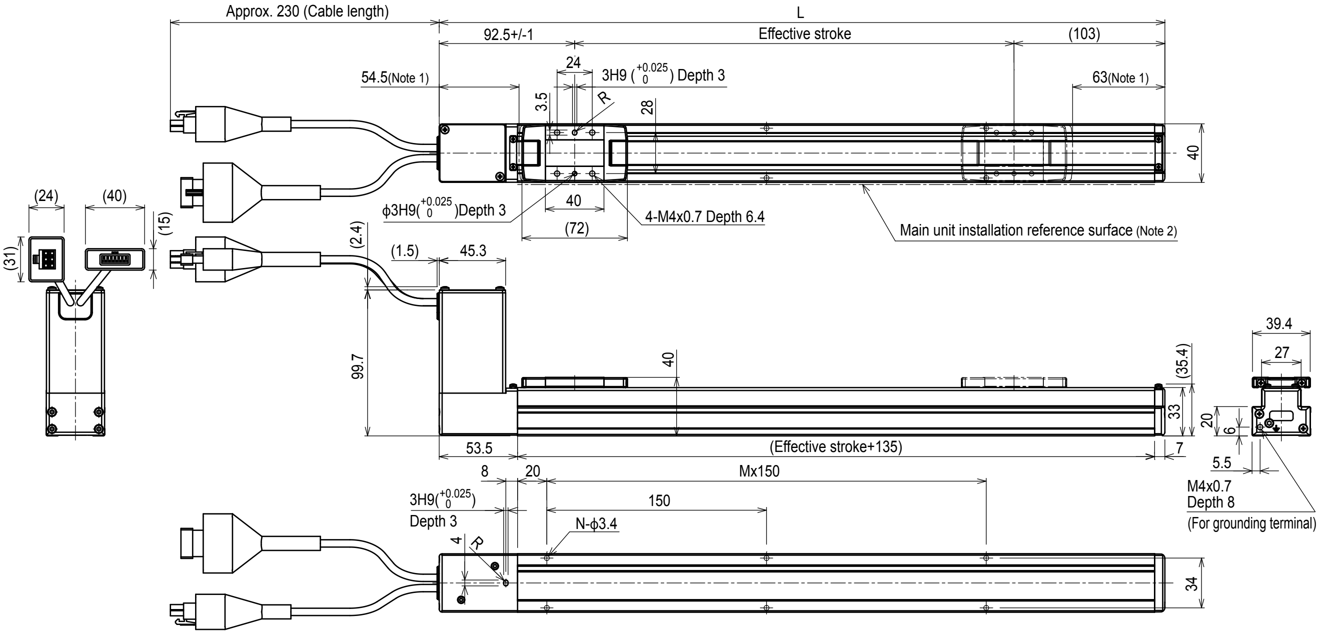
■ **Quick reference**

Payload (kg)	Speed (mm/sec)	%
1	900	90
0.5	1000	95
0	1100	100

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

BD04



Effective stroke	300	500	600	700	800	900	1000
L	495.5	695.5	795.5	895.5	995.5	1095.5	1195.5
M	2	4	4	5	6	6	7
N	6	10	10	12	14	14	16
Weight (kg)	1.19	1.45	1.58	1.71	1.84	1.97	2.1

Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)
Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)
Note 3. The minimum bending radius of the motor cable is R30.

BD05 **Belt type**

CE compliance

Ordering method

Model	Lead	Brake	Origin position	Stroke	Cable length [Note 1]
BD05	48	N	N		
	48: 48mm	N: With no brake	N: Standard	300: 300mm	1K: 1m
				500: 500mm	3K: 3m
				600: 600mm	5K: 5m
				700: 700mm	10K: 10m
				800: 800mm	
				900: 900mm	
				1000: 1000mm	
				1200: 1200mm	
				1500: 1500mm	
				1800: 1800mm	
				2000: 2000mm	

Robot positioner	I/O
S2	
S2: TS-S2 [Note2]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]

Robot positioner	I/O	Battery
SH		
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

Robot driver	I/O cable
SD	1
SD: TS-SD	1: 1m

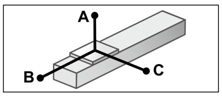
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

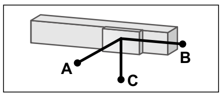
Basic specifications

Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability [Note 1] (mm)	+/-0.1
Drive method	Belt
Equivalent lead (mm)	48
Maximum speed [Note 2] (mm/sec)	1400
Maximum payload (kg)	5
Stroke (mm)	300/500/600/700/800/900/1000/1200/1500/1800/2000
Overall length (mm) (Horizontal installation)	Stroke + 241.8
Maximum outside dimension of body cross-section (mm)	W58 × H123
Cable length (m)	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right.

Allowable overhang [Note]





Horizontal installation (Unit: mm)

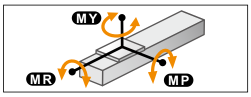
	A	B	C
1kg	9445	2274	1681
3kg	2982	702	553
5kg	1689	385	325

Wall installation (Unit: mm)

	A	B	C
1kg	1784	2312	9545
3kg	573	743	3082
5kg	331	429	1789

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

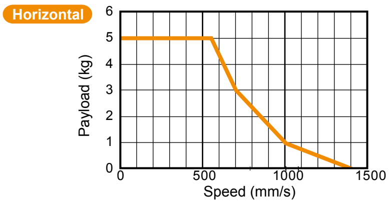
Static loading moment



(Unit: N·m)

MY	MP	MR
27	27	52

Speed vs. payload



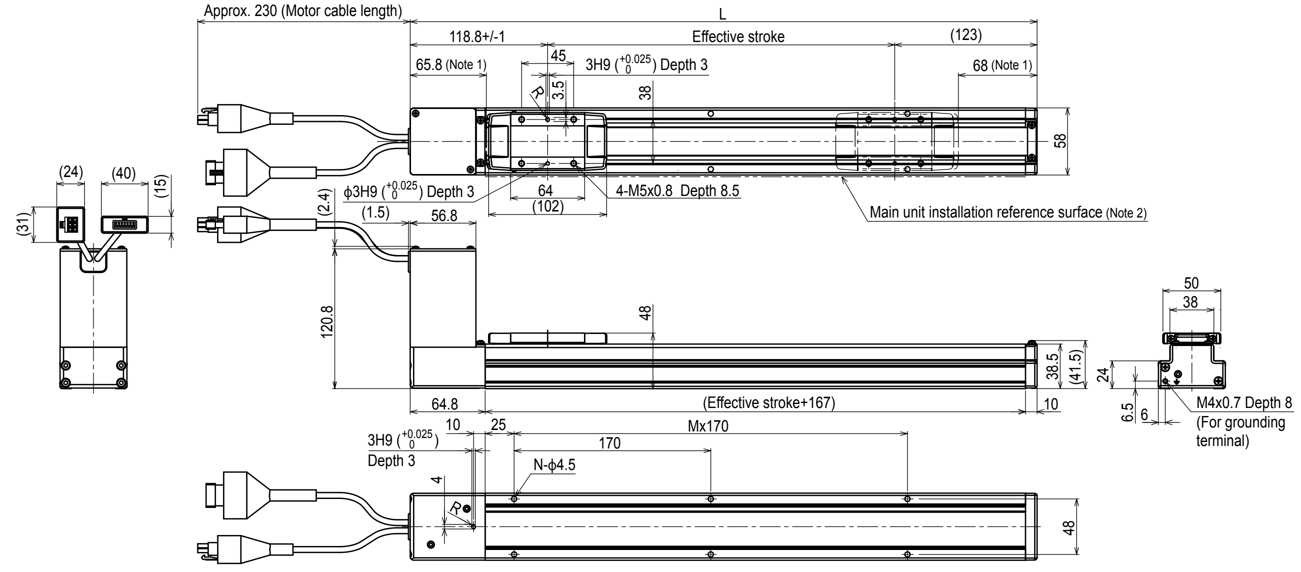
Quick reference

Payload (kg)	Speed (mm/sec)	%
5	550	39
3	700	50
1	1000	71
0	1400	100

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

BD05



Effective stroke	300	500	600	700	800	900	1000	1200	1500	1800	2000
L	541.8	741.8	841.8	941.8	1041.8	1141.8	1241.8	1441.8	1741.8	2041.8	2241.8
M	2	3	4	4	5	6	6	7	9	11	12
N	6	8	10	10	12	14	14	16	20	24	26
Weight (kg)	2.39	2.85	3.08	3.31	3.54	3.77	4	4.46	5.15	5.84	6.3

Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)
Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)
Note 3. The minimum bending radius of the motor cable is R30.

BD07

Belt type

● CE compliance

Ordering method

BD07 - 48 - N - N - ☐ - ☐ - S2 ☐ / SH ☐ - ☐ / SD 1

Model	Lead	Brake	Origin position	Stroke	Cable length Note 1
BD07	48: 48mm	N: With no brake	N: Standard	300: 300mm 500: 500mm 600: 600mm 700: 700mm 800: 800mm 900: 900mm 1000: 1000mm 1200: 1200mm 1500: 1500mm 1800: 1800mm 2000: 2000mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Robot positioner	I/O
S2: TS-S2 Note2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

Robot driver	I/O cable
SD: TS-SD	1: 1m

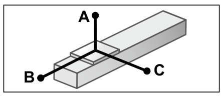
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

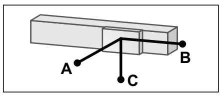
Basic specifications

Motor	56☐ Step motor
Resolution (Pulse/rotation)	20480
Repeatability Note 1 **(mm)**	+/-0.1
Drive method	Belt
Equivalent lead (mm)	48
Maximum speed Note 2 **(mm/sec)**	1500
Maximum payload (kg)	14
Stroke (mm)	300/500/600/700/800/900/ 1000/1200/1500/1800/2000
Overall length (mm) (Horizontal installation)	Stroke + 285.6
Maximum outside dimension of body cross-section (mm)	W70 × H147.5
Cable length (m)	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.

Allowable overhang Note





Horizontal installation (Unit: mm)

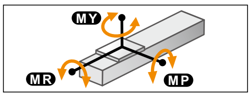
	A	B	C
3kg	5767	1353	1247
8kg	1839	399	458
14kg	829	154	254

Wall installation (Unit: mm)

	A	B	C
3kg	1324	1354	5588
8kg	474	399	1658
14kg	255	151	643

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

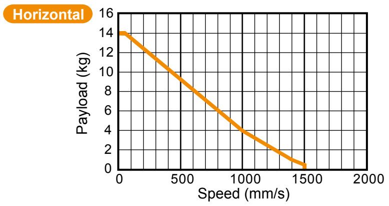
Static loading moment



(Unit: N·m)

MY	MP	MR
46	46	101

Speed vs. payload



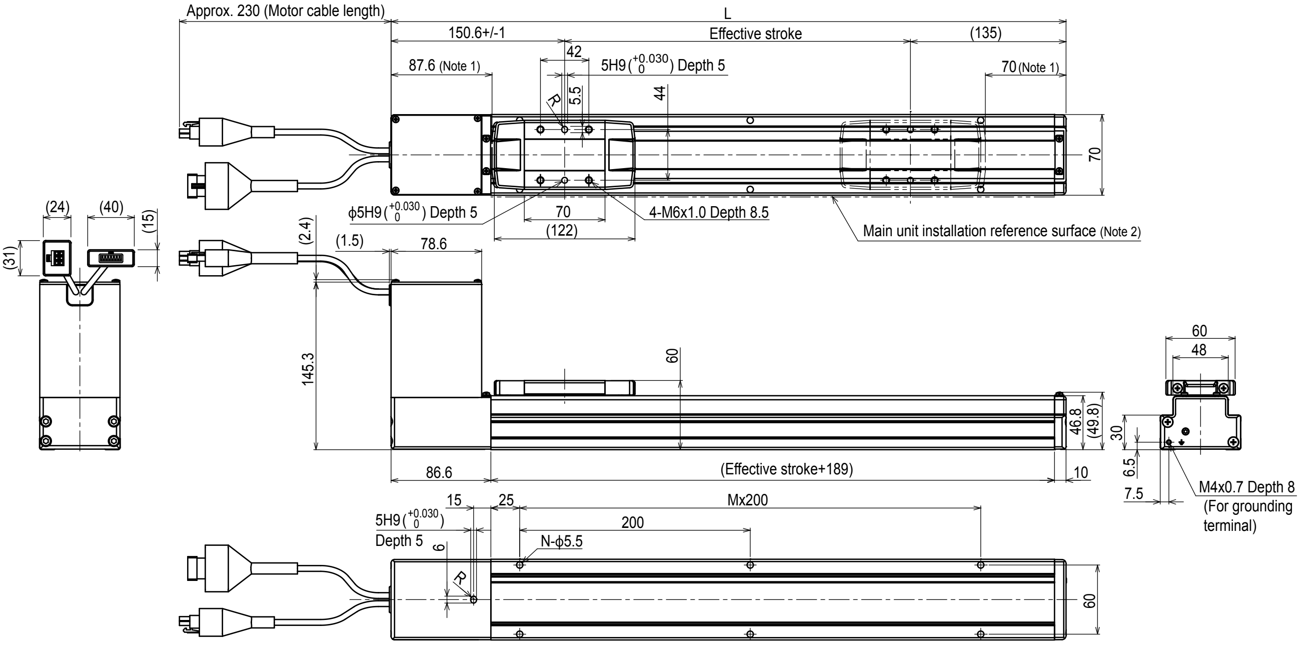
■ Quick reference

Payload (kg)	Speed (mm/sec)	%
14	50	3
9	525	35
4	1000	66
1	1400	93
0.5	1500	100

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

BD07



Effective stroke	300	500	600	700	800	900	1000	1200	1500	1800	2000
L	585.6	785.6	885.6	985.6	1085.6	1185.6	1285.6	1485.6	1785.6	2085.6	2285.6
M	2	3	3	4	4	5	5	6	8	9	10
N	6	8	8	10	10	12	12	14	18	20	22
Weight (kg)	4.12	4.8	5.14	5.48	5.82	6.16	6.5	7.18	8.2	9.22	9.9

Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)
Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)
Note 3. The minimum bending radius of the motor cable is R30.

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
T type
F type
GF type
N type
B/R type

SINGLE-AXIS ROBOTS
FLIP-X
SERIES

CONTENTS

T TYPE FRAME-LESS STRUCTURE MODEL

F TYPE / GF TYPE HIGH RIGIDITY FRAME MODEL

N TYPE NUT ROTATION TYPE MODEL

B TYPE TIMING BELT DRIVE MODEL

R TYPE ROTATION AXIS TYPE MODEL

Main functions ▶ P.22 Multi robot ▶ P.27 Terminology ▶ P.30

FLIP-X SPECIFICATION SHEET

Type	Model	Motor output (W)	Repeatability (mm)	Lead (mm)	Payload (kg)		Stroke (mm) and maximum speed (mm/s)																			
					Horizontal	Vertical	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
T type	T4L/T4LH	30	+/-0.02	12	4.5	1.2	720																			
				6	6	2.4	360																			
				2	6	7.2	120																			
	T5L/T5LH	30	+/-0.02	20	3	–	1200												960	840	720	660				
				12	5	1.2	800												640	560	480	440				
				6	9	2.4	400												320	280	240	220				
	T6L	60	+/-0.02	20	10	–	1333												1133	1000	866	800				
				12	12	4	800												680	600	520	480				
				6	30	8	400												340	300	260	240				
	T9	100	+/-0.01	30	15	–			1800												1440		1170		900	
				20	30	4			1200												960		780		600	
				10	55	10			600												480		390		300	
				5	80	20			300												240		195		150	
	T9H	200	+/-0.01	30	25	–			1800												1440		1170		900	
				20	40	8			1200												960		780		600	
				10	80	20			600												480		390		300	
				5	100	30			300												240		195		150	
F type	F8	100	+/-0.02	20	12	–			1200									1080	900	780	720	600				
				12	20	4			720									648	540	468	432	360				
				6	40	8			360									324	270	234	216	180				
	F8L	100	+/-0.01	30	7	–			1800											1530	1350	1170	1080	990	900	810
				20	20	4			1200											1020	900	780	720	660	600	540
				10	40	8			600											510	450	390	360	330	300	270
				5	50	16			300											255	225	195	180	165	150	135
	F8LH	100	+/-0.01	20	30	–			1200										1020	900	780	720	660	600	540	480
				10	60	–			600										510	450	390	360	330	300	270	240
				5	80	–			300										255	225	195	180	165	150	135	120
	F10	100	+/-0.01	30	15	–			1800												1440		1170		900	
				20	20	4			1200												960		780		600	
				10	40	10			600												480		390		300	
				5	60	20			300												240		195		150	
	F10H	200	+/-0.01	30	25	–			1800										1440	1260	1080	900		720		630
				20	40	8			1200										960	840	720	600		480		420
				10	80	20			600										480	420	360	300		240		210
				5	100	30			300										240	210	180	150		120		105
	F14	100	+/-0.01	30	15	–			1800												1440		1170		900	
				20	30	4			1200												960		780		600	
				10	55	10			600												480		390		300	
				5	80	20			300												240		195		150	
	F14H	200	+/-0.01	30	25	–			1800												1440		1170		900	
				20	40	8			1200												960		780		600	
				10	80	20			600												480		390		300	
				5	100	30			300												240		195		150	
	F17	400	+/-0.01	40	40	–				2400													1920		1680	
				20	80	15				1200													960		840	
				10	120	35				600													480		420	
	F17L	600	+/-0.02	50	50	10																				
	F20	600	+/-0.01	40	60	–				2400													1920		1680	
				20	120	25				1200													960		840	
				10	–	45				600													480		420	
	F20N	400	+/-0.04	20	80	–																				
GF type	GF14XL	200	+/-0.01	20	45	–																				
	GF17XL	400	+/-0.01	20	90	–																				
N type	N15	400	+/-0.01	20	50	–																				
	N15D	400	+/-0.01	20	50	–					1200															
	N18	400	+/-0.01	20	80	–																				
	N18D	400	+/-0.01	20	80	–																				
B type	B10	100	+/-0.04	–	10	–																				
	B14	100	+/-0.04	–	20	–																				
	B14H	200	+/-0.04	–	30	–																				

Type	Model	Motor output (W)	Repeatability (sec)	Speed reduction ratio	Maximum speed (°/sec)	Detailed info page
R type	R5	50	+/-30	1/50	360	P.214
	R10	100	+/-30	1/50	360	P.215
	R20	200	+/-30	1/50	360	P.216

⚠ Precautions for use

- **Handling**
  Fully understand the contents stated in the "FLIP-X Series User's Manual" and strictly observe the handling precautions during operation.
- **Allowable installation ambient temperature**
  0 to 45 °C

	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500 to 1600	1650	1700	1750	1800	1850 to 2000	2050	2150	2250	2350	2400 to 2500	2550	2650 to 3050	Detailed info page
																							T4L:P.176 T4LH:P.177
																							T5L:P.178 T5LH:P.179
																							P.180
	810																						P.181
	540																						
	270																						
	135																						
	810																						P.182
	540																						
	270																						
	135																						
																							P.183
	720																						P.184
	480																						
	240																						
	120																						
	420																						P.186
	210																						
	105																						
	810																						P.187
	540																						
	270																						
	135																						
																							P.188
	810																						P.190
	540																						
	270																						
	135																						
	810																						P.191
	540																						
	270																						
	135																						
	1440		1200		960		840		720														P.193
	720		600		480																		
	360		300		240																		
		2200				1900				1500	1200				900	800							P.195
	1440		1200		960		840		720														P.197
	720		600		480																		
	360		300		240																		
			1200																				P.199
1200																							P.192
1200																							P.196
1200																							P.200
																							P.202
1200																							P.204
1200																							P.206
1875																							P.208
1875																							P.210
1875																							P.212

Robot ordering method description

In the order format for the YAMAHA single-axis robots FLIP-X series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

● Mechanical ▶ F8

- Lead ▷ 20mm
- Brake ▷ Yes
- Origin position ▷ Non-motor side
- Grease ▷ Standard
- Stroke ▷ 500mm
- Cable length ▷ 3.5m

● Controller ▶ SR1-X

- Usable for CE ▷ Not required
- Regenerative unit ▷ Not required
- I/O selection ▷ NPN
- Battery ▷ With battery

● Ordering method

F8-20-BK-Z-500-3L-SR1-X05-N-B

Mechanical section   Controller section

This page describes using the ordering form for mechanical components.
To find detailed controller information see the controller page.

SR1-X▶ P.518, TS-X▶ P.492, RDV-X▶ P.506

Mechanical section

● T type / F type (F8 / F8L / F8LH)

①Model

T4L	F8
T4LH	F8L
T5L	F8LH
T5LH	
T6	
T9	
T9H	

③Lead designation

30	30mm
20	20mm
12	12mm
10	10mm
6	6mm
5	5mm
2	2mm

④Brake

No entry	No brakes
BK	Brakes provided

⑩Option

Origin position change		
	None	Standard
	Z	Non-motor side

–

Grease type		
	None	Standard
	GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● F type (Except F8 / F8L / F8LH)

①Model

F10	F20
F10H	F20N
F14	
F14H	
F17	
F17L	

③Lead designation

50	50mm
40	40mm
30	30mm
20	20mm
10	10mm
5	5mm

④Brake

No entry	No brakes
BK	Brakes provided

⑥Cable entry location

No entry	Standard (S)
U	From the top
R	From the right
L	From the left

⑩Option

Origin position change		
	None	Standard
	Z	Non-motor side

–

Grease type		
	None	Standard
	GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● GF type

①Model

GF14XL
GF17XL

②Model

S	Straight model

⑤Take out direction

H	Horizontal installation

③Lead designation

20	20mm

⑥Cable entry location

No entry	Standard (S)
U	From the top
R	From the right
L	From the left

⑩Option

Origin position change	
None	Standard
Z	Non-motor side

–

Frame	
No entry	Standard (Spot facing)
T	Tapping

–

Grease type	
None	Standard
GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● N type (Single carriage)

①Model

N15
N18

③Lead designation

20	20mm

⑦Cable carrier entry location

RH	Horizontal, right
LH	Horizontal, left
RW	Wall, right
LW	Wall, left

⑧Cable carrier specification

S	Standard cable carrier
M	Optional cable carrier

⑩Option

Origin position change		
	None	Standard
	Z	Non-motor side

–

Grease type		
	None	Standard
	GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● N type (Double carriage)

①Model

N15D
N18D

③Lead designation

20	20mm

⑤Take out direction

H	Horizontal installation
W	Wall hanging installation

⑧Cable carrier specification

S	Standard cable carrier
M	Optional cable carrier

⑩Option

Grease type		
	None	Standard
	GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● B type

①Model

B10
B14
B14H

⑨Motor installation direction

L	Motor leftward, horizontal position
R	Motor rightward, horizontal position
LU	Motor leftward, upper position
RU	Motor rightward, upper position
LD	Motor leftward, lower position
RD	Motor rightward, lower position

⑩Option

Grease type		
	None	Standard
	GC	Clean

⑪Stroke

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● R type

①Model

R5
R10
R20

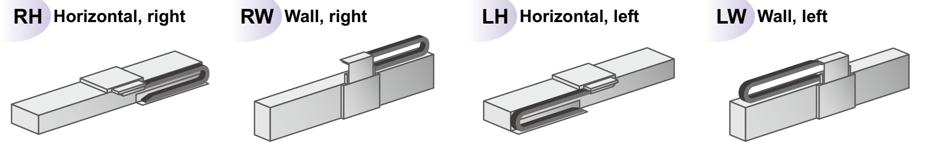
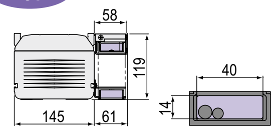
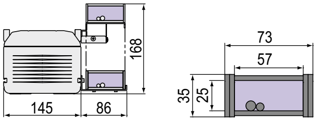
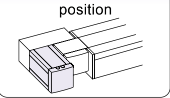
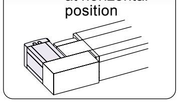
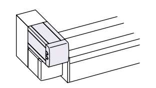
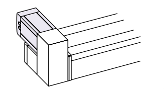
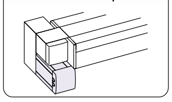
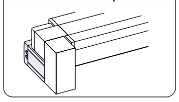
⑥Cable entry location

No entry	Standard (S)
B	From the side

⑫Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

Robot ordering method terminology

① **Model**	Enter the robot unit model.
② **Model**	Straight model only (GF type)
③ **Lead designation**	Select the ball screw lead.
④ **Brake**	Select Brake or No-brake. **Horizontal specs** : No-brake **Vertical specs** : with Brake
⑤ **Take out direction**	Select what direction to install the robot (horizontal / wall mounted).
⑥ **Cable entry location**	Select what direction to extract the robot cable connecting the robot and controller.
⑦ **Cable carrier entry location**	Select what direction to install the robot (horizontal / wall mounted) and what direction to extract the robot cable carrier.  RH Horizontal, right RW Wall, right LH Horizontal, left LW Wall, left Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.
⑧ **Cable carrier specification**	Select the cable carrier size for the customer wiring. **S type** Standard cable carrier  **M type** Optional cable carrier  Note. Cannot pass more than 3 urethane hoses (ϕ6 x 4). ▨ Space for optional cable for users
⑨ **Motor installation direction**	Select what direction to install the motor. **L type** Leftward at horizontal position  **R type** Rightward at horizontal position  **LU type** Leftward at upper position  **RU type** Rightward at upper position  **LD type** Leftward at lower position  **RD type** Rightward at lower position 
⑩ **Option**	**Origin position change**: Origin point position can be changed.
	Frame: Hole to secure the frame can be selected. (Spot facing/tapping)
	Grease type: Clean grease can be selected.
⑪ **Stroke**	Select the stroke for the robot movement range.
⑫ **Cable length**	Select the robot cable length to use for connecting the robot to the controller. **1L** : 1m (You can select a 1m cable only when you use T4L/T5L.) **3L** : 3.5m (Standard) **5L** : 5m **10L** : 10m **3K** : 3.5m (Flexible cable) **5K** : 5m (Flexible cable) **10K** : 10m (Flexible cable)

T4L

- Origin on the non-motor side is selectable
- Controller: 24V

Ordering method

T4L	-		-		-		-		-		-		-	ERCD	-	
Model	-	**Lead designation**	-	**Brake**	-	**Origin position change**	-	**Grease type**	-	**Stroke**	-	**Cable length** Note 1	-	**Controller**	-	**I/O connector specification**
		12: 12mm 6: 6mm 2: 2mm		No entry: No brakes BK: Brakes provided		None: Standard Z: Non-motor side		None: Standard GC: Clean		50 to 400 (50mm pitch)		1L: 1m 3L: 3.5m 5L: 5m 10L: 10m 1K/3K/5K/10K (Flexible cable)				CN1: I/O flat cable 1m (Standard) CN2: Twisted-pair cable 2m (pulse train function)

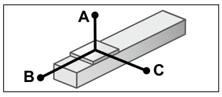
Note 1. The robot cable is standard cable (1L/3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

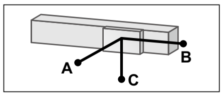
Specifications

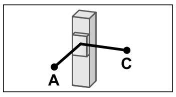
AC servo motor output (W)		30		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		720	360	120
Maximum payload (kg)	**Horizontal**	4.5	6	6
	Vertical	1.2	2.4	7.2
Rated thrust (N)		32	64	153
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+198		
	Vertical	Stroke+236		
Maximum dimensions of cross section of main unit (mm)		W45 × H53		
Cable length (m)		Standard: 3.5 / Option: 1,5,10		
Linear guide type		2 rows of gothic arch grooves × 1 rail		
Position detector		Resolvers Note 2		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 12	2kg	433	87	180
	4.5kg	223	33	75
Lead 6	3kg	515	58	135
	6kg	340	26	62
Lead 2	3kg	1585	58	142
	6kg	755	27	66

Wall installation (Unit: mm)

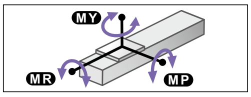
		A	B	C
Lead 12	2kg	149	54	376
	4.5kg	50	1	148
Lead 6	3kg	107	24	380
	6kg	31	0	195
Lead 2	3kg	113	24	1180
	6kg	32	0	440

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	125	125
Lead 6	2.4kg	56	57
Lead 2	3kg	41	42
	7.2kg	0	0

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 300mm stroke models.

Static loading moment



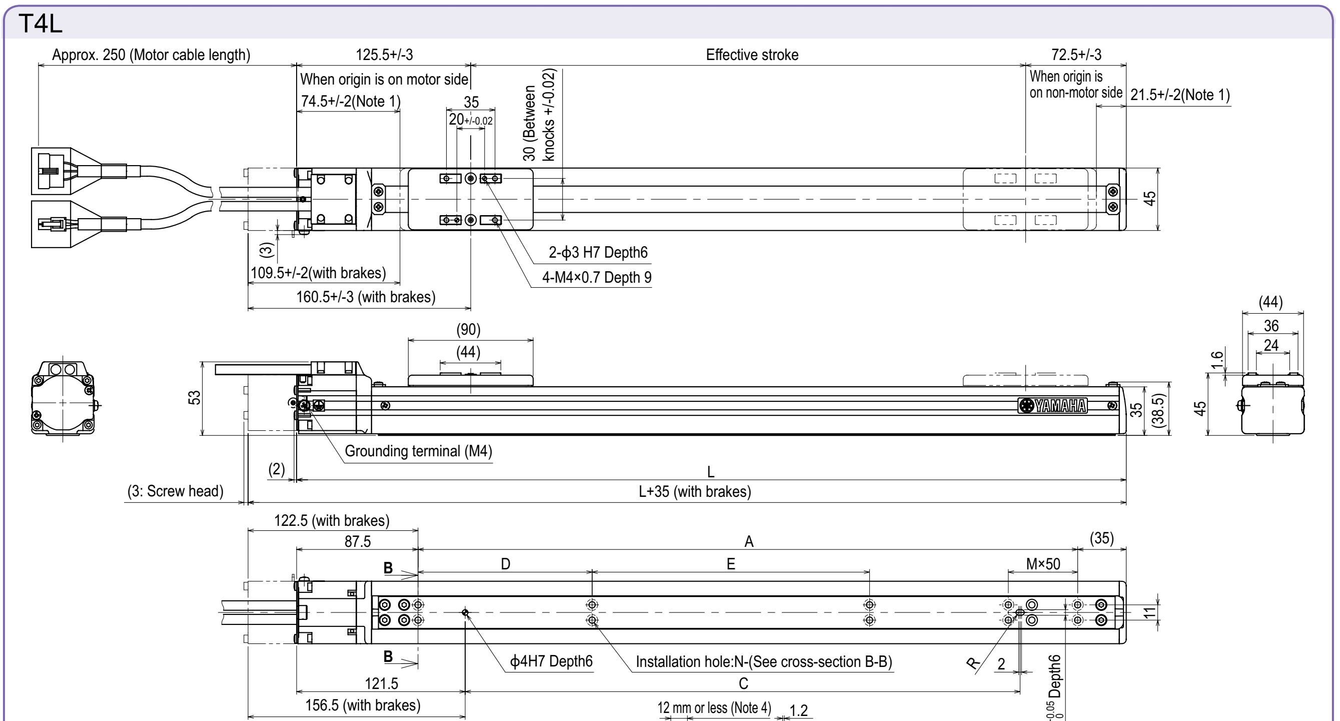
(Unit: N·m)

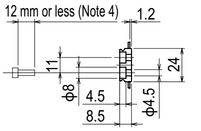
MY	MP	MR
15	19	18

Controller

Controller	Operation method
ERCD	Pulse train control / Programming / I/O point trace / Remote command / Operation using RS-232C communication

T4L





Cross-section B-B

Effective stroke		50	100	150	200	250	300	350	400
L		248	298	348	398	448	498	548	598
A		125.5	175.5	225.5	275.5	325.5	375.5	425.5	475.5
C		50	100	150	200	250	300	350	400
D		-	-	-	-	125.5	125.5	125.5	125.5
E		-	-	-	-	-	-	200	200
M		0	1	2	3	0	1	0	1
N		4	6	8	10	6	8	8	10
Weight (kg) Note 3		1.1	1.2	1.4	1.5	1.6	1.7	1.8	1.9
Maximum speed for each stroke (mm/sec)	**Lead 12**	720							
	Lead 6	360							
	Lead 2	120							

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 12mm or less.
Note 5. External view of T4LH is identical to T4L.

T4LH

- Origin on the non-motor side is selectable
- Controller: 100V / 200V

Ordering method

T4LH - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Brake	Origin position change	Grease type	Stroke	Cable length [Note 1]
T4LH	12: 12mm 6: 6mm 2: 2mm	No entry: No brakes BK: Brakes provided	None: Standard Z: Non-motor side	None: Standard GC: Clean	50 to 400 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ - ☐ - ☐ - ☐

Positioner [Note 2]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05**

Driver	Power-supply voltage	Driver: Power capacity
RDV-X	2: AC200V	05: 100W or less

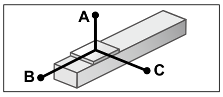
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

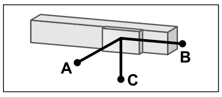
Specifications

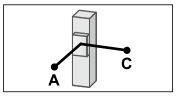
AC servo motor output (W)		30		
Repeatability [Note 1] (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		720	360	120
Maximum payload (kg)	Horizontal	4.5	6	6
	Vertical	1.2	2.4	7.2
Rated thrust (N)		32	64	153
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+198		
	Vertical	Stroke+236		
Maximum dimensions of cross section of main unit (mm)		W45 × H53		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		2 rows of gothic arch grooves × 1 rail		
Position detector		Resolvers [Note 2]		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 12	2kg	341	90	174
	4.5kg	172	37	72
Lead 6	3kg	355	58	134
	6kg	235	27	62
Lead 2	3kg	1105	59	142
	6kg	520	27	66

Wall installation (Unit: mm)

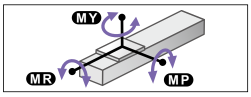
		A	B	C
Lead 12	2kg	140	73	300
	4.5kg	47	22	119
Lead 6	3kg	105	42	260
	6kg	31	11	135
Lead 2	3kg	113	42	810
	6kg	32	11	305

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	122	121
Lead 6	2.4kg	56	57
Lead 2	3kg	41	42
	7.2kg	0	0

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 300mm stroke models.

Static loading moment



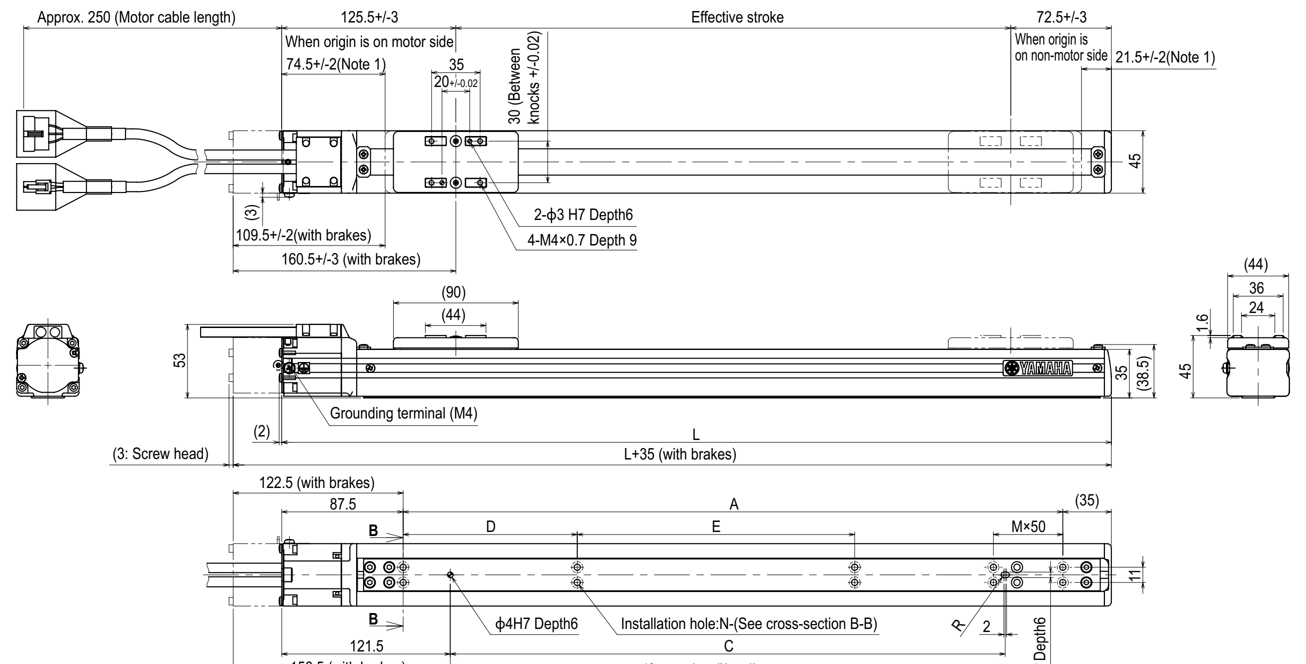
(Unit: N·m)

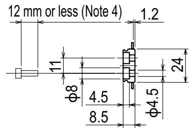
MY	MP	MR
15	19	18

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205	Pulse train control

T4LH





Cross-section B-B

Effective stroke		50	100	150	200	250	300	350	400
L		248	298	348	398	448	498	548	598
A		125.5	175.5	225.5	275.5	325.5	375.5	425.5	475.5
C		50	100	150	200	250	300	350	400
D		-	-	-	-	125.5	125.5	125.5	125.5
E		-	-	-	-	-	-	200	200
M		0	1	2	3	0	1	0	1
N		4	6	8	10	6	8	8	10
Weight (kg) [Note 3]		1.1	1.2	1.4	1.5	1.6	1.7	1.8	1.9
Maximum speed for each stroke (mm/sec)	Lead 12	720							
	Lead 6	360							
	Lead 2	120							

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 12mm or less.
Note 5. External view of T4LH is identical to T4L.

T5L

● High lead: Lead 20 ● Origin on the non-motor side is selectable
● Controller: 24V

Ordering method

Model	Lead designation	Brake Note 1	Origin position change	Grease type	Stroke	Cable length Note 2	Controller	I/O connector specification
T5L							ERCD	
	20: 20mm 12: 12mm 6: 6mm	No entry: No brakes BK: Brakes provided	None: Standard Z: Non-motor side	None: Standard GC: Clean	50 to 800 (50mm pitch)	1L: 1m 3L: 3.5m 5L: 5m 10L: 10m 1K/3K/5K/10K (Flexible cable)		CN1: I/O flat cable 1m (Standard) CN2: Twisted-pair cable 2m (pulse train function)

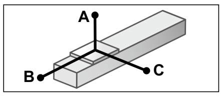
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (1L/3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

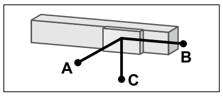
Specifications

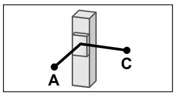
AC servo motor output (W)		30		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 (mm/sec)		1200	800	400
Maximum payload (kg)	Horizontal	3	5	9
	Vertical	-	1.2	2.4
Rated thrust (N)		19	32	64
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+201.5		
	Vertical	Stroke+239.5		
Maximum dimensions of cross section of main unit (mm)		W55×H52		
Cable length (m)		Standard: 3.5 / Option: 1,5,10		
Linear guide type		2 rows of gothic arch grooves × 1 rail		
Position detector		Resolvers Note 3		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	1kg	600	323	683
	3kg	675	103	247
Lead 12	2kg	1170	159	406
	5kg	555	59	155
Lead 6	3kg	1498	104	294
	9kg	628	31	89

Wall installation (Unit: mm)

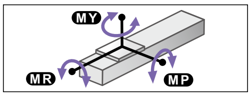
		A	B	C
Lead 20	1kg	600	291	600
	3kg	215	73	589
Lead 12	2kg	368	127	1082
	5kg	127	30	449
Lead 6	3kg	263	73	970
	9kg	54	0	400

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	242	240
Lead 6	2.4kg	113	113

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



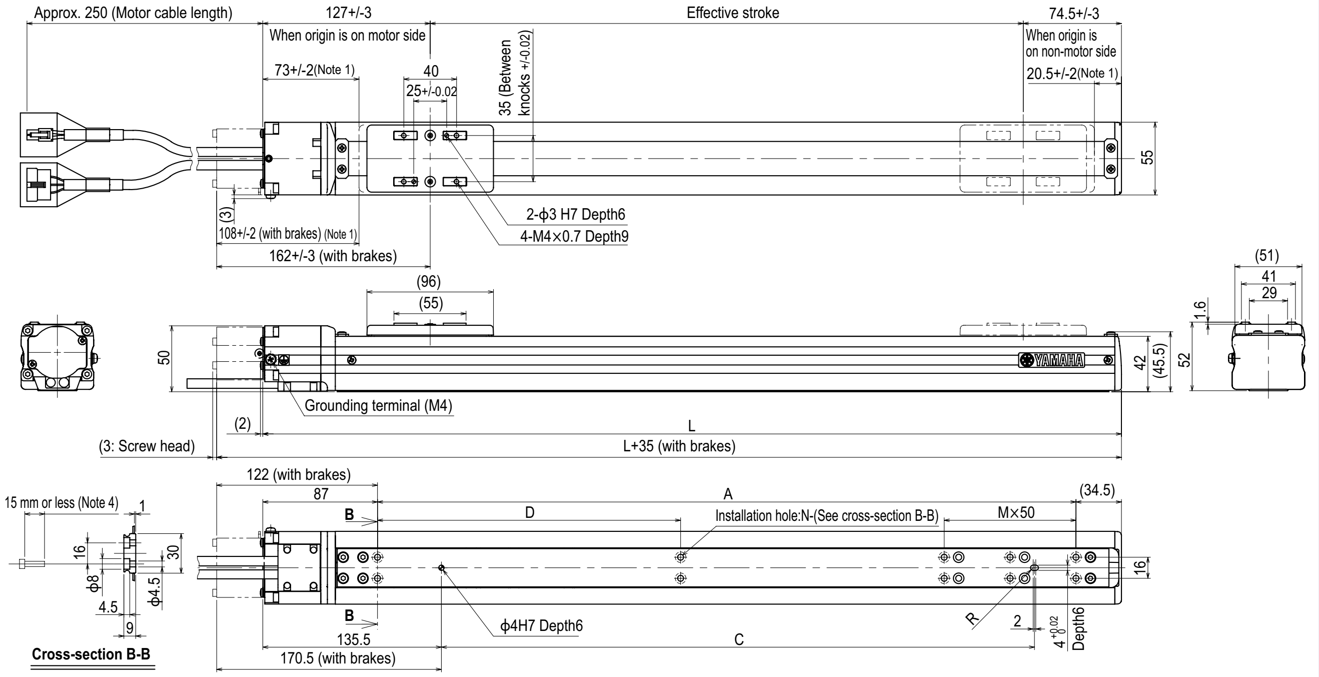
(Unit: N·m)

MY	MP	MR
30	34	40

Controller

Controller	Operation method
ERCD	Pulse train control / Programming / I/O point trace / Remote command / Operation using RS-232C communication

T5L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5	1001.5
A		130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880
C		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
D		-	-	-	-	-	-	230	230	230	230	230	230	230	230	230	230
M		0	1	2	3	4	5	0	1	2	3	4	5	6	7	8	9
N		4	6	8	10	12	14	6	8	10	12	14	16	18	20	22	24
Weight (kg) Note 3		1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.7	3.8	4.0	4.2
Maximum speed for each stroke Note 5 (mm/sec)	Lead 20	1200												960	840	720	660
	Lead 12	800												640	560	480	440
	Lead 6	400												320	280	240	220
	Speed setting	-												80%	70%	60%	55%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 15mm or less.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed).
In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
Note 6. External view of T5LH is identical to T5L.

T5LH

High lead: Lead 20

Origin on the non-motor side is selectable

Controller: 100V / 200V

Ordering method

T5LH - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Brake [Note 1]	Origin position change	Grease type	Stroke	Cable length [Note 2]
T5LH	20: 20mm	No entry: No brakes	None: Standard	None: Standard	50 to 800 (50mm pitch)	3L: 3.5m
	12: 12mm	BK: Brakes provided	Z: Non-motor side	GC: Clean		5L: 5m
	6: 6mm					10L: 10m
						3K/5K/10K (Flexible cable)

TSX ☐ - ☐ - ☐ - ☐

Positioner [Note 3]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	L: With LCD	PN: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			EP: EtherNet/IP™	
			PT: PROFINET	
			GW: No I/O board [Note 4]	

SR1-X **05** - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard	N: NPN	B: With battery (Absolute)
		E: CE marking	P: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			PB: PROFIBUS	

RDV-X **2** **05**

Driver	Power-supply voltage	Driver: Power capacity
RDV-X	2: AC200V	05: 100W or less

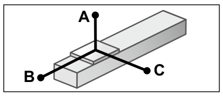
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62

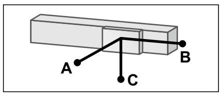
Specifications

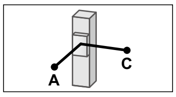
AC servo motor output (W)		30		
Repeatability [Note 1] (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed [Note 2] (mm/sec)		1200	800	400
Maximum payload (kg)	Horizontal	3	5	9
	Vertical	-	1.2	2.4
Rated thrust (N)		19	32	64
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+201.5		
	Vertical	Stroke+239.5		
Maximum dimensions of cross section of main unit (mm)		W55×H52		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		2 rows of gothic arch grooves × 1 rail		
Position detector		Resolvers [Note 3]		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	1kg	967	324	598
	3kg	429	104	226
Lead 12	2kg	916	159	398
	5kg	436	60	152
Lead 6	3kg	1194	105	294
	9kg	624	31	89

Wall installation (Unit: mm)

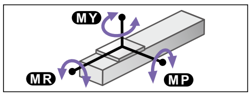
		A	B	C
Lead 20	1kg	551	304	925
	3kg	185	89	378
Lead 12	2kg	347	141	800
	5kg	119	44	355
Lead 6	3kg	259	87	950
	9kg	50	15	385

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	240	239
Lead 6	2.4kg	109	110

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



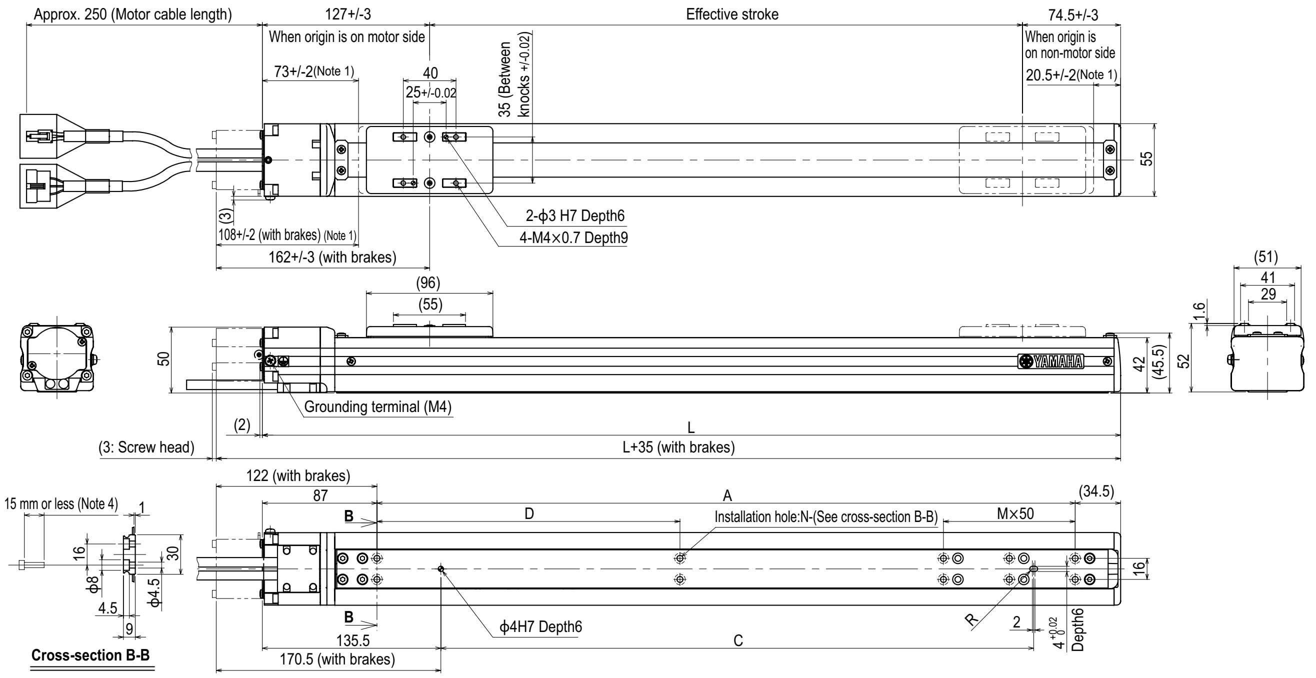
(Unit: N·m)

MY	MP	MR
30	34	40

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205	Pulse train control

T5LH



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5	1001.5
A		130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880
C		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
D		-	-	-	-	-	-	230	230	230	230	230	230	230	230	230	230
M		0	1	2	3	4	5	0	1	2	3	4	5	6	7	8	9
N		4	6	8	10	12	14	6	8	10	12	14	16	18	20	22	24
Weight (kg) [Note 3]		1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.7	3.8	4.0	4.2
Maximum speed for each stroke [Note 5] (mm/sec)	Lead 20	1200												960	840	720	660
	Lead 12	800												640	560	480	440
	Lead 6	400												320	280	240	220
	Speed setting	-												80%	70%	60%	55%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 15mm or less.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed).
In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
Note 6. External view of T5LH is identical to T5L.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

T6L

- High lead: Lead 20
- Origin on the non-motor side is selectable
- Controller: 100V / 200V

Ordering method

T6L - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ —

Model	Lead designation	Brake Note 1	Origin position change	Grease type	Stroke	Cable length Note 2
T6L	20: 20mm 12: 12mm 6: 6mm	No entry: No brakes BK: Brakes provided	None: Standard Z: Non-motor side	None: Standard GC: Clean	50 to 800 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX - ☐ - ☐ - ☐ - ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** - **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

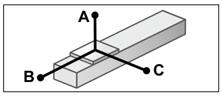
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

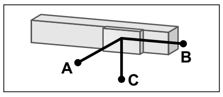
Specifications

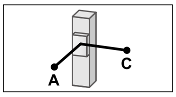
AC servo motor output (W)		60		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 (mm/sec)		1333	800	400
Maximum payload (kg)	**Horizontal**	10	12	30
	Vertical	-	4	8
Rated thrust (N)		51	85	170
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+247.5		
	Vertical	Stroke+285.5		
Maximum dimensions of cross section of main unit (mm)		W65×H56		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		2 rows of gothic arch grooves × 1 rail		
Position detector		Resolvers Note 3		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	319	184	234
	6kg	98	37	77
	10kg	64	0	55
Lead 12	3kg	624	125	335
	8kg	273	41	121
	12kg	216	24	77
Lead 6	5kg	694	73	236
	10kg	374	33	109
	30kg	159	0	25

Wall installation (Unit: mm)

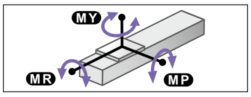
		A	B	C
Lead 20	2kg	234	152	265
	6kg	61	13	71
	10kg	30	0	42
Lead 12	3kg	293	96	510
	8kg	89	14	210
	12kg	43	0	130
Lead 6	5kg	204	45	530
	10kg	72	0	245
	30kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	355	352
	2kg	165	165
	4kg	70	72
Lead 6	2kg	171	172
	4kg	73	74
	8kg	23	26

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



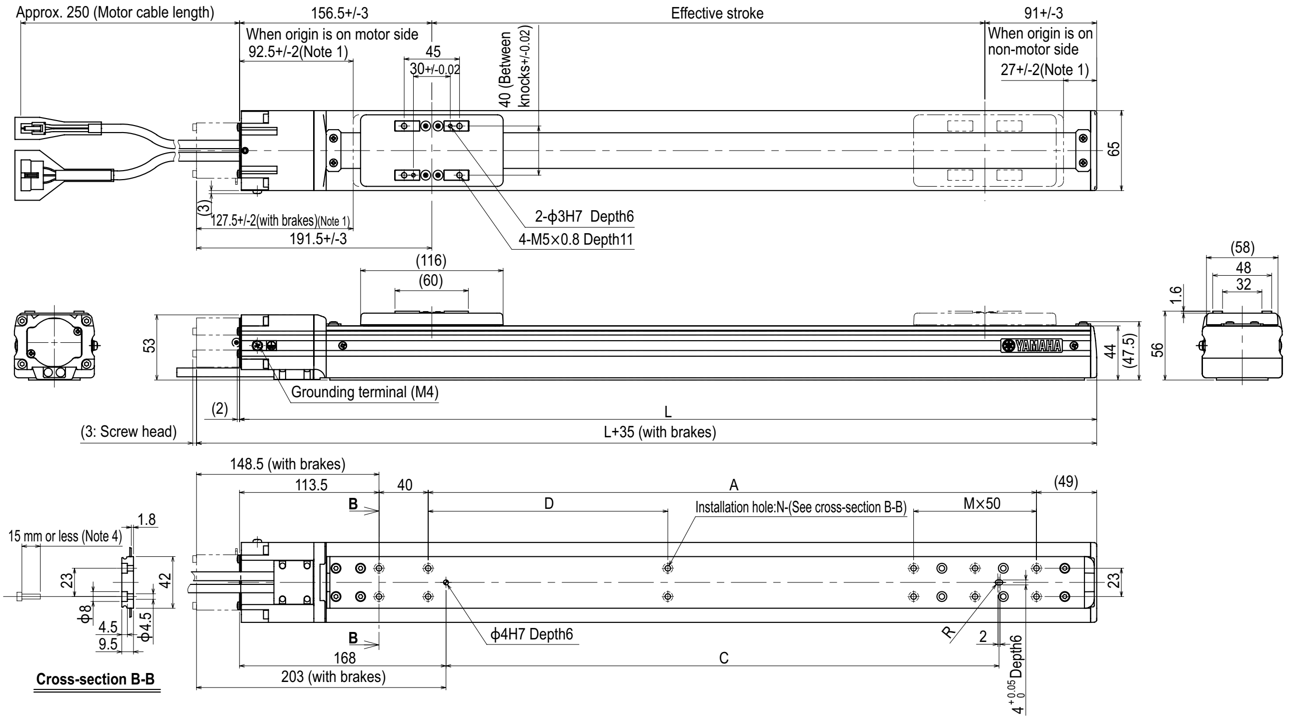
(Unit: N·m)

MY	MP	MR
35	40	50

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

T6L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		297.5	347.5	397.5	447.5	497.5	547.5	597.5	647.5	697.5	747.5	797.5	847.5	897.5	947.5	997.5	1047.5
A		95	145	195	245	295	345	395	445	495	545	595	645	695	745	795	845
C		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
D		-	-	-	-	-	-	195	195	195	195	195	195	195	195	195	195
M		0	1	2	3	4	5	0	1	2	3	4	5	6	7	8	9
N		6	8	10	12	14	16	8	10	12	14	16	18	20	22	24	26
Weight (kg) Note 3		2.4	2.6	2.8	3.1	3.3	3.5	3.7	4.0	4.2	4.4	4.6	4.8	5.1	5.3	5.5	5.7
Maximum speed for each stroke Note 5 (mm/sec)	**Lead 20**	1333												1133	1000	866	800
	Lead 12	800												680	600	520	480
	Lead 6	400												340	300	260	240
	Speed setting	-												85%	75%	65%	60%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 15mm or less.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

T9

High lead: Lead 30

Origin on the non-motor side is selectable: Lead 10·20·30

Note. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Ordering method

T9 – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – TSX ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake Note 1	Origin position change	Grease type	Stroke	Cable length Note 3
T9	30: 30mm	No entry:No brakes	None: Standard	None: Standard	Lead 20·10·5: 150 to 1050 (50mm pitch)	3L: 3.5m
	20: 20mm	BK: Brakes provided	Z: Non-motor side Note 2	GC: Clean	Lead 30: 150 to 1250 (50mm pitch)	5L: 5m
	10: 10mm					10L: 10m
	5: 5mm					3K/5K/10K (Flexible cable)

Positioner Note 4	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TSX					
TS-X	105: 100V/100W or less	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 5	

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	05				
	05: 100W or less	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2	05	RBR1
	2: AC200V	05: 100W or less	

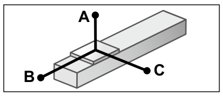
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100			
Repeatability Note 1 (mm)		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 (mm/sec)		1800	1200	600	300
Maximum payload (kg)	Horizontal	15	30	55	80
	Vertical	–	4	10	20
Rated thrust (N)		56	84	169	339
Stroke (mm)		150 to 1250 Note 3 (50mm pitch)			
Overall length (mm)	Horizontal	Stroke+259			
	Vertical	Stroke+289			
Maximum dimensions of cross section of main unit (mm)		W94 × H98			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 1 rail			
Position detector		Resolvers Note 4			
Resolution (Pulse/rotation)		16384			

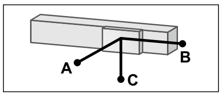
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Strokes longer than 1050mm are available only for high lead (Lead 30). (Special order item)
Note 4. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



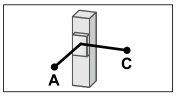
Horizontal installation (Unit: mm)

		A	B	C
Lead 30	5kg	864	501	383
	15kg	491	156	140
Lead 20	5kg	1292	505	462
	15kg	572	158	151
	30kg	455	73	75
Lead 10	20kg	617	119	127
	40kg	422	53	59
	55kg	420	36	40
Lead 5	50kg	722	42	47
	60kg	657	33	37
	80kg	577	23	25



Wall installation (Unit: mm)

		A	B	C
Lead 30	5kg	348	384	776
	15kg	87	40	306
Lead 20	5kg	416	388	1186
	15kg	92	42	386
	30kg	0	0	61
Lead 10	10kg	193	132	910
	20kg	53	0	400
	30kg	0	0	109
Lead 5	10kg	197	133	2360
	20kg	54	0	985
	30kg	0	0	427

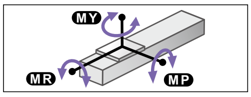


Vertical installation (Unit: mm)

		A	C
Lead 20	1kg	600	600
	2kg	1098	1098
	4kg	545	545
Lead 10	4kg	594	594
	8kg	280	280
	10kg	217	217
Lead 5	10kg	221	221
	15kg	135	135
	20kg	92	92

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

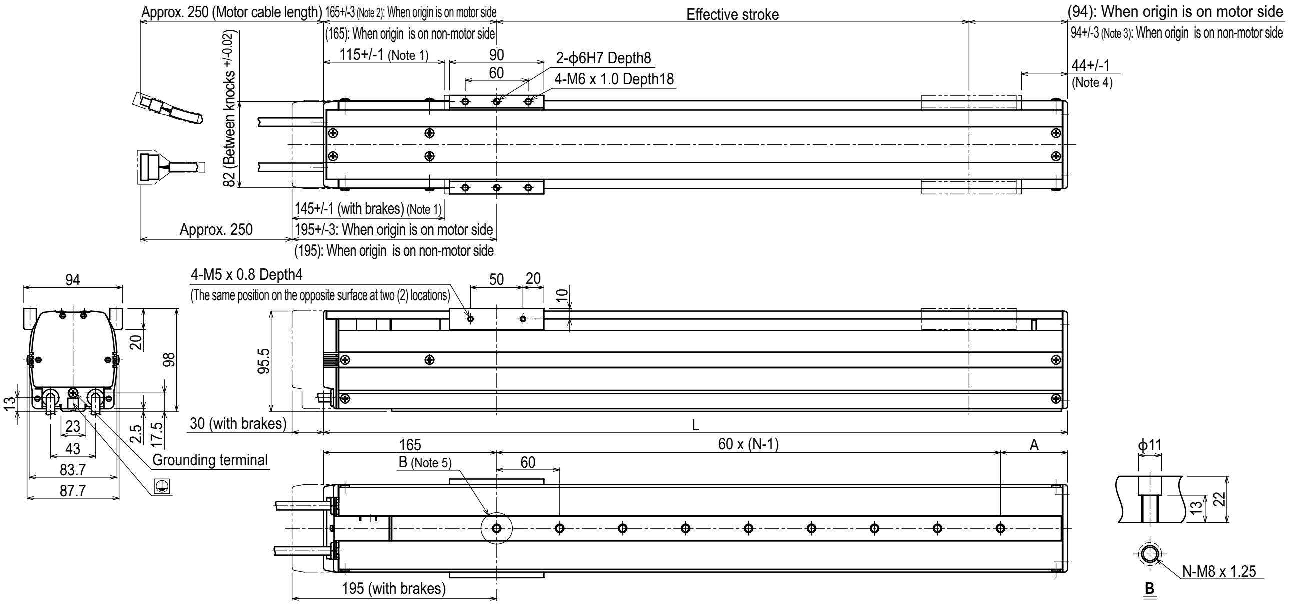
MY	MP	MR
86	133	117

Controller

Controller	Operation method
SR1-X05 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 Note	I/O point trace / Remote command
TS-X205 Note	
RDV-X205-RBR1	Pulse train control

Note. Regenerative unit is required when the models used vertically and with 700mm or larger stroke.

T9


Approx. 250 (Motor cable length)
165+/-3 (Note 2): When origin is on motor side
(165): When origin is on non-motor side
115+/-1 (Note 1)
90
60
2-ϕ6H7 Depth8
4-M6 x 1.0 Depth18
Effective stroke
(94): When origin is on motor side
94+/-3 (Note 3): When origin is on non-motor side
44+/-1
(Note 4)
82 (Between knocks +/-0.02)
145+/-1 (with brakes) (Note 1)
Approx. 250
195+/-3: When origin is on motor side
(195): When origin is on non-motor side
94
4-M5 x 0.8 Depth4
(The same position on the opposite surface at two (2) locations)
50
20
10
20
98
95.5
13
23
43
83.7
87.7
2.5
17.5
30 (with brakes)
Grounding terminal
L
165
B (Note 5)
60
60 x (N-1)
A
ϕ11
13
22
N-M8 x 1.25
B
195 (with brakes)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 167.5+/-4 when the high lead specification (Lead 30) is used.
Note 3. 94+/-4 when the high lead specification (Lead 30) is used.
Note 4. 41.5+/-1 when the high lead specification (Lead 30) is used.
Note 5. When installing the unit, washers, etc., cannot be used in the ϕ11 counter bore hole.
Note 6. Minimum bend radius of motor cable is R5.
Note 7. Weight of models with no brake. The weight of brake-attached models is 0.5 kg heavier than the models with no brake shown in the table.

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100 Note 9	1150 Note 9	1200 Note 9	1250 Note 9
L		409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109	1159	1209	1259	1309	1359	1409	1459	1509
A		64	54	44	94	84	74	64	54	44	94	84	74	64	54	44	94	84	74	64	54	44	94	84
N		4	5	6	6	7	8	9	10	11	11	12	13	14	15	16	16	17	18	19	20	21	21	22
Weight (kg) Note 7		5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.3	8.7	9.0	9.4	9.7	10.0	10.3	10.7	11.0	11.4	11.7	12.1	12.5	12.9	13.3
Maximum speed Note 8 (mm/sec)	Lead 30	1800												1440		1170		900		810				
	Lead 20	1200												960		780		600		540				
	Lead 10	600												480		390		300		270				
	Lead 5	300												240		195		150		135				
	Speed setting	–												80%		65%		50%		45%				

Note 8. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 9. Strokes longer than 1050mm are special order items. Please contact us for speed setting.

T9H

- High lead: Lead 30
- Origin on the non-motor side is selectable: Lead 20·30

Note. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Ordering method

T9H – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake [Note 1]	Origin position change	Grease type	Stroke	Cable length [Note 3]
T9H	30: 30mm	No entry:No brakes	None: Standard	None: Standard	Lead 20·10·5: 150 to 1050 (50mm pitch)	3L:3.5m
	20: 20mm	BK: Brakes provided	Z: Non-motor side [Note 2]	GC: Clean	Lead 30: 150 to 1250 (50mm pitch)	5L: 5m
	10: 10mm					10L: 10m
	5: 5mm					3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐ – ☐

Positioner [Note 4]	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	110: 100V/200W	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
	210: 200V/200W	R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board [Note 5]	

SR1-X **10** – ☐ – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	10: 200W	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X **2** **10** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	10: 200W or less	RBR1

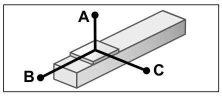
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. If selecting 10mm·5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

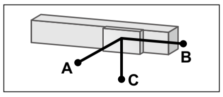
Specifications

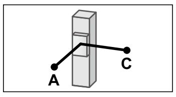
AC servo motor output (W)		200			
Repeatability [Note 1] (mm)		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed [Note 2] (mm/sec)		1800	1200	600	300
Maximum payload (kg)	Horizontal	25	40	80	100
	Vertical	–	8	20	30
Rated thrust (N)		113	170	341	683
Stroke (mm)		150 to 1250 [Note 3] (50mm pitch)			
Overall length (mm)	Horizontal	Stroke+273			
	Vertical	Stroke+303			
Maximum dimensions of cross section of main unit (mm)		W94 × H98			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 1 rail			
Position detector		Resolvers [Note 4]			
Resolution (Pulse/rotation)		16384			

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Strokes longer than 1050mm are available only for high lead (Lead 30). (Special order item)
Note 4. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 30	10kg	415	286	183
	20kg	270	105	93
Lead 20	10kg	667	244	225
	20kg	330	112	107
	40kg	162	42	47
Lead 10	30kg	392	75	81
	50kg	297	40	44
	80kg	265	21	24
Lead 5	60kg	477	22	37
	80kg	412	22	25
	100kg	362	16	18

Wall installation (Unit: mm)

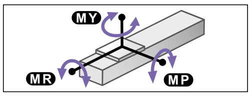
		A	B	C
Lead 30	10kg	140	120	323
	20kg	41	0	123
Lead 20	10kg	170	128	549
	20kg	46	0	182
	40kg	0	0	0
Lead 10	20kg	52	0	335
	25kg	24	0	235
	30kg	0	0	108
Lead 5	20kg	54	0	710
	25kg	25	0	505
	30kg	0	0	355

Vertical installation (Unit: mm)

		A	C
Lead 20	4kg	515	515
	6kg	334	334
	8kg	244	244
Lead 10	10kg	217	217
	15kg	133	133
	20kg	90	90
Lead 5	15kg	135	135
	20kg	92	92
	30kg	49	49

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

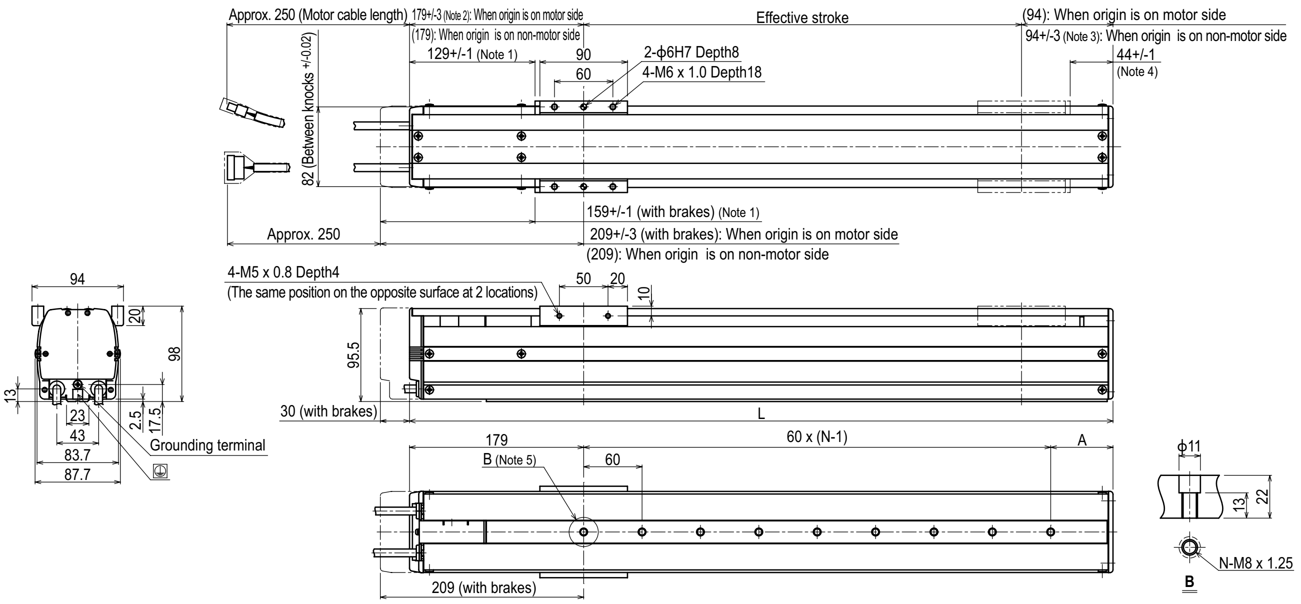
MY	MP	MR
86	133	117

Controller

Controller	Operation method
SR1-X10 [Note] RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 [Note] TS-X210 [Note]	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

Note. When using the unit vertically, a regeneration unit is required.

T9H


Approx. 250 (Motor cable length)
179+/-3 (Note 2): When origin is on motor side
(179): When origin is on non-motor side
129+/-1 (Note 1)
90
60
2-ϕ6H7 Depth8
4-M6 x 1.0 Depth18
Effective stroke
(94): When origin is on motor side
94+/-3 (Note 3): When origin is on non-motor side
44+/-1
(Note 4)
82 (Between knocks +/-0.02)
159+/-1 (with brakes) (Note 1)
Approx. 250
209+/-3 (with brakes): When origin is on motor side
(209): When origin is on non-motor side
4-M5 x 0.8 Depth4
(The same position on the opposite surface at 2 locations)
50
20
10
95.5
30 (with brakes)
L
94
20
98
13
23
43
83.7
87.7
2.5
17.5
Grounding terminal
179
B (Note 5)
60
60 x (N-1)
A
209 (with brakes)
ϕ11
13
22
N-M8 x 1.25
B

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 181.5+/-4 when the high lead specification (Lead 30) is used.
Note 3. 94+/-4 when the high lead specification (Lead 30) is used.
Note 4. 41.5+/-1 when the high lead specification (Lead 30) is used.
Note 5. When installing the unit, washers, etc., cannot be used in the ϕ11 counter bore hole.
Note 6. Minimum bend radius of motor cable is R5.
Note 7. Weight of models with no brake. The weight of brake-attached models is 0.5 kg heavier than the models with no brake shown in the table.

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100 [Note 9]	1150 [Note 9]	1200 [Note 9]	1250 [Note 9]
L		423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273	1323	1373	1423	1473	1523
A		64	54	44	94	84	74	64	54	44	94	84	74	64	54	44	94	84	74	64	54	44	94	84
N		4	5	6	6	7	8	9	10	11	11	12	13	14	15	16	16	17	18	19	20	21	21	22
Weight (kg) [Note 7]		5.8	6.2	6.5	6.9	7.3	7.7	8.0	8.4	8.8	9.1	9.5	9.9	10.2	10.6	11.0	11.4	11.7	12.1	12.5	12.9	13.3	13.7	14.1
Maximum speed [Note 8] (mm/sec)	Lead 30	1800												1440		1170		900		810				
	Lead 20	1200												960		780		600		540				
	Lead 10	600												480		390		300		270				
	Lead 5	300												240		195		150		135				
	Speed setting	–												80%		65%		50%		45%				

Note 8. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 9. Strokes longer than 1050mm are special order items. Please contact us for speed setting.

F8

High lead: Lead 20

Origin on the non-motor side is selectable

Ordering method

F8 – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake Note 1	Origin position change	Grease type	Stroke	Cable length Note 2
F8	20: 20mm 12: 12mm 6: 6mm	No entry: No brakes BK: Brakes provided	None: Standard Z: Non-motor side	None: Standard GC: Clean	150 to 800 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X 05 – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 05 – RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

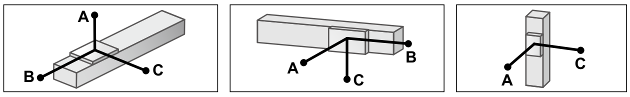
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 (mm/sec)		1200	720	360
Maximum payload (kg)	Horizontal	12	20	40
	Vertical	–	4	8
Rated thrust (N)		84	141	283
Stroke (mm)		150 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+286		
	Vertical	Stroke+316		
Maximum dimensions of cross section of main unit (mm)		W80 × H65		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		4 rows of circular arc grooves × 1 rail		
Position detector		Resolvers Note 3		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 550mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	5kg	197	76	120
	10kg	100	32	54
	12kg	85	25	43
Lead 12	5kg	364	89	188
	10kg	203	39	87
	15kg	139	22	51
	20kg	103	14	33
Lead 6	10kg	403	43	113
	20kg	214	16	43
	30kg	140	6	20
	40kg	113	0	8

Wall installation (Unit: mm)

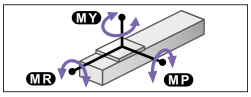
		A	B	C
Lead 20	5kg	104	67	174
	10kg	37	23	72
	12kg	27	15	55
Lead 12	5kg	171	81	340
	10kg	69	32	172
	15kg	33	15	100
	20kg	15	6	55
Lead 6	10kg	94	36	369
	20kg	25	9	157
	30kg	0	0	14
	40kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	447	448
	2kg	214	216
	3kg	137	138
	4kg	98	99
Lead 6	2kg	244	245
	4kg	113	113
	6kg	69	69
	8kg	46	46

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



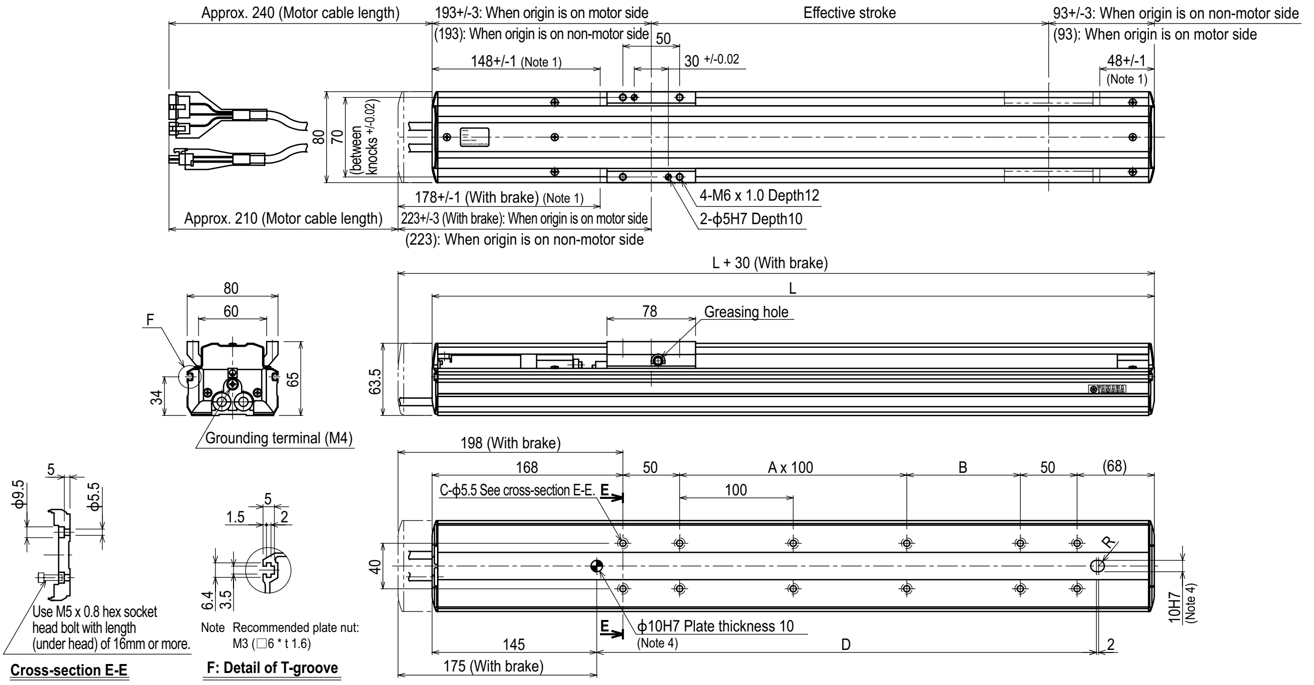
(Unit: N·m)

MY	MP	MR
70	95	110

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

F8


Approx. 240 (Motor cable length)
193+/-3: When origin is on motor side
(193): When origin is on non-motor side
Effective stroke
93+/-3: When origin is on non-motor side
(93): When origin is on motor side
50
148+/-1 (Note 1)
30 +/-0.02
48+/-1
(Note 1)
80
70
(between knocks +/-0.02)
178+/-1 (With brake) (Note 1)
4-M6 x 1.0 Depth12
2-ϕ5H7 Depth10
Approx. 210 (Motor cable length)
223+/-3 (With brake): When origin is on motor side
(223): When origin is on non-motor side
L + 30 (With brake)
L
80
60
F
78
Greasing hole
34
65
63.5
Grounding terminal (M4)
198 (With brake)
168
50
A x 100
B
50
(68)
C-ϕ5.5 See cross-section E-E.
E
100
R
40
10H7
(Note 4)
5
ϕ9.5
ϕ5.5
1.5
5
2
6.4
3.5
Use M5 x 0.8 hex socket head bolt with length (under head) of 16mm or more.
Note Recommended plate nut: M3 (☐6 * t 1.6)
E
ϕ10H7 Plate thickness 10
(Note 4)
145
D
2
175 (With brake)
Cross-section E-E
F: Detail of T-groove

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		436	486	536	586	636	686	736	786	836	886	936	986	1036	1086
A		0	0	1	1	2	2	3	3	4	4	5	5	6	6
B		100	150	100	150	100	150	100	150	100	150	100	150	100	150
C		8	8	10	10	12	12	14	14	16	16	18	18	20	20
D		240	290	340	390	440	490	540	590	640	690	740	790	840	890
Weight (kg) Note 5		3.6	3.9	4.2	4.4	4.7	5.0	5.3	5.6	5.9	6.2	6.4	6.7	7.0	7.3
Maximum speed Note 6 (mm/sec)	Lead 20	1200									1080	900	780	720	600
	Lead 12	720									648	540	468	432	360
	Lead 6	360									324	270	234	216	180
	Speed setting	–									90%	75%	65%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.
Note 5. Weight of models with no brake. The weight of brake-attached models is 0.3 kg heavier than the models with no brake shown in the table.
Note 6. When the stroke is longer than 550mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
T type
F type
GF type
N type
B/R type

F8L

- High lead: Lead 30
- Origin on the non-motor side is selectable

Ordering method

F8L – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – **TSX** – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake Note 1	Origin position change	Grease type	Stroke	Cable length Note 2
F8L	30: 30mm 20: 20mm 10: 10mm 5: 5mm	No entry:No brakes BK:Brakes provided	None: Standard Z: Non-motor side	None: Standard GC: Clean	150 to 1050 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TSX TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05 05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2 2: AC200V	05 05: 100W or less	RBR1

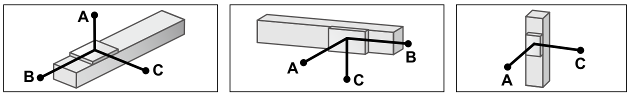
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100			
Repeatability Note 1 **(mm)**		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 **(mm/sec)**		1800	1200	600	300
Maximum payload (kg)	**Horizontal**	7	20	40	50
	Vertical	–	4	8	16
Rated thrust (N)		56	84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)			
Overall length (mm)	**Horizontal**	Stroke +300	Stroke+292		
	Vertical	–	Stroke+322		
Maximum dimensions of cross section of main unit (mm)		W80 × H65			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 1 rail			
Position detector		Resolvers Note 3			
Resolution (Pulse/rotation)		16384			

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 30	5kg	112	80	80
	7kg	78	43	49
Lead 20	5kg	211	108	147
	10kg	116	45	69
	15kg	76	24	39
	20kg	58	14	26
Lead 10	10kg	251	56	122
	20kg	121	20	46
	30kg	74	8	20
	40kg	35	0	6
Lead 5	20kg	249	23	62
	30kg	170	10	29
	40kg	138	4	12
	50kg	51	0	0

Wall installation (Unit: mm)

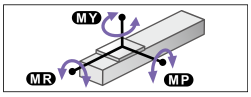
		A	B	C
Lead 30	5kg	55	57	77
	7kg	21	19	34
Lead 20	5kg	119	89	176
	10kg	38	26	69
	15kg	7	0	16
	20kg	0	0	0
Lead 10	10kg	85	39	202
	20kg	7	0	30
	30kg	0	0	0
	40kg	0	0	0
Lead 5	20kg	19	7	140
	30kg	0	0	0
	40kg	0	0	0
	50kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 20	2kg	236	240
	4kg	106	110
Lead 10	2kg	310	311
	4kg	141	143
	6kg	85	86
	8kg	57	58
Lead 5	5kg	123	124
	10kg	47	48
	15kg	22	22
	16kg	19	19

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



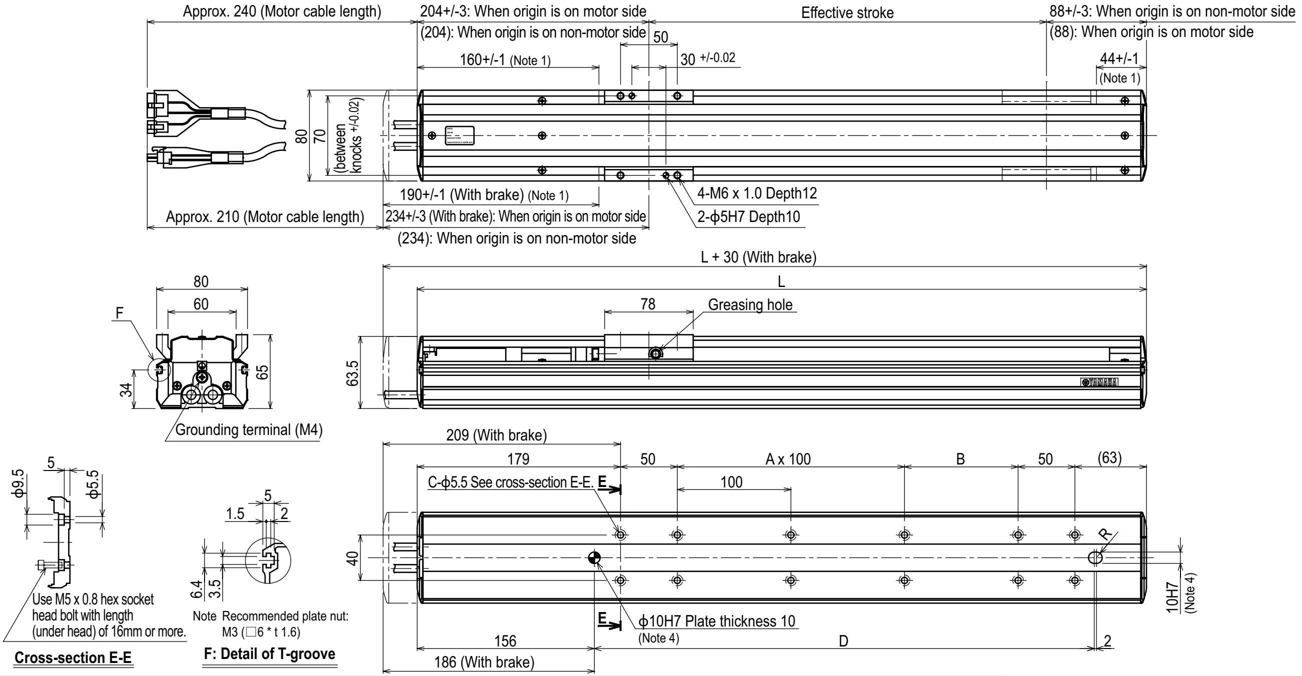
(Unit: N·m)

MY	MP	MR
70	95	110

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

F8L

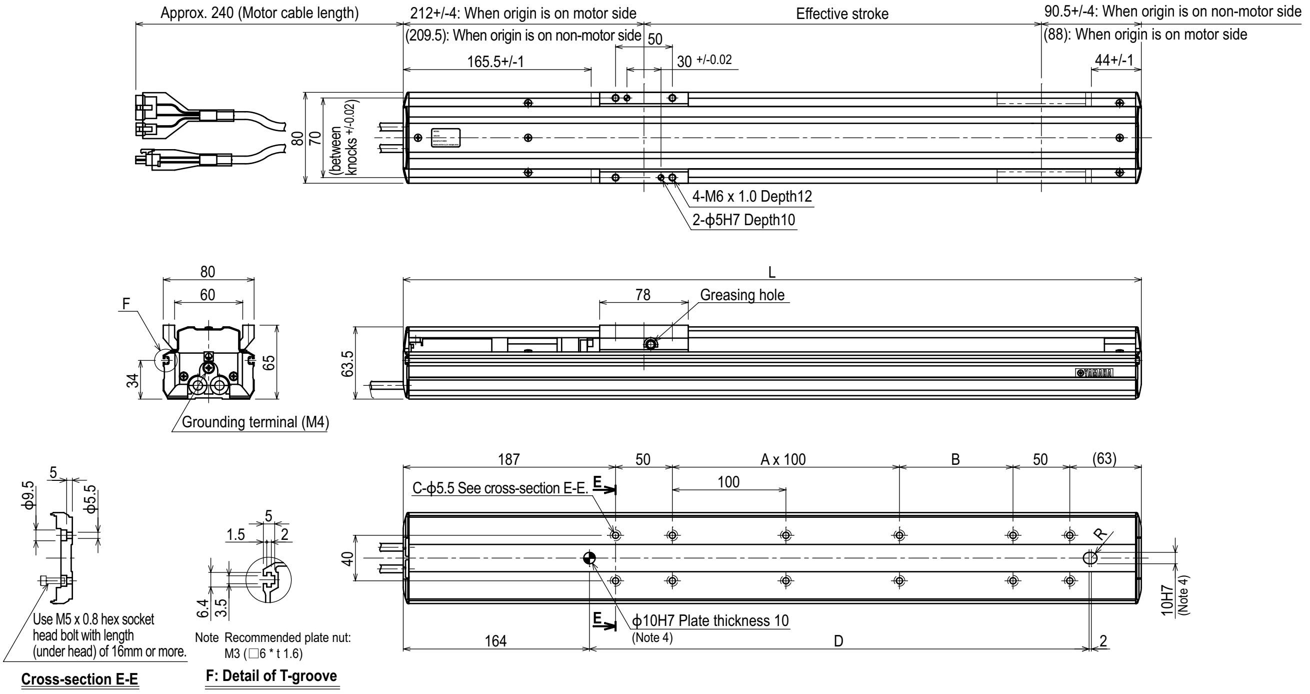

Approx. 240 (Motor cable length)
204+/-3: When origin is on motor side
(204): When origin is on non-motor side
50
Effective stroke
88+/-3: When origin is on non-motor side
(88): When origin is on motor side
160+/-1 (Note 1)
30 +/-0.02
44+/-1
(Note 1)
80
70
(between knocks +/-0.02)
190+/-1 (With brake) (Note 1)
234+/-3 (With brake): When origin is on motor side
(234): When origin is on non-motor side
Approx. 210 (Motor cable length)
4-M6 x 1.0 Depth12
2-ϕ5H7 Depth10
L + 30 (With brake)
L
80
60
78
Greasing hole
F
34
65
63.5
Grounding terminal (M4)
209 (With brake)
179
50
A x 100
B
50
(63)
C-ϕ5.5 See cross-section E-E.
E
100
ϕ9.5
5
ϕ5.5
5
1.5
2
40
6.4
3.5
10H7 (Note 4)
Use M5 x 0.8 hex socket head bolt with length (under head) of 16mm or more.
Note Recommended plate nut: M3 (☐6 * t 1.6)
E
ϕ10H7 Plate thickness 10
(Note 4)
156
D
2
186 (With brake)
Cross-section E-E
F: Detail of T-groove

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		442	492	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342
A		0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
B		100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100
C		8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
D		240	290	340	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140
Weight (kg) Note 5		3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5	8.8	9.2	9.5
Maximum speed Note 6 **(mm/sec)**	**Lead 20**	1200											1020	900	780	720	660	600	540	480
	Lead 10	600											510	450	390	360	330	300	270	240
	Lead 5	300											255	225	195	180	165	150	135	120
	Speed setting	–											85%	75%	65%	60%	55%	50%	45%	40%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.
Note 5. Weight of models with no brake. The weight of brake-attached models is 0.3 kg heavier than the models with no brake shown in the table.

Note 6. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

F8L High lead type: Lead 30


Approx. 240 (Motor cable length)
212+/-4: When origin is on motor side
(209.5): When origin is on non-motor side
50
165.5+/-1
30 +/-0.02
Effective stroke
90.5+/-4: When origin is on non-motor side
(88): When origin is on motor side
44+/-1
80
70
(between knocks +/-0.02)
4-M6 x 1.0 Depth12
2-ϕ5H7 Depth10
80
60
F
34
65
63.5
Grounding terminal (M4)
L
78
Greasing hole
187
50
A x 100
B
50
(63)
100
C-ϕ5.5 See cross-section E-E.
E
40
R
10H7 (Note 4)
ϕ10H7 Plate thickness 10
(Note 4)
164
D
2
5
ϕ9.5
ϕ5.5
Use M5 x 0.8 hex socket head bolt with length (under head) of 16mm or more.
5
1.5
2
6.4
3.5
Note Recommended plate nut: M3 (□6 * t 1.6)

Cross-section E-E

F: Detail of T-groove

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A		0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
B		100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100
C		8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
D		240	290	340	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140
Weight (kg)		3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5	8.8	9.2	9.5
Maximum speed Note 5 (mm/sec)	Lead 30	1800											1530	1350	1170	1080	990	900	810	720
	Speed setting	–											85%	75%	65%	60%	55%	50%	45%	40%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.

Note 2. When installing the robot, do not use washers inside the robot body.

Note 3. Minimum bend radius of motor cable is R50.

Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.

Note 5. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

F8LH

● Origin on the non-motor side is selectable

Ordering method

F8LH – [ ] – [ ] – [ ] – [ ] – [ ] – TSX [ ] – [ ] – [ ] – [ ]

Model	Lead designation	Origin position change	Grease type	Stroke	Cable length [Note 1]
F8LH	20: 20mm 10: 10mm 5: 5mm	None: Standard Z: Non-motor side	None: Standard GC: Clean	150 to 1050 (50mm pitch)	3L:3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

Positioner [Note 2]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TSX TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05 05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2 2: AC200V	05 05: 100W or less	RBR1

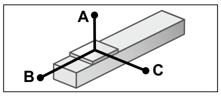
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100		
Repeatability [Note 1] **(mm)**		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed [Note 2] **(mm/sec)**		1200	600	300
Maximum payload (kg)	**Horizontal**	30	60	80
Rated thrust (N)		84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+368		
Maximum dimensions of cross section of main unit (mm)		W80 × H65		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		4 rows of circular arc grooves × 1 rail		
Position detector		Resolvers [Note 3]		
Resolution (Pulse/rotation)		16384		

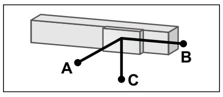
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	10kg	573	256	176
	20kg	334	116	81
	30kg	279	70	50
Lead 10	20kg	629	137	111
	20kg	479	57	47
	60kg	382	30	25
Lead 5	20kg	1094	148	127
	40kg	851	63	54
	60kg	714	34	29
	80kg	601	20	17

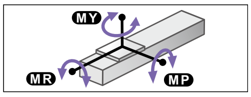


Wall installation (Unit: mm)

		A	B	C
Lead 20	10kg	147	215	515
	20kg	53	75	255
	30kg	20	29	160
Lead 10	20kg	80	99	545
	40kg	15	19	270
	60kg	-	-	-
Lead 5	20kg	96	112	1005
	40kg	22	26	604
	60kg	-	-	-
	80kg	-	-	-

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



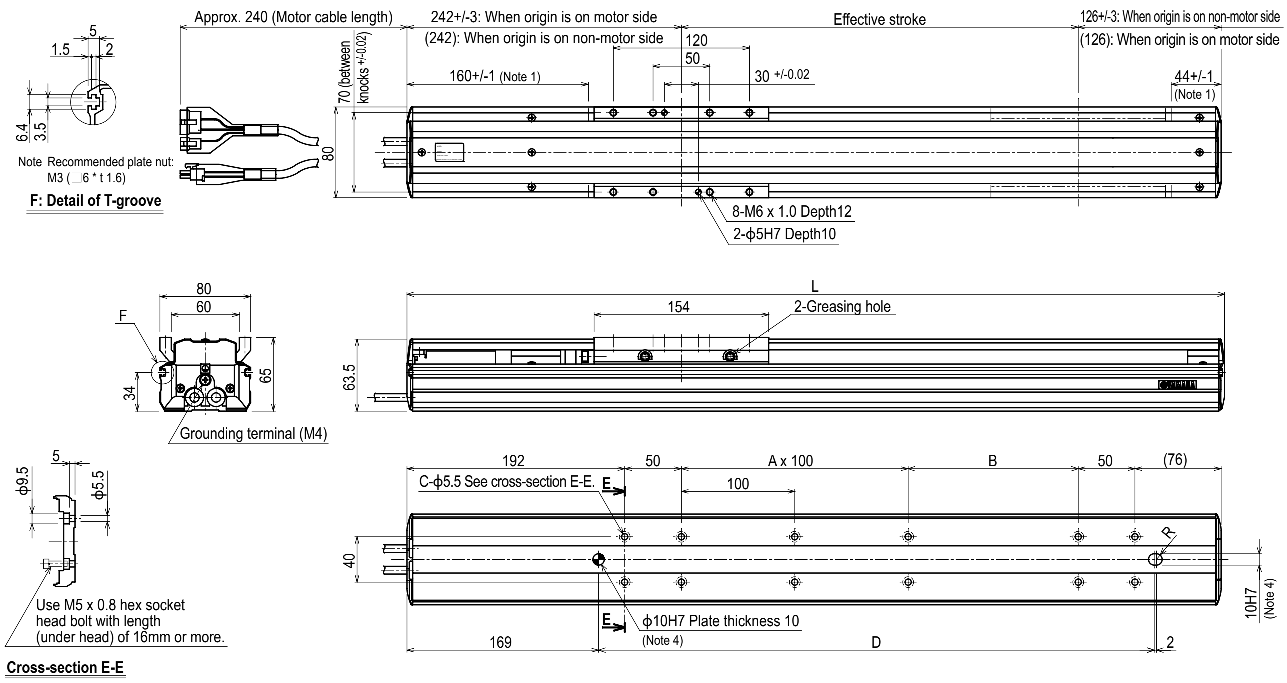
(Unit: N·m)

MY	MP	MR
128	163	143

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

F8LH


1.5
5
2
6.4
3.5
Note Recommended plate nut: M3 (□6 * t 1.6)
F: Detail of T-groove
Approx. 240 (Motor cable length)
70 (between knocks +/-0.02)
80
242+/-3: When origin is on motor side
(242): When origin is on non-motor side
160+/-1 (Note 1)
120
50
30 +/-0.02
Effective stroke
126+/-3: When origin is on non-motor side
(126): When origin is on motor side
44+/-1
(Note 1)
8-M6 x 1.0 Depth12
2-ϕ5H7 Depth10
80
60
F
65
34
Grounding terminal (M4)
63.5
L
154
2-Greasing hole
5
ϕ9.5
ϕ5.5
Use M5 x 0.8 hex socket head bolt with length (under head) of 16mm or more.
Cross-section E-E
192
50
A x 100
B
50
(76)
C-ϕ5.5 See cross-section E-E.
E
100
40
R
E
ϕ10H7 Plate thickness 10
(Note 4)
169
D
2
10H7
(Note 4)

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		518	568	618	668	718	768	818	868	918	968	1018	1068	1118	1168	1218	1268	1318	1368	1418
A		0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9
B		150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150
C		8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
D		290	340	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190
Weight (kg)		4.7	5.0	5.3	5.6	5.9	6.2	6.6	6.9	7.2	7.5	7.8	8.1	8.4	8.7	9.0	9.3	9.7	10.0	10.3
Maximum speed [Note 5] (mm/sec)	Lead 20	1200										1020	900	780	720	660	600	540	480	420
	Lead 10	600										510	450	390	360	330	300	270	240	210
	Lead 5	300										255	225	195	180	165	150	135	120	105
	Speed setting	–										85%	75%	65%	60%	55%	50%	45%	40%	35%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.

Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

F10

- High lead: Lead 30
- Origin on the non-motor side is selectable: Lead 10·20·30

Note. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Ordering method

F10 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Brake Note 1	Cable entry location	Origin position change	Grease type	Stroke	Cable length Note 3
F10	30: 30mm 20: 20mm 10: 10mm 5: 5mm	No entry: No brakes BK: Brakes provided	No entry: Standard (S) U:From the top	None: Standard Z: Non-motor side Note 2	None: Standard GC: Clean	Lead 20·10·5: 150 to 1050 (50mm pitch) Lead 30: 150 to 1250 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ - ☐ - ☐ - ☐ - ☐

Positioner Note 4	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 5	B: With battery (Absolute) N: None (Incremental)

SR1-X 05 - ☐ - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 05 - RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

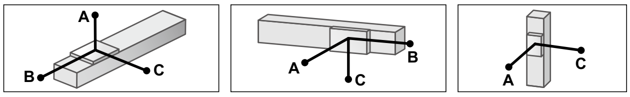
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100			
Repeatability Note 1 (mm)		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 (mm/sec)		1800	1200	600	300
Maximum payload (kg)	**Horizontal**	15	20	40	60
	Vertical	–	4	10	20
Rated thrust (N)		56	84	169	339
Stroke (mm)		150 to 1250 Note 3 (50mm pitch)			
Overall length (mm)	**Horizontal**	Stroke+260			
	Vertical	Stroke+290			
Maximum dimensions of cross section of main unit (mm)		W110 × H71			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 1 rail			
Position detector		Resolvers Note 4			
Resolution (Pulse/rotation)		16384			

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Strokes longer than 1050mm are available only for high lead (Lead 30). (Special order item)
Note 4. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 30	5kg	491	273	215
	15kg	223	61	63
Lead 20	5kg	937	282	259
	10kg	487	121	116
	20kg	236	40	44
Lead 10	15kg	389	71	74
	30kg	179	17	20
	40kg	106	0	0
Lead 5	30kg	419	19	20
	50kg	0	0	0
	60kg	0	0	0

Wall installation (Unit: mm)

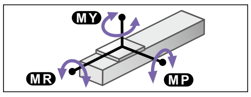
		A	B	C
Lead 30	5kg	206	209	480
	15kg	45	0	177
Lead 20	5kg	250	213	905
	10kg	99	51	438
	20kg	21	0	149
Lead 10	10kg	105	53	550
	20kg	22	0	230
	30kg	0	0	0
Lead 5	10kg	107	54	1410
	20kg	22	0	540
	30kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 20	1kg	600	600
	2kg	649	691
	4kg	306	347
Lead 10	4kg	338	380
	8kg	142	183
	10kg	102	144
Lead 5	10kg	105	146
	15kg	51	93
	20kg	25	66

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

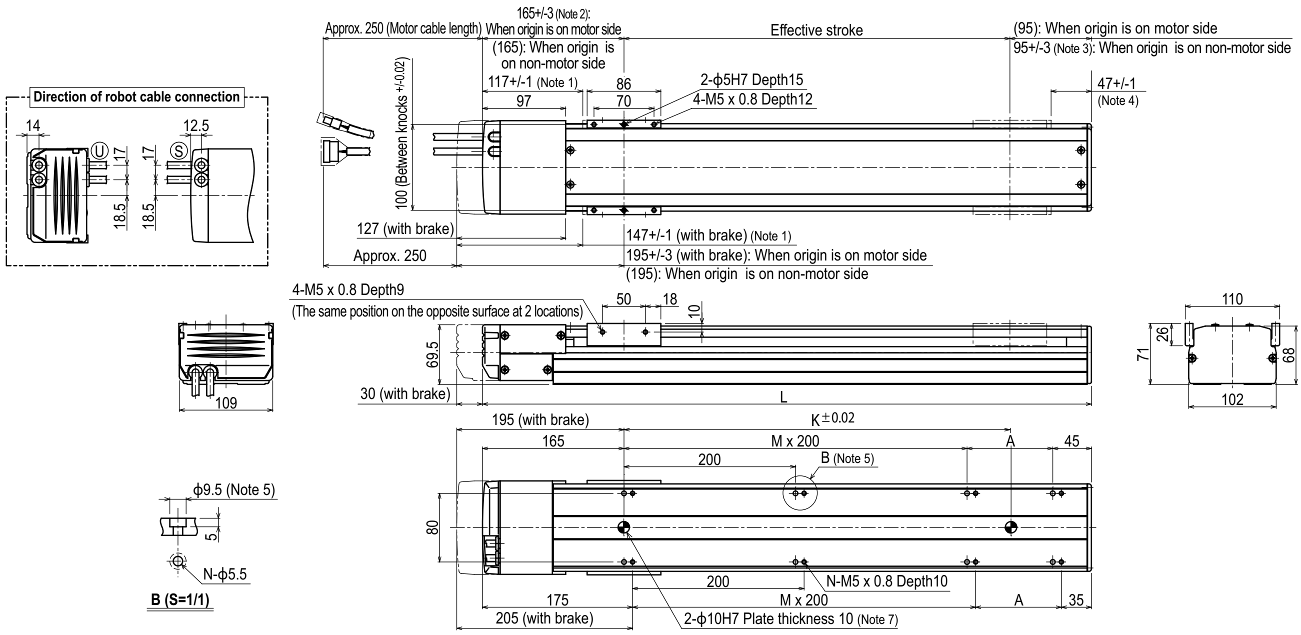
MY	MP	MR
131	131	115

Controller

Controller	Operation method
SR1-X05 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 Note TS-X205 Note	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

Note. Regenerative unit is required when the models used vertically and with 700mm or larger stroke.

F10


Direction of robot cable connection
14
12.5
U
S
17
17
18.5
18.5
Approx. 250 (Motor cable length)
165+/-3 (Note 2): When origin is on motor side
(165): When origin is on non-motor side
Effective stroke
(95): When origin is on motor side
95+/-3 (Note 3): When origin is on non-motor side
100 (Between knocks +/-0.02)
117+/-1 (Note 1)
97
86
70
2-ϕ5H7 Depth15
4-M5 x 0.8 Depth12
47+/-1 (Note 4)
127 (with brake)
Approx. 250
147+/-1 (with brake) (Note 1)
195+/-3 (with brake): When origin is on motor side
(195): When origin is on non-motor side
4-M5 x 0.8 Depth9
(The same position on the opposite surface at 2 locations)
50
18
10
69.5
30 (with brake)
L
109
110
26
71
68
102
195 (with brake)
K±0.02
165
M x 200
A
45
200
B (Note 5)
ϕ9.5 (Note 5)
5
N-ϕ5.5
B (S=1/1)
80
200
N-M5 x 0.8 Depth10
175
M x 200
A
35
205 (with brake)
2-ϕ10H7 Plate thickness 10 (Note 7)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 167.5+/-4 when the high lead specification (Lead 30) is used.
Note 3. 95+/-4 when the high lead specification (Lead 30) is used.
Note 4. 44.5+/-1 when the high lead specification (Lead 30) is used.
Note 5. When installing the unit, washers, etc., cannot be used in the ϕ9.5 counter bore hole.
Note 6. Minimum bend radius of motor cable is R50.
Note 7. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.
Note 8. Weight of models with no brake. The weight of brake-attached models is 0.6 kg heavier than the models with no brake shown in the table.

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100 Note 10	1150 Note 10	1200 Note 10	1250 Note 10
L		410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
K		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
Weight (kg) Note 8		5.5	5.7	5.8	6.2	6.5	6.9	7.3	7.7	8.1	8.5	8.8	9.2	9.6	10.0	10.4	10.8	11.1	11.5	11.9	12.3	12.7	13.1	13.5
Maximum speed Note 9 (mm/sec)	Lead 30	1800												1440		1170		900		810				
	Lead 20	1200												960		780		600		540				
	Lead 10	600												480		390		300		270				
	Lead 5	300												240		195		150		135				
	Speed setting	–												80%		65%		50%		45%				

Note 9. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 10.Strokes longer than 1050mm are special order items. Please contact us for speed setting.

F10H

- High lead: Lead 30
- Origin on the non-motor side is selectable: Lead 10·20·30

Ordering method

F10H – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake Note 1	Cable entry location	Origin position change	Grease type	Stroke	Cable length Note 3
	30: 30mm 20: 20mm 10: 10mm 5: 5mm	No entry: No brakes BK: Brakes provided	No entry: Standard (S) U:From the top	None: Standard Z: Non-motor side Note 2	None: Standard GC: Clean	Lead 20·10·5: 150 to 1000 (50mm pitch) Lead 30: 150 to 1000 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐ – ☐

Positioner Note 4	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	110: 100V/200W 210: 200V/200W	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 5	B: With battery (Absolute) N: None (Incremental)

SR1-X **10** – ☐ – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
	10: 200W	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: Profibus	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **10** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
	2: AC200V	10: 200W or less	

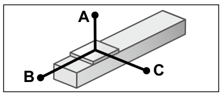
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		200			
Repeatability Note 1 **(mm)**		+/- 0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 **(mm/sec)**		1800	1200	600	300
Maximum payload (kg)	**Horizontal**	25	40	80	100
	Vertical	–	8	20	30
Rated thrust (N)		113	170	341	683
Stroke (mm)		150 to 1000			
Overall length (mm)	**Horizontal**	Stroke+355			
	Vertical	Stroke+385			
Maximum dimensions of cross section of main unit (mm)		W110 × H71			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 1 rail			
Position detector		Resolvers Note 3			
Resolution (Pulse/rotation)		16384			

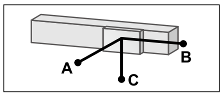
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below. When the movement distance is short, the speed may not reach the maximum speed according to the payload.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



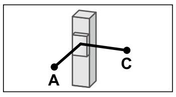
Horizontal installation (Unit: mm)

		A	B	C
Lead 30	10kg	1181	681	219
	20kg	772	298	99
Lead 20	10kg	1961	685	232
	20kg	949	301	103
	40kg	432	109	38
Lead 10	30kg	1615	239	84
	50kg	1131	112	39
	80kg	812	40	14
Lead 5	60kg	3091	112	39
	80kg	2330	64	23
	100kg	1733	36	12



Wall installation (Unit: mm)

		A	B	C
Lead 30	10kg	193	570	1062
	20kg	65	187	549
Lead 20	10kg	198	570	1786
	20kg	65	187	732
	40kg	0	0	0
Lead 10	20kg	100	283	1981
	25kg	66	187	1546
	30kg	43	123	1223
Lead 5	20kg	134	379	7629
	25kg	93	264	5987
	30kg	66	187	4841

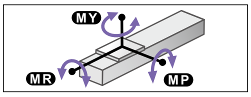


Vertical installation (Unit: mm)

		A	C
Lead 20	4kg	1650	1650
	6kg	1104	1104
	8kg	832	832
Lead 10	10kg	927	927
	15kg	614	614
	20kg	458	458
Lead 5	15kg	752	752
	20kg	560	560
	30kg	369	369

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



(Unit: N·m)

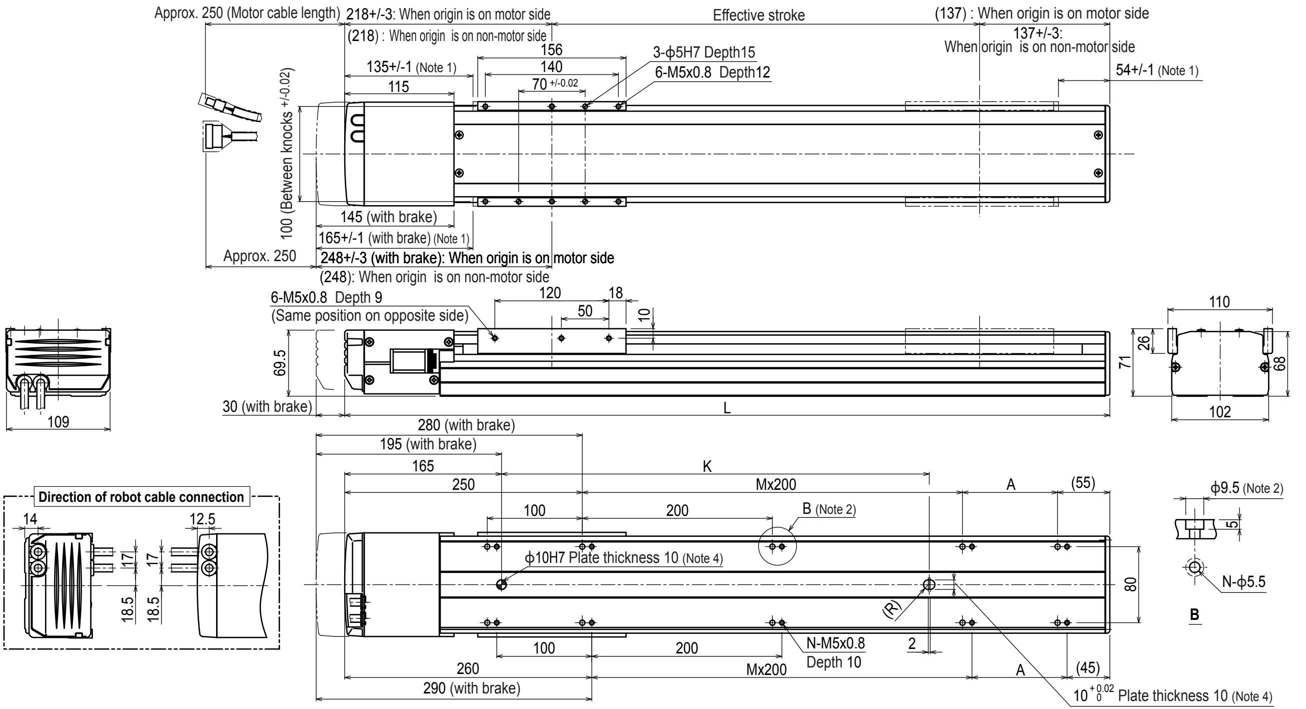
MY	MP	MR
348	348	160

Controller

Controller	Operation method
SR1-X10 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 Note TS-X210 Note	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

Note. When using the unit vertically, a regeneration unit is required.

F10H

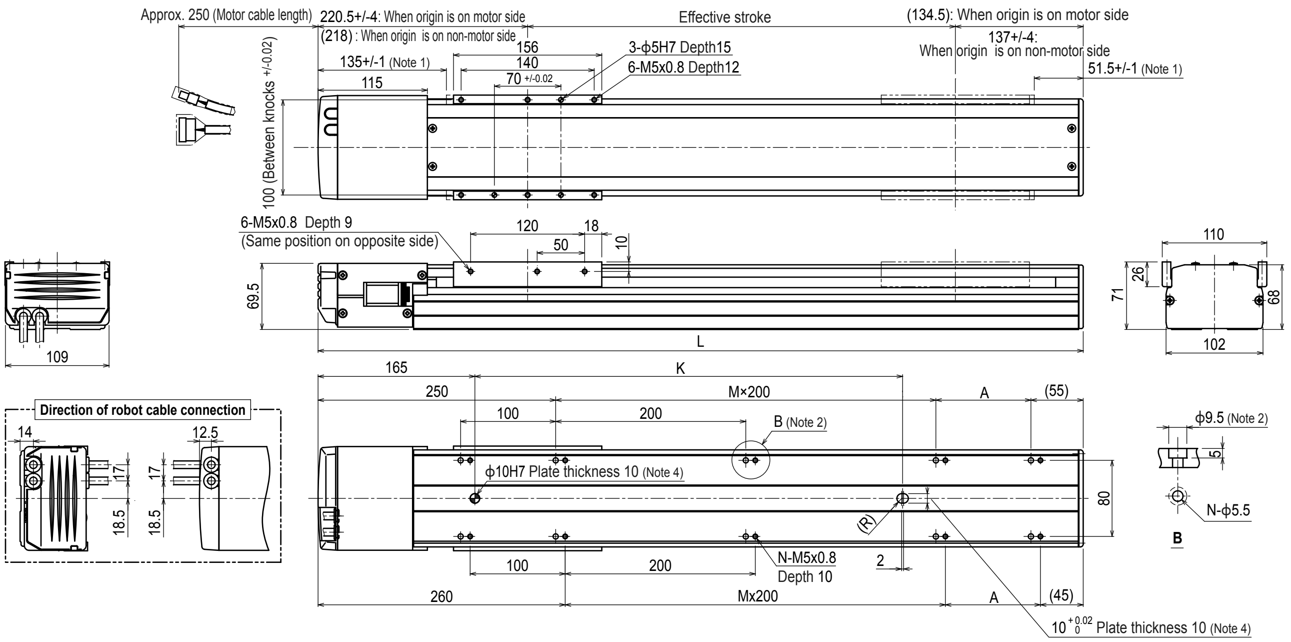

Approx. 250 (Motor cable length)
218+/-3: When origin is on motor side
(218) : When origin is on non-motor side
Effective stroke
(137) : When origin is on motor side
137+/-3: When origin is on non-motor side
156
140
70 +/-0.02
135+/-1 (Note 1)
115
3-ϕ5H7 Depth15
6-M5x0.8 Depth12
54+/-1 (Note 1)
100 (Between knocks +/-0.02)
145 (with brake)
165+/-1 (with brake) (Note 1)
Approx. 250
248+/-3 (with brake): When origin is on motor side
(248): When origin is on non-motor side
6-M5x0.8 Depth 9
(Same position on opposite side)
120
18
50
10
69.5
30 (with brake)
L
110
26
71
68
102
109
280 (with brake)
195 (with brake)
165
K
250
Mx200
A
(55)
ϕ9.5 (Note 2)
5
Direction of robot cable connection
14
12.5
17
17
18.5
18.5
100
200
B (Note 2)
ϕ10H7 Plate thickness 10 (Note 4)
80
N-ϕ5.5
B
(R)
100
200
N-M5x0.8 Depth 10
2
260
Mx200
A
(45)
290 (with brake)
10 +0.02 0 Plate thickness 10 (Note 4)

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L		505	555	605	655	705	755	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5
N		6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16
K		250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg) Note 5		6.9	7.3	7.7	8.1	8.4	8.8	9.2	9.6	10.0	10.3	10.7	11.1	11.5	11.9	12.2	12.6	13.0	13.4
Maximum speed Note 6 **(mm/sec)**	**Lead 30**	1800										1440	1260	1080	900		720		630
	Lead 20	1200										960	840	720	600		480		420
	Lead 10	600										480	420	360	300		240		210
	Lead 5	300										240	210	180	150		120		105
	Speed setting	–										80%	70%	60%	50%		40%		35%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the unit, washers, etc., cannot be used in the ϕ9.5 counter bore hole.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.
Note 5. Weight of models with no brake. The weight of brake-attached models is 0.5 kg heavier than the models with no brake shown in the table.

Note 6. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

F10H High lead type: Lead 30


Approx. 250 (Motor cable length)
220.5+/-4: When origin is on motor side
(218) : When origin is on non-motor side
Effective stroke
(134.5): When origin is on motor side
137+/-4: When origin is on non-motor side
51.5+/-1 (Note 1)
135+/-1 (Note 1)
115
156
140
70 +/-0.02
3-ϕ5H7 Depth15
6-M5x0.8 Depth12
100 (Between knocks +/-0.02)
6-M5x0.8 Depth 9
(Same position on opposite side)
120
50
18
10
69.5
109
L
110
26
71
68
102
165
K
250
M×200
A
(55)
100
200
B (Note 2)
ϕ10H7 Plate thickness 10 (Note 4)
ϕ9.5 (Note 2)
5
N-ϕ5.5
B
80
(R)
N-M5x0.8
Depth 10
2
260
Mx200
A
(45)
10 +0.02 0 Plate thickness 10 (Note 4)
Direction of robot cable connection
14
12.5
17
17
18.5
18.5

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L		505	555	605	655	705	755	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5
N		6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16
K		250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)		6.9	7.3	7.7	8.1	8.4	8.8	9.2	9.6	10.0	10.3	10.7	11.1	11.5	11.9	12.2	12.6	13.0	13.4
Maximum speed Note 5 (mm/sec)	Lead 30	1800										1440	1260	1080	900		720		630
	Lead 20	1200										960	840	720	600		480		420
	Lead 10	600										480	420	360	300		240		210
	Lead 5	300										240	210	180	150		120		105
	Speed setting	–										80%	70%	60%	50%		40%		35%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.

Note 2. When installing the unit, washers, etc., cannot be used in the ϕ9.5 counter bore hole.

Note 3. Minimum bend radius of motor cable is R50.

Note 4. When using this ϕ10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.

Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

F14

- High lead: Lead 30
- Origin on the non-motor side is selectable

Note. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Ordering method

Model	Lead designation	Brake Note 1	Cable entry location	Origin position change	Grease type	Stroke	Cable length Note 2
F14	30: 30mm	No entry: No brakes	No entry: Standard (S)	None: Standard	None: Standard	Lead 20·10·5: 150 to 1050 (50mm pitch)	3L: 3.5m
	20: 20mm	BK: Brakes provided	U: From the top	Z: Non-motor side	GC: Clean	Lead 30: 150 to 1250 (50mm pitch)	5L: 5m
	10: 10mm		R: From the right				10L: 10m
	5: 5mm		L: From the left				3K/5K/10K (Flexible cable)

TSX					
Positioner Note 3	**Driver: Power-supply voltage / Power capacity**	**Regenerative unit**	**LCD monitor**	**I/O selection**	**Battery**
TS-X	105: 100V/100W or less	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 4	

SR1-X	05				
Controller	**Driver: Power capacity**	**Usable for CE**	**Regenerative unit**	**I/O selection**	**Battery**
	05: 100W or less	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X	2	05	RBR1
Driver	**Power-supply voltage**	**Driver: Power capacity**	**Regenerative unit**
	2: AC200V	05: 100W or less	

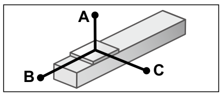
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		100			
Repeatability Note 1 **(mm)**		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 **(mm/sec)**		1800	1200	600	300
Maximum payload (kg)	**Horizontal**	15	30	55	80
	Vertical	–	4	10	20
Rated thrust (N)		56	84	169	339
Stroke (mm)		150 to 1250 Note 3 (50mm pitch)			
Overall length (mm)	**Horizontal**	Stroke+255			
	Vertical	Stroke+285			
Maximum dimensions of cross section of main unit (mm)		W136 × H83			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 2 rail			
Position detector		Resolvers Note 4			
Resolution (Pulse/rotation)		16384			

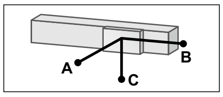
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Strokes longer than 1050mm are available only for high lead (Lead 30). (Special order item)
Note 4. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



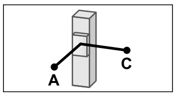
Horizontal installation (Unit: mm)

		A	B	C
Lead 30	**5kg**	1756	1364	863
	15kg	1236	467	438
Lead 20	**5kg**	2153	1366	980
	15kg	1193	465	430
	30kg	1266	245	294
Lead 10	**20kg**	1132	353	361
	40kg	872	183	218
	55kg	946	140	184
Lead 5	**50kg**	1575	158	222
	60kg	1493	135	194
	80kg	1466	107	159



Wall installation (Unit: mm)

		A	B	C
Lead 30	**5kg**	951	969	1286
	15kg	408	277	803
Lead 20	**5kg**	1066	974	1578
	15kg	402	276	775
	30kg	219	105	678
Lead 10	**20kg**	312	189	690
	40kg	140	57	402
	55kg	92	0	345
Lead 5	**30kg**	246	107	1095
	40kg	167	64	798
	60kg	88	20	508

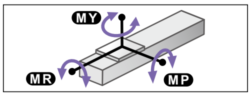


Vertical installation (Unit: mm)

		A	C
Lead 20	**1kg**	600	600
	2kg	1200	1200
	4kg	1154	895
Lead 10	**4kg**	1232	956
	8kg	634	492
	10kg	499	387
Lead 5	**10kg**	587	456
	15kg	383	297
	20kg	281	218

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

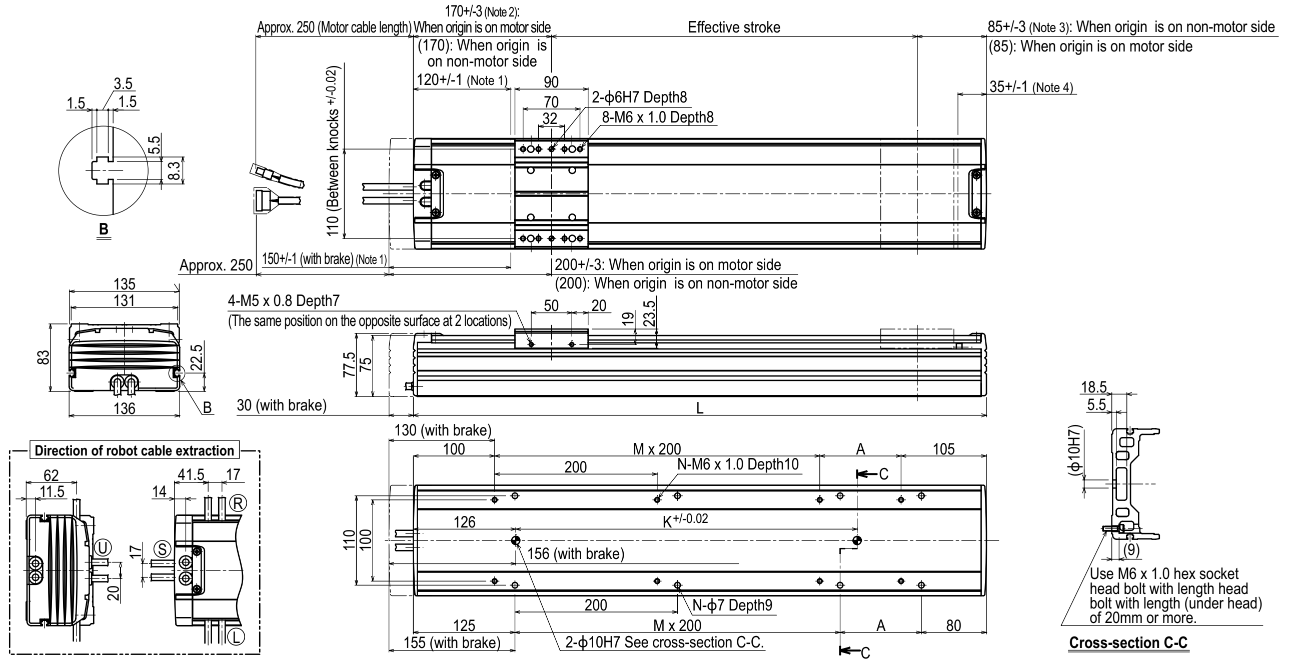
MY	MP	MR
232	233	204

Controller

Controller	Operation method
SR1-X05 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 Note TS-X205 Note	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

Note. Regenerative unit is required when the models used vertically and with 700mm or larger stroke.

F14


170+/-3 (Note 2): When origin is on motor side
Approx. 250 (Motor cable length)
(170): When origin is on non-motor side
Effective stroke
85+/-3 (Note 3): When origin is on non-motor side
(85): When origin is on motor side
120+/-1 (Note 1)
90
70
32
2-ϕ6H7 Depth8
8-M6 x 1.0 Depth8
35+/-1 (Note 4)
3.5
1.5
1.5
5.5
8.3
B
110 (Between knocks +/-0.02)
Approx. 250
150+/-1 (with brake) (Note 1)
200+/-3: When origin is on motor side
(200): When origin is on non-motor side
135
131
83
22.5
136
B
4-M5 x 0.8 Depth7
(The same position on the opposite surface at 2 locations)
50
20
19
23.5
77.5
75
30 (with brake)
L
130 (with brake)
100
M x 200
200
N-M6 x 1.0 Depth10
A
105
C
110
100
126
K+/-0.02
156 (with brake)
200
N-ϕ7 Depth9
125
M x 200
A
80
155 (with brake)
2-ϕ10H7 See cross-section C-C.
C
Direction of robot cable extraction
62
11.5
41.5
17
14
R
U
S
17
20
L
18.5
5.5
(ϕ10H7)
(9)
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.
Cross-section C-C

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 172.5+/-4 when the high lead specification (Lead 30) is used.
Note 3. 85+/-4 when the high lead specification (Lead 30) is used.
Note 4. 32.5+/-1 when the high lead specification (Lead 30) is used.
Note 5. Minimum bend radius of motor cable is R50.
Note 6. Weight of models with no brake. The weight of brake-attached models is 0.7 kg heavier than the models with no brake shown in the table.

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100 Note 8	1150 Note 8	1200 Note 8	1250 Note 8
L		405	455	505	555	605	655	705	755	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
K		240	240	240	240	420	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140
Weight (kg) Note 6		6.2	6.9	7.5	8.2	8.8	9.5	10.1	10.8	11.4	12.1	12.6	13.4	13.9	14.6	15.2	15.9	16.5	17.2	17.8	18.5	19.1	19.8	20.4
Maximum speed Note 7 **(mm/sec)**	**Lead 30**	1800												1440		1170		900		810				
	Lead 20	1200												960		780		600		540				
	Lead 10	600												480		390		300		270				
	Lead 5	300												240		195		150		135				
	Speed setting	–												80%		65%		50%		45%				

Note 7. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 8. Strokes longer than 1050mm are special order items. Please contact us for speed setting.

F14H

● High lead: Lead 30

● Origin on the non-motor side is selectable: Lead 10·20·30

Note. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Ordering method

F14H							
Model	**Lead designation**	**Brake** Note 1	**Cable entry location**	**Origin position change**	**Grease type**	**Stroke**	**Cable length** Note 3
	30: 30mm 20: 20mm 10: 10mm 5: 5mm	No entry: No brakes BK: Brakes provided	No entry: Standard (S) U: From the top R: From the right L: From the left	None: Standard Z: Non-motor side Note 2	None: Standard GC: Clean	Lead 20·10·5: 150 to 1050 (50mm pitch) Lead 30: 150 to 1250 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX					
Positioner Note 4	**Driver: Power-supply voltage / Power capacity**	**Regenerative unit**	**LCD monitor**	**I/O selection**	**Battery**
TS-X	110: 100V/200W 210: 200V/200W	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 5	B: With battery (Absolute) N: None (Incremental)

SR1-X	10				
Controller	**Driver: Power capacity**	**Usable for CE**	**Regenerative unit**	**I/O selection**	**Battery**
	10: 200W	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X	2	10	RBR1
Driver	**Power-supply voltage**	**Driver: Power capacity**	**Regenerative unit**
	2: AC200V	10: 200W or less	

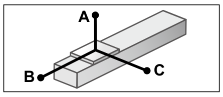
Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

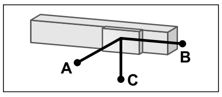
Specifications

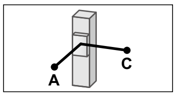
AC servo motor output (W)		200			
Repeatability Note 1 **(mm)**		+/-0.01			
Deceleration mechanism		Ball screw (Class C7)			
Ball screw lead (mm)		30	20	10	5
Maximum speed Note 2 **(mm/sec)**		1800	1200	600	300
Maximum payload (kg)	**Horizontal**	25	40	80	100
	Vertical	–	8	20	30
Rated thrust (N)		113	170	341	683
Stroke (mm)		150 to 1250 Note 3 (50mm pitch)			
Overall length (mm)	**Horizontal**	Stroke+320			
	Vertical	Stroke+350			
Maximum dimensions of cross section of main unit (mm)		W136 × H83			
Cable length (m)		Standard: 3.5 / Option: 5,10			
Linear guide type		4 rows of circular arc grooves × 2 rail			
Position detector		Resolvers Note 4			
Resolution (Pulse/rotation)		16384			

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Strokes longer than 1050mm are available only for high lead (Lead 30). (Special order item)
Note 4. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 30	10kg	2152	1673	934
	25kg	1847	691	533
Lead 20	10kg	2265	1674	961
	20kg	1402	855	537
	40kg	1047	445	324
Lead 10	30kg	1953	583	485
	50kg	1655	365	328
	80kg	1720	242	238
Lead 5	60kg	2443	311	317
	80kg	2193	242	253
	100kg	2000	202	214

Wall installation (Unit: mm)

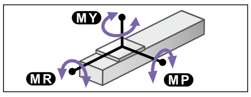
		A	B	C
Lead 30	10kg	975	1219	1625
	25kg	482	426	1257
Lead 20	10kg	999	1220	1711
	20kg	515	558	987
	40kg	263	227	635
Lead 10	30kg	419	338	1282
	50kg	240	162	934
	80kg	134	62	756
Lead 5	60kg	209	117	1398
	80kg	135	62	1120
	100kg	90	29	900

Vertical installation (Unit: mm)

		A	C
Lead 20	4kg	2400	2016
	6kg	1699	1364
	8kg	1301	1051
Lead 10	10kg	1370	1106
	15kg	906	732
	20kg	678	548
Lead 5	20kg	767	619
	25kg	612	494
	30kg	503	407

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

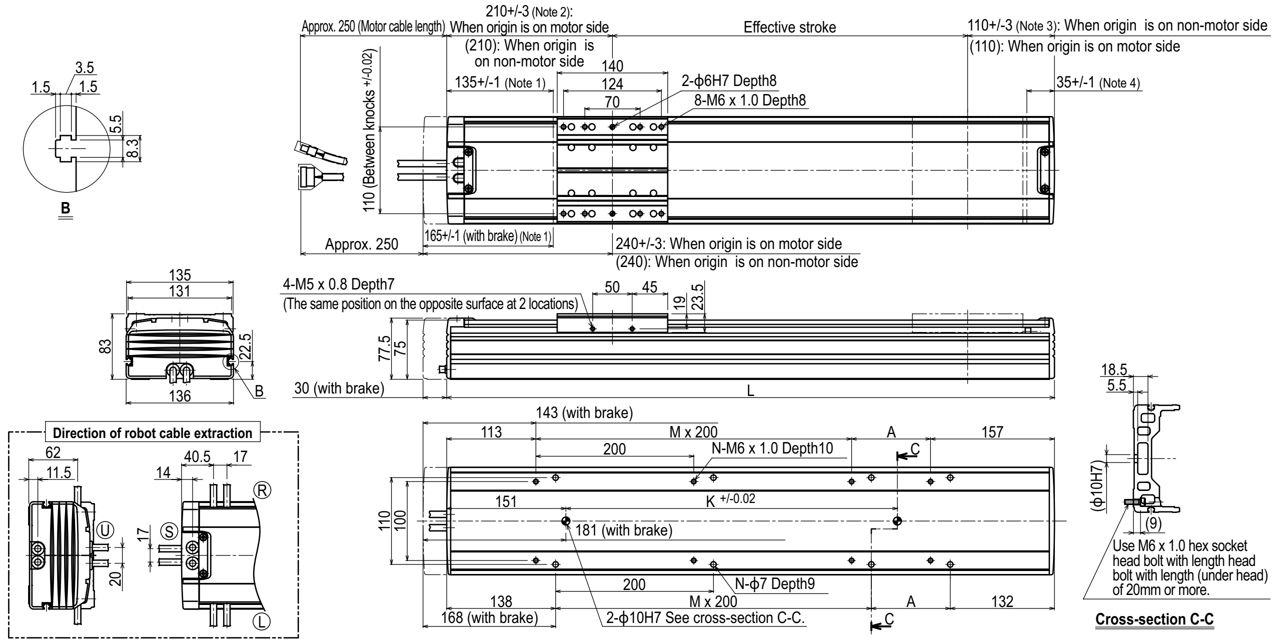
MY	MP	MR
551	552	485

Controller

Controller	Operation method
SR1-X10 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 Note TS-X210 Note	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

Note. When using the unit vertically, a regeneration unit is required.

F14H


210+/-3 (Note 2):
Approx. 250 (Motor cable length)
When origin is on motor side
(210): When origin is on non-motor side
Effective stroke
110+/-3 (Note 3): When origin is on non-motor side
(110): When origin is on motor side
140
135+/-1 (Note 1)
124
70
2-ϕ6H7 Depth8
8-M6 x 1.0 Depth8
35+/-1 (Note 4)
110 (Between knocks +/-0.02)
Approx. 250
165+/-1 (with brake) (Note 1)
240+/-3: When origin is on motor side
(240): When origin is on non-motor side
3.5
1.5
1.5
5.5
8.3
B
135
131
83
22.5
136
B
4-M5 x 0.8 Depth7
(The same position on the opposite surface at 2 locations)
50
45
19
23.5
77.5
75
30 (with brake)
L
18.5
5.5
143 (with brake)
Direction of robot cable extraction
62
11.5
40.5
17
14
Ⓡ
Ⓤ
Ⓢ
17
20
Ⓛ
113
M x 200
A
157
200
N-M6 x 1.0 Depth10
C
110
100
151
K +/-0.02
181 (with brake)
(ϕ10H7)
(9)
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.
200
N-ϕ7 Depth9
138
M x 200
A
132
168 (with brake)
2-ϕ10H7 See cross-section C-C.
C
Cross-section C-C

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 212.5+/-4 when the high lead specification (Lead 30) is used.
Note 3. 110+/-4 when the high lead specification (Lead 30) is used.
Note 4. 32.5+/-1 when the high lead specification (Lead 30) is used.
Note 5. Minimum bend radius of motor cable is R50.
Note 6. Weight of models with no brake. The weight of brake-attached models is 0.7 kg heavier than the models with no brake shown in the table.

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100 Note 8	1150 Note 8	1200 Note 8	1250 Note 8
L		470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
K		240	240	240	420	420	420	420	600	600	600	600	780	780	780	960	960	960	960	1140	1140	1140	1140	1320
Weight (kg) Note 6		7.5	8.2	8.8	9.5	10.1	10.8	11.4	12.1	12.7	13.4	13.9	14.6	15.2	15.9	16.5	17.2	17.8	18.5	19.1	19.8	20.4	21.1	21.7
Maximum speed Note 7 (mm/sec)	Lead 30	1800												1440		1170		900		810				
	Lead 20	1200												960		780		600		540				
	Lead 10	600												480		390		300		270				
	Lead 5	300												240		195		150		135				
	Speed setting	–												80%		65%		50%		45%				

Note 7. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 8. Strokes longer than 1050mm are special order items. Please contact us for speed setting.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

GF14XL

Origin on the non-motor side is selectable

Note. If you need an installation posture other than the horizontal installation, please contact us.

Ordering method

GF14XL - S H - 20 - [Cable entry location] [Origin position change] - [Frame] - [Grease type] - [Stroke] - [Cable length]

Model	Model	Installation direction	Lead designation	Cable entry location	Origin position change	Frame	Grease type	Stroke	Cable length Note 1
GF14XL	S: Straight model	H: Horizontal installation	20	No entry: Standard (S) U: From the top R: From the right L: From the left	None: Standard Z: Non-motor side	No entry: Standard (Spot facing) T: Tapping	None: Standard GC: Clean	750 to 2000 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX [Driver: Power-supply voltage / Power capacity] - [LCD monitor] - [I/O selection] - [Battery]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	110: 100V/200W 210: 200V/200W	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SR1-X 10 - [Usable for CE] - [I/O selection] - [Battery]

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	10: 200W	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 20 - RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1

Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

[Cautions after purchase]

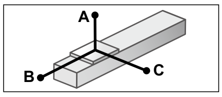
- When changing the origin position, contact us since the adjustment is needed.
- When changing the cable entry location, contact us since necessary parts may vary depending on the cable entry location.
- Do not install the robot with the horizontal installation specifications in a direction other than the horizontal direction.

Specifications

AC servo motor output (W)	200
Repeatability Note 1 (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ15 (Class C7)
Ball screw lead (mm)	20
Maximum speed (mm/sec)	1200
Maximum payload (kg)	45
Rated thrust (N)	170
Stroke (mm)	750 to 2000 (50mm pitch)
Overall length (mm)	Stroke+561
Maximum dimensions of cross section of main unit (mm)	W140×H91.5
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 2
Resolution (Pulse/rotation)	20480

Note 1. Positioning repeatability in one direction.
Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note

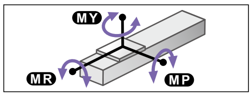


Horizontal installation (Unit: mm)

		A	B	C
Lead 20	10kg	3550	1340	1210
	20kg	2075	685	633
	45kg	1280	326	308

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 1000mm stroke models.

Static loading moment



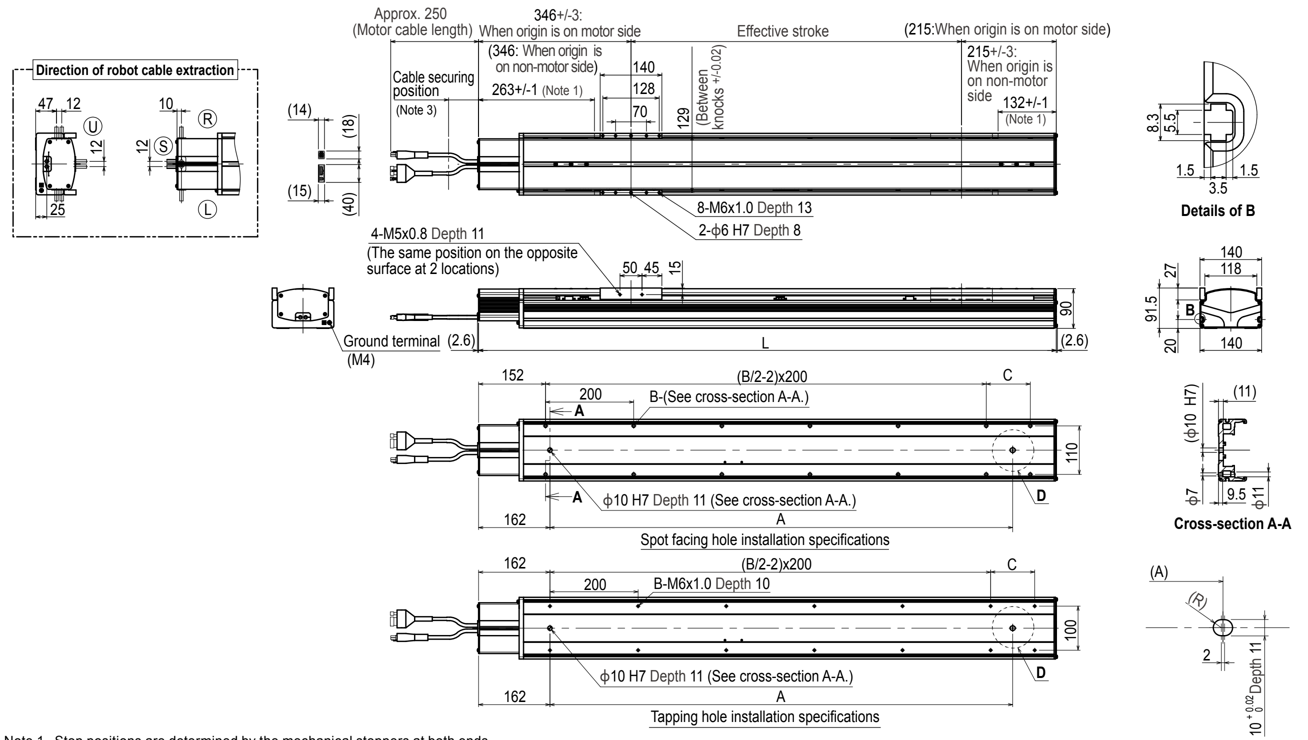
(Unit: N·m)

MY	MP	MR
551	552	485

Controller

Controller	Operation method
SR1-X10 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 TS-X210	I/O point trace/ Remote command
RDV-X220-RBR1	Pulse train control

GF14XL


Direction of robot cable extraction
47
12
10
25
12
U
R
S
L
(14)
(15)
(18)
(40)
Approx. 250 (Motor cable length)
346+/-3: When origin is on motor side
(346: When origin is on non-motor side)
Cable securing position (Note 3)
263+/-1 (Note 1)
140
128
70
129
(Between knocks +/-0.02)
Effective stroke
(215:When origin is on motor side)
215+/-3: When origin is on non-motor side
132+/-1 (Note 1)
8-M6x1.0 Depth 13
2-ϕ6 H7 Depth 8
4-M5x0.8 Depth 11
(The same position on the opposite surface at 2 locations)
50
45
15
90
Ground terminal (M4)
(2.6)
L
(2.6)
152
(B/2-2)x200
C
200
B-(See cross-section A-A.)
A
110
ϕ10 H7 Depth 11 (See cross-section A-A.)
D
162
A
Spot facing hole installation specifications
162
(B/2-2)x200
C
200
B-M6x1.0 Depth 10
100
ϕ10 H7 Depth 11 (See cross-section A-A.)
D
162
A
Tapping hole installation specifications
8.3
5.5
1.5
1.5
3.5
Details of B
140
118
27
91.5
B
20
140
(ϕ10 H7)
(11)
ϕ7
9.5
ϕ11
Cross-section A-A
(A)
R
2
10 +0.02 0 Depth 11
Details of D

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When changing the return-to-origin direction, the adjustment is needed. (The standard is the origin on the motor side.)
Note 3. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 4. The cable's minimum bend radius is R30.
Note 5. The length under head of the hexagonal socket head bolts (M6 x 1.0) that are used to install the main body with the spot facing hole installation specifications is 20mm or more.
It is recommended that the length under head of the hexagonal socket head bolts (M6 x 1.0) that are used to install the main body with the tapping hole installation specifications is the thickness of the installation base + 10mm or less.

Effective stroke	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
L	1311	1361	1411	1461	1511	1561	1611	1661	1711	1761	1811	1861	1911	1961	2011	2061	2111	2161	2211	2261	2311	2361	2411	2461	2511	2561
A	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300
B	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26
C	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
Weight (kg)	22.5	23.2	23.8	24.5	25.2	25.9	26.5	27.2	27.9	28.6	29.2	29.9	30.6	31.3	31.9	32.6	33.3	33.9	34.6	35.3	36.0	36.6	37.3	38.0	38.7	39.3

F17

High lead: Lead 40

Origin on the non-motor side is selectable

Note. Upper robot cable (U) on models with brakes is a special order item, so please consult our sales office or sales representative for assistance.
(External dimensions: overall length + 20 mm)

Ordering method

F17 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Brake Note 1	Cable entry location	Origin position change	Grease type	Stroke	Cable length Note 3
F17	40: 40mm 20: 20mm 10: 10mm	No entry: No brakes BK: Brakes provided	No entry: Standard (S) U: From the top Note 2 R: From the right L: From the left	None: Standard Z: Non-motor side	None: Standard GC: Clean	Lead 20·10: 200 to 1250 (50mm pitch) Lead 40: 200 to 1450 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX **220** - ☐ - ☐ - ☐ - ☐

Positioner Note 4	Driver: Power-supply voltage / Power capacity	Regenerative unit Note 5	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 6	B: With battery (Absolute) N: None (Incremental)

SR1-X **20** - ☐ - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit Note 5	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **20** - ☐

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit Note 5
RDV-X	2: AC200V	20: 600W or less	RBR1 (Horizontal) RBR2 (Vertical)

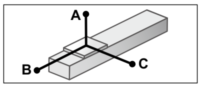
Note 1. The model with a lead of 40mm cannot select specifications with brake (vertical specifications).
Note 2. Upper robot cable (U) on models equipped with brake is a special-order item.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. The robot with the high lead specifications (lead 40) needs a regenerative unit.
Note 6. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		400		
Repeatability Note 1 (mm)		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		40	20	10
Maximum speed Note 2 (mm/sec)		2400	1000 (1200 Note3)	600
Maximum payload (kg)	**Horizontal**	40	80	120
	Vertical	–	15	35
Rated thrust (N)		169	339	678
Stroke (mm)		200 to 1450 Note 4 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+375	Stroke+365	
	Vertical	–	Stroke+395	
Maximum dimensions of cross section of main unit (mm)		W168 × H100		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		4 rows of circular arc grooves × 2 rail		
Position detector		Resolvers Note 5		
Resolution (Pulse/rotation)		16384		

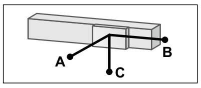
Note 1. Repeatability for single oscillation.
Note 2. When the stroke exceeds 800mm, although depending on the moving range, the ball screw may resonate (critical speed). In that case, make adjustment to lower the speed on the program using the maximum speed given in the below table as a guide.
Note 3. To operate the unit at a speed exceeding 1,000mm/sec. (Max. speed), a regeneration unit RG1 is required.
Note 4. Longer than 1250mm stroke can be handled by the high lead specification (Lead 40) only.
Note 5. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



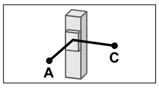
Horizontal installation (Unit: mm)

		A	B	C
Lead 40	10kg	3540	2753	1999
	20kg	2541	1357	1181
	40kg	2639	661	736
Lead 20	30kg	2647	894	989
	50kg	1770	521	588
	80kg	1391	312	362
Lead 10	60kg	2443	430	572
	100kg	2000	243	326
	120kg	1841	197	264



Wall installation (Unit: mm)

		A	B	C
Lead 40	10kg	2022	2670	3501
	20kg	1202	1283	2483
	40kg	752	587	2516
Lead 20	30kg	987	820	2578
	50kg	574	447	1685
	80kg	342	237	1263
Lead 10	60kg	535	355	2443
	100kg	283	169	2000
	120kg	220	123	1841

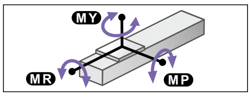


Vertical installation (Unit: mm)

		A	C
Lead 20	5kg	3000	3000
	10kg	2447	2447
	15kg	1650	1650
Lead 10	15kg	1782	1782
	25kg	1054	1054
	35kg	742	742

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

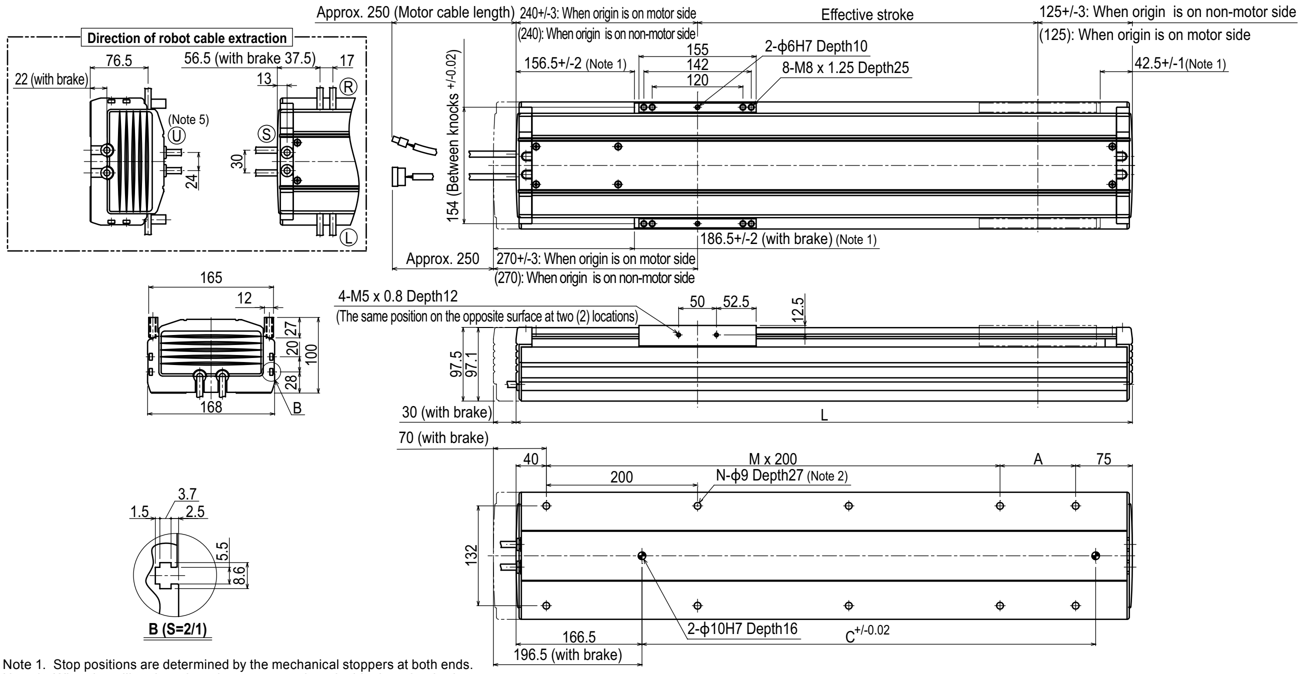
MY	MP	MR
1032	1034	908

Controller

Controller	Operation method
SR1-X20 Note RCX221/222, RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220 Note	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

Note. [The following arrangements require a regeneration unit.]
- Using in the upright position.
- To move at a speed exceeding 1,000 mm/sec horizontally.
- High lead (40) used horizontally.

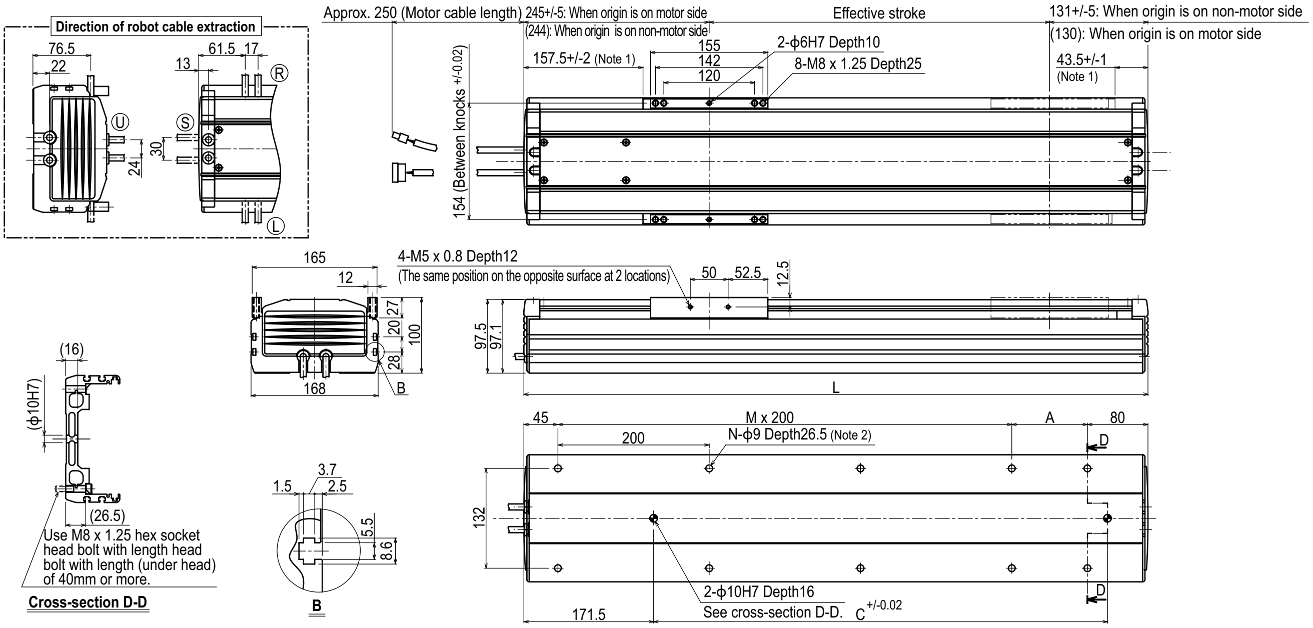
F17


Direction of robot cable extraction
76.5
56.5 (with brake 37.5)
17
22 (with brake)
13
R
(Note 5)
U
S
30
24
L
Approx. 250 (Motor cable length)
240+/-3: When origin is on motor side
(240): When origin is on non-motor side
Effective stroke
125+/-3: When origin is on non-motor side
(125): When origin is on motor side
156.5+/-2 (Note 1)
155
142
120
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
42.5+/-1(Note 1)
154 (Between knocks +/-0.02)
186.5+/-2 (with brake) (Note 1)
Approx. 250
270+/-3: When origin is on motor side
(270): When origin is on non-motor side
165
12
4-M5 x 0.8 Depth12
(The same position on the opposite surface at two (2) locations)
50
52.5
12.5
27
20
100
28
168
B
97.5
97.1
30 (with brake)
L
70 (with brake)
40
M x 200
A
75
200
N-ϕ9 Depth27 (Note 2)
132
3.7
1.5
2.5
5.5
8.6
B (S=2/1)
166.5
2-ϕ10H7 Depth16
C+/-0.02
196.5 (with brake)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. Weight of models with no brake. The weight of brake-attached models is 1.2 kg heavier than the models with no brake shown in the table.
Note 5. Make a separate consultation with us regarding robot cable (brake specifications) U extraction. (External dimensions: overall length + 20 mm)
Note 6. When the stroke is longer than 800mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 7. To operate the unit at a speed exceeding 1,000mm/sec. (Max. speed), a regeneration unit RG1 is required.

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L		565	615	665	715	765	815	865	915	965	1015	1065	1115	1165	1215	1265	1315	1365	1415	1465	1515	1565	1615
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18
C		240	240	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1140	1320
Weight (kg) Note 4		14.5	15.3	16.2	17.0	17.8	18.6	19.5	20.3	21.1	21.9	22.8	23.6	24.4	25.2	26.1	26.9	27.7	28.5	29.4	30.2	31.0	31.8
Maximum speed Note 6 (mm/sec)	Lead 20	1000(1200 Note 7)													960		840		720		600		480
	Lead 10	600													480		420		360		300		240
	Speed setting	–													80%		70%		60%		50%		40%

F17 High lead type: Lead 40


Direction of robot cable extraction
76.5
22
61.5
17
13
Ⓡ
Ⓤ
Ⓢ
30
24
Ⓛ
Approx. 250 (Motor cable length)
245+/-5: When origin is on motor side
(244): When origin is on non-motor side
Effective stroke
131+/-5: When origin is on non-motor side
(130): When origin is on motor side
157.5+/-2 (Note 1)
155
142
120
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
43.5+/-1
(Note 1)
154 (Between knocks +/-0.02)
165
12
4-M5 x 0.8 Depth12
(The same position on the opposite surface at 2 locations)
50
52.5
12.5
27
20
100
28
168
B
97.5
97.1
L
(16)
(ϕ10H7)
(26.5)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section D-D
3.7
1.5
2.5
5.5
8.6
B
45
M x 200
A
80
200
N-ϕ9 Depth26.5 (Note 2)
D
132
2-ϕ10H7 Depth16
See cross-section D-D.
C +/-0.02
171.5
D

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450
L		575	625	675	725	775	825	875	925	975	1025	1075	1125	1175	1225	1275	1325	1375	1425	1475	1525	1575	1625	1675	1725	1775	1825
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
C		240	240	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1140	1320	1320	1320	1320	1320
Weight (kg)		14.7	15.5	16.4	17.2	18.0	18.8	19.7	20.5	21.3	22.1	23.0	23.8	24.6	25.4	26.3	27.1	27.9	28.7	29.6	30.4	31.2	32.0	32.8	33.6	34.4	35.2
Maximum speed Note 4 (mm/sec)	Lead 40	2400													1920		1680		1440		1200		960		840		720
	Speed setting	–													80%		70%		60%		50%		40%		35%		30%

Note 4. When the stroke is longer than 800mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

F17L

● Origin on the non-motor side is selectable

Note. Upper robot cable (U) on models with brakes is a special order item, so please consult our sales office or sales representative for assistance. (External dimensions: overall length + 20 mm)

Ordering method

F17L - 50 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Model	Lead designation	Brake	Cable entry location	Origin position change	Grease type	Stroke	Cable length Note 2
F17L	50	No entry: No brakes	No entry: Standard (S)	None: Standard	None: Standard	1100 to 2050 (50mm pitch)	3L: 3.5m
		BK: Brakes provided	U: From the top Note 1	Z: Non-motor side	GC: Clean		5L: 5m
			R: From the right				10L: 10m
			L: From the left				3K/5K/10K (Flexible cable)

TSX 220 - R - [ ] - [ ] - [ ]

Positioner Note 3	Driver: Power-supply voltage / Power capacity Note 4	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	R: With RGT	No entry: None	NP: NPN	B: With battery (Absolute)
			L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 5	

SR1-X 20 - [ ] - R - [ ] - [ ]

Controller	Driver: Power capacity Note 4	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	R: With RG1	N: NPN	B: With battery (Absolute)
		E: CE marking		P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 20 - [ ]

Driver	Power-supply voltage	Driver: Power capacity Note 4	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1 (Horizontal)
			RBR2 (Vertical)

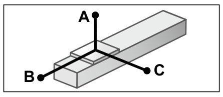
Note 1. Upper robot cable (U) on models equipped with brake is a special-order item.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Acceleration / deceleration is different depending the Positioner or Controller or Driver.
Note 5. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		600
Repeatability Note 1 (mm)		+/-0.02
Deceleration mechanism		Ball screw (Class C10)
Ball screw lead (mm)		50
Maximum speed Note 2 (mm/sec)		2200
Maximum payload (kg)	Horizontal	50
	Vertical	10
Rated thrust (N)		204
Stroke (mm)		1100 to 2050 (50mm pitch)
Overall length (mm)	Horizontal	Stroke+475
	Vertical	Stroke+505
Maximum dimensions of cross section of main unit (mm)		W168 × H100
Cable length (m)		Standard: 3.5 / Option: 5,10
Linear guide type		4 rows of circular arc grooves × 2 rail
Position detector		Resolvers Note 3
Resolution (Pulse/rotation)		16384

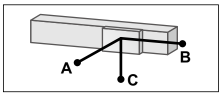
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 1200mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note



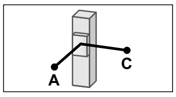
Horizontal installation (Unit: mm)

		A	B	C
Lead 50	10kg	4000	2755	2608
	30kg	3045	895	1175
	50kg	2602	523	715



Wall installation (Unit: mm)

		A	B	C
Lead 50	10kg	2720	2681	4000
	30kg	1185	821	3045
	50kg	680	449	2602

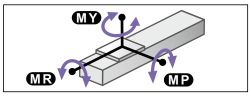


Vertical installation (Unit: mm)

		A	C
Lead 50	2kg	1200	1200
	5kg	3000	3000
	10kg	2650	2650

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



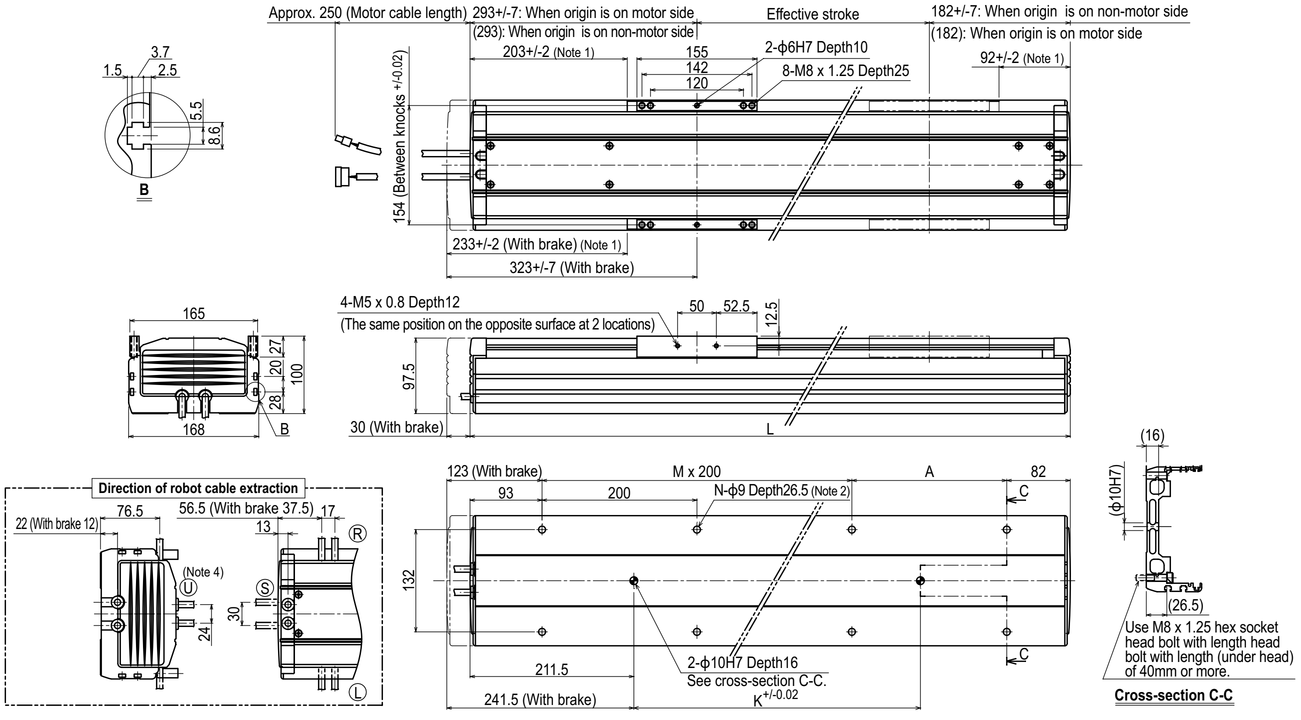
(Unit: N·m)

MY	MP	MR
1032	1034	908

Controller

Controller	Operation method
SR1-X20-R RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220-R	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

F17L


Approx. 250 (Motor cable length)
293+/-7: When origin is on motor side
(293): When origin is on non-motor side
Effective stroke
182+/-7: When origin is on non-motor side
(182): When origin is on motor side
203+/-2 (Note 1)
155
142
120
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
92+/-2 (Note 1)
3.7
1.5
2.5
5.5
8.6
B
154 (Between knocks +/-0.02)
233+/-2 (With brake) (Note 1)
323+/-7 (With brake)
165
4-M5 x 0.8 Depth12
(The same position on the opposite surface at 2 locations)
50
52.5
12.5
27
20
100
28
168
B
97.5
30 (With brake)
L
Direction of robot cable extraction
76.5
56.5 (With brake 37.5)
17
22 (With brake 12)
13
R
(Note 4)
U
S
30
24
L
123 (With brake)
M x 200
A
82
93
200
N-ϕ9 Depth26.5 (Note 2)
C
132
211.5
2-ϕ10H7 Depth16
See cross-section C-C.
241.5 (With brake)
K+/-0.02
C
(16)
(ϕ10H7)
(26.5)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section C-C

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. It is not allowed to use a counter bore washer, etc. when installing the main unit.
Note 3. This is the weight of the model without a brake. The weight of the model equipped with a brake is 1.2kg heavier than this value.
Note 4. Make a separate consultation with us regarding robot cable (brake specifications) U extraction. (External dimensions: overall length + 20 mm)

Effective stroke		1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050
L		1575	1625	1675	1725	1775	1825	1875	1925	1975	2025	2075	2125	2175	2225	2275	2325	2375	2425	2475	2525
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M		6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11
N		16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26
K		1140	1140	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320
Weight (kg) Note 3		34.1	34.9	35.8	36.7	37.6	38.4	39.3	40.2	41.1	42	42.9	43.8	44.7	45.6	46.5	47.3	48.2	49.1	50	50.9
Maximum speed Note 5 (mm/sec)	Lead 50	2200			1900				1500				1200				900				800
	Speed setting	–			86%				68%				54%				40%				36%

Note 5. When the stroke exceeds 1200mm, although depending on the moving range, the ball screw may resonate (critical speed). In that case, make adjustment to lower the speed on the program using the maximum speed given in the above table as a guide.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

GF17XL

Origin on the non-motor side is selectable

Note. If you need an installation posture other than the horizontal installation, please contact us.

Ordering method

GF17XL - S H - 20 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Model	Installation direction	Lead designation	Cable entry location	Origin position change	Frame	Grease type	Stroke	Cable length Note 1
GF17XL	S: Straight model	H: Horizontal installation	20	No entry: Standard (S)	None: Standard	No entry: Standard (Spot facing)	None: Standard	850 to 2500 (50mm pitch)	3L: 3.5m
				U: From the top	Z: Non-motor side	T: Tapping	GC: Clean		5L: 5m
				R: From the right					10L: 10m
				L: From the left					3K/5K/10K (Flexible cable)

TSX 220 - ☐ - ☐ - ☐ - ☐

Positioner Note 2	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
		R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 3	

SR1-X 20 - ☐ - R Note 4 ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 20 - RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1

Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.
Note 4. When operating the robot at a speed that is a maximum speed of 750 mm/sec or less, the regenerative unit is not needed.

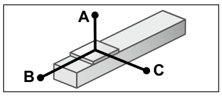
[Cautions after purchase]
- When changing the origin position, contact us since the adjustment is needed.
- When changing the cable entry location, contact us since necessary parts may vary depending on the cable entry location.
- Do not install the robot with the horizontal installation specifications in a direction other than the horizontal direction.

Specifications

AC servo motor output (W)	400
Repeatability Note 1 (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ20 (Class C7)
Ball screw lead (mm)	20
Maximum speed (mm/sec)	1200 Note 2
Maximum payload (kg)	90
Rated thrust (N)	339
Stroke (mm)	850 to 2500 (50mm pitch)
Overall length (mm)	Stroke+686
Maximum dimensions of cross section of main unit (mm)	W168×H105.5
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 3
Resolution (Pulse/rotation)	20480

Note 1. Positioning repeatability in one direction.
Note 2. To operate the unit at a speed exceeding 750 mm/sec. (Max. speed), a regeneration unit is required.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note

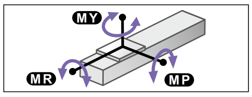


Horizontal installation (Unit: mm)

		A	B	C
Lead 20	30kg	4050	1090	1405
	50kg	2755	650	835
	90kg	1610	345	450

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 1000mm stroke models.

Static loading moment



(Unit: N·m)

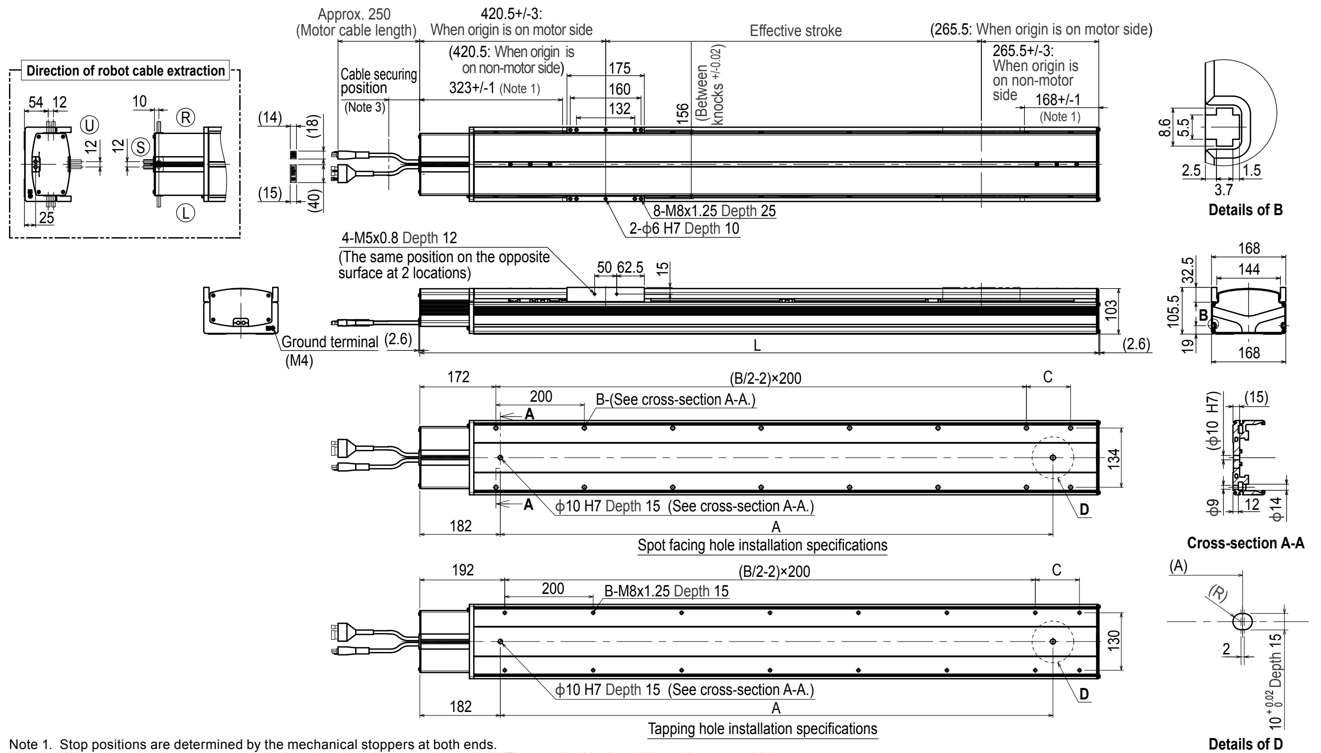
MY	MP	MR
1032	1034	908

Controller

Controller	Operation method
SR1-X20 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220	I/O point trace/ Remote command
RDV-X220-RBR1	Pulse train control

Note. To operate the unit at a speed exceeding 750 mm/sec. (Max. speed), a regeneration unit is required.

GF17XL


Approx. 250 (Motor cable length)
420.5+/-3: When origin is on motor side
(420.5: When origin is on non-motor side)
Effective stroke
(265.5: When origin is on motor side)
265.5+/-3: When origin is on non-motor side
168+/-1 (Note 1)
Direction of robot cable extraction
54 12
10
25
12
U
R
S
L
(14)
(18)
(15)
(40)
Cable securing position (Note 3)
323+/-1 (Note 1)
175
160
132
156
(Between knocks +/-0.02)
8-M8x1.25 Depth 25
2-ϕ6 H7 Depth 10
4-M5x0.8 Depth 12
(The same position on the opposite surface at 2 locations)
50 62.5
15
103
Ground terminal (M4)
(2.6)
L
(2.6)
8.6
5.5
2.5
3.7
1.5
Details of B
168
144
32.5
105.5
B
19
168
172
200
(B/2-2)×200
C
B-(See cross-section A-A.)
A
134
ϕ10 H7 Depth 15 (See cross-section A-A.)
182
A
D
Spot facing hole installation specifications
(ϕ10 H7)
(15)
ϕ9
12
ϕ14
Cross-section A-A
192
200
(B/2-2)×200
C
B-M8x1.25 Depth 15
130
ϕ10 H7 Depth 15 (See cross-section A-A.)
182
A
D
Tapping hole installation specifications
(A)
(R)
2
10 +0.02 0 Depth 15
Details of D

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When changing the return-to-origin direction, the adjustment is needed. (The standard is the origin on the motor side.)
Note 3. Secure the cable with a tie-band 100mm or less from cable end face to prevent the cable from being subjected to excessive loads.
Note 4. The cable's minimum bend radius is R30.
Note 5. The length under head of the hexagonal socket head bolts (M8 x 1.25) that are used to install the main body with the spot facing hole installation specifications is 45 mm or more.
It is recommended that the length under head of the hexagonal socket head bolts (M8 x 1.25) that are used to install the main body with the tapping hole installation specifications is the thickness of the installation base + 15 mm or less.

Effective stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
L	1536	1586	1636	1686	1736	1786	1836	1886	1936	1986	2036	2086	2136	2186	2236	2286	2336	2386	2436	2486	2536	2586	2636	2686	2736	2786	2836	2886	2936	2986	3036	3086	3136	3186
A	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900
B	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32
C	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
Weight (kg)	37.4	38.4	39.4	40.3	41.3	42.3	43.2	44.2	45.2	46.1	47.1	48.1	49.0	50.0	51.0	51.9	52.9	53.9	54.8	55.8	56.8	57.7	58.7	59.7	60.6	61.6	62.6	63.5	64.5	65.5	66.4	67.4	68.4	69.3

F20

- High lead: Lead 40
- Origin on the non-motor side is selectable

Note. Upper robot cable (U) on models with brakes is a special order item, so please consult our sales office or sales representative for assistance. (External dimensions: overall length + 20 mm)

Ordering method

F20 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Brake [Note 1]	Cable entry location	Origin position change	Grease type	Stroke	Cable length [Note 3]
F20	40: 40mm	No entry: No brakes	No entry: Standard (S)	None: Standard	None: Standard	Lead 20·10: 200 to 1250 (50mm pitch)	3L: 3.5m
	20: 20mm	BK: Brakes provided	U: From the top [Note 2]	Z: Non-motor side	GC: Clean	Lead 40: 200 to 1450 (50mm pitch)	5L: 5m
	10: 10mm		R: From the right				10L: 10m
			L: From the left				3K/5K/10K (Flexible cable)

TSX 220 - ☐ - ☐ - ☐ - ☐

Positioner [Note 4]	Driver: Power-supply voltage / Power capacity [Note 5]	Regenerative unit [Note 6]	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
		R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board [Note 7]	

SR1-X 20 - ☐ - ☐ - ☐ - ☐

Controller	Driver: Power capacity [Note 5]	Usable for CE	Regenerative unit [Note 6]	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 20 - ☐

Driver	Power-supply voltage	Driver: Power capacity [Note 5]	Regenerative unit [Note 6]
RDV-X	2: AC200V	20: 600W or less	RBR1 (Horizontal)
			RBR2 (Vertical)

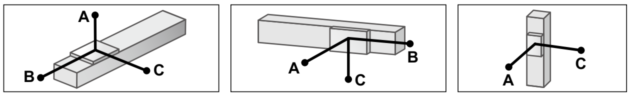
Note 1. The model with a lead of 40mm cannot select specifications with brake (vertical specifications).
Note 2. Upper robot cable (U) on models equipped with brake is a special-order item.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Acceleration / deceleration is different depending the Positioner or Controller or Driver.
Note 6. The robot with the high lead specifications (lead 40) needs a regenerative unit.
Note 7. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)		600		
Repeatability [Note 1] (mm)		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		40	20	10
Maximum speed [Note 2] (mm/sec)		2400	1000 (1200 [Note 3])	600
Maximum payload (kg)	Horizontal	60	120	–
	Vertical	–	25	45
Rated thrust (N)		255	510	1020
Stroke (mm)		200 to 1450 [Note 4] (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+427	Stroke+417	
	Vertical	–	Stroke+447	
Maximum dimensions of cross section of main unit (mm)		W202 × H115		
Cable length (m)		Standard: 3.5 / Option: 5,10		
Linear guide type		4 rows of circular arc grooves × 2 rail		
Position detector		Resolvers [Note 5]		
Resolution (Pulse/rotation)		16384		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 800mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. To operate the unit at a speed exceeding 1,000mm/sec. (Max. speed), a regeneration unit RG1 is required.
Note 4. Longer than 1250mm stroke can be handled by the high lead specification (Lead 40) only.
Note 5. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]



Horizontal installation (Unit: mm)

		A	B	C
Lead 40	10kg	4000	4000	3450
	20kg	3397	2235	2073
	60kg	2443	718	977
Lead 20	50kg	2602	869	1083
	80kg	2193	528	703
	120kg	1841	339	505

Wall installation (Unit: mm)

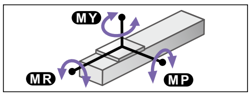
		A	B	C
Lead 40	10kg	3571	4000	4000
	20kg	2118	2164	3397
	60kg	1000	648	2443
Lead 20	50kg	1097	799	2602
	80kg	708	458	2193
	120kg	468	268	1841

Vertical installation (Unit: mm)

		A	C
Lead 20	15kg	2635	2635
	20kg	2000	2000
	25kg	1621	1621
Lead 10	20kg	2188	2188
	30kg	1446	1446
	45kg	951	951

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

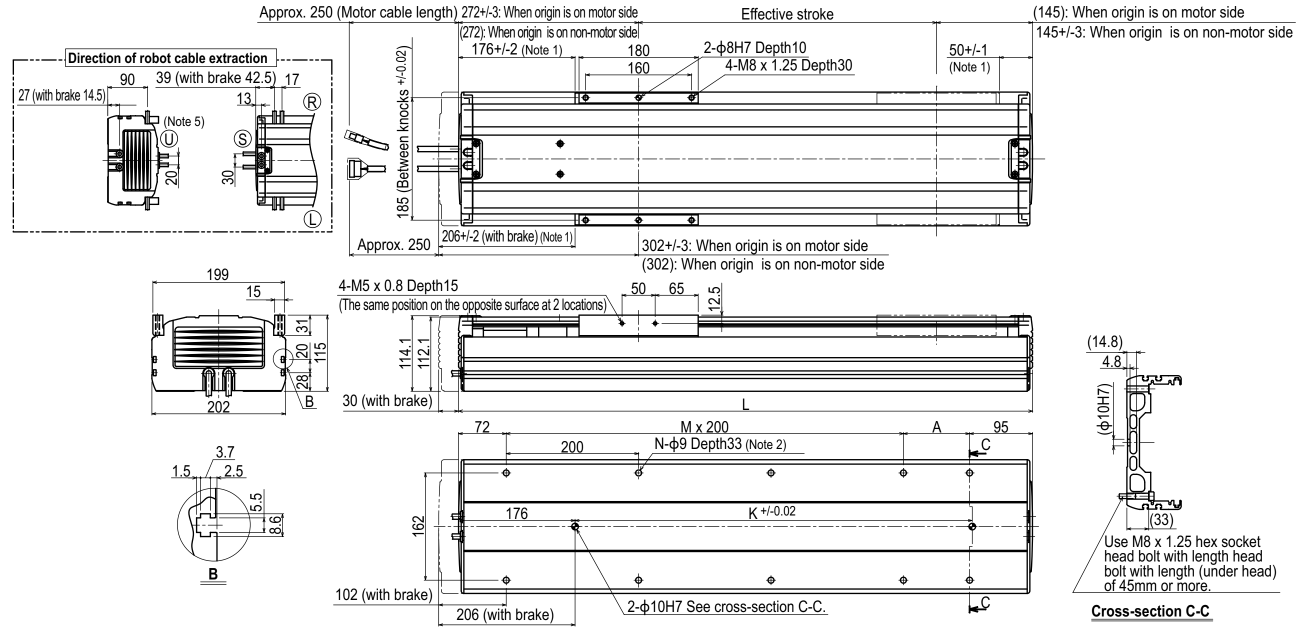
MY	MP	MR
1196	1199	1052

Controller

Controller	Operation method
SR1-X20 [Note] RCX221/222, RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220 [Note]	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

Note. [The following arrangements require a regeneration unit.]
- Using in the upright position.
- To move at a speed exceeding 1,000 mm/sec horizontally.
- High lead (40) used horizontally.

F20


Approx. 250 (Motor cable length)
272+/-3: When origin is on motor side
(272): When origin is on non-motor side
176+/-2 (Note 1)
180
160
2-ϕ8H7 Depth10
4-M8 x 1.25 Depth30
Effective stroke
(145): When origin is on motor side
145+/-3: When origin is on non-motor side
50+/-1
(Note 1)
Direction of robot cable extraction
90
39 (with brake 42.5)
17
27 (with brake 14.5)
13
R
(Note 5)
U
S
L
20
30
185 (Between knocks +/-0.02)
Approx. 250
206+/-2 (with brake) (Note 1)
302+/-3: When origin is on motor side
(302): When origin is on non-motor side
199
15
4-M5 x 0.8 Depth15
(The same position on the opposite surface at 2 locations)
50
65
12.5
31
20
115
28
114.1
112.1
202
B
30 (with brake)
L
72
200
M x 200
N-ϕ9 Depth33 (Note 2)
A
95
C
3.7
1.5
2.5
5.5
8.6
B
176
K +/-0.02
162
102 (with brake)
206 (with brake)
2-ϕ10H7 See cross-section C-C.
C
(14.8)
4.8
(ϕ10H7)
(33)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.
Cross-section C-C

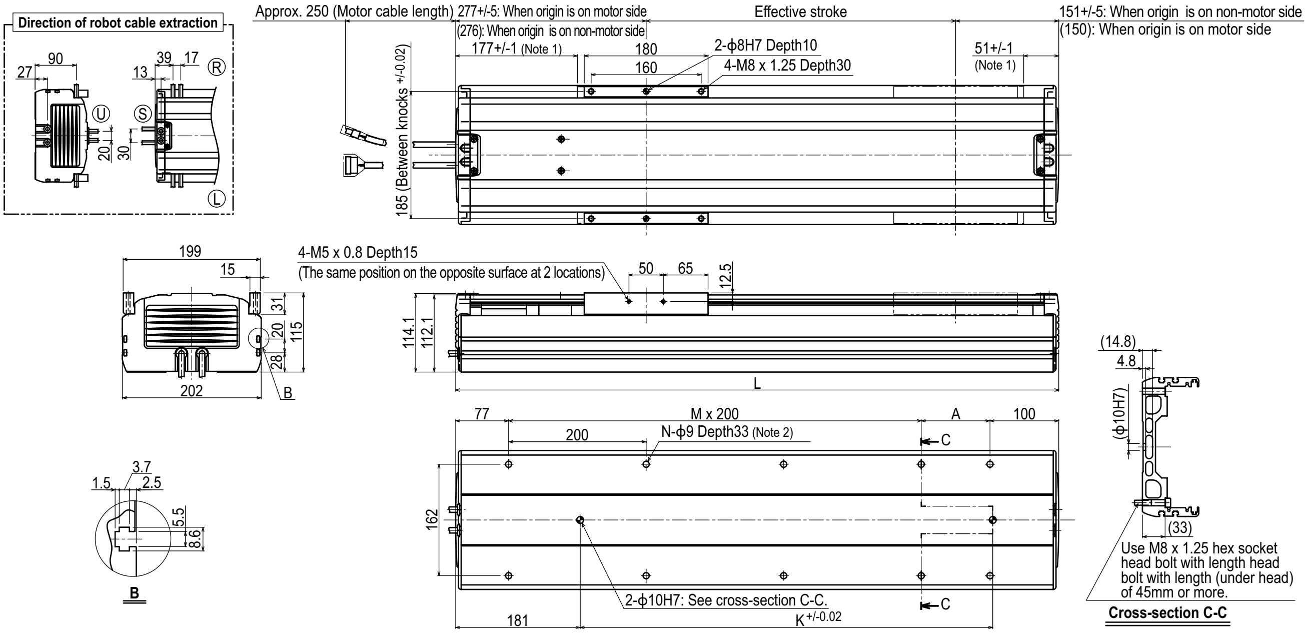
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. Weight of models with no brake. The weight of brake-attached models is 1.5 kg heavier than the models with no brake shown in the table.
Note 5. Make a separate consultation with us regarding robot cable (brake specifications) U extraction. (External dimensions: overall length + 20 mm)

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L		617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317	1367	1417	1467	1517	1567	1617	1667
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18
K		420	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1320	1320	1320
Weight (kg) [Note 4]		21.0	22.0	22.9	23.8	24.8	25.7	26.6	27.5	28.5	29.4	30.3	31.2	32.1	33.0	34.0	34.9	35.8	36.7	37.7	38.6	39.5	40.4
Maximum speed [Note 6] (mm/sec)	Lead 20	1000 (1200 [Note 7])													960		840		720		600		480
	Lead 10	600													480		420		360		300		240
	Speed setting	–													80%		70%		60%		50%		40%

Note 6. When the stroke exceeds 800mm, although depending on the moving range, the ball screw may resonate (critical speed). In that case, make adjustment to lower the speed on the program using the maximum speed given in the above table as a guide.
Note 7. To operate the unit at a speed exceeding 1,000mm/sec. a regeneration unit RG1 is required.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

F20 High lead type: Lead 40


Direction of robot cable extraction
90
27
13
39
17
Ⓡ
Ⓤ
Ⓢ
Ⓛ
20
30
Approx. 250 (Motor cable length)
277+/-5: When origin is on motor side
(276): When origin is on non-motor side
177+/-1 (Note 1)
180
160
2-ϕ8H7 Depth10
4-M8 x 1.25 Depth30
Effective stroke
151+/-5: When origin is on non-motor side
(150): When origin is on motor side
51+/-1
(Note 1)
185 (Between knocks +/-0.02)
199
15
4-M5 x 0.8 Depth15
(The same position on the opposite surface at 2 locations)
50
65
12.5
31
20
115
28
202
B
114.1
112.1
L
(14.8)
4.8
(ϕ10H7)
(33)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.
Cross-section C-C
77
200
M x 200
N-ϕ9 Depth33 (Note 2)
A
100
C
162
2-ϕ10H7: See cross-section C-C.
181
K+/-0.02
3.7
1.5
2.5
5.5
8.6
B

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450
L		627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
K		420	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1320	1320	1320	1320	1320	1320	1320
Weight (kg)		21.2	22.2	23.1	24.0	25.0	25.9	26.8	27.7	28.7	29.6	30.5	31.4	32.3	33.2	34.2	35.1	36.0	36.9	37.9	38.8	39.7	40.6	41.5	42.4	43.3	44.2
Maximum speed Note 4 (mm/sec)	Lead 40	2400													1920		1680		1440		1200		960		840		720
	Speed setting	–													80%		70%		60%		50%		40%		35%		30%

Note 4. When the stroke is longer than 800mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 5. Longer than 1250mm stroke can be handled by the high lead specification (Lead 40) only.

F20N

Ordering method

F20N - **20** - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Origin position change	Grease type	Stroke	Cable length Note 1
F20N	20	None: Standard	None: Standard	1150 to 2050 (100mm pitch)	3L: 3.5m
		Z: Non-motor side	GC: Clean		5L: 5m
					10L: 10m
					3K/5K/10K (Flexible cable)

TSX **220** - ☐ - ☐ - ☐ - ☐

Positioner Note 2	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
		R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 3	

SR1-X **20** - ☐ - ☐ - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X **2** **20** - **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1

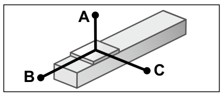
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)	400
Repeatability Note 1 (mm)	+/-0.04
Deceleration mechanism	Ball screw (Class C10)
Ball screw lead (mm)	20
Maximum speed (mm/sec)	1000 (1200 Note 2)
Maximum payload (kg)	80
Rated thrust (N)	339
Stroke (mm)	1150 to 2050 (100mm pitch)
Overall length (mm)	Stroke+420
Maximum dimensions of cross section of main unit (mm)	W202 × H120
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 3
Resolution (Pulse/rotation)	16384

Note 1. Positioning repeatability in one direction.
Note 2. A regenerative unit is needed if using the SR1-X, TS-X at maximum speeds exceeding 1000mm /sec.. If using the RDV-X, then the regenerative unit RBR1 is required regardless of the installation conditions.
Note 3. Position detectors(resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note

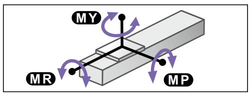


Horizontal installation (Unit: mm)

		A	B	C
Lead 20	**20kg**	3397	2332	2683
	40kg	2795	1144	1361
	60kg	2443	749	914
	80kg	2193	551	695

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

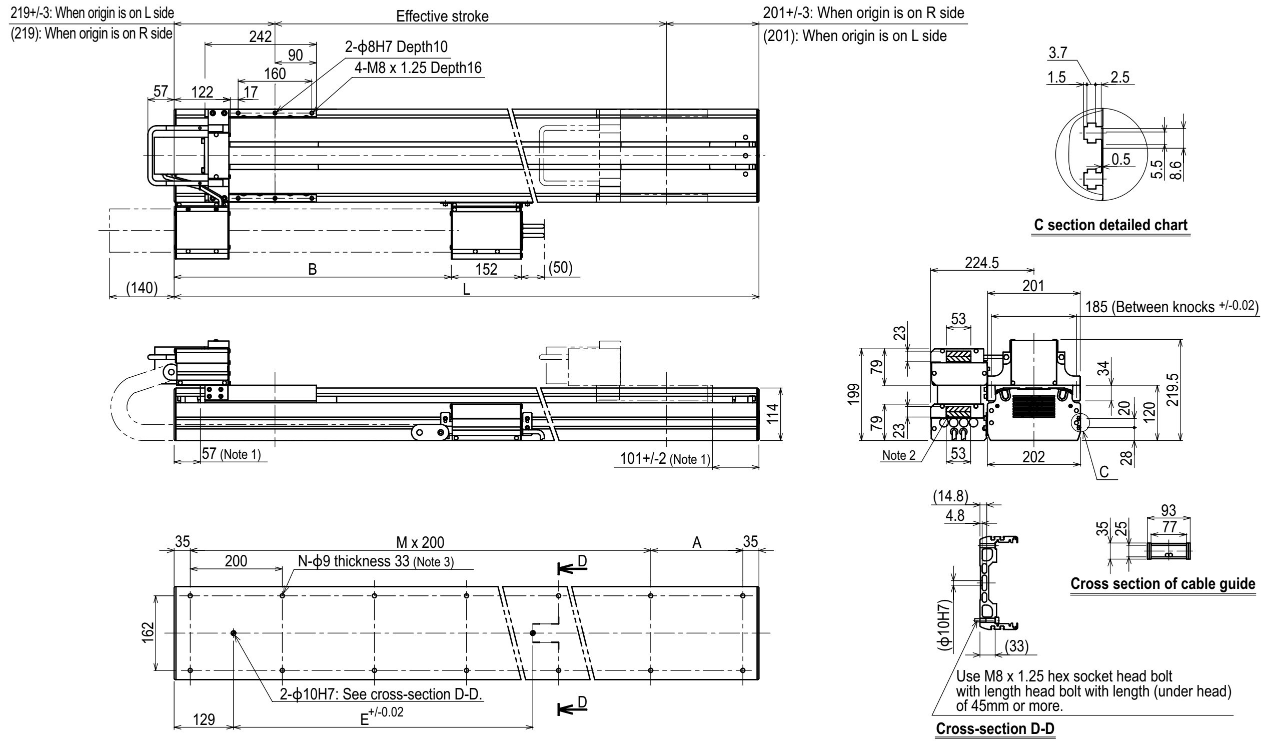
MY	MP	MR
1196	1199	1052

Controller

Controller	Operation method
SR1-X20 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220 Note	I/O point trace / Remote command
RDV-X220-RBR1	Pulse train control

Note. When the unit is operated at a speed exceeding the maximum speed of 1,000mm/sec., a regeneration unit is required.

F20N


219+/-3: When origin is on L side
(219): When origin is on R side
Effective stroke
201+/-3: When origin is on R side
(201): When origin is on L side
242
90
160
2-ϕ8H7 Depth10
4-M8 x 1.25 Depth16
57
122
17
B
152
(50)
(140)
L
3.7
1.5
2.5
0.5
5.5
8.6
C section detailed chart
57 (Note 1)
101+/-2 (Note 1)
114
224.5
201
185 (Between knocks +/-0.02)
53
23
79
199
79
23
34
20
120
219.5
Note 2
53
202
28
C
35
200
M x 200
N-ϕ9 thickness 33 (Note 3)
A
35
D
162
2-ϕ10H7: See cross-section D-D.
129
E+/-0.02
D
(14.8)
4.8
(ϕ10H7)
(33)
35
25
93
77
Cross section of cable guide
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.
Cross-section D-D

Effective stroke	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050
L	1570	1670	1770	1870	1970	2070	2170	2270	2370	2470
A	100	200	100	200	100	200	100	200	100	200
B	602	648	694	740	786	832	878	924	970	1016
E	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320
M	7	7	8	8	9	9	10	10	11	11
N	18	18	20	20	22	22	24	24	26	26
Weight (kg)	54.0	56.2	58.4	60.6	62.9	65.1	67.3	69.6	71.8	74.0

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The shaded position indicates the user cable extraction port.
Note 3. When installing the robot, do not use washers inside the robot body.
Note 4. The origin is set on the left (L) side at shipping.

N15

Ordering method

N15 - 20 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Cable carrier entry location Note 1	Cable carrier specification	Origin position change		Grease type	Stroke	Cable length Note 2
N15	20	RH: Horizontal, right	S: Standard Cable carrier	Horizontal	None: R side (Standard)	None: Standard	500 to 2000 (100mm pitch)	3L: 3.5m
		LH: Horizontal, left	M: Optional Cable carrier		Z: L side	GC: Clean		5L: 5m
		RW: Wall, right		Wall	None: L side (Standard)			10L: 10m
		LW: Wall, left			Z: R side			3K/5K/10K (Flexible cable)

TSX 220 - R - ☐ - ☐ - ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	R: With RGT	No entry: None	NP: NPN	B: With battery (Absolute)
			L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 4	

SR1-X 20 - ☐ - R - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	R: With RG1	N: NPN	B: With battery (Absolute)
		E: CE marking		P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 20 - RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1

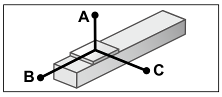
Note 1. To find information on cable carrier extraction directions see P.175.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

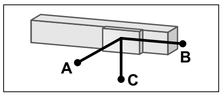
Specifications

AC servo motor output (W)	400
Repeatability Note 1 (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ15 (Class C7)
Ball screw lead (mm)	20
Maximum speed Note 2 (mm/sec)	1200
Maximum payload (kg)	50
Rated thrust (N)	339
Stroke (mm)	500 to 2000 (100mm pitch)
Overall length (mm)	Stroke+330
Maximum dimensions of cross section of main unit (mm)	W145 × H120
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 3
Resolution (Pulse/rotation)	16384

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note





Horizontal installation (Unit: mm)

		A	B	C
Lead 20	10kg	3048	2322	1259
	30kg	1489	841	500
	50kg	1278	544	344

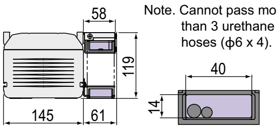
Wall installation (Unit: mm)

		A	B	C
Lead 20	10kg	1258	1823	2449
	30kg	428	545	1039
	50kg	248	289	749

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

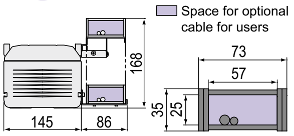
Cable carrier for users

S type Standard cable carrier



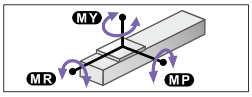
Note. Cannot pass more than 3 urethane hoses (ϕ6 x 4).

M type Optional cable carrier



▨ Space for optional cable for users

Static loading moment



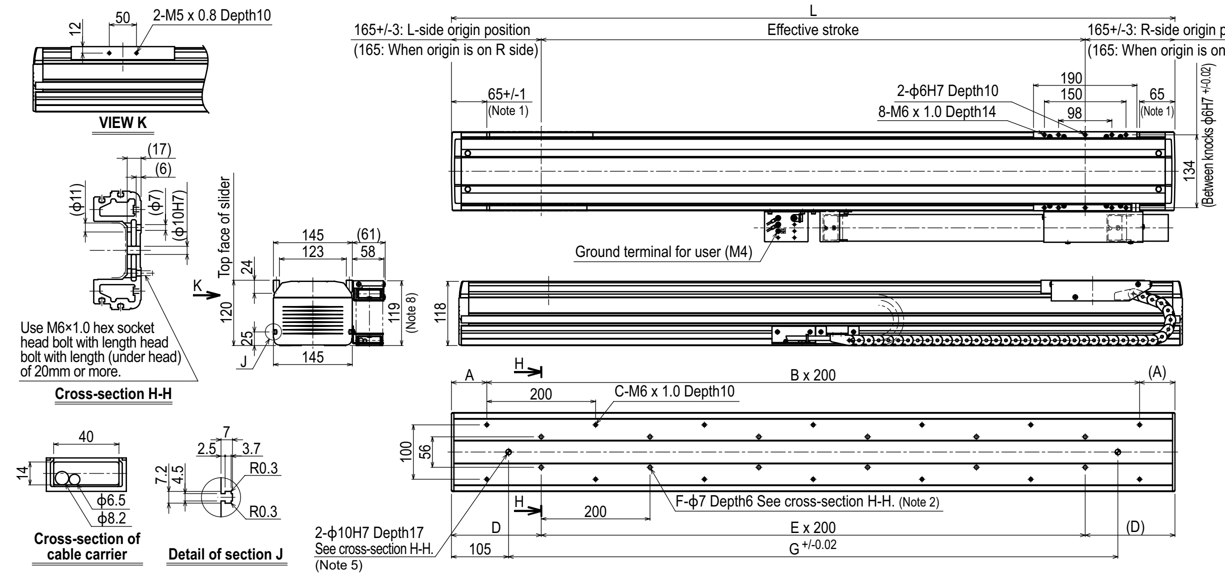
(Unit: N·m)

MY	MP	MR
691	692	608

Controller

Controller	Operation method
SR1-X20-R RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220-R	I/O point trace / Remote command
RDV-X220-RBR1	Pulse train control

N15: Horizontal installation / Standard Cable carrier specification RH



Use M6×1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

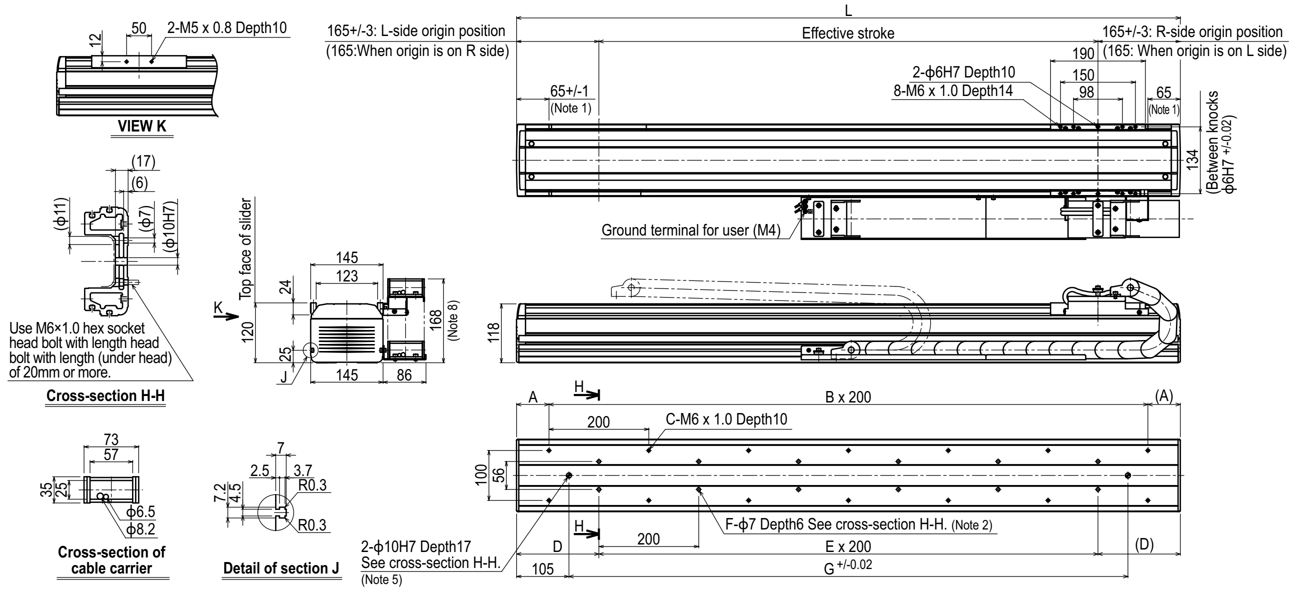
Cross-section of cable carrier

Detail of section J

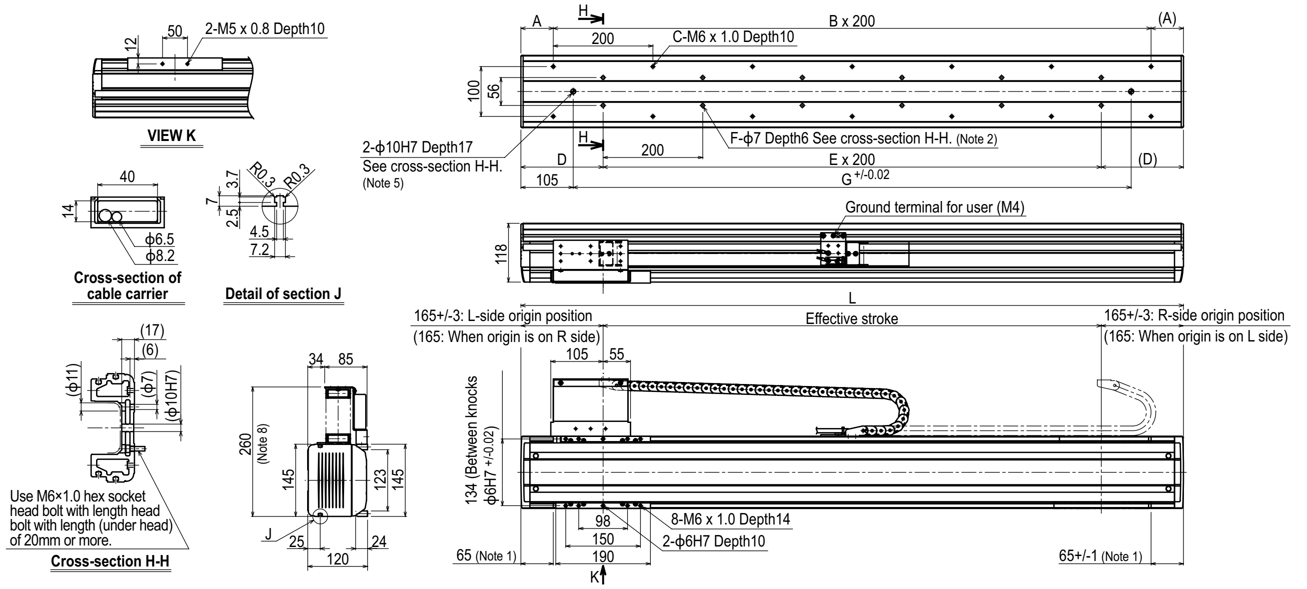
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When using ϕ7 holes for installation, do not use a washer, spring washer, etc. in the main unit.
Note 3. When shipped from the factory, the horizontal model has the origin on the right side and the wall model has the origin on the left side. (This diagram shows the machine whose cable carrier taken out from right.)
Note 4. If the model is a standard cable carrier specification, it is not possible to pass 3 or more ϕ6 × 4 urethane air hoses.
Note 5. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 6. Contact us for vertical installation.
Note 7. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
Note 8. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
A	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
B	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
C	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
D	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
E	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
F	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
G	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
Weight (kg) Note 7	19	20	22	23	24	26	27	29	30	32	33	35	36	38	39	40

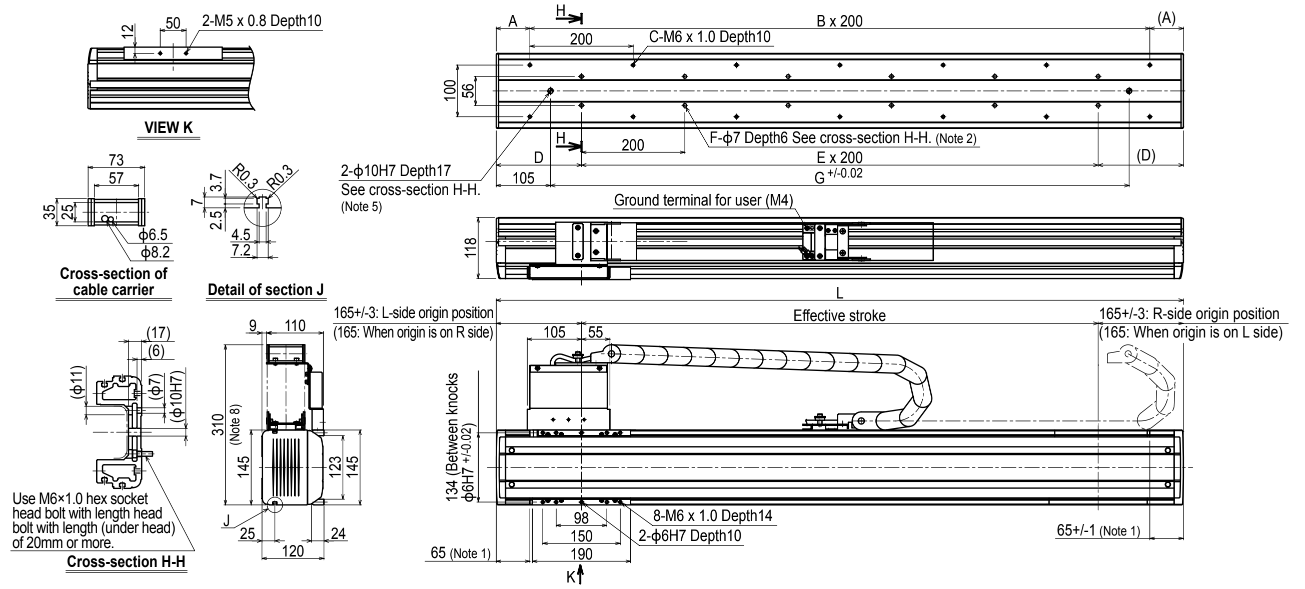
N15: Horizontal installation / Optional Cable carrier specification RH



N15: Wall installation / Standard Cable carrier specification RW


12
50
2-M5 x 0.8 Depth10
VIEW K
40
14
ϕ6.5
ϕ8.2
Cross-section of cable carrier
R0.3
R0.3
7
3.7
2.5
4.5
7.2
Detail of section J
(17)
(6)
(ϕ11)
(ϕ7)
(ϕ10H7)
Use M6×1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.
Cross-section H-H
34
85
260
(Note 8)
145
123
145
J
25
24
120
A
H
B x 200
(A)
200
C-M6 x 1.0 Depth10
100
56
2-ϕ10H7 Depth17
See cross-section H-H.
(Note 5)
H
200
F-ϕ7 Depth6 See cross-section H-H. (Note 2)
D
E x 200
(D)
105
G +/-0.02
Ground terminal for user (M4)
118
L
165+/-3: L-side origin position
(165: When origin is on R side)
Effective stroke
165+/-3: R-side origin position
(165: When origin is on L side)
105
55
134 (Between knocks ϕ6H7 +/-0.02)
98
150
190
8-M6 x 1.0 Depth14
2-ϕ6H7 Depth10
65 (Note 1)
65+/-1 (Note 1)
K

N15: Wall installation / Optional Cable carrier specification RW



N15D

Double carriage

Ordering method

N15D - 20 - ☐ - ☐ - ☐ - ☐ - ☐ - RCX222HP - ☐ - R - ☐ - ☐

Model	Lead designation	Installation direction	Cable carrier specification	Option	Stroke	Cable length	Controller Note 1	Usable for CE	Regenerative unit	I/O selection 1	I/O selection 2
N15D	20	H: Horizontal installation W: Wall installation	S: Standard Cable carrier M: Optional Cable carrier	Grease type: None: Standard Grease type: GC: Clean	250 to 1750 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) Note 5	RCX222HP SR1-X (2 units) Note 2 TS-X (2 units) Note 2 RDV-X (2 units) Note 2	No entry : Standard E: CE marking	R: RG2	N: NPN Note 3 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet Note 3	No entry: None N1: OP.DIO24/16 (NPN) Note 3 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3 Note 4

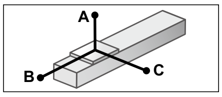
Note 1. To find controller selection options for other than the RCX222HP, see the ordering method on each controller page.
Note 2. 2 units are required when using SR1-X, TS-X or RDV-X.
Note 3. NPN and Ethernet cannot be selected when using CE marking.
Note 4. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.
Note 5. If a flexible cable is needed for the SR1-X, TS-X, or RDV-X, then select 3K/5K/10K. On the RCX222HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.

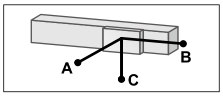
Specifications

AC servo motor output (W)	400
Repeatability Note 1 (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ15 (Class C7)
Ball screw lead (mm)	20
Maximum speed Note 2 (mm/sec)	1200
Maximum payload (kg)	50
Rated thrust (N)	339
Stroke (mm)	250 to 1750 (100mm pitch)
Overall length (mm)	Stroke+330
Maximum dimensions of cross section of main unit (mm)	W145 × H120
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 3
Resolution (Pulse/rotation)	16384

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note





Horizontal installation (Unit: mm)

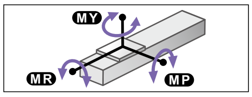
		A	B	C
Lead 20	10kg	3048	2322	1259
	30kg	1489	841	500
	50kg	1278	544	344

Wall installation (Unit: mm)

		A	B	C
Lead 20	10kg	1258	1823	2449
	30kg	428	545	1039
	50kg	248	289	749

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

MY	MP	MR
691	692	608

Controller

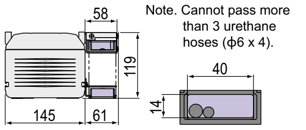
Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
SR1-X20-R Note	
TS-X220-R Note	I/O point trace / Remote command
RDV-X20-RBR1 Note	Pulse train control

Note. 2 units are required when using SR-1, TS-X or RDV-X.

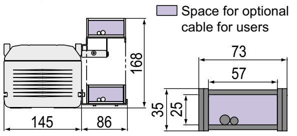
Cable carrier for users

S type Standard cable carrier

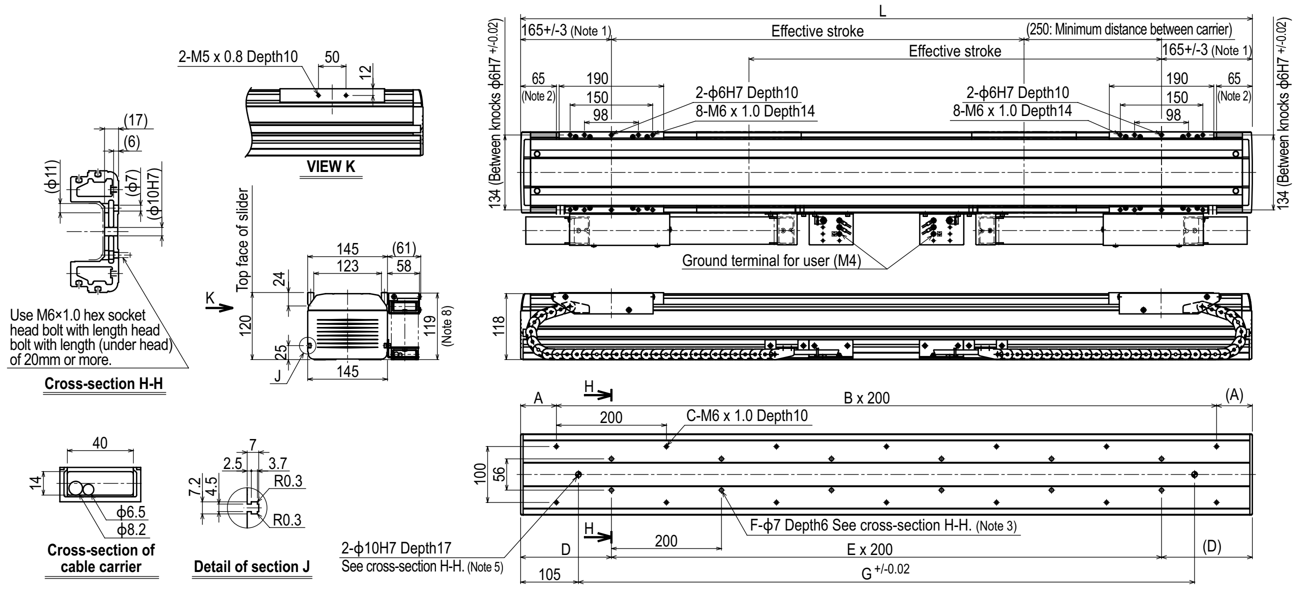
Note. Cannot pass more than 3 urethane hoses (ϕ6 x 4).



M type Optional cable carrier



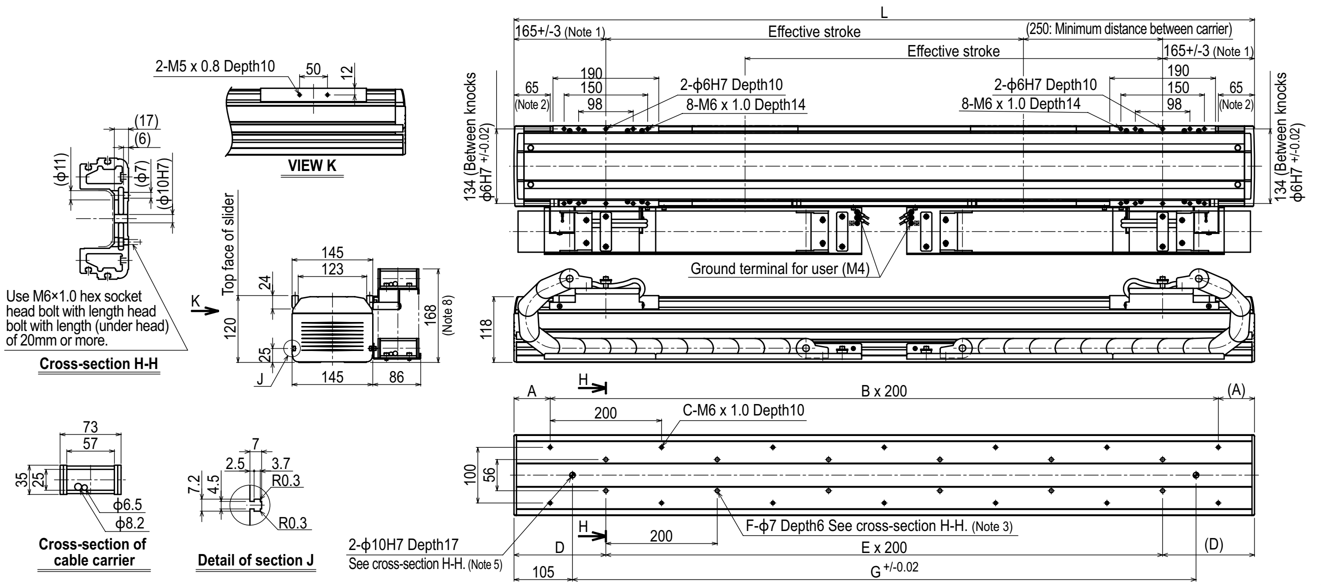
N15D: Horizontal installation / Standard Cable carrier specification



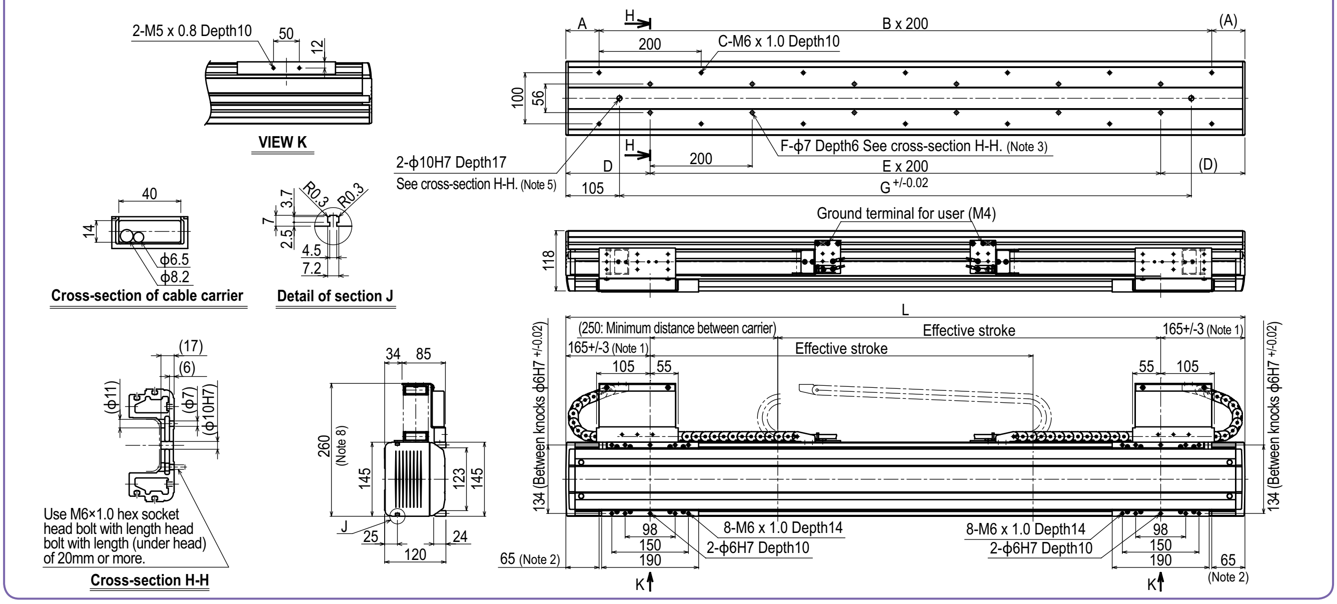
Note 1. Position of table carriage when searched to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. When using ϕ7 holes for installation, do not use a washer, spring washer, etc. in the main unit.
Note 4. If the model is a standard cable carrier specification, it is not possible to pass 3 or more ϕ6 × 4 urethane air hoses.
Note 5. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 6. Contact us for vertical installation.
Note 7. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
Note 8. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
A	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
B	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
C	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
D	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
E	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
F	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
G	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
Weight (kg) Note 7	24	26	27	29	30	32	33	35	36	38	39	40	42	43	45	46

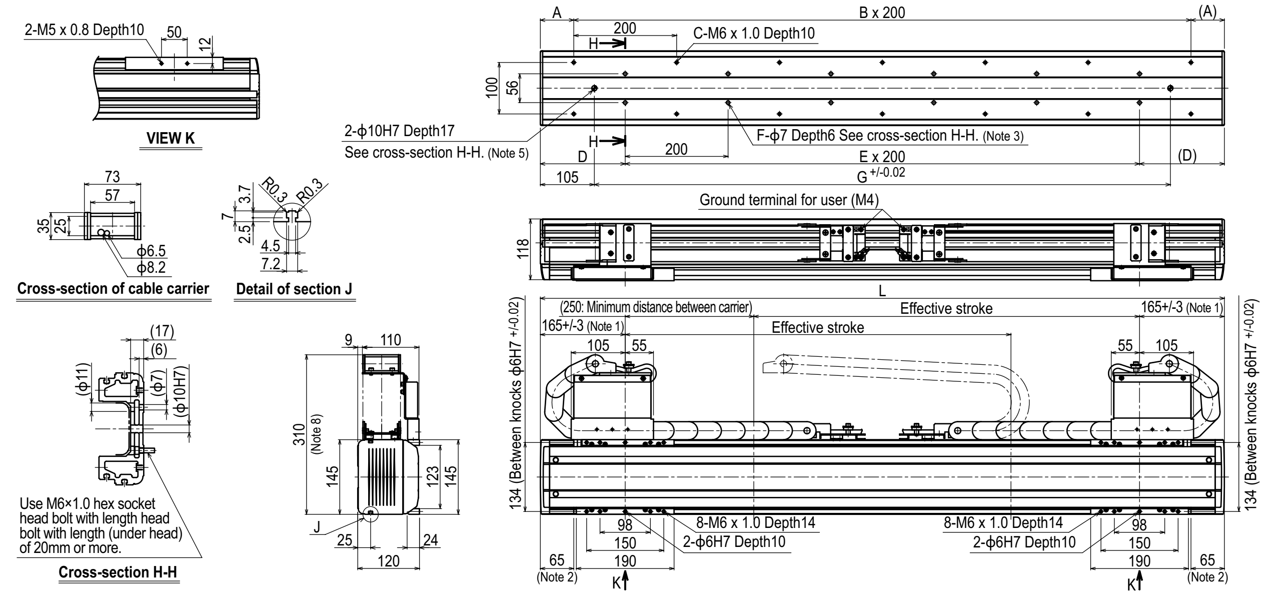
N15D: Horizontal installation / Optional Cable carrier specification



N15D: Wall installation / Standard Cable carrier specification



N15D: Wall installation / Optional Cable carrier specification



N18

Ordering method

N18 - 20 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Lead designation	Cable carrier entry location Note 1	Cable carrier specification	Origin position change	Grease type	Stroke	Cable length Note 2
N18	20	RH: Horizontal, right LH: Horizontal, left RW: Wall, right LW: Wall, left	S: Standard Cable carrier M: Optional Cable carrier	Horizontal: None: R side (Standard) / Z: L side Wall: None: L side (Standard) / Z: R side	None: Standard GC: Clean	500 to 2500 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX 220 - R - ☐ - ☐ - ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X 20 - ☐ - R - ☐ - ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard E: CE marking	R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 20 - RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 600W or less	RBR1

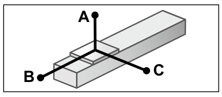
Note 1. To find information on cable carrier extraction directions see P.175.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

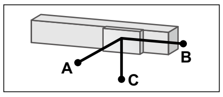
Specifications

AC servo motor output (W)	400
Repeatability Note 1 (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ20 (Class C7)
Ball screw lead (mm)	20
Maximum speed Note 2 (mm/sec)	1200
Maximum payload (kg)	80
Rated thrust (N)	339
Stroke (mm)	500 to 2500 (100mm pitch)
Overall length (mm)	Stroke+362
Maximum dimensions of cross section of main unit (mm)	W180 × H115
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers Note 3
Resolution (Pulse/rotation)	16384

Note 1. Repeatability for single oscillation.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note





Horizontal installation (Unit: mm)

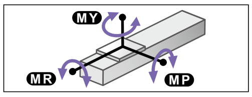
		A	B	C
Lead 20	30kg	3045	1629	1902
	50kg	2602	961	1150
	80kg	2193	586	716

Wall installation (Unit: mm)

		A	B	C
Lead 20	30kg	1928	1553	3045
	50kg	1157	885	2602
	80kg	707	509	2193

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

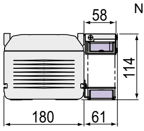
MY	MP	MR
1161	1163	1021

Controller

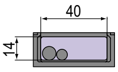
Controller	Operation method
SR1-X20-R RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220-R	I/O point trace / Remote command
RDV-X220-RBR1	Pulse train control

Cable carrier for users

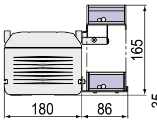
S type **Standard cable carrier**



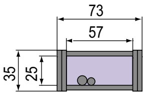
Note. Cannot pass more than 3 urethane hoses (ϕ6 x 4).



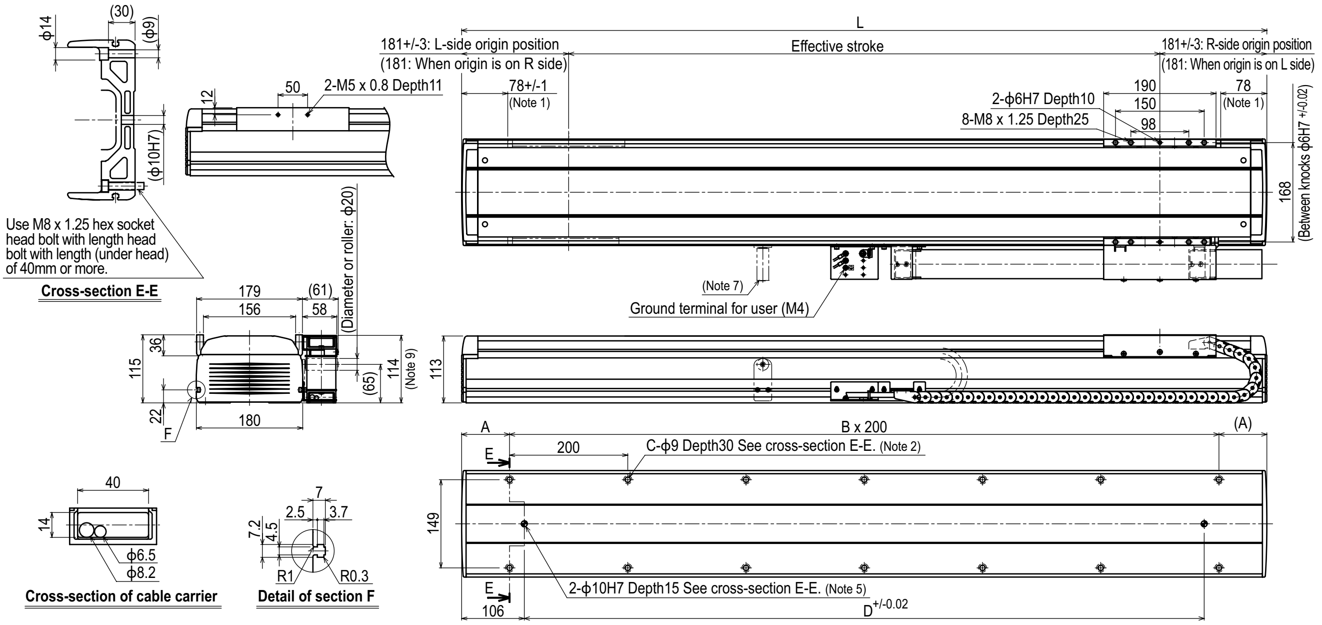
M type **Optional cable carrier**



▨ Space for optional cable for users



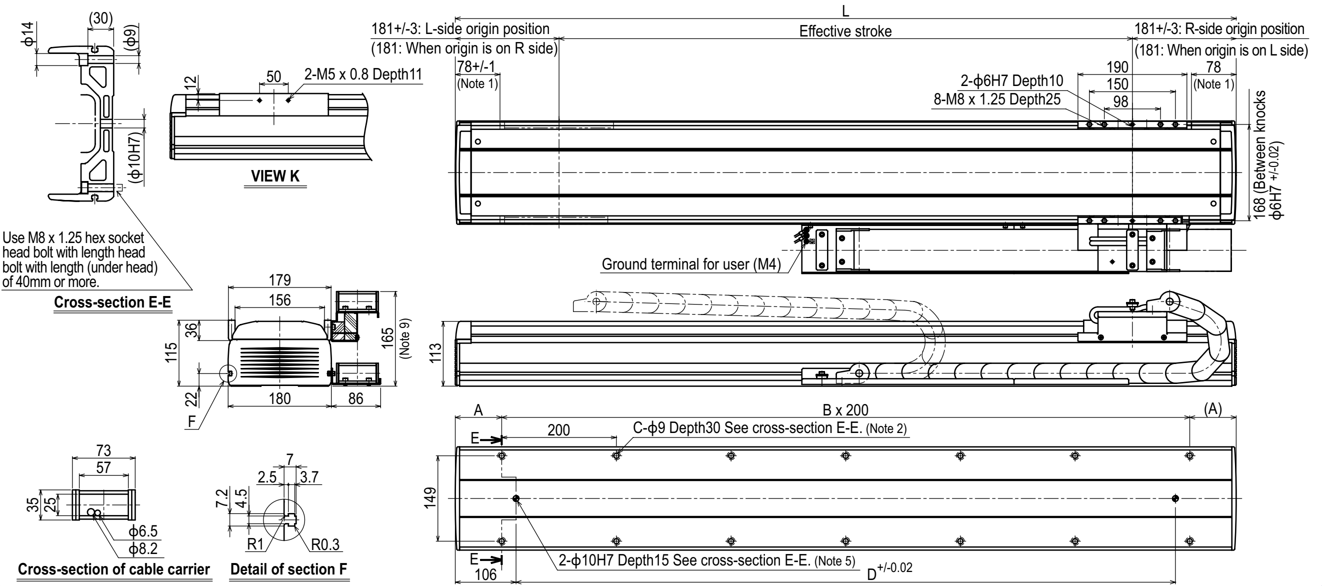
N18: Horizontal installation / Standard Cable carrier specification RH


(30)
ϕ14
(ϕ9)
(ϕ10H7)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
12
50
2-M5 x 0.8 Depth11
(Diameter or roller: ϕ20)
179
(61)
156
58
36
115
22
180
(65)
114
(Note 9)
F
Cross-section of cable carrier
40
14
ϕ6.5
ϕ8.2
Detail of section F
7
2.5
3.7
7.2
4.5
R1
R0.3
L
Effective stroke
181+/-3: L-side origin position
(181: When origin is on R side)
78+/-1
(Note 1)
181+/-3: R-side origin position
(181: When origin is on L side)
190
150
98
78
(Note 1)
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
168
(Between knocks ϕ6H7 +/-0.02)
(Note 7)
Ground terminal for user (M4)
113
A
B x 200
(A)
E
200
C-ϕ9 Depth30 See cross-section E-E. (Note 2)
149
E
106
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
D+/-0.02

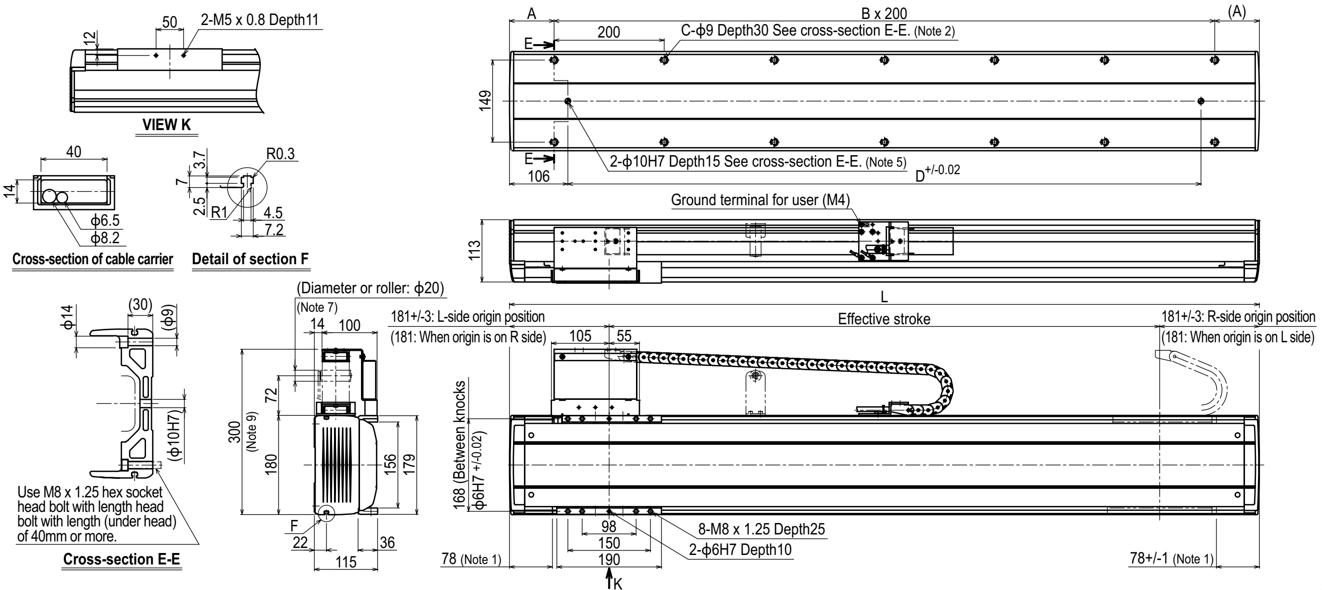
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When using ϕ9 holes for installation, do not use a washer, spring washer, etc. in the main unit.
Note 3. When shipped from the factory, the horizontal model has the origin on the right side and the wall model has the origin on the left side. (This diagram shows the machine whose cable carrier taken out from right.)
Note 4. If the model is a standard cable carrier specification, it is not possible to pass 3 or more ϕ6 × 4 urethane air hoses.
Note 5. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 6. Contact us for vertical installation.
Note 7. For the robot with more than 2,100 stroke, a roller is installed to prevent the cable carrier hanging.
Note 8. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
Note 9. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	862	962	1062	1162	1262	1362	1462	1562	1662	1762	1862	1962	2062	2162	2262	2362	2462	2562	2662	2762	2862
A	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131
B	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13
C	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28
D	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650
Weight (kg) Note 8	27	29	31	33	35	37	39	41	43	45	47	48	50	52	54	56	58	60	62	64	66

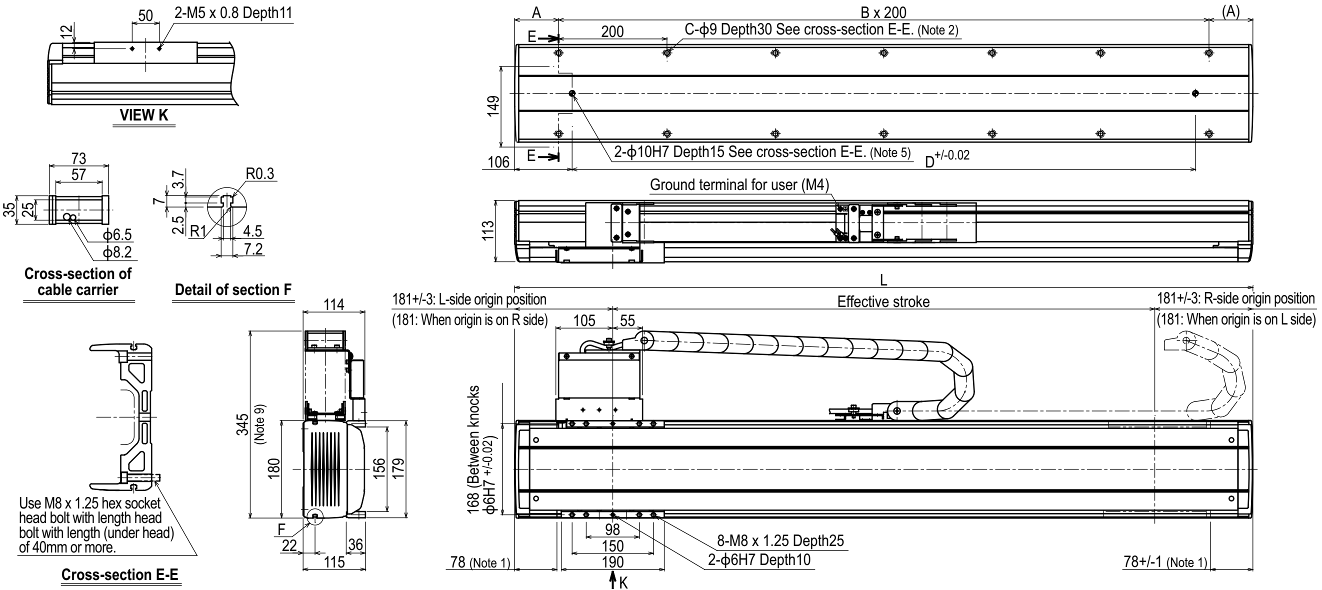
N18: Horizontal installation / Optional Cable carrier specification RH


(30)
ϕ14
(ϕ9)
(ϕ10H7)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
12
50
2-M5 x 0.8 Depth11
VIEW K
179
156
36
115
165 (Note 9)
22
180
86
F
73
57
35
25
ϕ6.5
ϕ8.2
Cross-section of cable carrier
7
2.5
3.7
7.2
4.5
R1
R0.3
Detail of section F
L
181+/-3: L-side origin position
(181: When origin is on R side)
Effective stroke
181+/-3: R-side origin position
(181: When origin is on L side)
78+/-1 (Note 1)
190
150
98
78 (Note 1)
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
168 (Between knocks ϕ6H7 +/-0.02)
Ground terminal for user (M4)
113
A
B x 200
(A)
200
C-ϕ9 Depth30 See cross-section E-E. (Note 2)
E
149
106
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
D+/-0.02

N18: Wall installation / Standard Cable carrier specification RW


50
2-M5 x 0.8 Depth11
12
VIEW K
40
14
ϕ6.5
ϕ8.2
Cross-section of cable carrier
R0.3
3.7
7
2.5
R1
4.5
7.2
Detail of section F
(30)
ϕ14
(ϕ9)
(ϕ10H7)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
(Diameter or roller: ϕ20)
(Note 7)
14
100
300 (Note 9)
72
180
156
179
F
22
36
115
A
B x 200
(A)
200
C-ϕ9 Depth30 See cross-section E-E. (Note 2)
E
149
106
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
D+/-0.02
Ground terminal for user (M4)
113
L
181+/-3: L-side origin position
(181: When origin is on R side)
Effective stroke
181+/-3: R-side origin position
(181: When origin is on L side)
105
55
168 (Between knocks ϕ6H7 +/-0.02)
98
150
190
8-M8 x 1.25 Depth25
2-ϕ6H7 Depth10
78 (Note 1)
78+/-1 (Note 1)
K

N18: Wall installation / Optional Cable carrier specification RW


50
2-M5 x 0.8 Depth11
12
VIEW K
73
57
35
25
ϕ6.5
ϕ8.2
Cross-section of cable carrier
R0.3
3.7
7
2.5
R1
4.5
7.2
Detail of section F
114
345 (Note 9)
180
156
179
F
22
36
115
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
A
B x 200
(A)
200
C-ϕ9 Depth30 See cross-section E-E. (Note 2)
E
149
106
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
D+/-0.02
Ground terminal for user (M4)
113
L
181+/-3: L-side origin position
(181: When origin is on R side)
Effective stroke
181+/-3: R-side origin position
(181: When origin is on L side)
105
55
168 (Between knocks ϕ6H7 +/-0.02)
98
150
190
8-M8 x 1.25 Depth25
2-ϕ6H7 Depth10
78 (Note 1)
78+/-1 (Note 1)
K

N18D

Double carriage

Ordering method

Model	Lead designation	Installation direction	Cable carrier specification	Option	Stroke	Cable length	Controller [Note 1]	Usable for CE	Regenerative unit	I/O selection1	I/O selection2
N18D	20						RCX222HP		R		
		H: Horizontal installation W: Wall installation	S: Standard Cable carrier M: Optional Cable carrier	Grease type: None: Standard GC: Clean	250 to 2250 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) [Note 5]	RCX222HP SR1-X (2 units) [Note 2] TS-X (2 units) [Note 2] RDV-X (2 units) [Note 2]	No entry: Standard E: CE marking	R: RG2	N: NPN [Note 3] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet [Note 3]	No entry: None N1: OP.DIO24/16 (NPN) [Note 3] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 3] [Note 4]

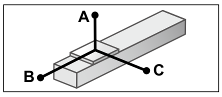
Note 1. To find controller selection options for other than the RCX222HP, see the ordering method on each controller page.
Note 2. 2 units are required when using SR1-X, TS-X or RDV-X.
Note 3. NPN and Ethernet cannot be selected when using CE marking.
Note 4. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.
Note 5. If a flexible cable is needed for the SR1-X, TS-X, or RDV-X, then select 3K/5K/10K. On the RCX222HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.

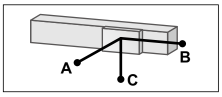
Specifications

AC servo motor output (W)	400
Repeatability [Note 1] (mm)	+/-0.01
Deceleration mechanism	Ball screw ϕ20 (Class C7)
Ball screw lead (mm)	20
Maximum speed [Note 2] (mm/sec)	1200
Maximum payload (kg)	80
Rated thrust (N)	339
Stroke (mm)	250 to 2250 (100 pitch)
Overall length (mm)	Stroke+362
Maximum dimensions of cross section of main unit (mm)	W180 × H115
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 2 rail
Position detector	Resolvers [Note 3]
Resolution (Pulse/rotation)	16384

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]





Horizontal installation (Unit: mm)

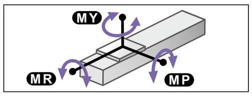
		A	B	C
Lead 20	30kg	3045	1629	1902
	50kg	2602	961	1150
	80kg	2193	586	716

Wall installation (Unit: mm)

		A	B	C
Lead 20	30kg	1928	1553	3045
	50kg	1157	885	2602
	80kg	707	509	2193

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

MY	MP	MR
1161	1163	1021

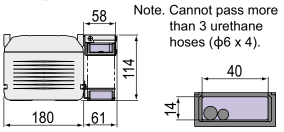
Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
SR1-X20-R [Note]	
TS-X220-R [Note]	I/O point trace / Remote command
RDV-X20-RBR1 [Note]	Pulse train control

Note. 2 units are required when using SR1-X, TS-X or RDV-X.

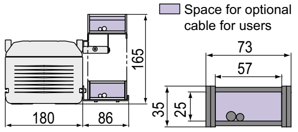
Cable carrier for users

S type Standard cable carrier



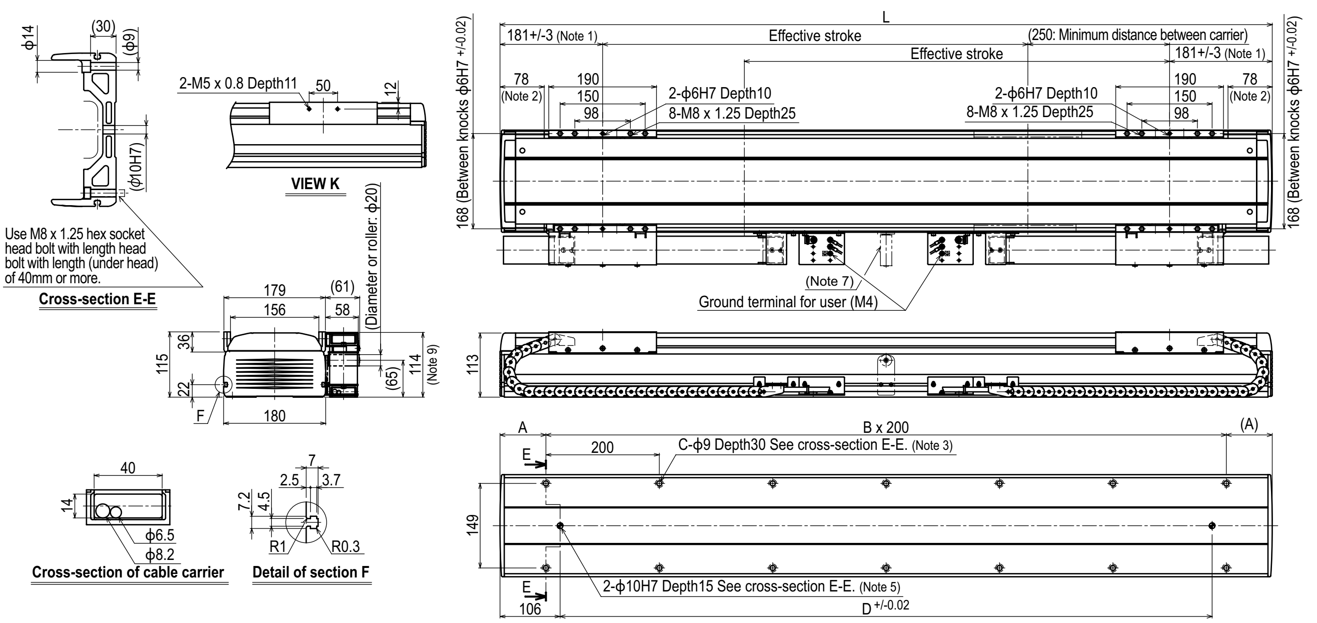
Note. Cannot pass more than 3 urethane hoses (ϕ6 x 4).

M type Optional cable carrier



▨ Space for optional cable for users

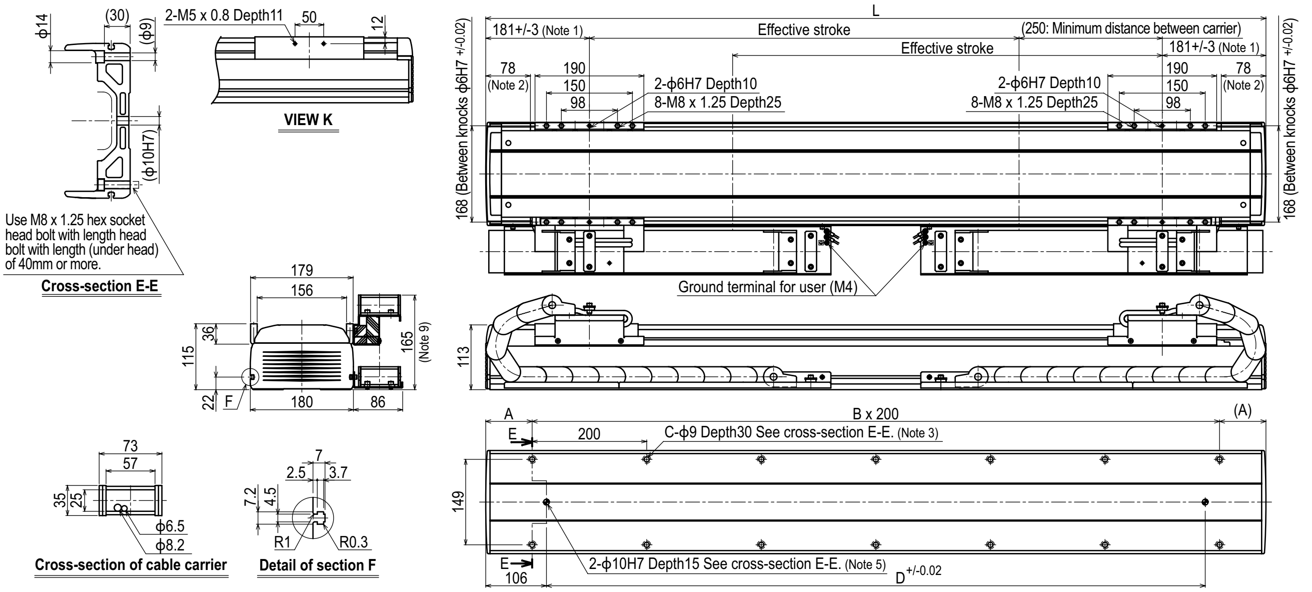
N18D: Horizontal installation / Standard Cable carrier specification


ϕ14
(30)
(ϕ9)
(ϕ10H7)
2-M5 x 0.8 Depth11
50
12
VIEW K
(Diameter or roller: ϕ20)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
179
(61)
156
58
36
115
22
(65)
114
(Note 9)
F
180
40
14
ϕ6.5
ϕ8.2
Cross-section of cable carrier
7
2.5
3.7
7.2
4.5
R1
R0.3
Detail of section F
L
181+/-3 (Note 1)
Effective stroke
(250: Minimum distance between carrier)
Effective stroke
181+/-3 (Note 1)
78 (Note 2)
190
150
98
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
190
150
98
78 (Note 2)
168 (Between knocks ϕ6H7 +/-0.02)
168 (Between knocks ϕ6H7 +/-0.02)
(Note 7)
Ground terminal for user (M4)
113
A
B x 200
(A)
E
200
C-ϕ9 Depth30 See cross-section E-E. (Note 3)
149
E
106
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
D +/-0.02

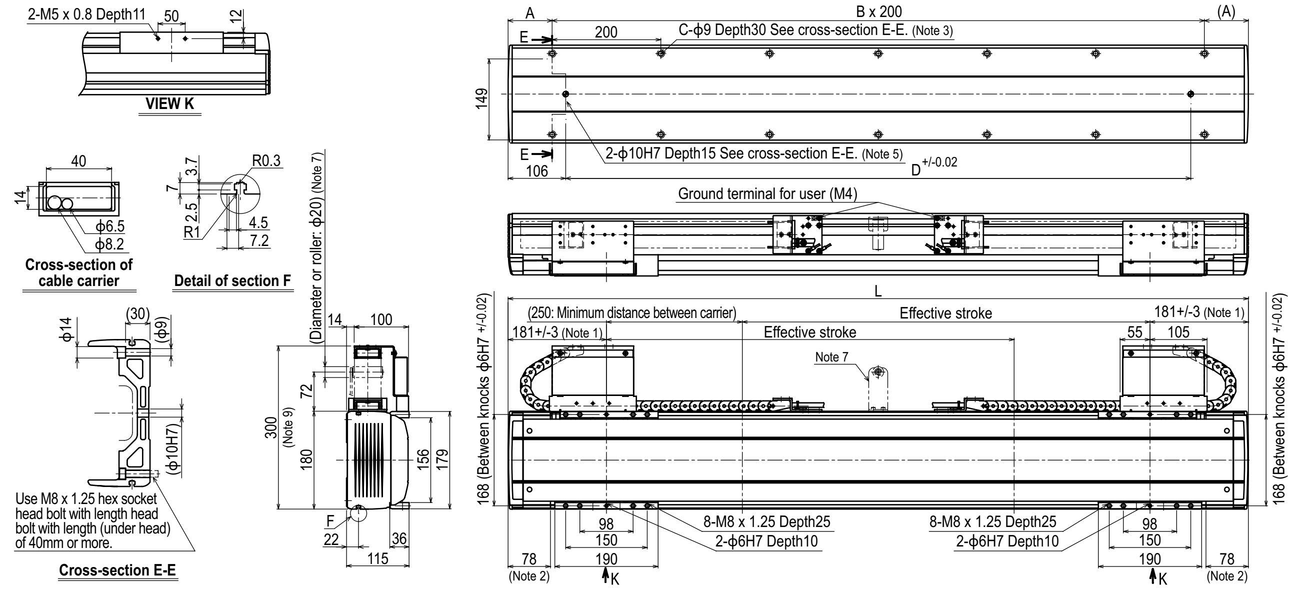
Note 1. Position of table carriage when searched to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. When using ϕ9 holes for installation, do not use a washer, spring washer, etc. in the main unit.
Note 4. If the model is a standard cable carrier specification, it is not possible to pass 3 or more ϕ6 × 4 urethane air hoses.
Note 5. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 6. Contact us for vertical installation.
Note 7. For the robot with more than 2,050 stroke, a roller to prevent the cable carrier from hanging is provided.
Note 8. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
Note 9. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250
L	862	962	1062	1162	1262	1362	1462	1562	1662	1762	1862	1962	2062	2162	2262	2362	2462	2562	2662	2762	2862
A	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131	81	131
B	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13
C	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28
D	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650
Weight (kg) [Note 8]	35	37	39	41	43	45	47	48	50	52	54	56	58	60	62	64	66	68	70	72	74

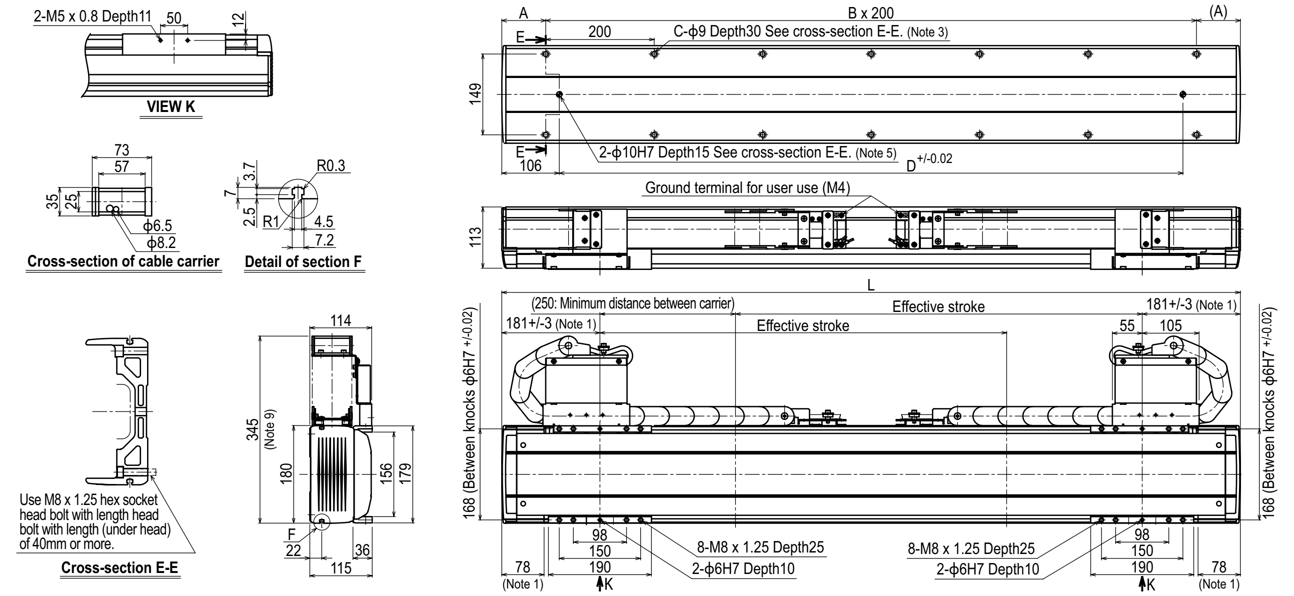
N18D: Horizontal installation / Optional Cable carrier specification


ϕ14
(30)
(ϕ9)
(ϕ10H7)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
2-M5 x 0.8 Depth11
50
12
VIEW K
179
156
36
115
165 (Note 9)
22
F
180
86
73
57
35
25
ϕ6.5
ϕ8.2
Cross-section of cable carrier
7
2.5
3.7
7.2
4.5
R1
R0.3
Detail of section F
L
181+/-3 (Note 1)
Effective stroke
(250: Minimum distance between carrier)
Effective stroke
181+/-3 (Note 1)
78 (Note 2)
190
150
98
2-ϕ6H7 Depth10
8-M8 x 1.25 Depth25
168 (Between knocks ϕ6H7 +/-0.02)
Ground terminal for user (M4)
113
A
B x 200
(A)
E
200
C-ϕ9 Depth30 See cross-section E-E. (Note 3)
149
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
106
D+/-0.02

N18D: Wall installation / Standard Cable carrier specification


2-M5 x 0.8 Depth11
50
12
VIEW K
40
14
ϕ6.5
ϕ8.2
Cross-section of cable carrier
3.7
7
2.5
R1
R0.3
4.5
7.2
Detail of section F
(Diameter or roller: ϕ20) (Note 7)
(30)
ϕ14
(ϕ9)
(ϕ10H7)
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
14
100
72
300 (Note 9)
180
156
179
F
22
36
115
A
B x 200
(A)
E
200
C-ϕ9 Depth30 See cross-section E-E. (Note 3)
149
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
106
D+/-0.02
Ground terminal for user (M4)
L
(250: Minimum distance between carrier)
Effective stroke
181+/-3 (Note 1)
Effective stroke
55
105
Note 7
168 (Between knocks ϕ6H7 +/-0.02)
98
150
190
78 (Note 2)
8-M8 x 1.25 Depth25
2-ϕ6H7 Depth10
K

N18D: Wall installation / Optional Cable carrier specification


2-M5 x 0.8 Depth11
50
12
VIEW K
73
57
35
25
ϕ6.5
ϕ8.2
Cross-section of cable carrier
3.7
7
2.5
R1
R0.3
4.5
7.2
Detail of section F
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.
Cross-section E-E
114
345 (Note 9)
180
156
179
F
22
36
115
A
B x 200
(A)
E
200
C-ϕ9 Depth30 See cross-section E-E. (Note 3)
149
2-ϕ10H7 Depth15 See cross-section E-E. (Note 5)
106
D+/-0.02
Ground terminal for user use (M4)
113
L
(250: Minimum distance between carrier)
181+/-3 (Note 1)
Effective stroke
Effective stroke
55
105
168 (Between knocks ϕ6H7 +/-0.02)
98
150
190
78 (Note 1)
8-M8 x 1.25 Depth25
2-ϕ6H7 Depth10
K

B10

Ordering method

B10 – [Motor installation direction] – [Option] – [Stroke] – [Cable length Note 1] – TSX / SR1-X / RDV-X

Model	Motor installation direction	Option	Stroke	Cable length Note 1
B10	L: Motor leftward, horizontal position R: Motor rightward, horizontal position LU: Motor leftward, upper position RU: Motor rightward, upper position LD: Motor leftward, lower position RD: Motor rightward, lower position	Grease type: None: Standard GC: Clean	150 to 2550 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX – [ ] – [ ] – [ ] – [ ]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** – [ ] – [ ] – [ ]

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

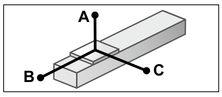
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

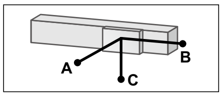
Specifications

AC servo motor output (W)	100
Repeatability Note 1 (mm)	+/-0.04
Belt (mm)	Equivalent to lead 25
Maximum speed (mm/sec)	1875
Maximum payload (kg)	10
Stroke (mm)	150 to 2550 (100mm pitch)
Overall length (mm) – Motor installation – L/R type	Stroke+397.5
Overall length (mm) – Motor installation – Another	Stroke+310
Maximum dimensions of cross section of main unit (mm)	W100 × H81
Cable length (m)	Standard: 3.5 / Option: 5,10
Linear guide type	4 rows of circular arc grooves × 1 rail
Position detector	Resolvers Note 2
Resolution (Pulse/rotation)	16384

Note 1. Positioning repeatability in one direction.
Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note





Horizontal installation (Unit: mm)

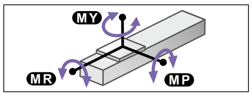
	A	B	C
3kg	1800	1392	1084
5kg	1574	826	696
8kg	1221	509	474
10kg	1171	403	407

Wall installation (Unit: mm)

	A	B	C
3kg	1144	1005	1734
5kg	724	576	1199
8kg	493	333	918
10kg	414	254	869

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

MY	MP	MR
188	188	165

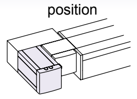
Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

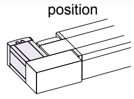
Motor installation

The line-up consisting of six models of deferent motor installation position as follows.

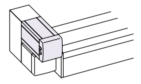
L type Leftward at horizontal position



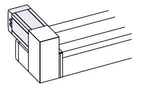
R type Rightward at horizontal position



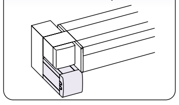
LU type Leftward at upper position



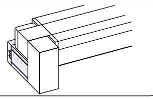
RU type Rightward at upper position



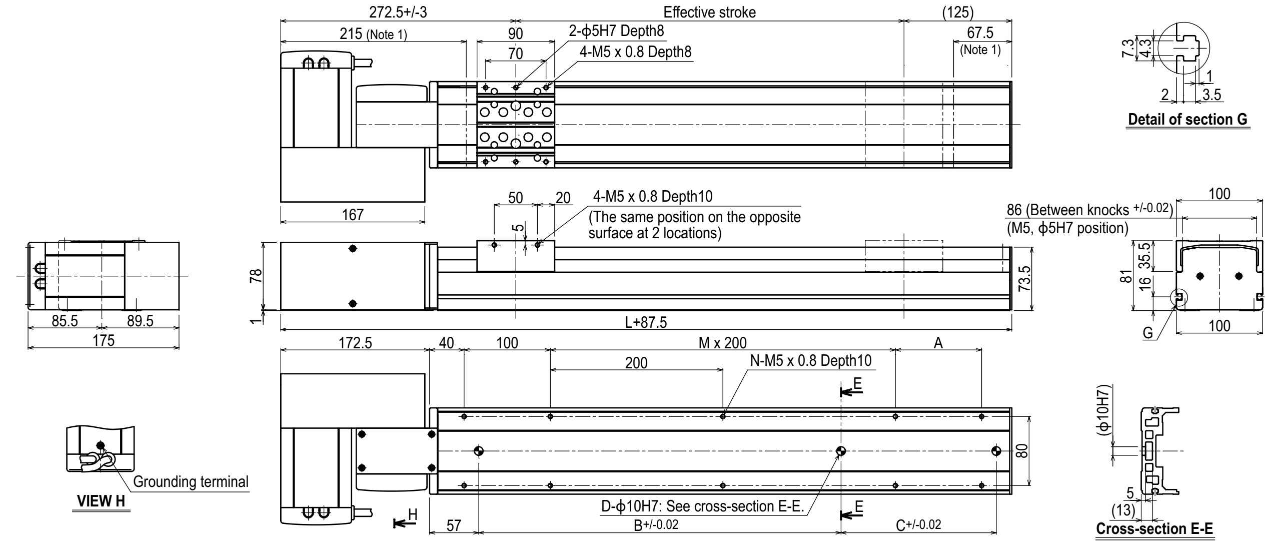
LD type Leftward at lower position



RD type Rightward at lower position



B10 R type (Motor rightward, horizontal position)

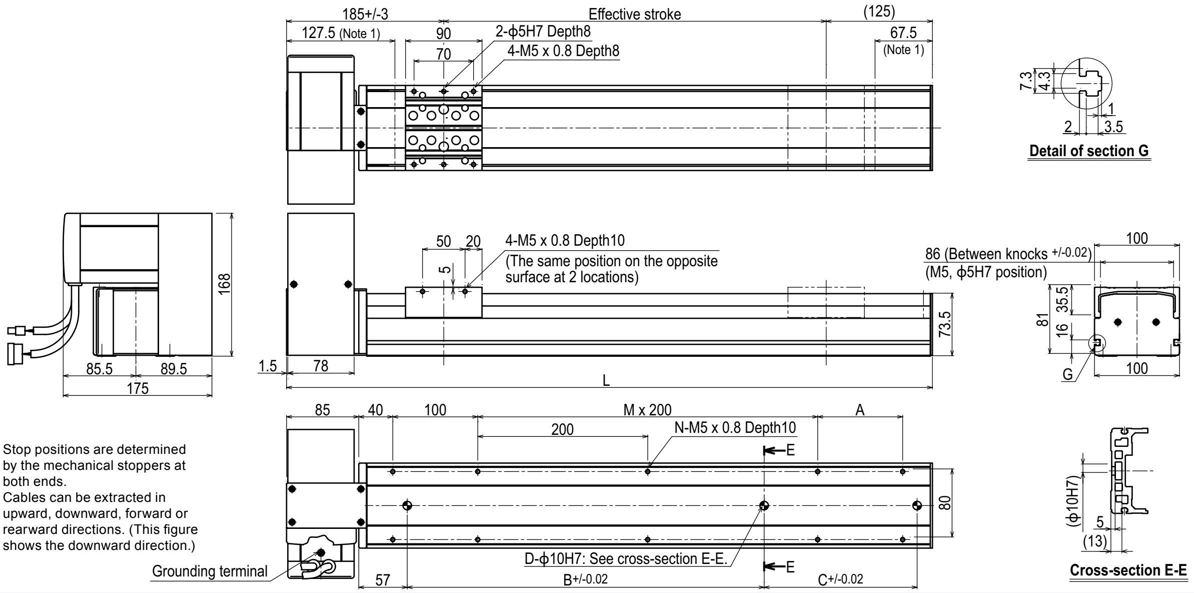


Effective stroke	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
L	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610	1660
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
B	240	240	240	420	420	420	600	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1140	1320	1320	1320
C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
D	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M	–	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18
Weight (kg)	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.1	10.5	10.9	11.3	11.7	12.1	12.5	12.9	13.3	13.7	14.1	14.5	14.9	15.3	15.7	16.1	16.5	16.9

Effective stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
B	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320
C	–	240	240	240	420	420	420	420	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1140	1320
D	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12
N	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30
Weight (kg)	17.3	17.7	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	25.9	26.3

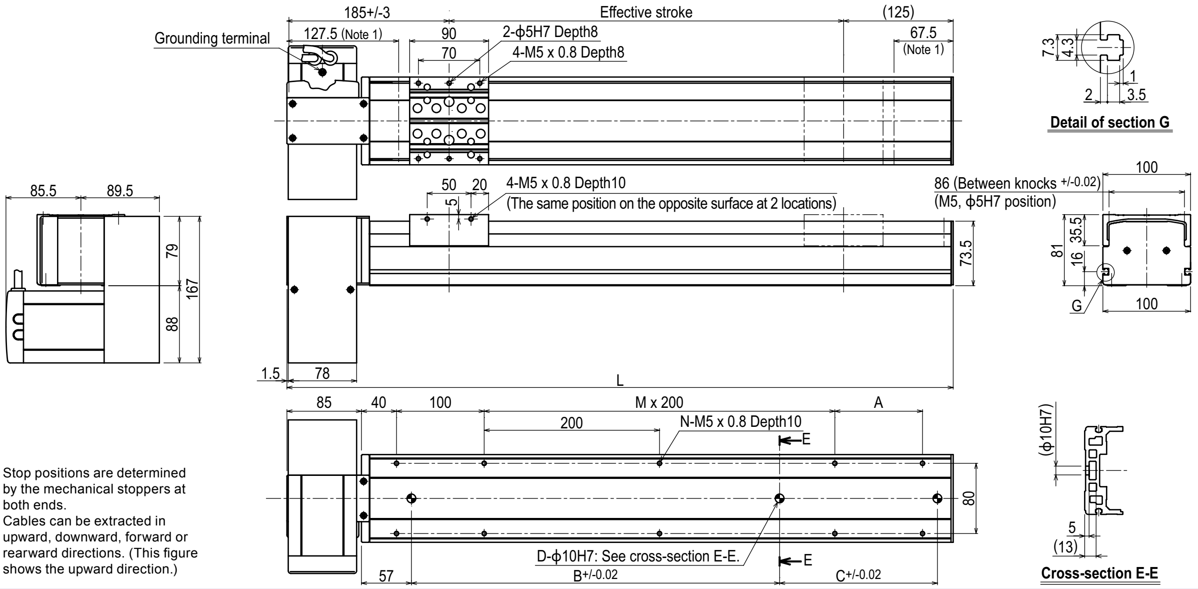
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the forward direction.)

B10 RU type (Motor rightward, upper position)



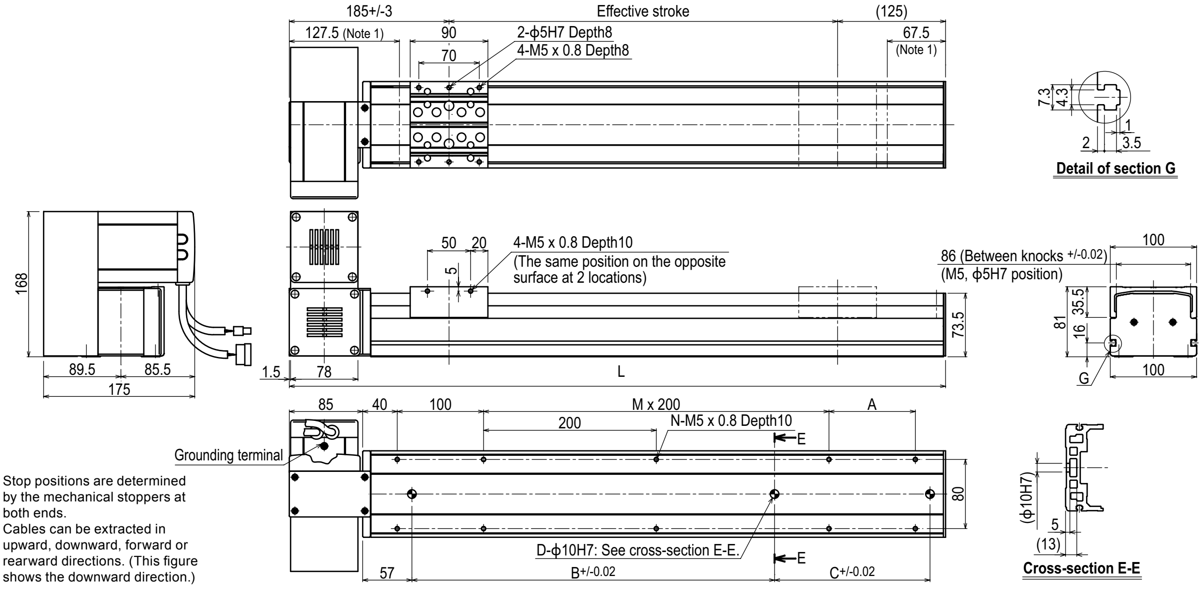
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

B10 RD type (Motor rightward, lower position)



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the upward direction.)

B10 LU type (Motor leftward, upper position)



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

B14

Ordering method

B14 – Model – Motor installation direction – Option – Stroke – Cable length [Note 1] –

Motor installation direction
L: Motor leftward, horizontal position
R: Motor rightward, horizontal position
LU: Motor leftward, upper position
RU: Motor rightward, upper position
LD: Motor leftward, lower position
RD: Motor rightward, lower position

Option	
Grease type	None: Standard
	GC: Clean

Stroke
150 to 3050 (50mm pitch)

Cable length [Note 1]
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable)

TSX – – –

Positioner [Note 2]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	L: With LCD	PN: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			EP: EtherNet/IP™	
			PT: PROFINET	
			GW: No I/O board [Note 3]	

SR1-X **05** – – –

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
	05: 100W or less	No entry: Standard	N: NPN	B: With battery (Absolute)
		E: CE marking	P: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			PB: PROFIBUS	

RDV-X **2** **05** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
	2: AC200V	05: 100W or less	

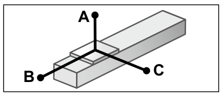
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

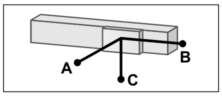
Specifications

AC servo motor output (W)			100
Repeatability [Note 1] **(mm)**			+/-0.04
Belt (mm)			Equivalent to lead 25mm
Maximum speed (mm/sec)			1875
Maximum payload (kg)			20
Stroke (mm)			150 to 3050 (100mm pitch)
Overall length (mm)	**Motor installation**	**L/R type**	Stroke+425.5
		Another	Stroke+338
Maximum dimensions of cross section of main unit (mm)			W146 × H94
Cable length (m)			Standard: 3.5 / Option: 5,10
Linear guide type			4 rows of circular arc grooves × 2 rail
Position detector			Resolvers [Note 2]
Resolution (Pulse/rotation)			16384

Note 1. Positioning repeatability in one direction.
Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang [Note]





Horizontal installation (Unit: mm)

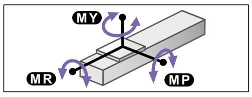
	A	B	C
5kg	2159	1228	943
10kg	1389	623	548
20kg	1102	320	348

Wall installation (Unit: mm)

	A	B	C
5kg	1064	816	1468
10kg	564	377	888
20kg	305	156	615

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

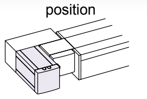
MY	MP	MR
226	227	199

Controller

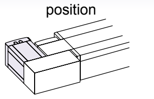
Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

Motor installation The line-up consisting of six models of deferent motor installation position as follows.

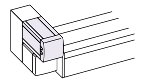
L type Leftward at horizontal position



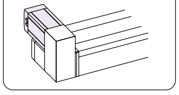
R type Rightward at horizontal position



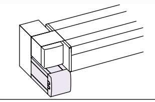
LU type Leftward at upper position



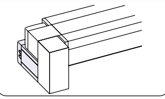
RU type Rightward at upper position



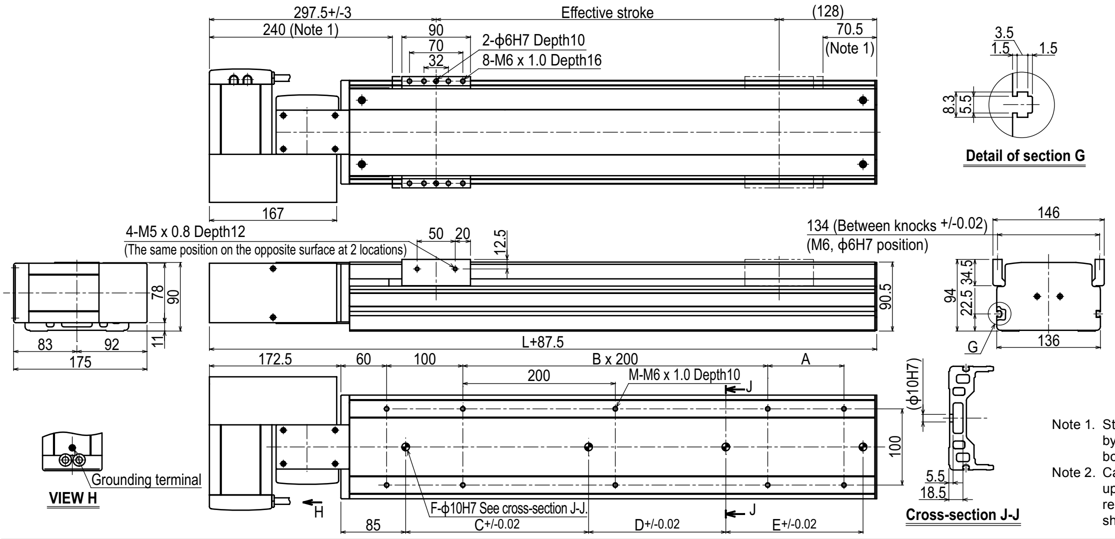
LD type Leftward at lower position



RD type Rightward at lower position



B14 R type (Motor rightward, horizontal position)



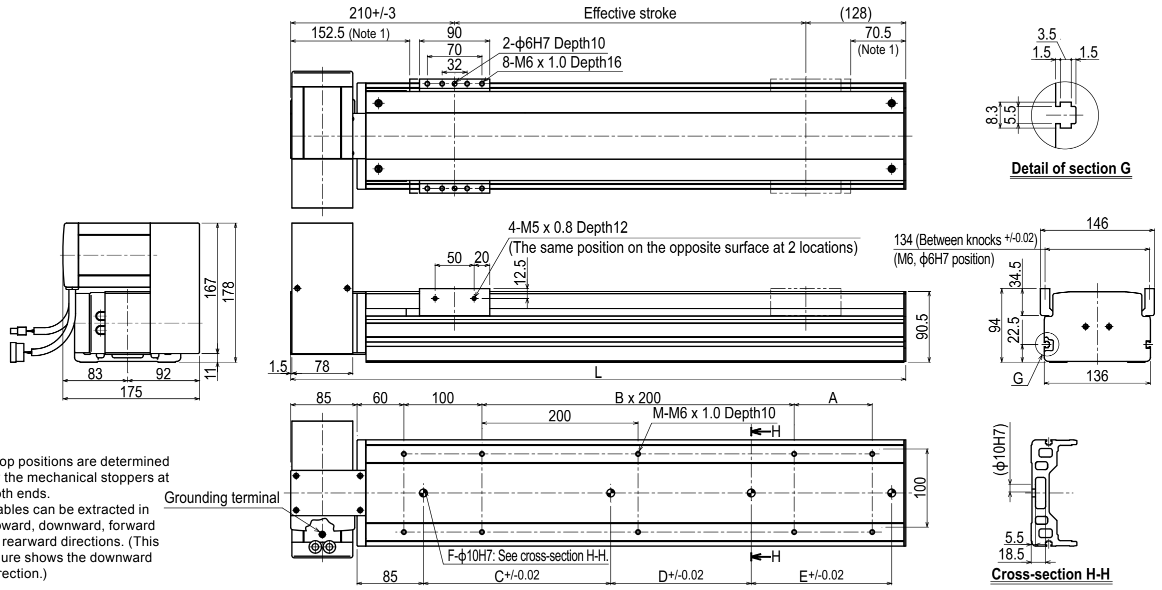
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the forward direction.)

Effective stroke	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
L	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
M	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22
A	-	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
B	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8
C	240	240	240	420	420	420	600	600	600	600	780	780	780	780	960	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	240	240	420	420	420	600
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Weight (kg)	9.6	10.2	10.8	11.4	12	12.5	13.1	13.7	14.3	14.9	15.5	16.0	16.6	17.2	17.8	18.4	19	19.5	20.2	20.7	21.3	21.9	22.5	23.1	23.7	24.2	24.8	25.4	26	26.6

Effective stroke	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388
M	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
B	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15
C	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	600	600	600	780	780	780	780	960	960	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	240	240	420	420	420	600	600	600	600	780	780	780
F	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weight (kg)	27.2	27.7	28.3	28.9	29.5	30.1	30.7	31.3	31.9	32.4	33	33.6	34.2	34.8	35.4	35.9	36.5	37.1	37.7	38.3	38.9	39.4	40	40.6	41.2	41.8	42.4	43.0	43.6

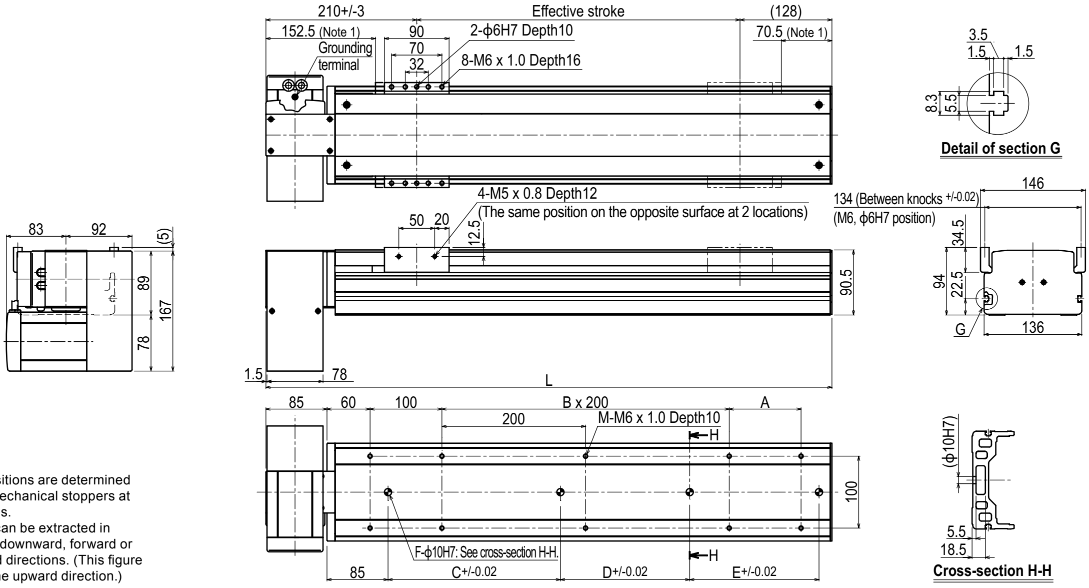
Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

B14 RU type (Motor rightward, upper position)



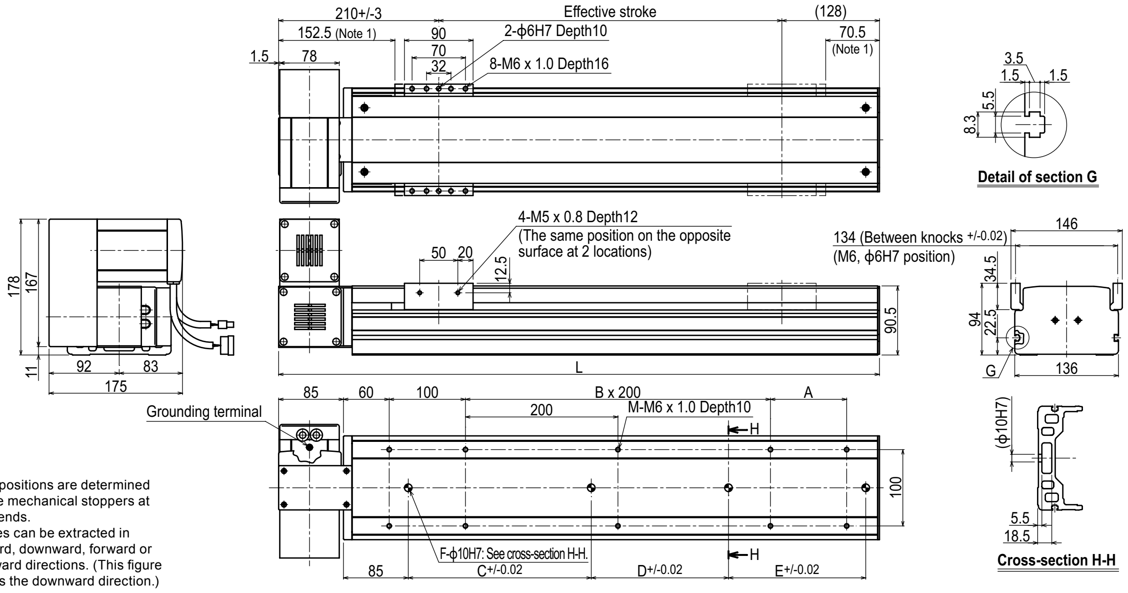
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

B14 RD type (Motor rightward, lower position)



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the upward direction.)

B14 LU type (Motor leftward, upper position)



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

B14H

Ordering method

B14H – [ ] – [ ] – [ ] – [ ]

Model	Motor installation direction	Option		Stroke	Cable length Note 1
B14H	L: Motor leftward, horizontal position	Grease type	None: Standard	150 to 3050 (50mm pitch)	3L: 3.5m
	R: Motor rightward, horizontal position		GC: Clean		5L: 5m
	LU: Motor leftward, upper position				10L: 10m
	RU: Motor rightward, upper position				3K/5K/10K (Flexible cable)
	LD: Motor leftward, lower position				
	RD: Motor rightward, lower position				

TSX – [ ] – R – [ ] – [ ] – [ ]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	R: With RGT	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less		L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 3	

SR1-X 05 – [ ] – R – [ ] – [ ]

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard	R: With RG1	N: NPN	B: With battery (Absolute)
		E: CE marking		P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 10 – RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	10: 200W or less	RBR1

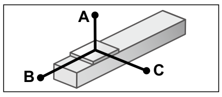
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

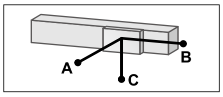
Specifications

AC servo motor output (W)			200
Repeatability Note 1 (mm)			+/-0.04
Belt (mm)			Equivalent to lead 25mm
Maximum speed (mm/sec)			1250 (1875 Note 2)
Maximum payload (kg)			30
Stroke (mm)			150 to 3050(100mm pitch)
Overall length (mm)	Motor installation	L/R type	Stroke+475.5
		Another	Stroke+388
Maximum dimensions of cross section of main unit (mm)			W146 × H94
Cable length (m)			Standard: 3.5 / Option: 5,10
Linear guide type			4 rows of circular arc grooves × 2 rail
Position detector			Resolvers Note 3
Resolution (Pulse/rotation)			16384

Note 1. Positioning repeatability in one direction.
Note 2. A regenerative unit is needed if using the SR1-X, TS-X at maximum speeds exceeding 1250mm sec. If using the RDV-X, then the regenerative unit RBR1 is required regardless of the installation conditions
Note 3. Position detectors(resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang Note





Horizontal installation (Unit: mm)

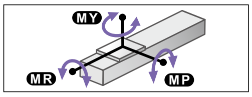
	A	B	C
5kg	3000	3000	1941
10kg	2742	1697	1064
20kg	2158	867	651
30kg	1708	590	466

Wall installation (Unit: mm)

	A	B	C
5kg	2074	2585	3000
10kg	1087	1236	2071
20kg	604	561	1512
30kg	397	336	1106

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

MY	MP	MR
610	555	488

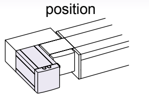
Controller

Controller	Operation method
SR1-X05 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 Note TS-X205 Note	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

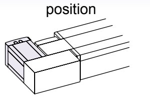
Note. A regenerative unit is needed if using the SR1-X, TS-X at maximum speeds exceeding 1250mm sec.

Motor installation The line-up consisting of six models of deferent motor installation position as follows.

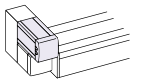
L type Leftward at horizontal position



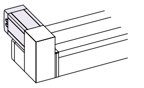
R type Rightward at horizontal position



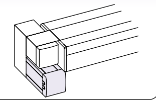
LU type Leftward at upper position



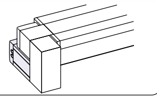
RU type Rightward at upper position



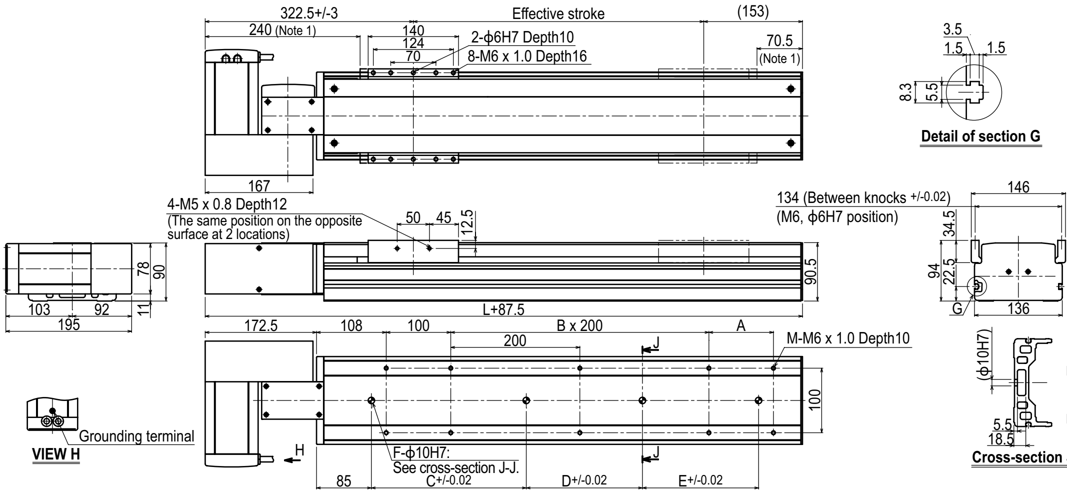
LD type Leftward at lower position



RD type Rightward at lower position



B14H R type (Motor rightward, horizontal position)

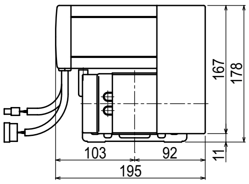


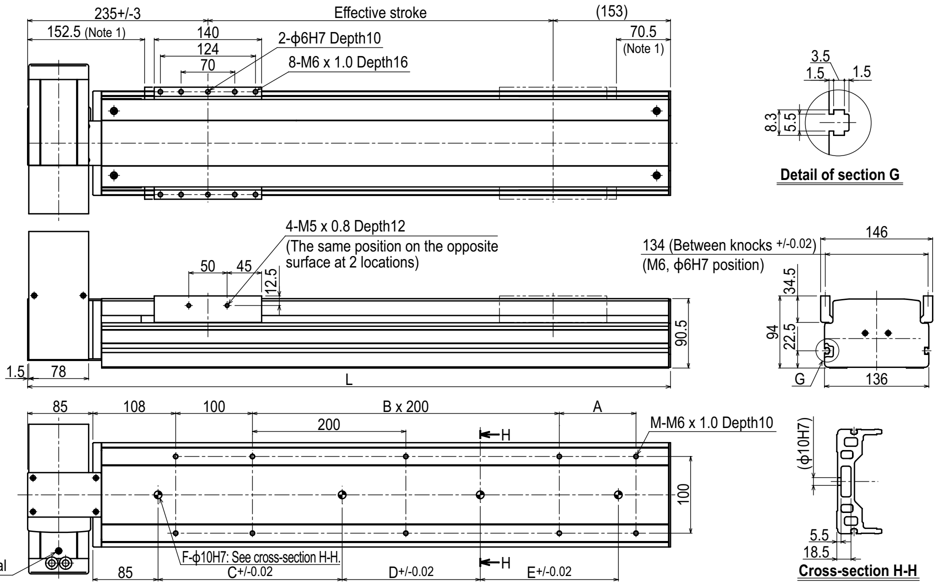
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the forward direction.)

Effective stroke	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
L	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938	1988
M	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22
A	–	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
B	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8
C	240	240	420	420	420	600	600	600	600	780	780	780	780	960	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	240	240	240	240	420	420	420	600	600
E	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Weight (kg)	10.9	11.5	12.1	12.7	13.2	13.9	14.4	15.0	15.6	16.2	16.7	17.4	17.9	18.5	19.1	19.7	20.2	20.9	22.0	22.1	22.6	23.3	23.8	24.4	24.9	25.6	26.1	26.8	27.3	27.9

Effective stroke	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
M	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
B	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15
C	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	600	600	780	780	780	960	960	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	–	–	–	–	–	–	–	–	–	–	–	–	–	–	240	240	240	420	420	420	420	600	600	600	600	780	780	780	960
F	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weight (kg)	28.4	29.1	29.6	30.3	30.8	31.4	31.9	32.6	33.1	33.8	34.3	35.0	35.5	36.1	36.6	37.3	37.8	38.5	39.0	39.6	40.1	40.8	41.3	42.0	42.5	43.1	43.6	44.3	45.4

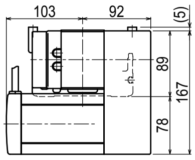
B14H RU type (Motor rightward, upper position)

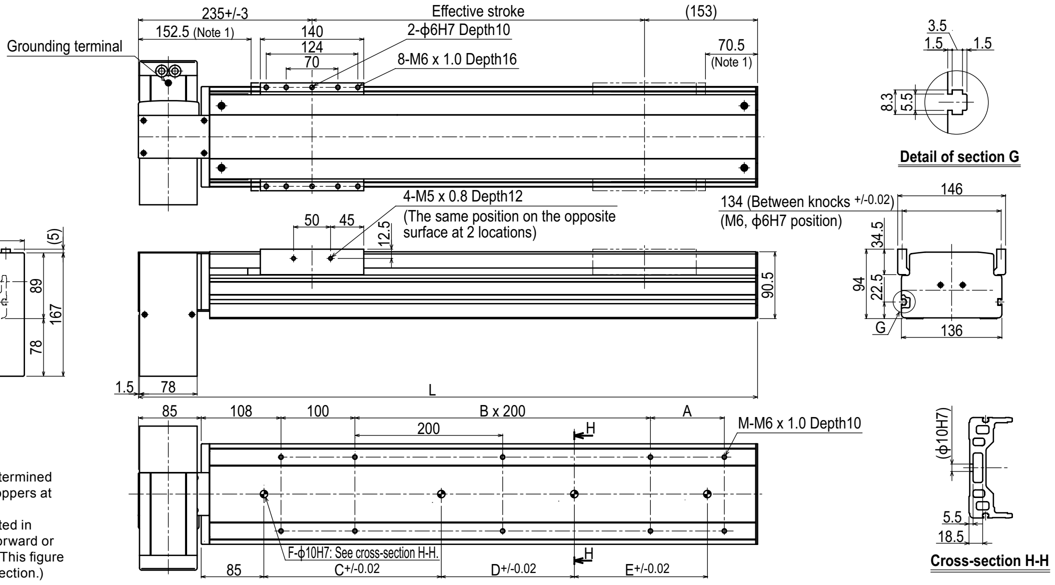




Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

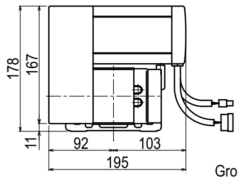
B14H RD type (Motor rightward, lower position)

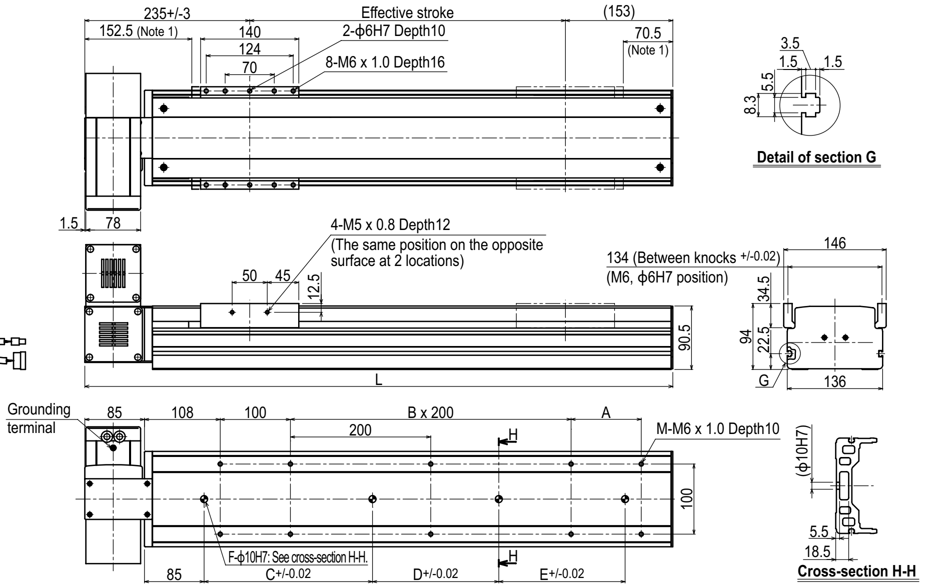




Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the upward direction.)

B14H LU type (Motor leftward, upper position)





Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

R5

Ordering method

R5 - [Cable entry location] - [Cable length Note 1] -

Model	Cable entry location	Cable length Note 1
R5	No entry: Standard (S)	3L: 3.5m
	B: From the side	5L: 5m
		10L: 10m
		3K/5K/10K (Flexible cable)

TSX - [Driver] - [LCD monitor] - [I/O selection] - [Battery]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	L: With LCD	PN: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			EP: EtherNet/IP™	
			PT: PROFINET	
			GW: No I/O board Note 3	

SR1-X - **05** - [Usable for CE] - [I/O selection] - [Battery]

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard	N: NPN	B: With battery (Absolute)
		E: CE marking	P: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			PB: PROFIBUS	

RDV-X **2** **05** - **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

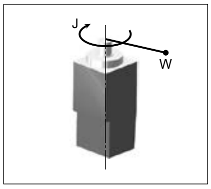
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Specifications

AC servo motor output (W)	50
Repeatability (°)	+/-0.0083
Maximum speed (°/sec)	360
Maximum allowable moment inertia (kgm^2[kgfcms^2])	0.12 [1.2]
Rated torque (Nm[kgfm])	5.29 [0.54]
Speed reduction ratio	1/50
Rotation range (°)	360
Cable length (m)	Standard: 3.5 / Option: 5,10
Speed reducer type	Harmonic drive
Position detector	Resolvers
Resolution (Pulse/rotation)	16384

Maximum allowable moment inertia

Payload parameters W (kg)	1	2	3	4	5	6	7	8	9	10
Maximum allowable moment inertia J (kgfcms^2)	0.12	0.24	0.36	0.48	0.60	0.72	0.84	0.96	1.08	1.20



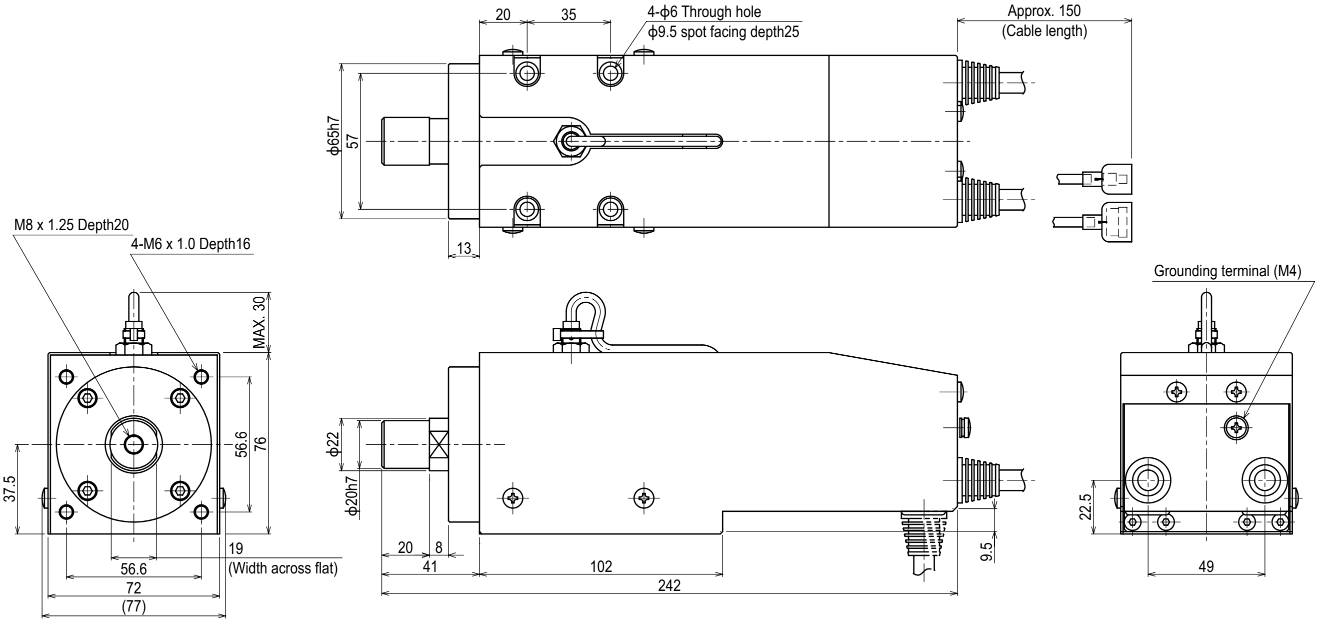
Note. When the weight of a tool or workpiece attached to the shaft R5 is W (kg), its moment of inertia (J) must be smaller than the values shown in the table above. (For example, enter 4kg if W is 3kg and J is 0.48kgf cm sec^2.) Enter the above mass parameter value for the controller, and optimum acceleration is automatically set based on this value.

Note. For calculation (equation) of the inertia moment, please refer to P.613.

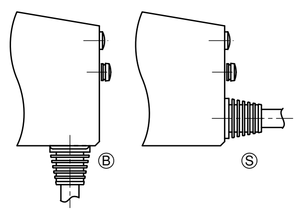
Controller

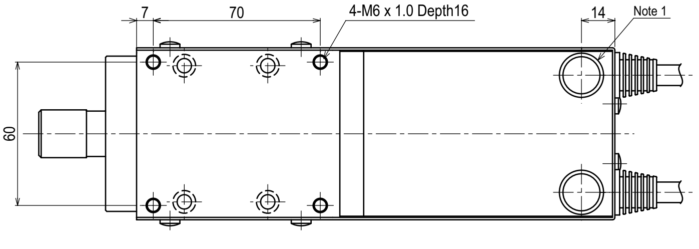
Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

R5



Cable take out direction





Weight (kg)	3.0

Note 1.The cable extraction port can be changed.

R10

Ordering method

R10 - [Cable entry location] - [Cable length] - TSX / SR1-X / RDV-X

Model	Cable entry location	Cable length Note 1
R10	No entry: Standard (S) B: From the side	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX - [Driver] - [LCD monitor] - [I/O selection] - [Battery]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** - [Usable for CE] - [I/O selection] - [Battery]

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** - **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

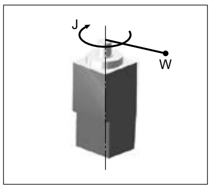
Specifications

AC servo motor output (W)	100
Repeatability (°)	+/-0.0083
Maximum speed (°/sec)	360
Maximum allowable moment inertia (kgm^2[kgfcms^2])	0.36 [3.71]
Rated torque (Nm[kgfm])	10.78 [1.10]
Speed reduction ratio	1/50
Rotation range (°)	360
Cable length (m)	Standard: 3.5 / Option: 5,10
Speed reducer type	Harmonic drive
Position detector	Resolvers
Resolution (Pulse/rotation)	16384

Maximum allowable moment inertia

Payload parameters W (kg)	1	2	3	4	5	6	7	8	9	10
Maximum allowable moment inertia J (kgfcms^2)	0.25	0.49	0.74	0.99	1.24	1.48	1.73	1.98	2.23	2.47

Payload parameters W (kg)	11	12	13	14	15
Maximum allowable moment inertia J (kgfcms^2)	2.72	2.97	3.22	3.46	3.71



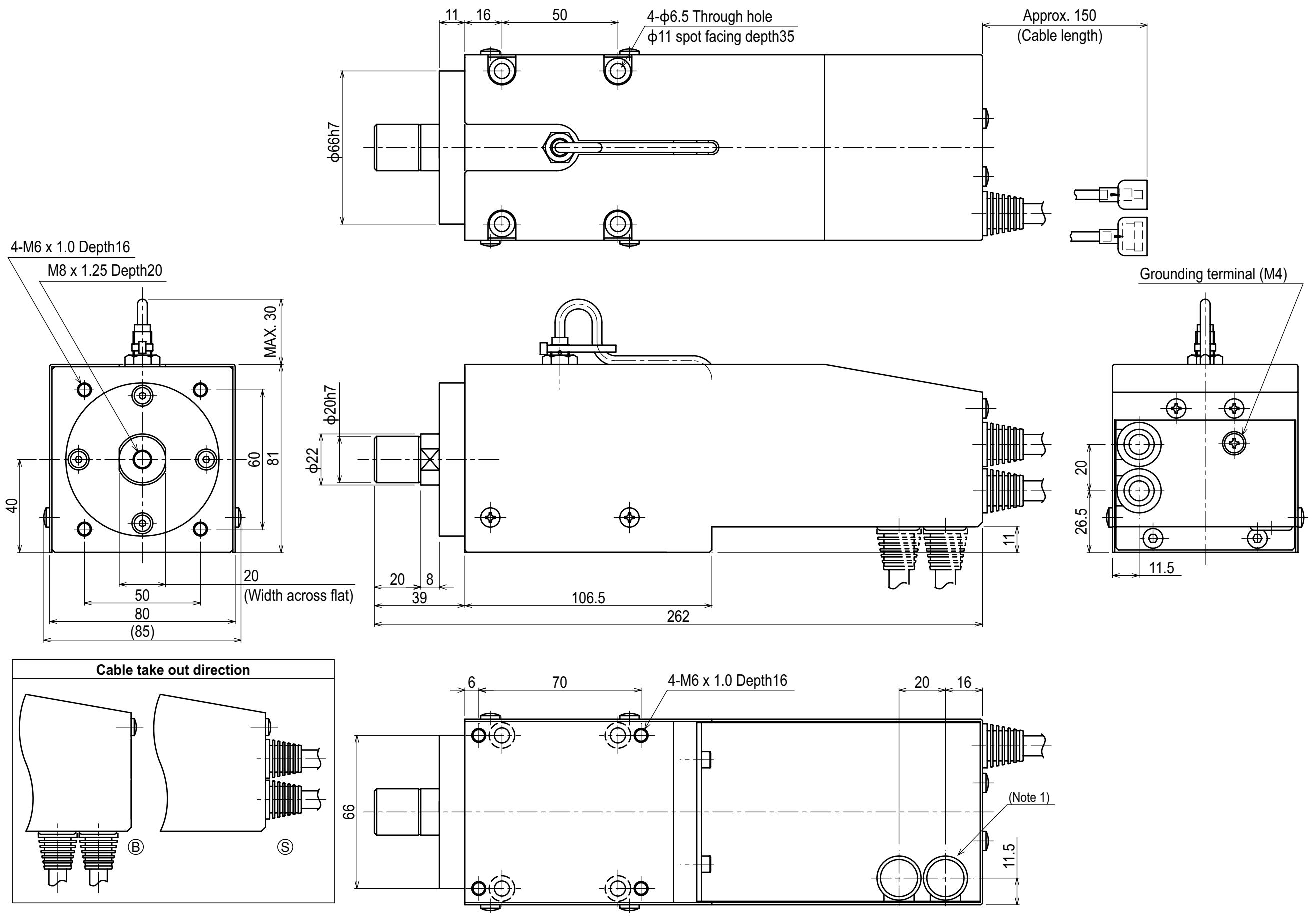
Note. When the weight of a tool or workpiece attached to the shaft R10 is W (kg), its moment of inertia (J) must be smaller than the values shown in the table above. (For example, enter 4kg if W is 3kg and J is 0.99kgf cm sec^2.) Enter the above mass parameter value for the controller, and optimum acceleration is automatically set based on this value.

Note. For calculation (equation) of the inertia moment, please refer to P.613.

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

R10



Weight (kg)	3.5

Note 1.The cable extraction port can be changed.

R20

Ordering method

Model	Cable entry location	Cable length Note 1
R20	No entry: Standard (S) B: From the side	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TSX TS-X	110: 100V/200W or less 210: 200V/200W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	10 10: 200W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2 2: AC200V	10 10: 200W or less	RBR1

Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

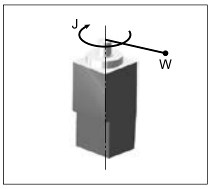
Specifications

AC servo motor output (W)	200
Repeatability (°)	+/-0.0083
Maximum speed (°/sec)	360
Maximum allowable moment inertia (kgm^2[kgfcms^2])	1.83 [18.7]
Rated torque (Nm[kgfm])	21.46 [2.19]
Speed reduction ratio	1/50
Rotation range (°)	360
Cable length (m)	Standard: 3.5 / Option: 5,10
Speed reducer type	Harmonic drive
Position detector	–
Resolution (Pulse/rotation)	16384

Maximum allowable moment inertia

Payload parameters W (kg)	1	2	3	4	5	6	7	8	9	10
Maximum allowable moment inertia J (kgfcms^2)	0.93	1.8	2.8	3.7	4.6	5.6	6.5	7.4	8.4	9.3

Payload parameters W (kg)	11	12	13	14	15	16	17	18	19	20
Maximum allowable moment inertia J (kgfcms^2)	10.2	11.2	12.1	13.1	14	14.9	15.9	16.8	17.7	18.7



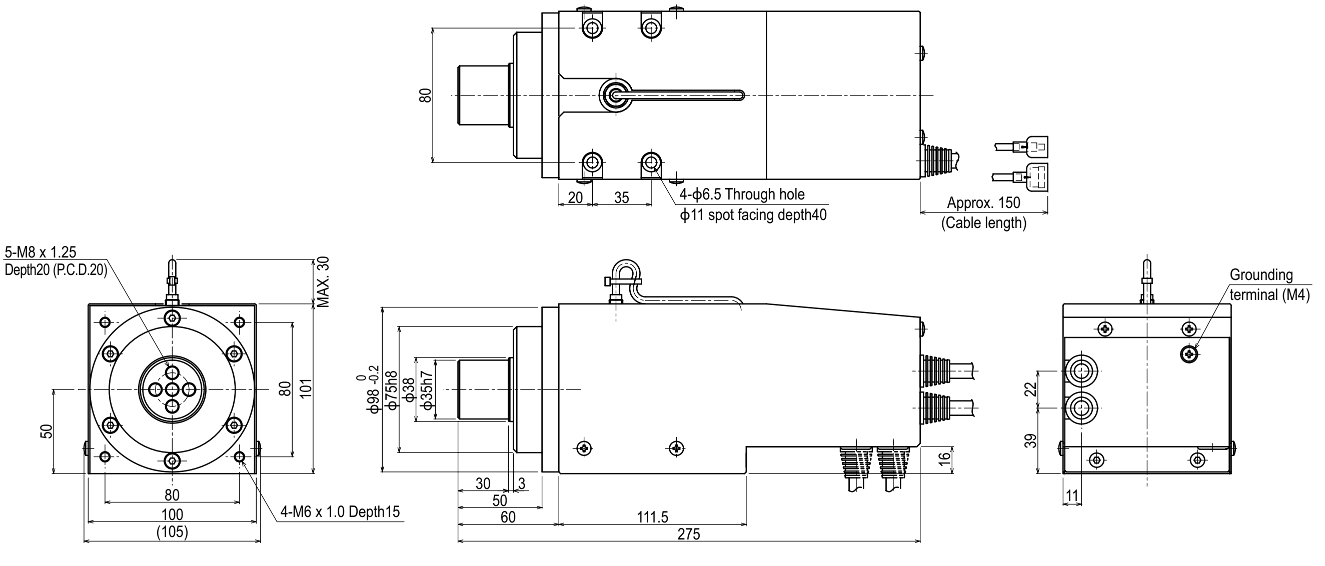
Note. When the weight of a tool or workpiece attached to the shaft R20 is W (kg), its moment of inertia (J) must be smaller than the values shown in the table above. (For example, enter 4kg if W is 3kg and J is 3.7kgf cm sec^2.) Enter the above mass parameter value for the controller, and optimum acceleration is automatically set based on this value.

Note. For calculation (equation) of the inertia moment, please refer to P.613.

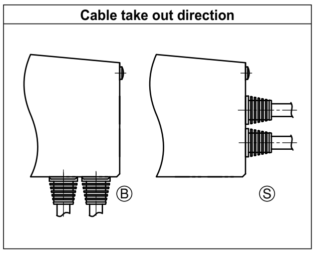
Controller

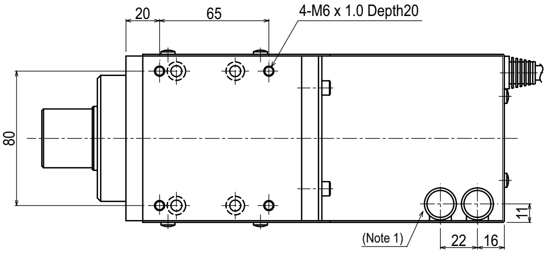
Controller	Operation method
SR1-X10 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 TS-X210	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

R20



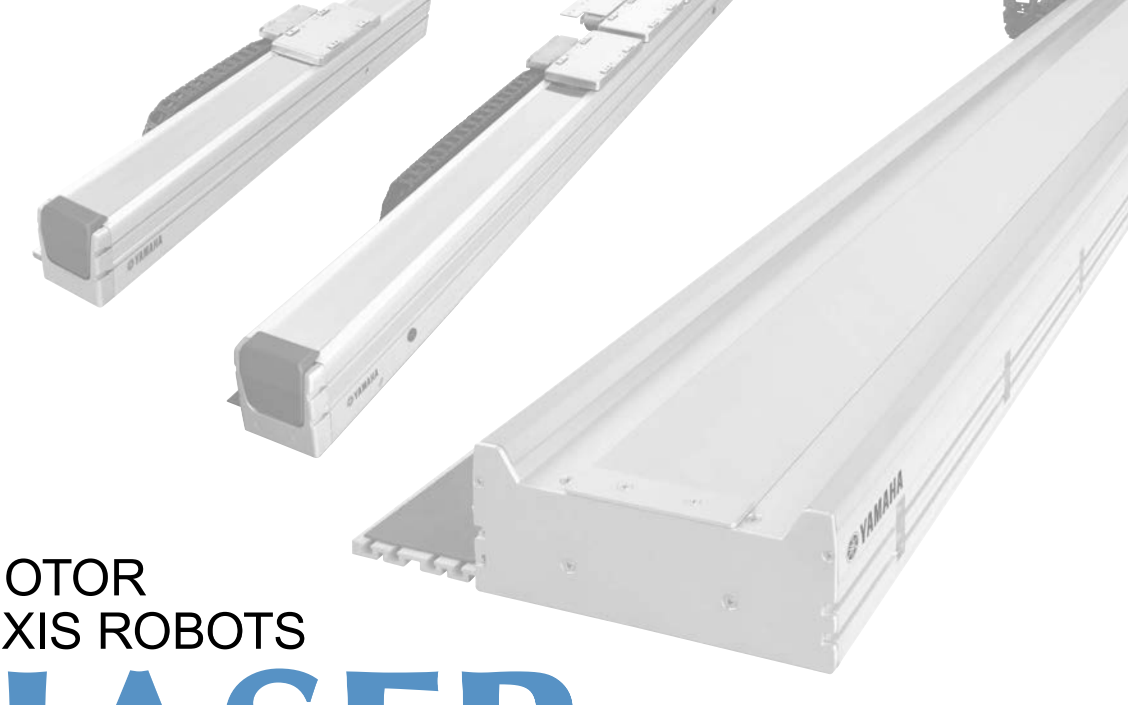
Cable take out direction





Weight (kg)	5.5

Note 1.The cable extraction port can be changed.



LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER

SERIES

CONTENTS

MF TYPE

MR TYPE

Main functions ▶ P.32

PHASER SPECIFICATION SHEET

Type	Size (mm) Note 1	Model	Carrier	Maximum payload (kg)	Maximum speed (mm/sec.)	Stroke (mm)	Detailed info page
MF type Flat type with core Linear motor specifications	W85 × H80	MF7	Single	10 (7) Note 2	2500	100 to 4000 (Horizontal) 100 to 2000 (Wall mount)	P.220
		MF7D	Double			100 to 3800 (Horizontal) 100 to 1800 (Wall mount)	P.220
	W100 × H80	MF15	Single	30 (15) Note 2		100 to 4000 (Horizontal) 100 to 2000 (Wall mount)	P.226
		MF15D	Double			100 to 3800 (Horizontal) 100 to 1800 (Wall mount)	P.226
	W150 × H80	MF20	Single	40 (20) Note 2		150 to 4050	P.230
		MF20D	Double			150 to 3850	P.230
		MF30	Single	60 (30) Note 2		100 to 4000	P.233
		MF30D	Double			150 to 3750	P.233
	W210 × H100	MF75	Single	160 (75) Note 2		1000 to 4000	P.236
		MF75D	Double			680 to 3680	P.236
MR type Shaft type Linear motor specifications	W60 × H90	MR12	Single	5		50 to 1050	P.238
		MR12D	Double			50 to 1050	P.238

Note 1. The size shows approximate maximum cross sectional size.

Note 2. When using at the maximum speed, the maximum payload becomes the value in ( ).

⚠Precautions for use

■ **Handling**

- Please be sure to read "PHASER Series Instruction Manual" carefully to have full understanding of its contents before using this product and strictly observe each instruction.
- Dropping or hitting this product may cause it to break. Always handle it carefully.
- Never disassemble this product. Entry of a foreign object will cause deterioration of accuracy.
- This product uses a magnetic type linear scale. Do not bring anything that generates a strong magnetic field near the robot itself as it may cause damage to the linear scale.

■ **Installation place and environment**

When installing this product, avoid the place where any of the following conditions applies.

- The ambient temperature is outside of the 0 °C to 40 °C range.
- Dielectric powder such as iron powder, dust, moist, salt or organic solvent is produced and flies in the air.
- Strong electric field, strong magnetic field, etc. occur.
- The product is affected by vibration or impact.
- Dewing occurs, or corrosive gas or combustible gas is generated.
- The product is exposed to direct sun or radiant heat.
- A noise source exists in the surrounding area.
- Inspection and cleaning cannot be performed.

■ **Safety precaution**

- A high performance rare earth magnets are used in the motor section of this product. For this reason, bringing a magnetic response type device or a medical device such as a heart pace maker close to the robot may cause it to malfunction. Be careful not to bring such a device close to the robot.

Robot ordering method description

In the order format for the YAMAHA linear motor single-axis robots PHASER series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

● **Mechanical ▶ MF20**

- Cable carrier take out direction ▷ RH
- Optional cable carrier for users ▷ S
- Origin position ▷ Change (R side)
- Grease ▷ Standard
- Stroke ▷ 550mm
- Cable length ▷ 3.5m

● **Controller ▶ SR1-P**

- Regenerative unit ▷ Required
- I/O selection ▷ NPN

● **Ordering method**

MF20-RH-S-Z-550-3L-SR1-P10-R-N

Mechanical section Controller section

This page describes using the ordering form for mechanical components.
To find detailed controller information see the controller page.

SR1-P ▶ P.518, TS-P ▶ P.492, RDV-P ▶ P.506

Mechanical section

● Single carriage

☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

①Model

MF7	MF7A
MF15	MF15A
MF20	MF20A
MF30	MF30A
MF75	MF75A

②Cable carrier entry location

RH	Horizontal, right
LH	Horizontal, left
RW	Wall mounted, right
LW	Wall mounted, left

④Optional cable carrier for users

No entry	None
S	S type
M	M type
L	L type

⑤Origin position change

No entry	L side
Z	R side

⑥Grease type

No entry	Standard
GC	Clean

⑦Stroke

⑧Cable length

3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

● Double carriage

☐ – ☐ – ☐ – ☐ – ☐ – ☐

①Model

MF7D	MF7AD
MF15D	MF15AD
MF20D	MF20AD
MF30D	MF30AD
MF75D	MF75AD

③Installing direction

H	Horizontal installation
W	Wall mounted installation

④Optional cable carrier for users

No entry	None
S	S type
M	M type
L	L type

⑥Grease type

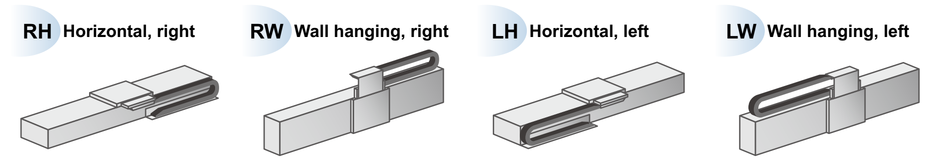
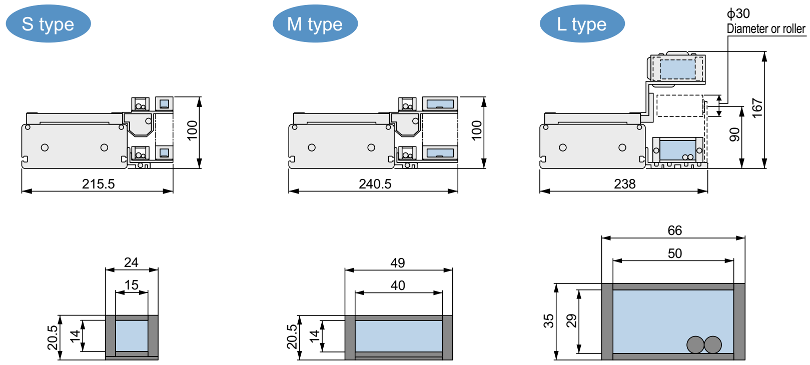
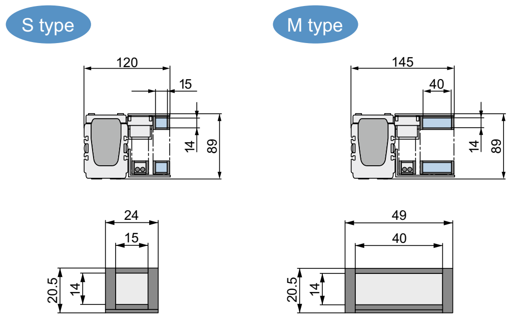
No entry	Standard
GC	Clean

⑦Stroke

⑧Cable length

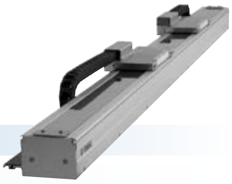
3L	3.5m
5L	5m
10L	10m
3K	3.5m
5K	5m
10K	10m

Robot ordering method terminology

① Model	Enter the robot unit model. Select from 2 types: incremental specifications and semi-absolute specifications.
② Cable carrier entry location	Select what direction to install the robot (horizontal / wall mounted) and what direction to extract the robot cable carrier.  RH Horizontal, right RW Wall hanging, right LH Horizontal, left LW Wall hanging, left Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.
③ Installing direction	Select what direction to install the robot (horizontal / wall mounted).
④ Optional cable carrier for users	Please specify if a cable carrier is needed for customer wiring. **[MF type]** (For MF20)  S type M type L type ϕ30 Diameter or roller 100 215.5 100 240.5 167 90 238 24 15 20.5 14 49 40 20.5 14 66 50 35 29 Cable and pipe guide S : ϕ8 flexible cable x 1,ϕ4 air tube x 1 M : ϕ8 flexible cable x 2, ϕ6 air tube x 2 L : ϕ8 flexible cable x 2, ϕ8 air tube x 3 ▨ Space for optional cable for users **[MR type]**  S type M type 120 15 14 89 145 40 14 89 24 15 20.5 14 49 40 20.5 14 ▨ Space for optional cable for users Note. The cable and air hoses should take up less than 30% of the space when storing them inside the cable carrier. Lay out the cables and air hoses in rows inside the cable carrier so they do not cross each other.
⑤ Origin position change	Origin point position can be changed.
⑥ Grease type	Clean grease can be selected.
⑦ Stroke	Select the stroke for the robot operating range.
⑧ Cable length	Select the length of the robot cable connecting the robot to the controller. **3L** : 3.5m (Standard) **5L** : 5m **10L** : 10m **3K** : 3.5m (Flexible cable) **5K** : 5m (Flexible cable) **10K** : 10m (Flexible cable)

MF7/MF7D

- Flat type available
- Can be used for wall-mount



Ordering method

Single carriage model

MF7 – Model – Cable carrier entry location – Optional cable carrier for users – Origin position change – Grease type – Stroke – Cable length – Controller

Model
MF7: Incremental
MF7A: Semi-absolute Note 1

Cable carrier entry location
RH: Horizontal, right
LH: Horizontal, left
FRH: Horizontal, right (Flat)
FLH: Horizontal, left (Flat)
RW: Wall mount, right
LW: Wall mount, left

Optional cable carrier for users Note 2
No entry: None
S: S type
M: M type
L: L type

Origin position change	
Hori-zontal	No entry: L side (Standard)
	Z: R side
Wall	No entry: R side (Standard)
	Z: L side

Grease type
No entry: Standard
GC: Clean

Stroke Note 3	
Hori-zontal	100 to 4000 (100mm pitch)
Wall	100 to 2000 (100mm pitch)

Cable length Note 4
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 5

TSP – Driver: Power-supply voltage / Power capacity – LCD monitor – I/O selection

Positioner Note 6	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection
TS-P	110: 100V/200W	No entry: None	NP: NPN
	210: 200V/200W	L: With LCD	PN: PNP
			CC: CC-Link
			DN: DeviceNet™
			EP: EtherNet/IP™
			GW: No I/O board Note 7

SR1-P **10** – Usable for CE – I/O selection

Controller	Driver: Power capacity	Usable for CE	I/O selection
SR1-P	10: 200W	No entry: Standard	N: NPN
		E: CE marking	P: PNP
			CC: CC-Link
			DN: DeviceNet™
			PB: PROFIBUS

RDV-P **2** **10** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-P	2: AC200V	10: 200W or less	RBR1

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.
Note 3. Maximum stroke for flat type is 2000mm.
Note 4. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 5. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 6. These controllers can be mounted on DIN rails. See P.500 for details.
Note 7. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

MF7D – Model – Installing direction – Optional cable carrier for users – Grease type – Stroke – Cable length – **RCX221** – Usable for CE – I/O selection 1 – I/O selection 2

Model
MF7D: Incremental
MF7AD: Semi-absolute Note 1

Installing direction
H: Horizontal installation
FH: Horizontal installation (Flat)
W: Wall mount installation

Optional cable carrier for users Note 2
No entry: None
S: S type
M: M type
L: L type

Grease type
No entry: Standard
GC: Clean

Stroke Note 3	
Hori-zontal	100 to 3800 (100mm pitch)
Wall	100 to 1800 (100mm pitch)

Cable length
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 5

Controller	Usable for CE	I/O selection 1	I/O selection 2
RCX221	No entry: Standard	N: NPN	No entry: None
SR1-P (2 units)	E: CE marking	P: PNP	N1: OP.DIO24/16 (NPN)
TS-P (2 units)		CC: CC-Link	P1: OP.DIO24/17 (PNP)
RDV-P (2 units)		DN: DeviceNet™	EN: Ethernet
		PB: PROFIBUS	
		EN: Ethernet	

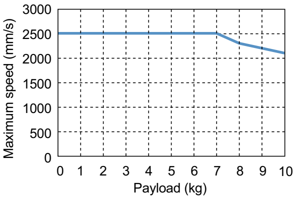
Specifications Note

Model		MF7	MF7D
Driving method		Steel cored linear motor with falt magnet	
Repeatability (μm)		+/-5	
Scale (μm)		Magnetic type: resolution of 1	
Maximum speed Note 2 (mm/sec)		2500	
Rated thrust (N)		37	
Maximum payload (kg)	Horizontal	10 Note 1	
	Wall mount	7	
Stroke (mm)	Horizontal	100 to 4000 (100mm pitch)	100 to 3800 (100mm pitch)
	Wall mount	100 to 2000 (100mm pitch)	100 to 1800 (100mm pitch)
Linear guide		4 rows of circular arc grooves × 1 rail	
Maximum cross-section outside dimensions (mm)		W85 × H80 (except the cable carrier section)	
Total length (mm)		Stroke+280	Stroke+480
Cable length (m)		Standard: 3.5 / Option: 5,10	

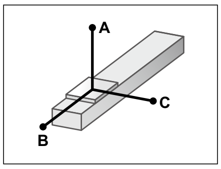
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1.Payload per carrier. When the payload exceeds 7kg, please consult our sales office or sales representative.

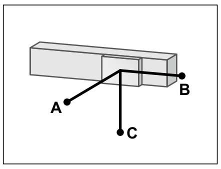
Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
7 or less	2500
8	2300
9	2200
10	2100



Allowable overhang Note





Horizontal installation (Unit: mm)

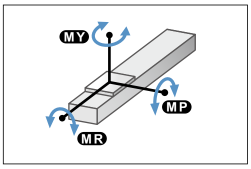
	A	B	C
1kg	3000	3000	680
3kg	3000	1350	215
5kg	2900	830	125
7kg	2400	580	85
9kg	2200	460	60
10kg	2100	410	55

Wall installation (Unit: mm)

	A	B	C
1kg	700	3000	3000
3kg	195	1260	3000
5kg	90	630	2480
7kg	50	360	1680

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

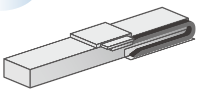
MY	MP	MR
156	156	194

Controller

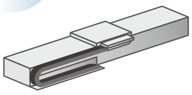
Controller	Operating method
SR1-P10	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221 RCX240/340	
TS-P110	I/O point trace / Remote command
TS-P210	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location

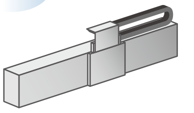
RH **Horizontal, right**



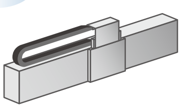
LH **Horizontal, left**



RW **Wall mounted, right**



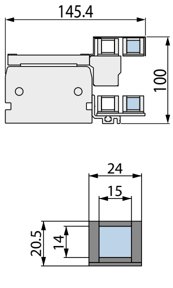
LW **Wall mounted, left**



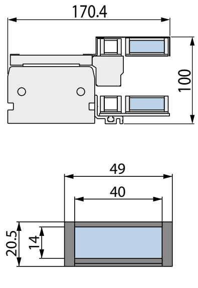
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

Optional cable carrier for users

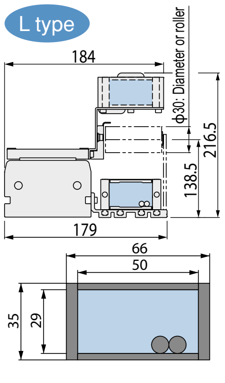
S type



M type



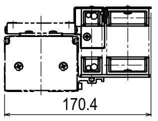
L type



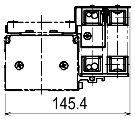
Cable and air tube guide
S: ϕ8 flexible cable x 1,ϕ4 air tube x 1
M: ϕ8 flexible cable x 2, ϕ6 air tube x 2
L: ϕ8 flexible cable x 2, ϕ8 air tube x 3

▭ Space for optional cable for users

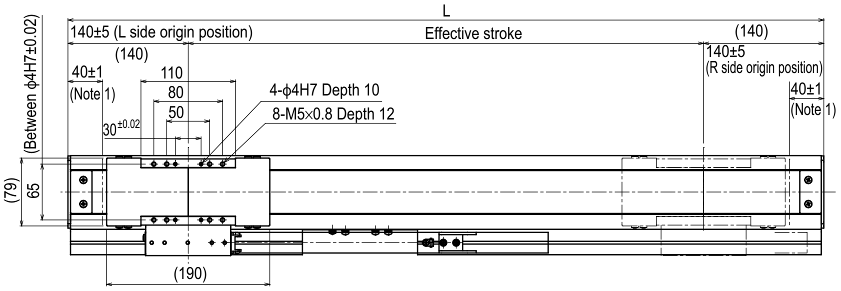
MF7 single carriage horizontal mount model RH

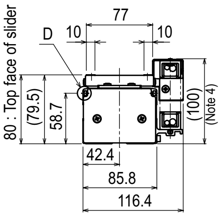


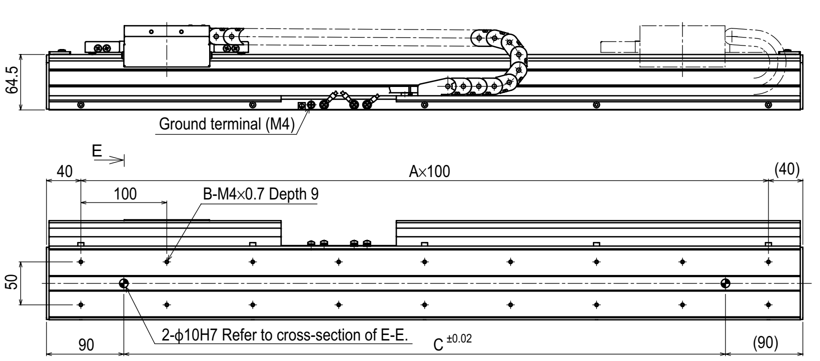
Optional cable carrier M type

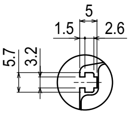


Optional cable carrier S type

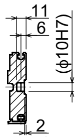






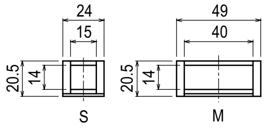


Detail of section D



Cross-section of E-E

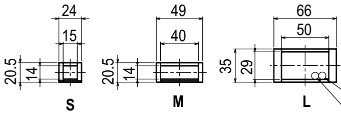
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. The drawings on this page show the unit with horizontal-right-type cable carrier (RH).
Note 4. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.



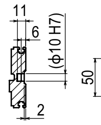
Cross-section of cable carrier

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	380	480	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
Weight (kg)	5.8	6.5	7.3	8	8.7	9.4	10.1	10.9	11.6	12.3	13	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5

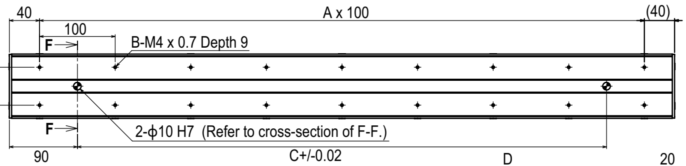
MF7 single carriage wall mount model RW

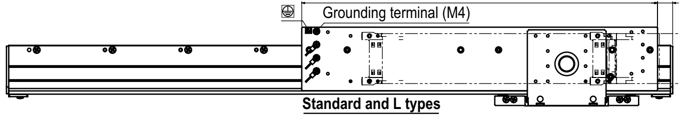


Cross-section of optional cable carrier

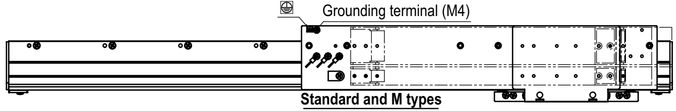


Cross-section of F-F

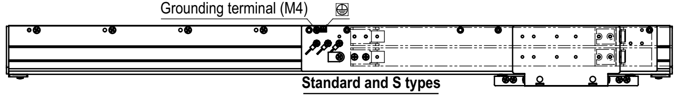




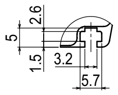
Standard and L types



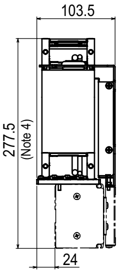
Standard and M types



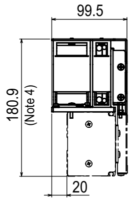
Standard and S types



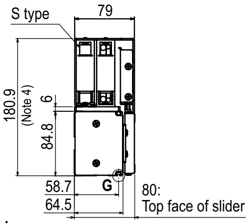
Detail of section G



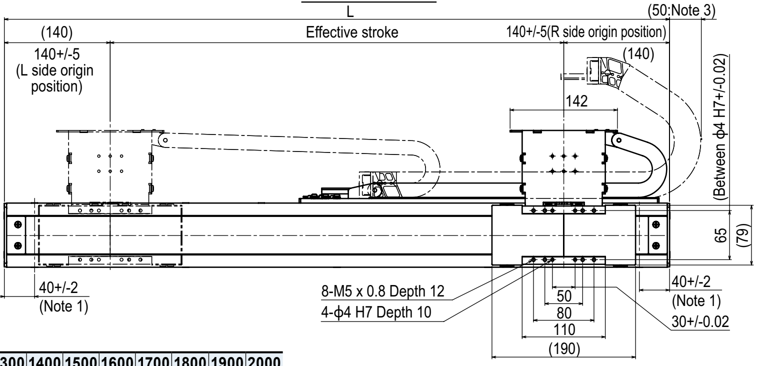
Optional cable carrier L type



Optional cable carrier M type



Standard and S types

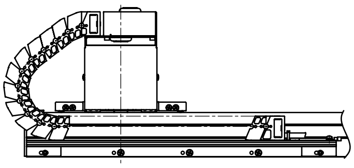


Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	380	480	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
D	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170
Weight (kg)	5.8	6.5	7.3	8	8.7	9.4	10.1	10.9	11.6	12.3	13	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5

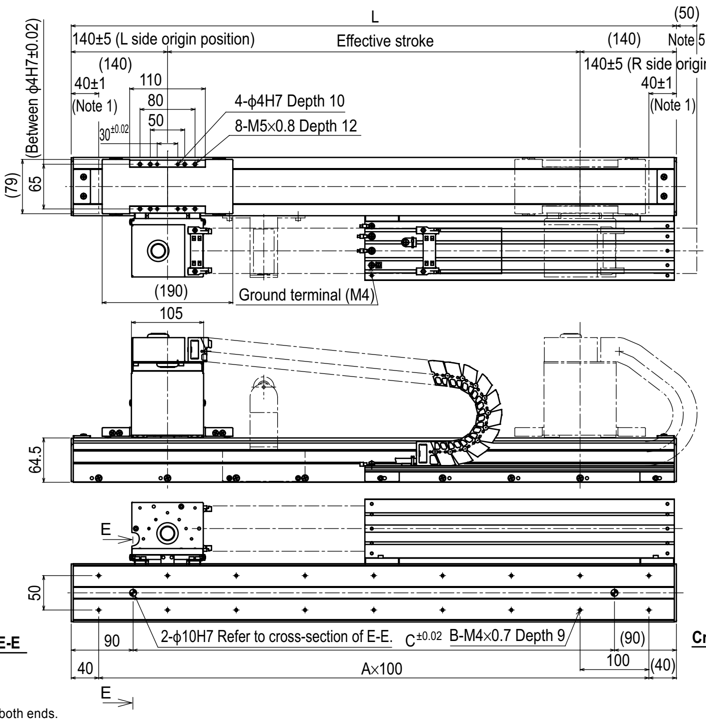
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. Cable carrier's protrusion amount from the mechanical end (For "L" specs.).
Note 4. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

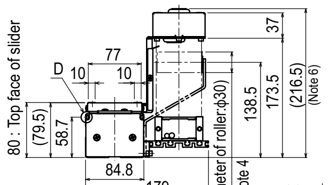
MF7/MF7D

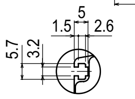
MF7 single carriage horizontal mount model RH-L Optional L-type cable carrier



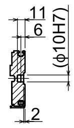
Horizontal-left-type cable carrier (FLH)



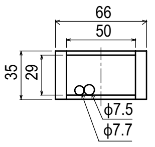




Detail of section D



Cross-section of E-E



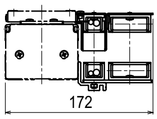
Cross-section of cable carrier

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. The drawings on this page show the unit with horizontal-right-type cable carrier (RH).
Note 4. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of the unit.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

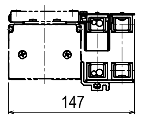
Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	380	480	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
Weight (kg)	5.8	6.5	7.3	8.0	8.7	9.4	10.1	10.9	11.6	12.3	13.0	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5

Effective stroke	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
L	2380	2480	2580	2680	2780	2880	2980	3080	3180	3280	3380	3480	3580	3680	3780	3880	3980	4080	4180	4280
A	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
B	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86
C	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	20.2	20.9	21.7	22.4	23.1	23.8	24.5	25.3	26.0	26.7	27.4	28.1	28.9	29.6	30.3	31.0	31.7	32.5	33.2	33.9

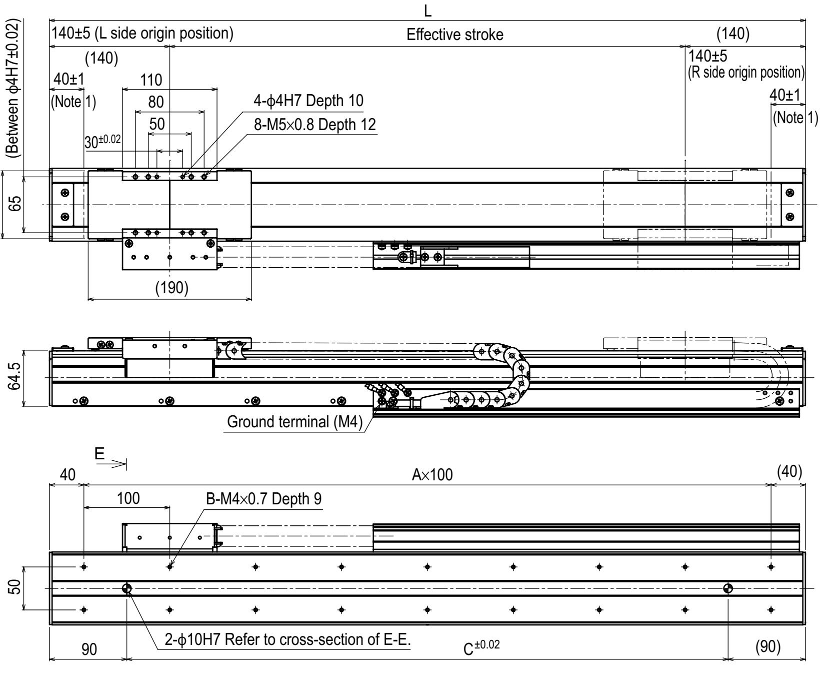
MF7 single carriage horizontal mount model FRH Flat type

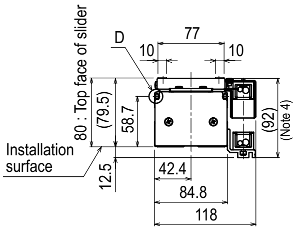


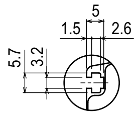
Optional cable carrier M type



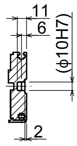
Optional cable carrier S type







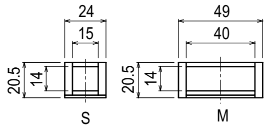
Detail of section D



Cross-section of E-E

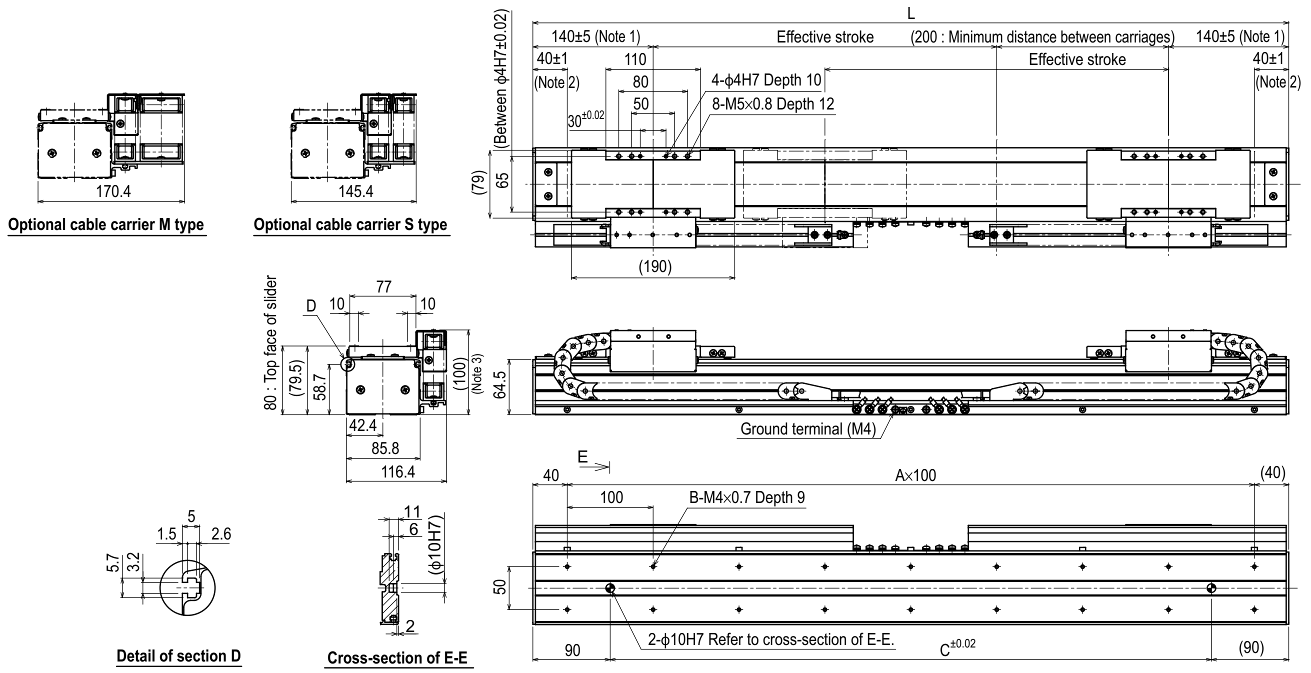
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. The drawings on this page show the unit with horizontal-right-type cable carrier (RH).
Note 4. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	380	480	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
Weight (kg)	5.8	6.5	7.3	8	8.7	9.4	10.1	10.9	11.6	12.3	13	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5



Cross-section of cable carrier

MF7D double carriage horizontal mount model H



Optional cable carrier M type

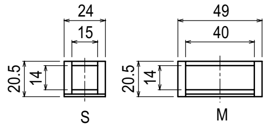
Optional cable carrier S type

Detail of section D

Cross-section of E-E

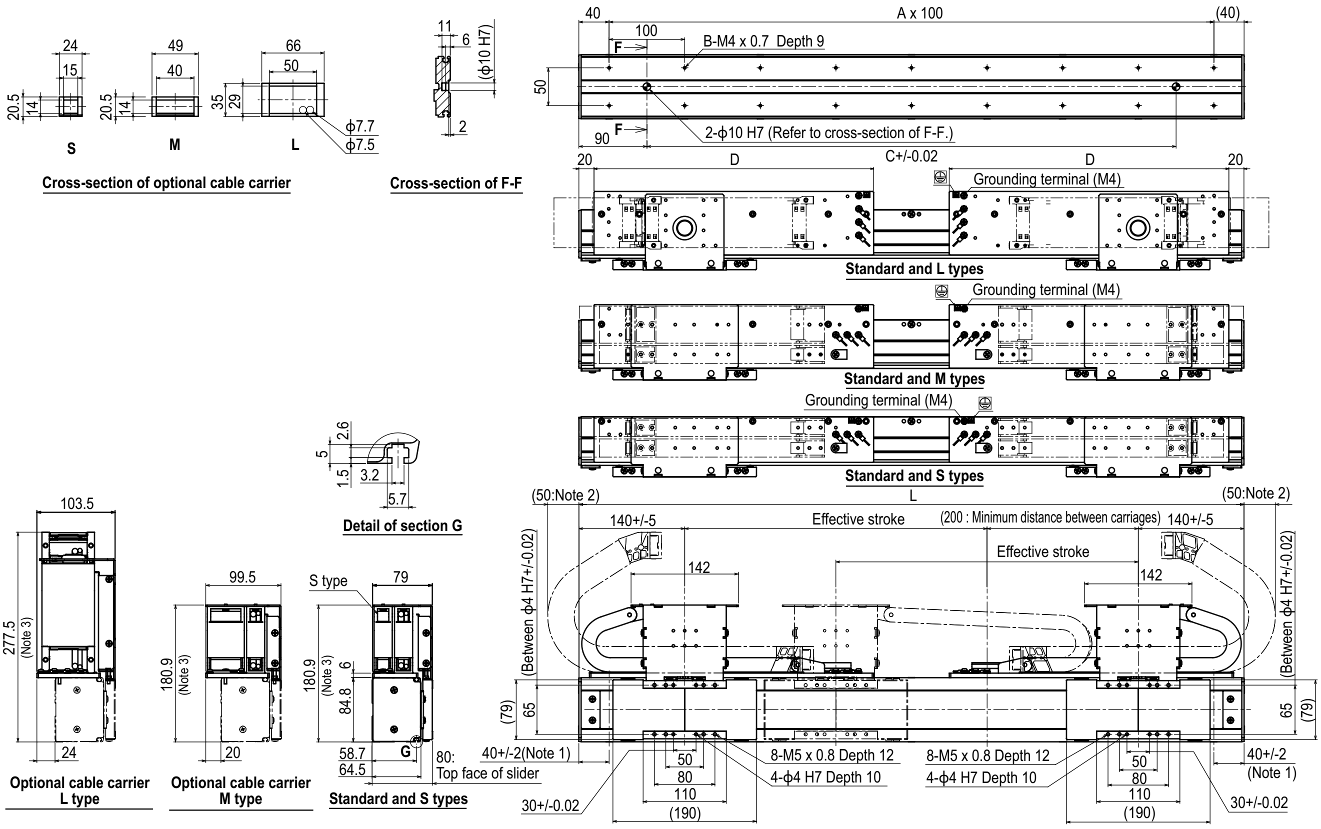
Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280	2380	2480
A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
C	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Weight (kg)	9.3	10.2	11.1	12.0	12.9	13.9	14.8	15.7	16.6	17.5	18.5	19.4	20.3	21.2	22.1	23.1	24.0	24.9	25.8	26.7



Cross-section of cable carrier

MF7D double carriage wall mount model W



Cross-section of optional cable carrier

Cross-section of F-F

Standard and L types

Standard and M types

Standard and S types

Detail of section G

Optional cable carrier L type

Optional cable carrier M type

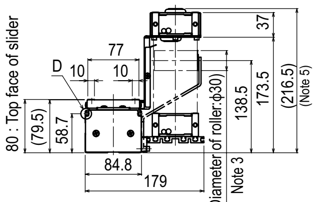
Standard and S types

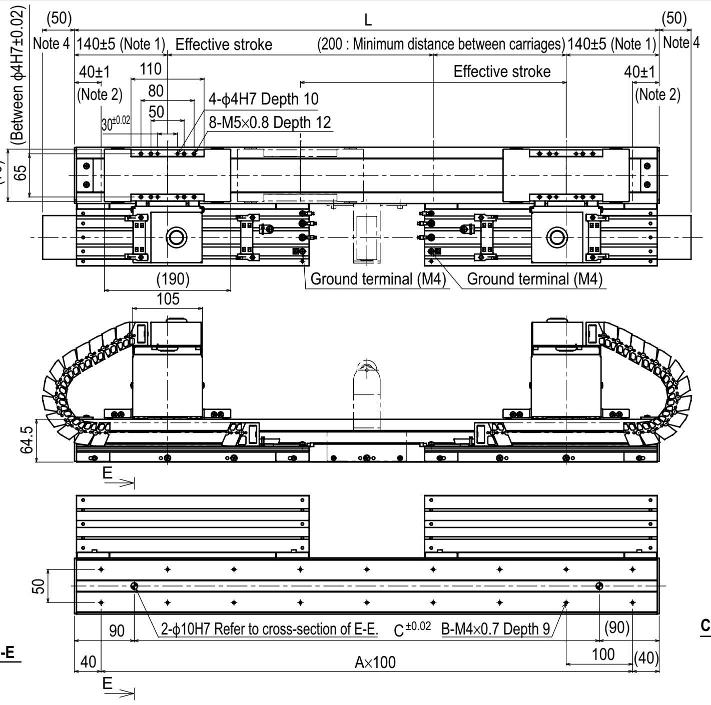
Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
L	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
D	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070
Weight (kg)	9.3	10.2	11.1	12.0	12.9	13.9	14.8	15.7	16.6	17.5	18.5	19.4	20.3	21.2	22.1	23.1	24.0	24.9

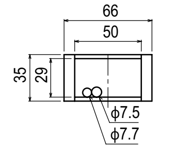
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cable carrier's protrusion amount from the mechanical end.
Note 3. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

MF7/MF7D

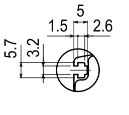
MF7D double carriage horizontal mount model H-L Optional L-type cable carrier



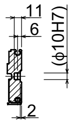




Cross-section of cable carrier



Detail of section D

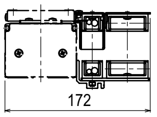


Cross-section of E-E

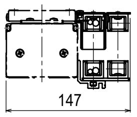
Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
Note 4. Protrusion is the distance the cable carrier extends from the edge of the unit.
Note 5. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800
L	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	3080	3180	3280	3380	3480	3580	3680	3780	3880	3980	4080	4180	4280
A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
B	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86
C	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	9.3	10.2	11.1	12.0	12.9	13.9	14.8	15.7	16.6	17.5	18.5	19.4	20.3	21.2	22.1	23.1	24.0	24.9	25.8	26.7	27.7	28.6	29.5	30.4	31.3	32.3	33.2	34.1	35.0	35.9	36.9	37.8	38.7	39.6	40.5	41.5	42.4	43.3

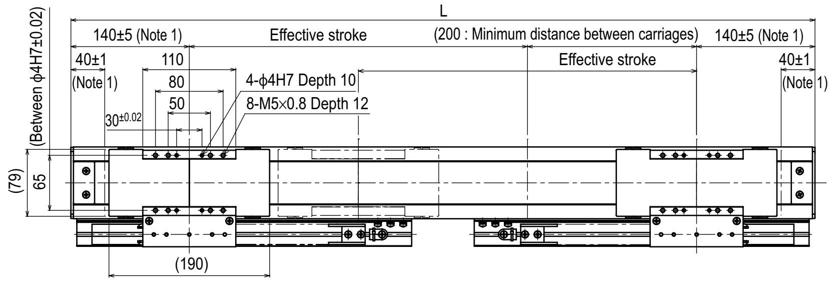
MF7D double carriage horizontal mount model FH Flat type

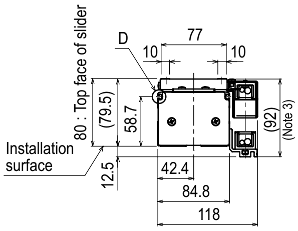


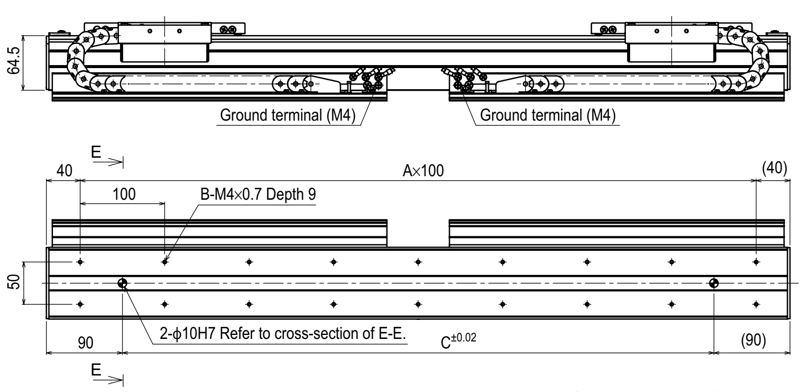
Optional cable carrier M type

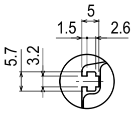


Optional cable carrier S type

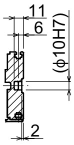








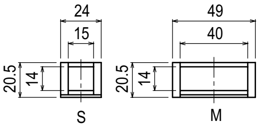
Detail of section D



Cross-section of E-E

Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280	2380	2480
A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
C	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Weight (kg)	9.3	10.2	11.1	12.0	12.9	13.9	14.8	15.7	16.6	17.5	18.5	19.4	20.3	21.2	22.1	23.1	24.0	24.9	25.8	26.7

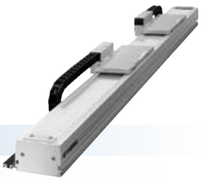


Cross-section of cable carrier

MEMO

MF15/MF15D

● Can be used for wall-mount



Ordering method

Single carriage model

MF15 – Model – Cable carrier entry location – Optional cable carrier for users – Origin position change – Grease type – Stroke – Cable length – TSP / SR1-P / RDV-P

Model
MF15: Incremental
MF15A: Semi-absolute Note 1

Cable carrier entry location
RH: Horizontal, right
LH: Horizontal, left
RW: Wall mount, right
LW: Wall mount, left

Optional cable carrier for users Note 2
No entry: None
S: S type
M: M type
L: L type

Origin position change	
Horizontal	No entry: L side (Standard)
	Z: R side
Wall	No entry: R side (Standard)
	Z: L side

Grease type
No entry: Standard
GC: Clean

Stroke	
Horizontal	100 to 4000 (100mm pitch)
Wall	100 to 2000 (100mm pitch)

Cable length Note 3
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 4

TSP – Positioner – Driver: Power-supply voltage / Power capacity – LCD monitor – I/O selection

Positioner Note 5
TS-P

Driver: Power-supply voltage / Power capacity
110: 100V/200W
210: 200V/200W

LCD monitor
No entry: None
L: With LCD

I/O selection
NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
GW: No I/O board Note 6

SR1-P **10** – Usable for CE – I/O selection

Controller
SR1-P

Driver: Power capacity
10: 200W

Usable for CE
No entry: Standard
E: CE marking

I/O selection
N: NPN
P: PNP
CC: CC-Link
DN: DeviceNet™
PB: PROFIBUS

RDV-P **2** **10** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-P	2: AC200V	10: 200W or less	RBR1

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 5. These controllers can be mounted on DIN rails. See P.500 for details.
Note 6. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

MF15D – Model – Installing direction – Optional cable carrier for users – Grease type – Stroke – Cable length – **RCX221** – Usable for CE – I/O selection 1 – I/O selection 2

Model
MF15D: Incremental
MF15AD: Semi-absolute Note 1

Installing direction
H: Horizontal installation
W: Wall mount installation

Optional cable carrier for users Note 2
No entry: None
S: S type
M: M type
L: L type

Grease type
No entry: Standard
GC: Clean

Stroke	
Horizontal	100 to 3800 (100mm pitch)
Wall	100 to 1800 (100mm pitch)

Cable length
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 4

Controller
RCX221
SR1-P (2 units)
TS-P (2 units)
RDV-P (2 units)

Usable for CE
No entry: Standard
E: CE marking

I/O selection 1
N: NPN
P: PNP
CC: CC-Link
DN: DeviceNet™
PB: PROFIBUS
EN: Ethernet

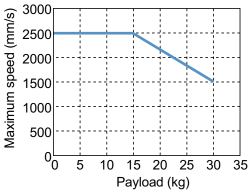
I/O selection 2
No entry: None
N1: OP.DIO24/16 (NPN)
P1: OP.DIO24/17 (PNP)
EN: Ethernet

Specifications Note

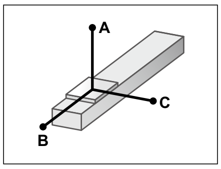
Model		MF15	MF15D
Driving method		Steel cored linear motor with falt magnet	
Repeatability (μm)		+/-5	
Scale (μm)		Magnetic type: resolution of 1	
Maximum speed Note 2 (mm/sec)		2500	
Rated thrust (N)		54	
Maximum payload Note 1 (kg)		30	
Stroke (mm)	**Horizontal**	100 to 4000 (100mm pitch)	100 to 3800 (100mm pitch)
	Wall mount	100 to 2000 (100mm pitch)	100 to 1800 (100mm pitch)
Linear guide		4 rows of circular arc grooves × 2 rail	
Maximum cross-section outside dimensions (mm)		W100 × H80 (except the cable carrier section)	
Total length (mm)		Stroke+260	Stroke+460
Cable length (m)		Standard: 3.5 / Option: 5,10	

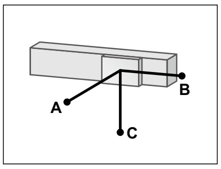
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Payload per carrier. When the payload exceeds 15kg, please consult our sales office or sales representative.
Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
15 or less	2500
20	2200
25	1800
30	1500



Allowable overhang Note





Horizontal installation (Unit: mm)

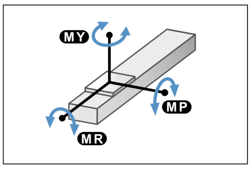
	A	B	C
5kg	3000	3000	915
10kg	2604	1542	481
15kg	2368	1051	340
20kg	1820	600	260
25kg	1470	450	175
30kg	1250	310	145

Wall installation (Unit: mm)

	A	B	C
5kg	865	1880	3060
10kg	410	905	2115
15kg	255	575	1910
20kg	170	410	1780
25kg	120	295	1660
30kg	90	215	1440

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

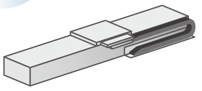
MY	MP	MR
290	291	256

Controller

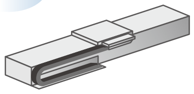
Controller	Operating method
SR1-P10	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221 RCX240/340	
TS-P110	I/O point trace / Remote command
TS-P210	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location

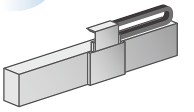
RH **Horizontal, right**



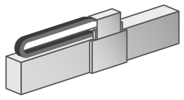
LH **Horizontal, left**



RW **Wall mounted, right**



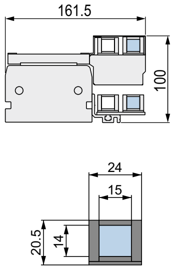
LW **Wall mounted, left**



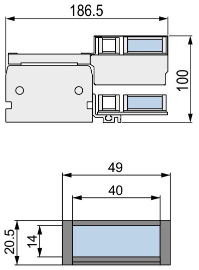
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

Optional cable carrier for users

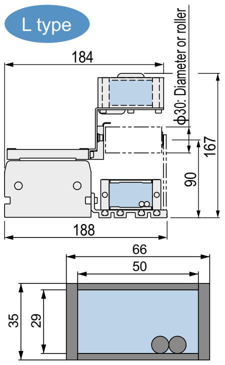
S type



M type



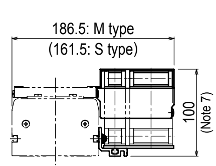
L type



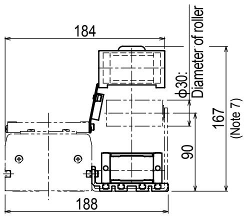
Cable and air tube guide
S: ϕ8 flexible cable x 1,ϕ4 air tube x 1
M: ϕ8 flexible cable x 2, ϕ6 air tube x 2
L: ϕ8 flexible cable x 2, ϕ8 air tube x 3

▭ Space for optional cable for users

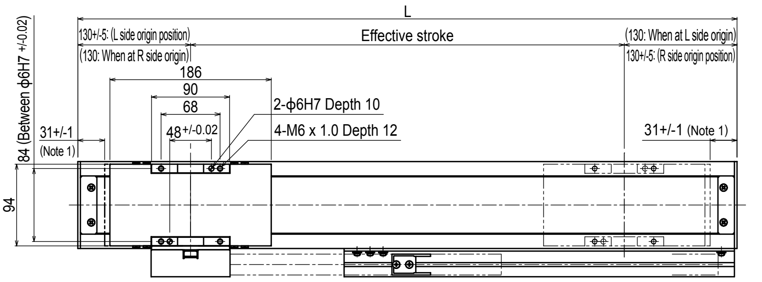
MF15 single carriage horizontal mount model RH

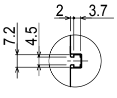


Optional cable carrier S / M type

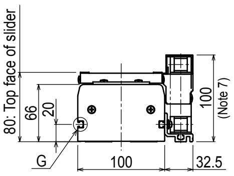


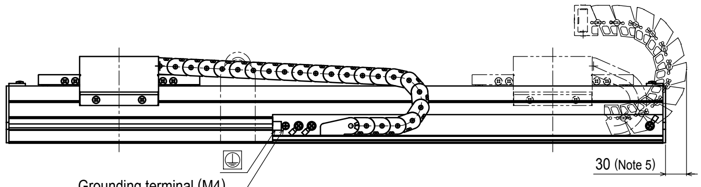
Optional cable carrier L type


L
130+/-5: (L side origin position)
(130: When at R side origin)
Effective stroke
(130: When at L side origin)
130+/-5: (R side origin position)
186
90
68
48+/-0.02
2-ϕ6H7 Depth 10
4-M6 x 1.0 Depth 12
31+/-1 (Note 1)
31+/-1 (Note 1)
84 (Between ϕ6H7 +/-0.02)
94

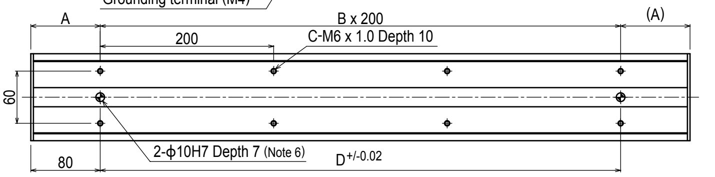


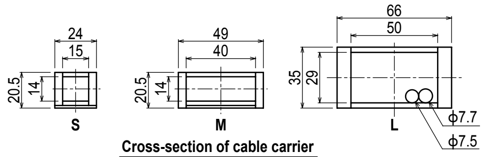
Detail of section G





Grounding terminal (M4)



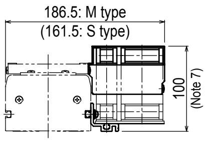


Cross-section of cable carrier

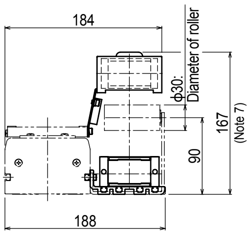
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
L	360	460	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260
A	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	6.3	7.3	8.3	9.3	10.3	11.3	12.3	13.3	14.3	15.4	16.4	17.4	18.4	19.4	20.4	21.4	22.4	23.4	24.4	25.4	26.4	27.4	28.4	29.4	30.4	31.4	32.4	33.4	34.4	35.8	36.8	37.8	38.8	39.8	40.8	41.8	42.8	43.8	44.8	45.8

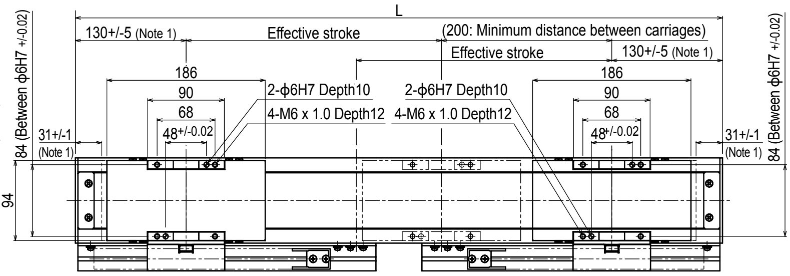
MF15D double carriage horizontal mount model H

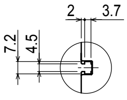


Optional cable carrier S / M type

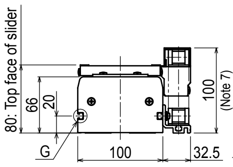


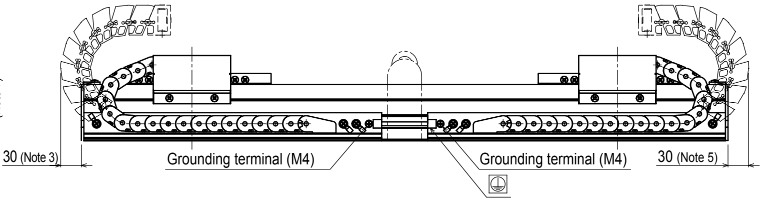
Optional cable carrier L type

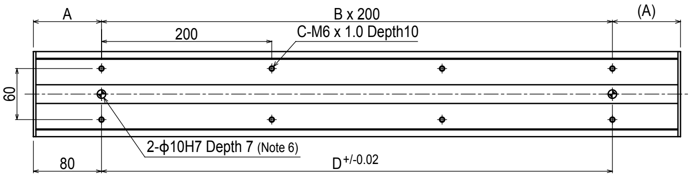


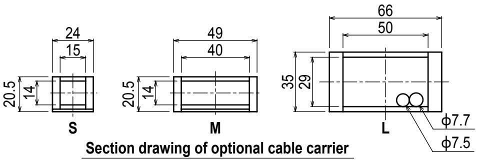


G section detailed chart









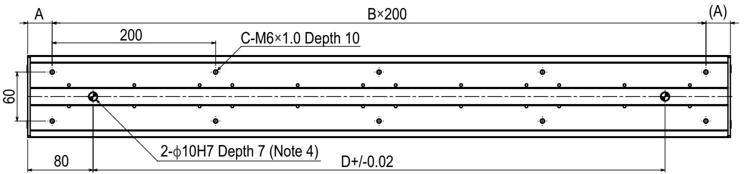
Section drawing of optional cable carrier

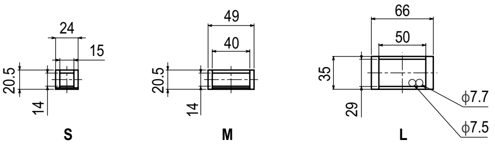
Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800
L	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260
A	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30
B	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	10.3	11.5	12.6	13.7	14.8	16.0	17.1	18.2	19.3	20.5	21.6	22.7	23.8	25.0	26.1	27.2	28.3	29.5	30.6	31.7	32.8	34.0	35.1	36.2	37.4	38.5	39.6	41.0	42.2	43.3	44.4	45.5	46.7	47.8	48.9	50.0	51.2	52.3

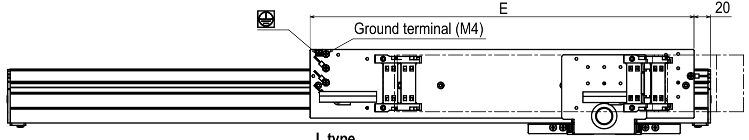
MF15/MF15D

MF15 single carriage wall mount model RW

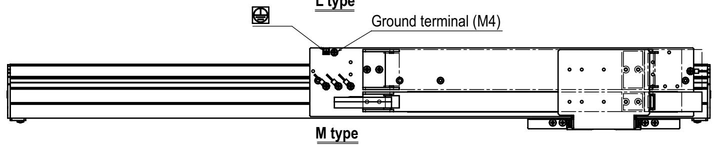




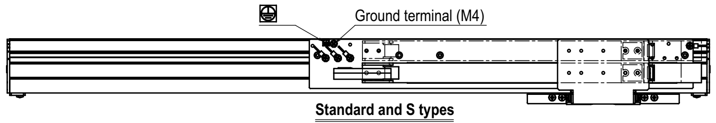
Cross-section of optional cable carrier



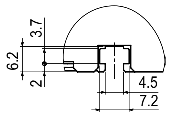
L type



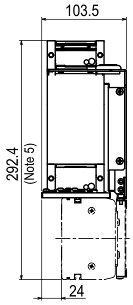
M type



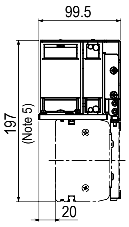
Standard and S types



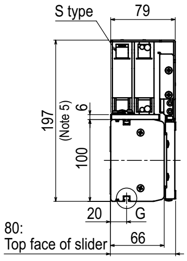
Detail of section G



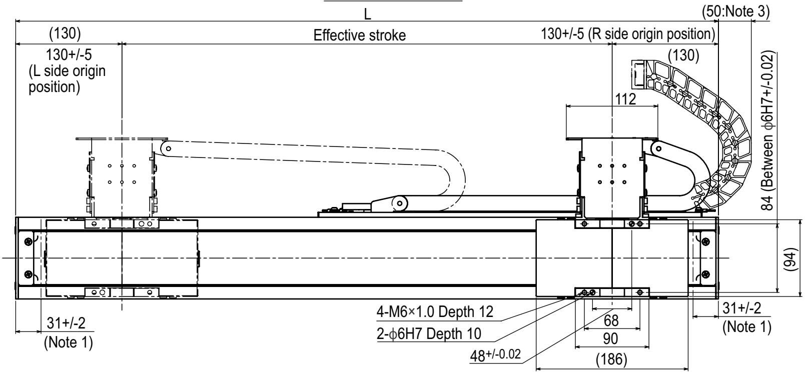
Optional cable carrier L type



Optional cable carrier M type



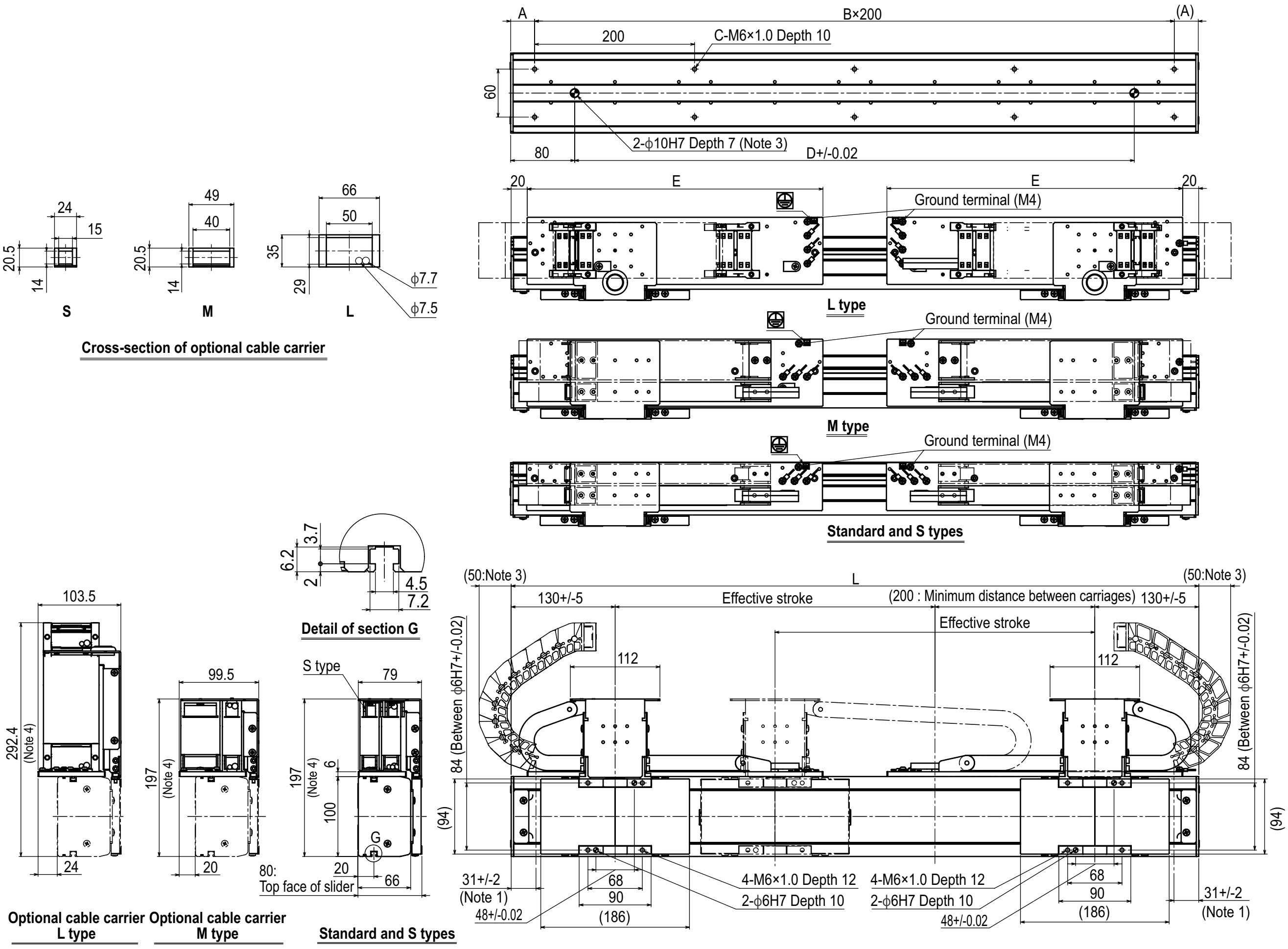
Standard and S types



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 4. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 5. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	360	460	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260
A	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170
Weight (kg)	6.3	7.3	8.3	9.3	10.3	11.3	12.3	13.3	14.3	15.4	16.4	17.4	18.4	19.4	20.4	21.4	22.4	23.4	24.4	25.4

MF15D double carriage wall mount model W



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 3. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 4. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
L	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260
A	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80	30
B	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
C	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
D	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070
Weight (kg)	10.3	11.5	12.6	13.7	14.8	16.0	17.1	18.2	19.3	20.5	21.6	22.7	23.8	25.0	26.1	27.2	28.3	29.5

MF20/MF20D

● Can be used for wall-mount

Ordering method

Single carriage model

MF20						
Model	**Cable carrier entry location**	**Optional cable carrier for users** Note 2	**Origin position change**	**Grease type**	**Stroke**	**Cable length** Note 3
MF20: Incremental	RH: Horizontal, right	No entry: None	Horizontal: No entry: L side (Standard)	No entry: Standard	150 to 4050 (100mm pitch)	3L: 3.5m
MF20A: Semi-absolute Note 1	L H: Horizontal, left	S: S type	Horizontal: Z: R side	GC: Clean		5L: 5m
	RW: Wall mount, right	M: M type	Wall: No entry: R side (Standard)			10L: 10m
	LW: Wall mount, left	L: L type	Wall: Z: L side			3K/5K/10K (Flexible cable) Note 4

TSP		R		
Positioner Note 5	**Driver: Power-supply voltage / Power capacity**	**Regenerative unit**	**LCD monitor**	**I/O selection**
TS-P	110: 100V/200W	R: With RGT	No entry: None	NP: NPN
	210: 200V/200W		L: With LCD	PN: PNP
				CC: CC-Link
				DN: DeviceNet™
				EP: EtherNet/IP™
				GW: No I/O board Note 6

SR1-P	10		R	
Controller	**Driver: Power capacity**	**Usable for CE**	**Regenerative unit**	**I/O selection**
	10: 200W	No entry: Standard	R: With RG1	N: NPN
		E: CE marking		P: PNP
				CC: CC-Link
				DN: DeviceNet™
				PB: PROFIBUS

RDV-P	2	10	RBR1
Driver	**Power-supply voltage**	**Driver: Power capacity**	**Regenerative unit**
	2: AC200V	10: 200W or less	

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 5. These controllers can be mounted on DIN rails. See P.500 for details.
Note 6. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

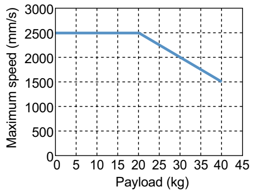
MF20D						RCX221		R		
Model	**Installing direction**	**Optional cable carrier for users** Note 2	**Grease type**	**Stroke**	**Cable length**	**Controller**	**Usable for CE**	**Regenerative unit**	**I/O selection 1**	**I/O selection 2**
MF20D: Incremental	H : Horizontal installation	No entry: None	No entry: Standard	150 to 3850 (100mm pitch)	3L: 3.5m	RCX221	No entry: Standard	R: RG2 (RCX221)	N: NPN	No entry: None
MF20AD: Semi-absolute Note 1	W: Wall mount installation	S: S type	GC: Clean		5L: 5m	SR1-P (2 units)	E: CE marking		P: PNP	N1: OP.DIO24/16 (NPN)
		M: M type			10L: 10m	TS-P (2 units)			CC: CC-Link	P1: OP.DIO24/17 (PNP)
		L: L type			3K/5K/10K (Flexible cable) Note 4	RDV-P (2 units)			DN: DeviceNet™	EN: Ethernet
									PB: PROFIBUS	
									EN: Ethernet	

Specifications Note

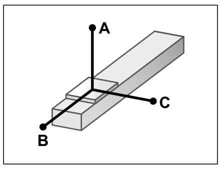
Model	MF20	MF20D
Driving method	Steel cored linear motor with falt magnet	
Repeatability (μm)	+/-5	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed Note 2 (mm/sec)	2500	
Rated thrust (N)	86	
Maximum payload Note 1 (kg)	40	
Stroke (mm)	150 to 4050 (100mm pitch)	150 to 3850 (100mm pitch)
Linear guide	4 rows of circular arc grooves × 2 rail	
Maximum cross-section outside dimensions (mm)	W150 × H80 (except the cable carrier section)	
Total length (mm)	Stroke+260	Stroke+460
Cable length (m)	Standard: 3.5 / Option: 5,10	

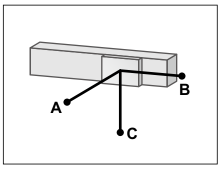
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Payload per carrier. When the payload exceeds 20kg, please consult our sales office or sales representative.
Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
20 or less	2500
25	2300
30	2000
35	1800
40	1500



Allowable overhang Note





Horizontal installation (Unit: mm)

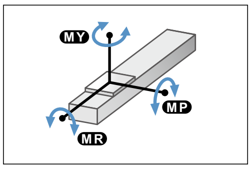
	A	B	C
10kg	3156	1747	1196
15kg	2811	1176	883
20kg	2679	890	717
25kg	2190	720	505
30kg	1830	605	370
35kg	1580	525	275
40kg	1390	465	225

Wall installation (Unit: mm)

	A	B	C
10kg	1220	1320	2540
15kg	870	850	2200
20kg	670	610	2030
25kg	485	400	1280
30kg	350	325	1050
35kg	265	270	890
40kg	235	230	765

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

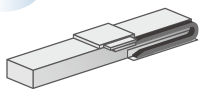
MY	MP	MR
373	373	328

Controller

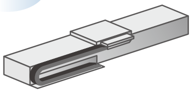
Controller	Operating method
SR1-P10-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221-R RCX240/340	
TS-P110-R	I/O point trace / Remote command
TS-P210-R	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location

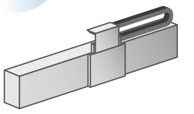
RH Horizontal, right



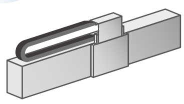
LH Horizontal, left



RW Wall mounted, right



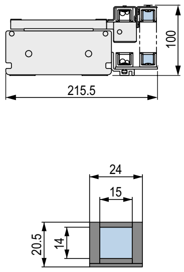
LW Wall mounted, left



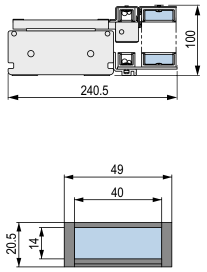
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any other than the standard installation, please consult YAMAHA as special arrangement will be available.

Optional cable carrier for users

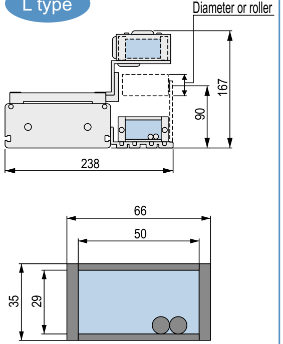
S type



M type



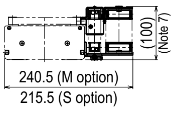
L type



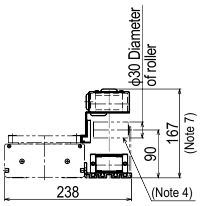
Cable and air tube guide
S: ϕ8 flexible cable x 1,ϕ4 air tube x 1
M: ϕ8 flexible cable x 2, ϕ6 air tube x 2
L: ϕ8 flexible cable x 2, ϕ8 air tube x 3

▭ Space for optional cable for users

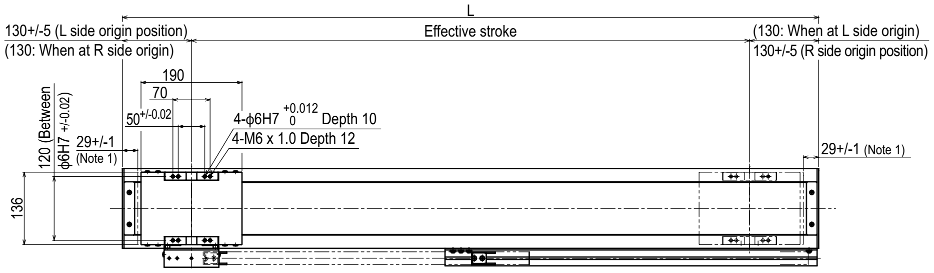
MF20 single carriage horizontal mount model RH

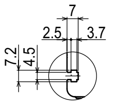


Optional cable carrier S / M type

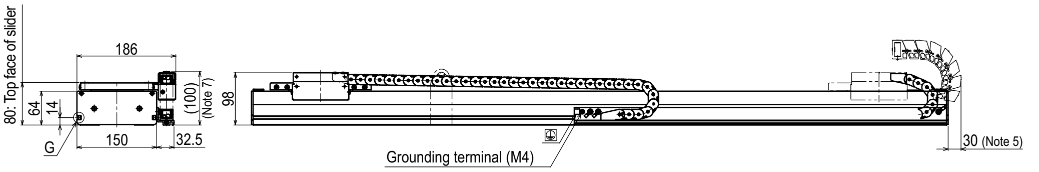


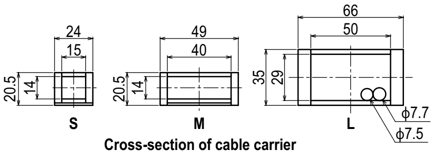
Optional cable carrier L type


L
130+/-5 (L side origin position)
(130: When at R side origin)
Effective stroke
(130: When at L side origin)
130+/-5 (R side origin position)
190
70
50+/-0.02
4-ϕ6H7 +0.012 0 Depth 10
4-M6 x 1.0 Depth 12
120 (Between ϕ6H7 +/-0.02)
29+/-1 (Note 1)
29+/-1 (Note 1)
136

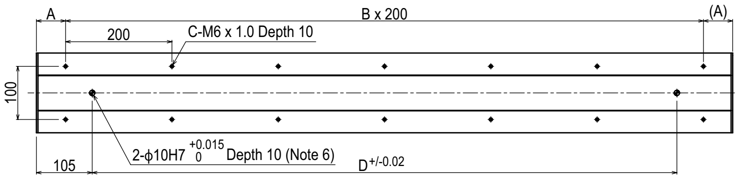


Detail of section G





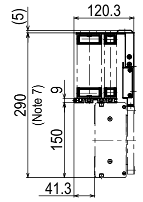
Cross-section of cable carrier



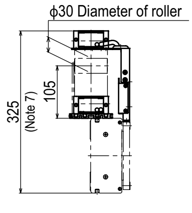
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750	3850	3950	4050
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	8.4	10.1	11.7	13.3	15.0	16.6	18.2	19.8	21.5	23.1	24.7	26.4	28.0	29.6	31.3	32.9	34.5	36.1	37.8	39.4	41.0	42.7	44.3	45.9	47.6	49.2	50.8	52.4	54.1	55.7	57.3	59.0	60.6	62.2	63.9	65.5	67.1	68.7	70.4	72.0

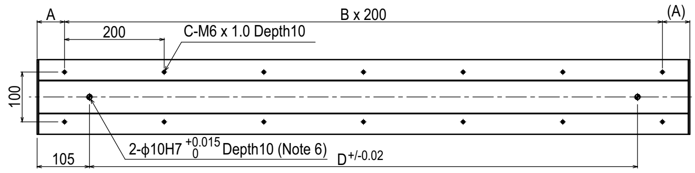
MF20 single carriage wall mount model RW



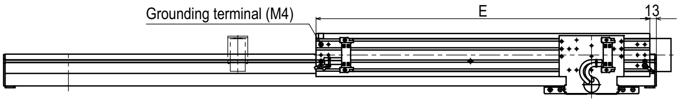
Optional cable carrier M type



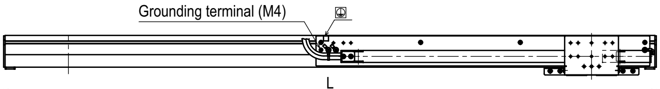
Optional cable carrier L type

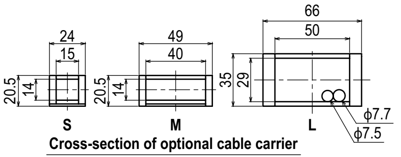


M, Ltype

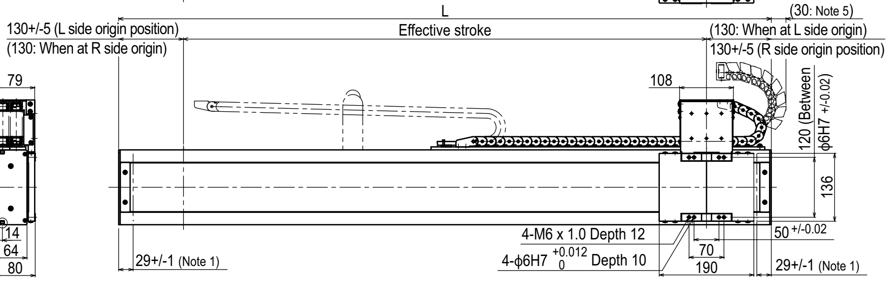


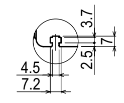
Standard, Stype



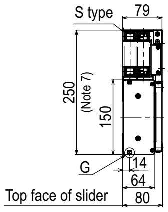


Cross-section of optional cable carrier


L
(30: Note 5)
130+/-5 (L side origin position)
(130: When at R side origin)
Effective stroke
(130: When at L side origin)
130+/-5 (R side origin position)
108
120 (Between ϕ6H7 +/-0.02)
136
4-M6 x 1.0 Depth 12
4-ϕ6H7 +0.012 0 Depth 10
70
190
50+/-0.02
29+/-1 (Note 1)
29+/-1 (Note 1)



Detail of section G



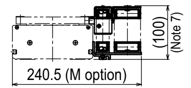
Standard and S types

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

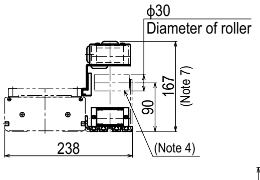
Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750	3850	3950	4050
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020	2070	2120	2170
Weight (kg)	8.4	10.1	11.7	13.3	15.0	16.6	18.2	19.8	21.5	23.1	24.7	26.4	28.0	29.6	31.3	32.9	34.5	36.1	37.8	39.4	41.0	42.7	44.3	45.9	47.6	49.2	50.8	52.4	54.1	55.7	57.3	59.0	60.6	62.2	63.9	65.5	67.1	68.7	70.4	72.0

MF20/MF20D

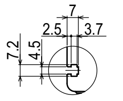
MF20D double carriage horizontal mount model H



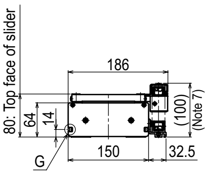
Optional cable carrier S / M type

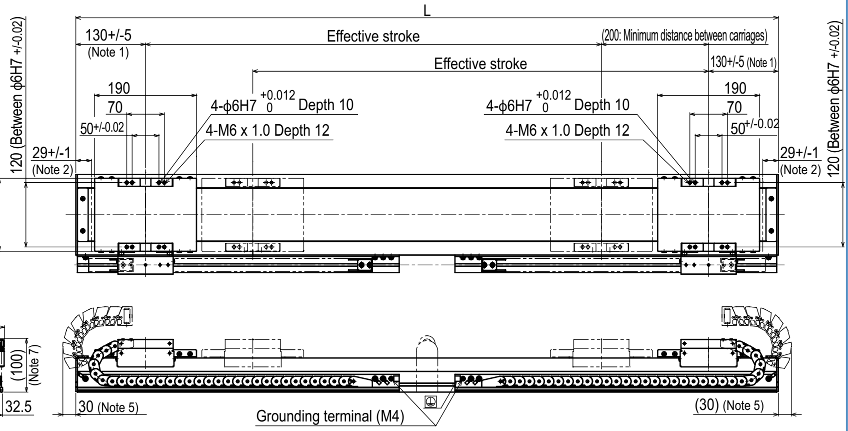


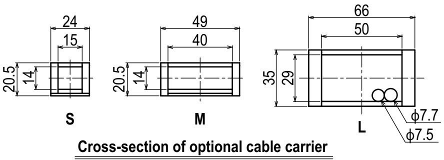
Optional cable carrier L type



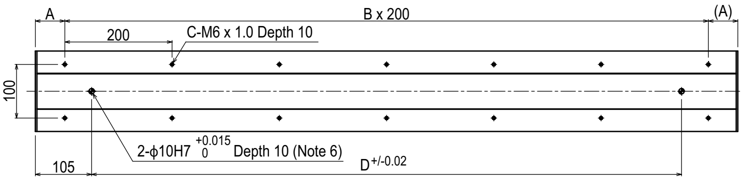
Detail of section G







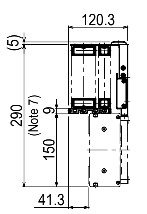
Cross-section of optional cable carrier



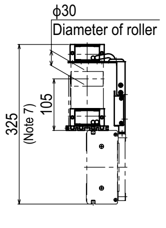
Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750	3850
L	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	14.9	16.6	18.3	20.0	21.7	23.5	25.2	26.9	28.6	30.3	32.0	33.7	35.4	37.2	38.9	40.6	42.3	44.0	45.7	47.4	49.1	50.8	52.6	54.3	56.0	57.7	59.4	61.1	62.8	64.5	66.3	68.0	69.7	71.4	73.1	74.8	76.5	78.2

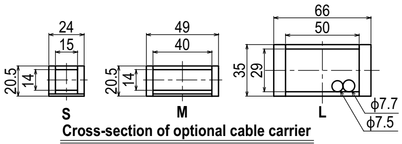
MF20D double carriage wall mount model W



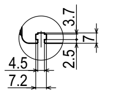
Optional cable carrier M type



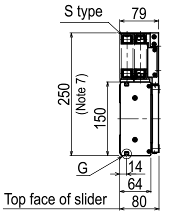
Optional cable carrier L type



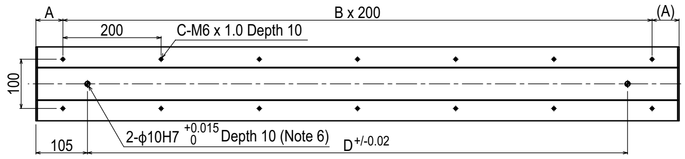
Cross-section of optional cable carrier

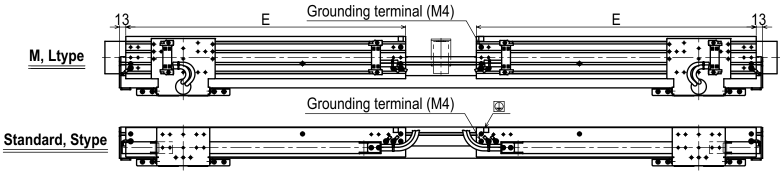


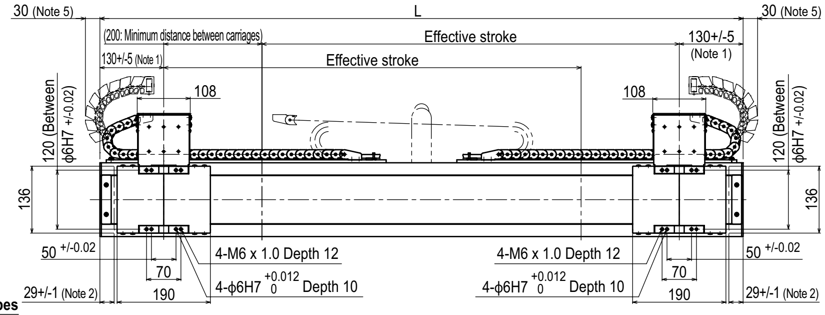
Detail of section G



Standard and S types







Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used
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Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750	3850
L	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020	2070
Weight (kg)	14.9	16.6	18.3	20.0	21.7	23.5	25.2	26.9	28.6	30.3	32.0	33.7	35.4	37.2	38.9	40.6	42.3	44.0	45.7	47.4	49.1	50.8	52.6	54.3	56.0	57.7	59.4	61.1	62.8	64.5	66.3	68.0	69.7	71.4	73.1	74.8	76.5	78.2

MF30/MF30D

● Can be used for wall-mount

Ordering method

Single carriage model

MF30 – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – **TSP / SR1-P / RDV-P**

Model	Cable carrier entry location	Optional cable carrier for users Note 2	Origin position change	Grease type	Stroke	Cable length Note 3
MF30: Incremental	RH: Horizontal, right	No entry: None	Horizontal: No entry: L side (Standard)	No entry: Standard	100 to 4000 (100mm pitch)	3L: 3.5m
MF30A: Semi-absolute Note 1	L H: Horizontal, left	S: S type	Horizontal: Z: R side	GC: Clean		5L: 5m
	RW: Wall mount, right	M: M type	Wall: No entry: R side (Standard)			10L: 10m
	LW: Wall mount, left	L: L type	Wall: Z: L side			3K/5K/10K (Flexible cable) Note 4

TSP 220 – R – ☐ – ☐

Positioner Note 5	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection
TS-P	220: 200V/400 to 600W	R: With RGT	No entry: None	NP: NPN
			L: With LCD	PN: PNP
				CC: CC-Link
				DN: DeviceNet™
				EP: EtherNet/IP™
				GW: No I/O board Note 6

SR1-P 20 – ☐ – R – ☐

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection
	20: 400 to 600W	No entry: Standard	R: With RG1	N: NPN
		E: CE marking		P: PNP
				CC: CC-Link
				DN: DeviceNet™
				PB: PROFIBUS

RDV-P 2 20 – RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
	2: AC200V	20: 400W or less	

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. For models with a stroke of 2100 or longer (2050 or longer for double carriage models), only the optional L type cable carriers can be used.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 4. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 5. These controllers can be mounted on DIN rails. See P.500 for details.
Note 6. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

MF30D – ☐ – ☐ – ☐ – ☐ – ☐ – **RCX221HP** – ☐ – **R** – ☐ – ☐

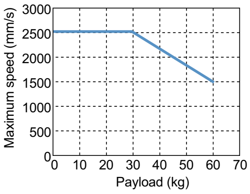
Model	Installing direction	Optional cable carrier for users Note 2	Grease type	Stroke	Cable length	Controller	Usable for CE	Regenerative unit	I/O selection 1	I/O selection 2
MF30D: Incremental	H: Horizontal installation	No entry: None	No entry: Standard	150 to 3750 (100mm pitch)	3L: 3.5m	RCX221HP	No entry: Standard	R: RG2 (RCX221HP)	N: NPN	No entry: None
MF30AD: Semi-absolute Note 1	W: Wall mount installation	S: S type	GC: Clean		5L: 5m	SR1-P (2 units)	E: CE marking		P: PNP	N1: OP.DIO24/16 (NPN)
		M: M type			10L: 10m	TS-P (2 units)			CC: CC-Link	P1: OP.DIO24/17 (PNP)
		L: L type			3K/5K/10K (Flexible cable) Note 4	RDV-P (2 units)			DN: DeviceNet™	EN: Ethernet
									PB: PROFIBUS	
									EN: Ethernet	

Specifications Note

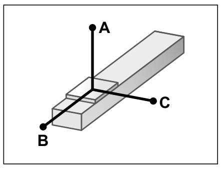
Model	MF30	MF30D
Driving method	Steel cored linear motor with falt magnet	
Repeatability (μm)	+/-5	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed Note 2 (mm/sec)	2500	
Rated thrust (N)	125	
Maximum payload Note 1 (kg)	60	
Stroke (mm)	100 to 4000 (100mm pitch)	150 to 3750 (100mm pitch)
Linear guide	4 rows of circular arc grooves × 2 rail	
Maximum cross-section outside dimensions (mm)	W150 × H80 (except the cable carrier section)	
Total length (mm)	Stroke+310	Stroke+560
Cable length (m)	Standard: 3.5 / Option: 5,10	

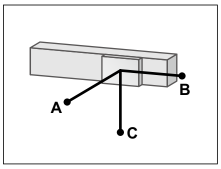
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Payload per carrier. When the payload exceeds 30kg, please consult our sales office or sales representative.
Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
30 or less	2500
40	2200
50	1800
60	1500



Allowable overhang Note





Horizontal installation (Unit: mm)

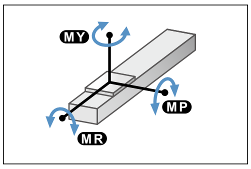
	A	B	C
10kg	3364	2485	1284
20kg	2298	1265	694
30kg	2060	859	507
40kg	1570	600	310
50kg	1265	400	180
60kg	1070	350	135

Wall installation (Unit: mm)

	A	B	C
10kg	1290	1320	2730
20kg	650	610	1750
30kg	430	360	1460
40kg	205	230	610
50kg	145	175	470
60kg	105	140	380

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

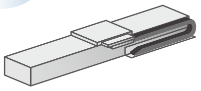
MY	MP	MR
373	373	328

Controller

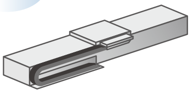
Controller	Operating method
SR1-P20-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221HP-R RCX240/340	
TS-P220-R	I/O point trace / Remote command
RDV-P220-RBR1	Pulse train control

Cable carrier entry location

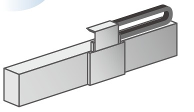
RH Horizontal, right



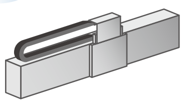
LH Horizontal, left



RW Wall mounted, right

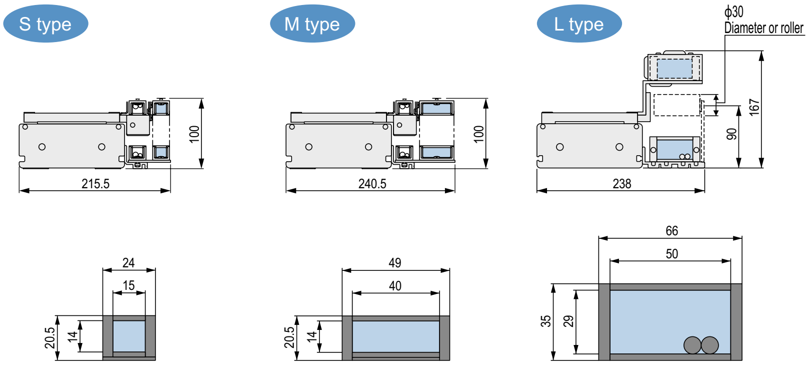


LW Wall mounted, left



Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

Optional cable carrier for users

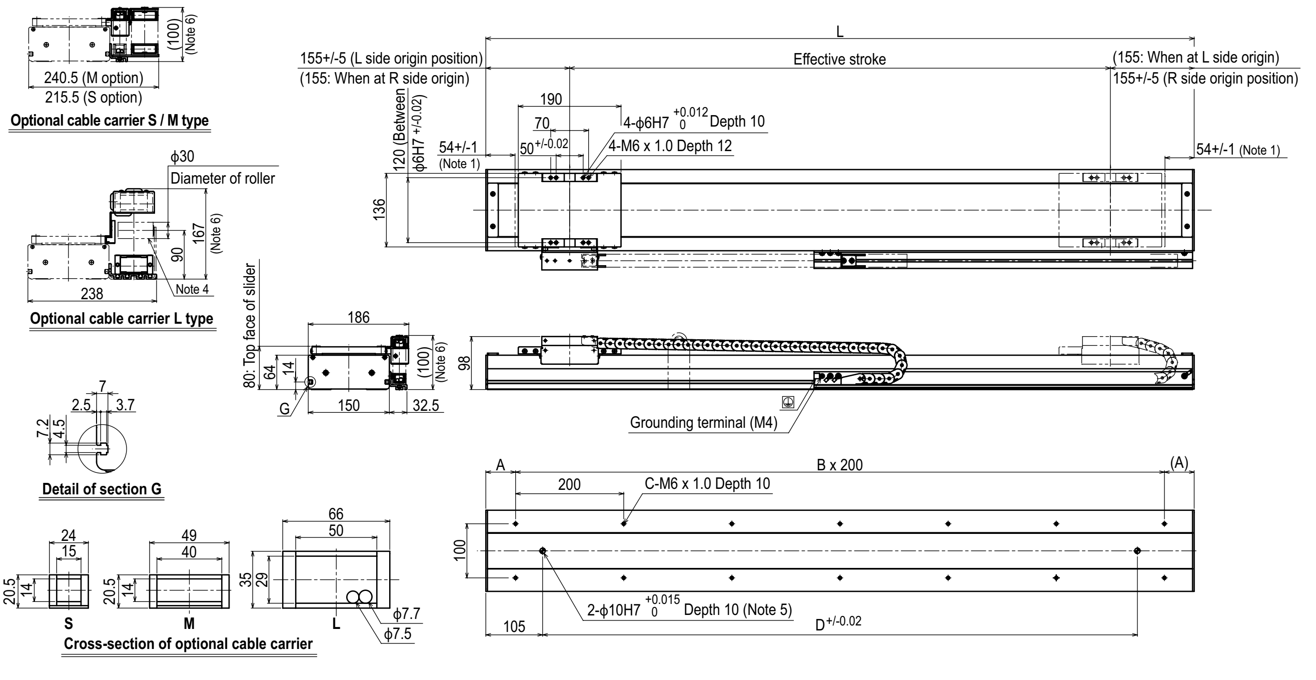


Cable and air tube guide
S: ϕ8 flexible cable x 1,ϕ4 air tube x 1
M: ϕ8 flexible cable x 2, ϕ6 air tube x 2
L: ϕ8 flexible cable x 2, ϕ8 air tube x 3

▨ Space for optional cable for users

MF30/MF30D

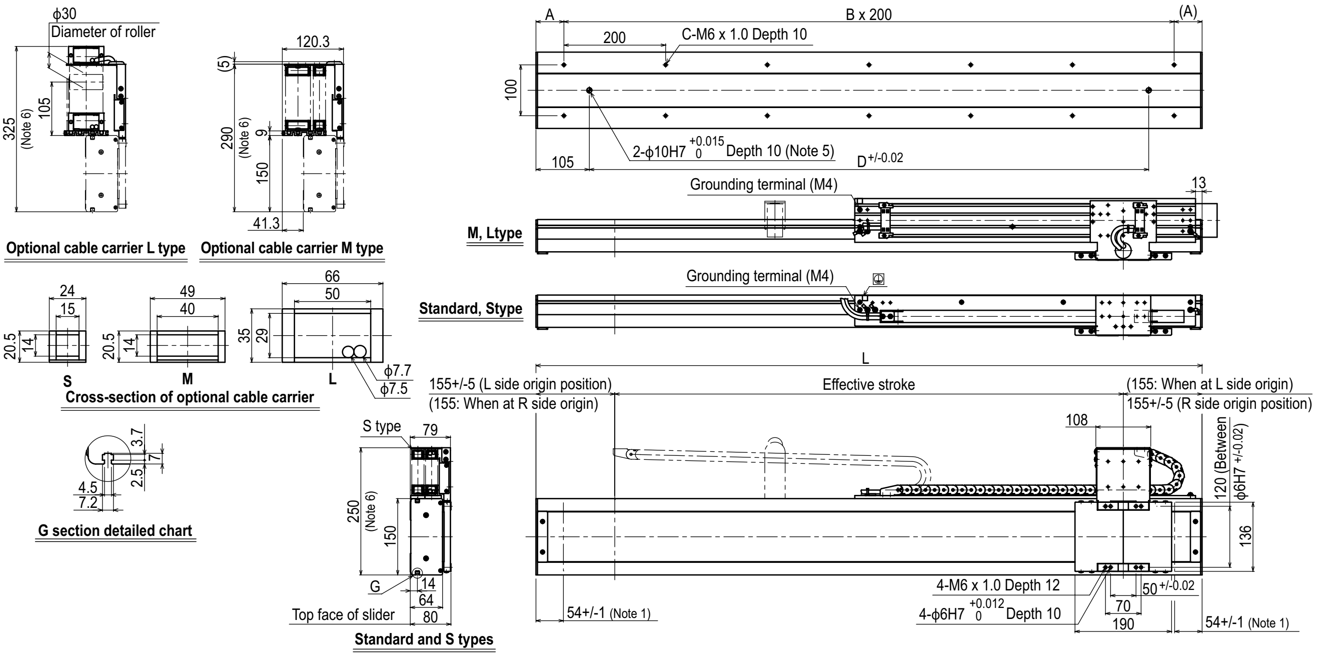
MF30 single carriage horizontal mount model RH



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	9.0	10.7	12.3	13.9	15.6	17.2	18.8	20.4	22.1	23.7	25.3	27.0	28.6	30.2	31.9	33.5	35.1	36.7	38.4	40.0	41.6	43.3	44.9	46.5	48.2	49.8	51.4	53.0	54.7	56.3	57.9	59.6	61.2	62.8	64.5	66.1	67.7	69.3	71.0	72.6

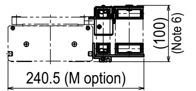
MF30 single carriage wall mount model RW



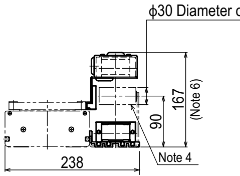
Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020	2070	2120	2170
Weight (kg)	9.0	10.7	12.3	13.9	15.6	17.2	18.8	20.4	22.1	23.7	25.3	27.0	28.6	30.2	31.9	33.5	35.1	36.7	38.4	40.0	41.6	43.3	44.9	46.5	48.2	49.8	51.4	53.0	54.7	56.3	57.9	59.6	61.2	62.8	64.5	66.1	67.7	69.3	71.0	72.6

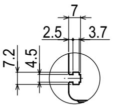
MF30D double carriage horizontal mount model H



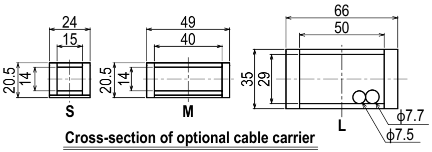
Optional cable carrier S / M type



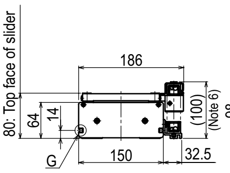
Optional cable carrier L type

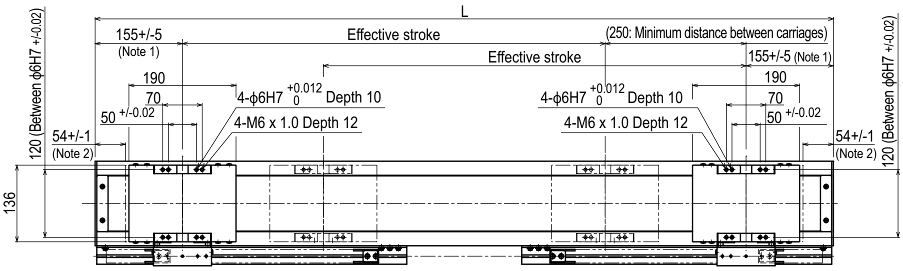


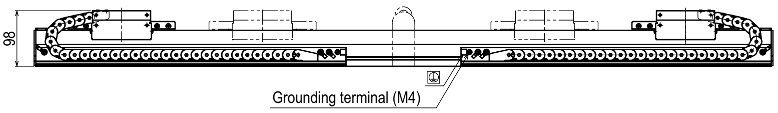
Detail of section G

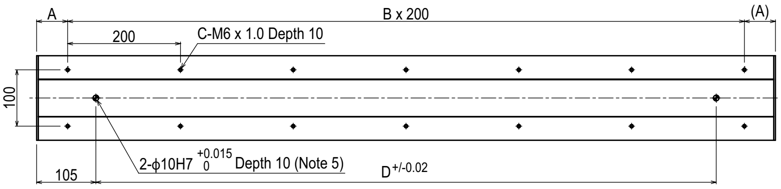


Cross-section of optional cable carrier









Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
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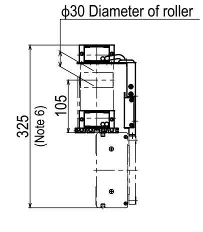
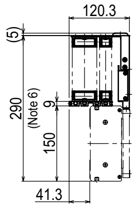
Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750
L	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	17.6	19.3	21.0	22.8	24.5	26.2	27.9	29.6	31.3	33.0	34.7	36.5	38.2	39.9	41.6	43.3	45.0	46.7	48.4	50.2	51.9	53.6	55.3	57.0	58.7	60.4	62.1	63.9	65.6	67.3	69.0	70.7	72.4	74.1	75.8	77.5	79.3

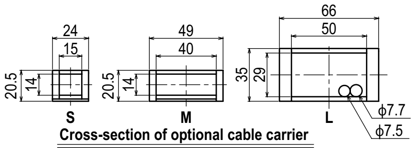
MF30D double carriage wall mount model W



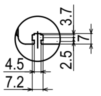
Optional cable carrier L type



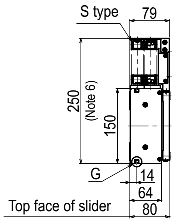
Optional cable carrier M type



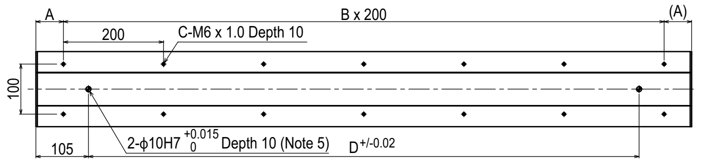
Cross-section of optional cable carrier



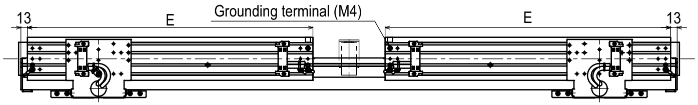
Detail of section G



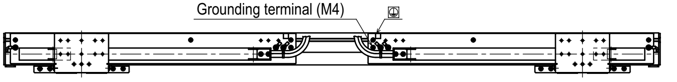
Standard and S types

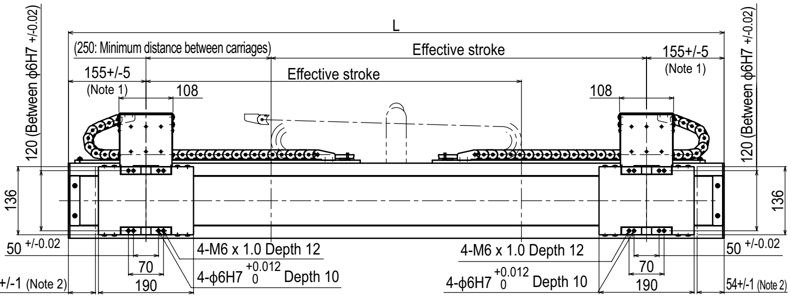


M and L types



Standard and S types





Note 1. Position of table carriage when returned to the origin.
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Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750
L	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310
A	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21
C	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44
D	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020
Weight (kg)	17.6	19.3	21.0	22.8	24.5	26.2	27.9	29.6	31.3	33.0	34.7	36.5	38.2	39.9	41.6	43.3	45.0	46.7	48.4	50.2	51.9	53.6	55.3	57.0	58.7	60.4	62.1	63.9	65.6	67.3	69.0	70.7	72.4	74.1	75.8	77.5	79.3

MF75/MF75D

Ordering method

Single carriage model

MF75 – ☐ – ☐ – ☐ – ☐ – ☐ – TSP 220 – R – ☐ – ☐ / SR1-P 20 – ☐ – R – ☐ / RDV-P 2 25 – RBR2

Model
MF75: Incremental
MF75A: Semi-absolute Note 1

Cable carrier entry location
RH: Horizontal, right
LH: Horizontal, left

Origin position change	
Hori-zontal	No entry: L side (Standard)
	Z: R side

Grease type
No entry: Standard
GC: Clean

Stroke
1000 to 4000 (100mm pitch)

Cable length Note 2
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 3

TSP 220 – R – ☐ – ☐

Positioner Note 4
TS-P

Driver: Power-supply voltage / Power capacity
220: 200V/400 to 600W

Regenerative unit
R: With RGU-2

LCD monitor
No entry: None
L: With LCD

I/O selection
NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
GW: No I/O board Note 5

SR1-P 20 – ☐ – R – ☐

Controller

Driver: Power capacity
20: 400 to 600W

Usable for CE
No entry: Standard
E: CE marking

Regenerative unit
R: With RGU-2

I/O selection
N: NPN
P: PNP
CC: CC-Link
DN: DeviceNet™
PB: PROFIBUS

RDV-P 2 25 – RBR2

Driver

Power-supply voltage
2: AC200V

Driver: Power capacity
25: 750W or less

Regenerative unit

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 4. These controllers can be mounted on DIN rails. See P.500 for details.
Note 5. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

MF75D – H – ☐ – ☐ – ☐ – RCX221HP – ☐ – R – ☐ – ☐

Model
MF75D: Incremental
MF75AD: Semi-absolute Note 1

Installing direction
H: Horizontal installation

Grease type
No entry: Standard
GC: Clean

Stroke
680 to 3680 (100mm pitch)

Cable length
3L: 3.5m
5L: 5m
10L: 10m
3K/5K/10K (Flexible cable) Note 3

Controller
RCX221HP
SR1-P (2 units)
TS-P (2 units)
RDV-P (2 units)

Usable for CE
No entry: Standard
E: CE marking

Regenerative unit

I/O selection 1
N: NPN
P: PNP
CC: CC-Link
DN: DeviceNet™
PB: PROFIBUS
EN: Ethernet

I/O selection 2
No entry: None
N1: OP.DIO24/16 (NPN)
P1: OP.DIO24/17 (PNP)
EN: Ethernet

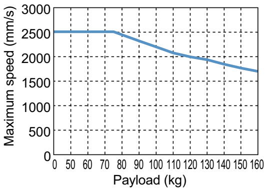
Specifications Note

Model	MF75	MF75D
Driving method	Steel cored linear motor with falt magnet	
Repeatability (μm)	+/-5	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed Note 2 (mm/sec)	2500	
Rated thrust (N)	260	
Maximum payload Note 1 (kg)	160	
Stroke (mm)	1000 to 4000 (100mm pitch)	680 to 3680 (100mm pitch)
Linear guide	4 rows of circular arc grooves × 2 rail	
Maximum cross-section outside dimensions (mm)	W210×H100 (except the cable carrier section)	
Total length (mm)	Stroke+360	Stroke+680
Cable length (m)	Standard: 3.5 / Option: 5,10	

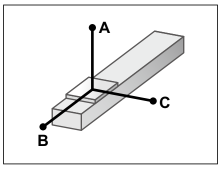
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Payload per carrier. When the payload exceeds 75kg, please consult our sales office or sales representative.

Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
75 or less	2500
90	2310
100	2200
110	2090
120	2000
130	1920
140	1840
150	1770
160	1700



Allowable overhang Note

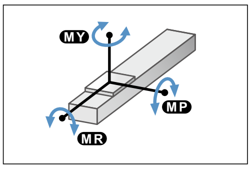


Horizontal installation (Unit: mm)

	A	B	C
20kg	3397	2841	1840
40kg	2795	1389	964
60kg	2200	530	450
80kg	1800	175	150
100kg	1500	130	110
120kg	1250	100	80
140kg	1100	80	65
160kg	950	60	50

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

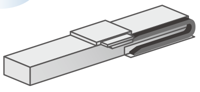
MY	MP	MR
830	831	730

Controller

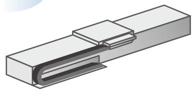
Controller	Operating method
SR1-P20-R (RGU-2)	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221HP-R (RG2) RCX240/340	
TS-P220-R (RGU-2)	I/O point trace / Remote command
RDV-P225-RBR2	Pulse train control

Cable carrier entry location

RH Horizontal, right

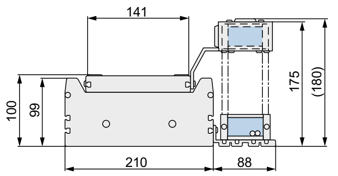


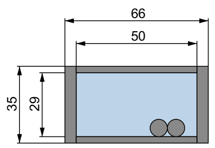
LH Horizontal, left



Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

Cable carrier

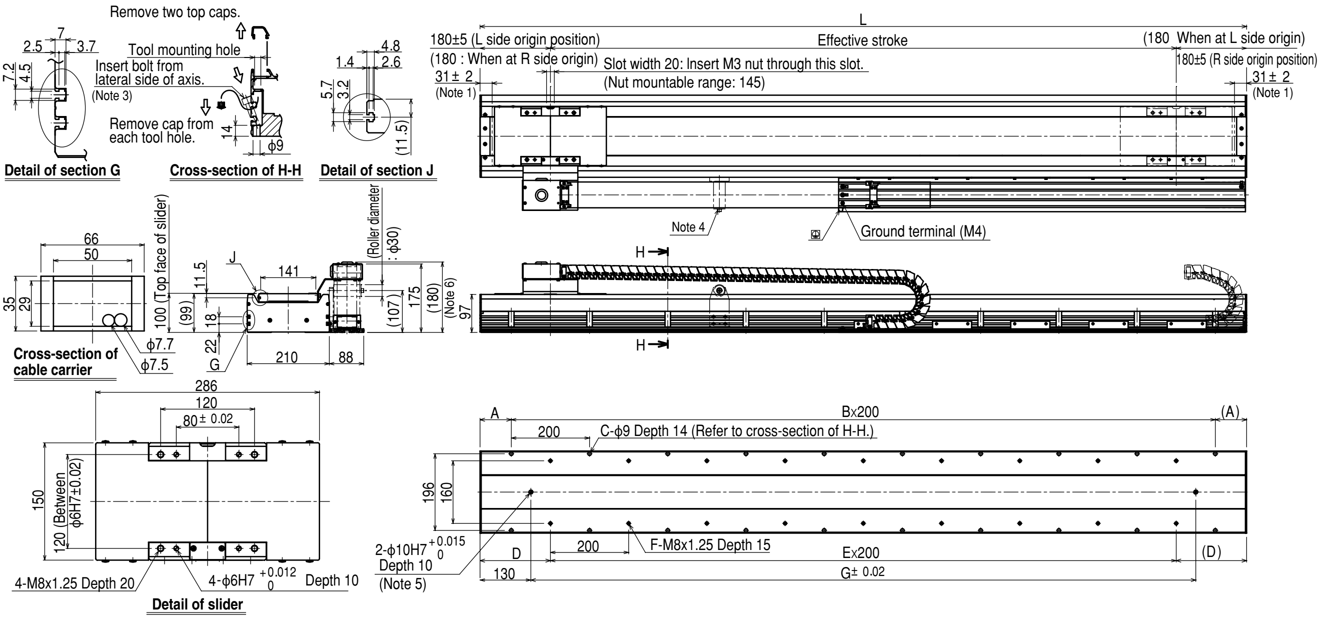




Cable and air tube guide ϕ8 flexible cable x 2, ϕ6 air tube x 3

▨ Space for optional cable for users

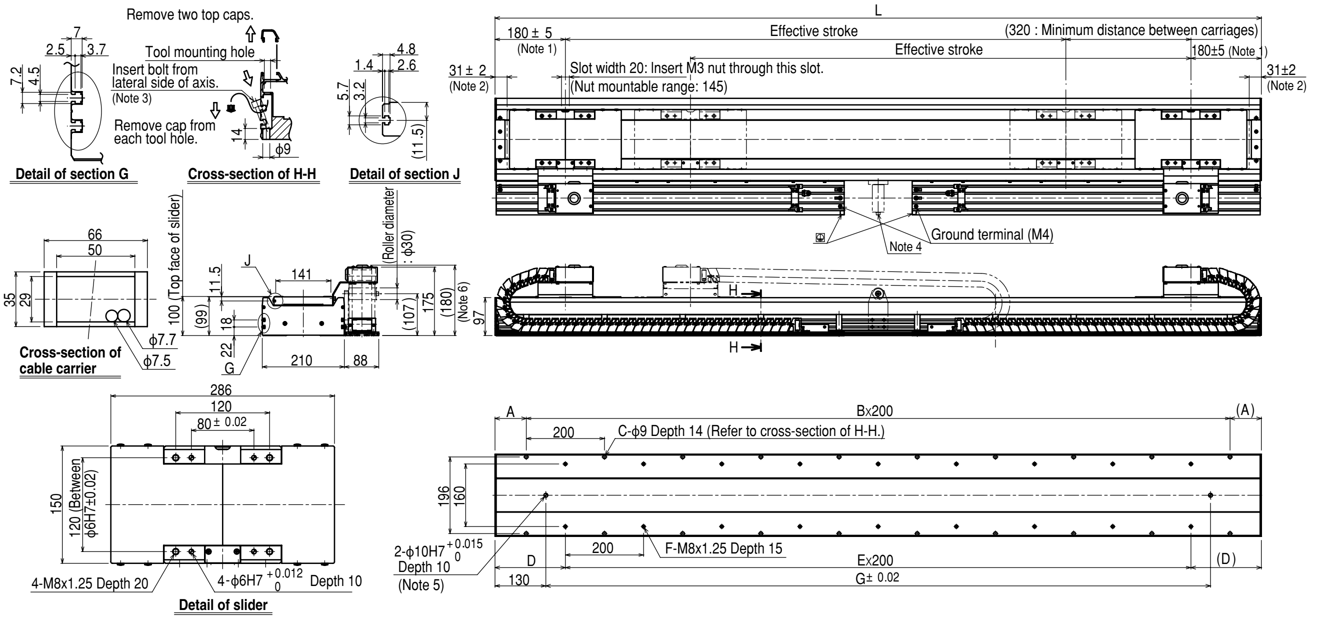
MF75 single carriage horizontal mount model RH



Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the L side (as shown above) at the time of shipment. It can be changed to the R side by parameter setting.
Note 3. The length under head of M8 hex socket head bolts for installing the robot body must not be longer than 30mm.
Note 4. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
L	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260	4360
A	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80
B	5	5	7	7	7	7	9	9	9	9	11	11	11	11	13	13	13	13	15	15	15	15	17	17	17	17	19	19	19	19	21
C	12	12	16	16	16	16	20	20	20	20	24	24	24	24	28	28	28	28	32	32	32	32	36	36	36	36	40	40	40	40	44
D	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180
E	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
F	14	14	14	14	18	18	18	18	22	22	22	22	26	26	26	26	30	30	30	30	34	34	34	34	38	38	38	38	42	42	42
G	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	46	49	51	54	56	59	61	64	66	69	71	74	76	79	81	84	86	89	91	94	96	99	101	104	106	109	111	114	116	119	121

MF75D double carriage mount model H



Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. The length under head of M8 hex socket head bolts for installing the robot body must not be longer than 30mm.
Note 4. For models with a 3,080mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ϕ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Effective stroke	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	3080	3180	3280	3380	3480	3580	3680
L	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260	4360
A	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80
B	5	5	7	7	7	7	9	9	9	9	11	11	11	11	13	13	13	13	15	15	15	15	17	17	17	17	19	19	19	19	21
C	12	12	16	16	16	16	20	20	20	20	24	24	24	24	28	28	28	28	32	32	32	32	36	36	36	36	40	40	40	40	44
D	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180
E	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
F	14	14	14	14	18	18	18	18	22	22	22	22	26	26	26	26	30	30	30	30	34	34	34	34	38	38	38	38	42	42	42
G	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100
Weight (kg)	57	60	62	65	67	70	73	75	78	81	83	86	88	91	94	96	99	101	104	107	109	112	114	117	120	122	125	127	130	133	135

MR12/MR12D

● Can be used for wall-mount

Ordering method

Single carriage model

MR12 – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ –

Model	Cable carrier entry location	Optional cable carrier for users	Origin position change	Grease type	Stroke	Cable length [Note 2]
MR12: Incremental MR12A: Semi-absolute [Note 1]	RH: Horizontal, right LH: Horizontal, left RW: Wall mounted, right LW: Wall mounted, left	No entry: None S: S type M: M type	Hori-zontal: No entry: L side (Standard) Hori-zontal: Z: R side Wall: No entry: R side (Standard) Wall: Z: L side	No entry: Standard GC: Clean	50 to 1050 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) [Note 3]

TSP ☐ – ☐ – ☐

Positioner [Note 4]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection
TS-P	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ GW: No I/O board [Note 5]

SR1-P **05** – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection
	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS

RDV-P **2** **05**

Driver	Power-supply voltage	Driver: Power capacity
	2: AC200V	05: 100W or less

Note 1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
Note 4. These controllers can be mounted on DIN rails. See P.500 for details.
Note 5. Select this selection when using the gateway function. For details, see P.62.
Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

Double carriage model

MR12D – ☐ – ☐ – ☐ – ☐ – ☐ – **RCX221** – ☐ – ☐ – ☐

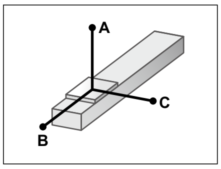
Model	Installing direction	Optional cable carrier for users	Grease type	Stroke	Cable length	Controller	Usable for CE	I/O selection 1	I/O selection 2
MR12D: Incremental MR12AD: Semi-absolute [Note 1]	H: Horizontal installation W: Wall mounted installation	No entry: None S: S type M: M type	No entry: Standard GC: Clean	50 to 1050 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) [Note 3]	RCX221 SR1-P (2 units) TS-P (2 units) RDV-P (2 units)	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet	No entry: None N1: OP.DIO24/16 (NPN) P1: OP.DIO24/17 (PNP) EN: Ethernet

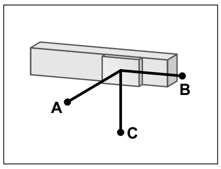
Specifications [Note]

Model	MR12	MR12D
Driving method / Shaft diameter	Shaft motor / ϕ12	
Repeatability (μm)	+/-5 or less	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed [Note 1] (mm/sec)	2500	
Rated thrust (N)	18	
Maximum payload [Note 2] (kg)	5	
Stroke (mm)	50 to 1050 (50mm pitch)	
Linear guide	4 rows of circular arc grooves × 2 rail	
Maximum cross-section outside dimensions (mm)	W60 × H90 (except the cable carrier section)	
Total length (mm)	Stroke+288	Stroke+488
Cable length (m)	Standard: 3.5 / Option: 5,10	

Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Maximum speed may not be obtained depending on operating conditions.
Note 2. Maximum payload per carriage.

Allowable overhang [Note]





Horizontal installation (Unit: mm)

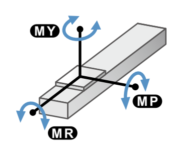
	A	B	C
1kg	600	600	600
2kg	1200	1200	598
3kg	1800	1800	406
5kg	3000	1561	241

Wall installation (Unit: mm)

	A	B	C
1kg	600	600	600
2kg	529	1200	1200
3kg	323	1450	1800
5kg	162	589	3000

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

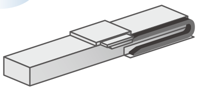
MY	MP	MR
107	107	89

Controller

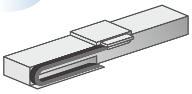
Controller	Operating method
SR1-P05	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221 RCX240/340	
TS-P105	I/O point trace / Remote command
TS-P205	
RDV-P205	Pulse train control

Cable carrier entry location

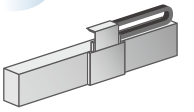
RH Horizontal, right



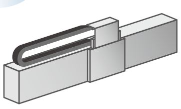
LH Horizontal, left



RW Wall mounted, right



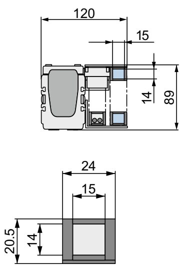
LW Wall mounted, left



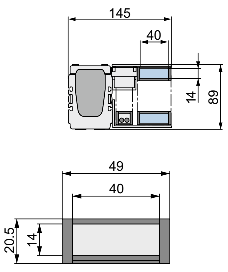
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

Optional cable carrier for users

S type



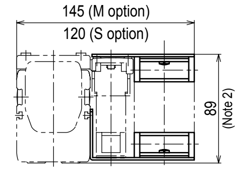
M type



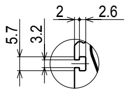
▭ Space for optional cable for users

Note. The cable and air hoses should take up less than 30% of the space when storing them inside the cable carrier. Lay out the cables and air hoses in rows inside the cable carrier so they do not cross each other.

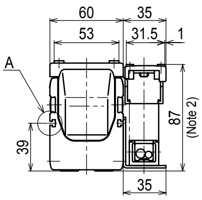
MR12 single carriage horizontal mount model RH

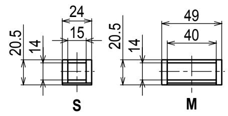


With optional cable carrier attached

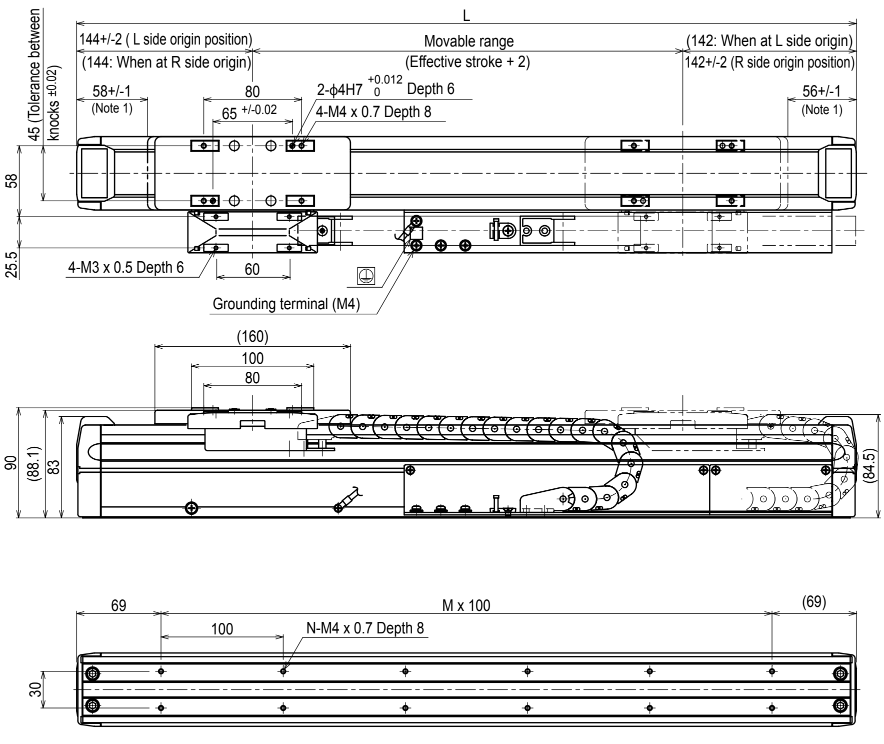


Detail of section A





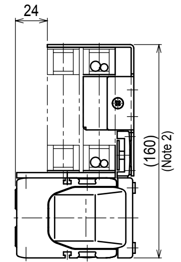
Cross-section of optional cable carrier



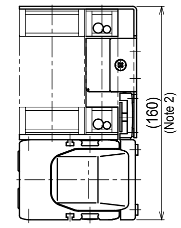
Effective stroke	50	150	250	350	450	550	650	750	850	950	1050
L	338	438	538	638	738	838	938	1038	1138	1238	1338
M	2	3	4	5	6	7	8	9	10	11	12
N	6	8	10	12	14	16	18	20	22	24	26
Weight (kg)	3.9	4.4	5.0	5.6	6.1	6.7	7.3	7.9	8.4	9.0	9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.
Note. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

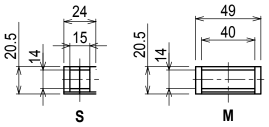
MR12 single carriage wall mount model RW



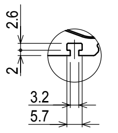
With optional cable carrier S attached



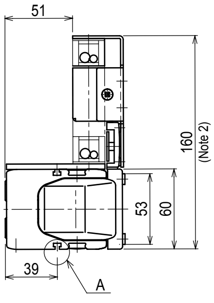
With optional cable carrier M attached

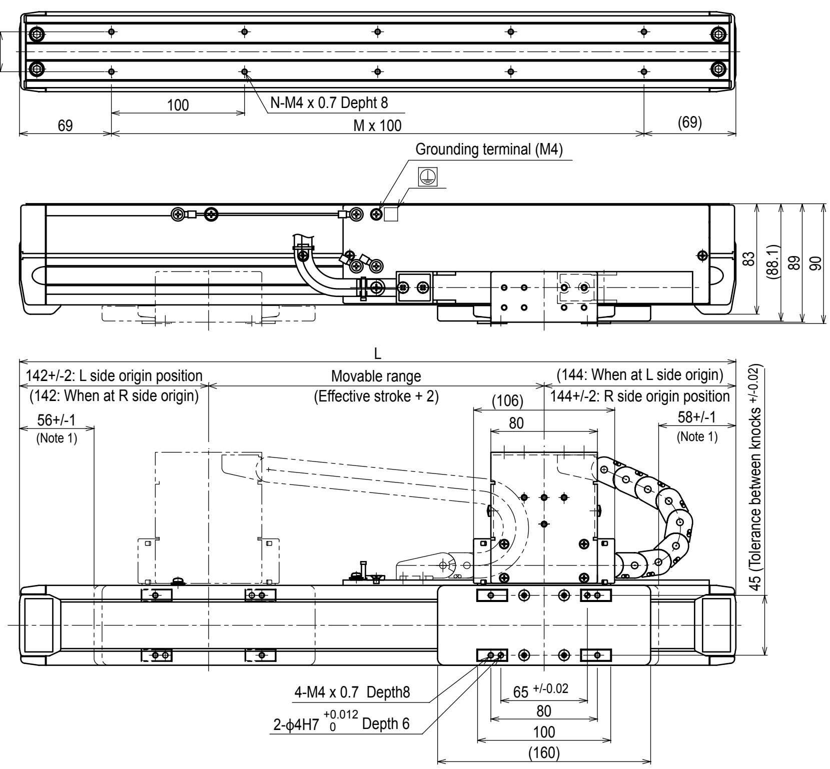


Cross-section of optional cable carrier



Detail of section A



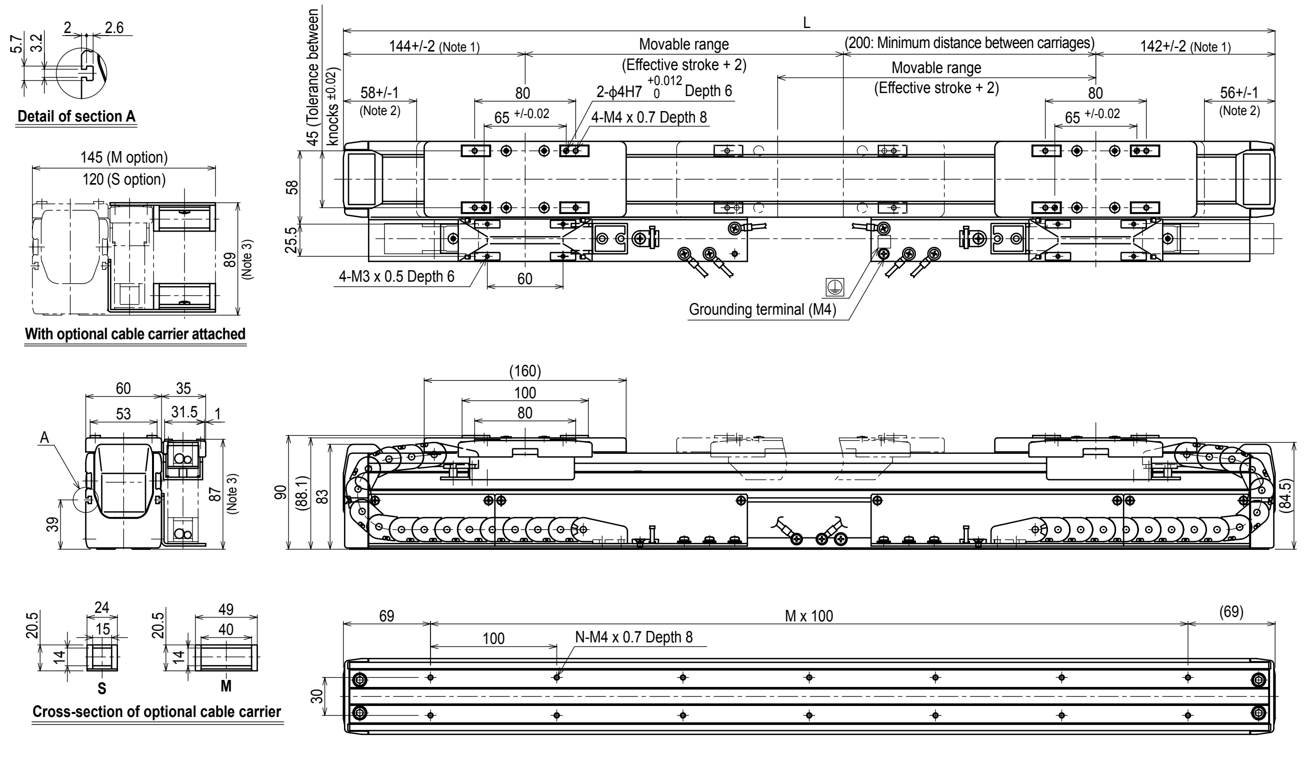


Effective stroke	50	150	250	350	450	550	650	750	850	950	1050
L	338	438	538	638	738	838	938	1038	1138	1238	1338
M	2	3	4	5	6	7	8	9	10	11	12
N	6	8	10	12	14	16	18	20	22	24	26
Weight (kg)	3.9	4.4	5.0	5.6	6.1	6.7	7.3	7.9	8.4	9.0	9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.
Note. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.

MR12/MR12D

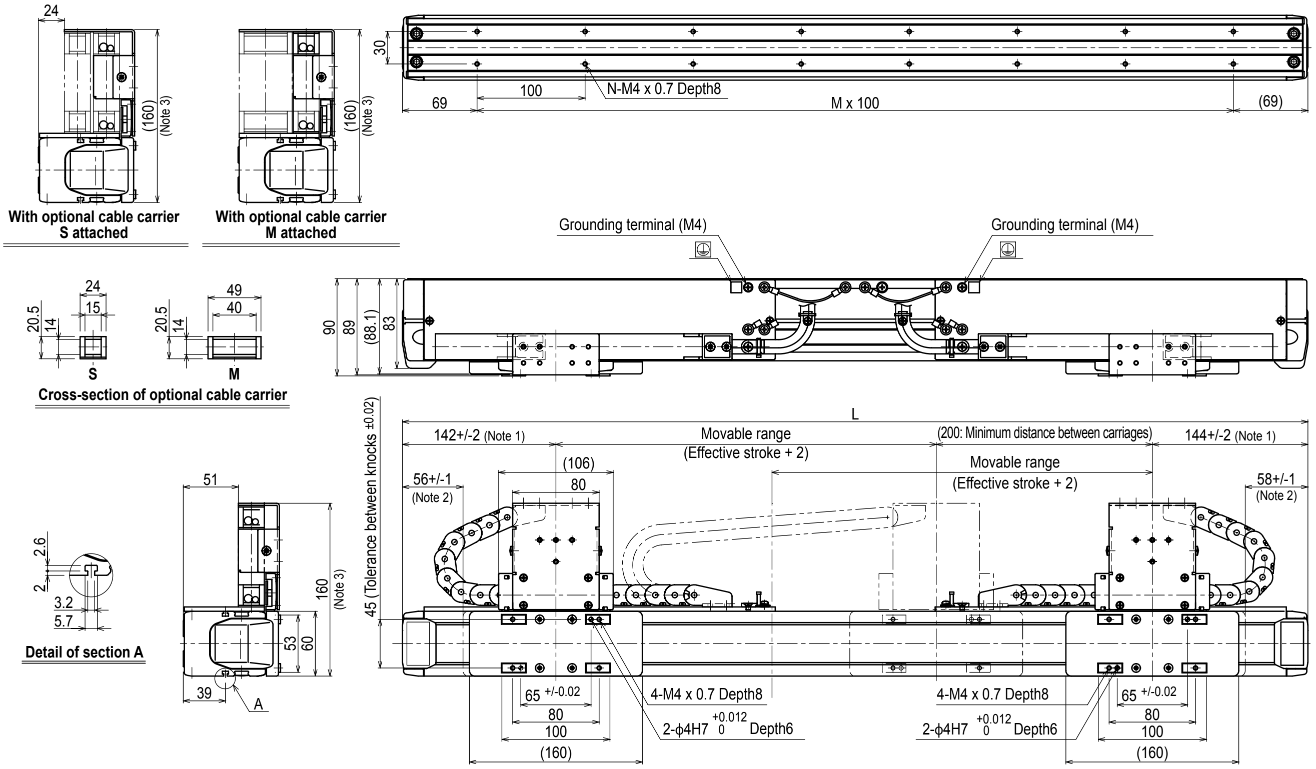
MR12D double carriage horizontal mount model H



Effective stroke	50	150	250	350	450	550	650	750	850	950	1050
L	538	638	738	838	938	1038	1138	1238	1338	1438	1538
M	4	5	6	7	8	9	10	11	12	13	14
N	10	12	14	16	18	20	22	24	26	28	30
Weight (kg)	5.7	6.3	6.8	7.3	8.0	8.6	9.1	9.7	10.2	10.8	11.3

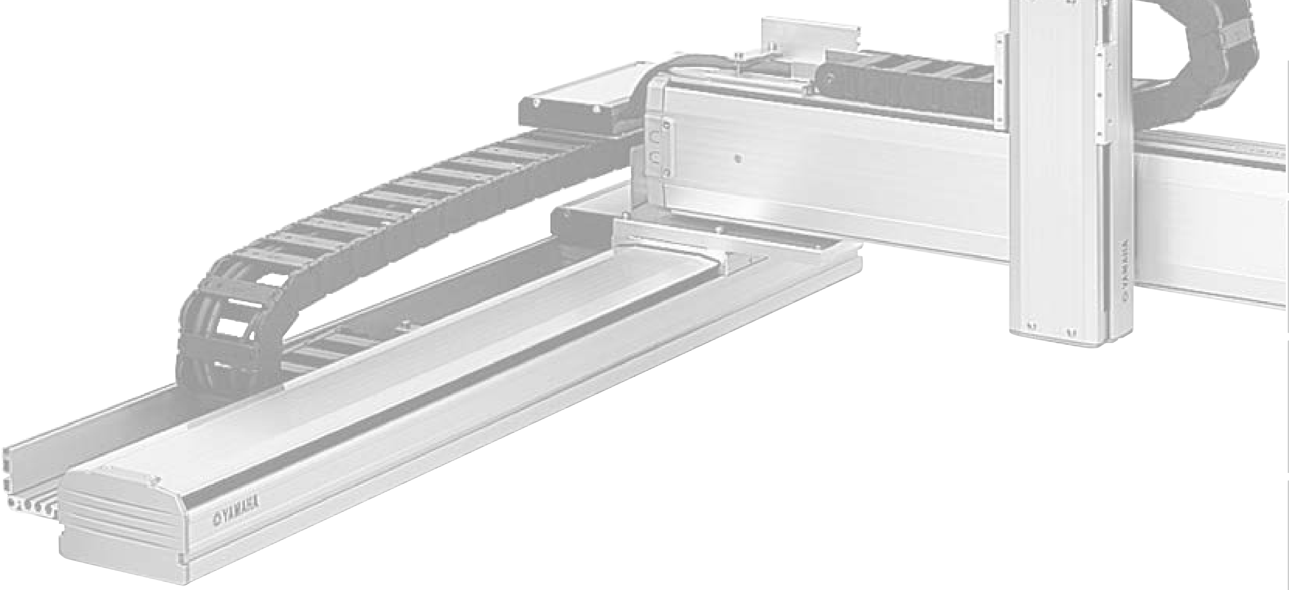
Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

MR12D double carriage wall mount model W



Effective stroke	50	150	250	350	450	550	650	750	850	950	1050
L	538	638	738	838	938	1038	1138	1238	1338	1438	1538
M	4	5	6	7	8	9	10	11	12	13	14
N	10	12	14	16	18	20	22	24	26	28	30
Weight (kg)	5.7	6.3	6.8	7.3	8.0	8.6	9.1	9.7	10.2	10.8	11.3

Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.



CARTESIAN ROBOTS
XY-X
SERIES

CONTENTS

ARM TYPE

GANTRY TYPE

MOVING ARM TYPE

POLE TYPE

XZ TYPE

Main functions ▶ P.36

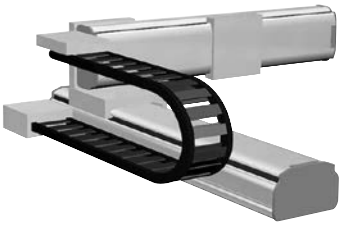
Arm & cable variations

Cable variations

Two cable types are available; cable carrier type and whipover type. (except PXYX) The cable carrier type is supplied with a user cable as standard so that cable can be added easily. The whipover type is supplied with a user cable and tube as standard set. A cable duct specially designed for clean rooms is also available. (See P.458 to P.463 for detailed information on Clean Cartesian robots.)

Cable carrier (C)

When adding cables to a cable carrier track, keep the cable occupation rate at 30% or less.



Note. User cable 10 cores, 0.2 sq.

Whipover (S)

Adding a load on whipover will result in sagging and cut. Sagging may also occur when using long strokes.

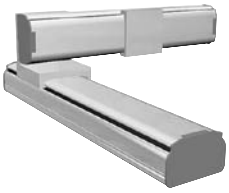
Note. User cable: 7 cores, 0.2 sq.
Note. User tube: 2 ϕ4 air tubes.

Arm variations

The first step for selection of Cartesian type robot models is to check for applicable models according to specific use and operation area.

Arm type

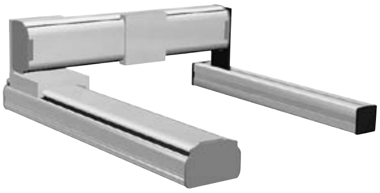
The type with moving Y-axis carriage.



P.252

Gantry type

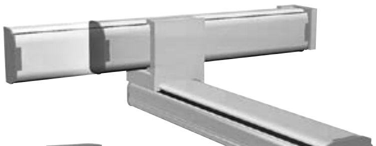
The type with a guide railing at the end of Y-axis for support.



P.320

Moving arm type

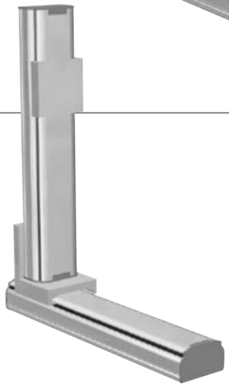
The type with a moving Y-axis arm.



P.336

Pole type

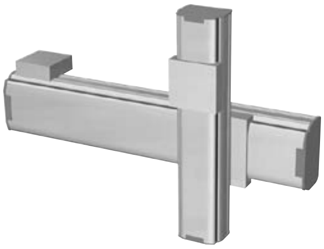
The type with vertically moving Y-axis carriage.



P.350

XZ type

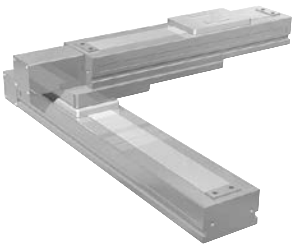
The type with combination of X-axis for horizontal movement and Z-axis for vertical movement.



P.358

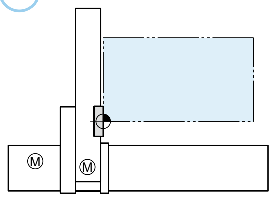
Clean type

Special model for clean rooms with moving Y-axis carriage installed upward.

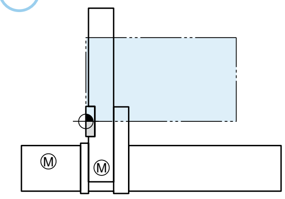


P.458

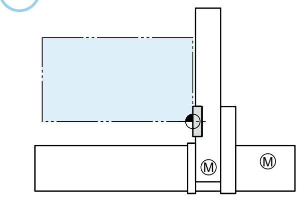
A1



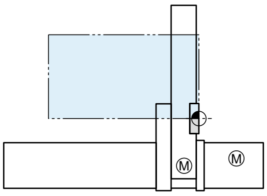
A2



A3



A4



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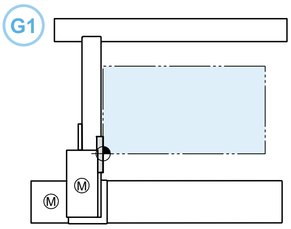
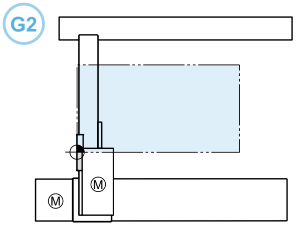
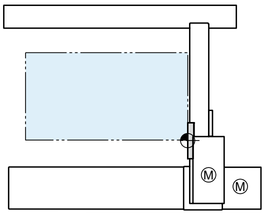


G2



G3



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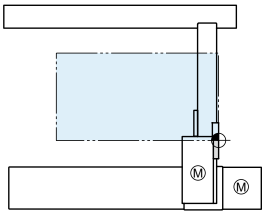
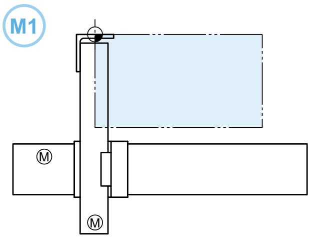
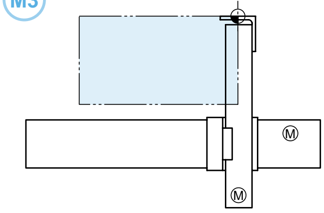


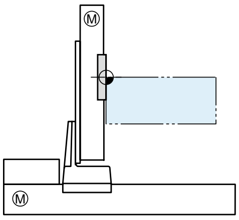
M1



M3



P1



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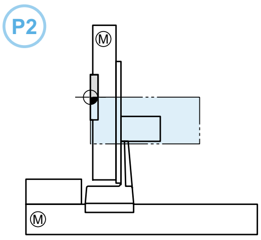
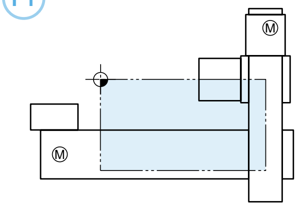
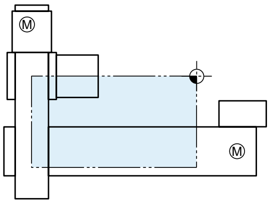


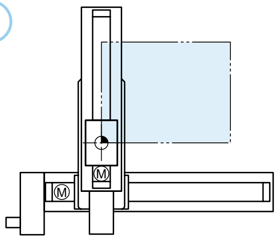
F1



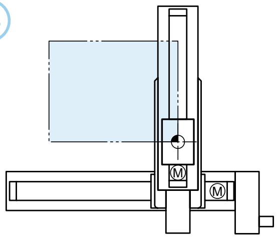
F3



T1



T3



2-axis spec selection guide

Setting method

While checking conditions in order starting from①, proceed to the right. Select the desired model in ⑥.

① Select the arm variation

Arm type
The type with moving Y-axis carriage.

Gantry type
The type with a guide railing at the end of Y-axis for support.

Moving arm type
The type with a moving Y-axis arm.

Pole type
The type with vertically moving Y-axis carriage.

XZ type
The type with combination of X-axis for horizontal movement and Z-axis for vertical movement.

② Select a line satisfying both the Y-axis stroke and payload and move to the right.

③ Check the cable types

④ Check the X axis stroke

⑤ Select the desired speed

⑥ Decide the model

①

②

Arm type

<table>
<tr><th></th><th colspan="10">Y-axis stroke (mm)</th></tr>
<tr><th></th><th>50</th><th>100</th><th>150</th><th>200</th><th>250</th><th>300</th><th>350</th><th>400</th><th>450</th><th>500</th></tr>
<tr><td>Payload (kg)</td><td>4.5</td><td>4.5</td><td>3.5</td><td>2.5</td><td>2</td><td>1.5</td><td></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th></th><th colspan="10">Y-axis stroke (mm)</th></tr>
<tr><th></th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="15">Payload (kg)</td><td colspan="2">12</td><td>11</td><td>9</td><td>7</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">12</td><td>11</td><td>9</td><td>7</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>6</td><td colspan="2">5</td><td>3</td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>7</td><td>6</td><td colspan="2">5</td><td>3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>20</td><td>17</td><td>15</td><td>13</td><td>11</td><td>9</td><td></td><td></td><td></td><td></td></tr>
<tr><td>20</td><td>17</td><td>15</td><td>13</td><td>11</td><td>9</td><td></td><td></td><td></td><td></td></tr>
<tr><td>19</td><td>16</td><td>14</td><td>12</td><td>10</td><td>8</td><td></td><td></td><td></td><td></td></tr>
<tr><td>14</td><td>12</td><td>10</td><td>8</td><td>7</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>25</td><td>21</td><td>18</td><td>16</td><td>13</td><td>11</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">30</td><td>25</td><td colspan="2">20</td><td>16</td><td></td><td></td><td></td><td></td></tr>
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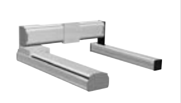
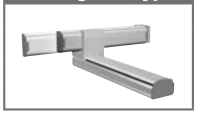
<tr><td colspan="2">29</td><td>24</td><td colspan="2">19</td><td>15</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="2">40</td><td>35</td><td colspan="2">30</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="2">40</td><td>35</td><td colspan="2">30</td><td></td><td></td><td></td><td></td></tr>
</table>

Gantry type



<table>
<tr><th></th><th colspan="10">Y-axis stroke (mm)</th></tr>
<tr><th></th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="4">Payload (kg)</td><td colspan="6">30</td><td>25</td><td>20</td><td></td><td></td></tr>
<tr><td colspan="6">29</td><td>24</td><td>19</td><td></td><td></td></tr>
<tr><td></td><td colspan="9">50</td></tr>
<tr><td></td><td colspan="9">50</td></tr>
</table>

Moving arm type



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<tr><th></th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="3">Payload (kg)</td><td>15</td><td>14</td><td>13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">20</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="5">30</td><td></td><td></td><td></td><td></td></tr>
</table>

Pole type

<table>
<tr><th></th><th colspan="10">Y-axis stroke (mm)</th></tr>
<tr><th></th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="5">Payload (kg)</td><td colspan="5">8</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">20</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">20</td><td></td><td></td><td></td><td></td></tr>
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<tr><td></td><td colspan="9">30</td></tr>
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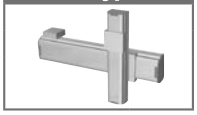
XZ type



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<tr><th></th><th colspan="10">Z-axis stroke (mm)</th></tr>
<tr><th></th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="11">Payload (kg)</td><td colspan="3">10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td></td><td colspan="4">30</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

③	④	⑤	⑥ Decide the model	
Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model (Note 1)	Detailed info page
Cable carrier	150 to 650	720 / 720	PXYx-C-A*	P.252

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Cable carrier	150 to 1050	1200 / 800	FXYx-C-A*	P.254
Cable carrier	150 to 1050	1200 / 800	FXYx-C-A* (I/O)	P.256
Cable carrier	150 to 2450	1875 / 1875	FXYBx-C-A*	P.260
Whipover	150 to 950	1875 / 1875	FXYBx-S-A*	P.262
Cable carrier	150 to 2450	1875 / 1875	FXYBx-C-A* (I/O)	P.264
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A*	P.266
Whipover	150 to 850	1200 / 1200	SXYx-S-A*	P.268
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A* (I/O)	P.270
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*	P.284
Cable carrier	500 to 2000	1200 / 1200	NXY-C-A*	P.292
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-A*	P.302
Whipover	250 to 850	1200 / 1200	MXYx-S-A*	P.304
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-A* (I/O)	P.306
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-A*	P.312
Cable carrier	1150 to 2050	1200 / 1200	HXYLx-C-A*	P.318

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Cable carrier	250 to 1050	1200 / 1200	MXYx-C-G*	P.320
Cable carrier	250 to 1050	1200 / 1200	MXYx-C-G* (I/O)	P.322
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-G*	P.328
Cable carrier	1150 to 2050	1200 / 1200	HXYLx-C-G*	P.334

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Cable carrier	150 to 850	1200 / 1200	SXYx-C-M*	P.336
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-M*	P.342
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-M*	P.348

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Whipover	150 to 850	1200 / 600	SXYx-S-P*	P.350
Cable carrier	250 to 1250	1200 / 600	MXYx-C-P*	P.351
Whipover	250 to 950	1200 / 600	MXYx-S-P*	P.352
Cable carrier	250 to 1250	1200 / 600	HXYx-C-P*	P.354
Whipover	250 to 850	1200 / 600	HXYx-S-P*	P.355

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Cable carrier	150 to 1050	1200 / 600	SXYx-C-F* (ZF)	P.358
Whipover	150 to 850	1200 / 600	SXYx-S-F* (ZF)	P.359
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-F* (ZFL20)	P.360
Cable carrier	150 to 1050	1200 / 1000	SXYx-C-F* (ZS12)	P.361
Cable carrier	150 to 1050	1200 / 500	SXYx-C-F* (ZS6)	P.361
Cable carrier	150 to 3050	1875 / 600	SXYBx-C-F* (ZF)	P.362
Cable carrier	150 to 3050	1875 / 1200	SXYBx-C-F* (ZFL20)	P.363
Cable carrier	150 to 1050	1200 / 600	MXYx-C-F* (ZFL10)	P.364
Cable carrier	150 to 1050	1200 / 600	MXYx-C-F* (ZFH)	P.365
Cable carrier	250 to 1250	1200 / 600	HXYx-C-F* (ZL)	P.366
Cable carrier	250 to 1250	1200 / 300	HXYx-C-F* (ZH)	P.367

Note 1. The figure entered at * inside the form, expresses the arm variation. See P. 242 for more information.

3-axis spec selection guide

Setting method

While checking conditions in order starting from①, proceed to the right. Select the desired model in ⑥.

① Select the arm variation

Arm type

The type with moving Y-axis carriage.

Moving arm type

The type with a moving Y-axis arm.

Gantry type

The type with a guide railing at the end of Y-axis for support.

Pole type

The type with vertically moving Y-axis carriage.

①

Arm type

<table>
<tr><th colspan="3">②</th><th colspan="11">③</th></tr>
<tr><th colspan="3">Z-axis</th><th rowspan="2"></th><th colspan="10">Y-axis stroke (mm)</th></tr>
<tr><th>Speed (mm/sec)</th><th>Stroke (mm)</th><th>Installation method</th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td>1000</td><td>150</td><td rowspan="2">Shaft vertical type</td><td rowspan="53">Payload (kg)</td><td colspan="5">3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>500</td><td>150</td><td colspan="4">5</td><td>3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>800</td><td>50 to 300</td><td>Clamped base · moving table type (60W)</td><td colspan="5">3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">600</td><td>150</td><td rowspan="3">Clamped base · moving table type (100W)</td><td colspan="2">10</td><td>9</td><td>7</td><td>5</td><td>3</td><td></td><td></td><td></td><td></td></tr>
<tr><td>250</td><td colspan="2">10</td><td>8</td><td>6</td><td>4</td><td>2</td><td></td><td></td><td></td><td></td></tr>
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<tr><td>150</td><td rowspan="3">Clamped base · moving table type (100W)</td><td colspan="2">10</td><td>9</td><td>7</td><td>5</td><td>3</td><td></td><td></td><td></td><td></td></tr>
<tr><td>250</td><td>10</td><td>10</td><td>8</td><td>6</td><td>4</td><td>2</td><td></td><td></td><td></td><td></td></tr>
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</table>

② Check the Z-axis speed, stroke, and installation method

③ Select a line satisfying both the Y-axis stroke and payload and move to the right.

④ Check the cable types

⑤ Check the X axis stroke

⑥ Check the maximum speed on X-axis and Y-axis

⑦ Decide the model

④	⑤	⑥	⑦ Decide the model	
Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model (Note 1)	Detailed info page
Cable carrier	150 to 1050	1200 / 800	FXYx-C-A*-ZS12	P.257
			FXYx-C-A*-ZS6	P.257
			FXYx-C-A*-ZT6	P.258
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A*-ZF	P.272
Whipover	150 to 850	1200 / 1200	SXYx-S-A*-ZF	P.273
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A*-ZFL20	P.274
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A*-ZFH	P.275
Cable carrier	150 to 1050	1200 / 1200	SXYx-C-A*-ZS12	P.276
Whipover	150 to 850		SXYx-S-A*-ZS12	P.276
Cable carrier	150 to 1050		SXYx-C-A*-ZS6	P.277
Whipover	150 to 850		SXYx-S-A*-ZS6	P.277
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*-ZF	P.286
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*-ZFL20	P.287
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*-ZFH	P.288
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*-ZS12	P.289
Cable carrier	150 to 3050	1875 / 1875	SXYBx-C-A*-ZS6	P.289
Cable carrier	500 to 2000	1200 / 1200	NXY-C-A*-ZFL20	P.294
Cable carrier	500 to 2000	1200 / 1200	NXY-C-A*-ZFH	P.296
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-A*-ZFL10	P.307
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-A*-ZFL20	P.307
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-A*-ZFH	P.308
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-A*-ZL	P.314
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-A*-ZH	P.315

Note 1. The figure entered at * inside the form, expresses the arm variation. See P.242 for more information.

3-axis spec selection guide

①

Gantry type

<table>
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<tr><th>Speed (mm/sec)</th><th>Stroke (mm)</th><th>Installation method</th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
<tr><td rowspan="3">600</td><td>150</td><td rowspan="3">Clamped base · moving table type (200W)</td><td rowspan="17">Payload (kg)</td><td colspan="7">15</td><td>12</td><td></td><td></td></tr>
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Moving arm type

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Pole type

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<tr><th>Speed (mm/sec)</th><th>Stroke (mm)</th><th>Installation method</th><th>150</th><th>250</th><th>350</th><th>450</th><th>550</th><th>650</th><th>750</th><th>850</th><th>950</th><th>1050</th></tr>
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<tr><td>650</td><td></td><td colspan="7">15</td><td></td><td></td></tr>
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④	⑤	⑥	⑦ Decide the model	
Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model (Note 1)	Detailed info page
Cable carrier	250 to 1050	1200 / 1200	MXYx-C-G*-ZFL10	P.323
Cable carrier	250 to 1050	1200 / 1200	MXYx-C-G*-ZFL20	P.323
Cable carrier	250 to 1050	1200 / 1200	MXYx-C-G*-ZFH	P.324
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-G*-ZL	P.330
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-G*-ZH	P.331

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model (Note 1)	Detailed info page
Whipover	150 to 850	1200 / 1200	SXYx-S-M*-ZF	P.338
Whipover	150 to 850	1200 / 1200	SXYx-S-M*-ZFL20	P.339
Whipover	150 to 850	1200 / 1200	SXYx-S-M*-ZFH	P.340
Whipover	150 to 850	1200 / 1200	SXYx-S-M*-ZS12	P.341
Whipover	150 to 850	1200 / 1200	SXYx-S-M*-ZS6	P.341
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-M*-ZFL10	P.344
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-M*-ZFL20	P.344
Cable carrier	250 to 1250	1200 / 1200	MXYx-C-M*-ZFH	P.345
Cable carrier	250 to 1250	1200 / 1200	HXYx-C-M*-ZH	P.348

Note 1. The figure entered at * inside the form, expresses the arm variation. See P.242 for more information.

Cable type	X-axis stroke (mm)	Maximum speed (X-axis / Y-axis) (mm/sec)	Model	Detailed info page
Cable carrier	250 to 1250	1200 / 600	MXYX-C-P2-ZPMH	P.353
Cable carrier	250 to 1250	1200 / 600	HXYx-C-P2-ZPH	P.356
Whipover	250 to 850	1200 / 600	HXYx-S-P1-ZPH	P.357

Robot ordering method description

In the order format for the YAMAHA cartesian robots XY-X series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

■ 2-axis specifications

● **Mechanical ▶ FXYx (Arm type)**

- Cable variations ▷ Cable carrier
- Combination (Arm variations) ▷ A1
- X-axis stroke ▷ 450mm
- Y-axis stroke ▷ 350mm
- Robot cable length ▷ 3.5M

● **Controller ▶ RCX222**

● **Ordering method**

FXYx-C-A1-45-35-3L-RCX222

Mechanical section　　Controller section

To find detailed controller information see the controller page. **RCX222 ▶ P.526**

[ ] - [ ] - [ ] - [ ] - [ ] - [ ] - **RCX222**

① Model - ② Cable - ③ Combination Note 1 - ④ X-axis stroke - ⑤ Y-axis stroke - ⑧ Cable - ⑨ Controller

① Model
PXYx
FXYx
FXYBx
SXYx
SXYBx
NXY
MXYx
HXYx
HXYLx

② Cable	
C	Cable carrier
S	Whipover

③ Combination Note 1	
A1 to 4	Arm type
G1 to 4	Gantry type
M1 / M3	Moving arm type
P1 / P2	Pole type
F1 / F3	XZ type

⑧ Cable	
3L	3.5m
5L	5m
10L	10m

Note 1. To find detailed information on arm variations (combinations) see P.242.

[Example]

■ 3 / 4-axis specifications

● **Mechanical ▶ SXYx (Moving arm type)**

- Cable variations ▷ Whipover
- Combination (Arm variations) ▷ M3
- X-axis stroke ▷ 850mm
- Y-axis stroke ▷ 150mm
- Z-axis stroke ▷ 150mm
- Robot cable length ▷ 5M

● **Controller ▶ RCX240S**

● **Ordering method**

SXYx-S-M3-85-15-ZFH-15-5L-RCX240S

Mechanical section　　Controller section

To find detailed controller information see the controller page. **RCX240 ▶ P.534**, **RCX340 ▶ P.544**

[ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

① Model - ② Cable - ③ Combination - ④ X-axis stroke - ⑤ Y-axis stroke - ⑥ ZR-axis - ⑦ Z-axis stroke - ⑧ Cable - ⑨ Controller

① Model
FXYx
SXYx
SXYBx
NXY
MXYx
HXYx

② Cable	
C	Cable carrier
S	Whipover

③ Combination	
A1 to 4	Arm type
G1 to 4	Gantry type
M1/3	Moving arm type
P1 to 2	Pole type

⑥ ZR-axis	
ZS	Shaft vertical type
ZT	Clamped base • moving table type (60W)
ZF	Clamped base • moving table type (100W)
ZFL/ZL	Clamped base • moving table type (200W)
ZFH/ZH	Clamped table • moving base type (200W)
ZPMH/ZPH	Clamped table • moving base type (200W) for Pole type
ZRF	Clamped base • moving table type (100W)+R-axis
ZRS	Shaft vertical type ZR-axis integrated type
ZRFL/ZRL	Clamped base • moving table type (200W)+R-axis
ZRFH/ZRH	Clamped table • moving base type (200W)+R-axis

⑧ Cable	
3L	3.5m
5L	5m
10L	10m

⑨ Controller
RCX240
RCX240S
RCX340

Robot ordering method terminology

① Model	Enter the robot unit model.
② Cable	Cable specs can be selected. To find detailed information see P.242. C: Cable carrier S: Whipover
③ Combination (Arm variations)	Select the arm variation and combination method. ●Arm type The type with moving Y-axis carriage. ●Gantry type The type with a guide railing at the end of Y-axis for support. ●Moving arm type The type with a moving Y-axis arm. ●Pole type The type with vertically moving Y-axis carriage. ●XZ type The type with combination of X-axis for horizontal movement and Z-axis for vertical movement. ●Clean type Special model for clean rooms with moving Y-axis carriage installed upward. To find information on combinations see P.242.
④ X-axis stroke	Select the X axis stroke. Enter in centimeters (cm). (For example enter 50 for a stroke of 500mm.)
⑤ Y-axis stroke	Select the Y axis stroke. Enter in centimeters (cm). (For example enter 50 for a stroke of 500mm.)
⑥ ZR-axis	Select the Z axis installation direction. The R axis is installed with 4-axis specifications. To find more information see P.39. [3-axes] ZS : Shaft vertical type ZT : Clamped base · moving table type (60W) ZF : Clamped base · moving table type (100W) ZFL/ZL : Clamped base · moving table type (200W) ZFH/ZH : Clamped table · moving base type (200W) ZPMH/ZPH : Clamped table · moving base type (200W) for pole type [4-axes] ZRF : Clamped base · moving table type (100W)+R axis ZRS : ZR axis integrated type ZRL/ZRFL : Clamped base · moving table type (200W)+R axis ZRH/ZRFH : Clamped table · moving base type (200W)+R axis
⑦ Z-axis stroke	Select the Z axis stroke. Enter in centimeters (cm). (For example enter 15 for a stroke of 150mm.)
⑧ Cable	Select the length of the robot cable connecting the robot and controller. **3L** : 3.5m **5L** : 5m **10L** : 10m
⑨ Controller	**2-axis specifications:** Select the RCX222. **3 / 4-axis specifications:** Select either the RCX240 (RCX240S) or RCX340.

PXYx

2 axes

● Arm type ● Cable carrier

Ordering method

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
PXYx	C	A1 A2 A3 A4	15 to 65cm	5 to 30cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	–	T4H
AC servo motor output (W)	60	30
Repeatability Note 2 (mm)	+/-0.02	+/-0.02
Drive system	Ball screw (Class C10)	Ball screw (Class C10)
Ball screw lead Note 3 (Deceleration ratio) (mm)	12	12
Maximum speed Note 4 (mm/sec)	720	720
Moving range (mm)	150 to 650	50 to 300
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In thiscase, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

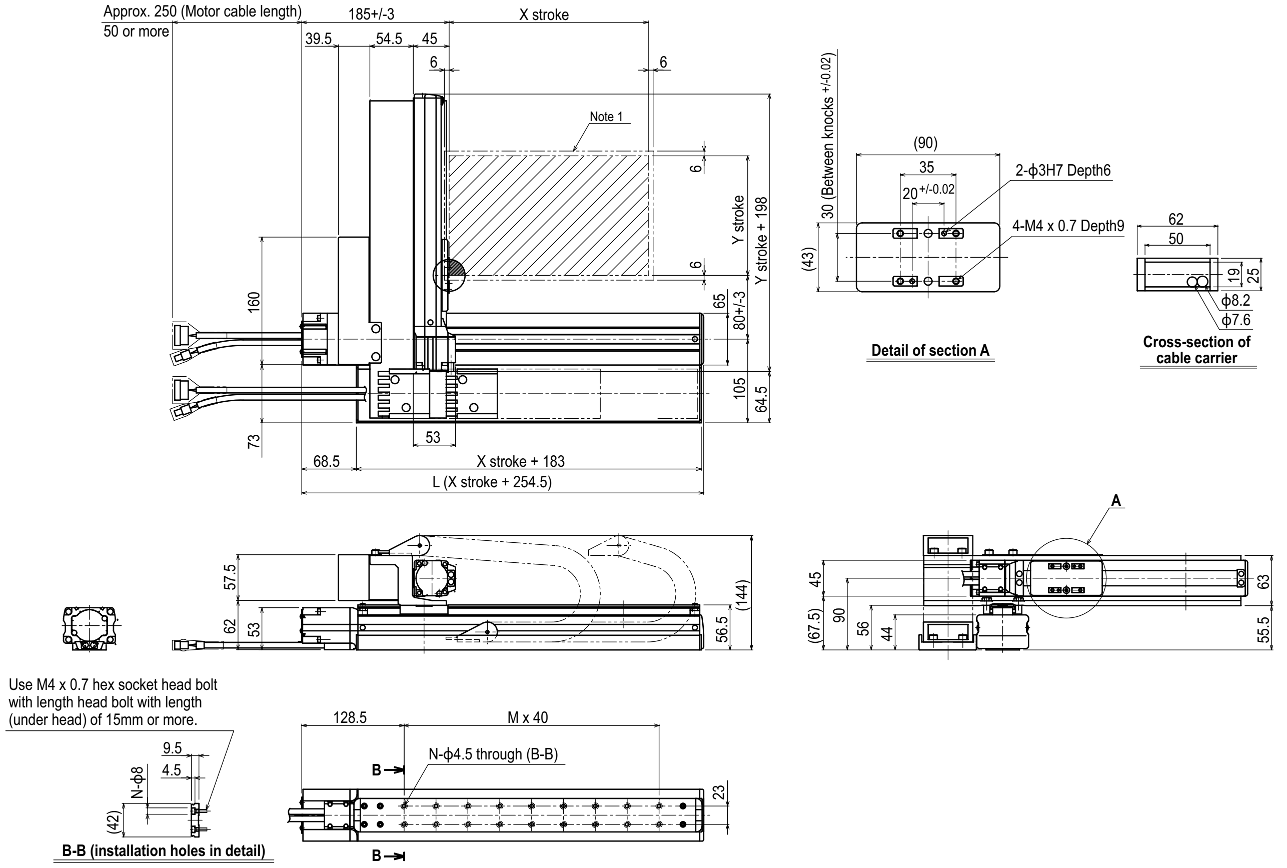
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
50	4.5
100	4.5
150	3.5
200	2.5
250	2
300	1.5

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

PXYx 2 axes A1



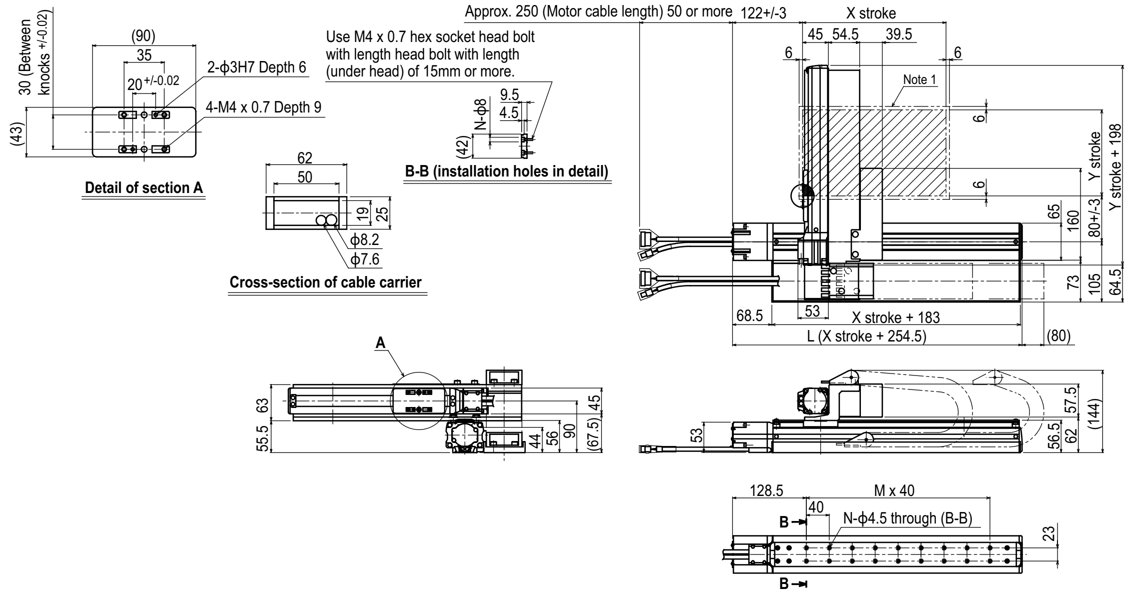
X stroke	150	250	350	450	550	650
L	404.5	504.5	604.5	704.5	804.5	904.5
M	5	8	10	13	15	18
N	12	18	22	28	32	38

Y stroke		50	100	150	200	250	300
Maximum speed for each stroke (mm/sec) Note 2	X-axis	720					600
	Speed setting	–					83%

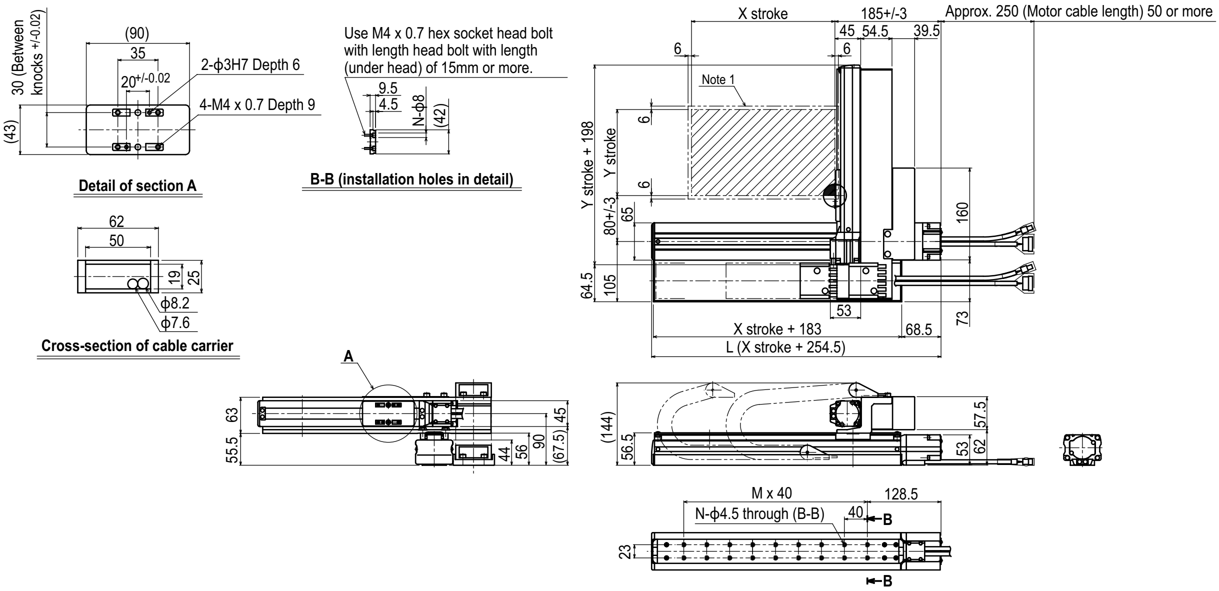
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.

Note 2. When the X-axis stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

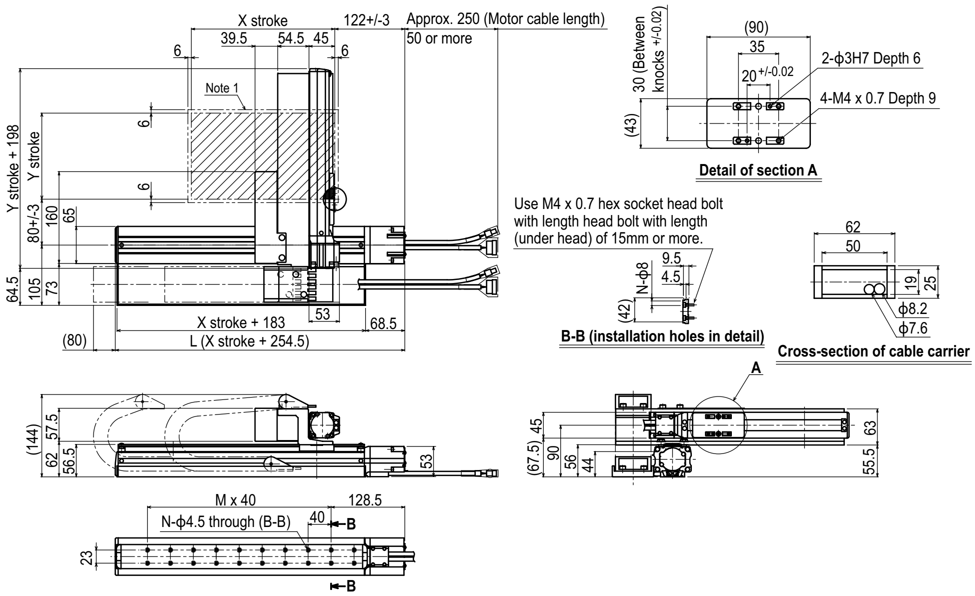
PXYx 2 axes A2



PXYx 2 axes A3

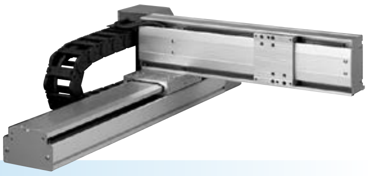


PXYx 2 axes A4



FXYx 2 axes

Arm type **Cable carrier**



Ordering method

FXYx	- C	-	-	-	-	- RCX222	-	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Input/Output selection 1**	**Input/Output selection 2**
		A1 A2 A3 A4	15 to 105cm	15 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction	–	–
AC servo motor output (W)	100	60
Repeatability Note 1 (mm)	+/-0.01	+/-0.02
Drive system	Ball screw (Class C7)	Ball screw (Class C10)
Ball screw lead Note 2 (Deceleration ratio) (mm)	20	12
Maximum speed Note 3 (mm/sec)	1200	800
Moving range (mm)	150 to 1050	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Positioning repeatability in one direction.
Note 2. Leads not listed in the catalog are also available. Contact us for details.
Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

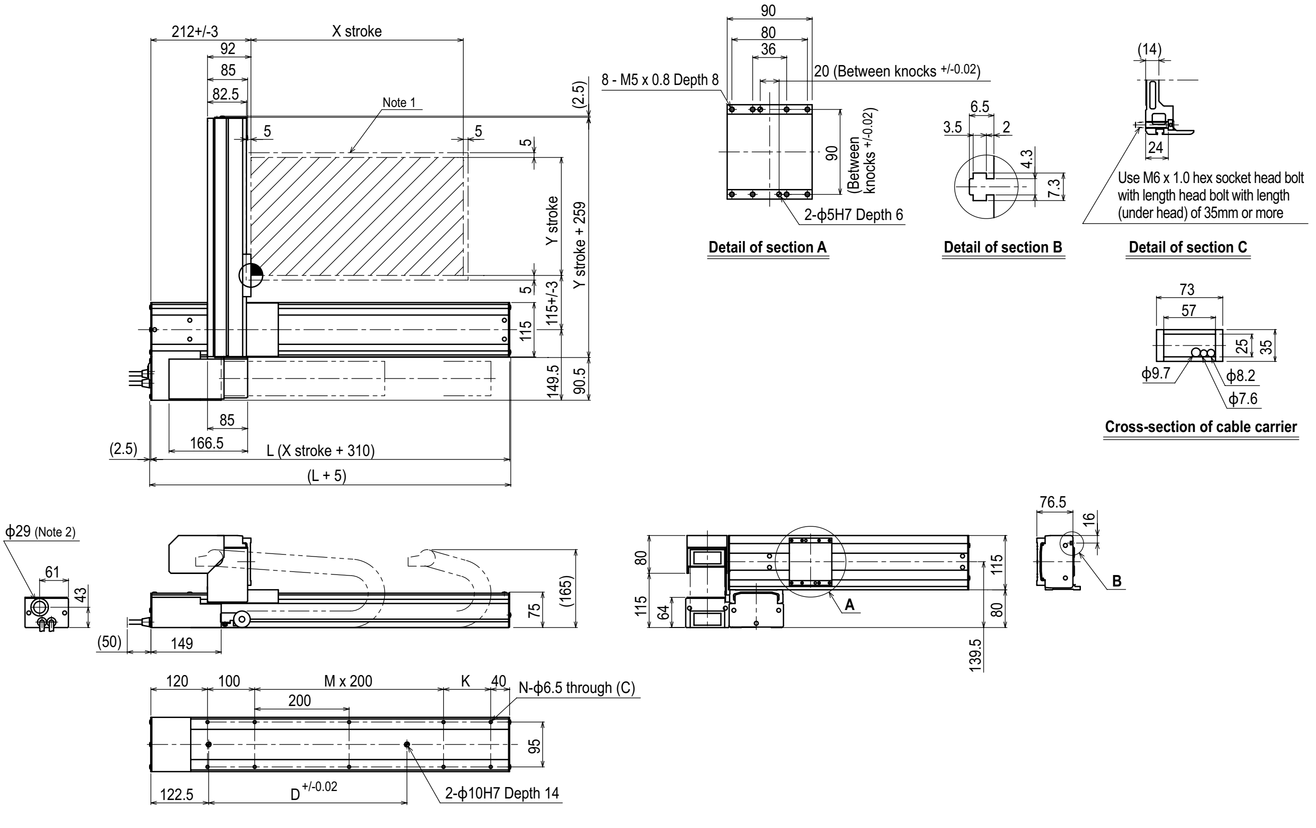
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	12
250	12
350	11
450	9
550	7

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYx 2 axes A1



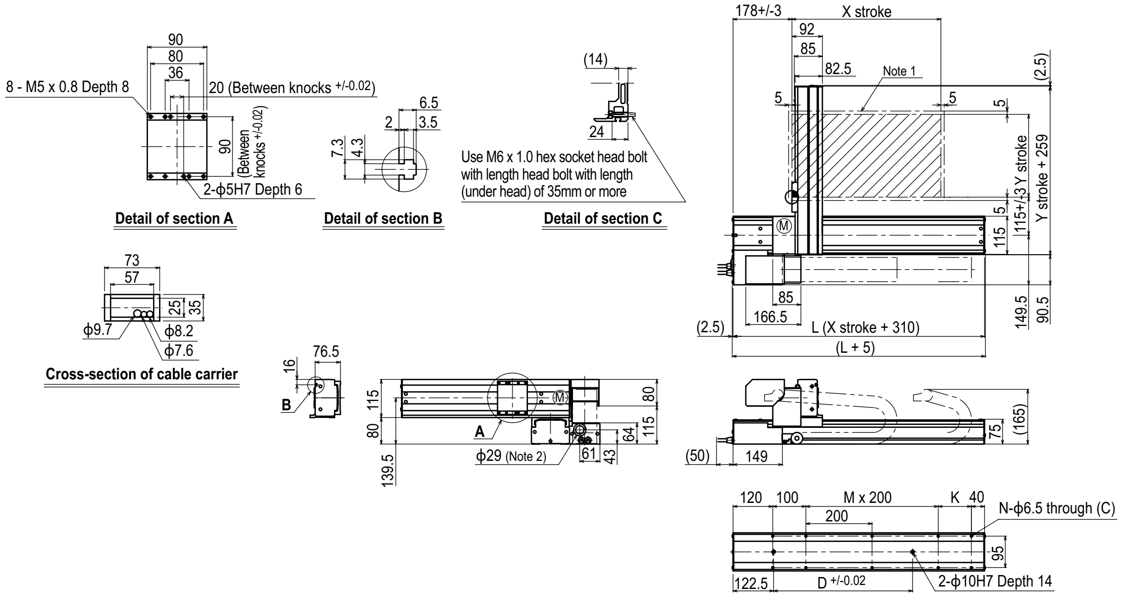
X stroke	150	250	350	450	550	650	750	850	950	1050
L	460	560	660	760	860	960	1060	1160	1260	1360
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke		150	250	350	450	550				
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200					960	780	600	540
	Speed setting	–					80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

FXYx 2 axes A2



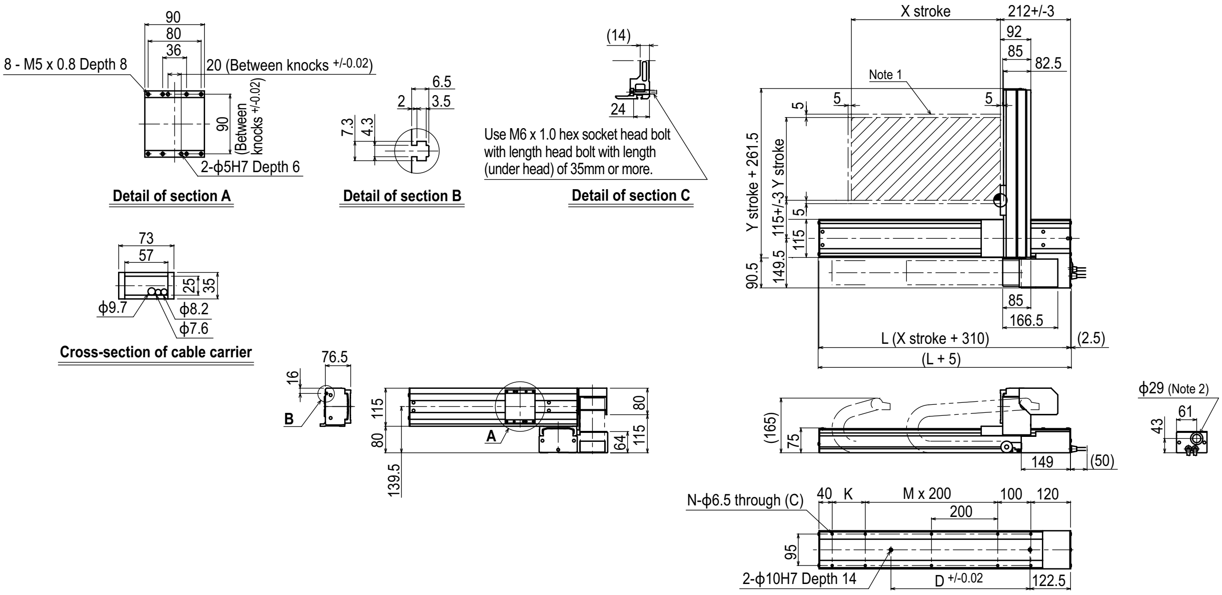
Detail of section A

Detail of section B

Detail of section C

Cross-section of cable carrier

FXYx 2 axes A3



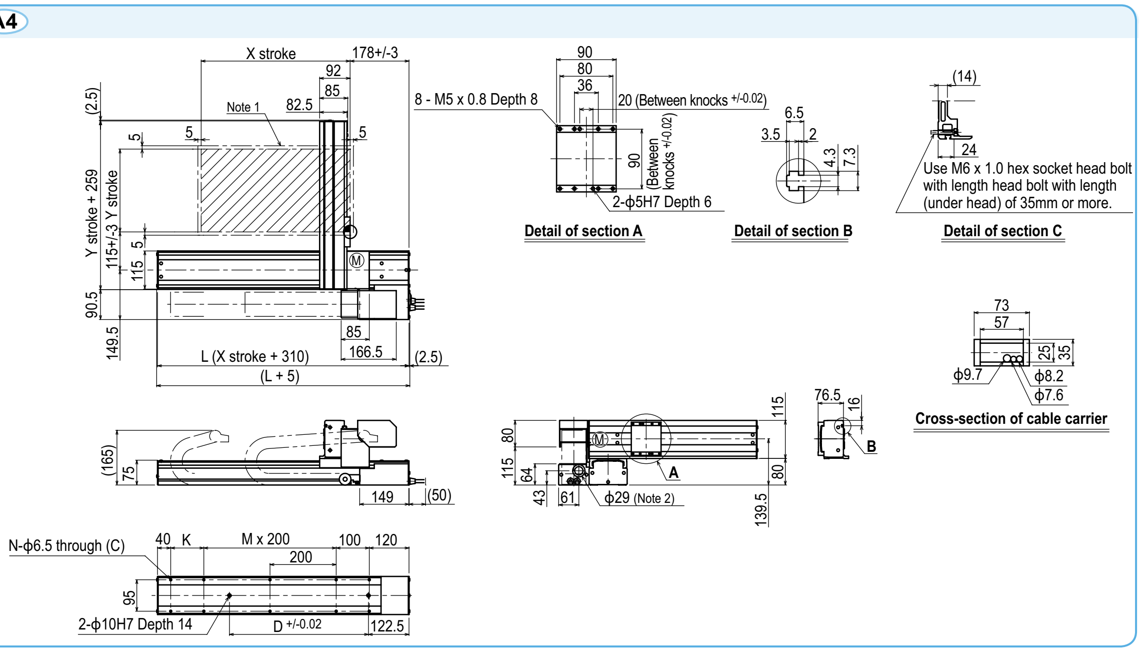
Detail of section A

Detail of section B

Detail of section C

Cross-section of cable carrier

FXYx 2 axes A4



Detail of section A

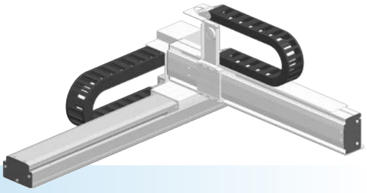
Detail of section B

Detail of section C

Cross-section of cable carrier

FXYx 2 axes / IO

● Arm type ● Cable carrier ● Type with Y-axis I/O cable carrier added



Ordering method

FXYx	- C	-	-	-	- IO	-	- RCX222	-	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Cable**	**Controller**	**Usable for CE**	**Input/Output selection 1**	**Input/Output selection 2**
		A1 A2 A3 A4	15 to 105cm	15 to 55cm		3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction	–	–
AC servo motor output (W)	100	60
Repeatability Note 1 **(mm)**	+/-0.01	+/-0.02
Drive system	Ball screw (Class C7)	Ball screw (Class C10)
Ball screw lead Note 2 **(Deceleration ratio) (mm)**	20	12
Maximum speed Note 3 **(mm/sec)**	1200	800
Moving range (mm)	150 to 1050	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Positioning repeatability in one direction.
Note 2. Leads not listed in the catalog are also available. Contact us for details.
Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

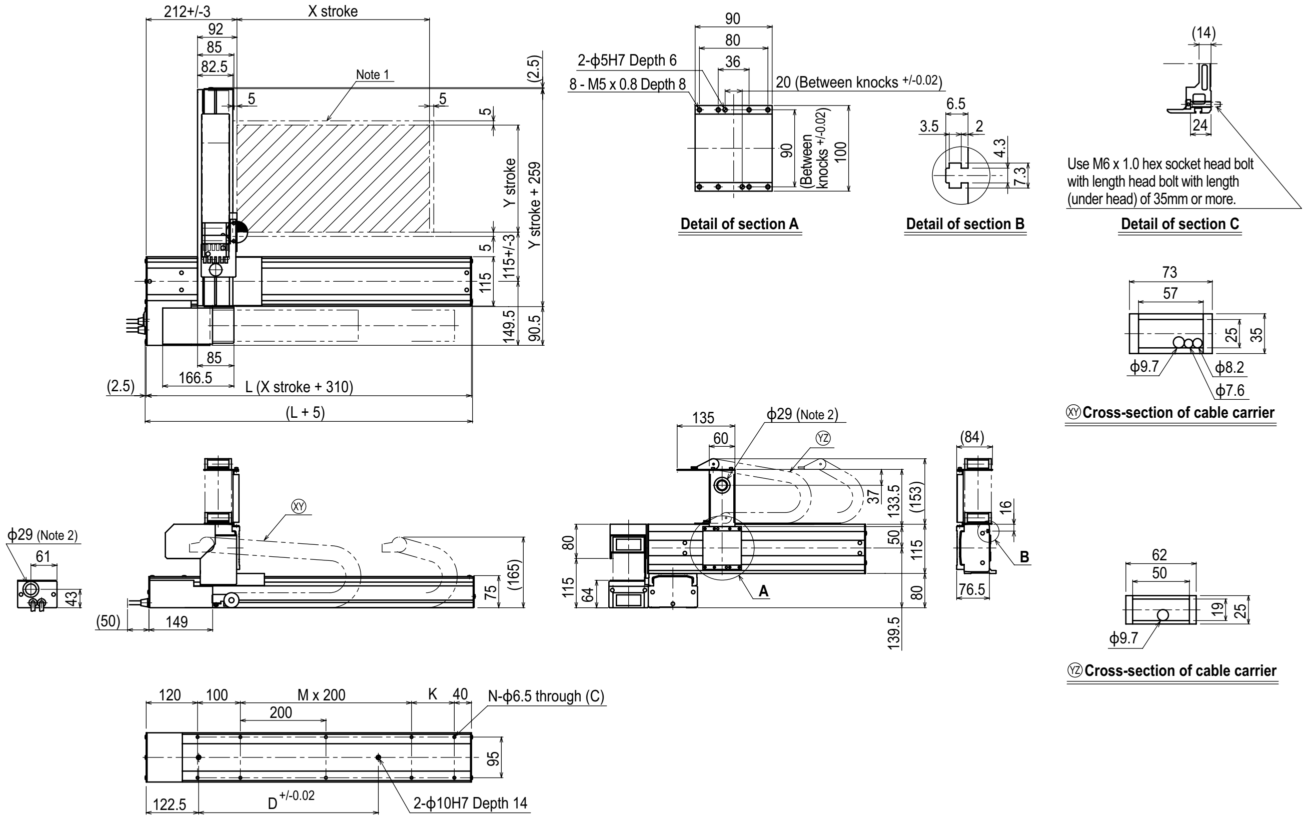
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	12
250	12
350	11
450	9
550	7

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYx 2 axes / IO A1



X stroke		150	250	350	450	550	650	750	850	950	1050
L		460	560	660	760	860	960	1060	1160	1260	1360
K		200	100	200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960	960	1140
M		0	1	1	2	2	3	3	4	4	5
N		6	8	8	10	10	12	12	14	14	16
Y stroke		**150**	**250**	**350**	**450**	**550**					
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

FXYx 3 axes / ZS

● Arm type ● Cable carrier ● Z-axis shaft vertical type

Ordering method

FXYx - C - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
FXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 55cm	ZS12 ZS6	15	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3							

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZS12	Z-axis: ZS6
Axis construction	–	–	–	
AC servo motor output (W)	100	60	60	
Repeatability Note 1 (mm)	+/-0.01	+/-0.02	+/-0.02	
Drive system	Ball screw (Class C7)	Ball screw (Class C10)	Ball screw (Class C10)	
Ball screw lead Note 2 (Deceleration ratio) (mm)	20	12	12	6
Maximum speed Note 3 (mm/sec)	1200	800	1000	500
Moving range (mm)	150 to 1050	150 to 550	150	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Positioning repeatability in one direction.
Note 2. Leads not listed in the catalog are also available. Contact us for details.
Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

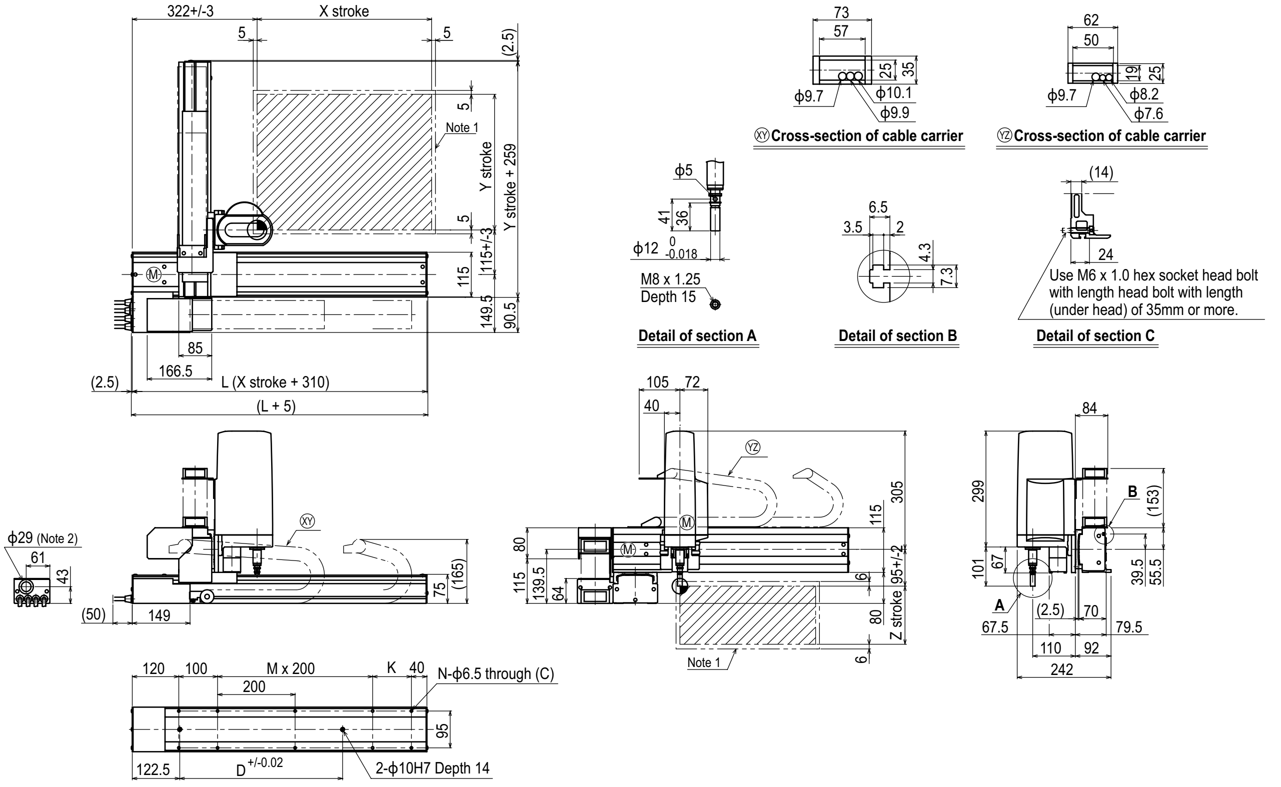
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150	3	5
250	3	5
350	3	5
450	3	5
550	3	3

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYx 3 axes / ZS A1



X stroke		150	250	350	450	550	650	750	850	950	1050
L		460	560	660	760	860	960	1060	1160	1260	1360
K		200	100	200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960	960	1140
M		0	1	1	2	2	3	3	4	4	5
N		6	8	8	10	10	12	12	14	14	16
Y stroke		150	250	350	450	550					
Z stroke		150									
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

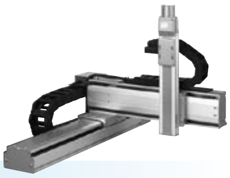
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

FXYx

3 axes / ZT

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (60W)



Ordering method

FXYx - C - ☐ - ☐ - ☐ - ZT6 - 12 - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

FXYx	C	☐	☐	☐	ZT6	12	☐	☐
Model	Cable	Combi-nation	X-axis stroke	Y-axis stroke	ZR-axis	Lead	Z-axis stroke	Cable
		A1 A2 A3 A4	15 to 105cm	15 to 55cm			5 to 30cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	☐	☐	☐	☐	☐	☐	☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	☐	☐	☐	☐	☐	☐
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	–	–	T6-12-BK
AC servo motor output (W)	100	60	60
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.02	+/-0.02
Drive system	Ball screw (Class C7)	Ball screw (Class C10)	Ball screw (Class C10)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	12	12
Maximum speed Note 4 **(mm/sec)**	1200	800	800
Moving range (mm)	150 to 1050	150 to 550	50 to 300
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

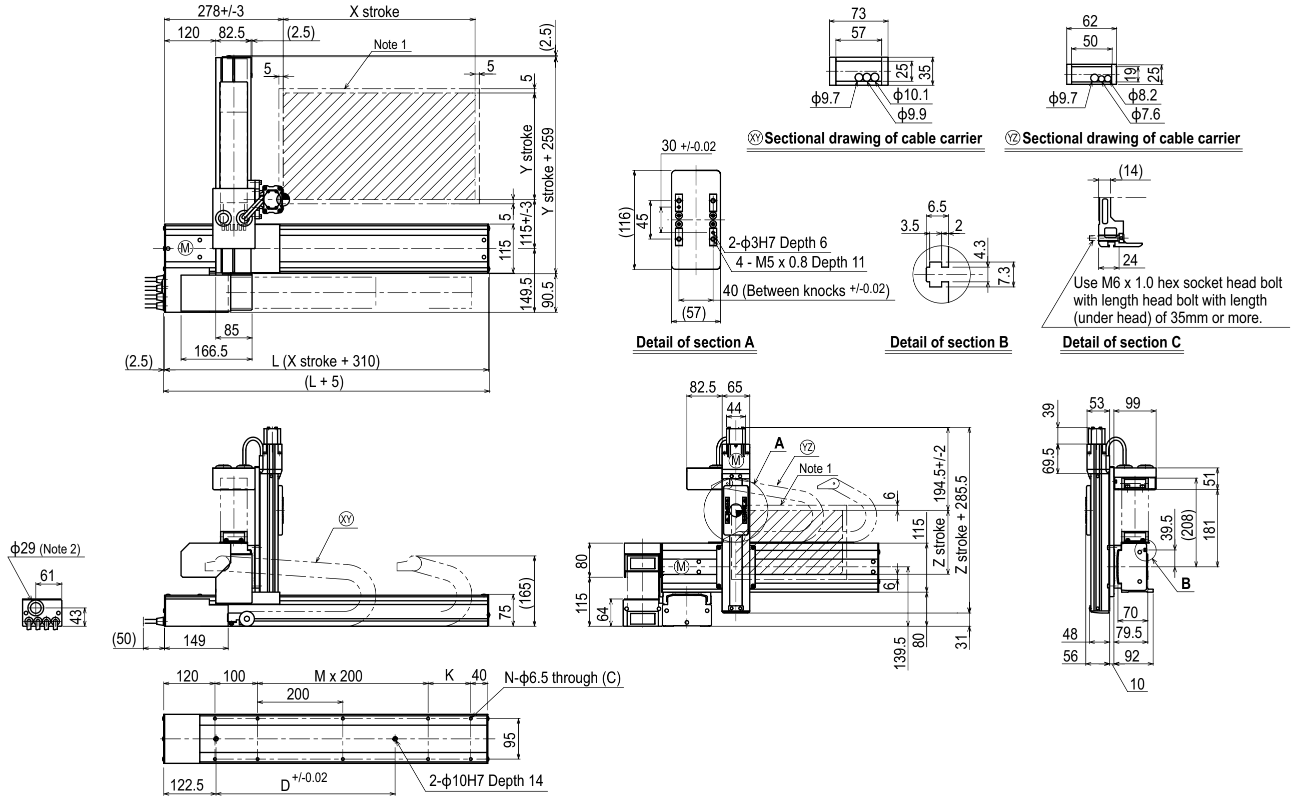
Maximum payload (kg)

Y stroke (mm)	ZT
150 to 550	3

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYx 3 axes / ZT A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	460	560	660	760	860	960	1060	1160	1260	1360
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke	150	250	350	450	550

Z stroke	50	100	150	200	250	300

Maximum speed for each stroke (mm/sec) Note 3					
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

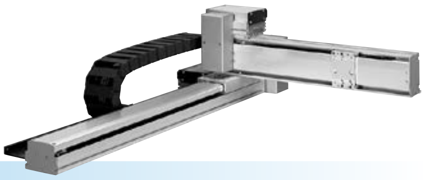
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

FXYBx 2 axes

Arm type　Cable carrier



Ordering method

FXYBx - C - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
FXYBx	C	A1 A2 A3 A4	15 to 245cm	15 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	B10	–
AC servo motor output (W)	100	100
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.04
Drive system	Timing belt	Timing belt
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25
Maximum speed (mm/sec)	1875	1875
Moving range (mm)	150 to 2450	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

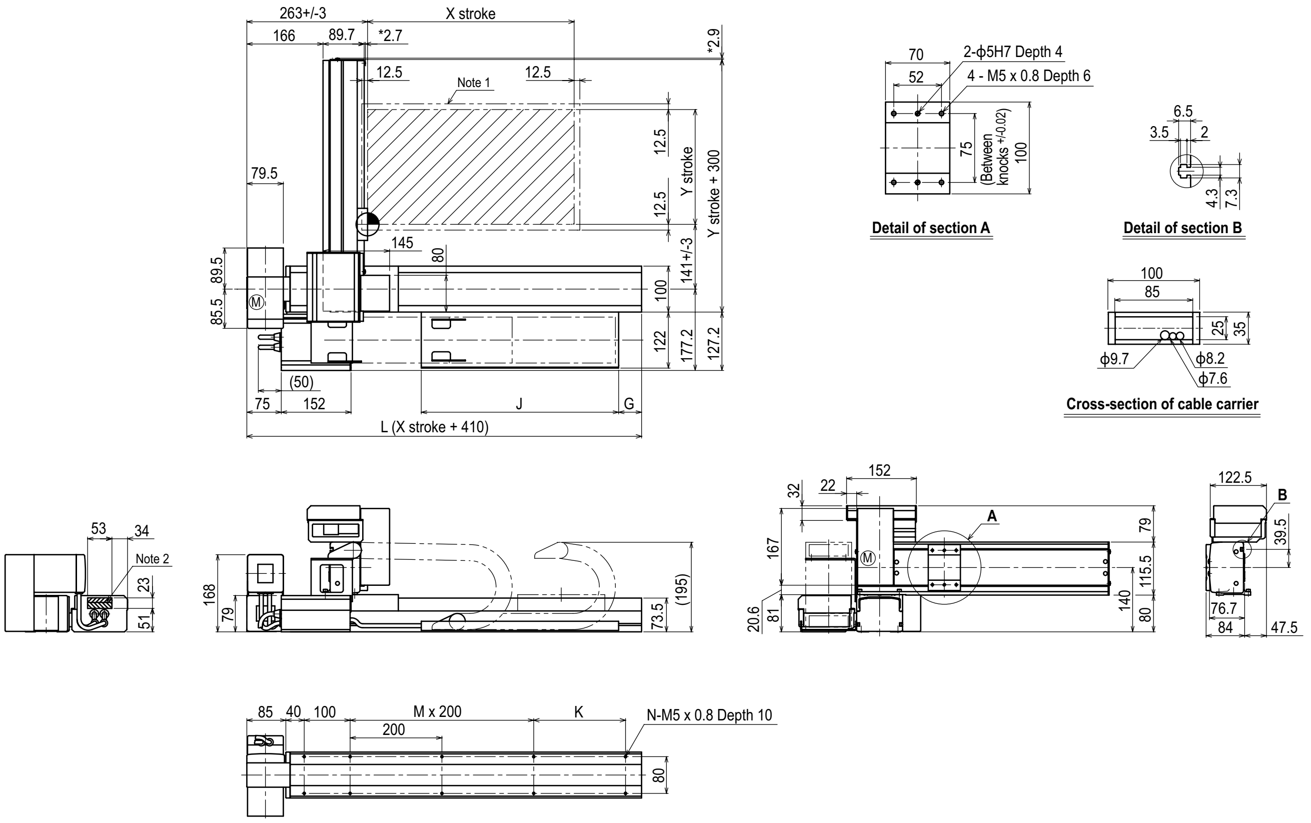
Maximum payload (kg)

Y stroke (mm)	XY axes
150	7
250	6
350	5
450	5
550	3

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYBx 2 axes A1

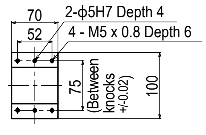


Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.
Note 3. The dimension marked with an asterisk (*) indicates the height of the screw.

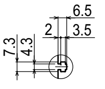
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450
L	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860
K	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430

Y stroke	150	250	350	450	550

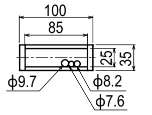
FXYBx 2 axes A2



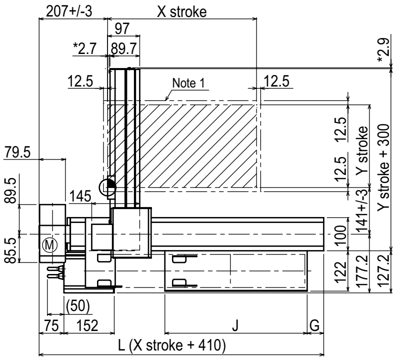
Detail of section A

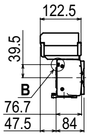


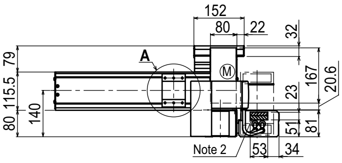
Detail of section B

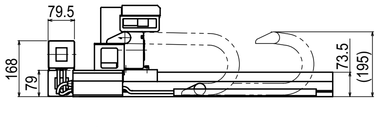


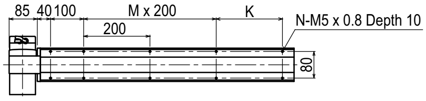
Cross-section of cable carrier



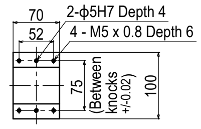




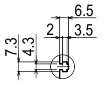




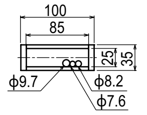
FXYBx 2 axes A3



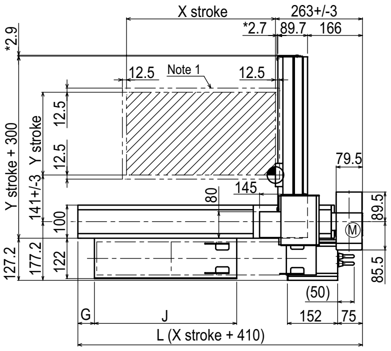
Detail of section A

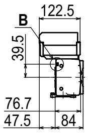


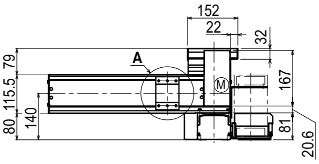
Detail of section B

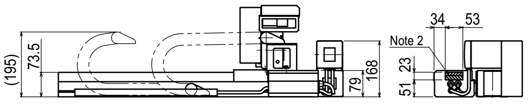


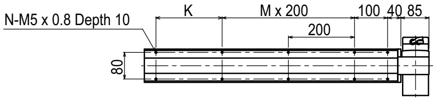
Cross-section of cable carrier



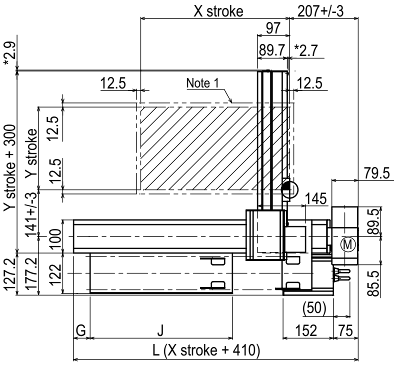


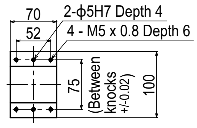




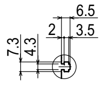


FXYBx 2 axes A4

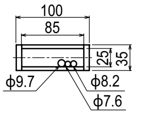




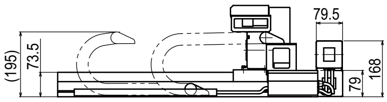
Detail of section A

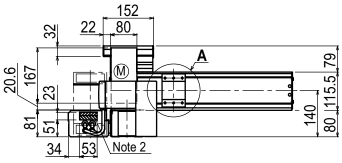


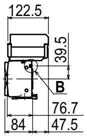
Detail of section B

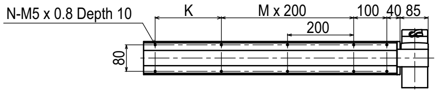


Cross-section of cable carrier



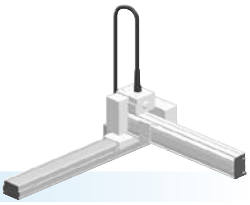






FXYBx 2 axes

● Arm type ● Whipover



Ordering method

FXYBx - S - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
FXYBx	S	A1 A2 A3 A4	15 to 95cm	15 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	B10	–
AC servo motor output (W)	100	100
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.04
Drive system	Timing belt	Timing belt
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25
Maximum speed (mm/sec)	1875	1875
Moving range (mm)	150 to 950	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

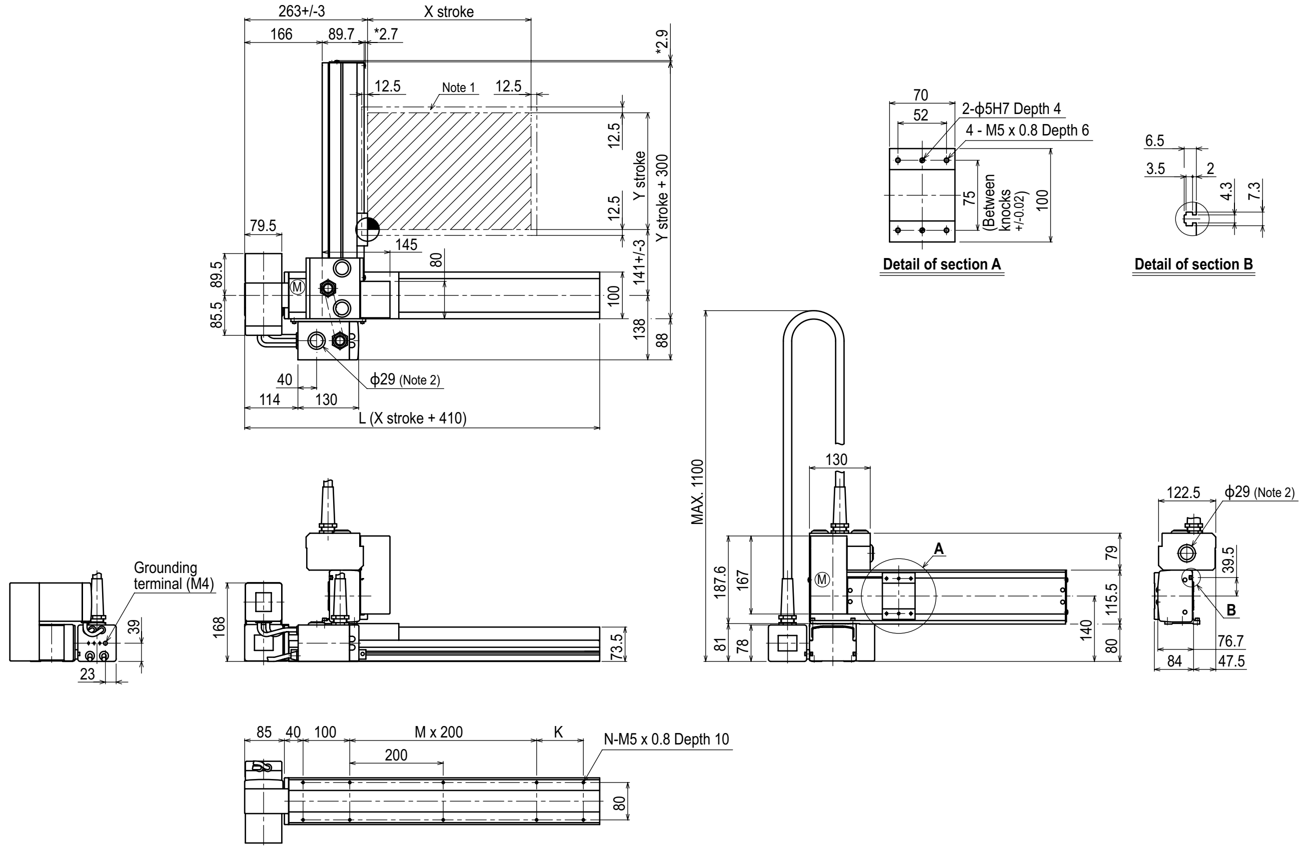
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	7
250	6
350	5
450	5
550	3

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYBx 2 axes A1

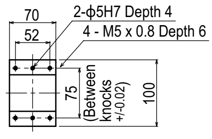


X stroke	150	250	350	450	550	650	750	850	950
L	560	660	760	860	960	1060	1160	1260	1360
K	100	200	100	200	100	200	100	200	100
M	1	1	2	2	3	3	4	4	5
N	8	8	10	10	12	12	14	14	16

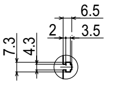
Y stroke	150	250	350	450	550

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. The dimension marked with an asterisk (*) indicates the height of the screw.

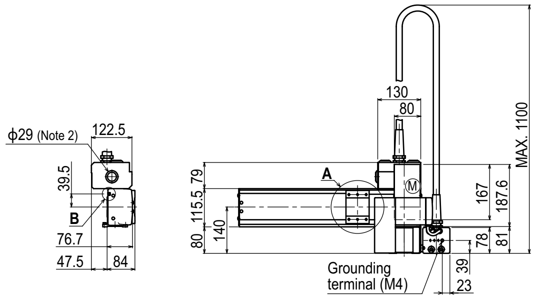
FXYBx 2 axes A2

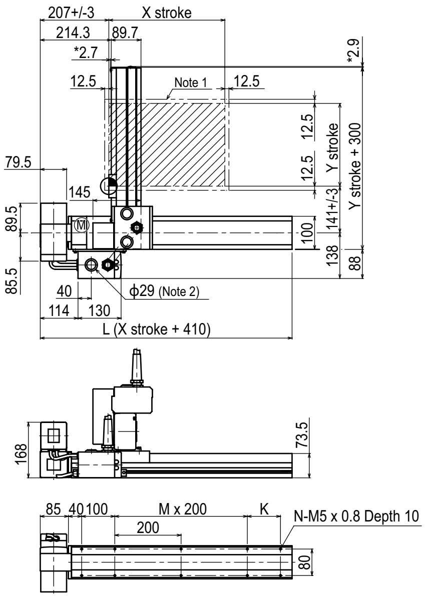


Detail of section A

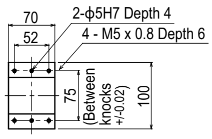


Detail of section B

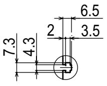




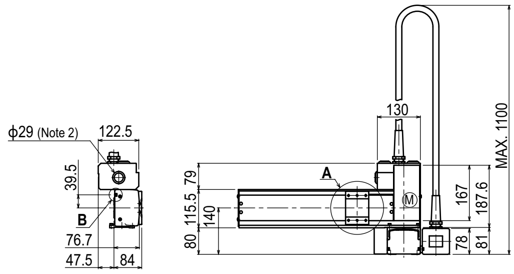
FXYBx 2 axes A3

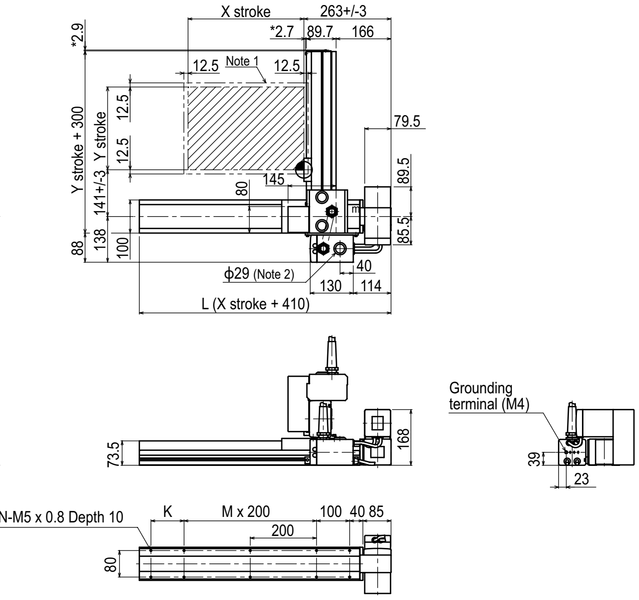


Detail of section A

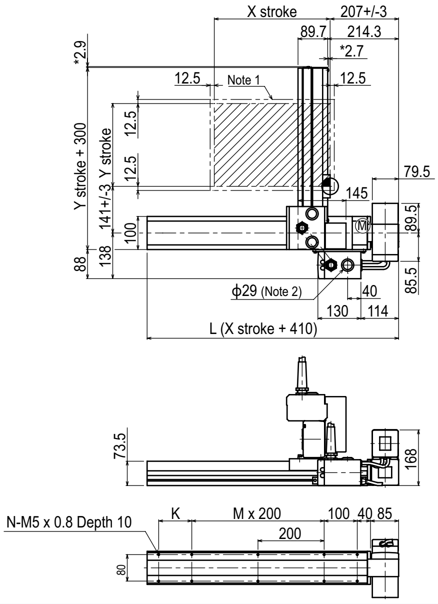


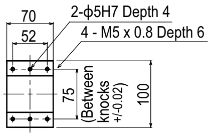
Detail of section B



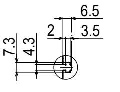


FXYBx 2 axes A4

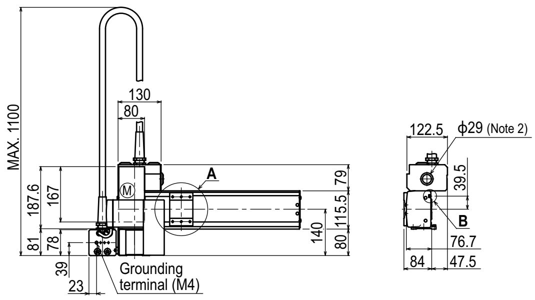




Detail of section A

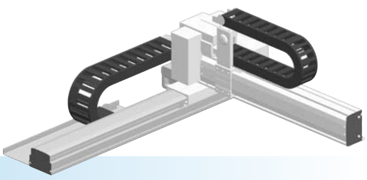


Detail of section B



FXYBx 2 axes / IO

○ Arm type ○ Cable carrier ● Type with Y-axis I/O cable carrier added



Ordering method

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
FXYBx	C				IO		RCX222			
		A1 A2 A3 A4	15 to 245cm	15 to 55cm		3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	B10	–
AC servo motor output (W)	100	100
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.04
Drive system	Timing belt	Timing belt
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25
Maximum speed (mm/sec)	1875	1875
Moving range (mm)	150 to 2450	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

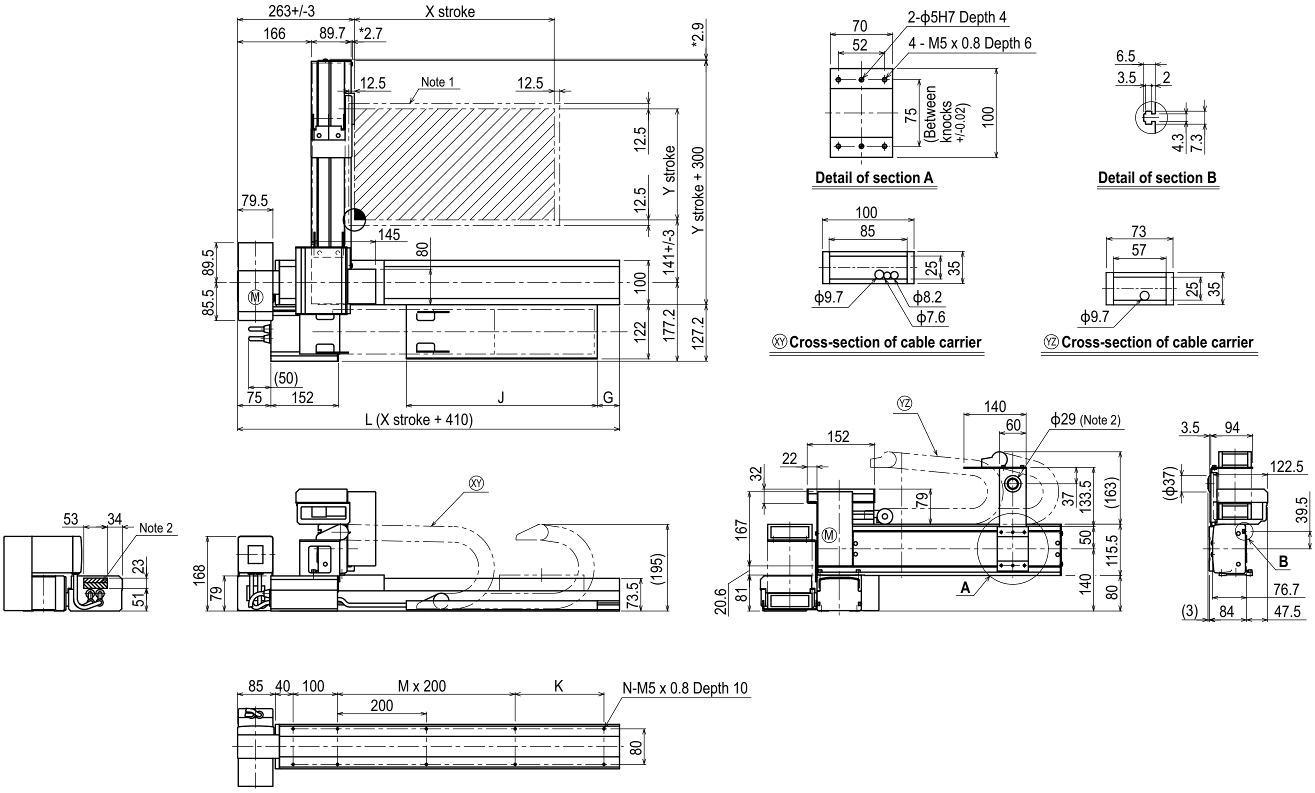
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	7
250	6
350	5
450	5
550	3

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

FXYBx 2 axes / IO A1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.
Note 3. The dimension marked with an asterisk (*) indicates the height of the screw.

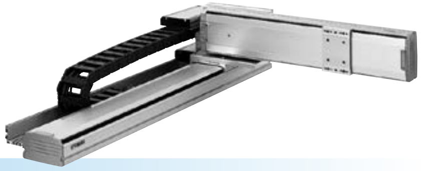
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450
L	560	660	760	860	960	1060	1160	1260	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860
K	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430

Y stroke	150	250	350	450	550

MEMO

SXYx 2 axes

Arm type **Cable carrier**



Ordering method

Model	–	Cable	–	Combination	–	X-axis stroke	–	Y-axis stroke	–	Cable	–	Controller	–	Usable for CE	–	Input/Output selection 1	–	Input/Output selection 2
SXYx	–	C	–		–		–		–		–	RCX222	–		–		–	
				A1 A2 A3 A4		15 to 105cm		15 to 65cm		3L: 3.5m 5L: 5m 10L: 10m		RCX222		No entry: Standard E: CE marking		N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2		No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F14H	F14
AC servo motor output (W)	200	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	150 to 1050	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

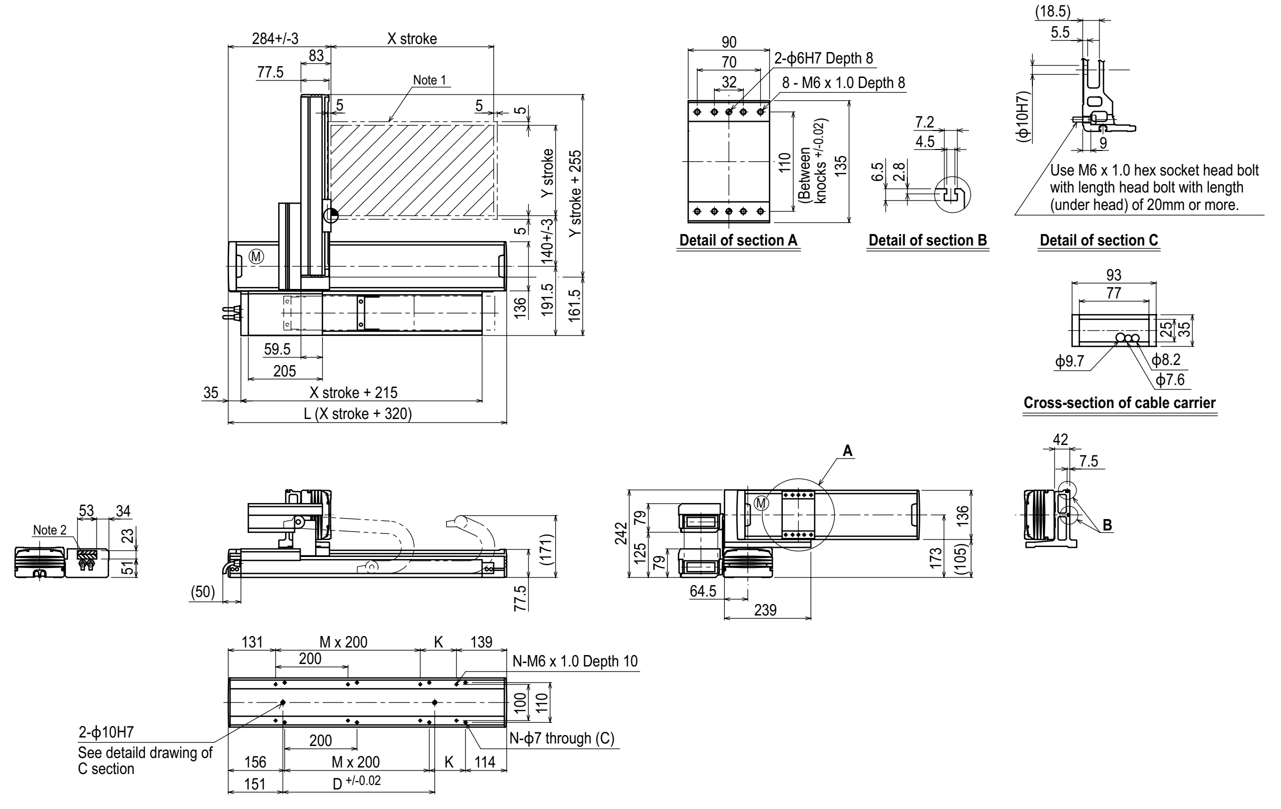
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	20
250	17
350	15
450	13
550	11
650	9

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes A1



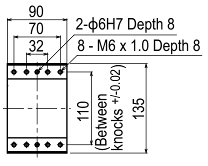
X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke		150	250	350	450	550	650				
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

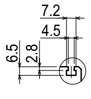
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

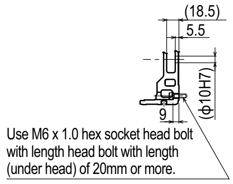
SXYx 2 axes A2



Detail of section A

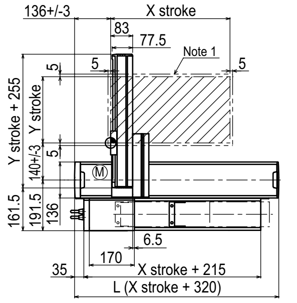


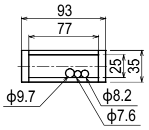
Detail of section B



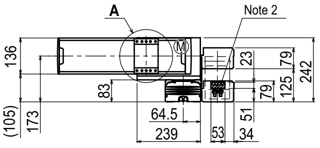
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

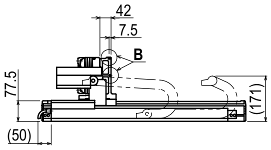
Detail of section C

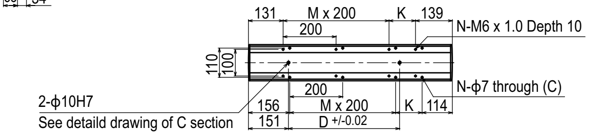




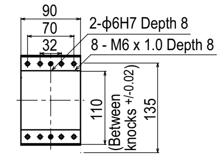
Cross-section of cable carrier



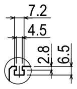




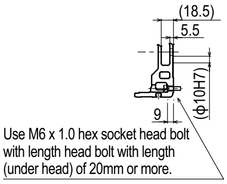
SXYx 2 axes A3



Detail of section A

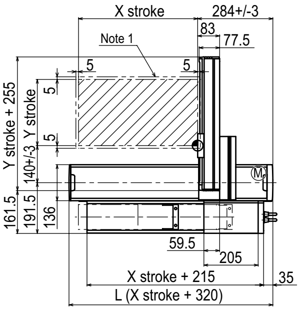


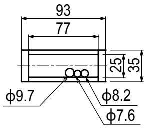
Detail of section B



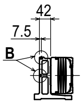
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

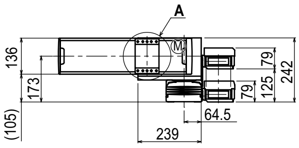
Detail of section C

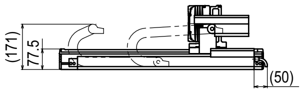


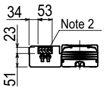


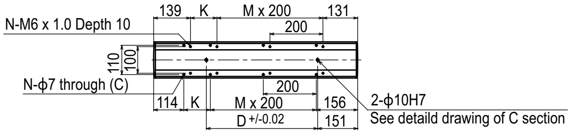
Cross-section of cable carrier



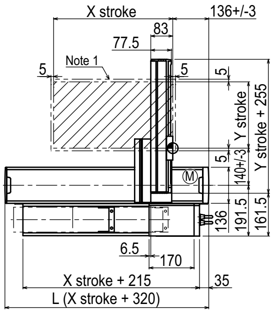


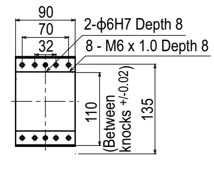




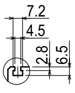


SXYx 2 axes A4

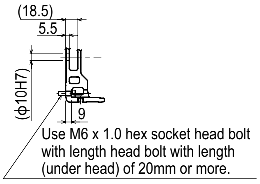




Detail of section A

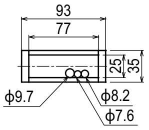


Detail of section B

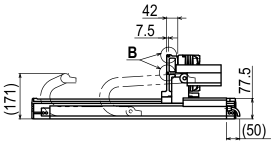


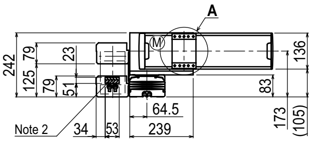
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

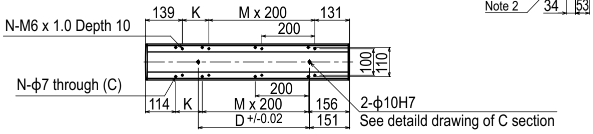
Detail of section C



Cross-section of cable carrier







SXYx 2 axes

Arm type **Whipover**

Ordering method

SXYx - S - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYx	S	A1 A2 A3 A4	15 to 85cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F14H	F14
AC servo motor output (W)	200	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	150 to 850	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

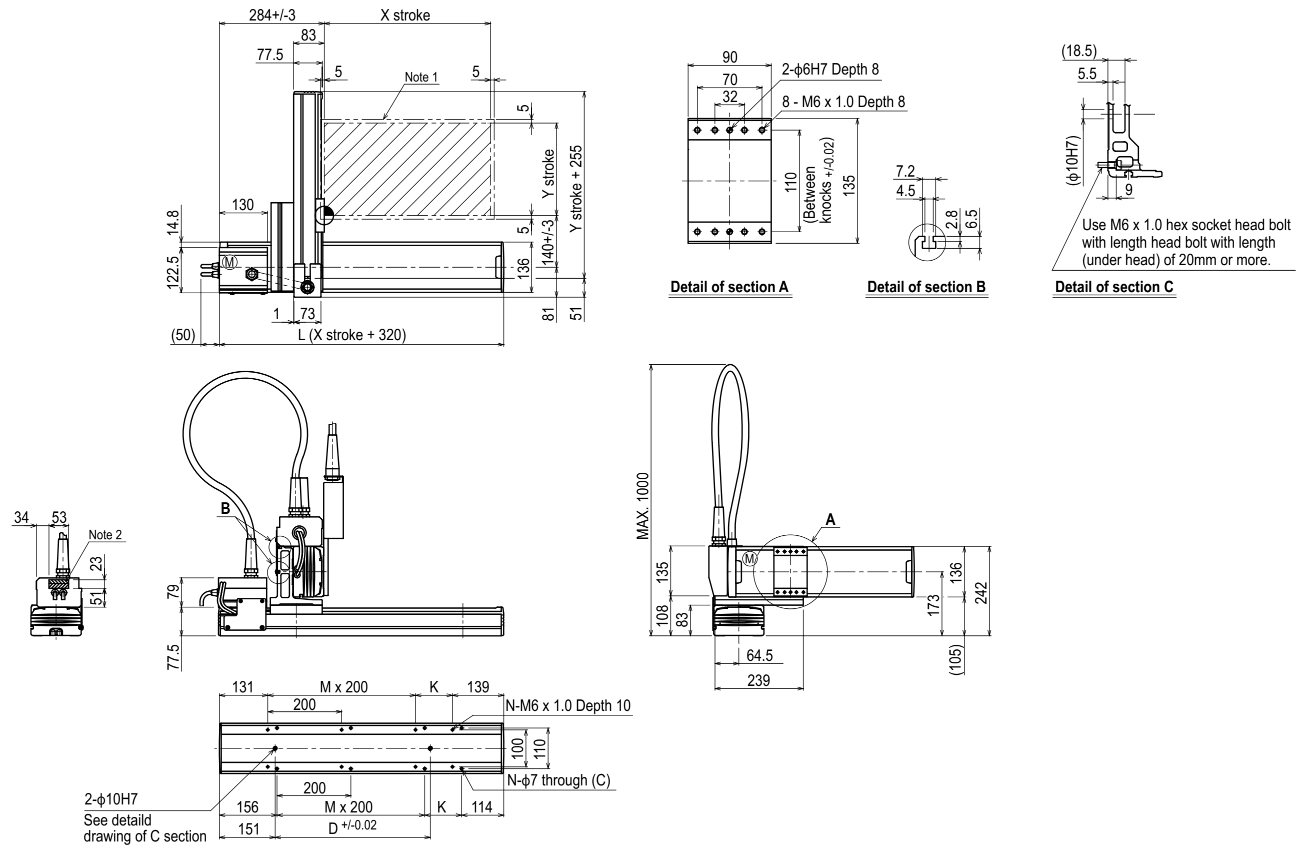
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	20
250	17
350	15
450	13
550	11
650	9

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes A1



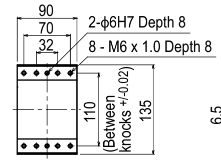
X stroke	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

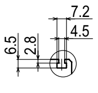
Y stroke		150	250	350	450	550	650
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200					960 / 780
	Speed setting	–					80% / 65%

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

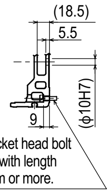
SXYx 2 axes A2



Detail of section A

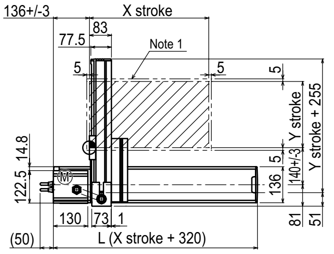


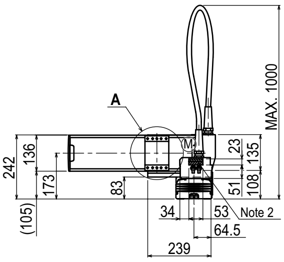
Detail of section B

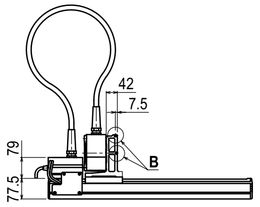


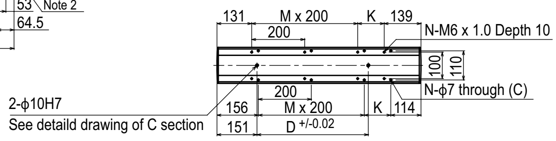
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

Detail of section C

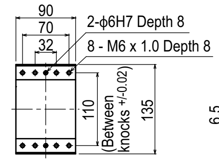




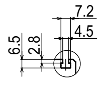




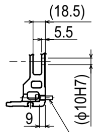
SXYx 2 axes A3



Detail of section A

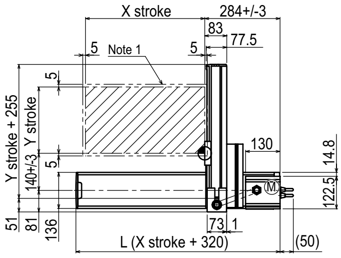


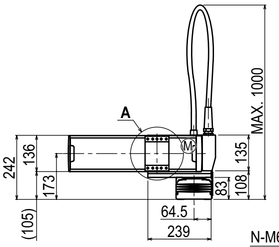
Detail of section B

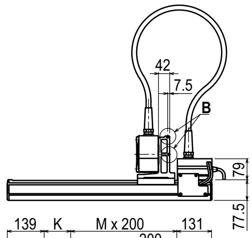


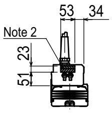
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

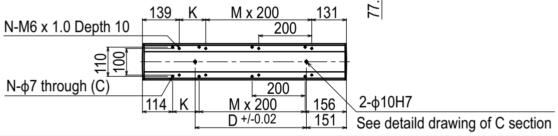
Detail of section C



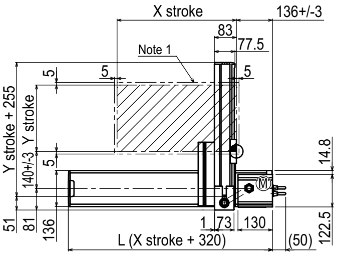


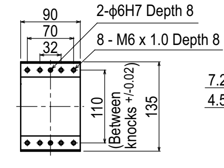




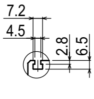


SXYx 2 axes A4

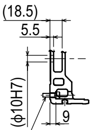




Detail of section A

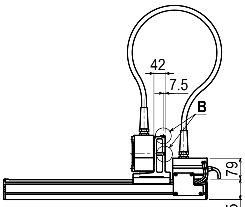


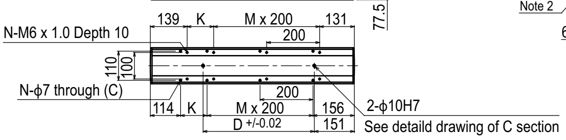
Detail of section B

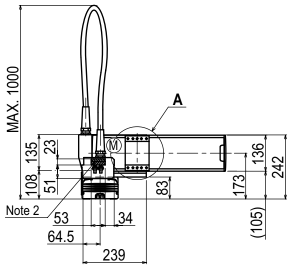


Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

Detail of section C

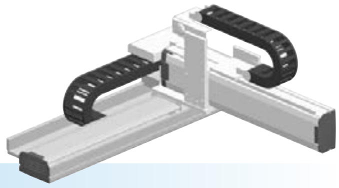






SXYx 2 axes / IO

Arm type **Cable carrier**



Ordering method

SXYx	- C	-	-	-	- IO	-	- RCX222	-	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Cable**	**Controller**	**Usable for CE**	**Input/Output selection 1**	**Input/Output selection 2**
		A1 A2 A3 A4	15 to 105cm	15 to 65cm		3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F14H	F14
AC servo motor output (W)	200	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	150 to 1050	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

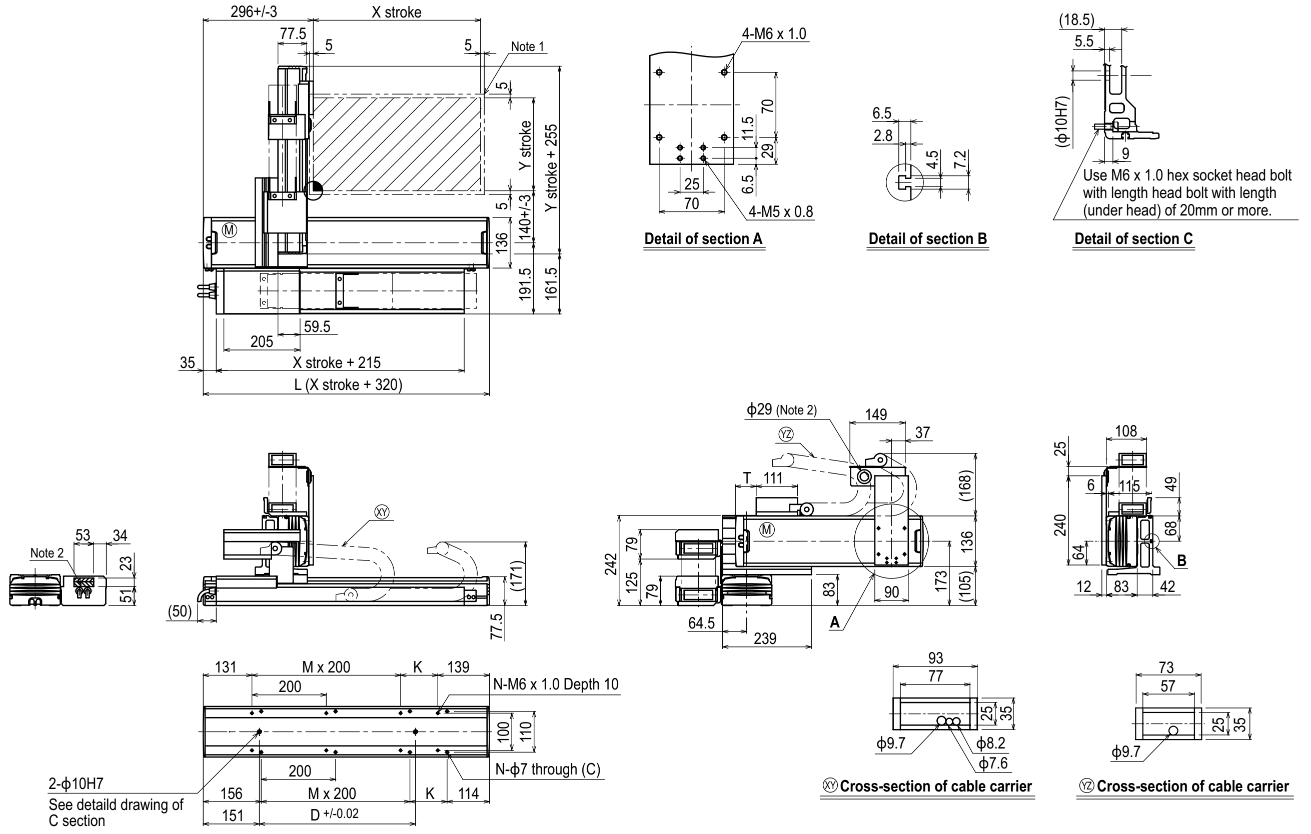
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	19
250	16
350	14
450	12
550	10
650	8

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes / IO A1



X stroke		150	250	350	450	550	650	750	850	950	1050
L		470	570	670	770	870	970	1070	1170	1270	1370
K		200	100	200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960	960	1140
M		0	1	1	2	2	3	3	4	4	5
N		4	6	6	8	8	10	10	12	12	14
Y stroke		150	250	350	450	550	650				
T		55	110	165	220	275	330				
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

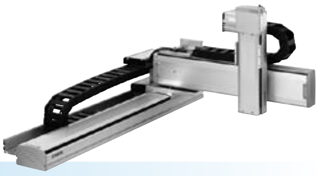
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

SXYx 3 axes / ZF

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (100W)



Ordering method

SXYx - C - ☐ - ☐ - ☐ - ZF - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 65cm	ZF	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3							

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK
AC servo motor output (W)	200	100	100
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10
Maximum speed Note 4 (mm/sec)	1200	1200	600
Moving range (mm)	150 to 1050	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

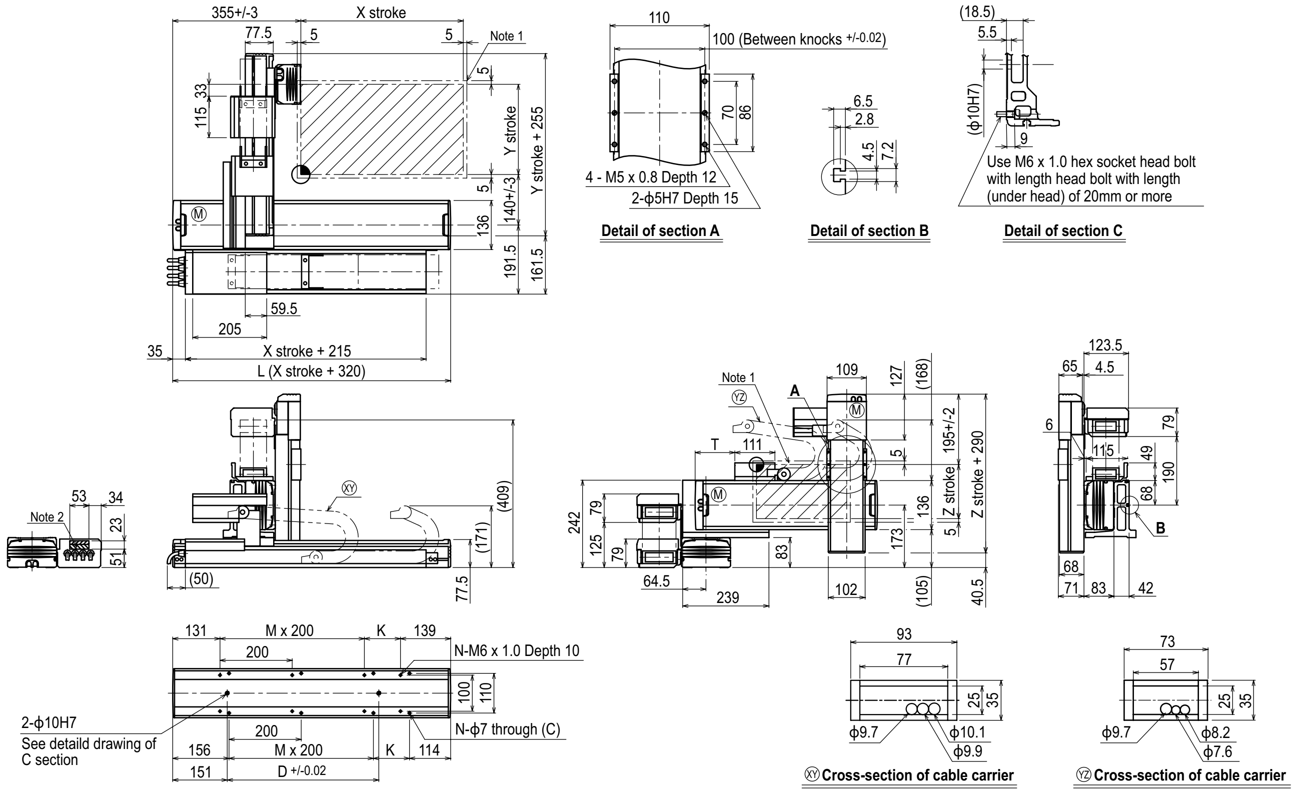
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	10	10	10
250	10	10	9
350	9	8	7
450	7	6	5
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZF A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550	650
T	55	110	165	220	275	330

Z stroke	150	250	350

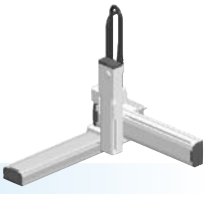
Maximum speed for each stroke (mm/sec) Note 3						
X-axis	1200	960	780	600	540
Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZF

● Arm type ● Whipover ● Z-axis: clamped base / moving table type (100W)



Ordering method

SXYx	S				ZF			RCX340-3							
Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
		A1 A2 A3 A4	15 to 85cm	15 to 65cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction [Note 1]	F14H	F14	F10-BK
AC servo motor output (W)	200	100	100
Repeatability [Note 2] (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] (Deceleration ratio) (mm)	20	20	10
Maximum speed [Note 4] (mm/sec)	1200	1200	600
Moving range (mm)	150 to 850	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

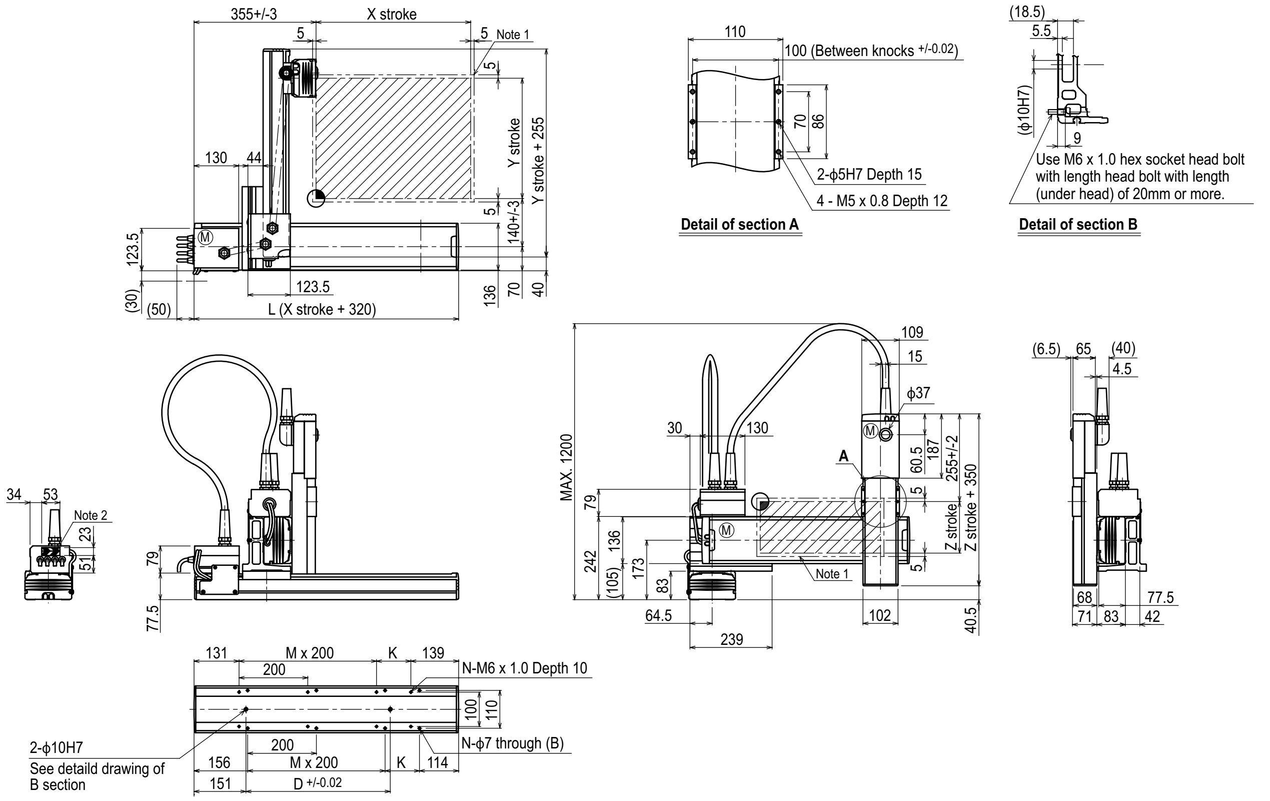
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	10	10	10
250	10	10	9
350	9	8	7
450	7	6	5
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZF A1



X stroke	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

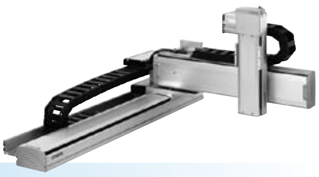
Maximum speed for each stroke (mm/sec) [Note 3]	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZFL20

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

SXYx - C - □ - □ - □ - ZFL20 - □ - □ - RCX340-3 - □ - □ - □ - □ - □ - □ - □

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 65cm	ZFL20	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	□	□	□	□	□	□	□
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	□	R	□	□	□	□	□
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	20
Maximum speed Note 4 (mm/sec)	1200	1200	1200
Moving range (mm)	150 to 1050	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

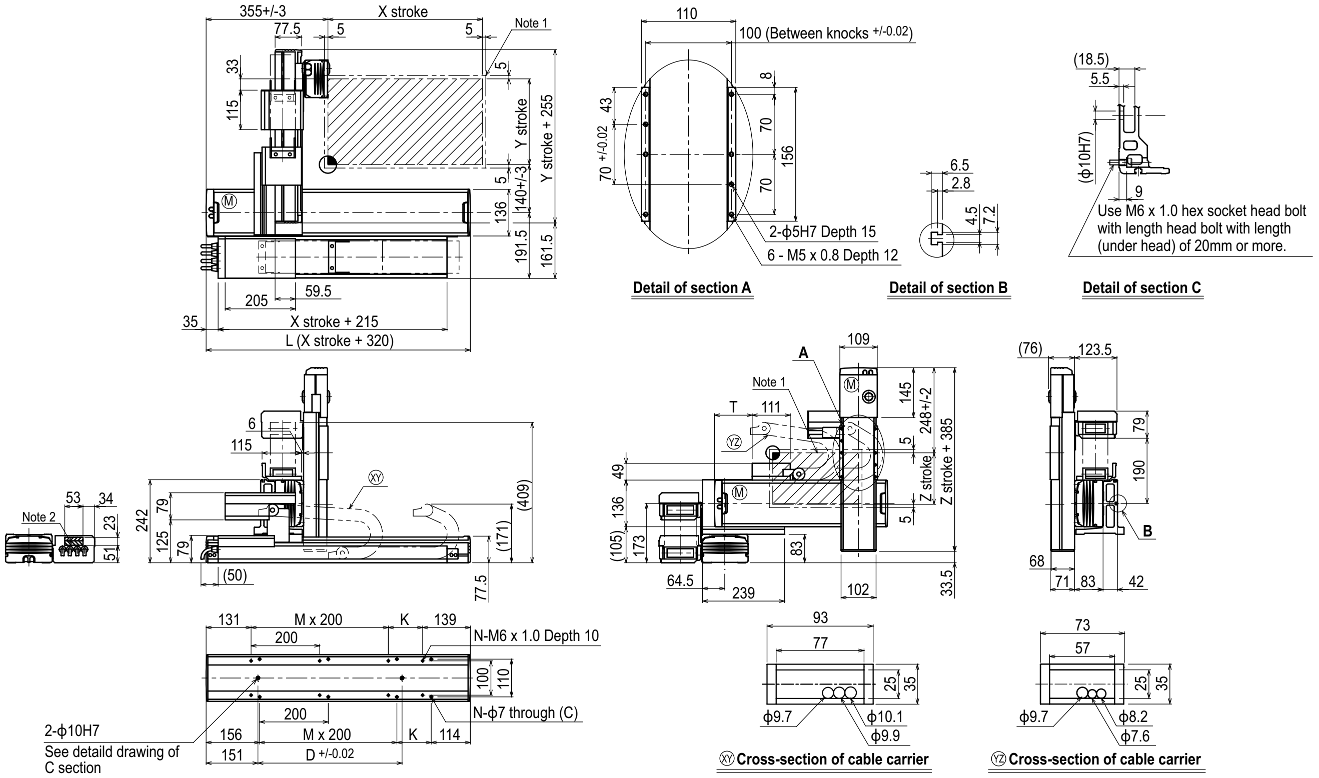
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	8	8	8
250	8	8	8
350	8	7	6
450	6	5	4
550	4	3	2
650	2	1	1

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZFL20 A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550	650
T	55	110	165	220	275	330

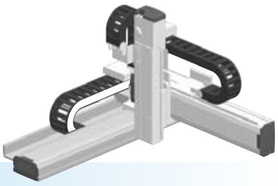
Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3		X stroke 150–650	750	850	950	1050
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx **3 axes / ZFH**



● Arm type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)

Ordering method

SXYx - C - ☐ - ☐ - ☐ - ZFH - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 65cm	ZFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller – CE Marking – Regeneratizve unit – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	150 to 1050	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

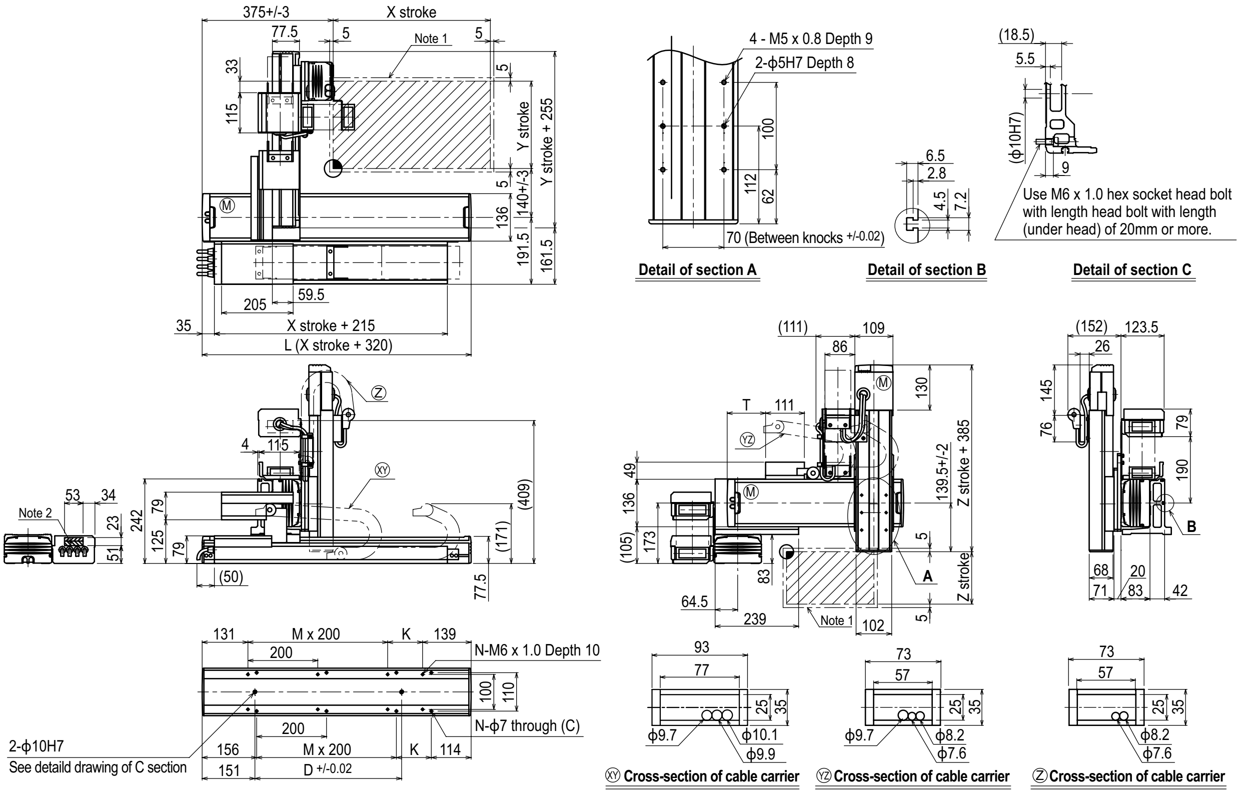
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	13	12	11
250	10	9	8
350	8	7	6
450	6	5	4
550	4	3	2
650	2	1	1

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZFH A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550	650
T	55	110	165	220	275	330

Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3						
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZS

Arm type | Cable carrier | Z-axis shaft vertical type

Ordering method

SXYx - C - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 65cm	ZS12 ZS6	15	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller - CE Marking - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis ZS12	Z-axis ZS6
Axis construction Note 1	F14H	F14	–	
AC servo motor output (W)	200	100	60	
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.02	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)	
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	12	6
Maximum speed Note 4 **(mm/sec)**	1200	1200	1000	500
Moving range (mm)	150 to 1050	150 to 650	150	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

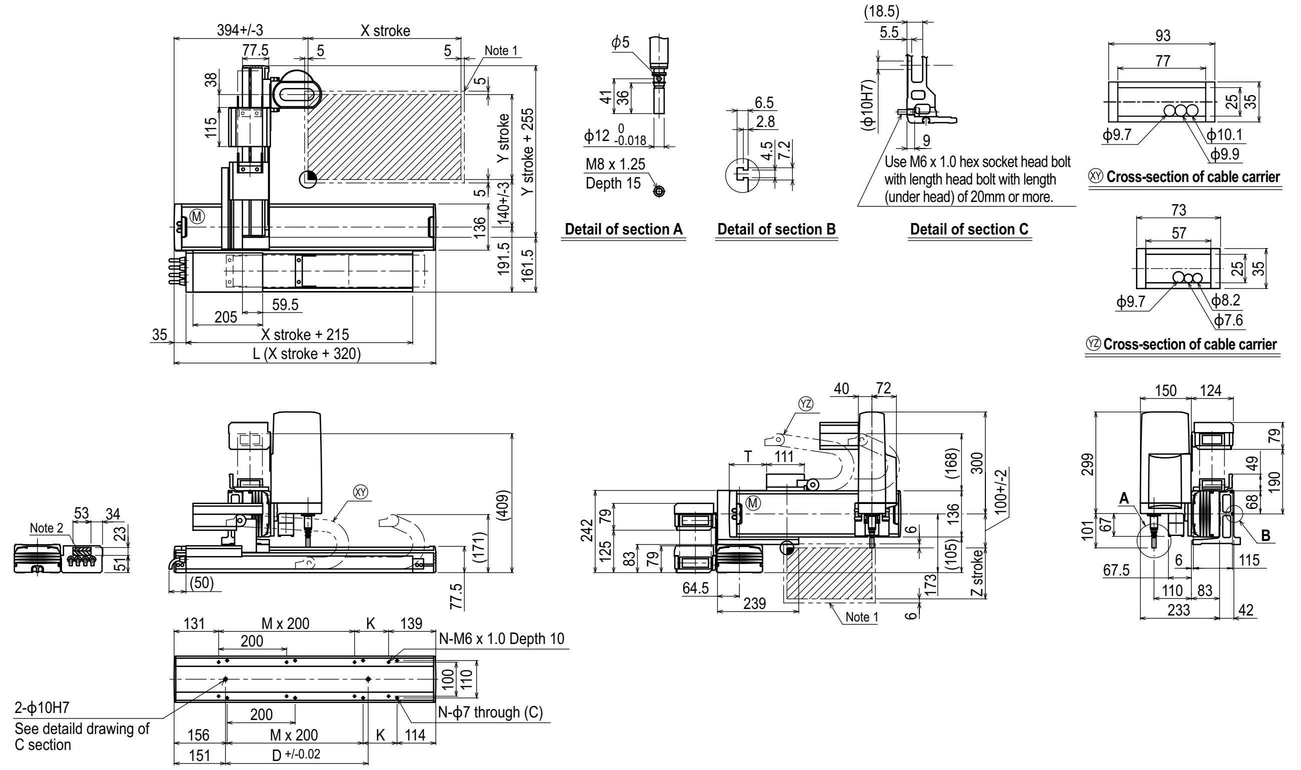
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150 to 650	3	5

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZS A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550	650
T	55	110	165	215	270	325

Z stroke	150

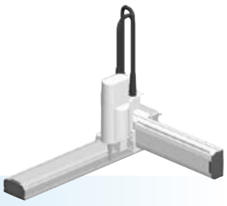
Maximum speed for each stroke (mm/sec) Note 3						
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZS

○ Arm type ○ Whipover ● Z-axis shaft vertical type



Ordering method

SXYx	- S	- ☐	- ☐	- ☐	- ☐	- 15	- ☐
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**
		A1 A2 A3 A4	15 to 85cm	15 to 65cm	ZS12 ZS6		3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZS12	Z-axis: ZS6
Axis construction Note 1	F14H	F14	–	
AC servo motor output (W)	200	100	60	
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.02	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)	
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	12	6
Maximum speed Note 4 **(mm/sec)**	1200	1200	1000	500
Moving range (mm)	150 to 850	150 to 650	150	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

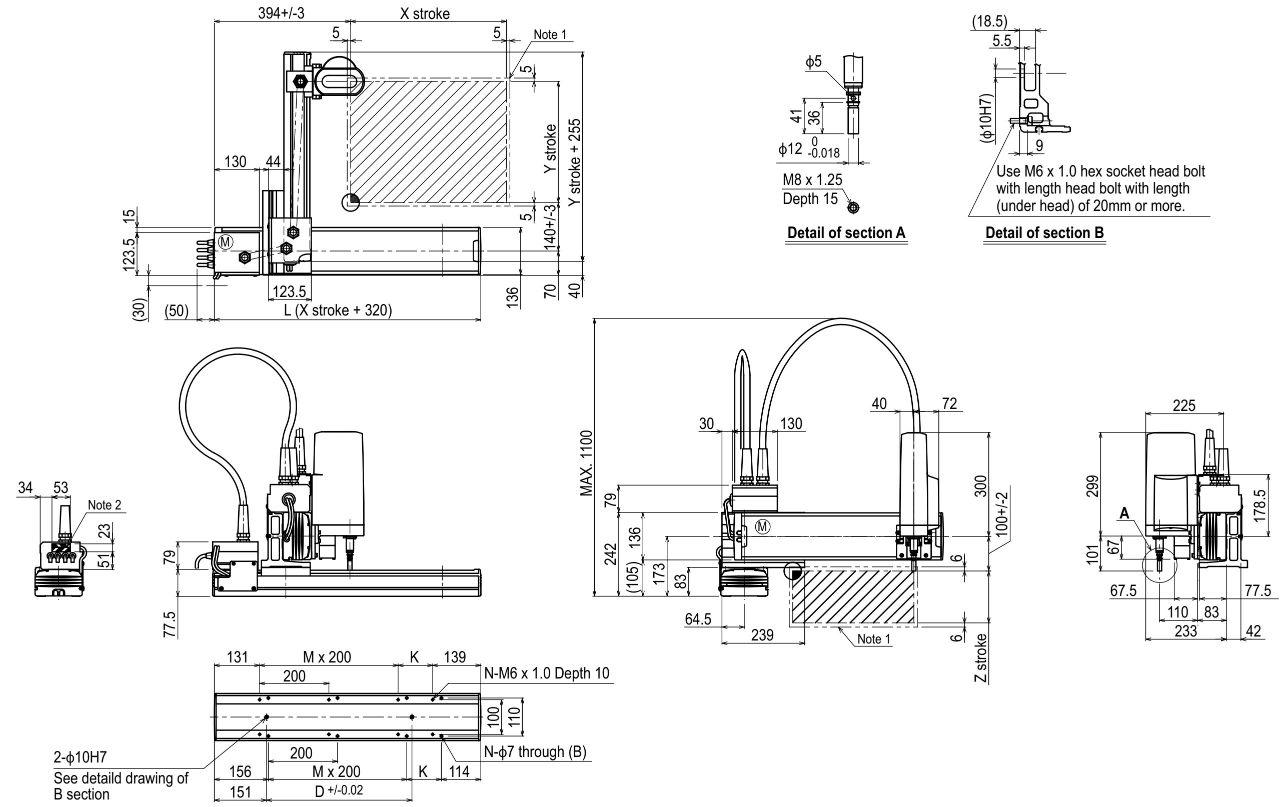
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150 to 650	3	5

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZS A1



X stroke	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke	150	250	350	450	550	650

Z stroke	150

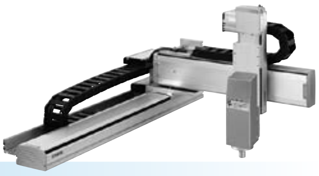
Maximum speed for each stroke (mm/sec) Note 3				
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 4 axes / ZRF

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (100W)+R-axis



Ordering method

SXYx - C - ☐ - ☐ - ☐ - ZRF - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination (A1, A2, A3, A4) - X-axis stroke (15 to 105cm) - Y-axis stroke (15 to 65cm) - ZR-axis - Z-axis stroke (15 to 35cm) - Cable (3L: 3.5m, 5L: 5m, 10L: 10m)

RCX340-4: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F14H	F14	F10-BK	R5
AC servo motor output (W)	200	100	100	50
Repeatability Note 2 (XYZ: mm) (R: °)	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	600	360
Moving range (XYZ: mm) (R: °)	150 to 1050	150 to 650	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

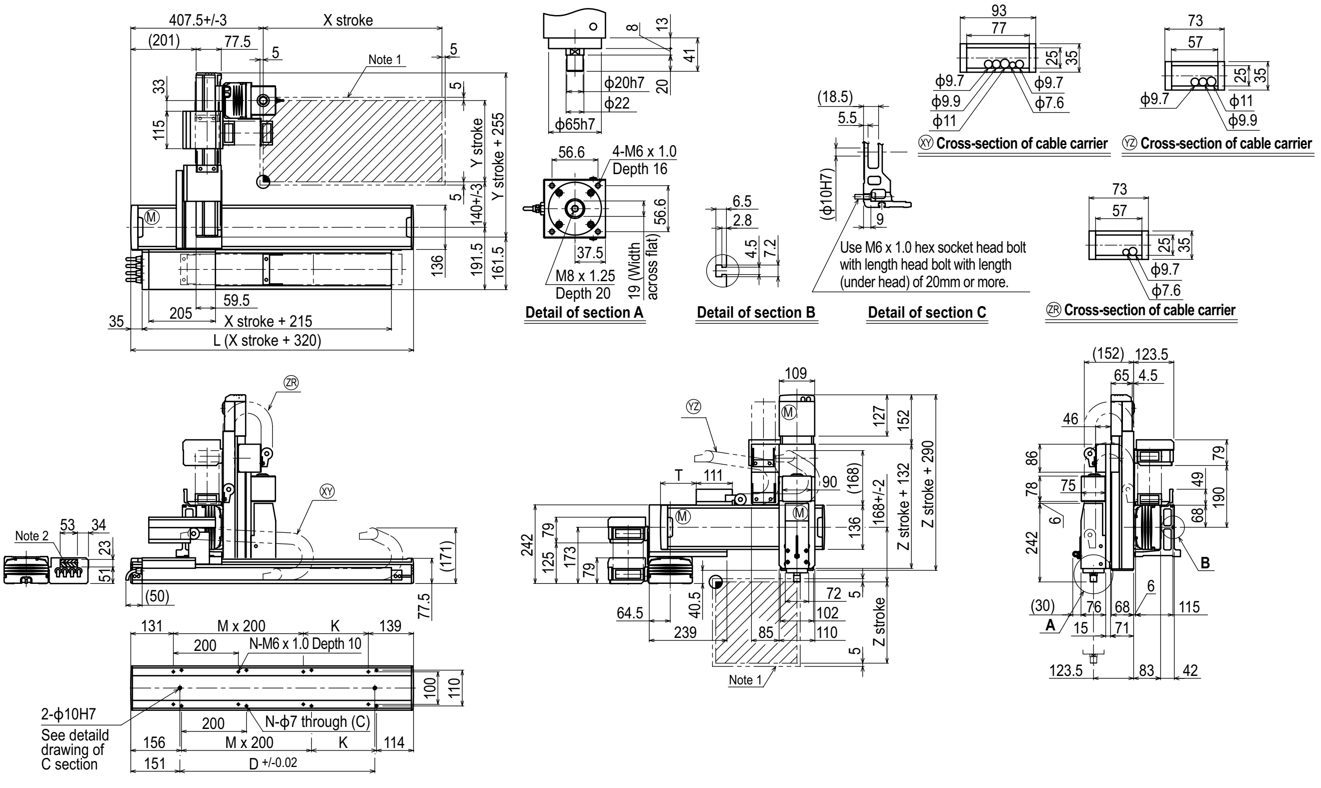
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	6	6	6
250	6	5	4
350	4	3	2
450	3	2	1
550	2	1	–
650	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRF A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550	650
T	55	110	165	220	275	330

Z stroke	150	250	350

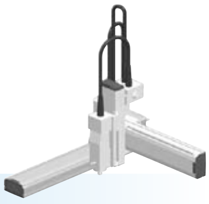
Maximum speed for each stroke (mm/sec) Note 3						
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 4 axes / ZRF

Arm type　Whipover　Z-axis: clamped base / moving table type (100W)+R-axis



Ordering method

SXYx	- S	- ☐	- ☐	- ☐	- ZRF	- ☐	- ☐
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**
		A1 A2 A3 A4	15 to 85cm	15 to 65cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F14H	F14	F10-BK	R5
AC servo motor output (W)	200	100	100	50
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	600	360
Moving range (XYZ: mm) (R: °)	150 to 850	150 to 650	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

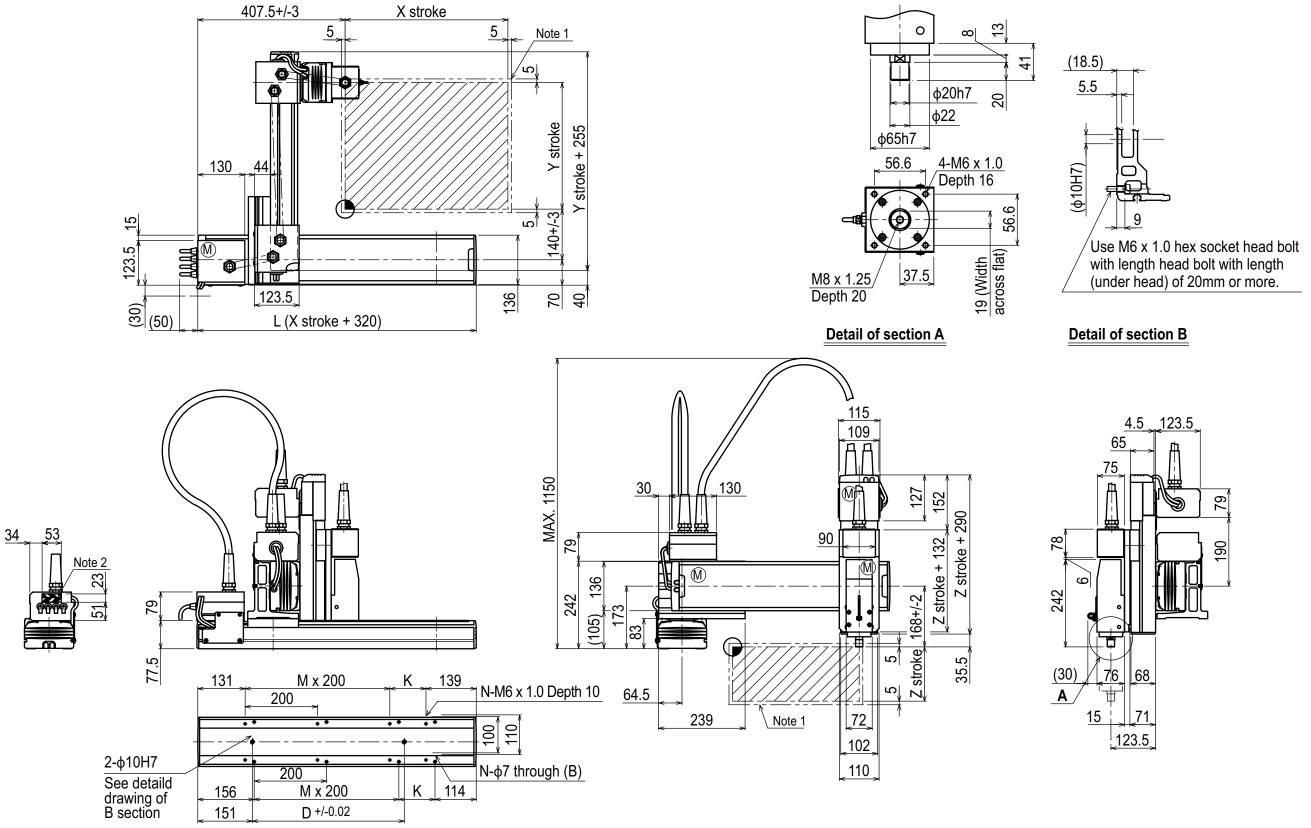
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	6	6	6
250	6	5	4
350	4	3	2
450	3	2	1
550	2	1	–
650	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRF A1



X stroke	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

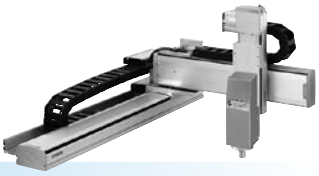
Maximum speed for each stroke (mm/sec) Note 3			
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 4 axes / ZRFL20

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (200W)+R-axis



Ordering method

SXYx - **C** - ☐ - ☐ - ☐ - **ZRFL20** - ☐ - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination - X-axis stroke - Y-axis stroke - ZR-axis - Z-axis stroke - Cable - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Combination: A1 / A2 / A3 / A4

X-axis stroke: 15 to 105cm

Y-axis stroke: 15 to 55cm

Z-axis stroke: 15 to 35cm

Cable: 3L: 3.5m / 5L: 5m / 10L: 10m

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - **R** - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model	R5
AC servo motor output (W)	200	100	200	50
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	20	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	1200	360
Moving range (XYZ: mm) (R: °)	150 to 1050	150 to 550	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

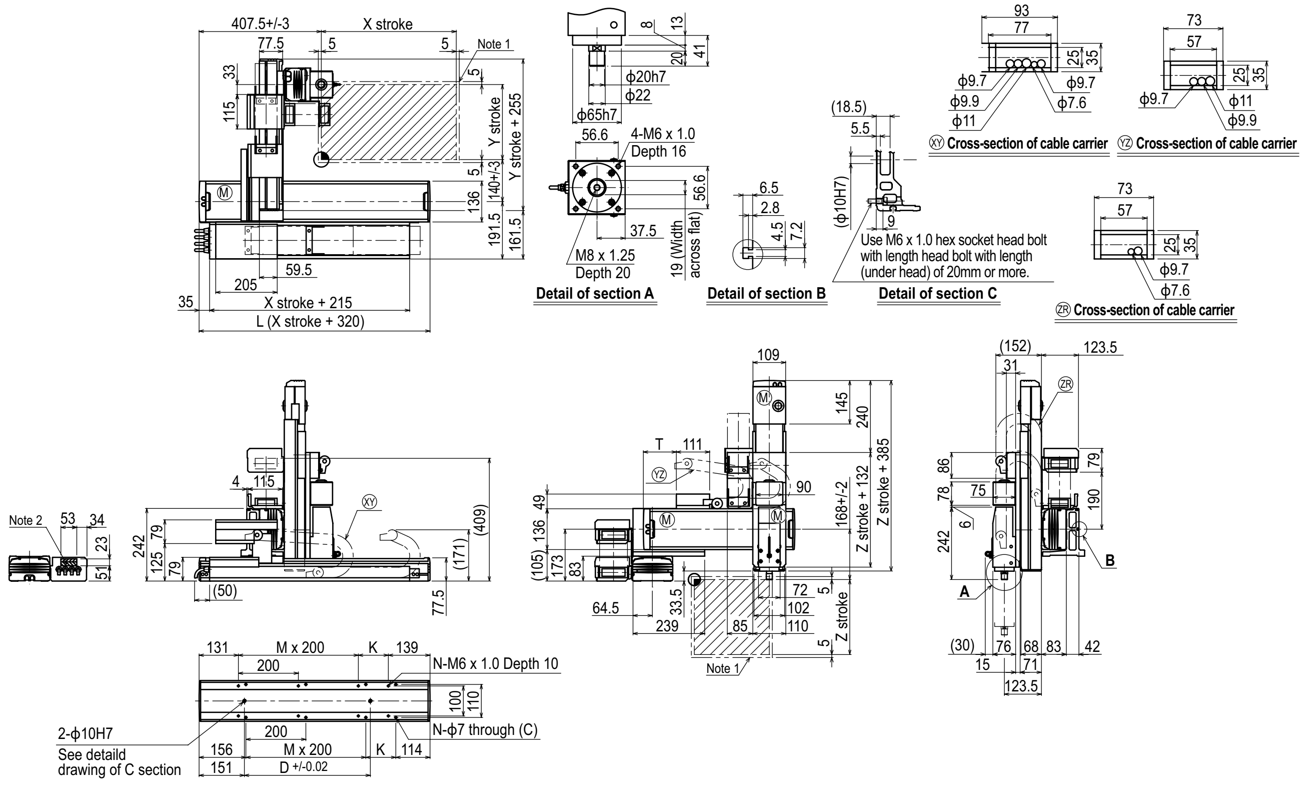
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	4	4	4
250	4	4	3
350	4	3	1
450	2	1	–
550	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRFL20 A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550
T	55	110	165	220	275

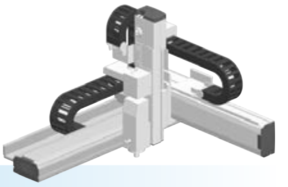
Z stroke		150	250	350				
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200			960	780	600	540
	Speed setting	–			80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 4 axes / ZRFH

Arm type · Cable carrier · Z-axis: clamped table / moving base type (200W)+R-axis



Ordering method

SXYx	- C -		-		-		- ZRFH -		-		- RCX340-4 -		-		-		-		-		-		-	
Model	Cable	Combi-nation	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
		A1 A2 A3 A4	15 to 105cm	15 to 55cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	-	- R -	-	-	-	-	-
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model	R5
AC servo motor output (W)	200	100	200	50
Repeatability Note 2 (XYZ: mm) (R: °)	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	600	360
Moving range (XYZ: mm)(R: °)	150 to 1050	150 to 550	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

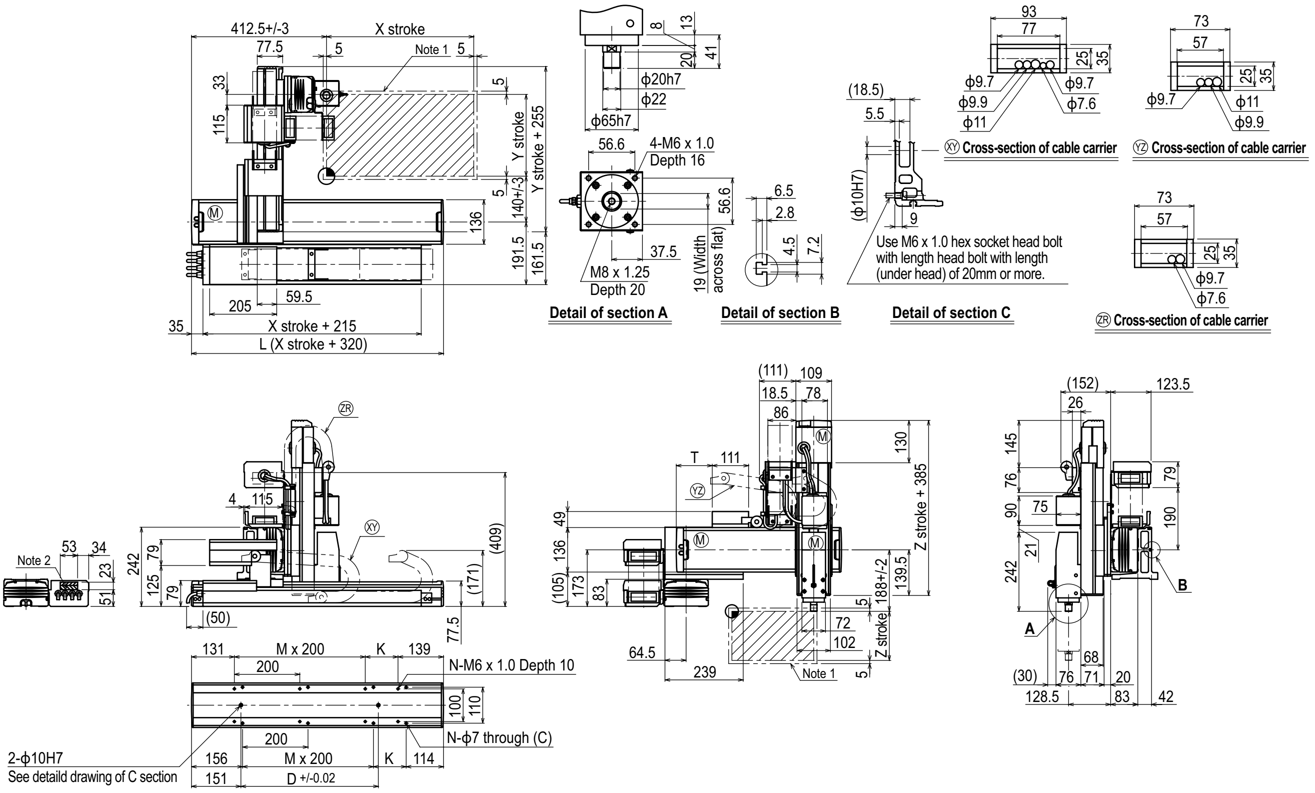
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	9	8	7
250	6	5	4
350	4	3	1
450	2	1	–
550	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRFH A1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Y stroke	150	250	350	450	550
T	55	110	165	220	275

Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3		150	250	350	450	550	650	750	850	950	1050
	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 4 axes / ZRS

● Arm type ● Cable carrier ● ZR axis integrated type

Ordering method

SXYx - C - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	C	A1 A2 A3 A4	15 to 105cm	15 to 65cm	ZRS12 ZRS6	15	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller - CE Marking - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis: ZRS12	Z-axis: ZRS6	R-axis
Axis construction Note 1	F14H	F14	–		–
AC servo motor output (W)	200	100	60		100
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.02		+/-0.005
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)		Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	12	6	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	1000	500	1020
Moving range (XYZ: mm) (R: °)	150 to 1050	150 to 650	150		360
Robot cable length (m)	Standard: 3.5 Option: 5,10				

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

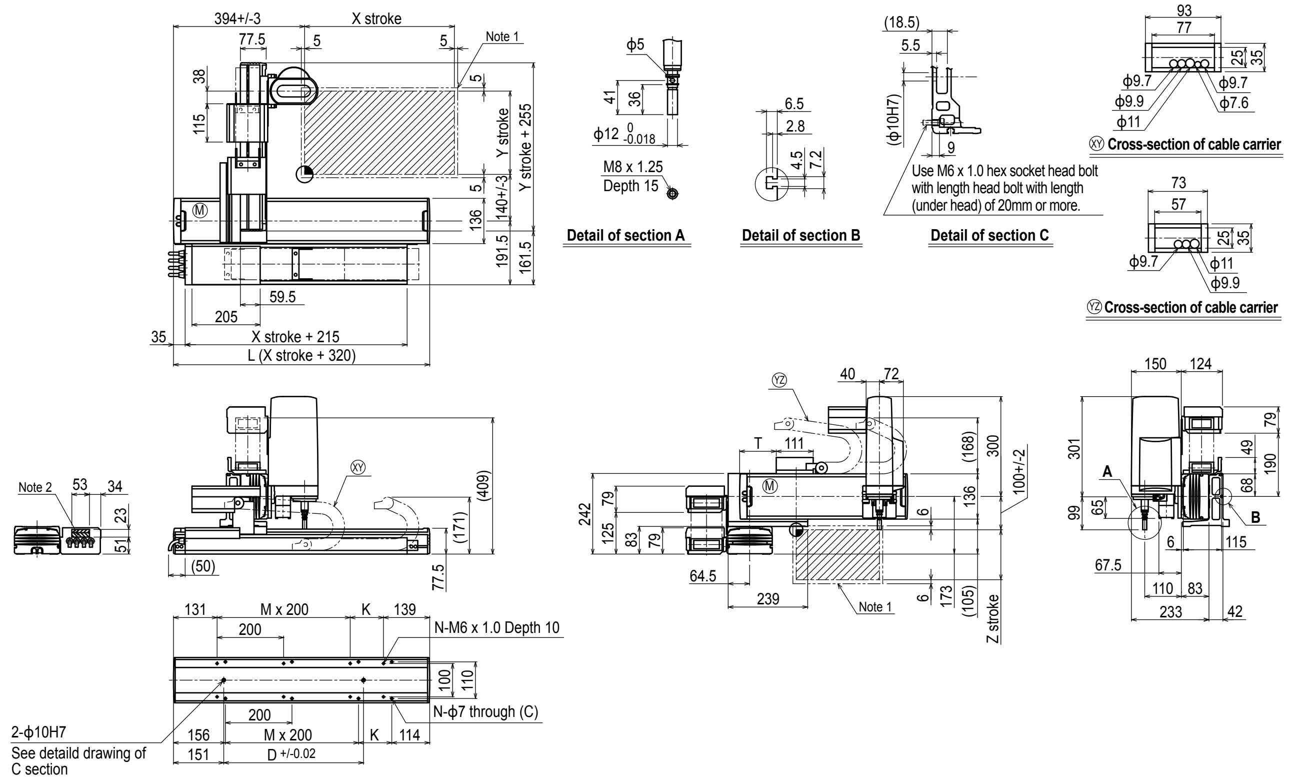
Maximum payload (kg)

Y stroke (mm)	ZRS12	ZRS6
150	3	5
250	3	5
350	3	5
450	3	5
550	3	5
650	3	4

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRS A1



X stroke		150	250	350	450	550	650	750	850	950	1050
L		470	570	670	770	870	970	1070	1170	1270	1370
K		200	100	200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960	960	1140
M		0	1	1	2	2	3	3	4	4	5
N		4	6	6	8	8	10	10	12	12	14
Y stroke		**150**	**250**	**350**	**450**	**550**	**650**				
T		55	110	165	220	275	330				
Z stroke		**150**									
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

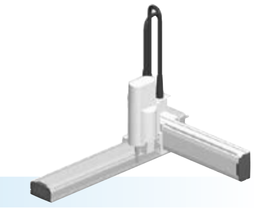
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx

4 axes / ZRS

● Arm type ● Whipover ● ZR axis integrated type



Ordering method

SXYx - S - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYx	S	A1 A2 A3 A4	15 to 85cm	15 to 65cm	ZRS12 ZRS6	15	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis: ZRS12	Z-axis: ZRS6	R-axis
Axis construction Note 1	F14H	F14	–		–
AC servo motor output (W)	200	100	60		100
Repeatability Note 2 (XYZ: mm) (R: °)	+/-0.01	+/-0.01	+/-0.02		+/-0.005
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)		Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	12	6	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	1000	500	1020
Moving range (XYZ: mm) (R: °)	150 to 850	150 to 650	150		360
Robot cable length (m)	Standard: 3.5 Option: 5,10				

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

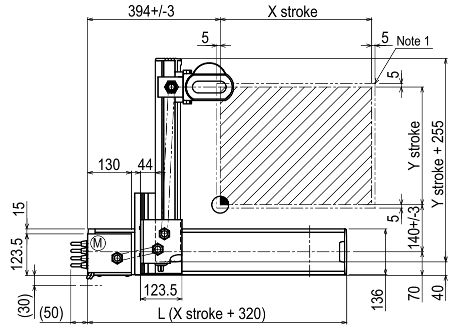
Maximum payload (kg)

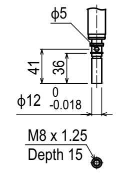
Y stroke (mm)	ZRS12	ZRS6
150	3	5
250	3	5
350	3	5
450	3	5
550	3	5
650	3	4

Controller

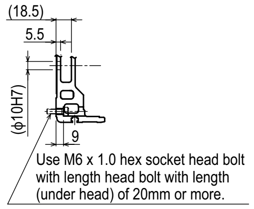
Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 4 axes / ZRS A1



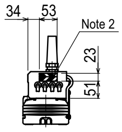


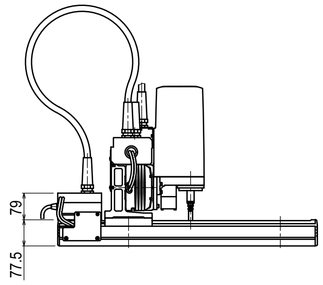
Detail of section A

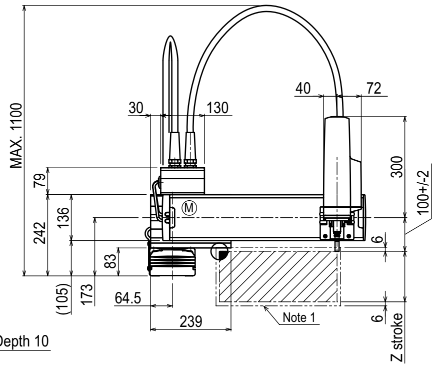


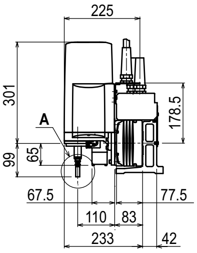
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

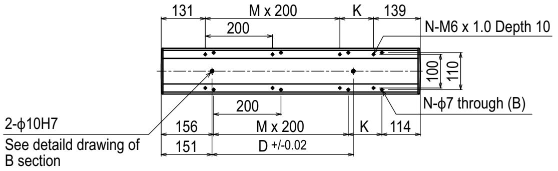
Detail of section B











X stroke	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke	150	250	350	450	550	650

Z stroke	150

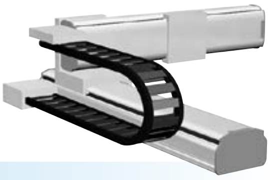
Maximum speed for each stroke (mm/sec) Note 3				
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYBx 2 axes

● Arm type ● Cable carrier



Ordering method

SXYBx - C - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit [Note 1]	Input/Output selection 1	Input/Output selection 2
SXYBx	C	A1 A2 A3 A4	15 to 305cm	15 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	No entry: None R: RG2	N: NPN [Note 1] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note 3]	No entry: None N1: OP.DIO24/16 (NPN) [Note 2] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 4]

Note 1. Regenerative unit RG2 is required when the maximum speed on the RCX222 exceeds 1250mm/sec.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above, EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	B14H	B14
AC servo motor output (W)	200	100
Repeatability [Note 2] **(mm)**	+/-0.04	+/-0.04
Drive system	Timing belt	Timing belt
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25
Maximum speed (mm/sec)	1875	1875
Moving range (mm)	150 to 3050	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

Maximum payload (kg)

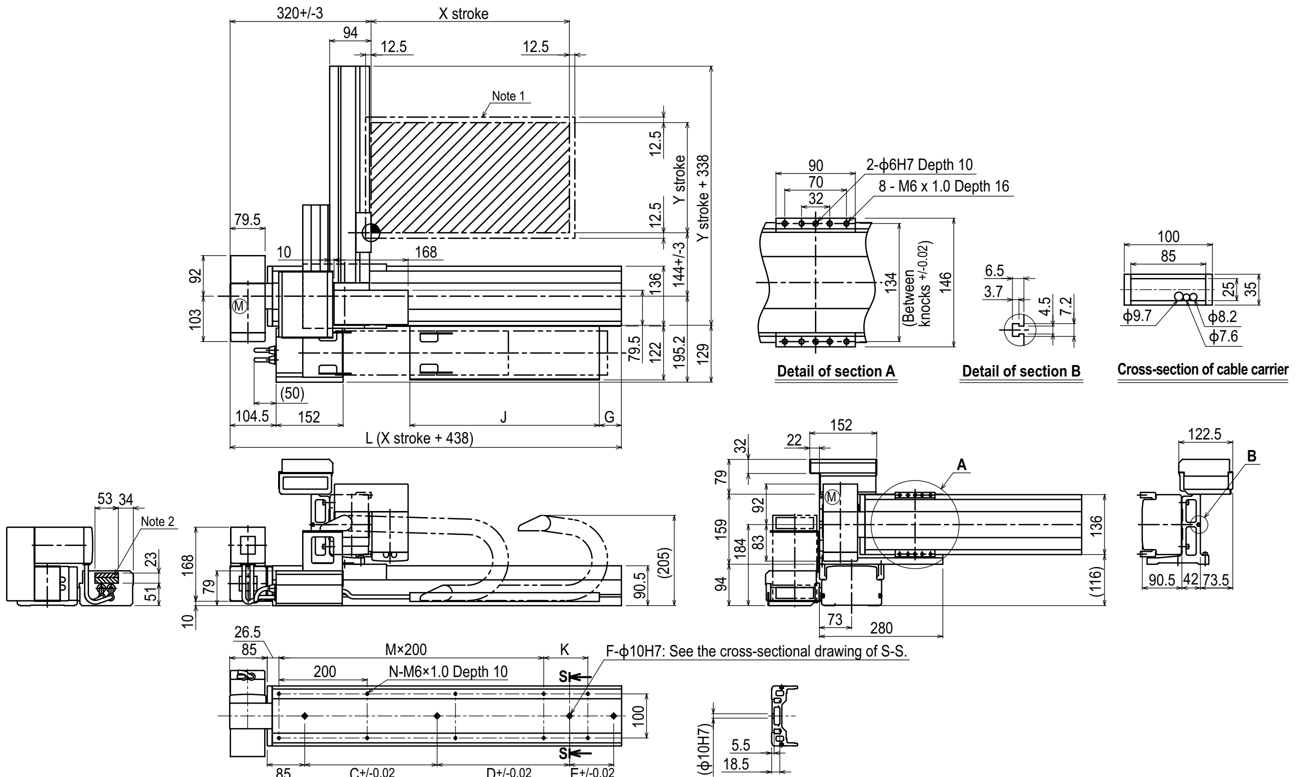
Y stroke (mm)	XY 2 axes
150	14
250	12
350	10
450	8
550	7

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. Regenerative unit RG2 is required when the maximum speed exceeds 1250mm/sec.

SXYBx 2 axes A1



Detail of section A

Detail of section B

Cross-section of cable carrier

Cross-sectional drawing S-S

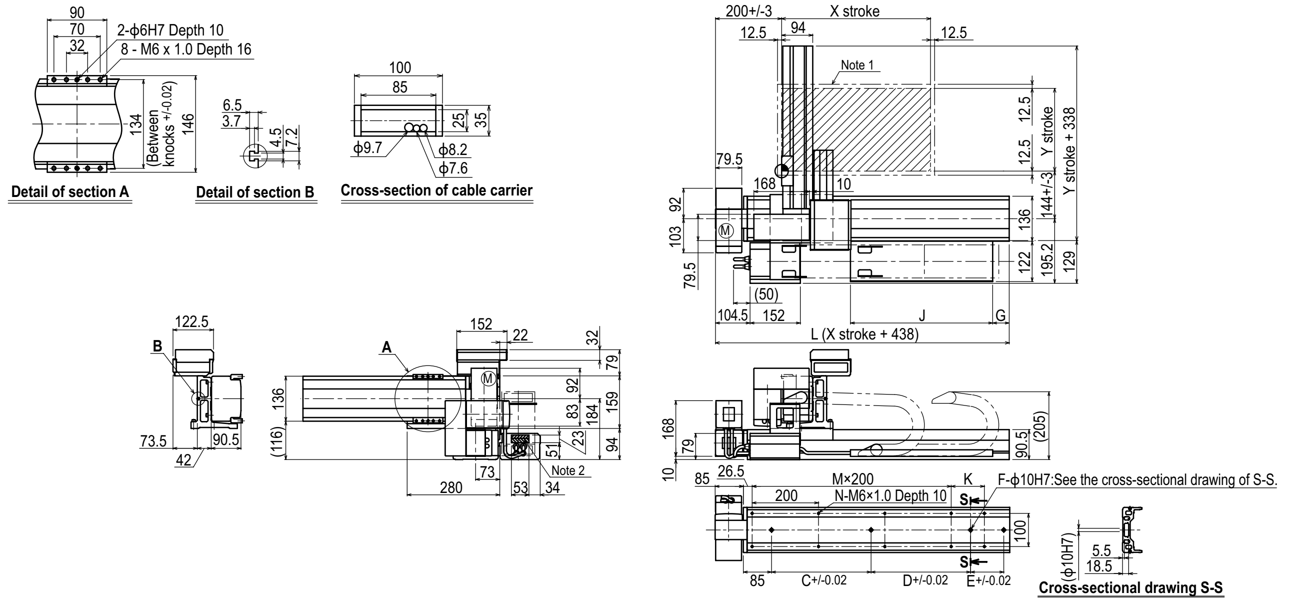
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

Y stroke	150	250	350	450	550

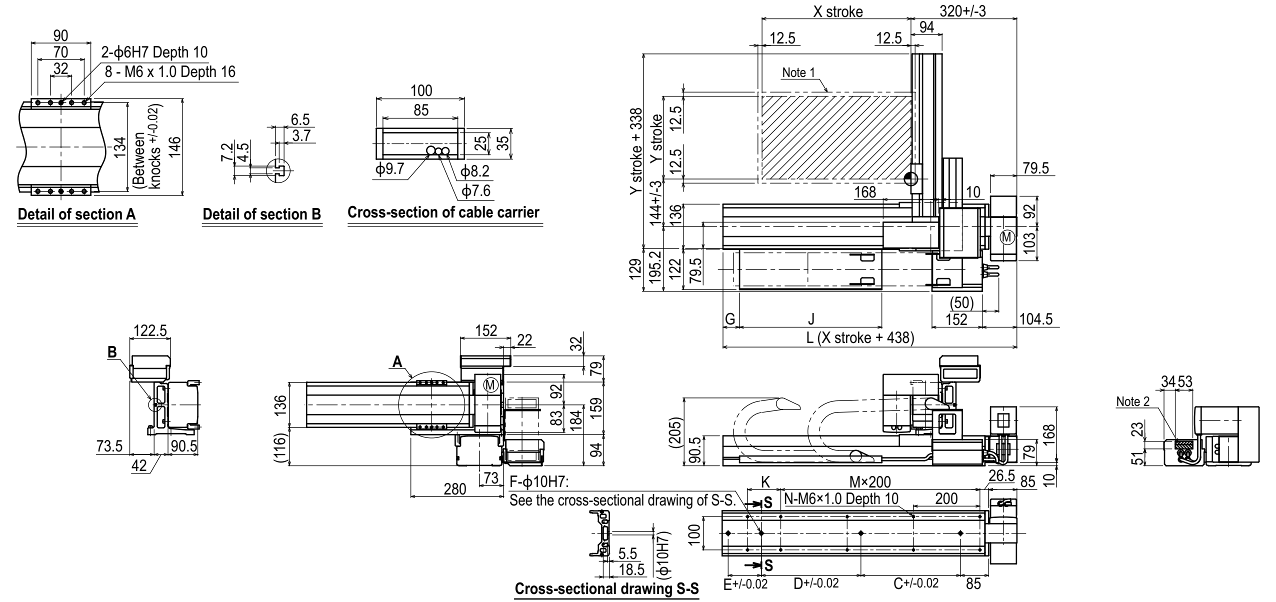
Controller RCX222 ▶ 526

SXYBx 2 axes A2



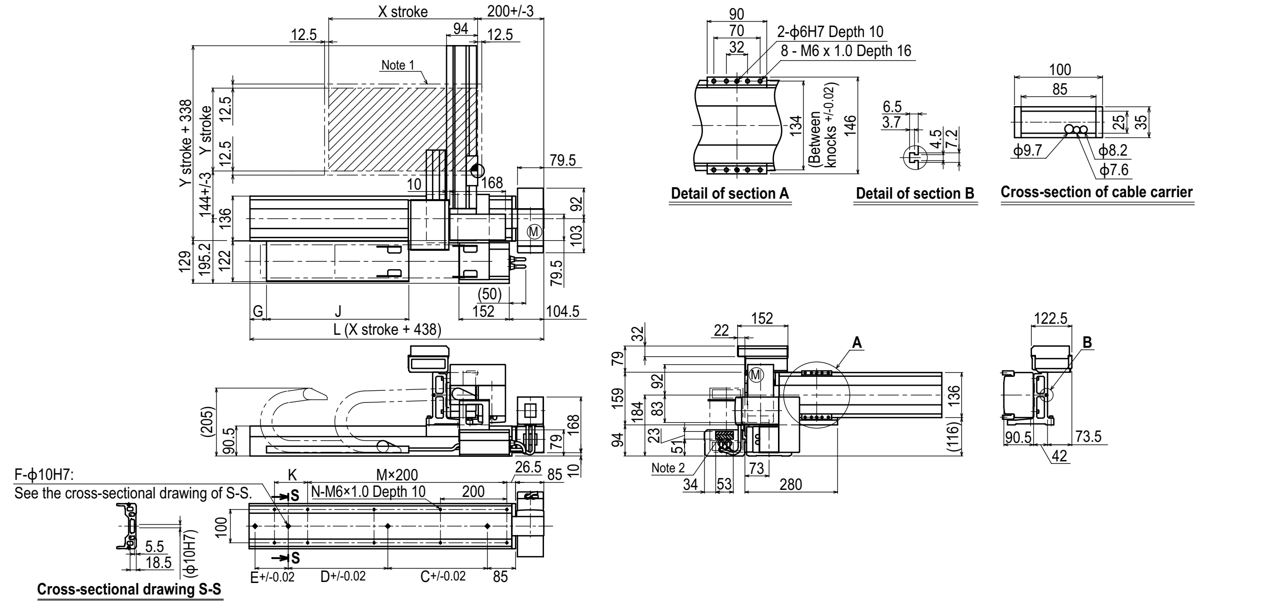
Detail of section A
Detail of section B
Cross-section of cable carrier
Cross-sectional drawing S-S

SXYBx 2 axes A3



Detail of section A
Detail of section B
Cross-section of cable carrier
Cross-sectional drawing S-S

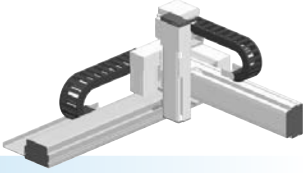
SXYBx 2 axes A4



Detail of section A
Detail of section B
Cross-section of cable carrier
Cross-sectional drawing S-S

SXYBx 3 axes / ZF

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (100W)



Ordering method

SXYBx - C - ☐ - ☐ - ☐ - ZF - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combi-nation	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
SXYBx	C	A1 A2 A3 A4	15 to 305cm	15 to 55cm	ZF	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-3							

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S		R					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	B14H	B14	F10-BK
AC servo motor output (W)	200	100	100
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.04	+/-0.01
Drive system	Timing belt	Timing belt	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25	10
Maximum speed (mm/sec)	1875	1875	600
Moving range (mm)	150 to 3050	150 to 550	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

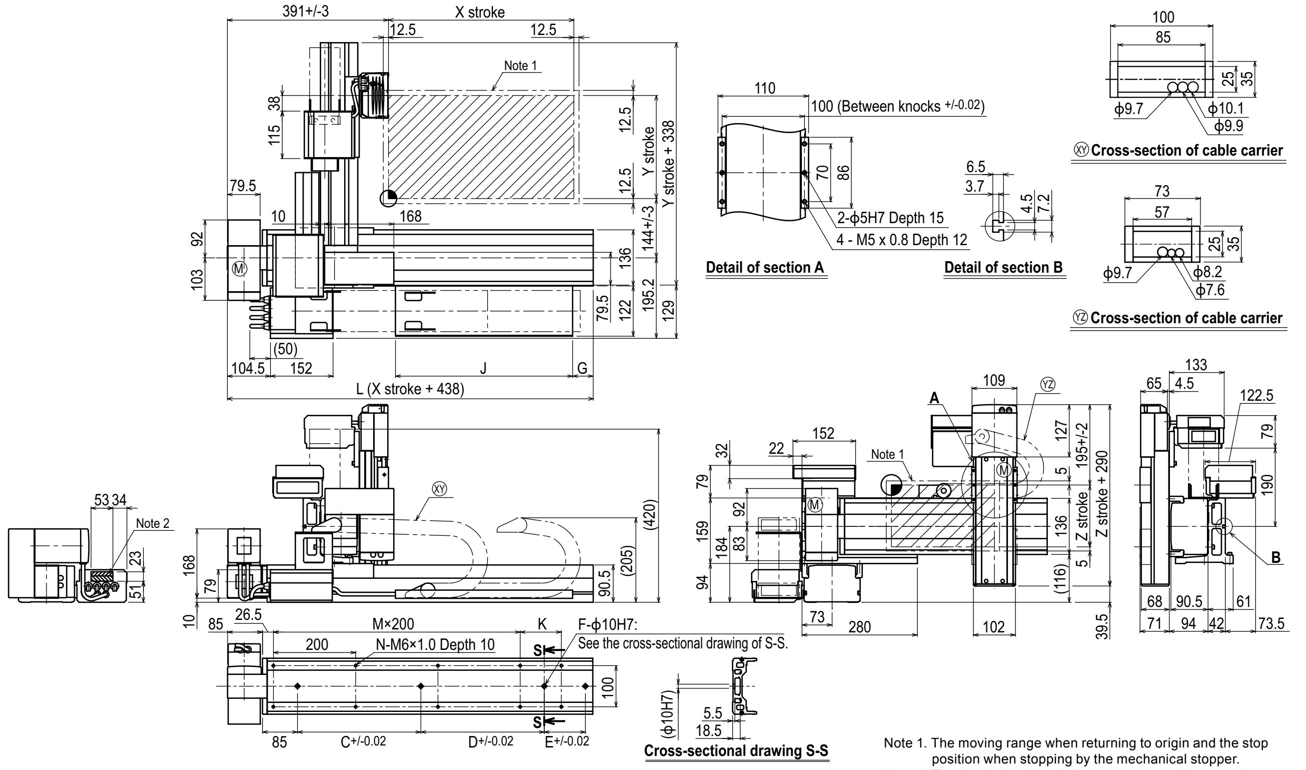
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	8	7	6
250	6	5	4
350	4	3	2
450	2	1	–
550	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 3 axes / ZF A1



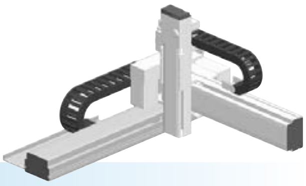
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

Y stroke	150	250	350	450	550

Z stroke	150	250	350

SXYBx 3 axes / ZFL20



Arm type Cable carrier Z-axis: clamped base / moving table type (200W)

Ordering method

SXYBx - C - ☐ - ☐ - ☐ - ZFL20 - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination - X-axis stroke - Y-axis stroke - ZR-axis - Z-axis stroke - Cable - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Combination: A1 / A2 / A3 / A4
X-axis stroke: 15 to 305cm
Y-axis stroke: 15 to 45cm
Z-axis stroke: 15 to 35cm
Cable: 3L: 3.5m / 5L: 5m / 10L: 10m

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	B14H	B14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.04	+/-0.01
Drive system	Timing belt	Timing belt	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25	20
Maximum speed (mm/sec)	1875	1875	1200
Moving range (mm)	150 to 3050	150 to 450	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

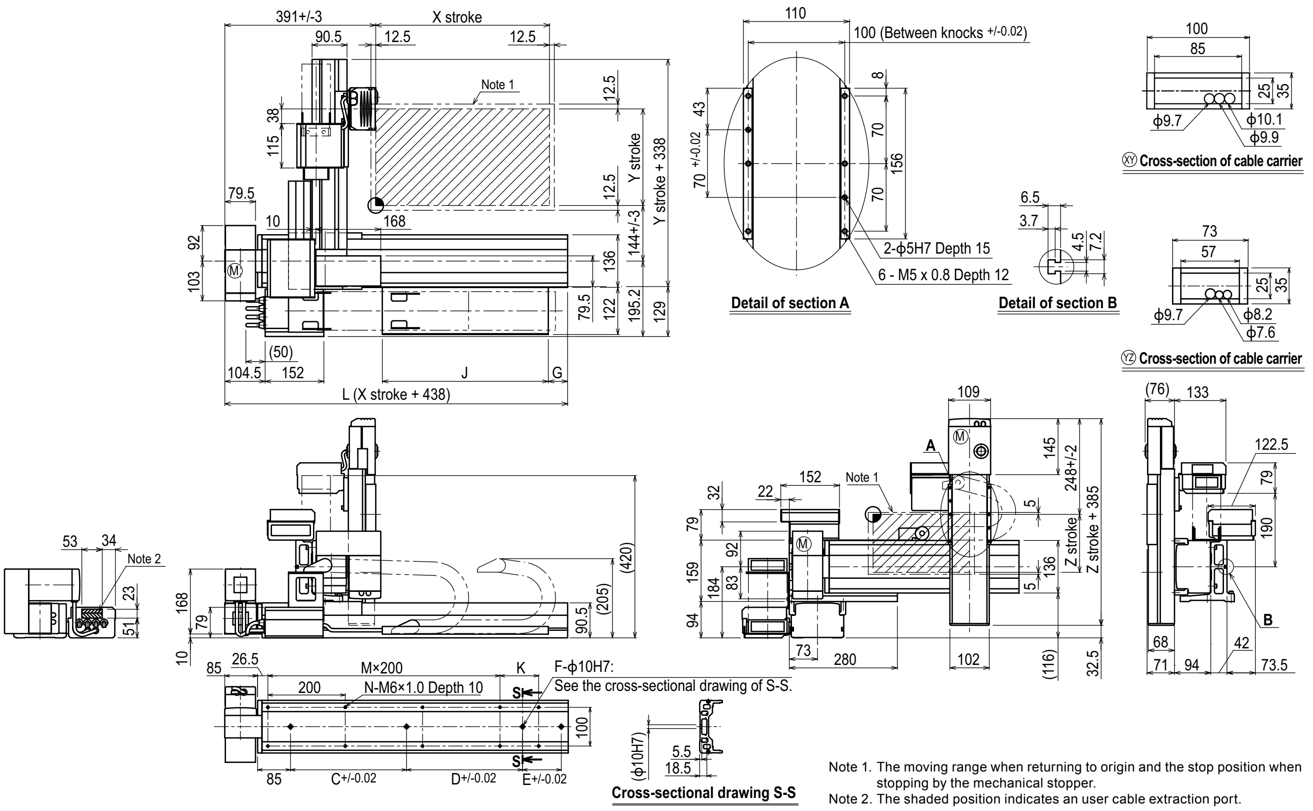
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	7	6	5
250	5	4	3
350	3	2	1
450	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 3 axes / ZFL20 A1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

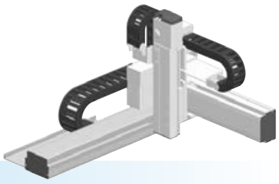
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

Y stroke	150	250	350	450

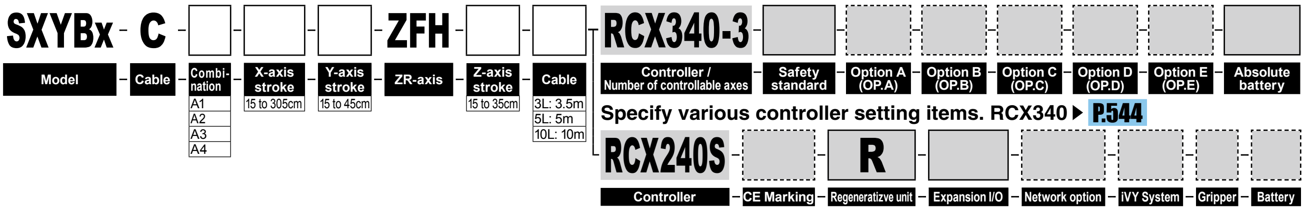
Z stroke	150	250	350

SXYBx 3 axes / ZFH

● Arm type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)



Ordering method



Specify various controller setting items. RCX340 ▶ P.544

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	B14H	B14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 (mm)	+/-0.04	+/-0.04	+/-0.01
Drive system	Timing belt	Timing belt	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	Equivalent to lead 25	Equivalent to lead 25	10
Maximum speed (mm/sec)	1875	1875	600
Moving range (mm)	150 to 3050	150 to 450	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

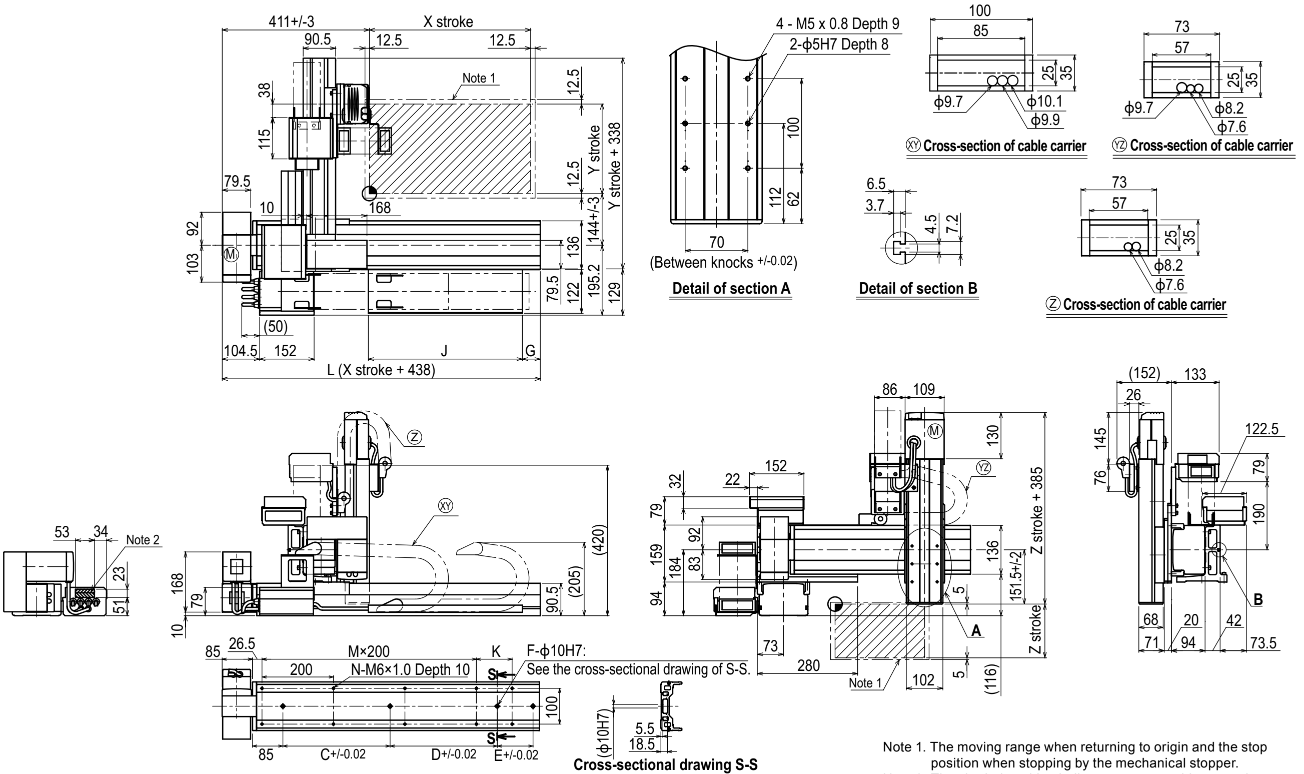
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	7	6	5
250	5	4	3
350	3	2	1
450	1	–	–

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 3 axes / ZFH A1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

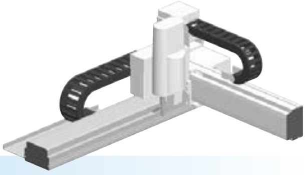
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

Y stroke	150	250	350	450

Z stroke	150	250	350

SXYBx 3 axes / ZS

○ Arm type ○ Cable carrier ● Z-axis shaft vertical type



Ordering method

SXYBx - **C** - ☐ - ☐ - ☐ - **ZS** - **15** - ☐ - **RCX340-3** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYBx	C	A1 A2 A3 A4	15 to 305cm	15 to 55cm	ZS12 ZS6	15	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S – ☐ – R – ☐ – ☐ – ☐ – ☐ – ☐

Controller – CE Marking – Regeneratizve unit – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis: ZS12	Z-axis: ZS6
Axis construction [Note 1]	B14H	B14	–	
AC servo motor output (W)	200	100	60	
Repeatability [Note 2] (mm)	+/-0.04	+/-0.04	+/-0.02	
Drive system	Timing belt	Timing belt	Ball screw (Class C10)	
Ball screw lead [Note 3] (Deceleration ratio) (mm)	Equivalent to lead 25	Equivalent to lead 25	12	6
Maximum speed (mm/sec)	1875	1875	1000	500
Moving range (mm)	150 to 3050	150 to 550	150	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

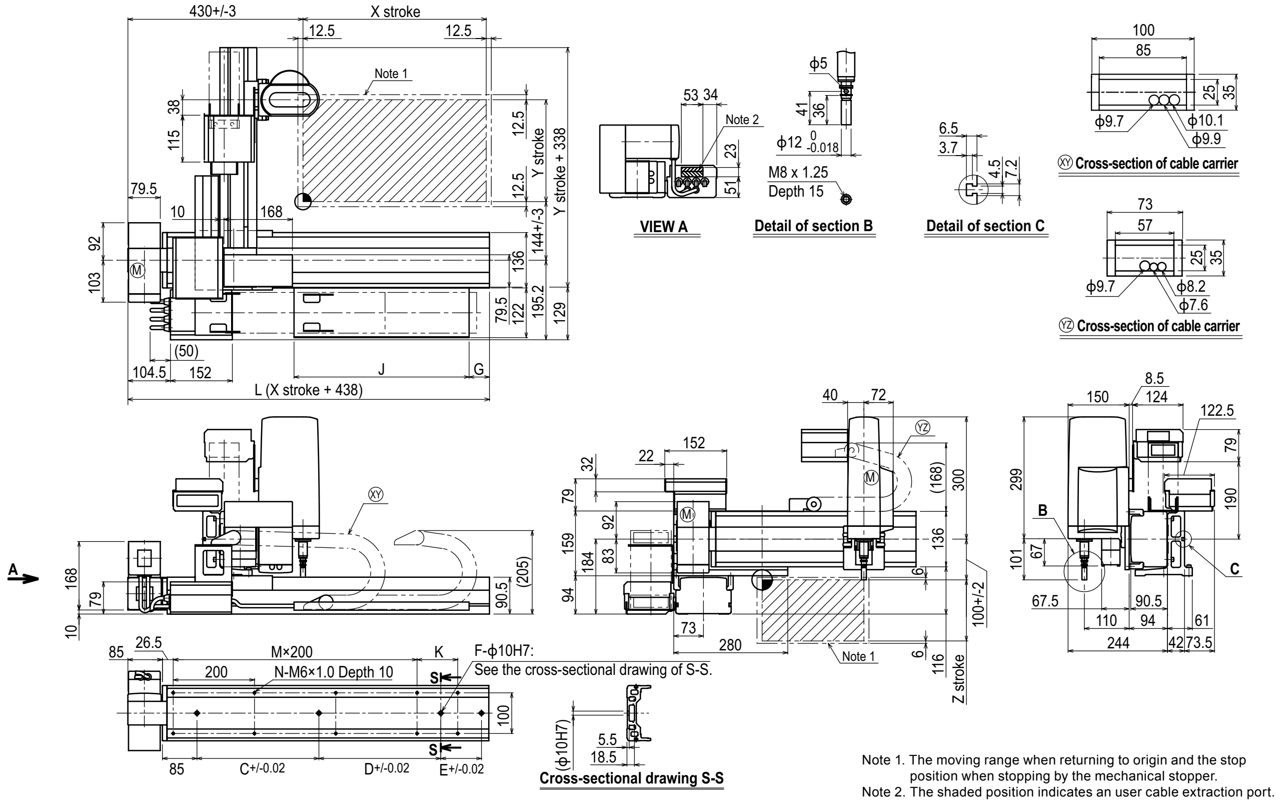
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150	3	5
250	3	5
350	3	5
450	3	4
550	3	3

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 3 axes / ZS A1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

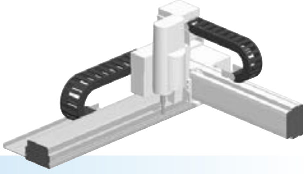
Y stroke	150	250	350	450	550

Z stroke	150

SXYBx

4 axes / ZRS

● Arm type ● Cable carrier ● ZR axis integrated type



Ordering method

SXYBx - C - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
SXYBx	C	A1 A2 A3 A4	15 to 305cm	15 to 55cm	ZRS12 ZRS6	15	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller - CE Marking - R: Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis: ZRS12	Z-axis: ZRS6	R-axis
Axis construction Note 1	B14H	B14	–		–
AC servo motor output (W)	200	100	60		100
Repeatability Note 2 **(XYZ: mm)(R: °)**	+/-0.04	+/-0.04	+/-0.02		+/-0.005
Drive system	Timing belt	Timing belt	Ball screw (Class C10)		Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	Equivalent to lead 25	12	6	(1/50)
Maximum speed (XYZ: mm/sec)(R: °/sec)	1875	1875	1000	500	1020
Moving range (XYZ: mm)(R: °)	150 to 3050	150 to 550	150		360
Robot cable length (m)	Standard: 3.5 Option: 5,10				

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

Maximum payload

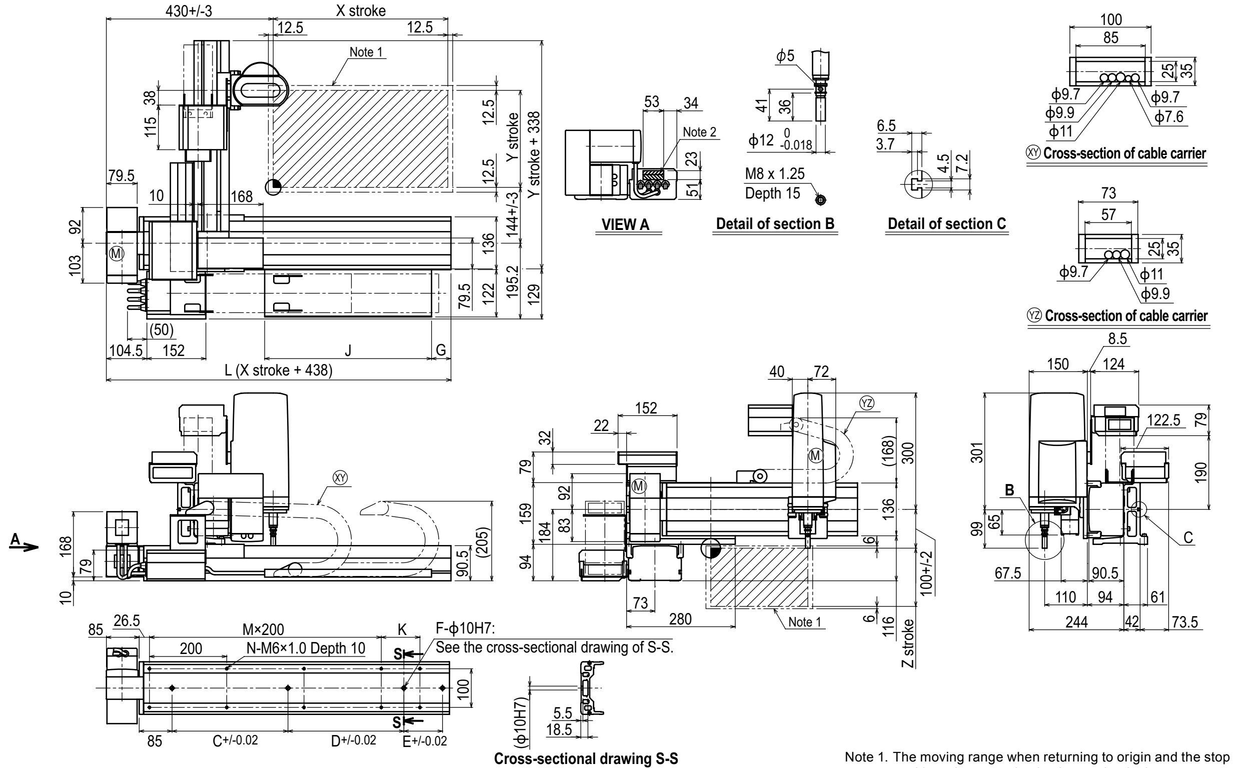
(kg)

Y stroke (mm)	ZRS12	ZRS6
150	3	5
250	3	5
350	3	5
450	3	3
550	2	2

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 4 axes / ZRS A1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	588	688	788	888	988	1088	1188	1288	1388	1488	1588	1688	1788	1888	1988	2088	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488
K	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	240	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36
G	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
J	330	330	430	430	530	530	630	630	730	730	830	830	930	930	1030	1030	1130	1130	1230	1230	1330	1330	1430	1430	1530	1530	1630	1630	1730	1730

Y stroke	150	250	350	450	550

Z stroke	150

MEMO

NXY 2 axes

Arm type **Cable carrier**

Ordering method

Model	-	Cable	-	Combination	-	X-axis stroke	-	Y-axis stroke	-	Cable	-	Controller	-	Usable for CE	-	Regeneratine unit	-	Input/Output selection 1	-	Input/Output selection 2
NXY	-	C	-		-		-		-		-	RCX222	-		-	R	-		-	
				A1 A3		50 to 200cm		15 to 65cm		3L: 3.5m 5L: 5m 10L: 10m		RCX222		No entry: Standard E: CE marking		R: RG2		N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2		No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	N15	F14
AC servo motor output (W)	400	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed (mm/sec)	1200	1200
Moving range (mm)	500 to 2000	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

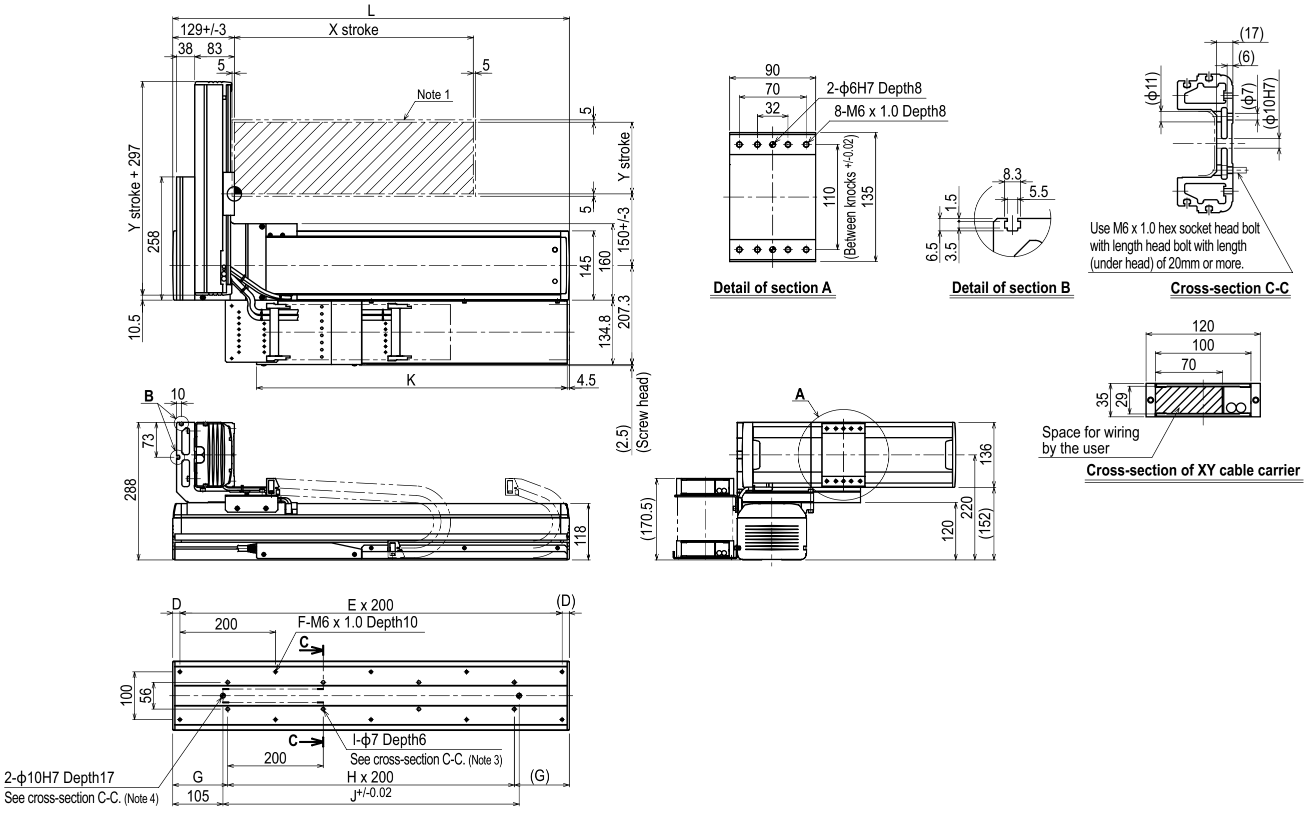
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	25
250	21
350	18
450	16
550	13
650	11

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY 2 axes A1

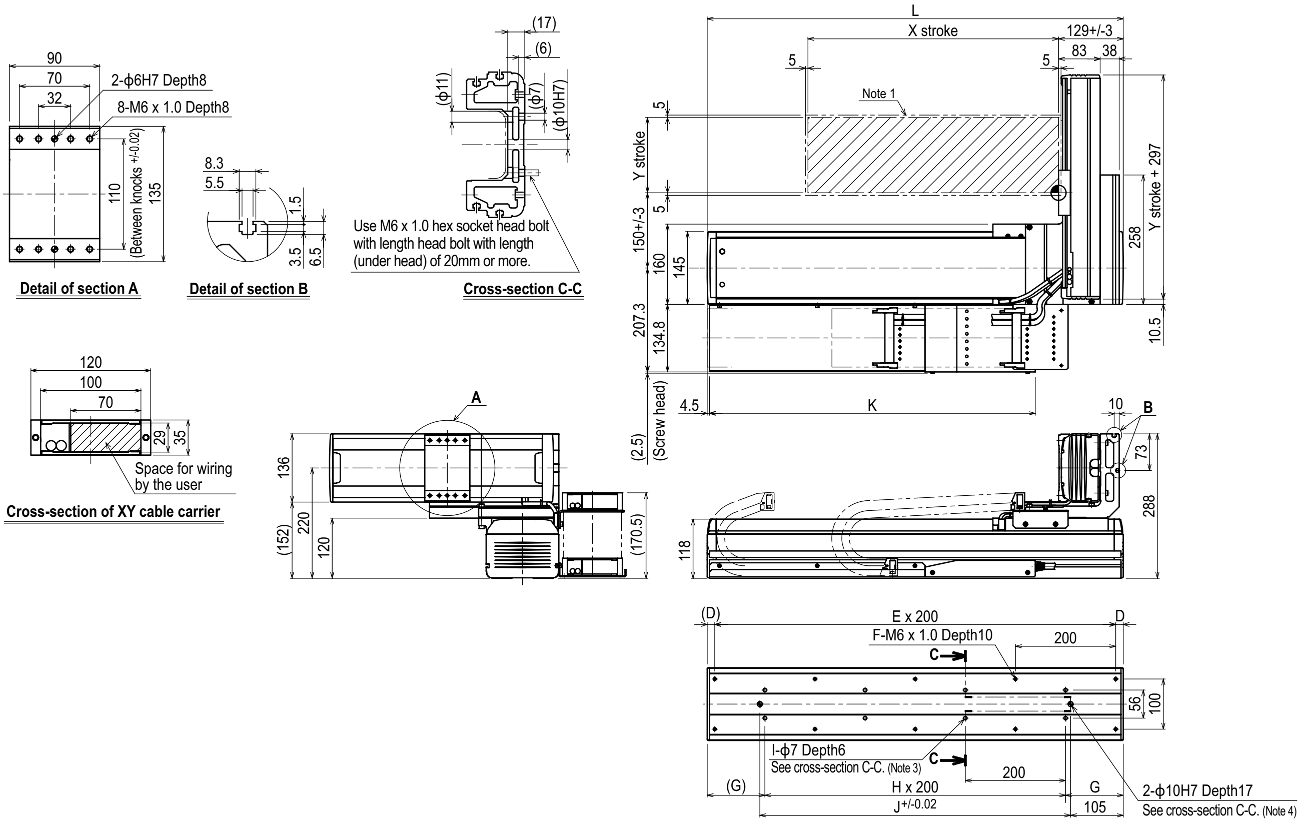


X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.
Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY 2 axes A3



X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.
Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY 3 axes / ZFL20

Arm type　Cable carrier　Z-axis: clamped base / moving table type (200W)

Ordering method

NXY - C - [Combination] - [X-axis stroke] - [Y-axis stroke] - ZFL20 - [Z-axis stroke] - [Cable] - RCX340-3 - [Safety standard] - [Option A (OP.A)] - [Option B (OP.B)] - [Option C (OP.C)] - [Option D (OP.D)] - [Option E (OP.E)] - [Absolute battery]

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
NXY	C	A1 A3	50 to 200cm	15 to 65cm	ZFL20	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240: Controller Note 1 - CE Marking - R: Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. Reference of special order: RCX222+SR1-X

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	N15	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	100	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	20
Maximum speed (mm/sec)	1200	1200	1200
Moving range (mm)	500 to 2000	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

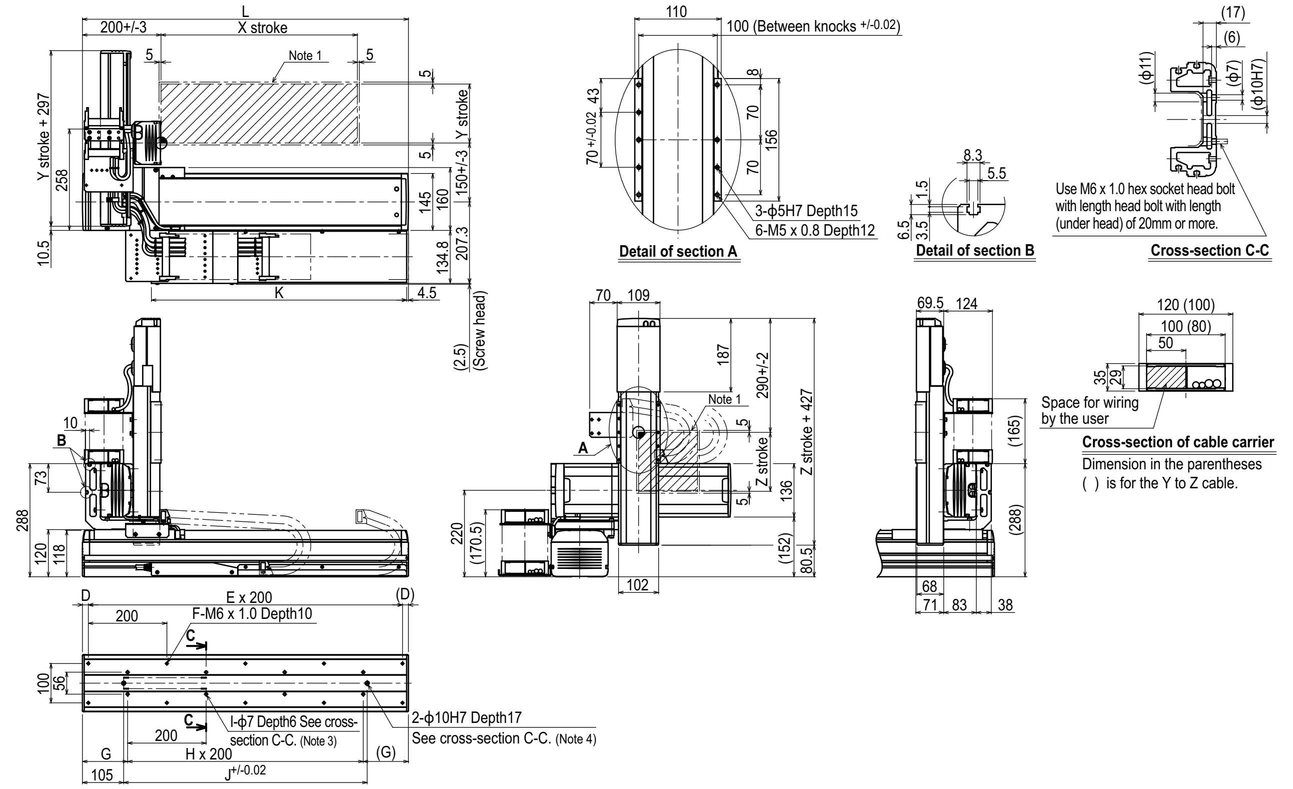
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	8	8	8
250	8	8	8
350	8	8	8
450	8	7	6
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY 3 axes / ZFL20 A1



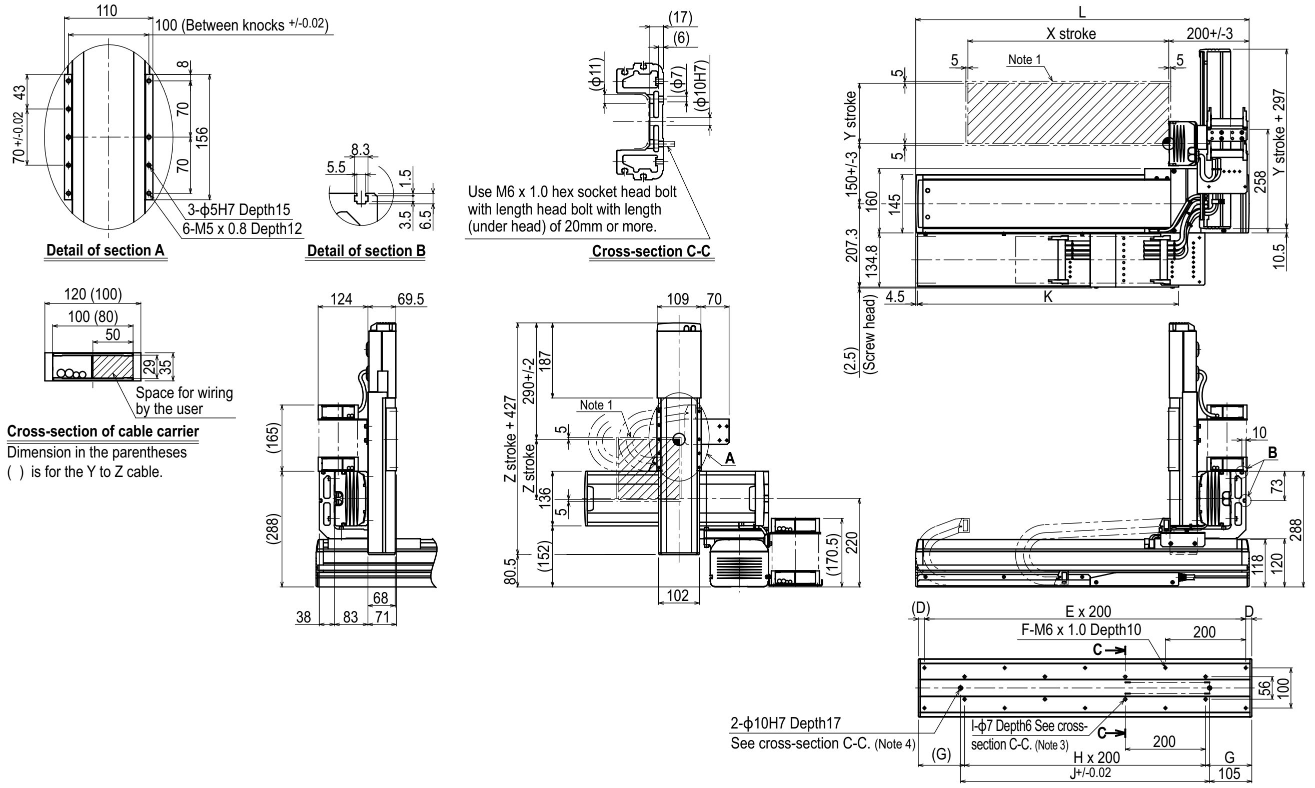
X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.
Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY 3 axes / ZFL20 A3



X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.
Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY 3 axes / ZFH

Arm type　Cable carrier　Z-axis clamped table: moving base type (200W)

Ordering method

NXY - C - [Combination] - [X-axis stroke] - [Y-axis stroke] - ZFH - [Z-axis stroke] - [Cable]

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
NXY	C	A1 A3	50 to 200cm	15 to 65cm	ZFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3 - [Safety standard] - [Option A (OP.A)] - [Option B (OP.B)] - [Option C (OP.C)] - [Option D (OP.D)] - [Option E (OP.E)] - [Absolute battery]

Controller / Number of controllable axes

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - [CE Marking] - R - [Expansion I/O] - [Network option] - [iVY System] - [Gripper] - [Battery]

Controller Note 1 – CE Marking – Regeneratizve unit – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. Reference of special order: RCX222+SR1-X

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	N15	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	100	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed (mm/sec)	1200	1200	600
Moving range (mm)	500 to 2000	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

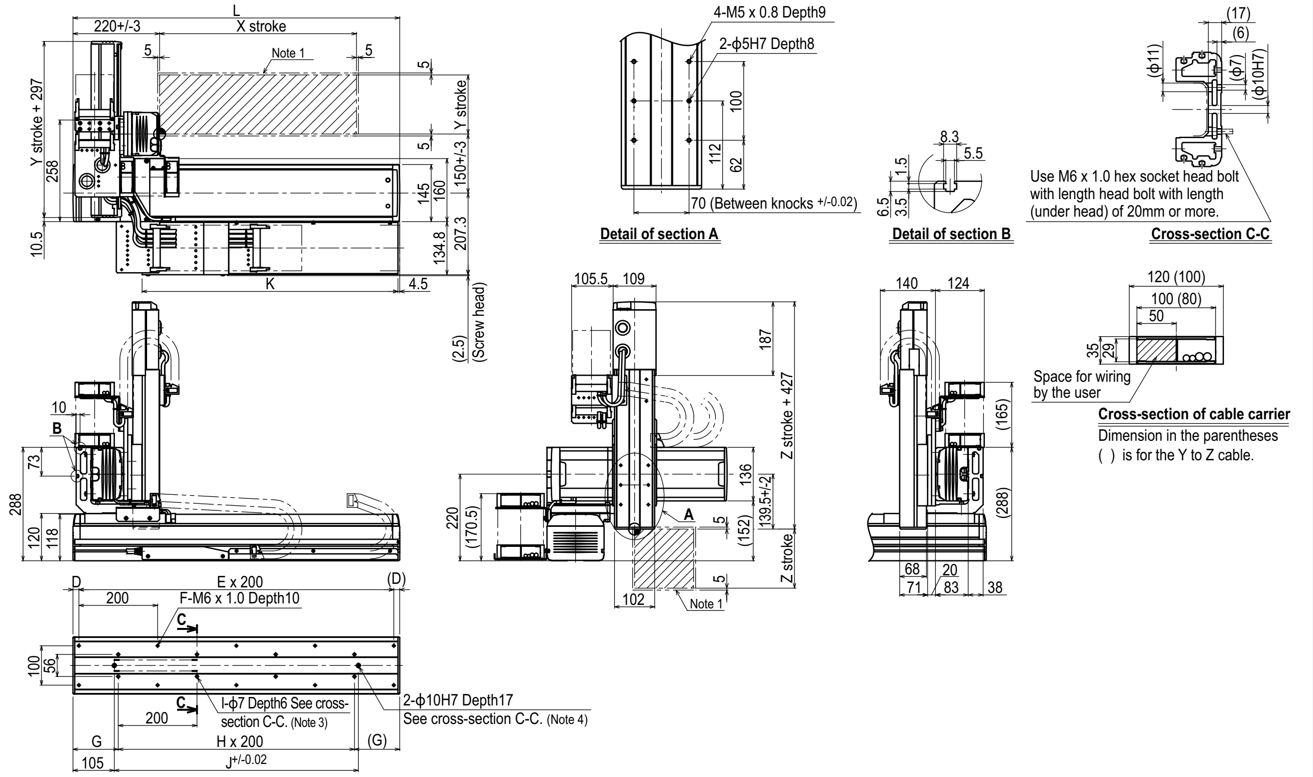
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	13	13	12
250	12	11	10
350	10	9	8
450	8	7	6
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY 3 axes / ZFH A1



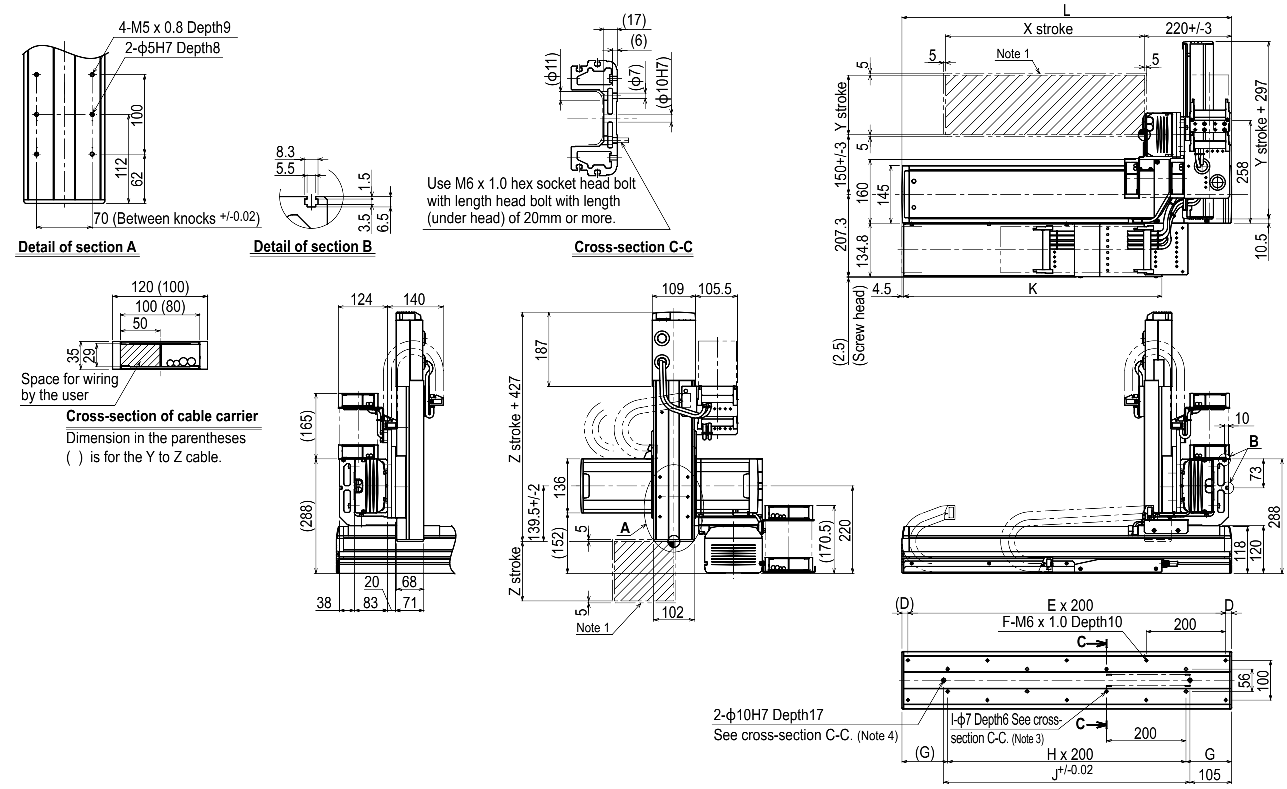
X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.
Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY 3 axes / ZFH A3



X stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120
K	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.

Note 2. The origin of the X axis is set originally as the drawing and it is possible to change it to the R side origin by changing parameters.

Note 3. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.

Note 4. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.

Note 5. Use M4 tap of the box next to X axis for the user grounding terminal.

Note 6. The M4 taps at both ends of the cable carriage can be used for fixing cables.

NXY-W 4 axes

- Arm type
- Cable carrier
- Double Y axes specifications

Ordering method

NXY - **C** - **WA1** - ☐ - ☐ - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable
NXY	C	WA1	25 to 175cm	15 to 65cm [Note 1]	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - ☐ - **R** - ☐ - ☐ - ☐ - ☐ - ☐

Controller [Note 2]	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Note 1. When the Y-axis stroke is different between the right and left, it will be an order-made.
Note 2. Reference of special order: 2 units of RCX222

Specification

	X-axis	Y-axis [Note 1]
Axis construction [Note 2]	N15D	F14
AC servo motor output (W)	400	100
Repeatability [Note 3] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead [Note 4] **(Deceleration ratio) (mm)**	20	20
Maximum speed (mm/sec)	1200	1200
Moving range (mm)	250 to 1750	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. The same two Y axes are installed and they have same specifications. If axes of individually different stroke are desired, it will be an order-made. In that case, consult YAMAHA.
Note 2. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 3. Positioning repeatability in one direction.
Note 4. Leads not listed in the catalog are also available. Contact us for details.

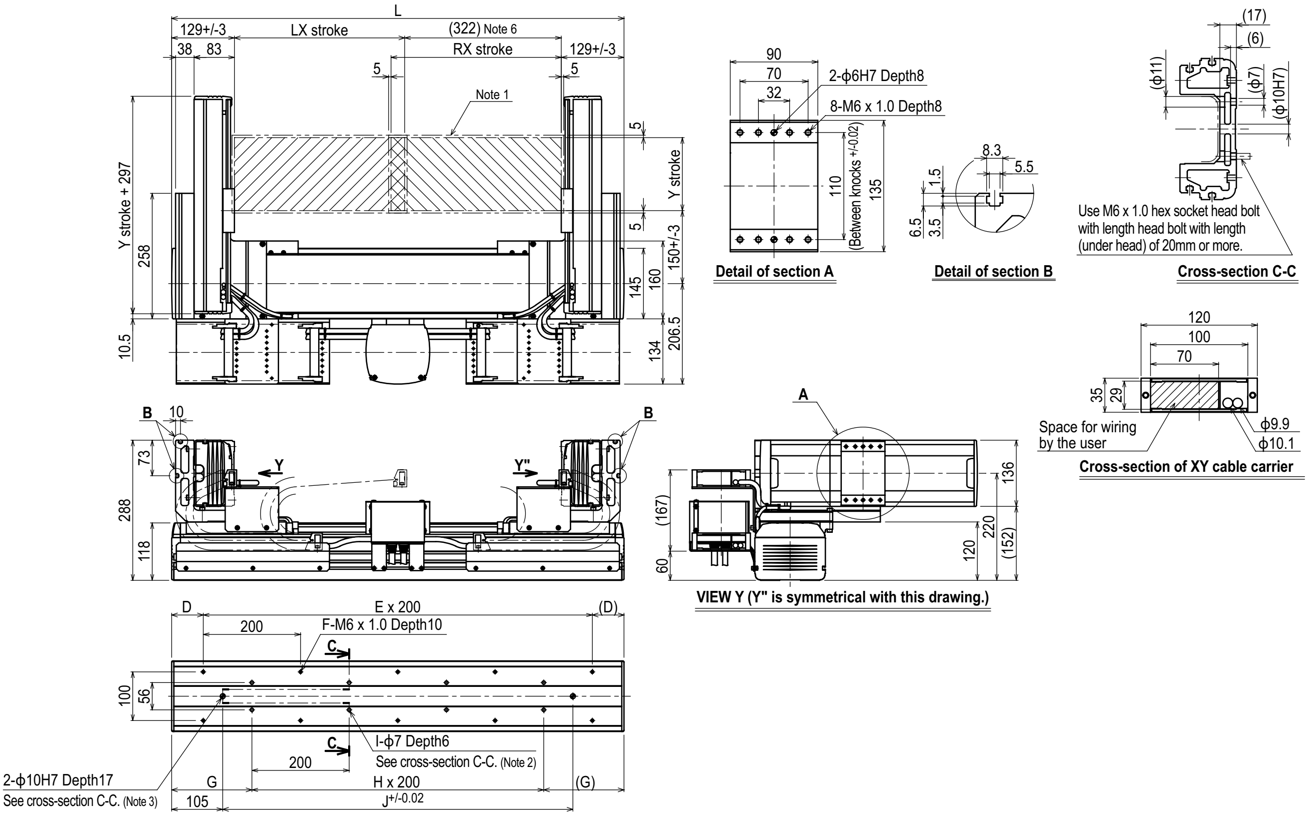
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	25
250	21
350	18
450	16
550	13
650	11

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY-W 4 axes WA1



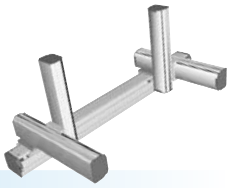
X stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120

Y stroke	150	250	350	450	550	650

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 3. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 4. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 5. The M4 taps at both ends of the cable carriage can be used for fixing cables.
Note 6. Minimum dimension between LX and RX sliders.

NXY-W

6 axes / ZFL



○ Arm type ○ Cable carrier ○ Double Y axes specifications ● Z-axis: clamped base / moving table type (200W)

Ordering method

NXY	-	C	-	WA1	-	☐	-	☐	-	ZFL20	-	☐	-	☐
Model	-	Cable	-	Combination	-	X-axis stroke	-	Y-axis stroke	-	ZR-axis	-	Z-axis stroke	-	Cable
						25 to 175cm		15 to 65cm Note 1				15 to 35cm		3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	☐	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240	- ☐	- R	- ☐	- ☐	- ☐	- ☐	- ☐
Controller Note 2	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When either one or both of Y-axis or Z-axis stroke is different, it will be an order-made.
Note 2. If you enter “RCX240”, 2 units will be shipped automatically.
Reference of special order: 2 sets of RCX222+SR1-X.

Specification

	X-axis	Y-axis Note 1	Z-axis
Axis construction Note 2	N15D	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	100	200
Repeatability Note 3 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead Note 4 (Deceleration ratio) (mm)	20	20	20
Maximum speed (mm/sec)	1200	1200	1200
Moving range (mm)	250 to 1750	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. The same two Y axes are installed and they have same specifications. If axes of individually different stroke are desired, it is been an order-made. In that case, consult YAMAHA.
Note 2. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 3. Positioning repeatability in one direction.
Note 4. Leads not listed in the catalog are also available. Contact us for details.

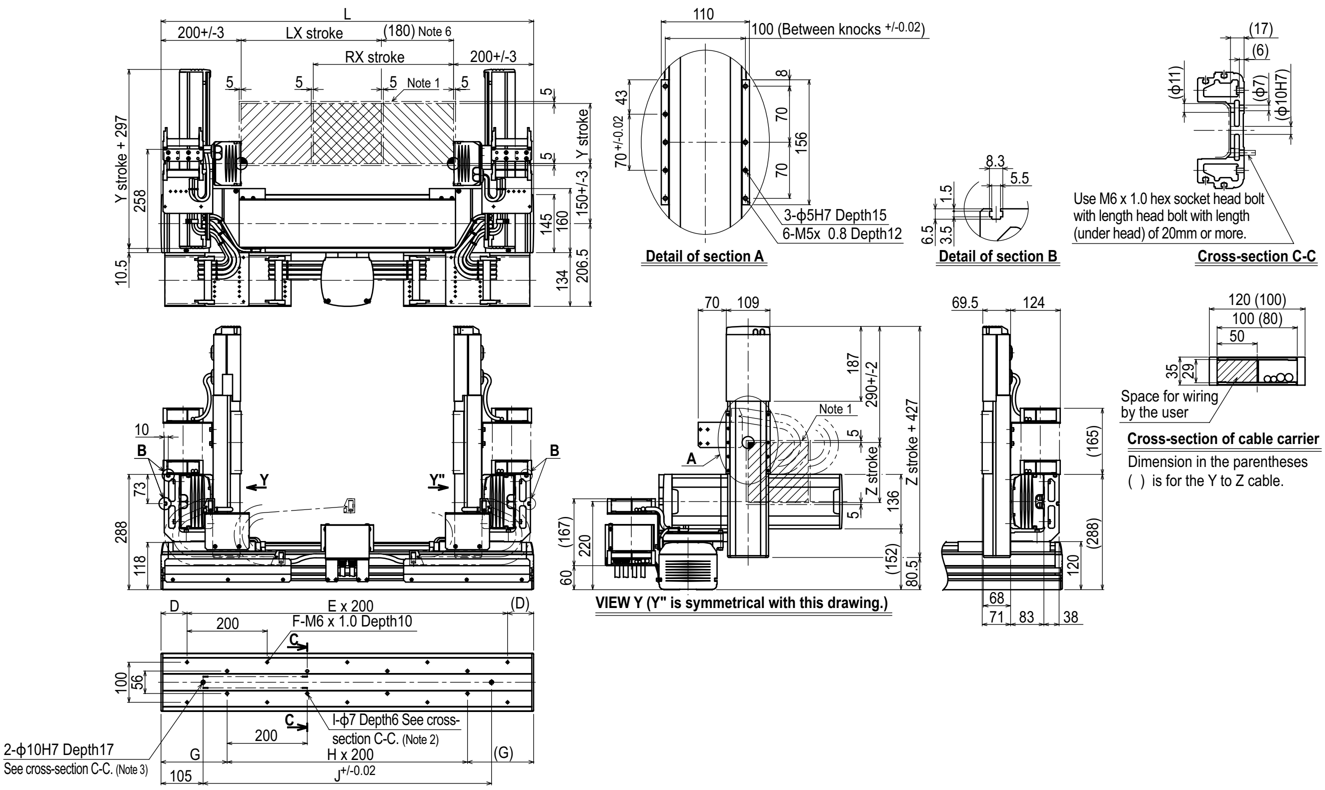
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	8	8	8
250	8	8	8
350	8	8	8
450	8	7	6
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY-W 6 axes / ZFL WA1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120

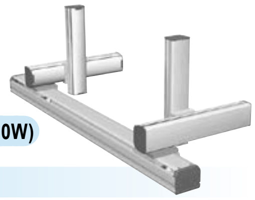
Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 3. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 4. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 5. The M4 taps at both ends of the cable carriage can be used for fixing cables.
Note 6. Minimum dimension between LX and RX sliders.

NXY-W

6 axes / ZFH



● Arm type ● Cable carrier ● Double Y axes specifications ● Z-axis: clamped table / moving base type (200W)

Ordering method

NXY	C	WA1	☐	☐	ZFH	☐	☐
Model	Cable	Combination	X-axis stroke 25 to 175cm	Y-axis stroke 15 to 65cm Note 1	ZR-axis	Z-axis stroke 15 to 35cm	Cable 3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	☐	☐	☐	☐	☐	☐	☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240	☐	R	☐	☐	☐	☐	☐
Controller Note 2	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When either one or both of Y-axis or Z-axis stroke is different, it will be an order-made.
Note 2. If you enter “RCX240”, 2 units will be shipped automatically.
Reference of special order: 2 sets of RCX222+SR1-X.

Specification

	X-axis	Y-axis Note 1	Z-axis
Axis construction Note 2	N15D	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	100	200
Repeatability Note 3 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15	Ball screw (Class C7) ϕ15
Ball screw lead Note 4 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed (mm/sec)	1200	1200	600
Moving range (mm)	250 to 1750	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. The same two Y axes are installed and they have same specifications. If axes of individually different stroke are desired, it will be an order-made. In that case, consult YAMAHA.
Note 2. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 3. Positioning repeatability in one direction.
Note 4. Leads not listed in the catalog are also available. Contact us for details.

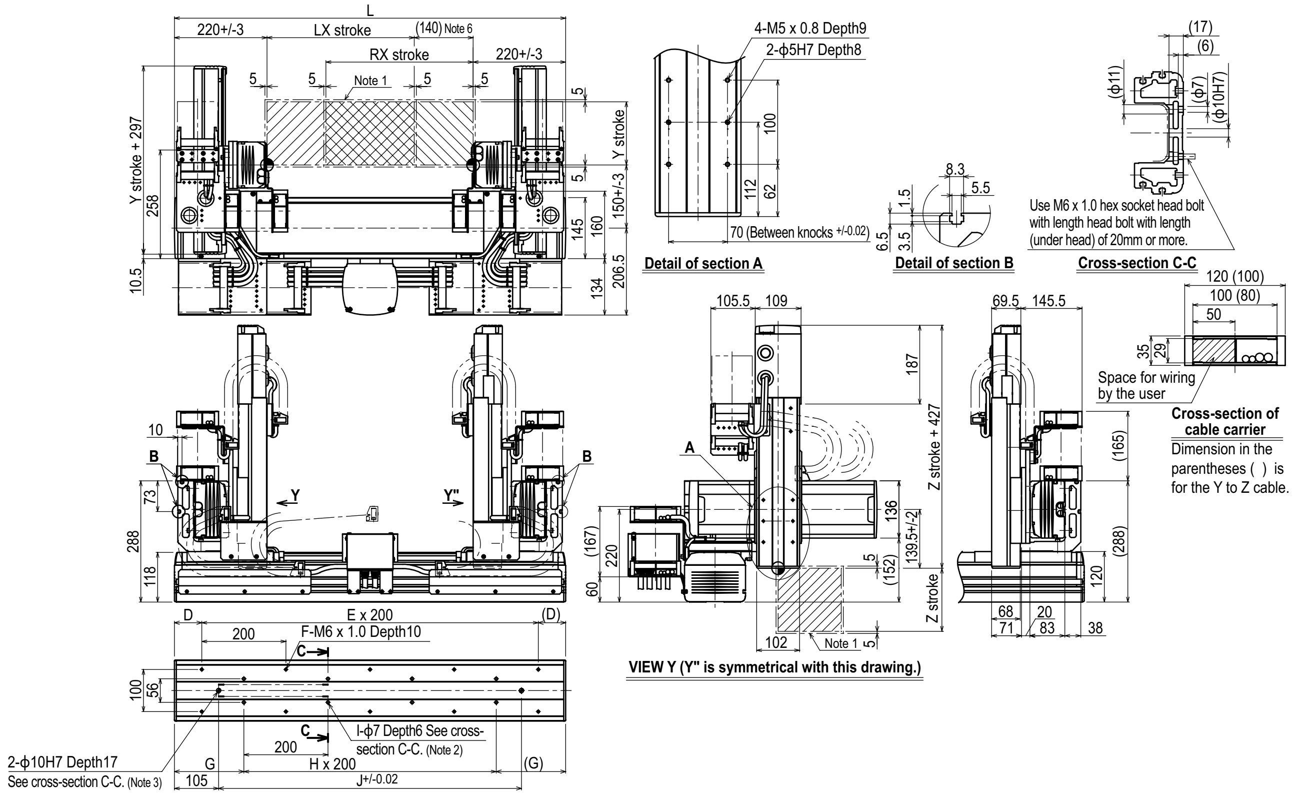
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	13	13	12
250	12	11	10
350	10	9	8
450	8	7	6
550	5	4	3
650	3	2	1

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

NXY-W 6 axes / ZFH WA1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750
L	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
D	15	65	15	65	15	65	15	65	15	65	15	65	15	65	15	65
E	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
F	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
G	115	165	115	165	115	165	115	165	115	165	115	165	115	165	115	165
H	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
I	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
J	620	720	820	920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. When using ϕ7 holes for installation, you must not use a washer, spring washer, etc. in the main unit.
Note 3. When using a ϕ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 4. Use M4 tap of the box next to X axis for the user grounding terminal.
Note 5. The M4 taps at both ends of the cable carriage can be used for fixing cables.
Note 6. Minimum dimension between LX and RX sliders.

MEMO

MXYx 2 axes

● Arm type ● Cable carrier

Ordering method

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	C					RCX222		R		
		A1 A2 A3 A4	25 to 125cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

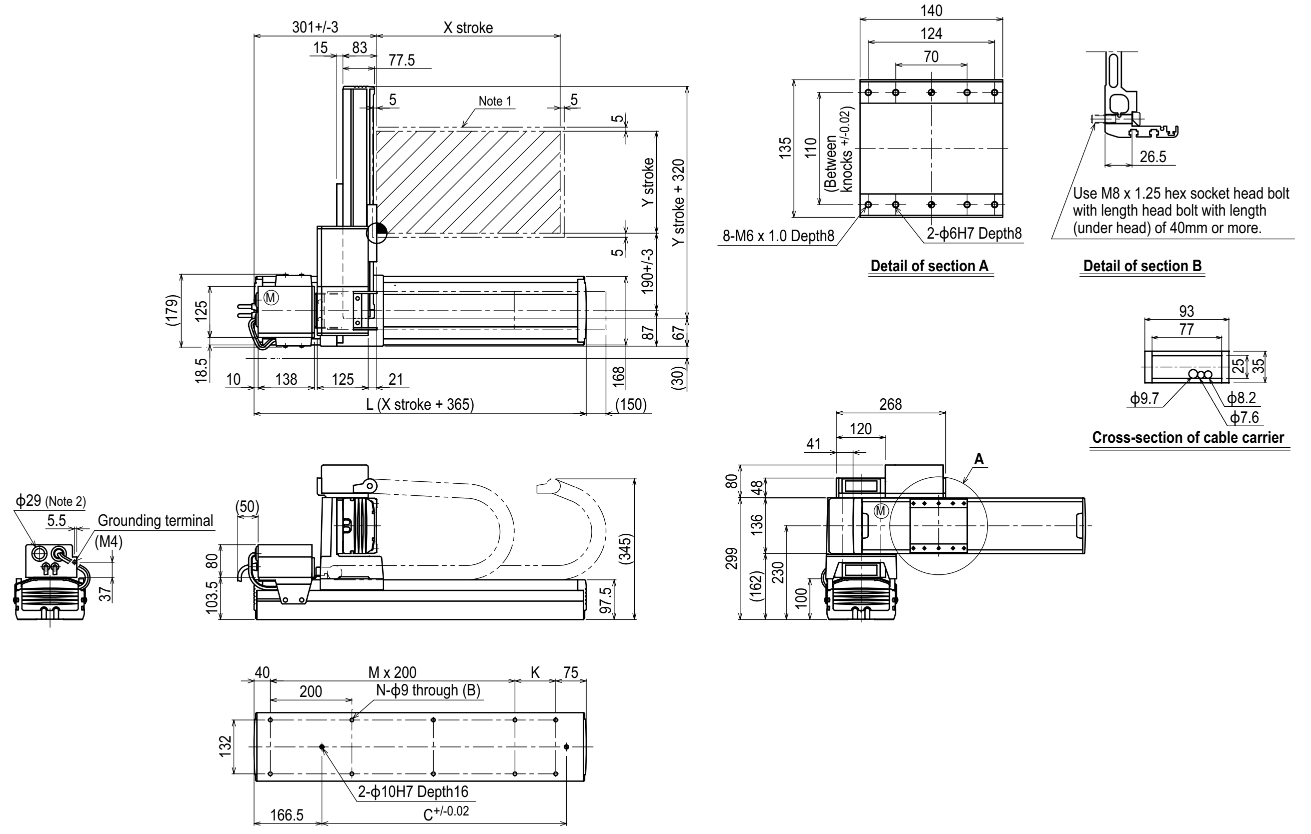
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	30
250	30
350	25
450	20
550	20
650	16

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes A1



Detail of section A

Detail of section B

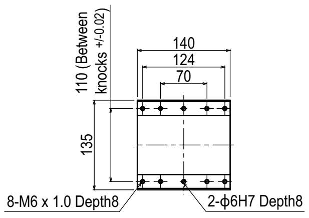
Cross-section of cable carrier

X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
C		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		150	250	350	450	550	650					
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

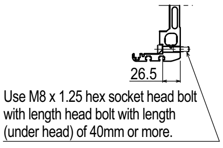
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

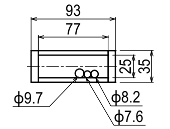
MXYx 2 axes A2



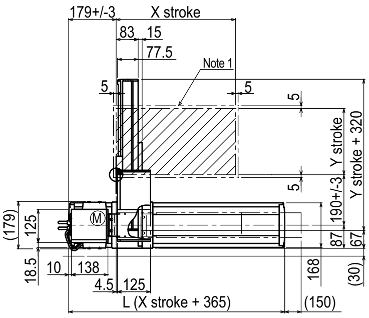
Detail of section A

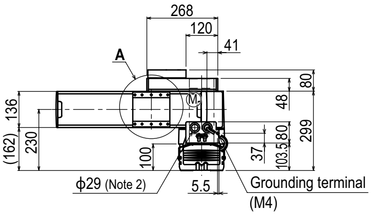

26.5
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

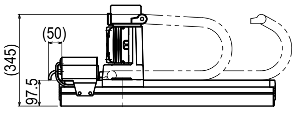
Detail of section B

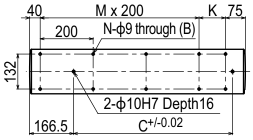


Cross-section of cable carrier

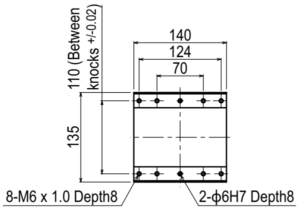




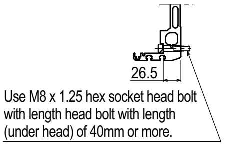




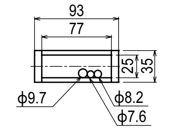
MXYx 2 axes A3



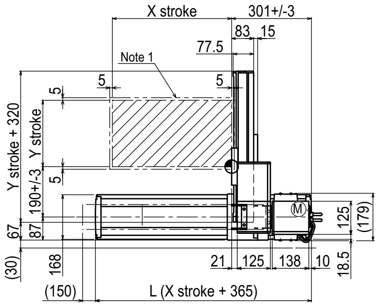
Detail of section A

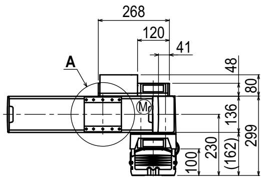

26.5
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

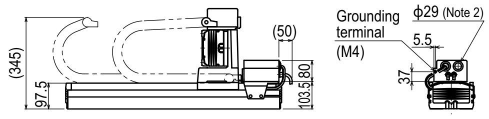
Detail of section B

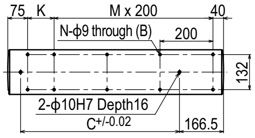


Cross-section of cable carrier

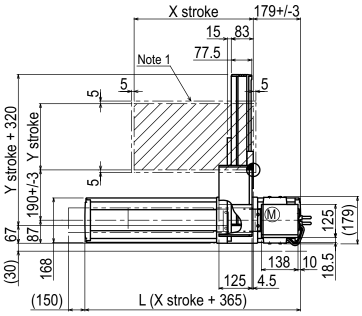


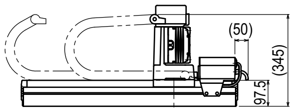


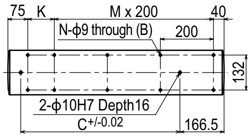


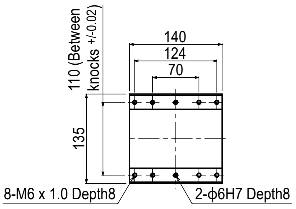


MXYx 2 axes A4

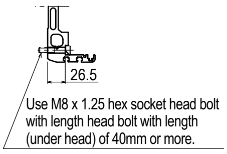




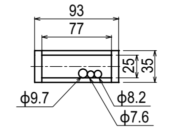




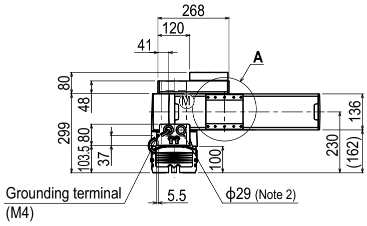
Detail of section A


26.5
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

Detail of section B

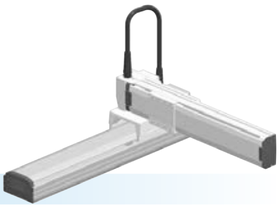


Cross-section of cable carrier



MXYx 2 axes

● Arm type ● Whipover



Ordering method

MXYx	- S	-	-	-	-	- RCX222	-	- R	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
		A1 A2 A3 A4	25 to 85cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 850	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

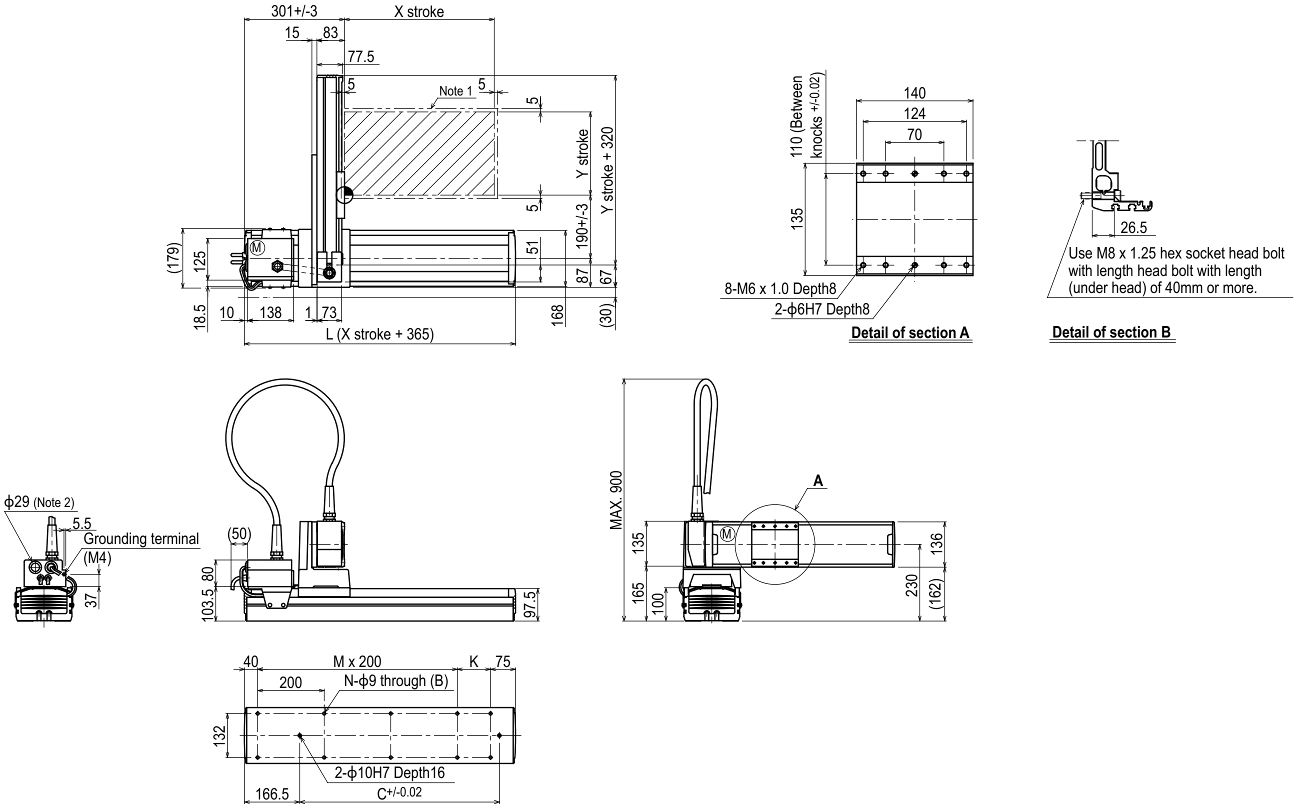
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	30
250	30
350	25
450	20
550	20
650	16

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes A1



Detail of section A

Detail of section B

X stroke	250	350	450	550	650	750	850
L	615	715	815	915	1015	1115	1215
K	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960
M	2	2	3	3	4	4	5
N	8	8	10	10	12	12	14

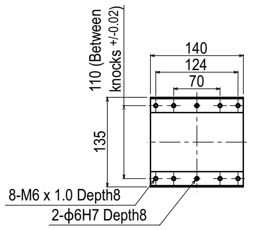
Y stroke	150	250	350	450	550	650	

Maximum speed for each stroke (mm/sec) Note 3								
	X-axis	1200						960
	Speed setting	–						80%

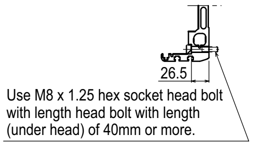
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 2 axes A2

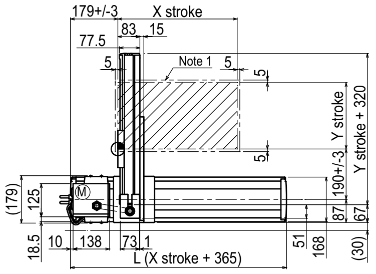


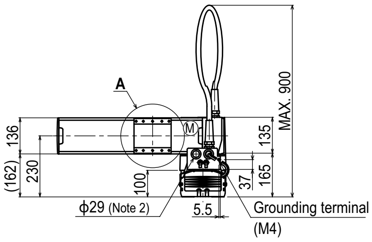
Detail of section A

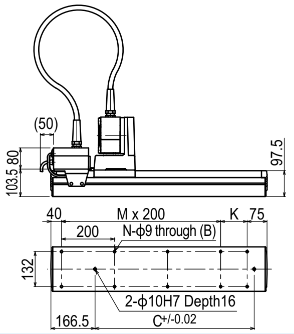


Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

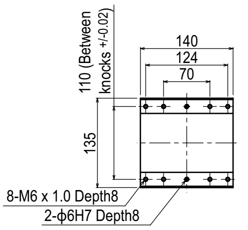
Detail of section B



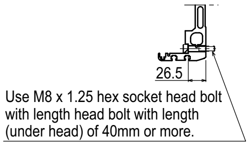




MXYx 2 axes A3

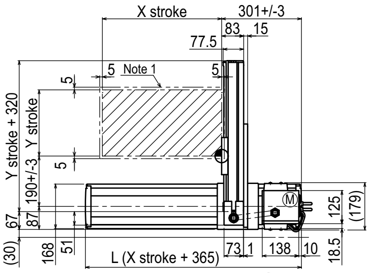


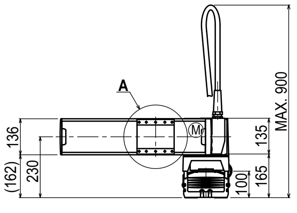
Detail of section A

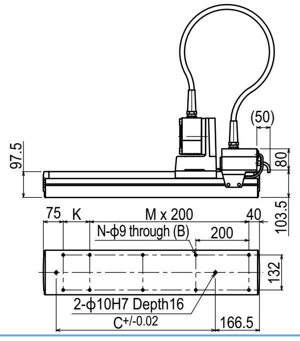


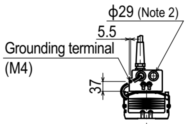
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

Detail of section B

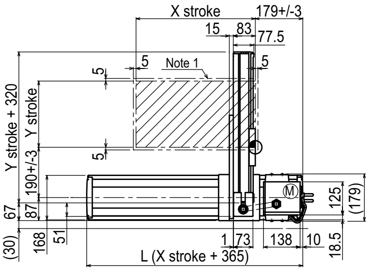


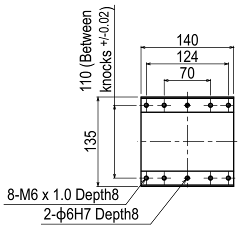




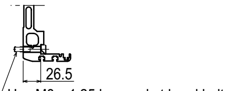


MXYx 2 axes A4



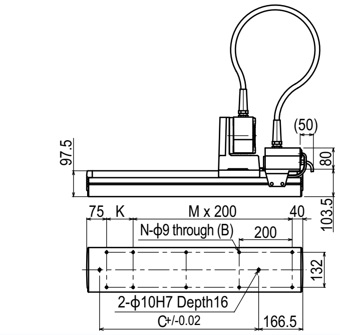


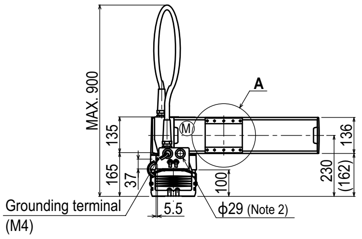
Detail of section A



Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

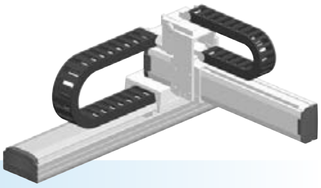
Detail of section B





MXYx 2 axes / IO

○ Arm type ○ Cable carrier ● Type with Y-axis I/O cable carrier added



Ordering method

MXYx - C - ☐ - ☐ - ☐ - IO - ☐ - RCX222 - ☐ - R - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	C	A1 A2 A3 A4	25 to 125cm	15 to 65cm	IO	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

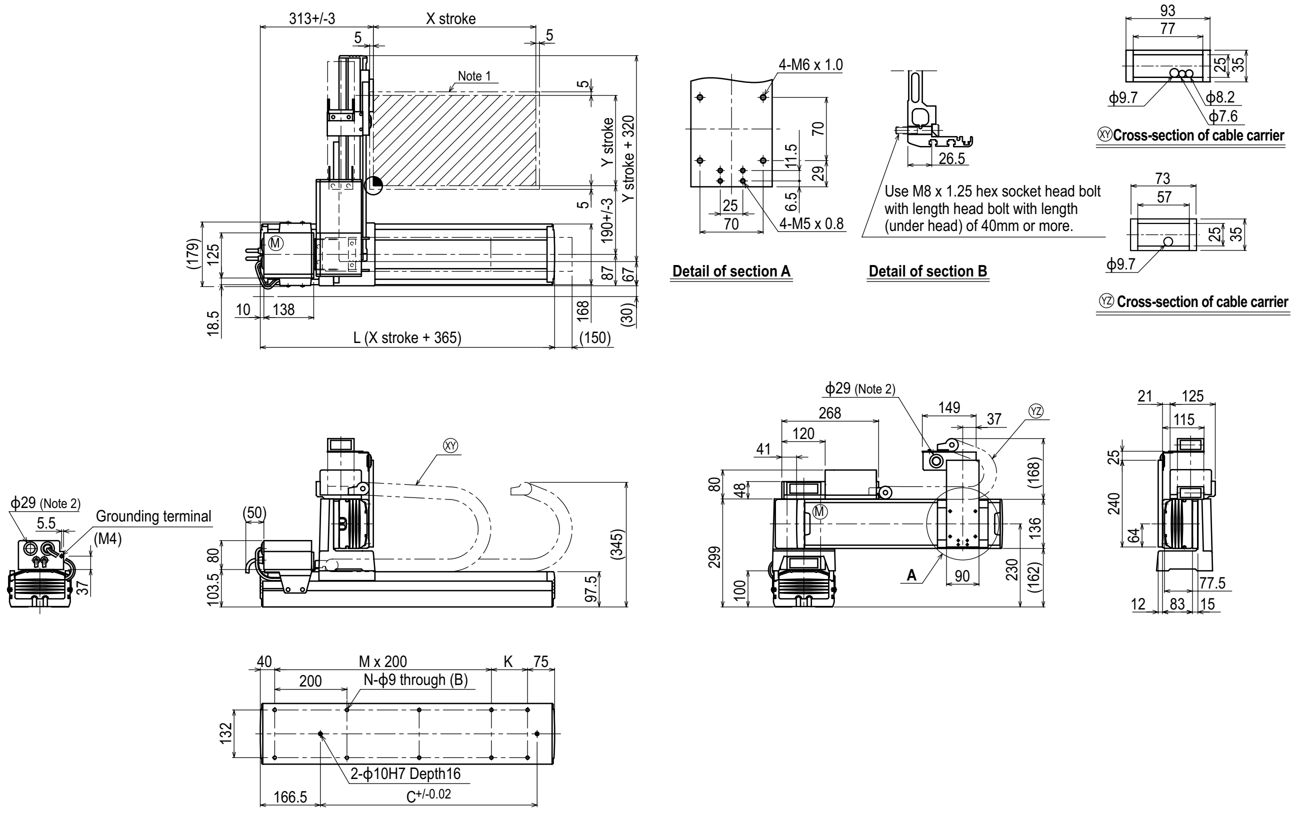
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	29
250	29
350	24
450	19
550	19
650	15

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes / IO A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	780	780	960	960	1140	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650

		250–750	850	950	1050	1150	1250
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

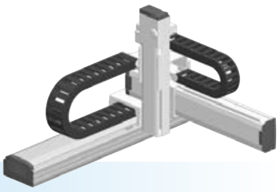
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx

3 axes / ZFL20/10

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

MXYx - C - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	A1 A2 A3 A4	25 to 125cm	15 to 65cm	ZFL20 ZFL10	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3							

Specify various controller setting items. RCX340 ▶ **P.544**

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis: ZFL20	Z-axis: ZFL10
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model	
AC servo motor output (W)	400	200	200	
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	1200	600
Moving range (mm)	250 to 1250	150 to 650	150 to 350	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note. The standard types are ZFL with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

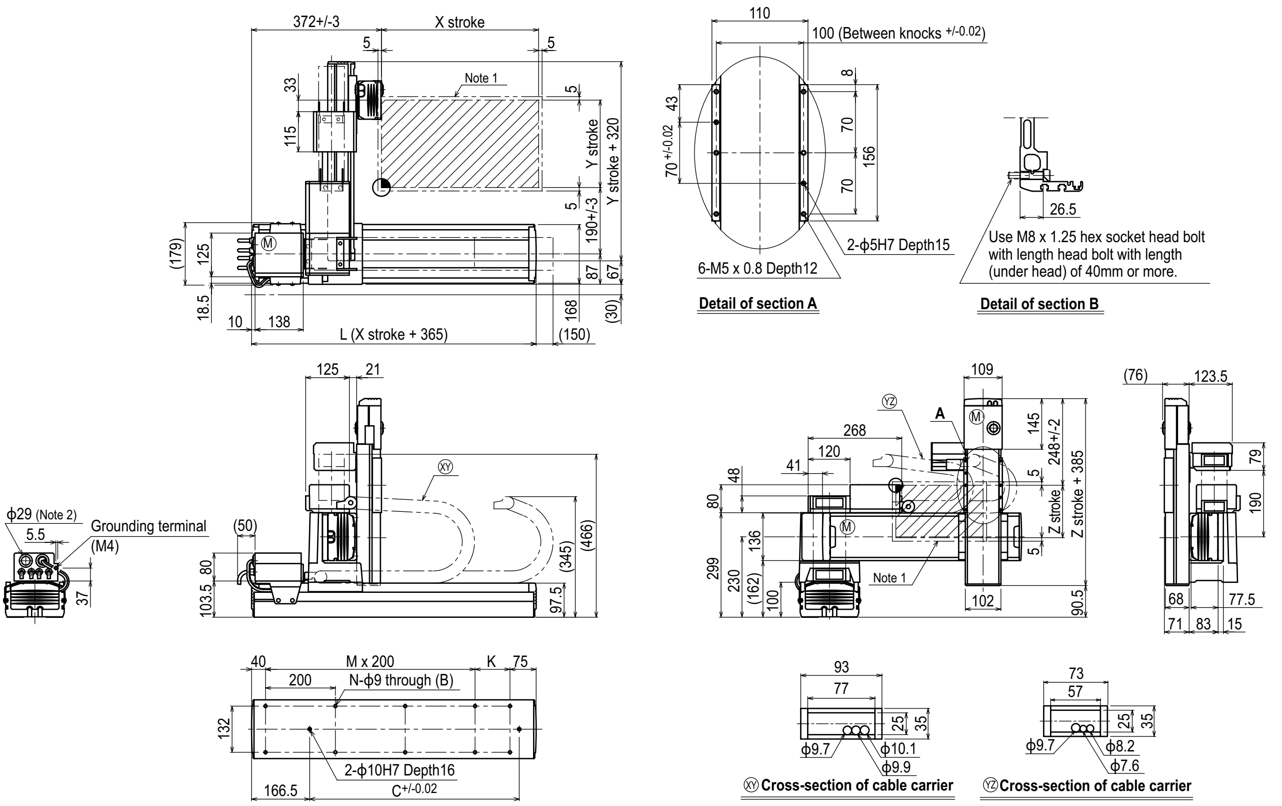
Maximum payload (kg)

	Z stroke (mm)					
	ZFL20			ZFL10		
	150	250	350	150	250	350
150	8	8	8	15	15	15
250	8	8	8	15	15	15
350	8	8	8	15	15	15
450	8	8	8	12	11	10
550	8	8	8	12	11	10
650	8	7	6	8	7	6

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFL20/10 A1



Detail of section A

Detail of section B

Ⓧⓨ Cross-section of cable carrier

Ⓨⓩ Cross-section of cable carrier

X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

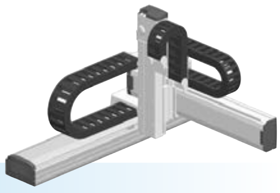
Maximum speed for each stroke (mm/sec) Note 3		250	350	450	550	650	750	850	950	1050	1150	1250
	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 3 axes / ZFH

● Arm type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)



Ordering method

MXYx	- C	-	-	-	- ZFH	-	-	- RCX340-3	-	-	-	-	-	-	-
Model	Cable	Combi-nation	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
		A1 A2 A3 A4	25 to 125cm	15 to 65cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	-	- R	-	-	-	-	-
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	200	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	250 to 1250	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note. The standard types are ZFH with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

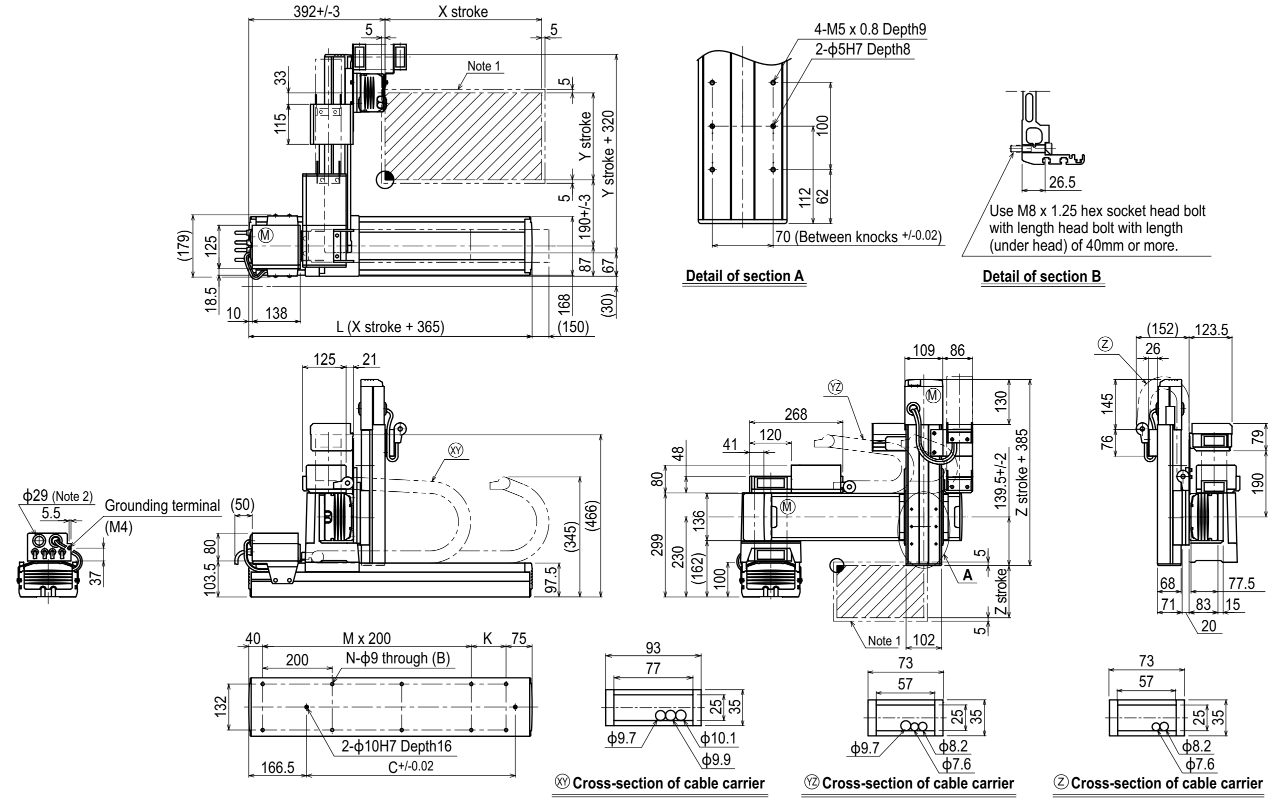
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	14	13	12
250	14	13	12
350	14	13	12
450	12	11	10
550	12	11	10
650	8	7	6

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFH A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

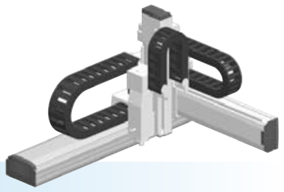
Maximum speed for each stroke (mm/sec) Note 3						
	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 4 axes / ZRFL20/10

Arm type　Cable carrier　Z-axis: clamped base / moving table type (200W)+R-axis



Ordering method

MXYx	- C	-	-	-	-	-	-
Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
		A1 A2 A3 A4	25 to 125cm	15 to 65cm	ZRFL20 ZRFL10	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240	-	- R	-	-	-	-	-
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZRFL20	Z-axis: ZRFL10	R-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model		R5
AC servo motor output (W)	400	200	200		50
Repeatability Note 2 (XYZ: mm) (R: °)	+/-0.01	+/-0.01	+/-0.01		+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)		Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	20	10	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	1200	600	360
Moving range (XYZ: mm)(R: °)	250 to 1250	150 to 650	150 to 350		360
Robot cable length (m)	Standard: 3.5 Option: 5,10				

Note. The standard types are ZRFL with higher rigidity as compared with ZRF types which are conventional standard types. When you need the ZRF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

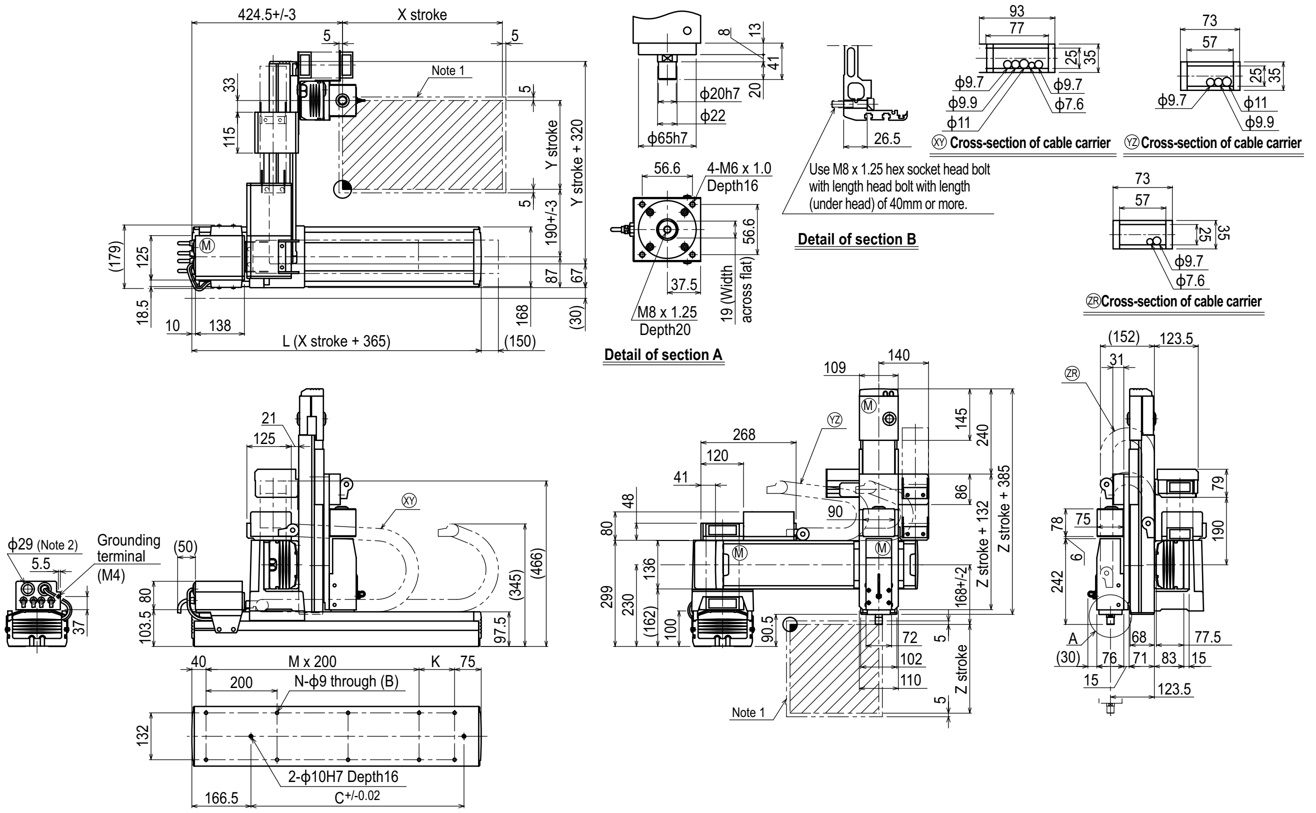
Maximum payload (kg)

Y stroke (mm)	Z stroke (mm) ZRFL20 150	250	350	ZRFL10 150	250	350
150	4	4	4	11	11	11
250	4	4	4	11	11	11
350	4	4	4	11	11	11
450	4	4	4	8	7	6
550	4	4	4	8	7	6
650	4	4	4	4	3	2

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 4 axes / ZRFL20/10 A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

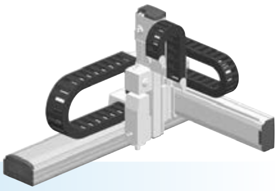
Maximum speed for each stroke (mm/sec) Note 3							
	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 4 axes / ZRFH

Arm type Cable carrier Z-axis: clamped table / moving base type (200W)+R-axis



Ordering method

MXYx - **C** - ☐ - ☐ - ☐ - **ZRFH** - ☐ - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
MXYx	C	A1 A2 A3 A4	25 to 125cm	15 to 65cm	ZRFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - **R** - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model	R5
AC servo motor output (W)	400	200	200	50
Repeatability Note 2 (XYZ: mm)(R: °)	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	600	360
Moving range (XYZ: mm)(R: °)	250 to 1250	150 to 650	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note. The standard types are ZRFH with higher rigidity as compared with ZRF types which are conventional standard types. When you need the ZRF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

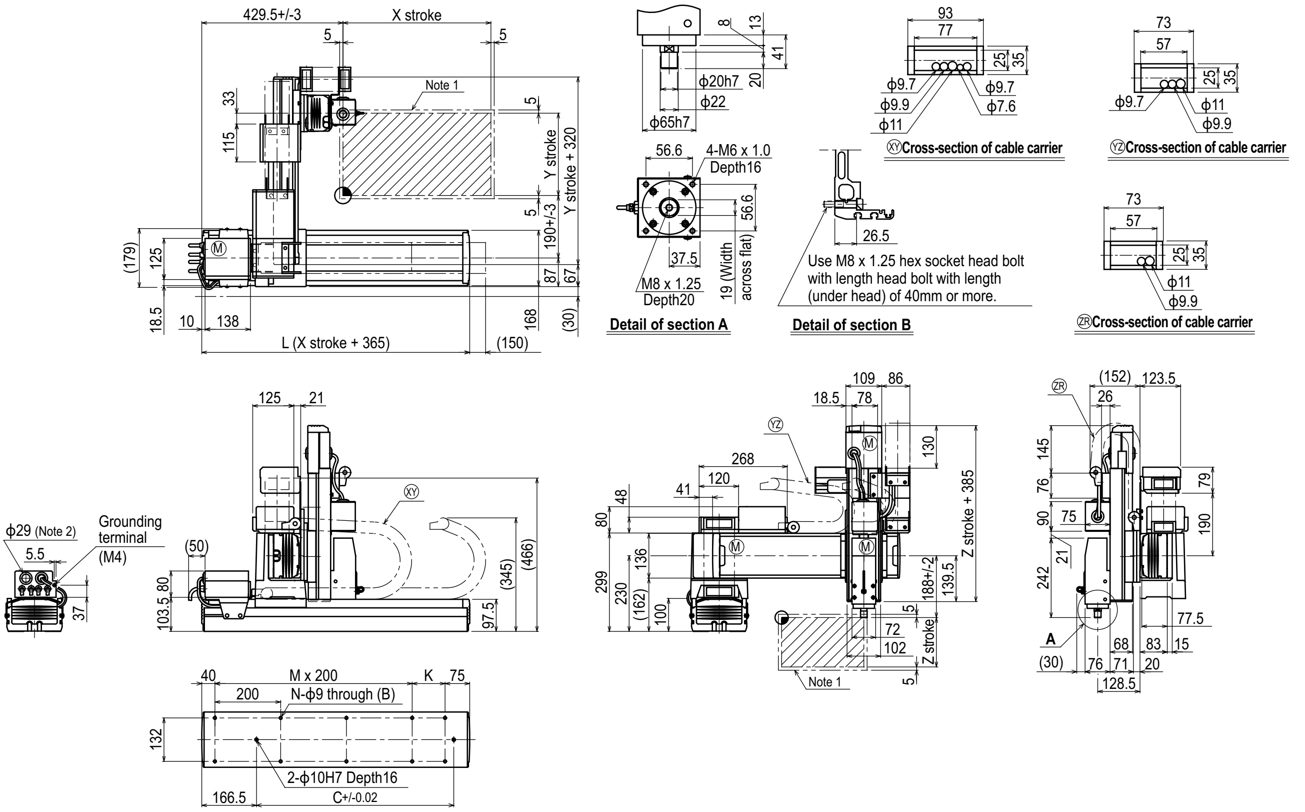
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150	11	9	8
250	11	9	8
350	11	9	8
450	8	7	6
550	8	7	6
650	4	3	2

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 4 axes / ZRFH A1



X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
C		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		150	250	350	450	550	650					
Z stroke		150	250	350								
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

HXYx 2 axes

● Arm type ● Cable carrier

Ordering method

HXYx - C - □ - □ - □ - □ - RCX222HP - □ - R - □ - □

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regenerative unit	Input/Output selection 1	Input/Output selection 2
		A1 A2 A3 A4	25 to 125cm	25 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN [Note 1] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note 2]	No entry: None N1: OP.DIO24/16 (NPN) [Note 1] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 3]

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	F20	F17
AC servo motor output (W)	600	400
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	20
Maximum speed [Note 4] **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	250 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

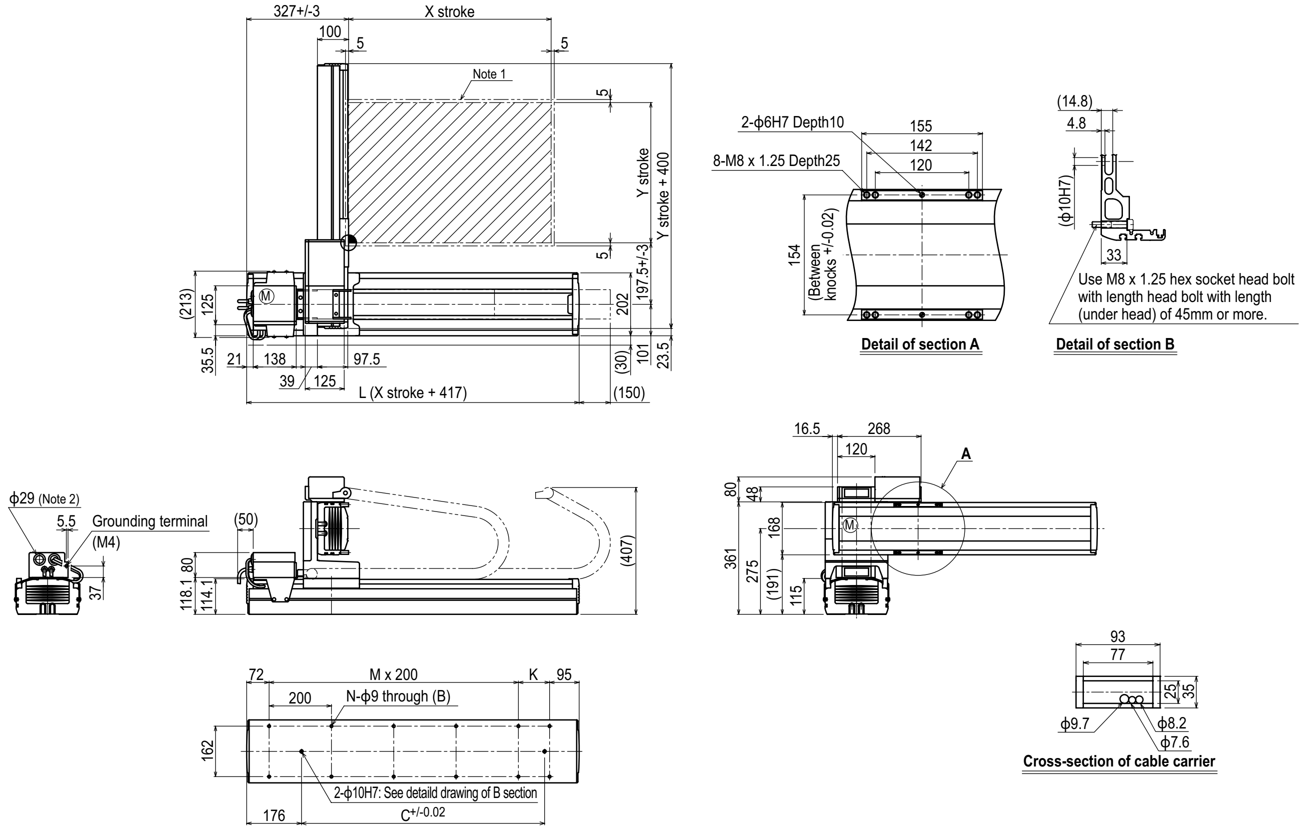
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250	40
350	40
450	35
550	30
650	30

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes A1



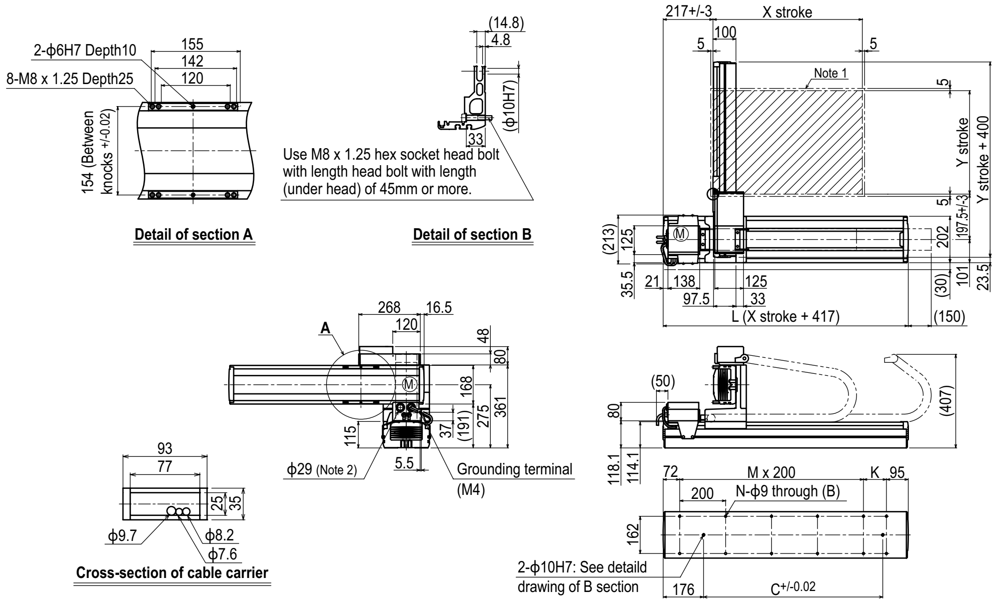
X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K		100	200	100	200	100	200	100	200	100	200	100
C		420	420	600	600	780	780	960	960	1140	1320	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		250	350	450	550	650						
Maximum speed for each stroke (mm/sec) [Note 3]	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Arm type
Gantry type
Moving arm type
Pole type
XZ type

HXYx 2 axes **A2**

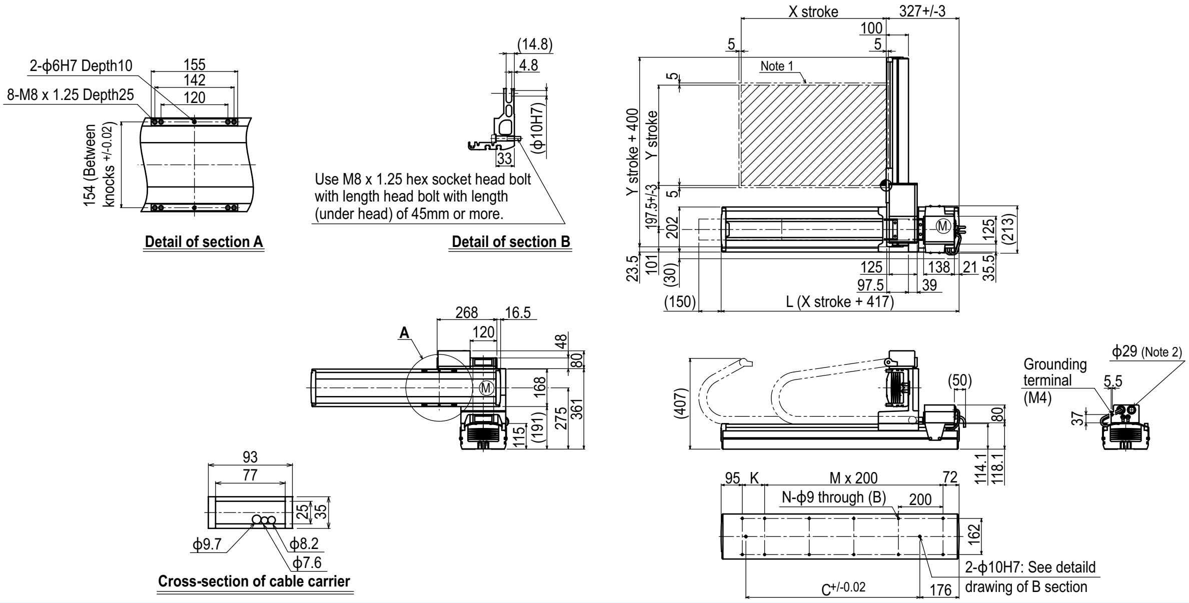


Detail of section A

Detail of section B

Cross-section of cable carrier

HXYx 2 axes **A3**

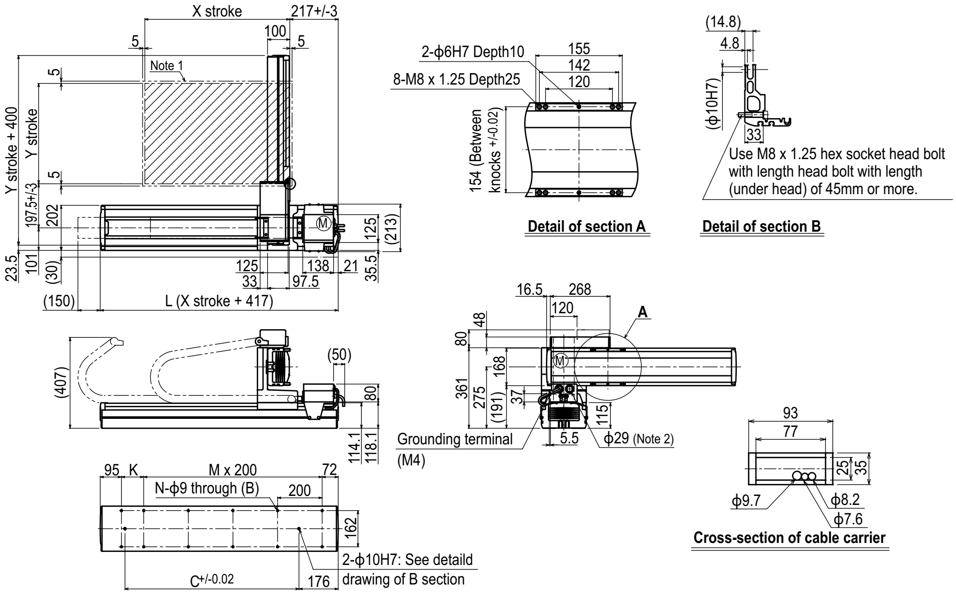


Detail of section A

Detail of section B

Cross-section of cable carrier

HXYx 2 axes **A4**



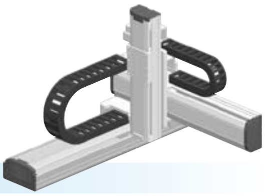
Detail of section A

Detail of section B

Cross-section of cable carrier

HXYx 3 axes / ZL

● Arm type ● Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZL - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
HXYx	C	A1 A2 A3 A4	25 to 125cm	25 to 65cm	ZL	25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐: Controller – CE Marking – Regeneratizve unit – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F17	F14H-BK
AC servo motor output (W)	600	400	200
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10
Maximum speed Note 4 (mm/sec)	1200	1200	600
Moving range (mm)	250 to 1250	250 to 650	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

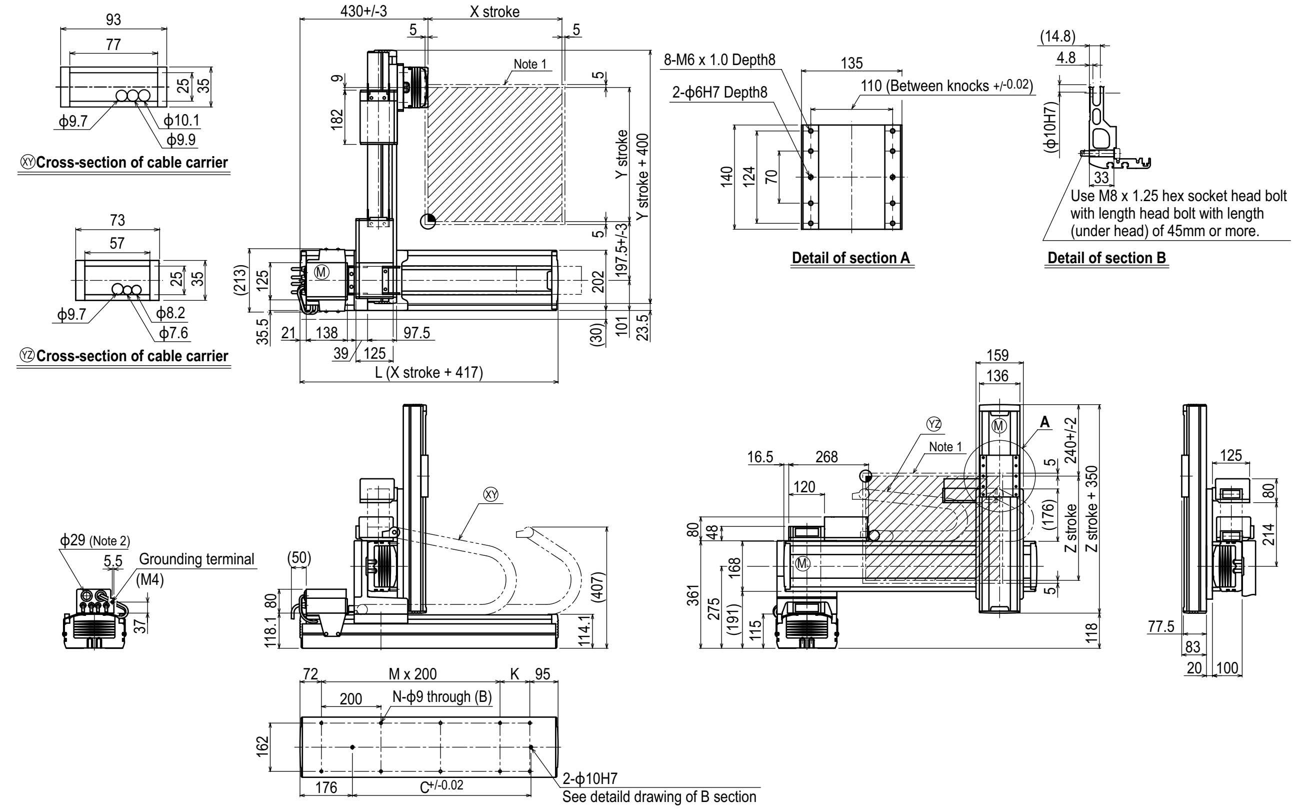
Maximum payload (kg)

	Z stroke (mm)			
Y stroke (mm)	250	350	450	550
250	20	20	20	20
350	20	20	20	20
450	20	20	19	18
550	18	17	16	15
650	18	17	16	15

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZL A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Y stroke	250	350	450	550	650

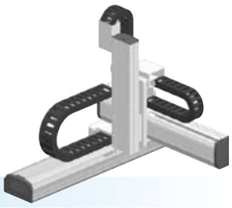
Z stroke	250	350	450	550

Maximum speed for each stroke (mm/sec) Note 3		250	350	450	550	650	750	850	950	1050	1150	1250
	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

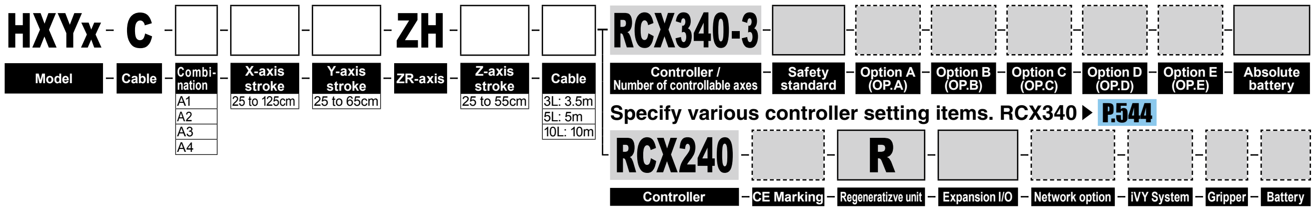
Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 3 axes / ZH

Arm type　Cable carrier　Z-axis: clamped table / moving base type (200W)



Ordering method



Specify various controller setting items. RCX340 ▶ P.544

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F17	F14H-BK
AC servo motor output (W)	600	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	5
Maximum speed Note 4 **(mm/sec) (°/sec)**	1200	1200	300
Moving range (mm)	250 to 1250	250 to 650	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

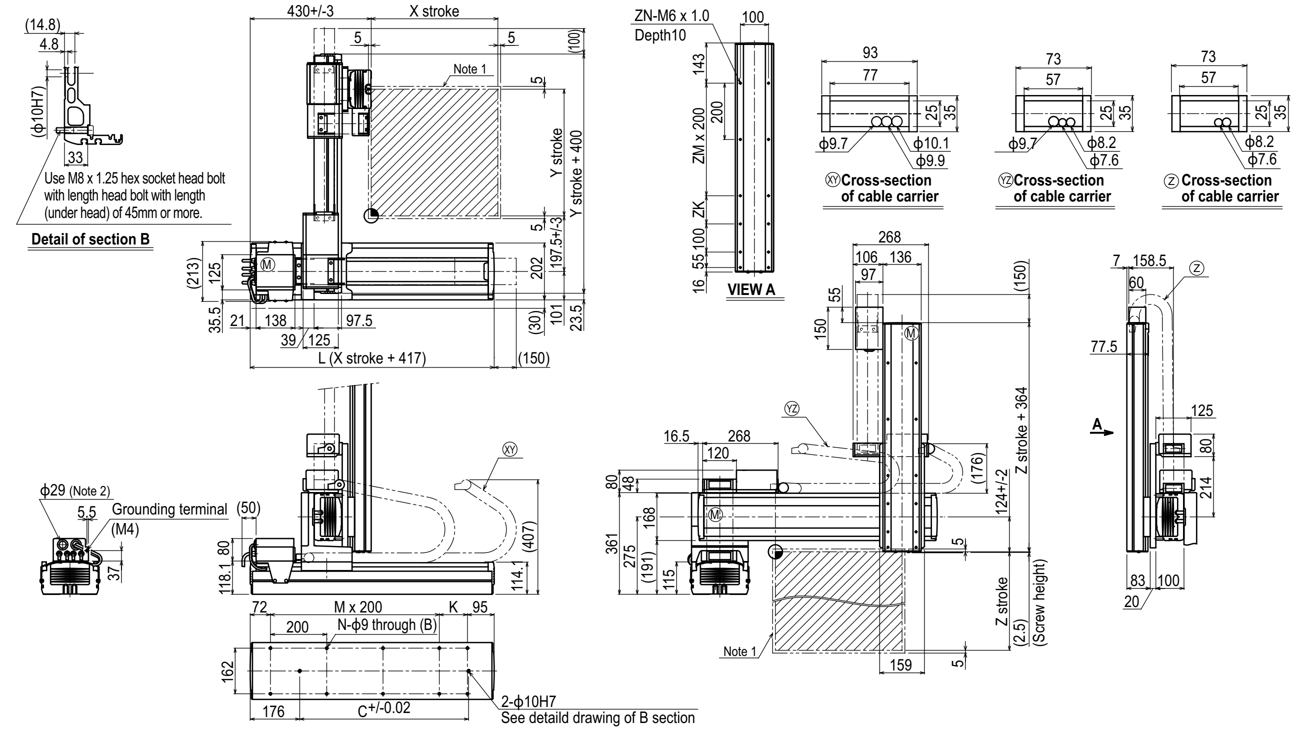
Maximum payload (kg)

	Z stroke (mm)			
Y stroke (mm)	**250**	**350**	**450**	**550**
250	25	25	24	23
350	25	25	24	23
450	20	20	19	18
550	18	17	16	15
650	18	17	16	15

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZH A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650

Z stroke	250	350	450	550
ZK	100	200	100	200
ZM	1	1	2	2
ZN	10	10	12	12

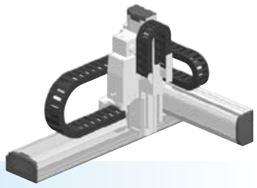
Maximum speed for each stroke (mm/sec) Note 3						
X-axis	1200	960	840	720	600	480
Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 4 axes / ZRL

Arm type Cable carrier Z-axis: clamped base / moving table type (200W)+R-axis



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZRL - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
HXYx	C	A1 A2 A3 A4	25 to 125cm	25 to 65cm	ZRL	25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F20	F17	F14H-BK	R20
AC servo motor output (W)	600	400	200	200
Repeatability Note 2 (XYZ: mm)(R: °)	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	10	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1200	1200	600	360
Moving range (XYZ: mm) (R: °)	250 to 1250	250 to 650	250 to 550	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

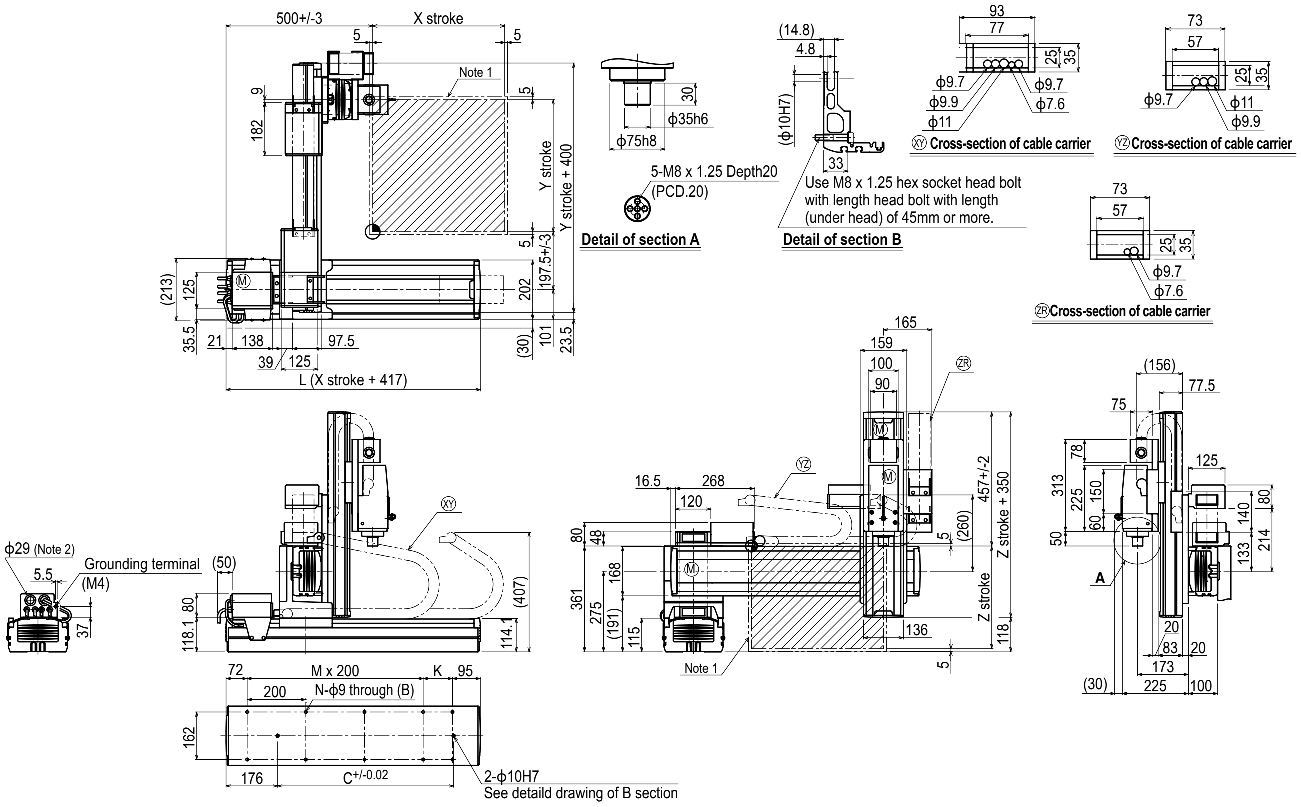
Maximum payload (kg)

	Z stroke (mm)			
Y stroke (mm)	250	350	450	550
250	12	12	12	12
350	12	12	12	12
450	12	12	12	11
550	10	9	8	7
650	10	9	8	7

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 4 axes / ZRL A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650

Z stroke	250	350	450	550

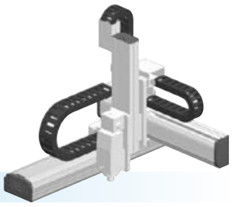
Maximum speed for each stroke (mm/sec) Note 3						
X-axis	1200	960	840	720	600	480
Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 4 axes / ZRH

Arm type　Cable carrier　Z-axis: clamped table / moving base type (200W)+R-axis



Ordering method

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
HXYx	C	A1 A2 A3 A4	25 to 125cm	25 to 65cm	ZRH	25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F20	F17	F14H-BK	R20
AC servo motor output (W)	600	400	200	200
Repeatability Note 2 **(XYZ: mm)(R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	5	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	300	360
Moving range (XYZ: mm) (R: °)	250 to 1250	250 to 650	250 to 550	360
Robot cable length (m)	Standard: 3.5　Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

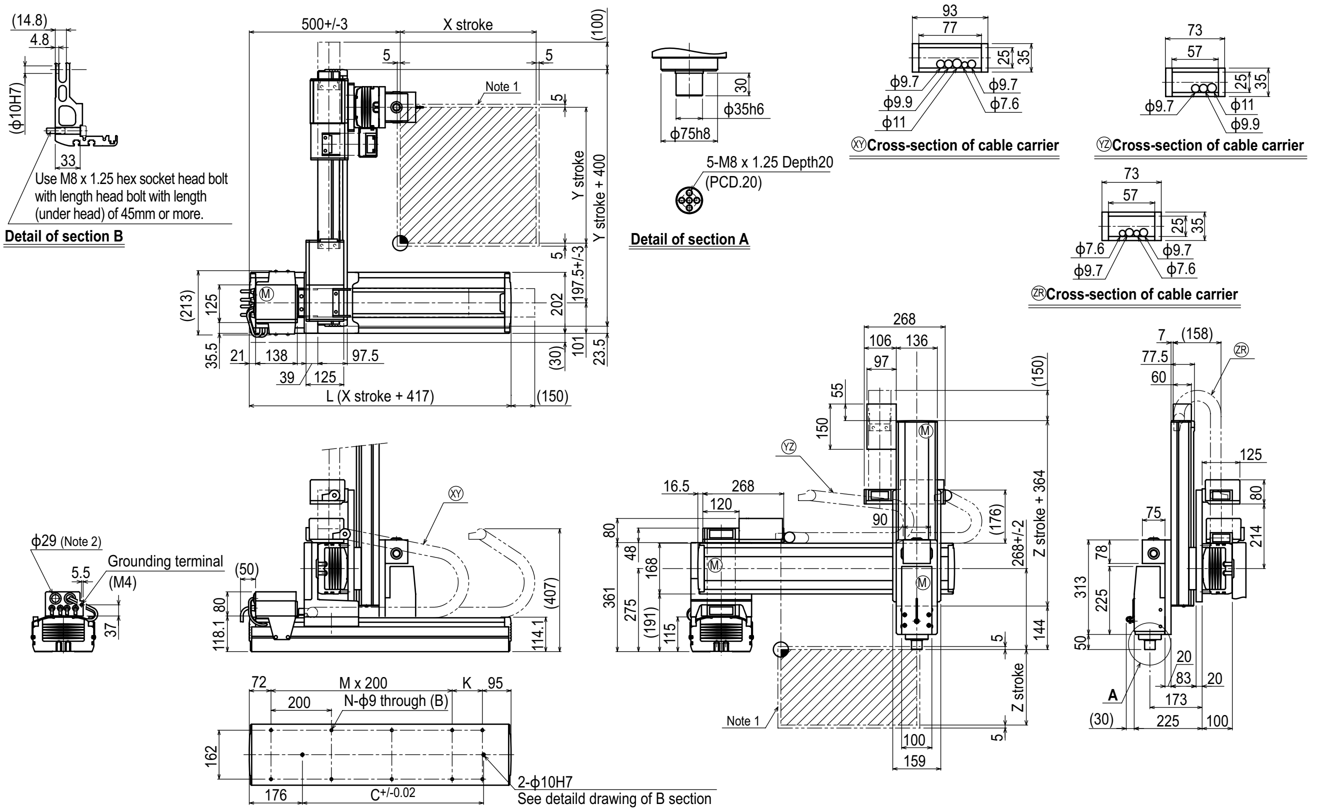
Maximum payload (kg)

	Z stroke (mm)			
Y stroke (mm)	**250**	**350**	**450**	**550**
250	12	12	12	12
350	12	12	12	12
450	12	12	12	11
550	11	10	9	8
650	11	10	9	8

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 4 axes / ZRH A1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650

Z stroke	250	350	450	550

Maximum speed for each stroke (mm/sec) Note 3							
	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYLx 2 axes

Arm type　Cable carrier

Ordering method

HXYLx -	C -	☐ -	☐ -	☐ -	☐ -	RCX222HP -	☐ -	R -	☐ -	☐
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regenerative unit**	**Input/Output selection 1**	**Input/Output selection 2**
		A1 A2 A3 A4	115 to 205cm	25 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F20N	F17
AC servo motor output (W)	400	400
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.01
Drive system	Ball screw (Class C10)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed (mm/sec)	1200	1200
Moving range (mm)	1150 to 2050	250 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

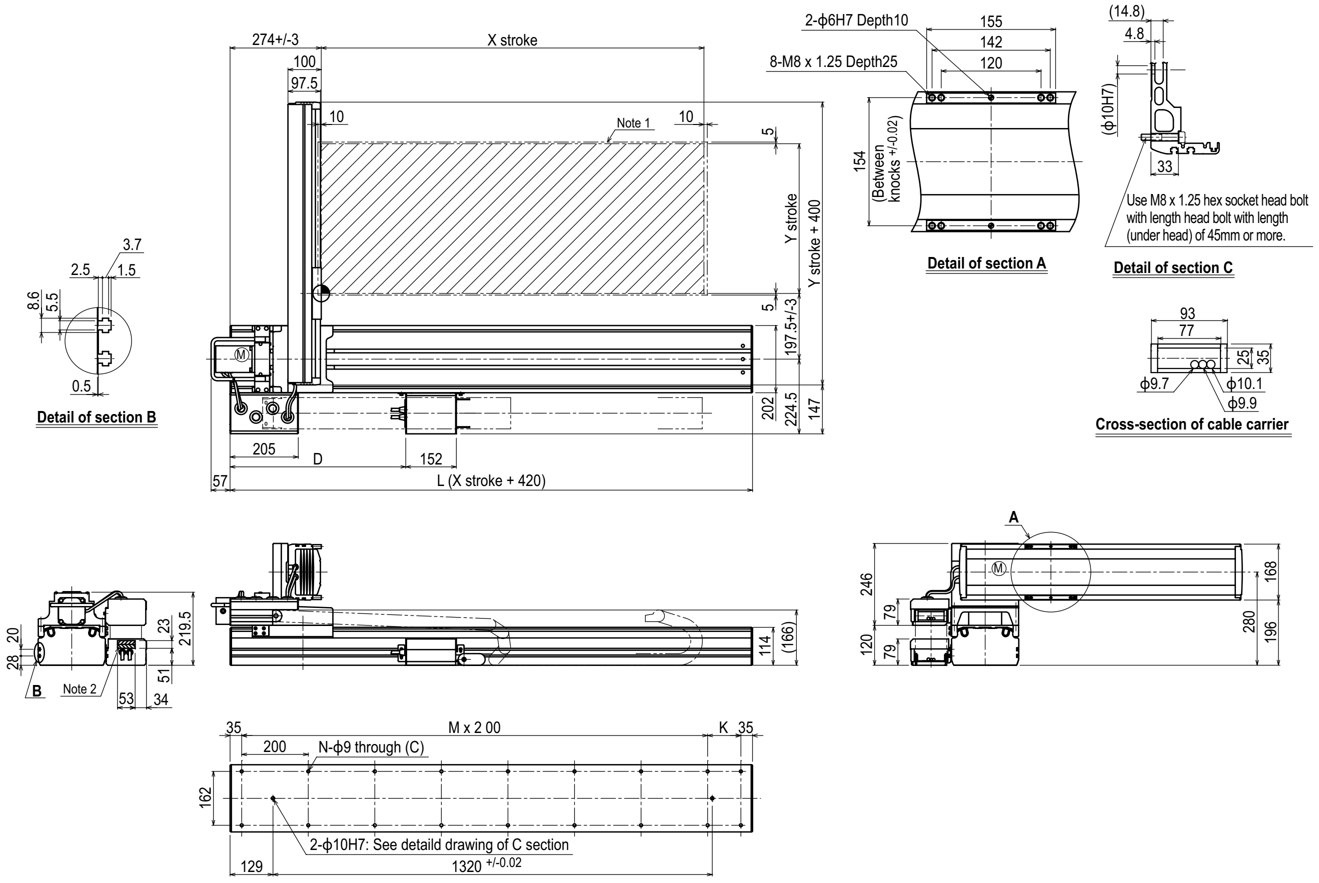
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250	40
350	40
450	35
550	30
650	30

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYLx 2 axes A1

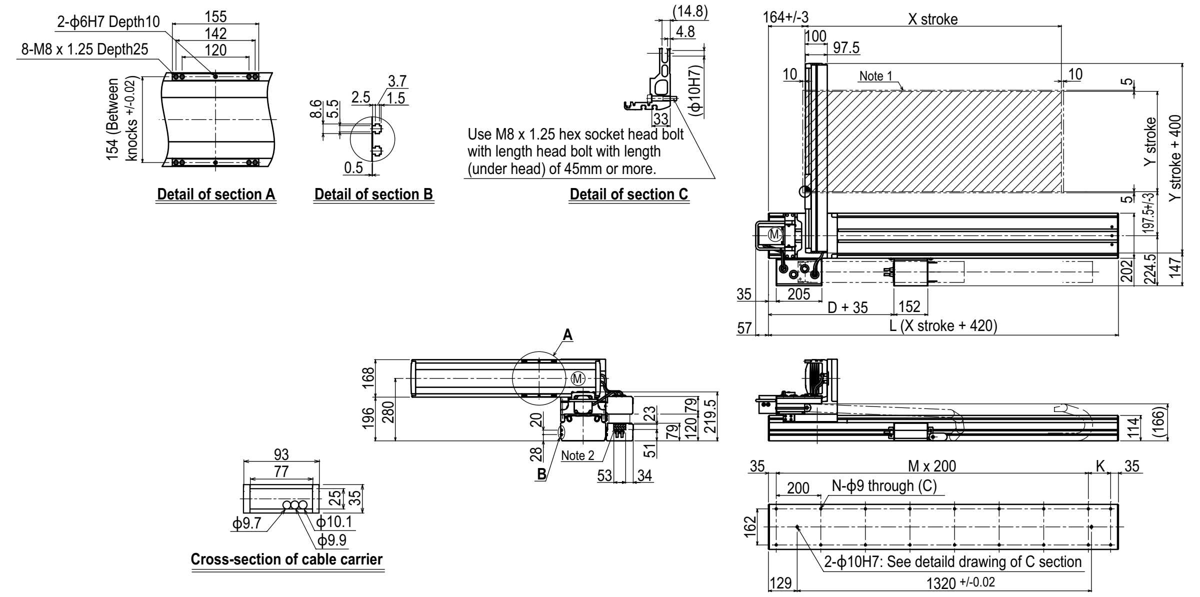


X stroke	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050
L	1570	1670	1770	1870	1970	2070	2170	2270	2370	2470
D	528	574	620	666	712	758	804	850	896	942
K	100	200	100	200	100	200	100	200	100	200
M	7	7	8	8	9	9	10	10	11	11
N	18	18	20	20	22	22	24	24	26	26

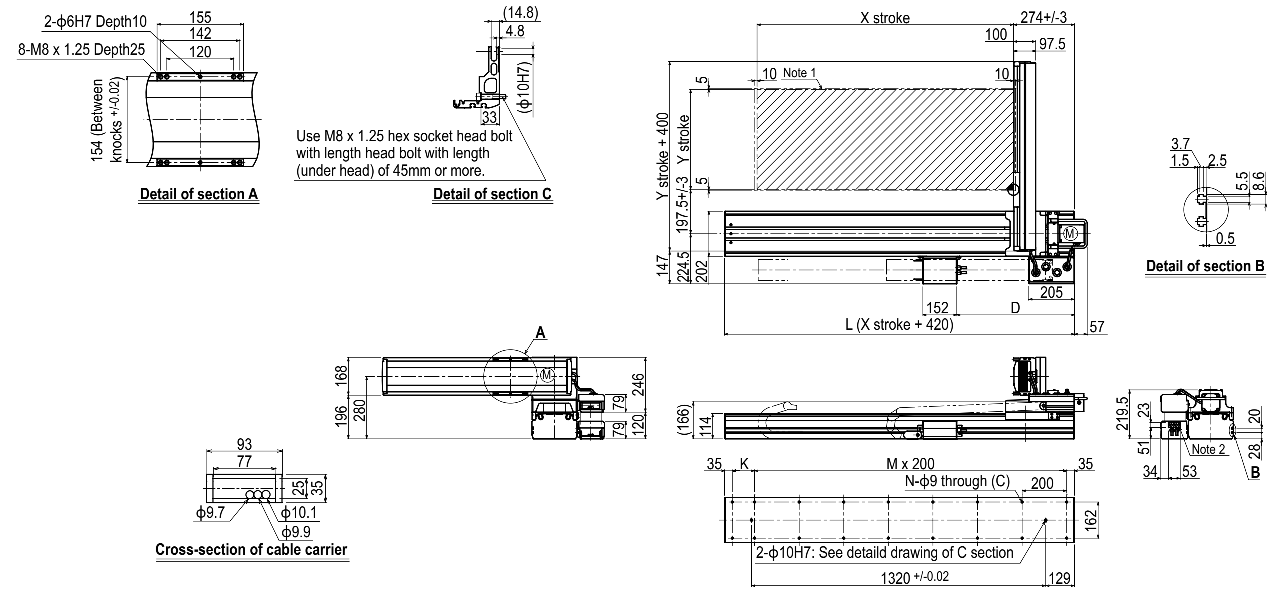
Y stroke	250	350	450	550	650

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

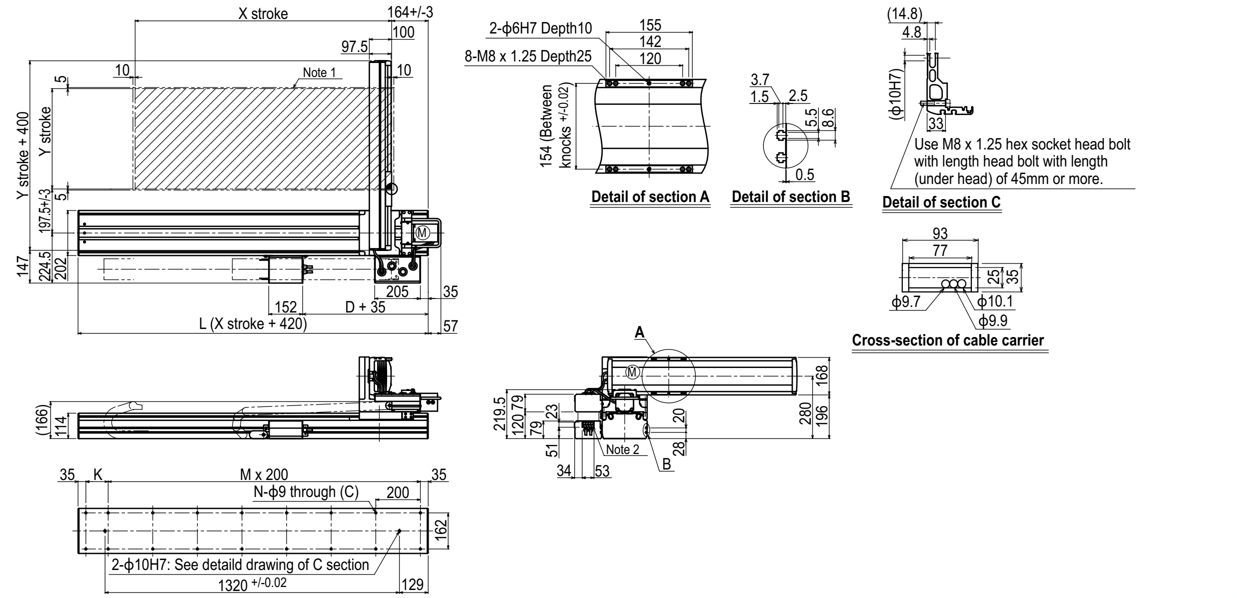
HXYLx 2 axes A2



HXYLx 2 axes A3



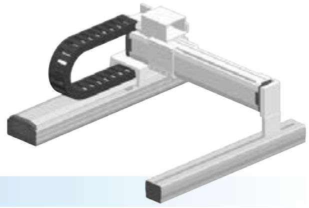
HXYLx 2 axes A4



YA Articulated robots
LCM100 Linear conveyor modules
TRANSERVO Compact single-axis robots
FLIP-X Single-axis robots
PHASER Linear motor single-axis robots
XY-X Cartesian robots
YK-X SCARA robots
YP-X Pick & place robots
CLEAN
CONTROLLER
INFORMATION
Arm type
Gantry type
Moving arm type
Pole type
XZ type

MXYx **2 axes**

Gantry type **Cable carrier**



Ordering method

MXYx - C - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - R - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	C	G1 G2 G3 G4	25 to 125cm	15 to 85cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1.NPN cannot be selected if using CE marking.
Note 2.Available only for the master. See P.68 for details on YC-Link system.
Note 3.Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	150 to 850
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

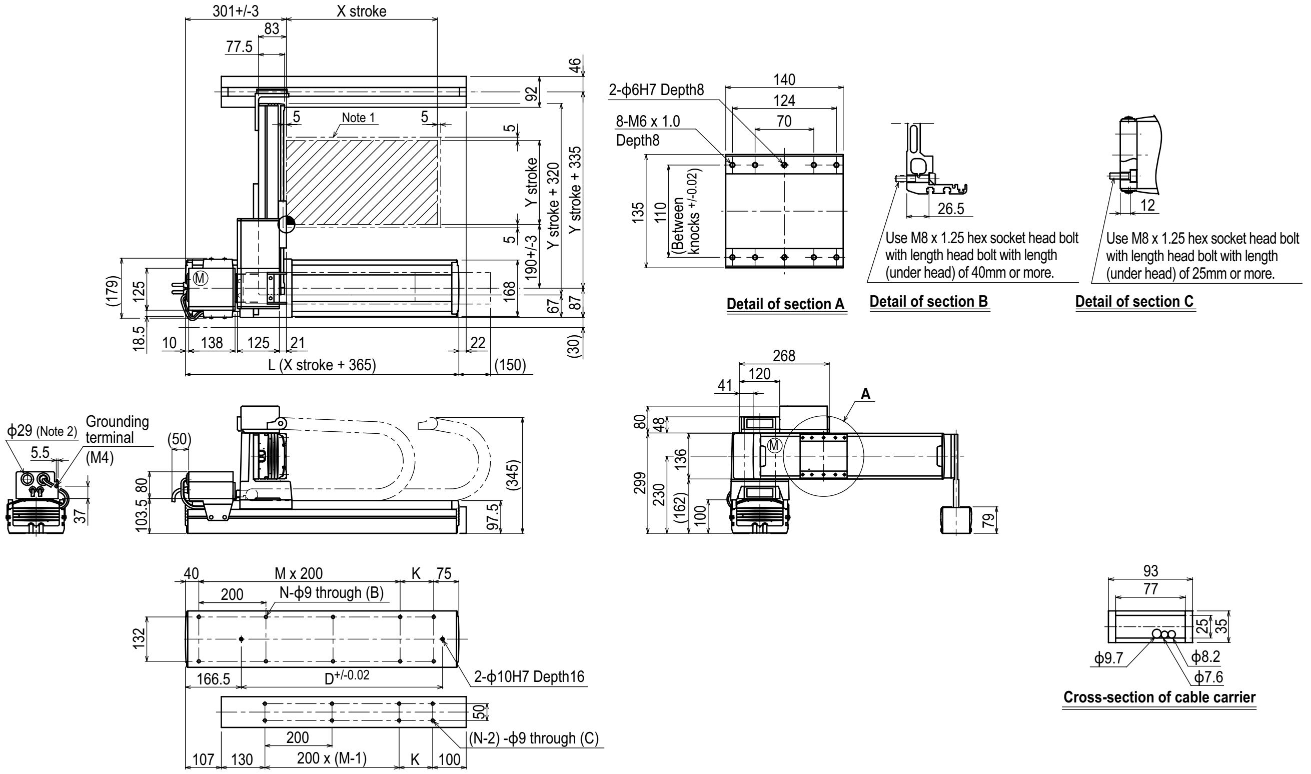
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	30
250	30
350	30
450	30
550	30
650	30
750	25
850	20

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes G1



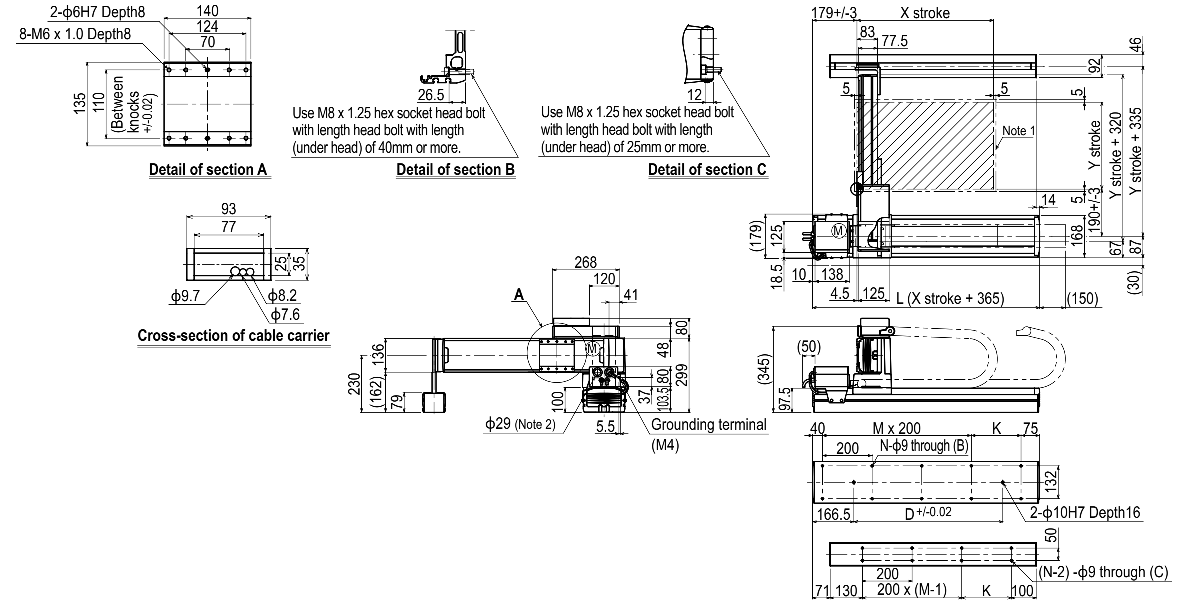
X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

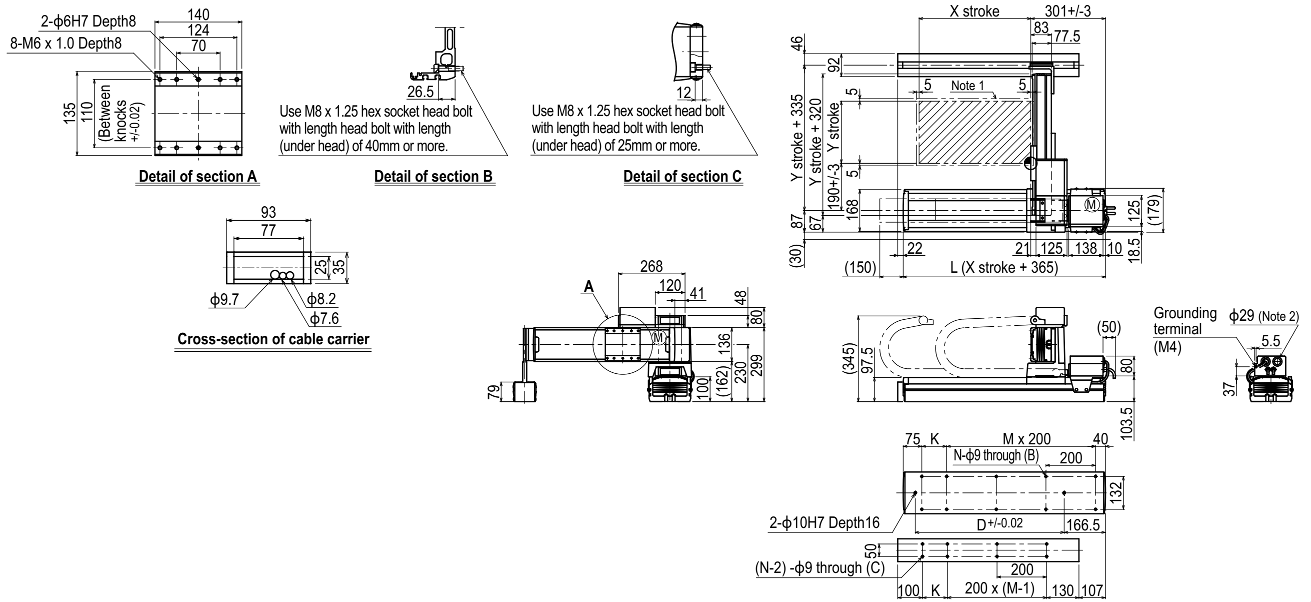
Y stroke		150	250	350	450	550	650	750	850			
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%
	Y-axis	1200						960	780			
	Speed setting	–						80%	65%			

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

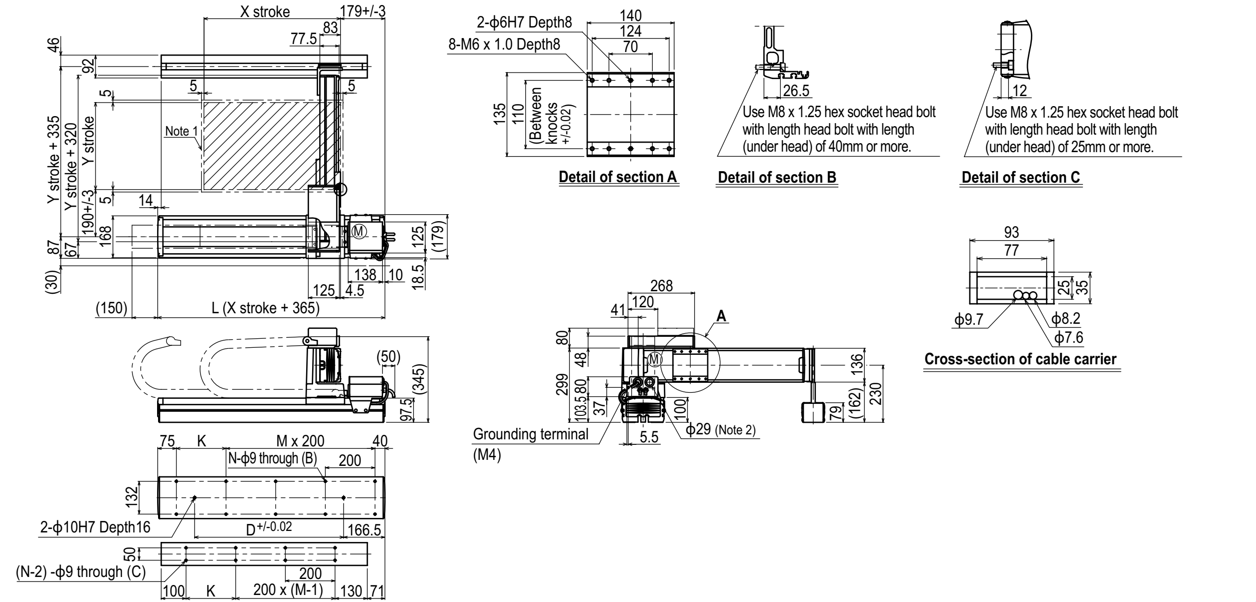
MXYx 2 axes G2



MXYx 2 axes G3

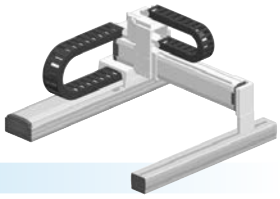


MXYx 2 axes G4



MXYx 2 axes / IO

● Gantry type ● Cable carrier ● Type with Y-axis I/O cable carrier added



Ordering method

MXYx	- C	-	-	-	- IO	-	- RCX222	-	- R	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Cable**	**Controller**	**Usable for CE**	**Regenerative unit**	**Input/Output selection 1**	**Input/Output selection 2**
		G1 G2 G3 G4	25 to 125cm	15 to 85cm		3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1.NPN cannot be selected if using CE marking.
Note 2.Available only for the master. See P.68 for details on YC-Link system.
Note 3.Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	150 to 850
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

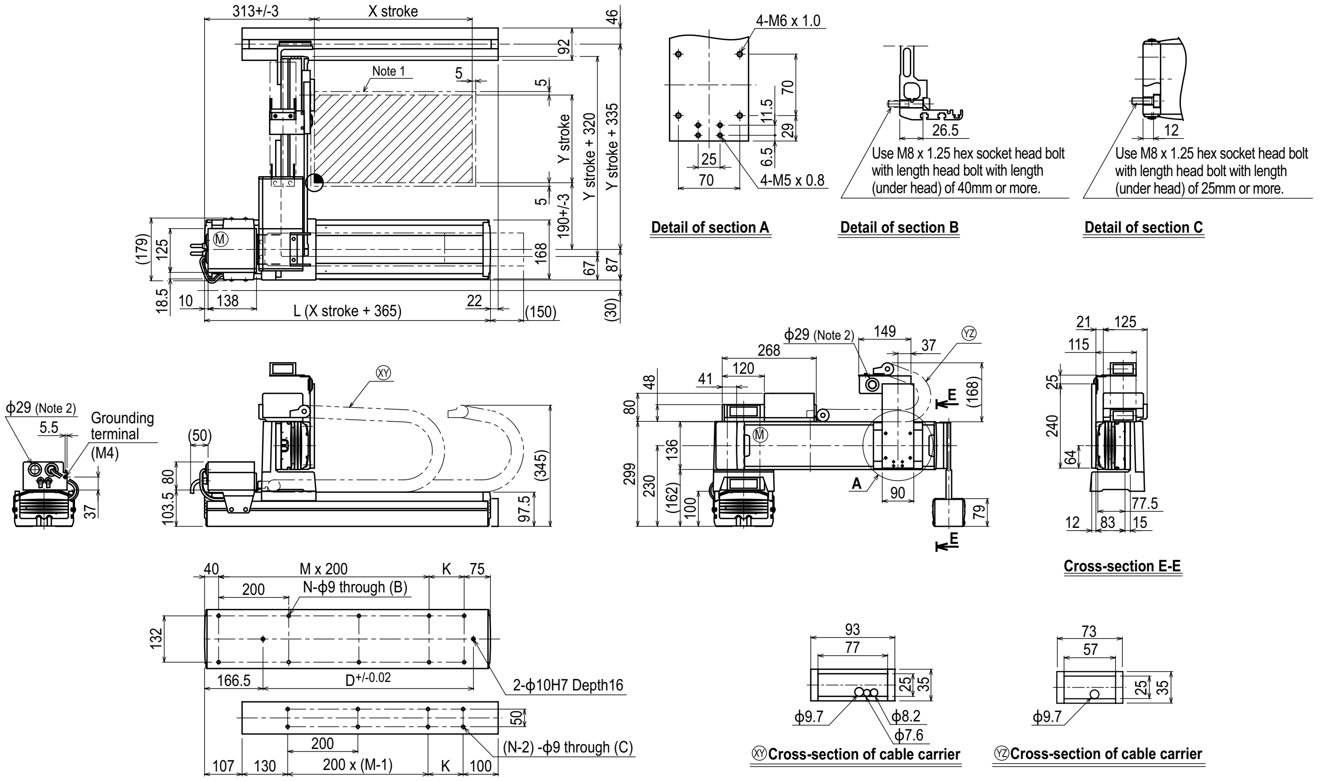
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	29
250	29
350	29
450	29
550	29
650	29
750	24
850	19

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes / IO G1



Detail of section A

Detail of section B

Detail of section C

Cross-section E-E

Ⓧⓨ Cross-section of cable carrier

Ⓨⓩ Cross-section of cable carrier

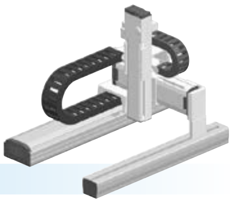
X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
D		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		150	250	350	450	550	650	750	850			
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200							960	840	720	600	480
	Speed setting	–							80%	70%	60%	50%	40%
	Y-axis	1200						960	780			
	Speed setting	–						80%	65%			

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 3 axes / ZFL20/10

Gantry type · Cable carrier · Z-axis: clamped base / moving table type (200W)



Ordering method

MXYx - C - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	G1 G2 G3 G4	25 to 125cm	15 to 85cm	ZFL20 ZFL10	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZFL20	Z-axis: ZFL10
Axis construction Note 1	F17	F14H-BK	F10-BK equivalent guide-reinforced model	
AC servo motor output (W)	400	200	200	
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	20	10
Maximum speed Note 4 (mm/sec)	1200	1200	1200	600
Moving range (mm)	250 to 1250	150 to 850	150 to 350	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note. The standard types are ZFL with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

Maximum payload

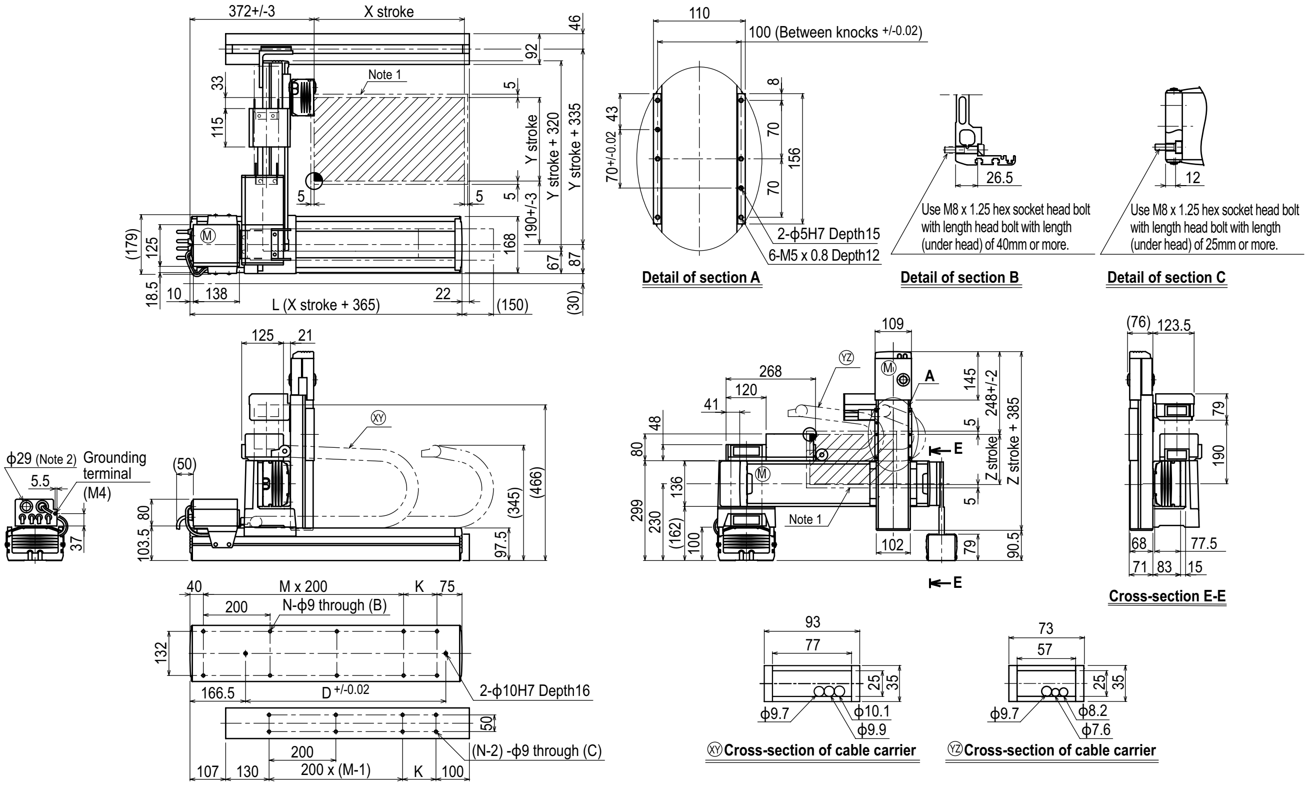
(kg)

	Z stroke (mm)					
	ZFL20			ZFL10		
Y stroke (mm)	150	250	350	150	250	350
150	8	8	8	15	15	15
250	8	8	8	15	15	15
350	8	8	8	15	15	15
450	8	8	8	15	15	15
550	8	8	8	15	15	15
650	8	8	8	15	15	15
750	8	8	8	15	15	15
850	8	8	8	12	11	10

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFL20/10 G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650	750	850

Z stroke	150	250	350

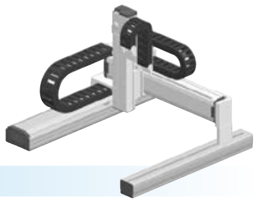
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%
	Y-axis	1200	960	780			
	Speed setting	–	80%	65%			

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 3 axes / ZFH

● Gantry type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)



Ordering method

MXYx - C - ☐ - ☐ - ☐ - ZFH - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	G1 G2 G3 G4	25 to 125cm	15 to 85cm	ZFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	☐	☐	☐	☐	☐	☐	☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240	☐	R	☐	☐	☐	☐	☐
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	200	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	250 to 1250	150 to 850	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note. The standard types are ZFH with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

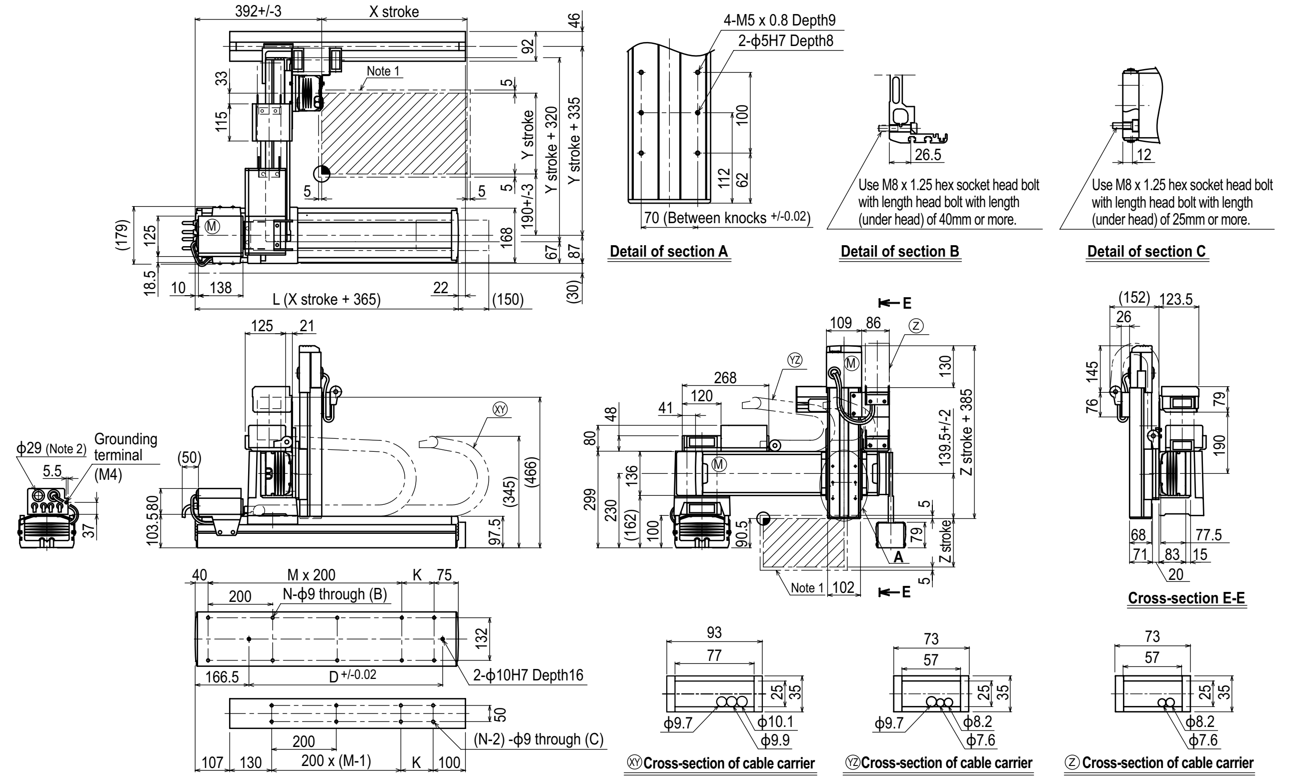
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	14	13	12
250	14	13	12
350	14	13	12
450	14	13	12
550	14	13	12
650	14	13	12
750	14	13	12
850	12	11	10

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFH G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650	750	850

Z stroke	150	250	350

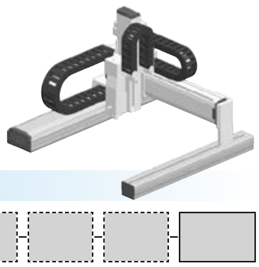
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%
	Y-axis	1200						960	780			
	Speed setting	–						80%	65%			

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx

4 axes / ZRFL20/10



Gantry type   Cable carrier   Z-axis: clamped base / moving table type (200W)+R-axis

Ordering method

MXYx - C - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	G1 G2 G3 G4	25 to 125cm	15 to 85cm	ZRFL20 ZRFL10	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZRFL20	Z-axis: ZRFL10	R-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model		R5
AC servo motor output (W)	400	200	200		50
Repeatability Note 2 **(XYZ: mm)(R: °)**	+/-0.01	+/-0.01	+/-0.01		+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)		Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	20	10	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	1200	600	360
Moving range (XYZ: mm)(R: °)	250 to 1250	150 to 850	150 to 350		360
Robot cable length (m)	Standard: 3.5 Option: 5,10				

Note. The standard types are ZRFL with higher rigidity as compared with ZRF types which are conventional standard types. When you need the ZRF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

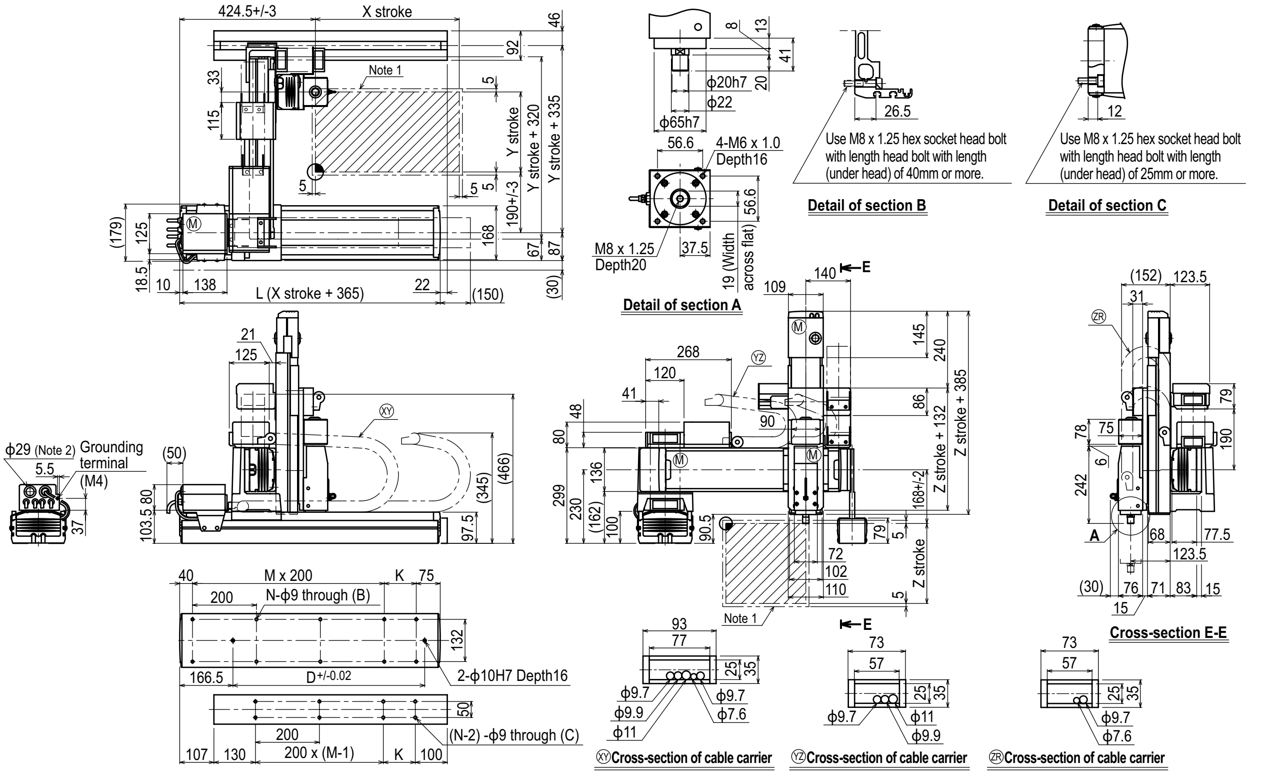
Maximum payload (kg)

	Z stroke (mm)					
	ZRFL20			ZRFL10		
Y stroke (mm)	150	250	350	150	250	350
150	4	4	4	11	11	11
250	4	4	4	11	11	11
350	4	4	4	11	11	11
450	4	4	4	11	11	11
550	4	4	4	11	11	11
650	4	4	4	11	11	11
750	4	4	4	11	11	11
850	4	4	4	8	7	6

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 4 axes / ZRFL20/10 G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650	750	850

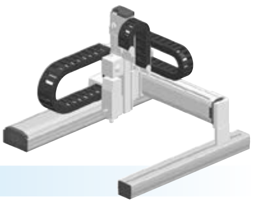
Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%
	Y-axis	1200						960	780			
	Speed setting	–						80%	65%			

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 4 axes / ZRFH



● Gantry type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)+R-axis

Ordering method

MXYx	- C	-	-	-	- ZRFH	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**
		G1 G2 G3 G4	25 to 125cm	15 to 85cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240	-	- R	-	-	-	-	-
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model	R5
AC servo motor output (W)	400	200	200	50
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	600	360
Moving range (XYZ: mm) (R: °)	250 to 1250	150 to 850	150 to 350	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note. The standard types are ZRFH with higher rigidity as compared with ZRF types which are conventional standard types. When you need the ZRF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

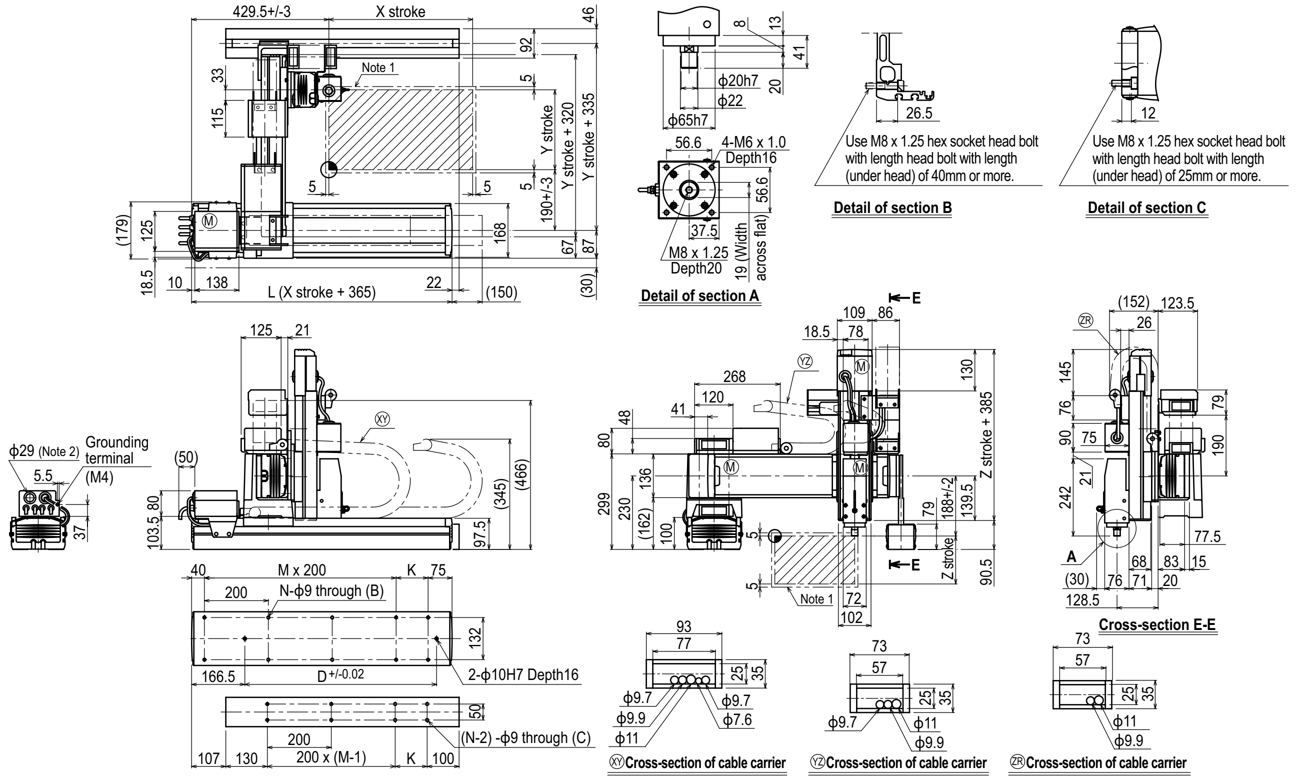
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	10	9	8
250	10	9	8
350	10	9	8
450	10	9	8
550	10	9	8
650	10	9	8
750	10	9	8
850	8	7	6

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 4 axes / ZRFH G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650	750	850

Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%
	Y-axis	1200						960	780			
	Speed setting	–						80%	65%			

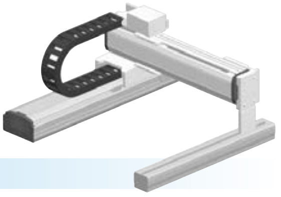
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm (750mm for Y-axis), resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

HXYx 2 axes

Gantry type   Cable carrier



Ordering method

HXYx	- C	-	-	-	-	- RCX222HP	-	- R	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
		G1 G2 G3 G4	25 to 125cm	25 to 105cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2.Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F20	F17
AC servo motor output (W)	600	400
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	250 to 1050
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

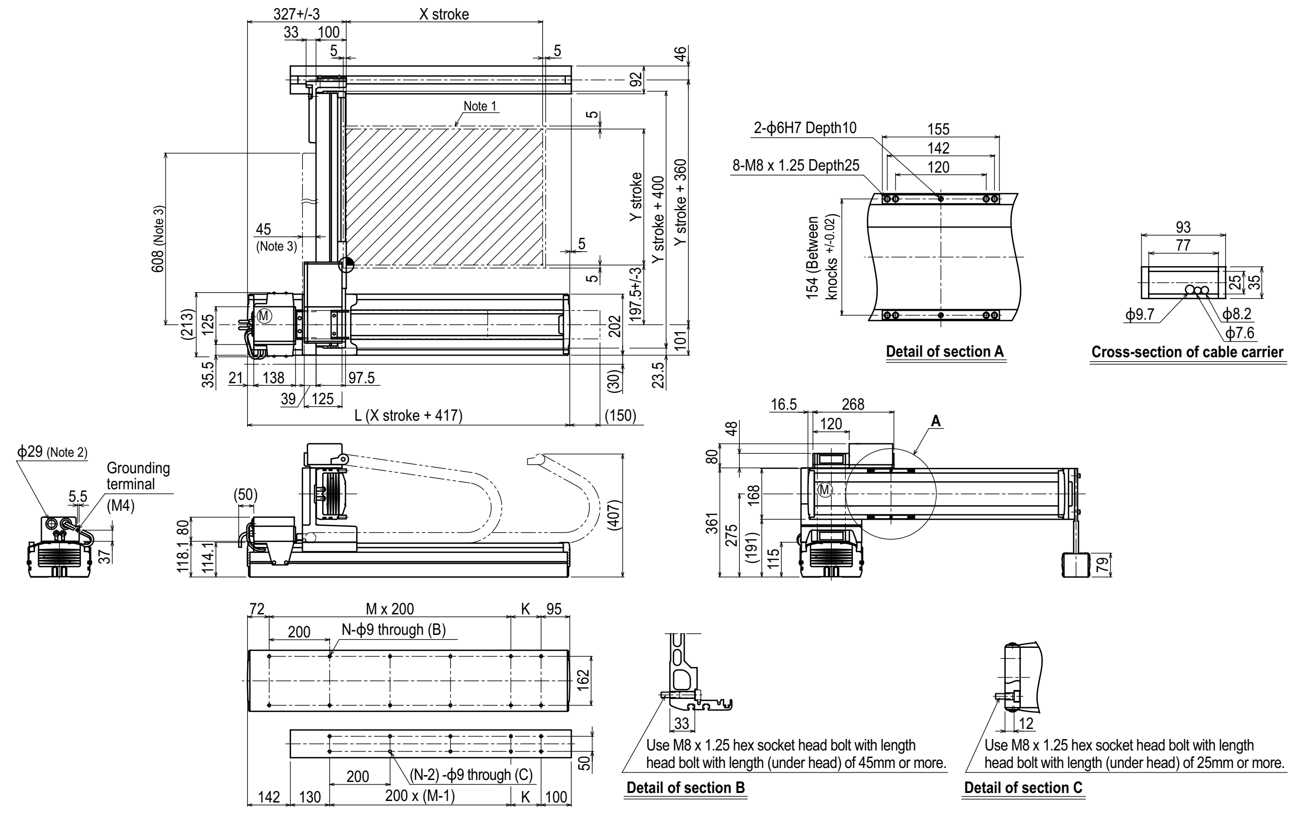
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250 to 1050	50

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes G1

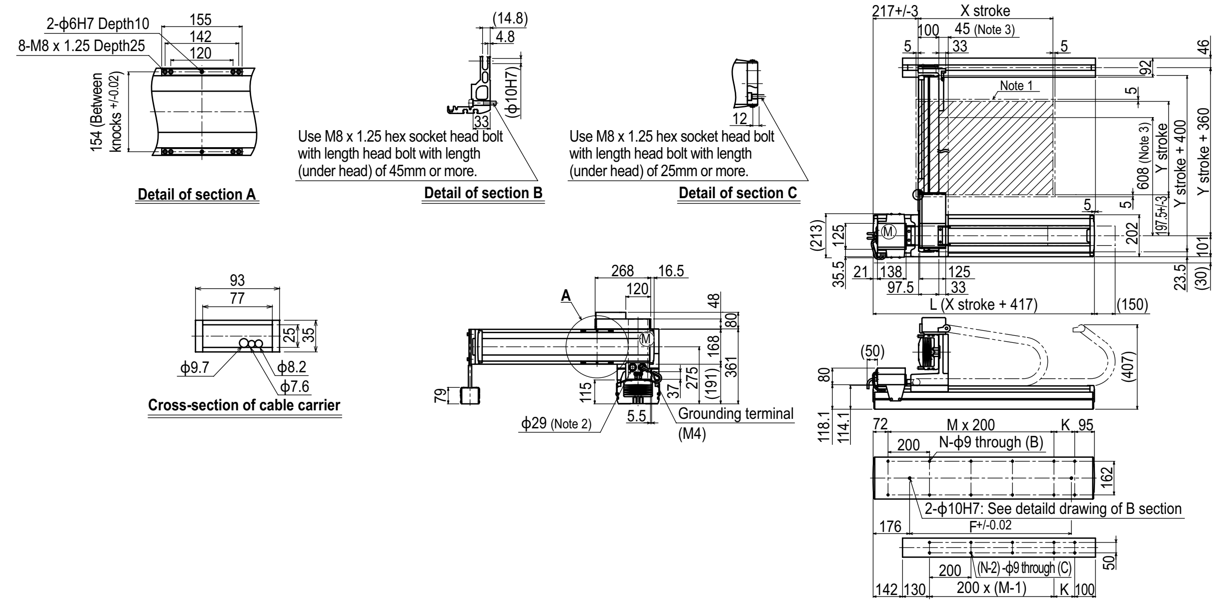


X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K		100	200	100	200	100	200	100	200	100	200	100
F		420	420	600	600	780	780	960	960	1140	1320	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		250	350	450	550	650	750	850	950	1050		
Maximum speed for each stroke (mm/sec) Note 4	**X-axis**	1200						960	840	720	600	480
	Y-axis	1200						960	840	720		
	Speed setting	–						80%	70%	60%	50%	40%

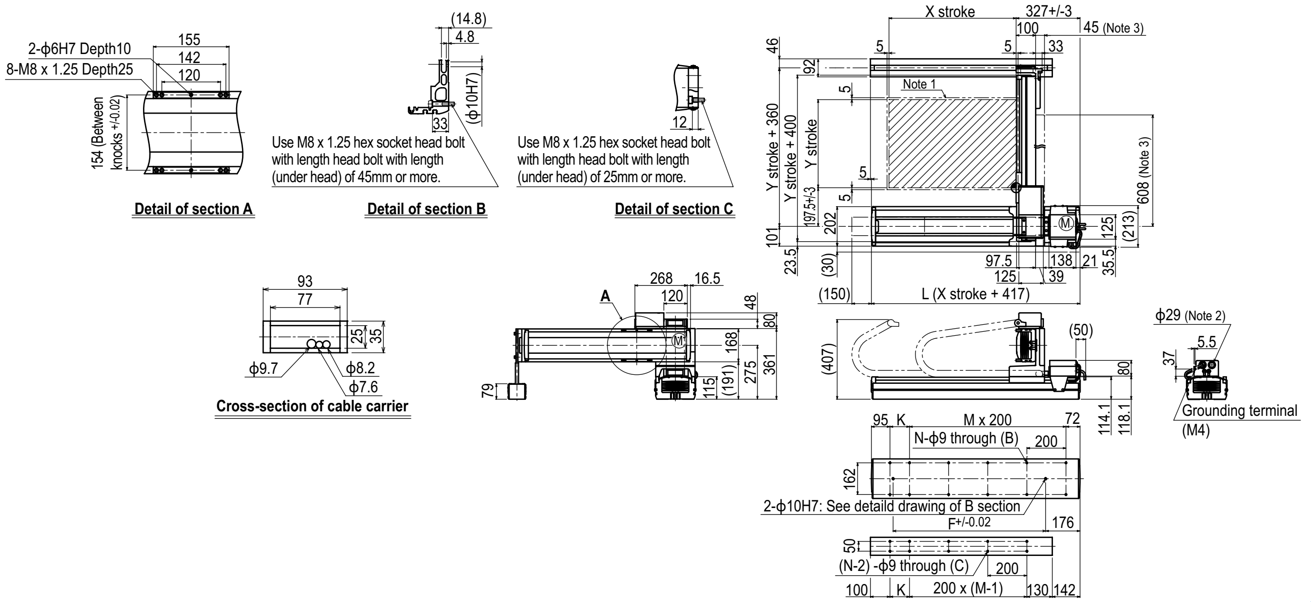
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

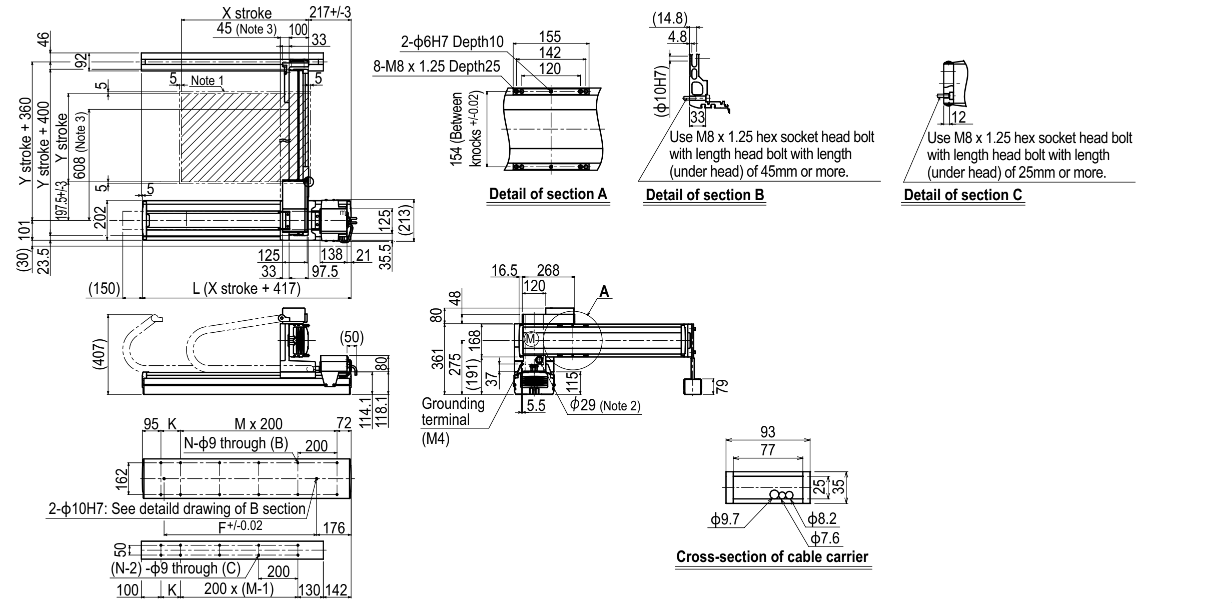
HXYx 2 axes G2



HXYx 2 axes G3

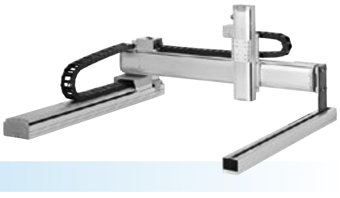


HXYx 2 axes G4



HXYx 3 axes / ZL

Gantry type　Cable carrier　Z-axis: clamped base / moving table type (200W)



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZL - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination - X-axis stroke - Y-axis stroke - ZR-axis - Z-axis stroke - Cable - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Combination: G1 / G2 / G3 / G4
X-axis stroke: 25 to 125cm
Y-axis stroke: 25 to 105cm
Z-axis stroke: 25 to 55cm
Cable: 3L: 3.5m / 5L: 5m / 10L: 10m

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F17	F14H-BK
AC servo motor output (W)	600	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	250 to 1250	250 to 1050	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

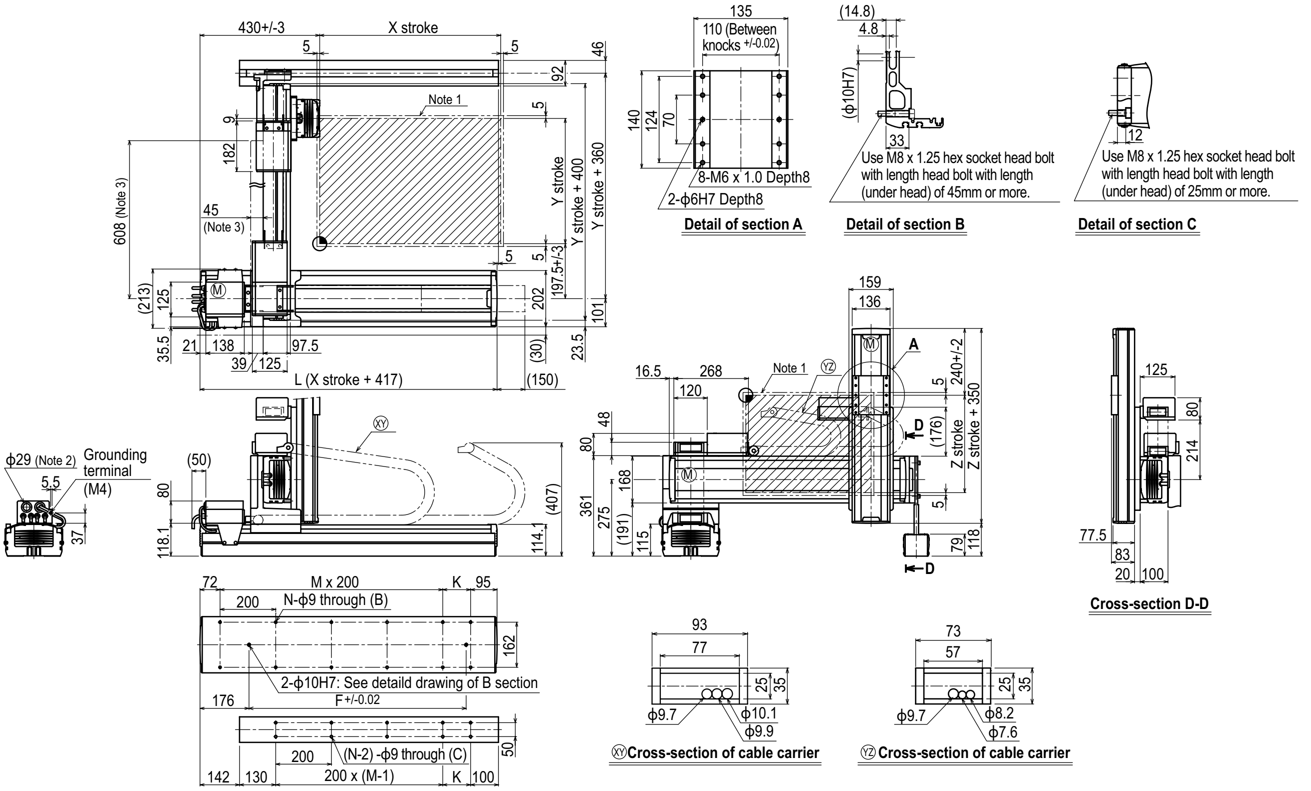
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	**250 to 550**
250 to 1050	20

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZL G1

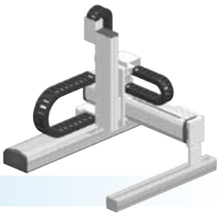


X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K		100	200	100	200	100	200	100	200	100	200	100
F		420	420	600	600	780	780	960	960	1140	1320	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		250	350	450	550	650	750	850	950	1050		
Z stroke		250	350	450	550							
Maximum speed for each stroke (mm/sec) Note 4	**X-axis**	1200						960	840	720	600	480
	Y-axis	1200						960	840	720		
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 3 axes / ZH



● Gantry type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)

Ordering method

HXYx - **C** - ☐ - ☐ - ☐ - **ZH** - ☐ - ☐ - **RCX340-3** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination (G1 / G2 / G3 / G4) - X-axis stroke (25 to 125cm) - Y-axis stroke (25 to 105cm) - ZR-axis - Z-axis stroke (25 to 55cm) - Cable (3L: 3.5m / 5L: 5m / 10L: 10m) - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - **R** - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F17	F14H-BK
AC servo motor output (W)	600	400	200
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	5
Maximum speed Note 4 (mm/sec)	1200	1200	300
Moving range (mm)	250 to 1250	250 to 1050	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

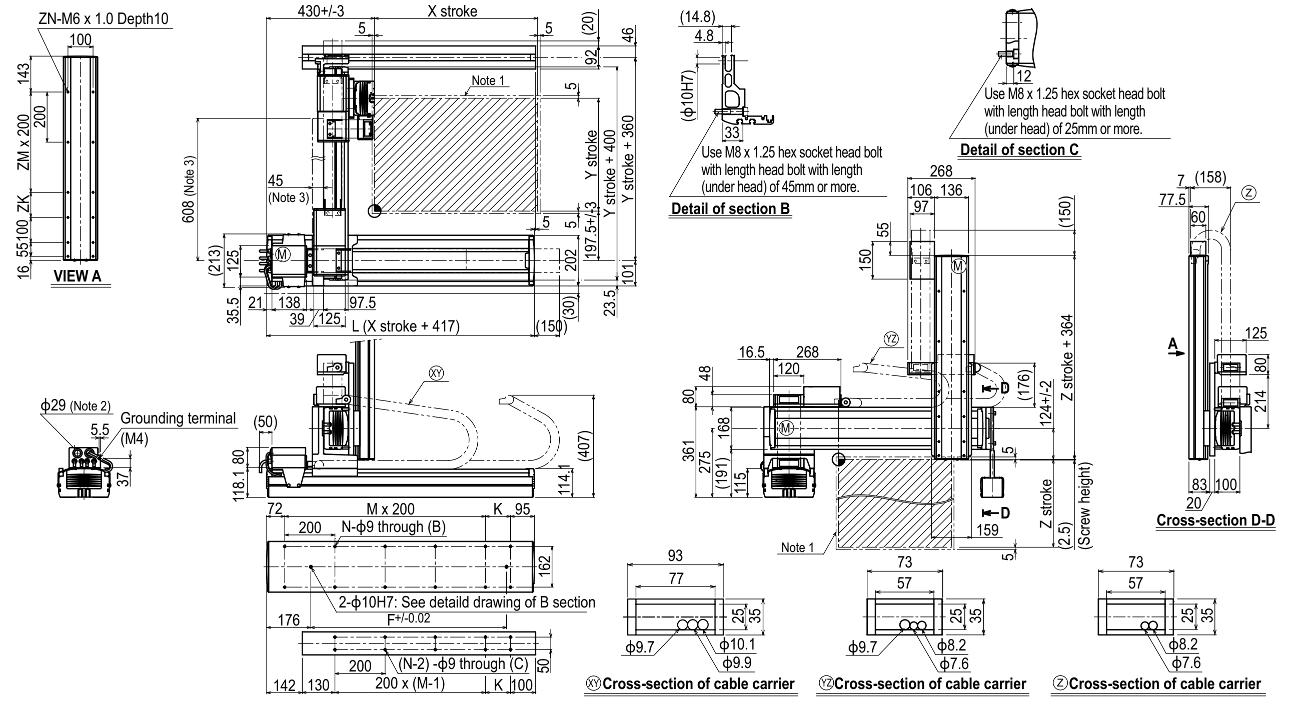
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	250 to 550
250 to 1050	30

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZH G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
F	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650	750	850	950	1050

Z stroke	250	350	450	550
ZK	100	200	100	200
ZM	1	1	2	2
ZN	10	10	12	12

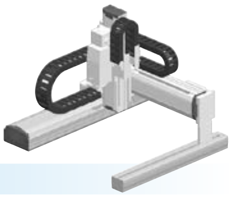
Maximum speed for each stroke (mm/sec) Note 4		250	350	450	550	650	750	850	950	1050	1150	1250
	X-axis	1200						960	840	720	600	480
	Y-axis	1200						960	840	720		
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 4 axes / ZRL

Gantry type · Cable carrier · Z-axis: clamped base / moving table type (200W)+R-axis



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZRL - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination - X-axis stroke - Y-axis stroke - ZR-axis - Z-axis stroke - Cable - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Combination	X-axis stroke	Y-axis stroke	Z-axis stroke	Cable
G1	25 to 125cm	25 to 105cm	25 to 55cm	3L: 3.5m
G2				5L: 5m
G3				10L: 10m
G4				

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F20	F17	F14H-BK	R20
AC servo motor output (W)	600	400	200	200
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	600	360
Moving range (XYZ: mm) (R: °)	250 to 1250	250 to 1050	250 to 550	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

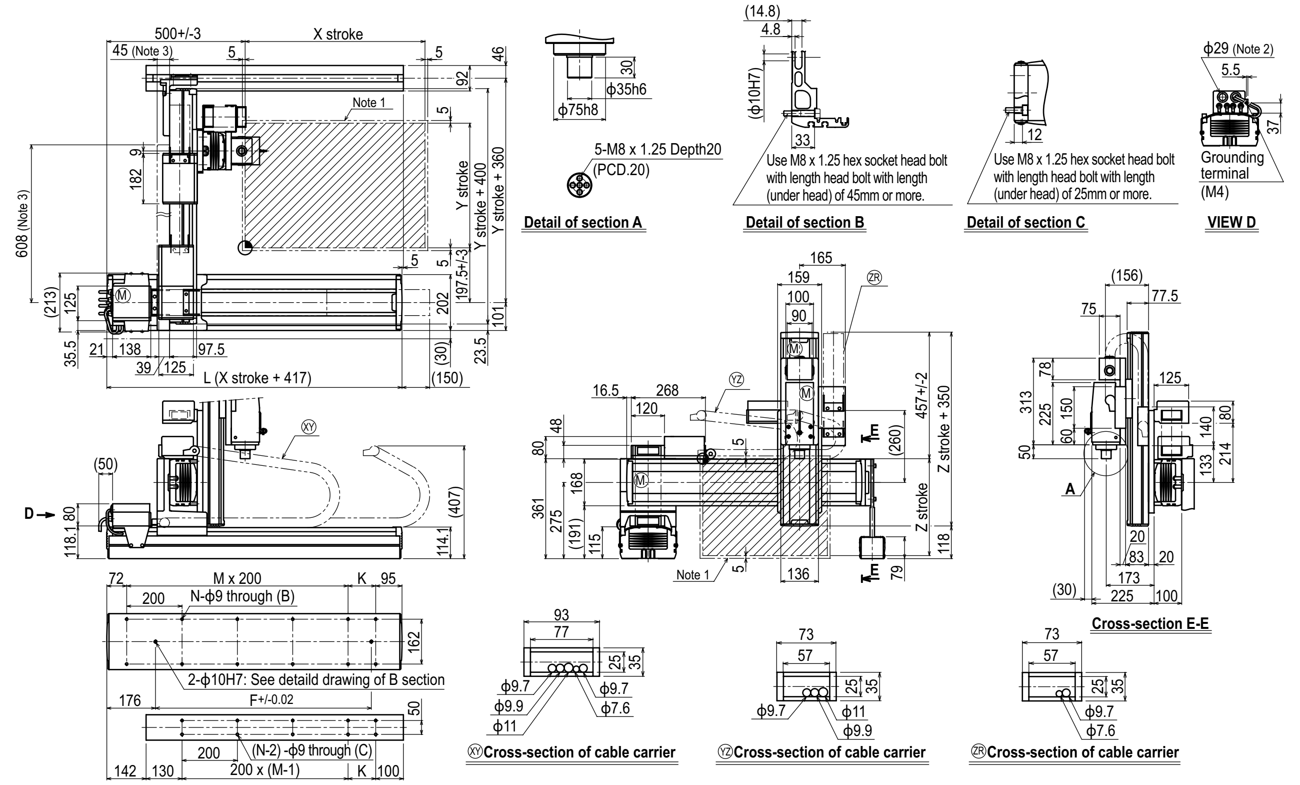
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	**250 to 550**
250 to 1050	12

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 4 axes / ZRL G1


500+/-3
X stroke
45 (Note 3)
Note 1
608 (Note 3)
Y stroke
Y stroke + 400
Y stroke + 360
L (X stroke + 417)
M x 200
N-ϕ9 through (B)
2-ϕ10H7: See detaild drawing of B section
F+/-0.02
(N-2) -ϕ9 through (C)
200 x (M-1)
D
ϕ35h6
ϕ75h8
5-M8 x 1.25 Depth20 (PCD.20)
Detail of section A
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.
Detail of section B
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 25mm or more.
Detail of section C
ϕ29 (Note 2)
Grounding terminal (M4)
VIEW D
Z stroke
457+/-2
Z stroke + 350
Cross-section E-E
ⓍⓎCross-section of cable carrier
ⓎⓏCross-section of cable carrier
ⓏⓇCross-section of cable carrier

X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
F	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650	750	850	950	1050

Z stroke	250	350	450	550

Maximum speed for each stroke (mm/sec) Note 4		250 to 750	850	950	1050	1150	1250
	X-axis	1200	960	840	720	600	480
	Y-axis	1200	960	840	720		
	Speed setting	–	80%	70%	60%	50%	40%

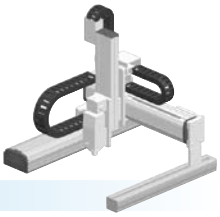
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx

4 axes / ZRH

Gantry type · Cable carrier · Z-axis: clamped table / moving base type (200W)+R-axis



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZRH - ☐ - ☐ - RCX340-4 ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
HXYx	C	G1 G2 G3 G4	25 to 125cm	25 to 105cm	ZRH	25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis	R-axis
Axis construction Note 1	F20	F17	F14H	R20
AC servo motor output (W)	600	400	200	200
Repeatability Note 2 **(XYZ: mm) (R: °)**	+/-0.01	+/-0.01	+/-0.01	+/-0.0083
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	Harmonic gear
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	5	(1/50)
Maximum speed Note 4 **(XYZ: mm/sec) (R: °/sec)**	1200	1200	300	360
Moving range (XYZ: mm) (R: °)	250 to 1250	250 to 1050	250 to 550	360
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

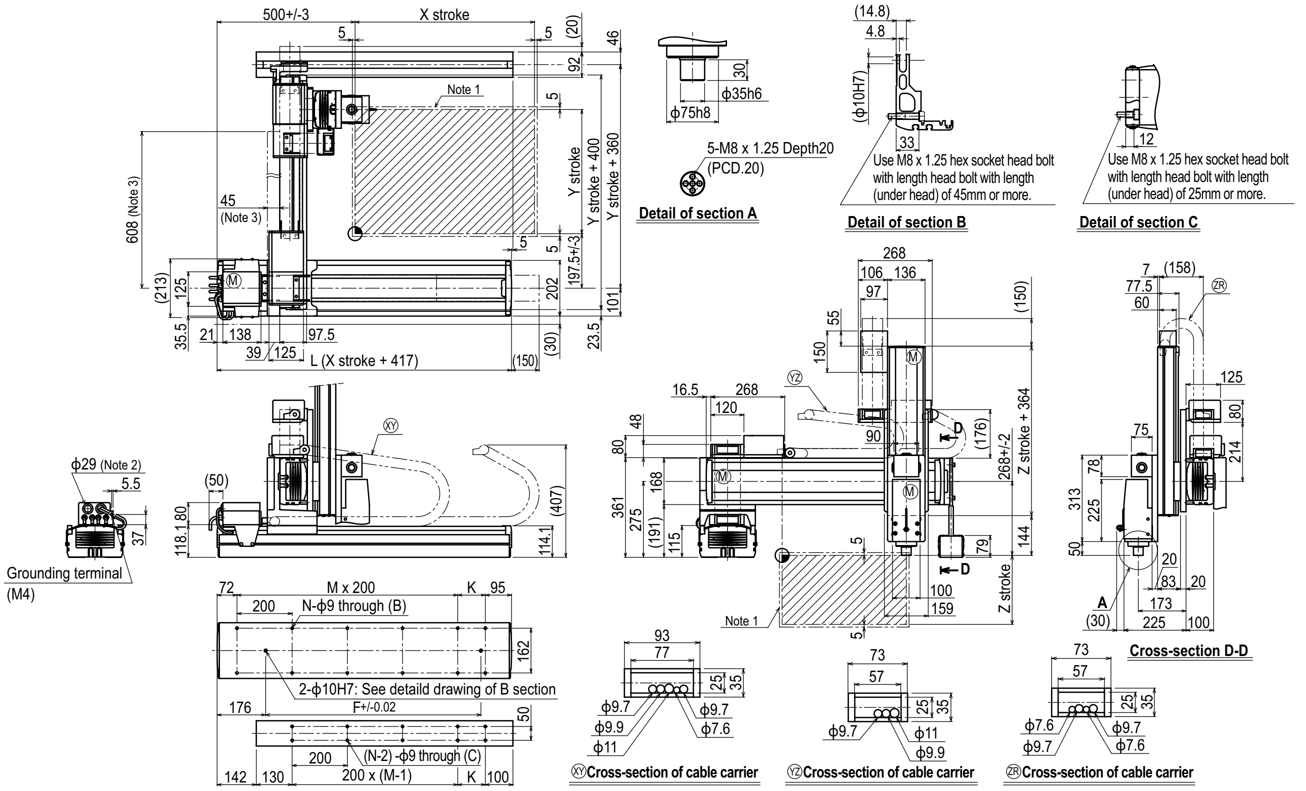
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	250 to 550
250 to 1050	20

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 4 axes / ZRH G1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
F	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650	750	850	950	1050

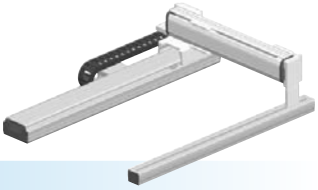
Z stroke	250	350	450	550

		250–750	850	950	1050	1150	1250
Maximum speed for each stroke (mm/sec) Note 4	X-axis	1200	960	840	720	600	480
	Y-axis	1200	960	840	720		
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYLx 2 axes



Gantry type **Cable carrier**

Ordering method

HXYLx - C - ☐ - ☐ - ☐ - ☐ - RCX222HP - ☐ - R - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
HXYLx	C	G1 G2 G3 G4	115 to 205cm	25 to 105cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F20N	F17
AC servo motor output (W)	400	400
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.01
Drive system	Ball screw (Class C10)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	1150 to 2050	250 to 1050
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

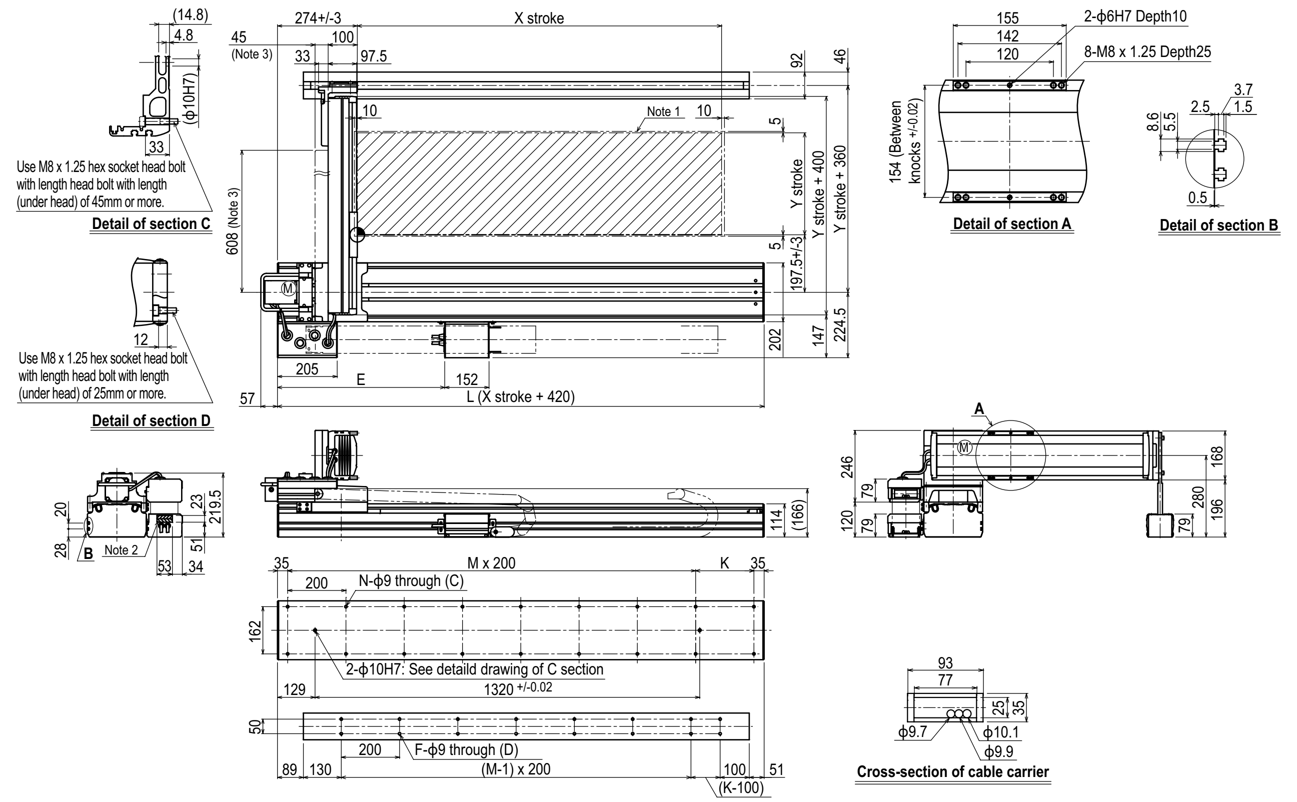
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250 to 1050	50

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYLx 2 axes G1



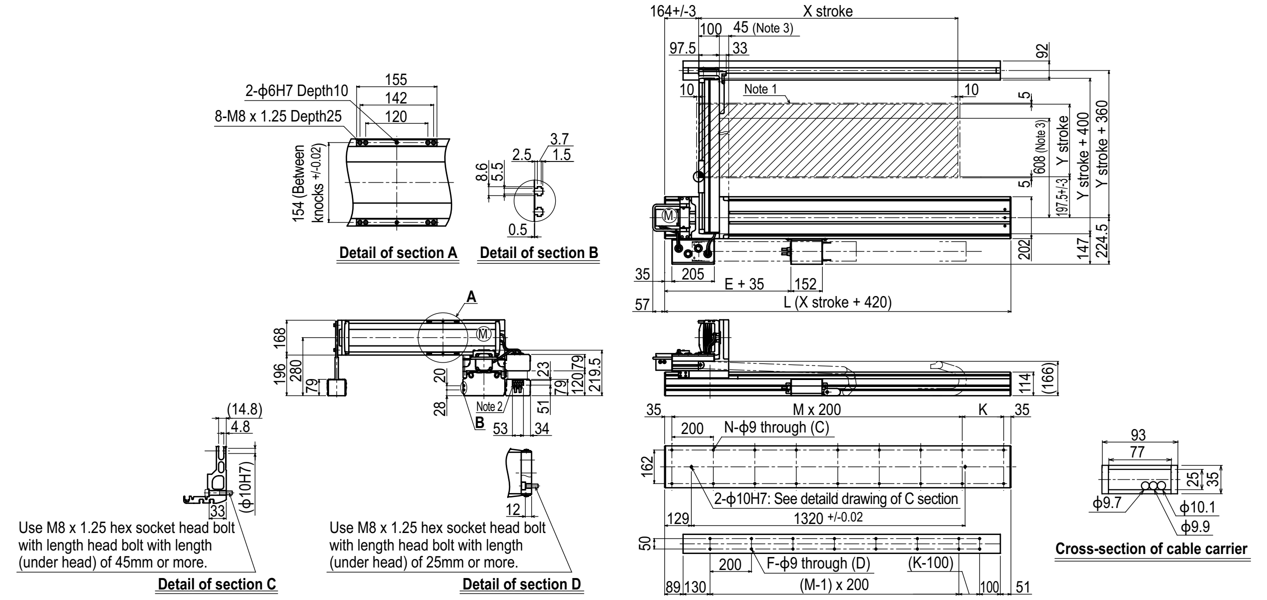
X stroke	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050
L	1570	1670	1770	1870	1970	2070	2170	2270	2370	2470
E	528	574	620	666	712	758	804	850	896	942
K	100	200	100	200	100	200	100	200	100	200
M	7	7	8	8	9	9	10	10	11	11
N	18	18	20	20	22	22	24	24	26	26
F	14	16	16	18	18	20	20	22	22	24

Y stroke		250	350	450	550	650	750	850	950	1050
Maximum speed for each stroke (mm/sec) Note 4	Y-axis	1200						960	840	720
	Speed setting	–						80%	70%	60%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. Dimension of reinforced bracket (To be installed when the Y stroke is 750mm or longer)

Note 4. When the Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYLx 2 axes **G2**



Detail of section A

Detail of section B

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.

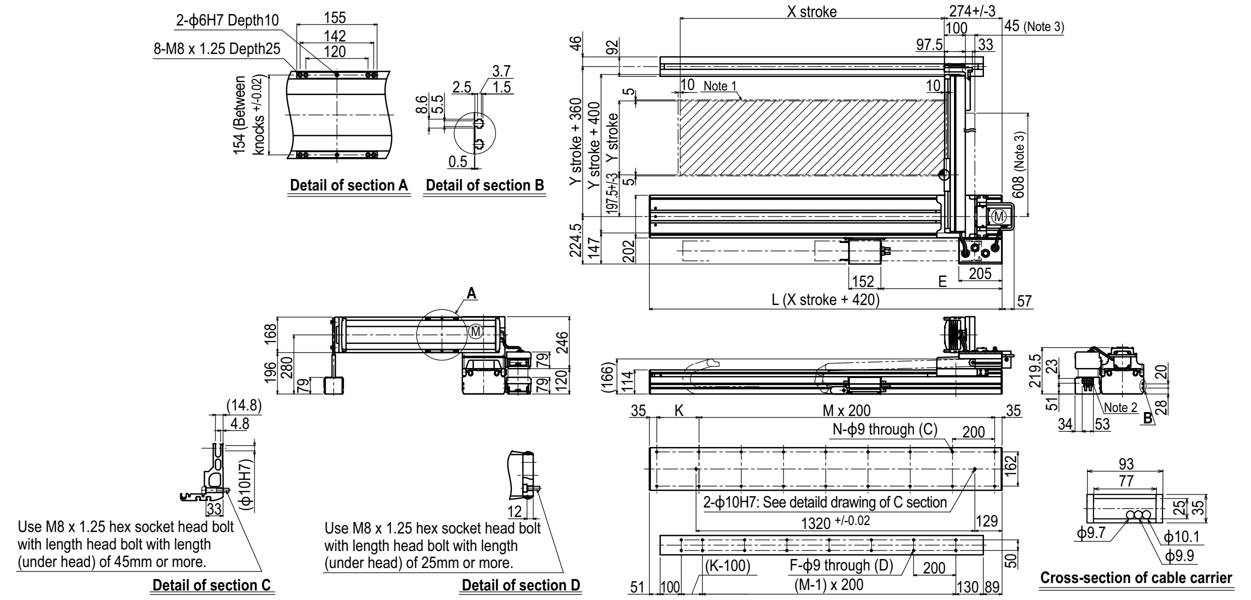
Detail of section C

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 25mm or more.

Detail of section D

Cross-section of cable carrier

HXYLx 2 axes **G3**



Detail of section A

Detail of section B

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.

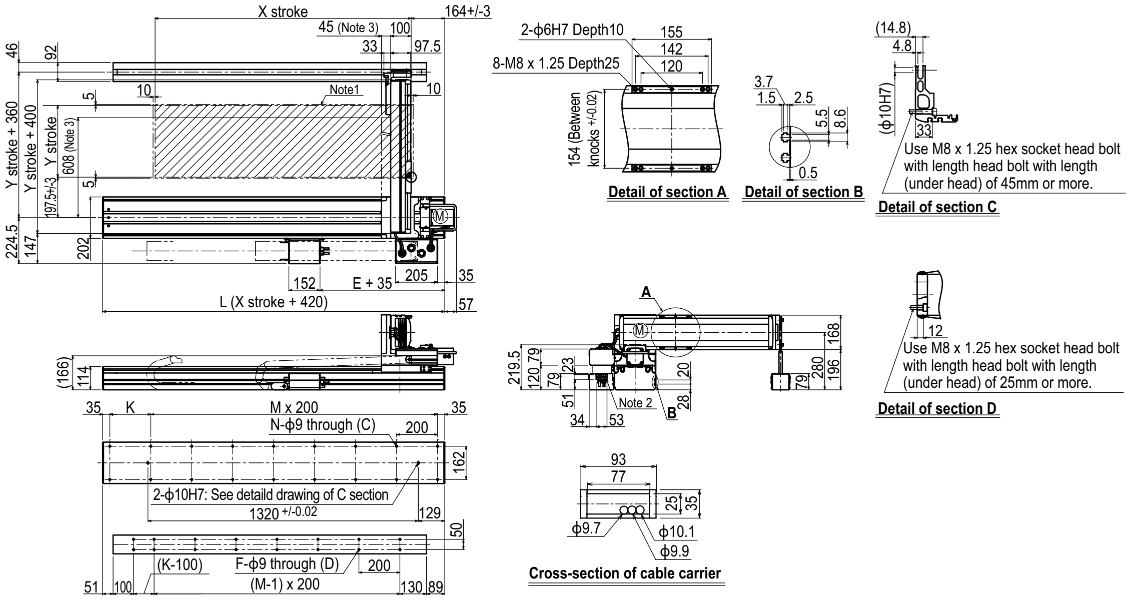
Detail of section C

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 25mm or more.

Detail of section D

Cross-section of cable carrier

HXYLx 2 axes **G4**



Detail of section A

Detail of section B

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 45mm or more.

Detail of section C

Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 25mm or more.

Detail of section D

Cross-section of cable carrier

SXYx 2 axes

Moving arm type   Whipover

Ordering method

SXYx - S - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke Note 1	Y-axis stroke Note 1	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYx	S	M1 M3	15 to 85cm	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 2 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 3	No entry: None N1: OP.DIO24/16 (NPN) Note 2 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 4

Note 1. The total of the X and Y strokes should be 1000mm or less.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F14H	F14
AC servo motor output (W)	200	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	150 to 850	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

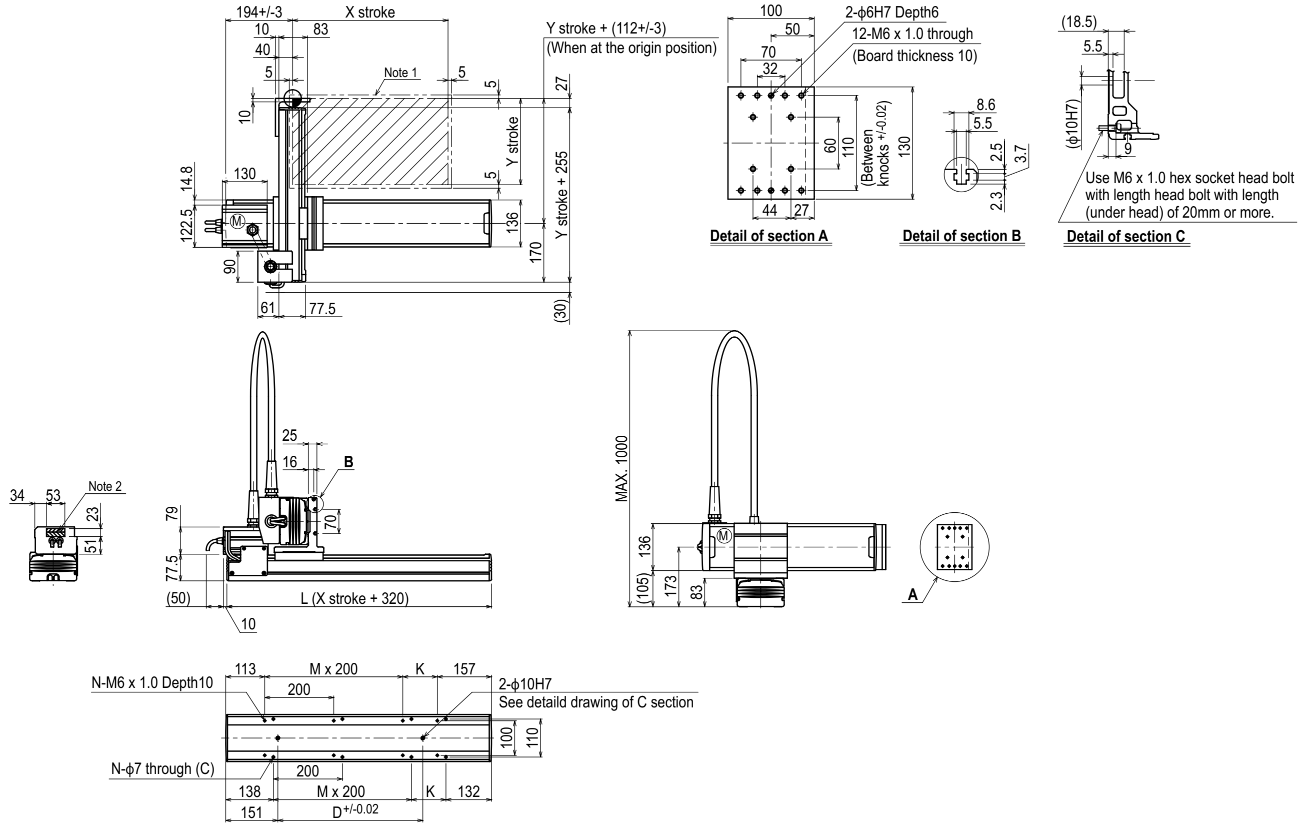
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	15
250	14
350	13

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes M1



X stroke Note 3	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

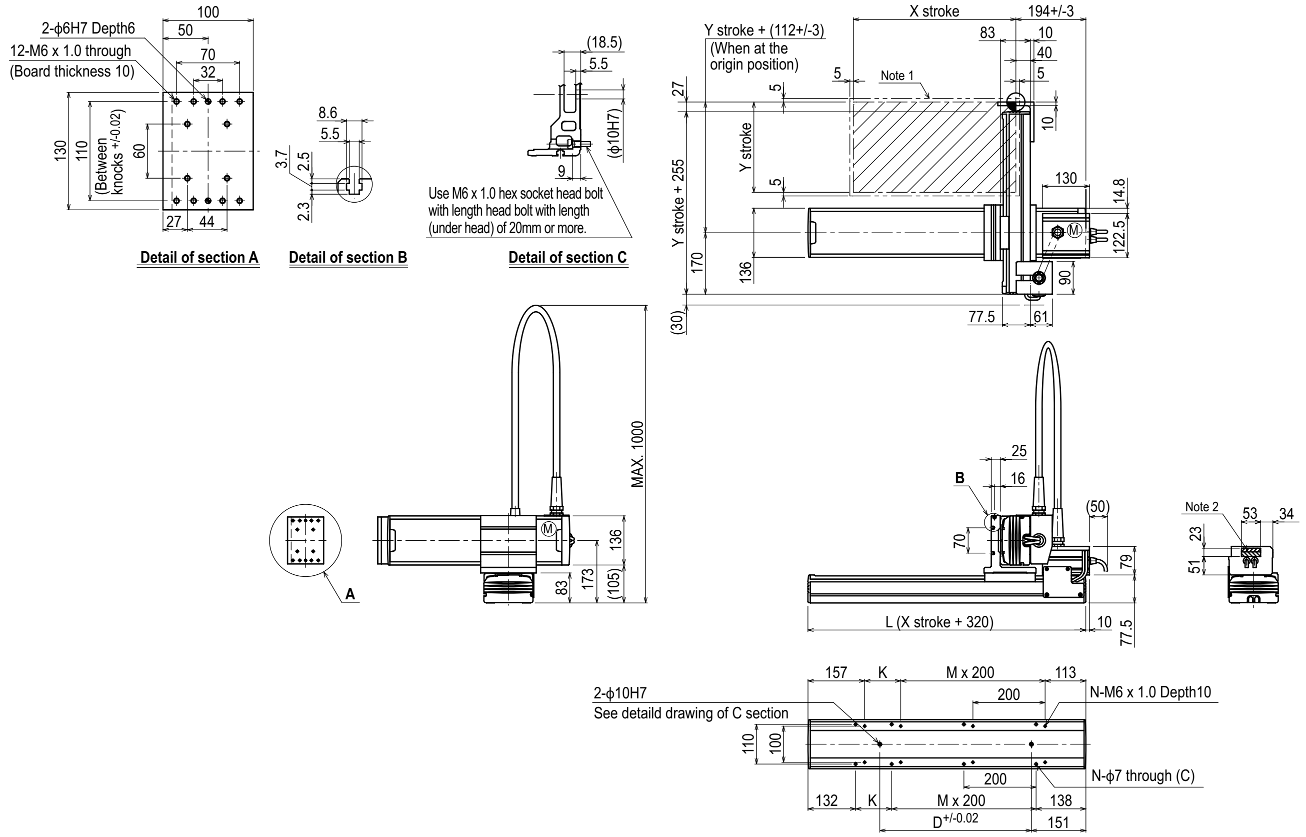
Y stroke Note 3	150	250	350

Maximum speed for each stroke (mm/sec) Note 4				
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 2 axes **M3**

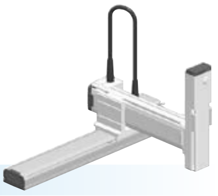


X stroke Note 3		150	250	350	450	550	650	750	850
L		470	570	670	770	870	970	1070	1170
K		200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960
M		0	1	1	2	2	3	3	4
N		4	6	6	8	8	10	10	12
Y stroke Note3		150	250	350					
Maximum speed for each stroke (mm/sec) Note 4	X-axis	1200						960	780
	Speed setting	–						80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZF



● Moving arm type ● Whipover ● Z-axis: clamped base / moving table type (100W)

Ordering method

SXYx - **S** - ☐ - ☐ - ☐ - **ZF** - ☐ - ☐ - **RCX340-3** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke Note 1	Y-axis stroke Note 1	ZR-axis	Z-axis stroke	Cable
SXYx	S				ZF		
		M1 M3	15 to 85cm	15 to 35cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. The total of the X and Y strokes should be 1000mm or less.

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK
AC servo motor output (W)	200	100	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	150 to 850	150 to 350	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

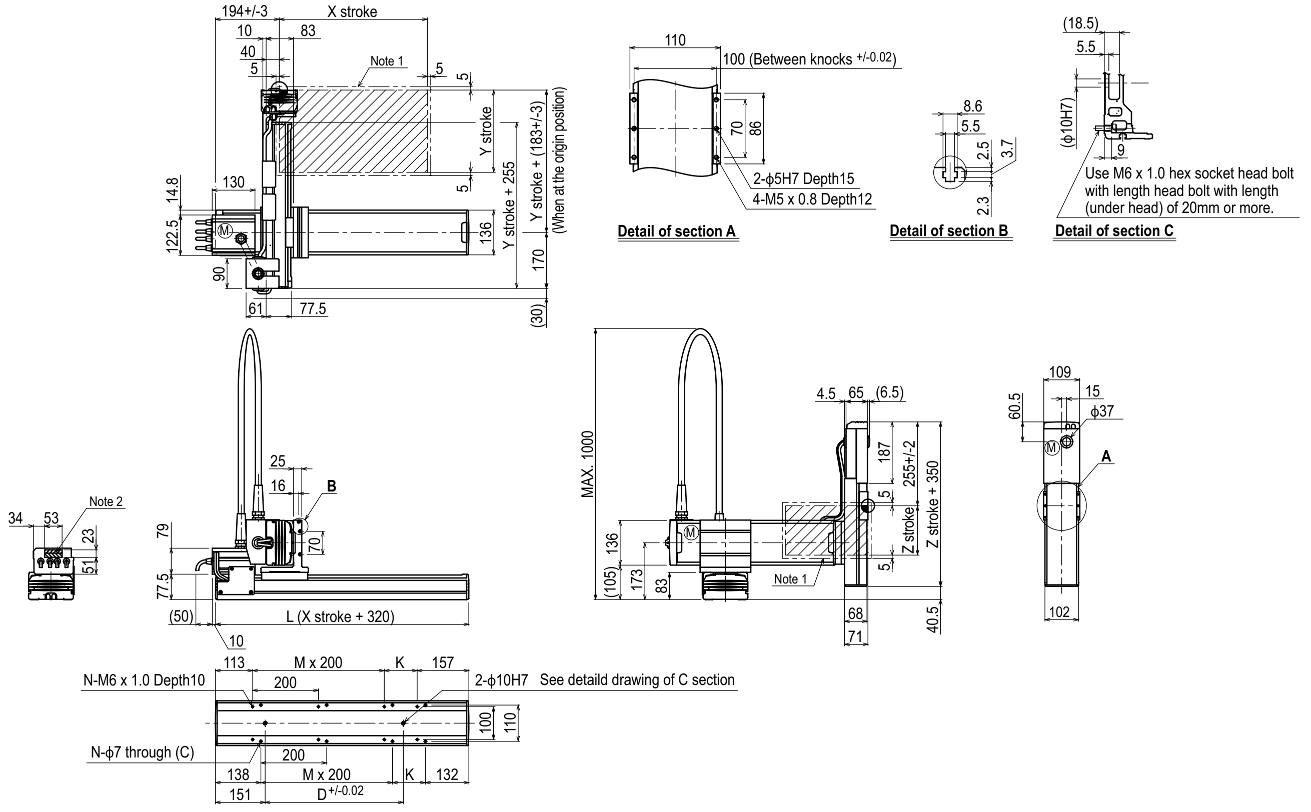
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	9	8	7
250	8	7	6
350	7	6	5

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZF M1



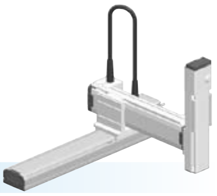
X stroke Note 3		150	250	350	450	550	650	750	850
L		470	570	670	770	870	970	1070	1170
K		200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	960
M		0	1	1	2	2	3	3	4
N		4	6	6	8	8	10	10	12
Y stroke Note 3		**150**	**250**	**350**					
Z stroke		**150**	**250**	**350**					
Maximum speed for each stroke (mm/sec) Note 4	**X-axis**	1200						960	780
	Speed setting	–						80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZFL20

● Moving arm type ● Whipover ● Z-axis: clamped base / moving table type (200W)



Ordering method

SXYx - S - ☐ - ☐ - ☐ - ZFL20 - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke Note 1	Y-axis stroke Note 1	ZR-axis	Z-axis stroke	Cable
SXYx	S	M1 M3	15 to 85cm	15 to 35cm	ZFL20	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3 - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Note 1.The total of the X and Y strokes should be 1000mm or less.

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200	1200
Moving range (mm)	150 to 850	150 to 350	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

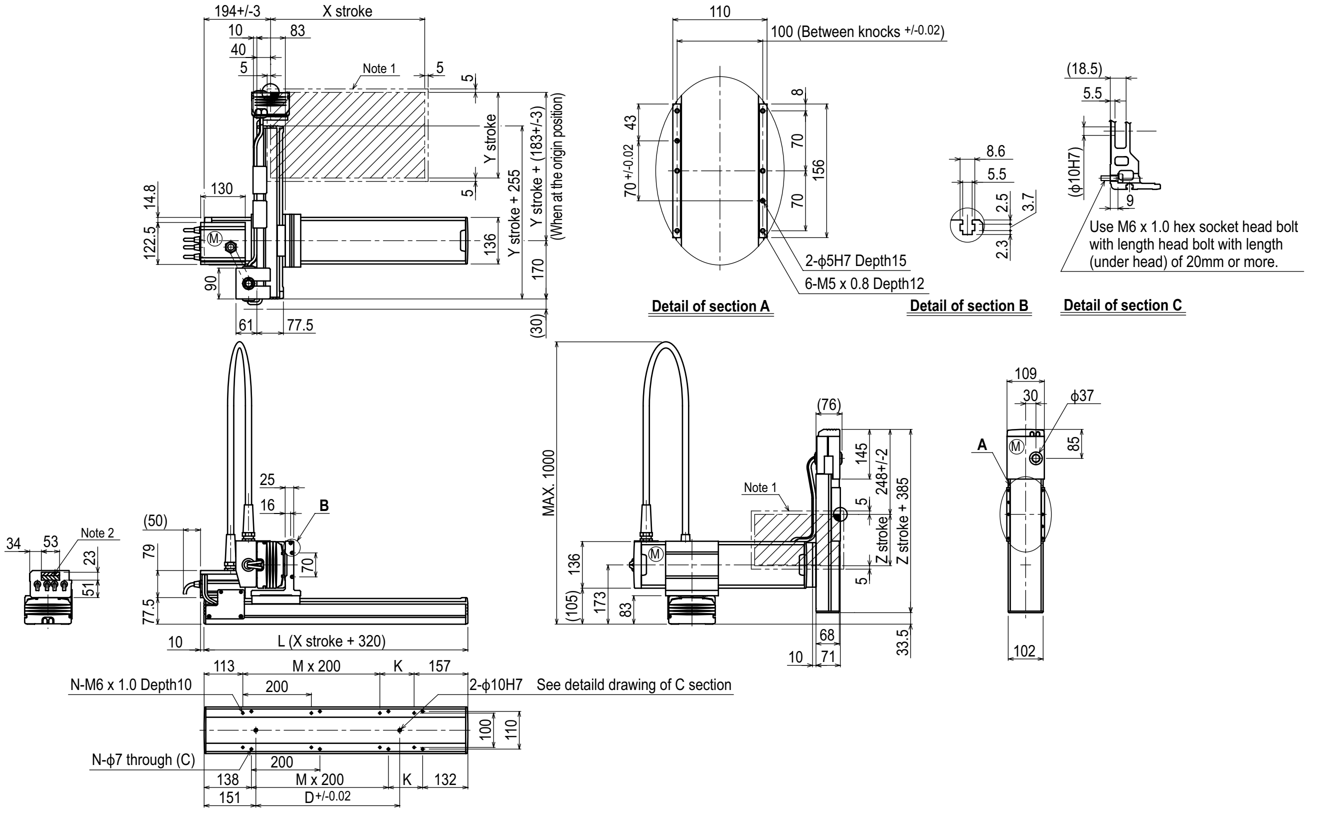
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	8	8	7
250	8	7	6
350	7	6	5

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZFL20 M1



X stroke Note 3	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
A	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke Note 3	150	250	350
Z stroke	**150**	**250**	**350**

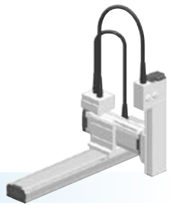
Maximum speed for each stroke (mm/sec) Note 4								
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZFH

Moving arm type · Whipover · Z-axis: clamped table / moving base type (200W)



Ordering method

SXYx - S - ☐ - ☐ - ☐ - ZFH - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model - Cable - Combination (M1, M3) - X-axis stroke[Note 1] (15 to 85cm) - Y-axis stroke[Note 1] (15 to 35cm) - ZR-axis - Z-axis stroke (15 to 35cm) - Cable (3L: 3.5m, 5L: 5m, 10L: 10m)

RCX340-3: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. The total of the X and Y strokes should be 1000mm or less.

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F14H	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	100	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec) (°/sec)**	1200	1200	600
Moving range (mm)	150 to 850	150 to 350	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

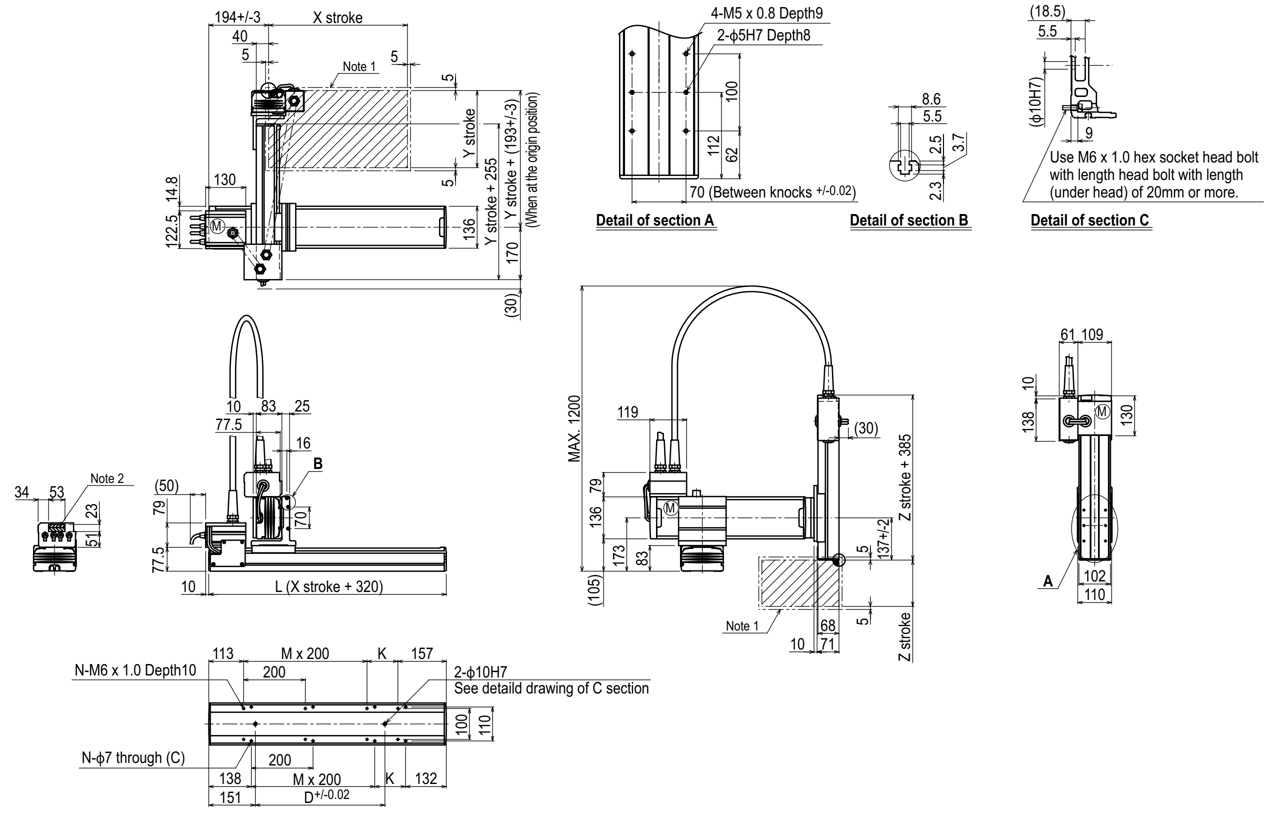
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150	9	8	7
250	8	7	6
350	7	6	5

Controller

Controller	Operation method
RCX340 RCX240S-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZFH M1



X stroke Note 3	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke Note 3	150	250	350

Z stroke	150	250	350

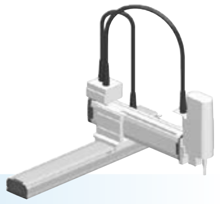
Maximum speed for each stroke (mm/sec) Note 4	**X-axis**	1200						960	780
	Speed setting	–						80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 3 axes / ZS

Moving arm type　Whipover　Z-axis shaft vertical type



Ordering method

Model	Cable	Combination	X-axis stroke [Note 1]	Y-axis stroke [Note 1]	ZR-axis	Z-axis stroke	Cable
SXYx	S	☐	☐	☐	☐	15	☐
		M1 M3	15 to 85cm	15 to 35cm	ZS12 ZS6		3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3	☐	☐	☐	☐	☐	☐	☐

Specify various controller setting items. RCX340 ▶ P.544

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S	☐	☐	☐	☐	☐	☐

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. The total of the X and Y strokes should be 1000mm or less.

Specification

	X-axis	Y-axis	Z-axis: ZS12	Z-axis: ZS6
Axis construction [Note 1]	F14H	F14	–	
AC servo motor output (W)	200	100	60	
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01	+/-0.02	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)	
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	20	12	6
Maximum speed [Note 4] **(mm/sec)**	1200	1200	1000	500
Moving range (mm)	150 to 850	150 to 350	150	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

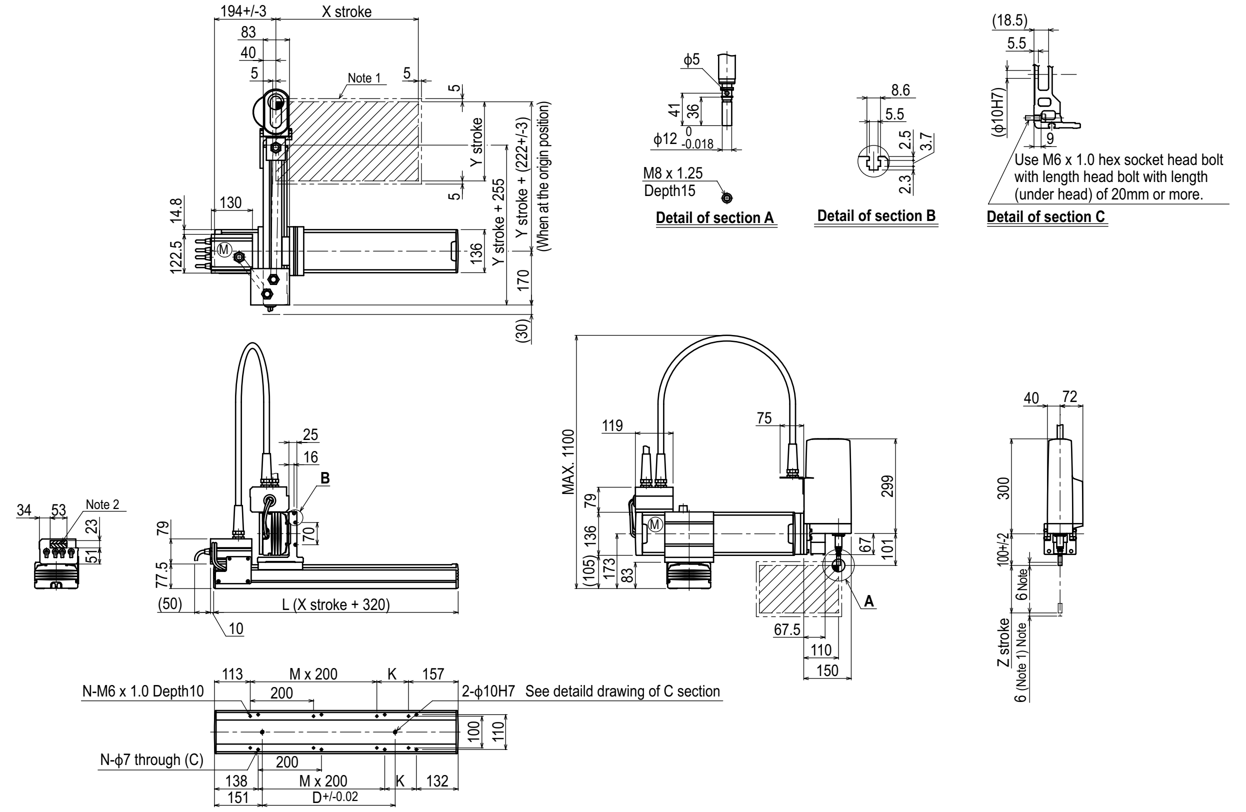
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150 to 350	3	5

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 3 axes / ZS M1



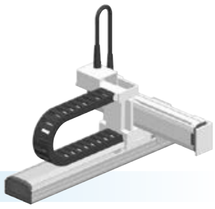
X stroke [Note 3]	150	250	350	450	550	650	750	850
L	470	570	670	770	870	970	1070	1170
K	200	100	200	100	200	100	200	100
D	240	240	420	420	600	600	780	960
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Y stroke [Note 3]	150	250	350
Z stroke	150		

Maximum speed for each stroke (mm/sec) [Note 4]		150 to 650	750	850
	X-axis	1200	960	780
	Speed setting	–	80%	65%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.
Note 3. The total of the X and Y strokes should be 1000mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 2 axes



● Moving arm type ● Cable carrier

Ordering method

Model	Cable	Combination	X-axis stroke	Y-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	C					RCX222		R		
		M1 M3	25 to 125cm	15 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN [Note 1] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note 2]	No entry: None N1: OP.DIO24/16 (NPN) [Note 1] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 3]

Note 1. NPN cannot be selected if using CE marking.
Note 2.Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	F17	F14H
AC servo motor output (W)	400	200
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	20
Maximum speed [Note 4] **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

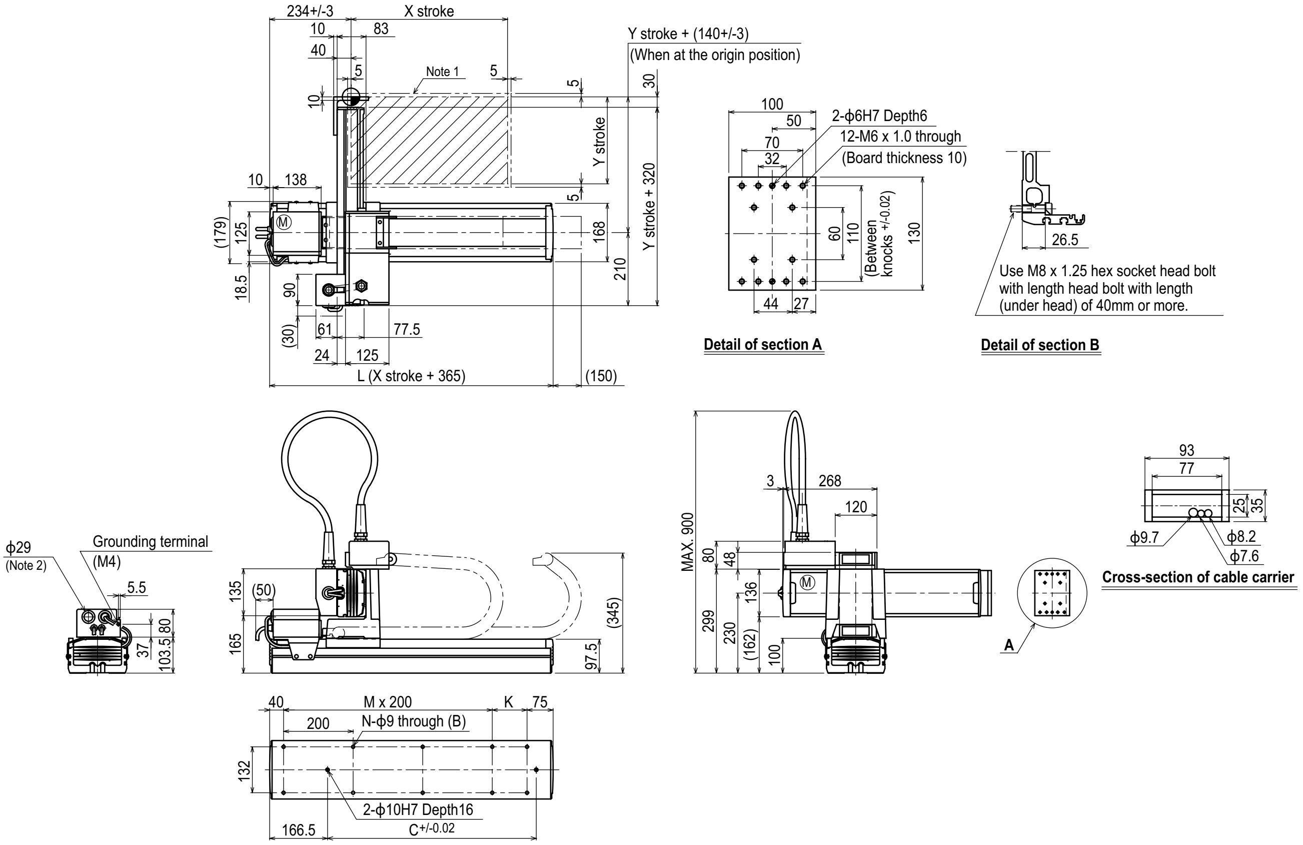
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150 to 550	20

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes M1



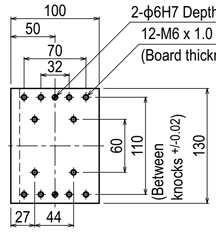
X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke		150	250	350	450	550					
Maximum speed for each stroke (mm/sec) [Note 3]	X-axis	1200					960	840	720	600	480
	Speed setting	–					80%	70%	60%	50%	40%

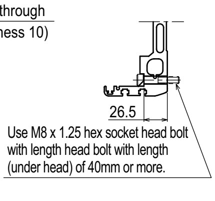
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

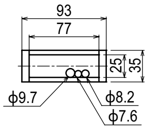
MXYx 2 axes M3



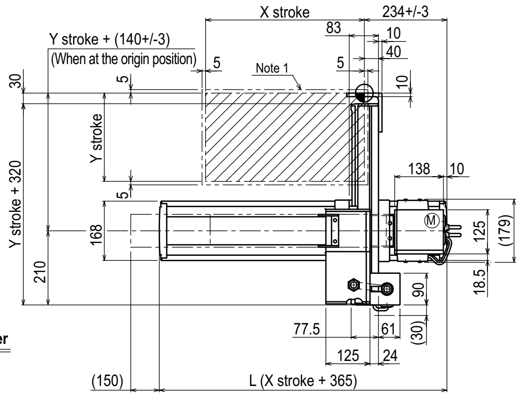
Detail of section A

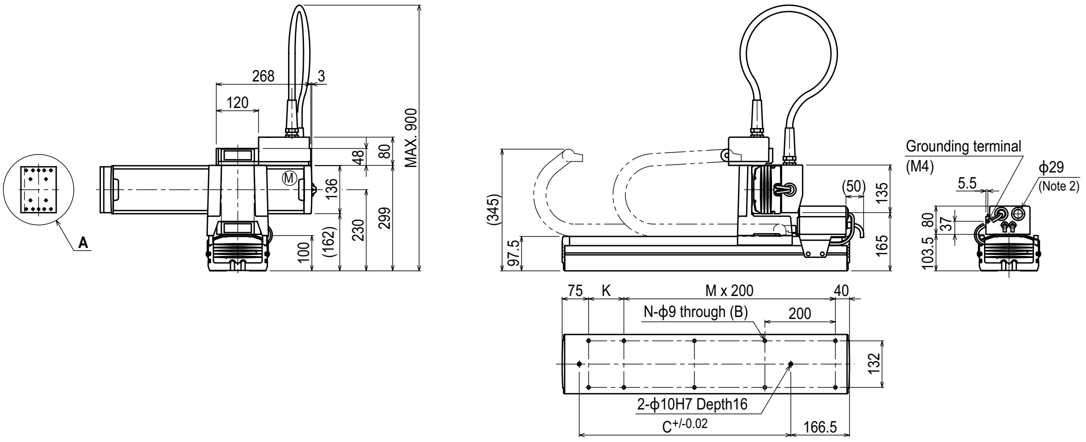

26.5
Use M8 x 1.25 hex socket head bolt with length head bolt with length (under head) of 40mm or more.

Detail of section B



Cross-section of cable carrier





X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
D		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		**150**	**250**	**350**	**450**	**550**						
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.

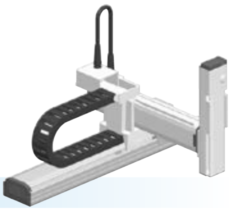
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Controller RCX222 ▶ 526

MXYx 3 axes / ZFL20/10

○ Moving arm type ○ Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

MXYx - C - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	M1 M3	25 to 125cm	15 to 55cm	ZFL20 ZFL10	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3 - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis: ZFL20	Z-axis: ZFL10
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model	
AC servo motor output (W)	400	200	200	
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)	
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	20	10
Maximum speed Note 4 (mm/sec)	1200	1200	1200	600
Moving range (mm)	250 to 1250	150 to 550	150 to 350	
Robot cable length (m)	Standard: 3.5 Option: 5,10			

Note. The standard types are ZFL with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

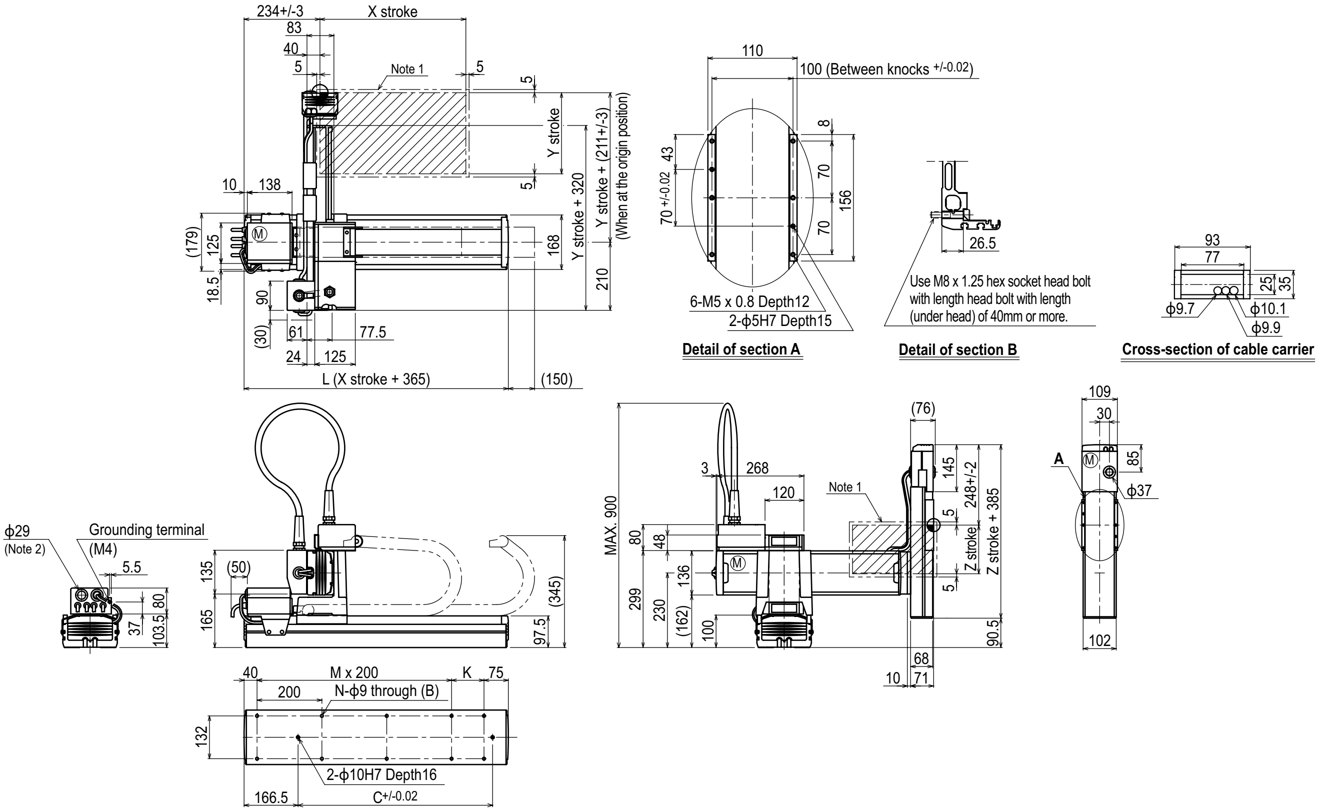
Maximum payload (kg)

	Z stroke (mm)					
	ZFL20			ZFL10		
Y stroke (mm)	150	250	350	150	250	350
150 to 550	8	8	8	12	11	10

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFL20/10 M1



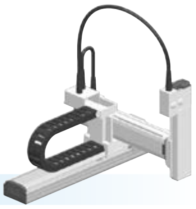
X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
C		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Y stroke		150	250	350	450	550						
Z stroke		150	250	350								
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 3 axes / ZFH

● Moving arm type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)



Ordering method

MXYx - C - [Combination] - [X-axis stroke] - [Y-axis stroke] - ZFH - [Z-axis stroke] - [Cable] - RCX340-3 / RCX240

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
MXYx	C	M1 M3	25 to 125cm	15 to 55cm	ZFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3 - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - Controller - CE Marking - R Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F17	F14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	200	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20	10
Maximum speed Note 4 **(mm/sec)**	1200	1200	600
Moving range (mm)	250 to 1250	150 to 550	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note. The standard types are ZFH with higher rigidity as compared with ZF types which are conventional standard types. When you need the ZF type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

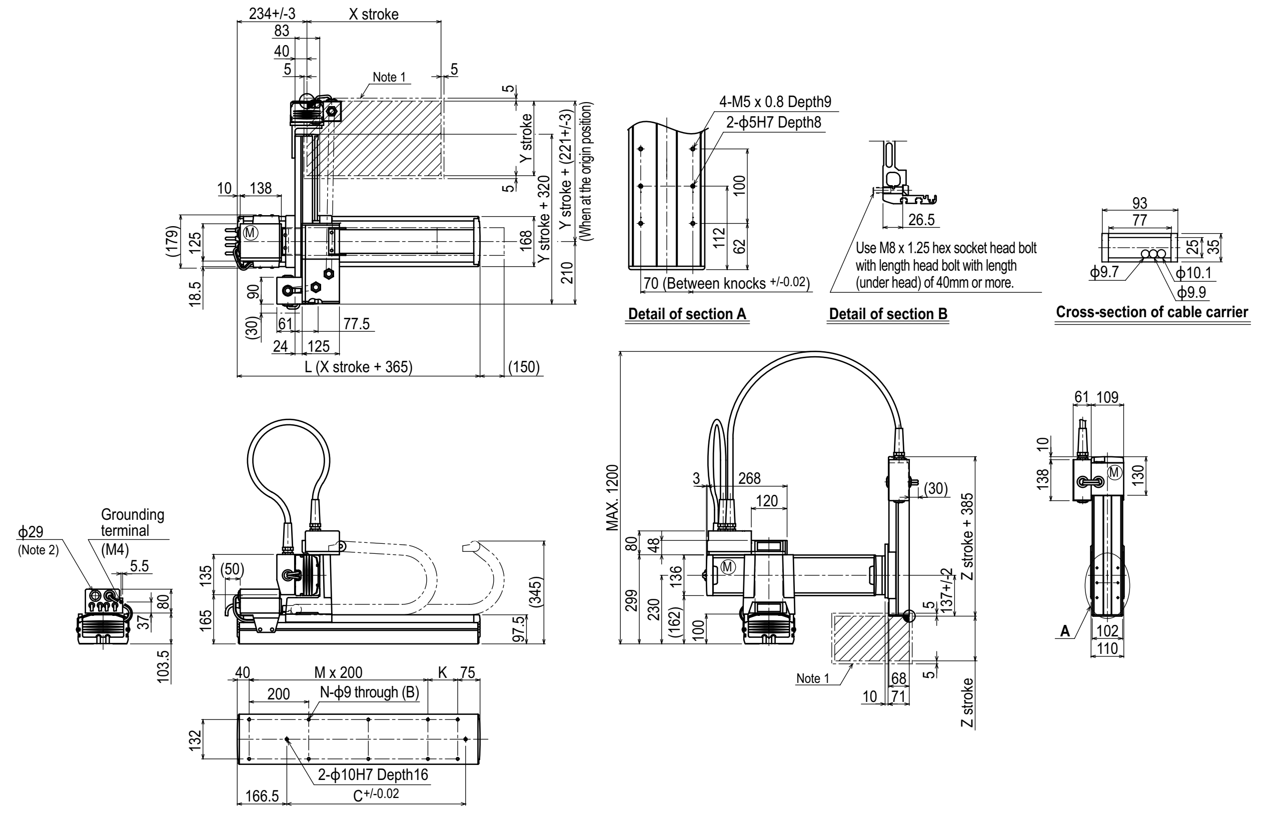
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	**150**	**250**	**350**
150 to 550	12	11	10

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZFH **M1**



X stroke Note 3	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
D	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke Note 3	150	250	350	450	550

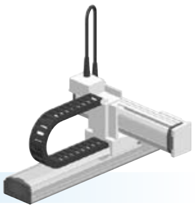
Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 4						
X-axis	1200	960	840	720	600	480
Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. The total of the Y and Z strokes should be 800mm or less.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes



Moving arm type **Cable carrier**

Ordering method

HXYx	- C	-	-	-	-	- RCX222HP	-	- R	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
		M1 M3	25 to 125cm	25 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F20	F17
AC servo motor output (W)	600	400
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1200	1200
Moving range (mm)	250 to 1250	250 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

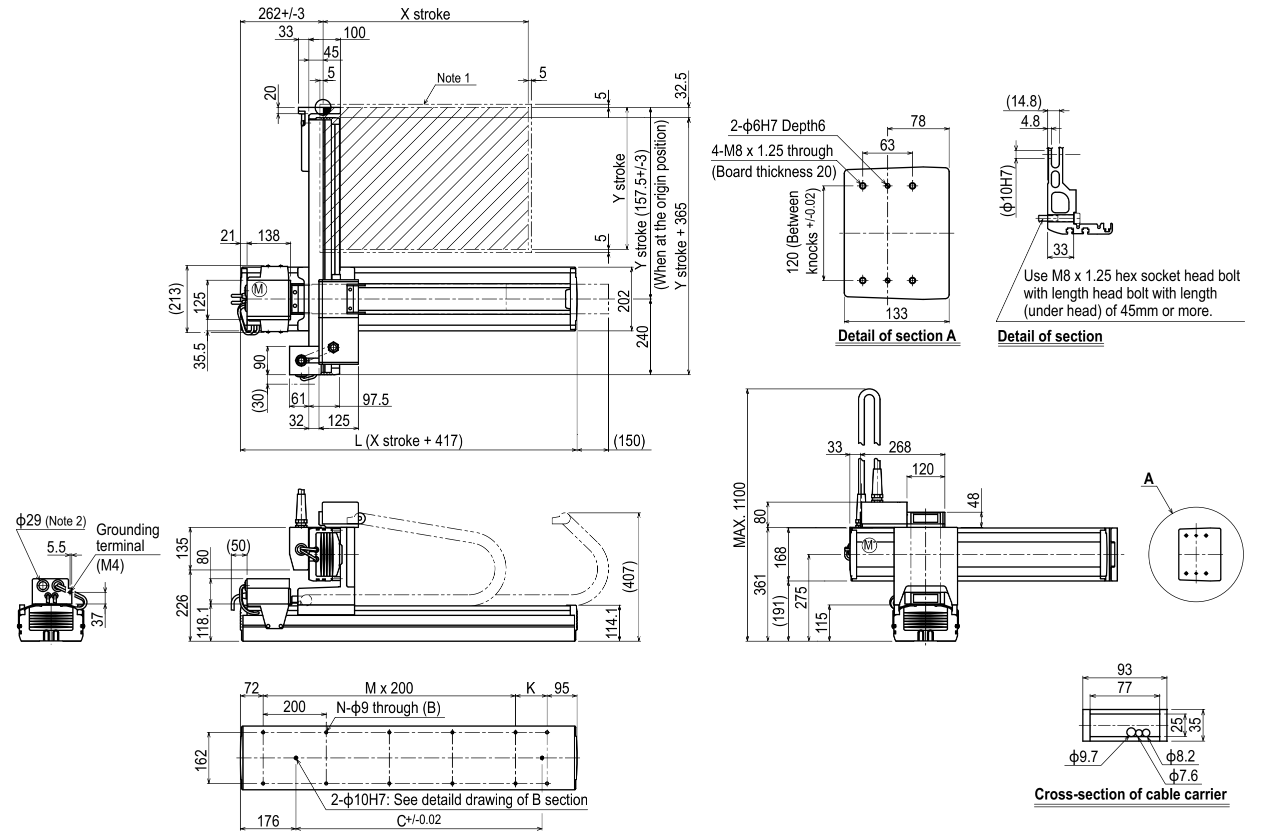
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250 to 650	30

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes M1

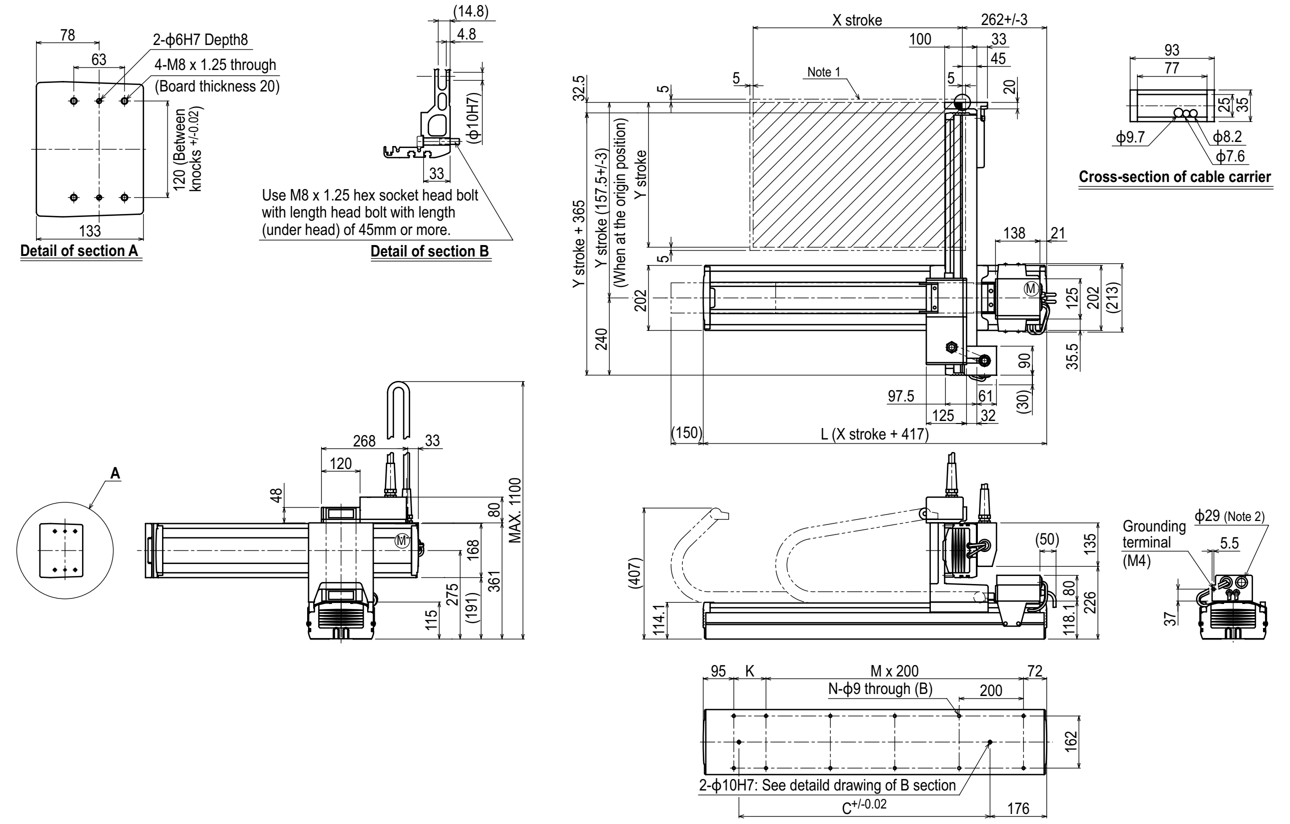


X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke		250	350	450	550	650					
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200					960	840	720	600	480
	Speed setting	–					80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes **M3**



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18
Y stroke	**250**	**350**	**450**	**550**	**650**						
Maximum speed for each stroke (mm/sec) Note 3 — X-axis	1200						960	840	720	600	480
Maximum speed for each stroke (mm/sec) Note 3 — Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.

Note 2. User cable extraction port.

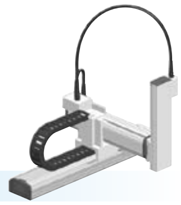
Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Controller RCX222 ▶ 526

HXYx

3 axes / ZH

● Moving arm type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)



Ordering method

HXYx - C - ☐ - ☐ - ☐ - ZH - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
HXYx	C	M1 M3	25 to 125cm	25 to 65cm	ZH	25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-3							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specification

	X-axis	Y-axis	Z-axis
Axis construction [Note 1]	F20	F17	F14H-BK
AC servo motor output (W)	600	400	200
Repeatability [Note 2] (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] (Deceleration ratio) (mm)	20	20	5
Maximum speed [Note 4] (mm/sec)	1200	1200	300
Moving range (mm)	250 to 1250	250 to 650	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

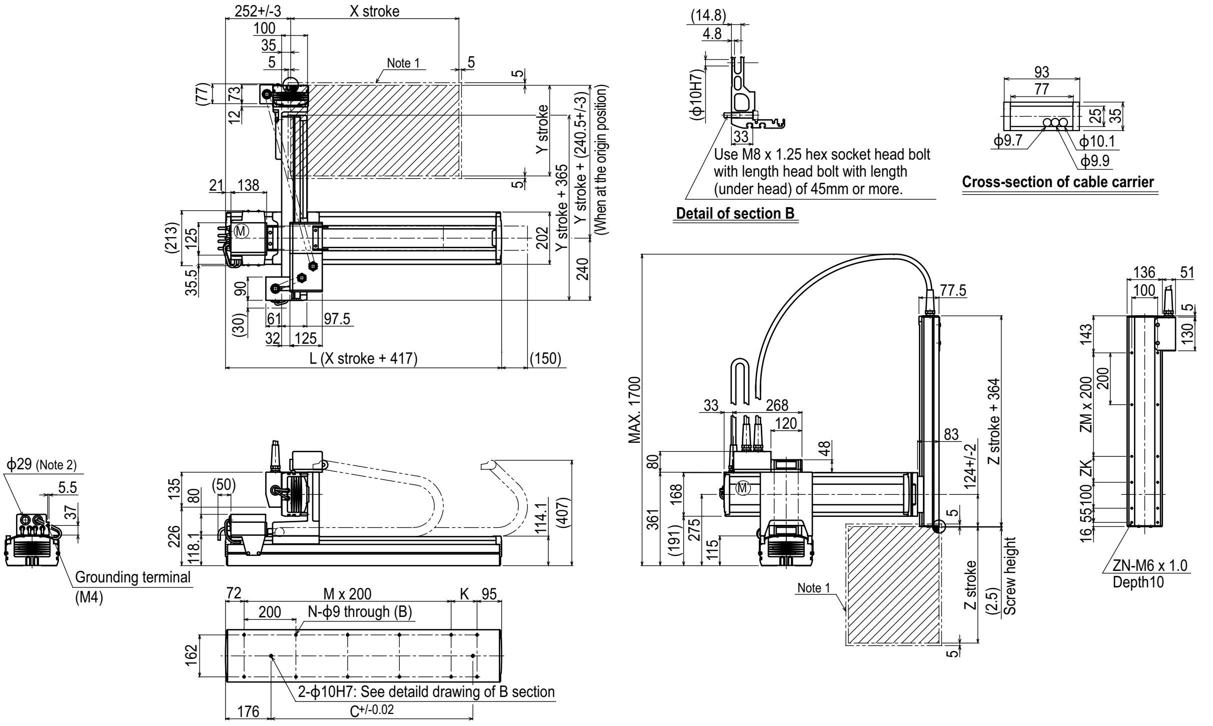
Maximum payload (kg)

	Z stroke (mm)			
Y stroke (mm)	250	350	450	550
250	18	18	18	18
350	18	18	18	18
450	18	18	18	18
550	18	17	16	15
650	18	17	16	15

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZH M1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	250	350	450	550	650

Z stroke	250	350	450	550
ZK	100	200	100	200
ZM	1	1	2	2
ZN	10	10	12	12

Maximum speed for each stroke (mm/sec) [Note 3]								
	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

SXYx 2 axes

Pole type **Whipover**

Ordering method

Model	Cable	Combination	X-axis stroke [Note 1]	Y-axis stroke [Note 1]	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYx	S	P1	☐	☐	☐	RCX222	☐	☐	☐
			15 to 85cm	15 to 55cm	3L: 3.5m	RCX222	No entry: Standard	N: NPN [Note 2]	No entry: None
					5L: 5m		E: CE marking	P: PNP	N1: OP.DIO24/16 (NPN) [Note 2]
					10L: 10m			CC: CC-Link	P1: OP.DIO24/17 (PNP)
								DN: DeviceNet™	EN: Ethernet [Note 4]
								PB: PROFIBUS	
								EN: Ethernet	
								YC: YC-Link [Note 3]	

Note 1.The total of the X and Y strokes should be 1100mm or less.
Note 2.NPN cannot be selected if using CE marking.
Note 3.Available only for the master. See P.68 for details on YC-Link system.
Note 4.Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	F14H	F14-BK
AC servo motor output (W)	200	100
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	10
Maximum speed [Note 4] **(mm/sec)**	1200	600
Moving range (mm)	150 to 850	150 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

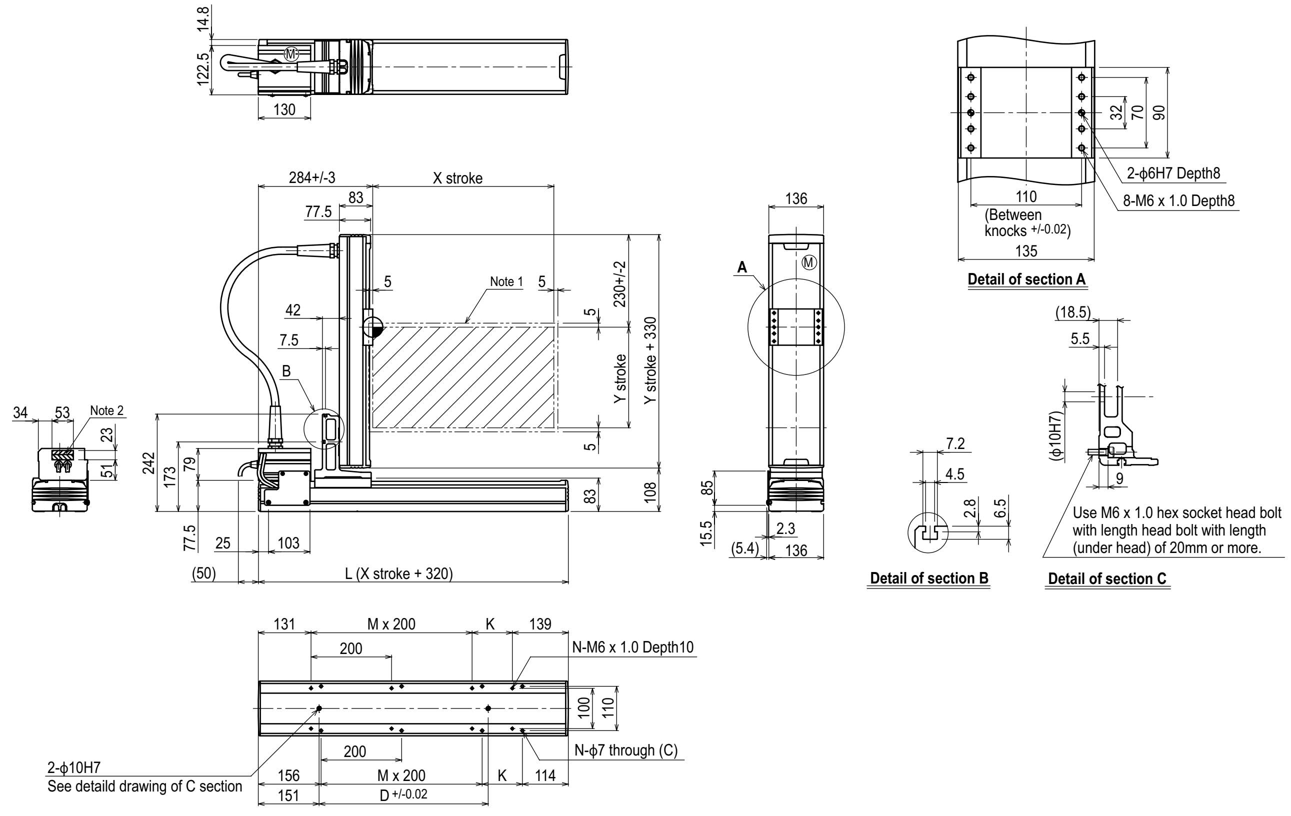
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150 to 550	8

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes P1



X stroke [Note 3]		150	250	350	450	550	650	750	850
L		470	570	670	770	870	970	1070	1170
K		200	100	200	100	200	100	200	100
D		240	240	420	420	600	600	780	780
M		0	1	1	2	2	3	3	4
N		4	6	6	8	8	10	10	12
Y stroke [Note 3]		150	250	350	450	550			
Maximum speed for each stroke (mm/sec) [Note 4]	**X-axis**	1200						960	780
	Speed setting	–						80%	65%

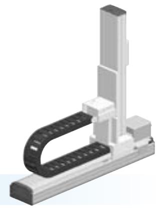
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. The total of the X and Y strokes should be 1100mm or less.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx

2 axes

● Pole type ● Cable carrier



Ordering method

MXYx	C	P2				RCX222		R		
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regenerative unit**	**Input/Output selection 1**	**Input/Output selection 2**
			25 to 125cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H-BK
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	250 to 1250	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

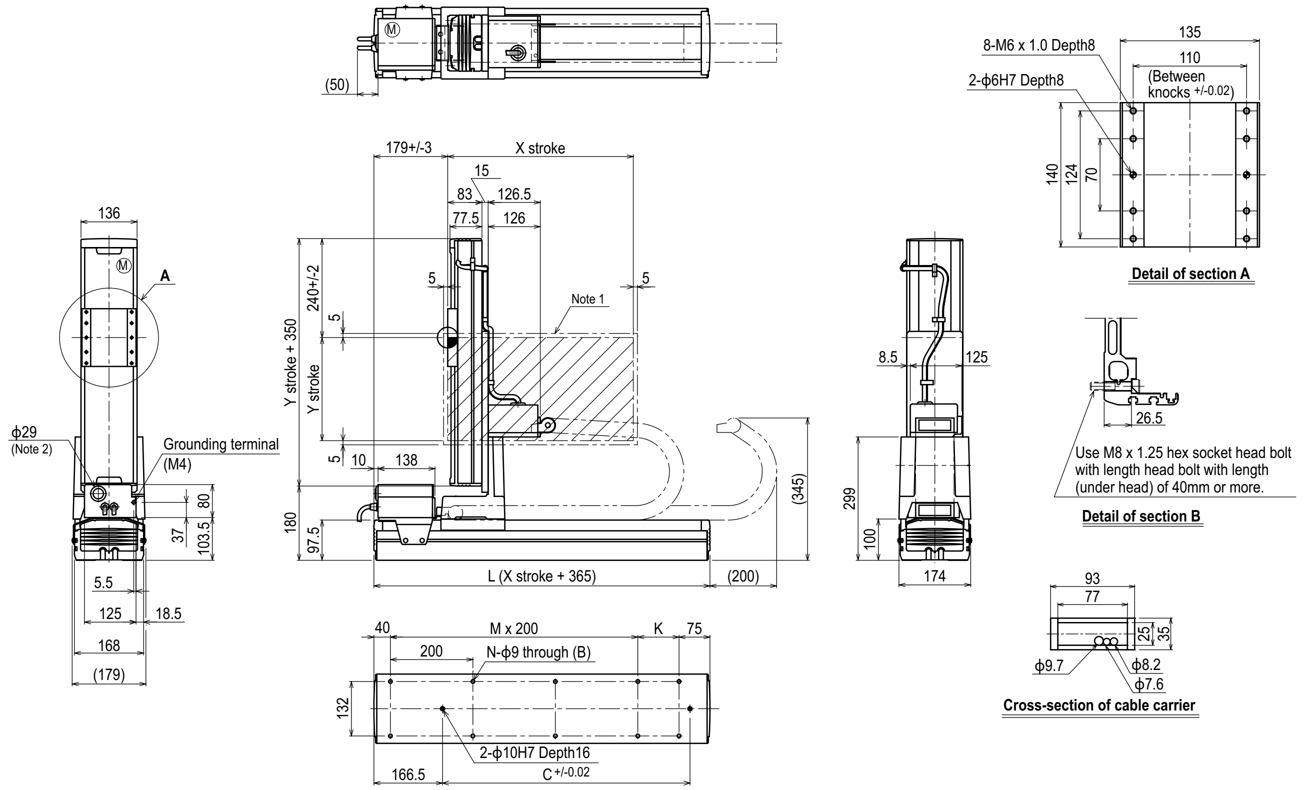
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150 to 650	20

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes P2



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Y stroke		150	250	350	450	550	650					
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 2 axes

Pole type Whipover

Ordering method

Model	Cable	Combination	X-axis stroke Note 1	Y-axis stroke Note 1	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	S	P1				RCX222		R		
			25 to 95cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 2 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 3	No entry: None N1: OP.DIO24/16 (NPN) Note 2 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 4

Note 1. The total of the X and Y strokes should be 1100mm or less.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction Note 1	F17	F14H-BK
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	250 to 950	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

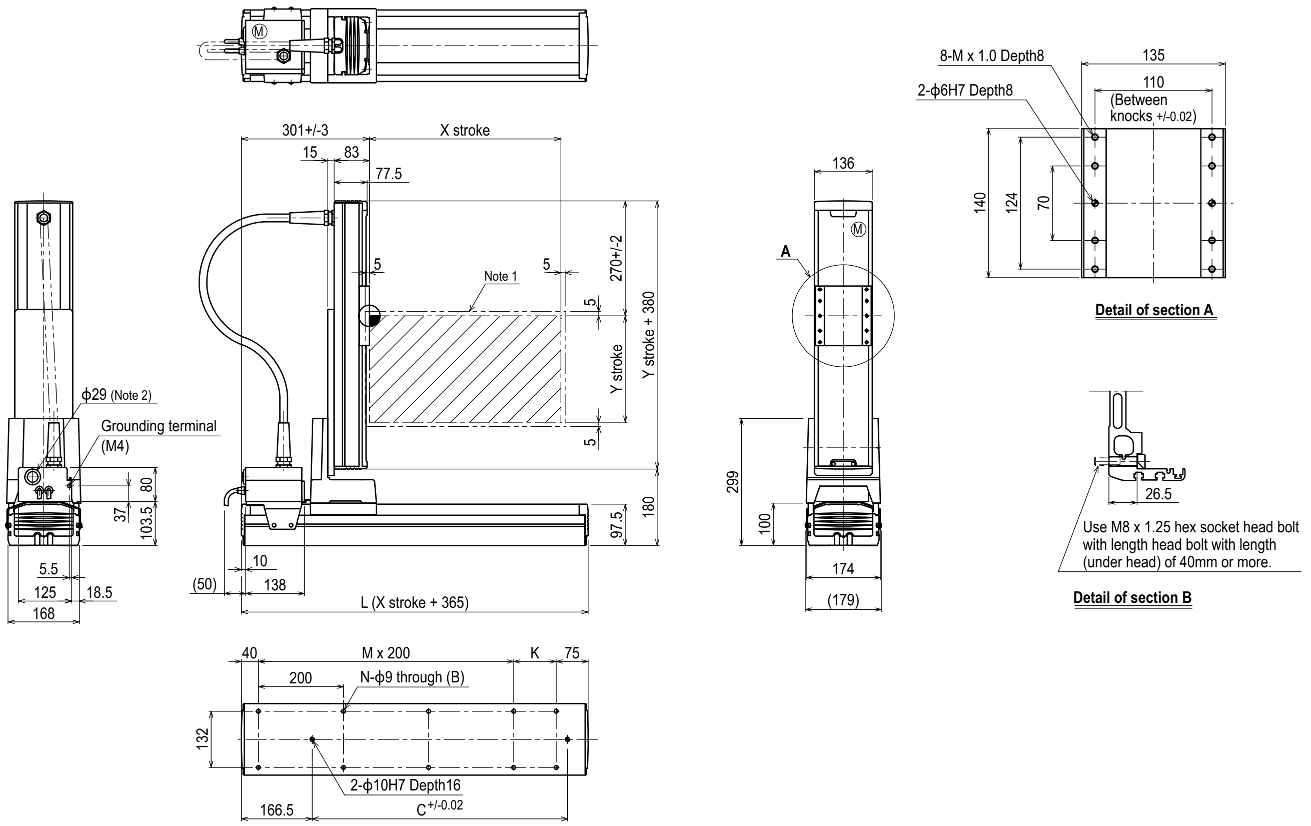
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150 to 650	20

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes P1



X stroke Note 3	250	350	450	550	650	750	850	950
L	615	715	815	915	1015	1115	1215	1315
K	100	200	100	200	100	200	100	200
C	240	420	600	600	780	780	960	960
M	2	2	3	3	4	4	5	5
N	8	8	10	10	12	12	14	14

Y stroke Note 3	150	250	350	450	550	650

Maximum speed for each stroke (mm/sec) Note 4									
	X-axis	1200						960	840
	Speed setting	–						80%	70%

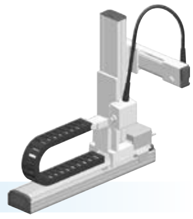
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. The total of the X and Y strokes should be 1100mm or less.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx

3 axes / ZPMH

Pole type **Cable carrier** **Z-axis: Clamped table / moving base type (200W) for Pole type**



Ordering method

MXYx	- C	- P2	- ☐	- ☐	- ☐	- ☐	- ☐
Model	Cable	Combination	X-axis stroke	Y-axis stroke	ZR-axis	Z-axis stroke	Cable
			25 to 125cm	15 to 65cm	ZPMHL ZPMHR	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐	- ☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240	- ☐	- R	- ☐	- ☐	- ☐	- ☐	- ☐
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F17	F14H-BK	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	400	200	200
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	10	20
Maximum speed Note 4 (mm/sec)	1200	600	1200
Moving range (mm)	250 to 1250	150 to 650	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note. The standard types are ZPMH with higher rigidity as compared with ZPM types which are conventional standard types. When you need the ZPM type, please consult YAMAHA.
Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

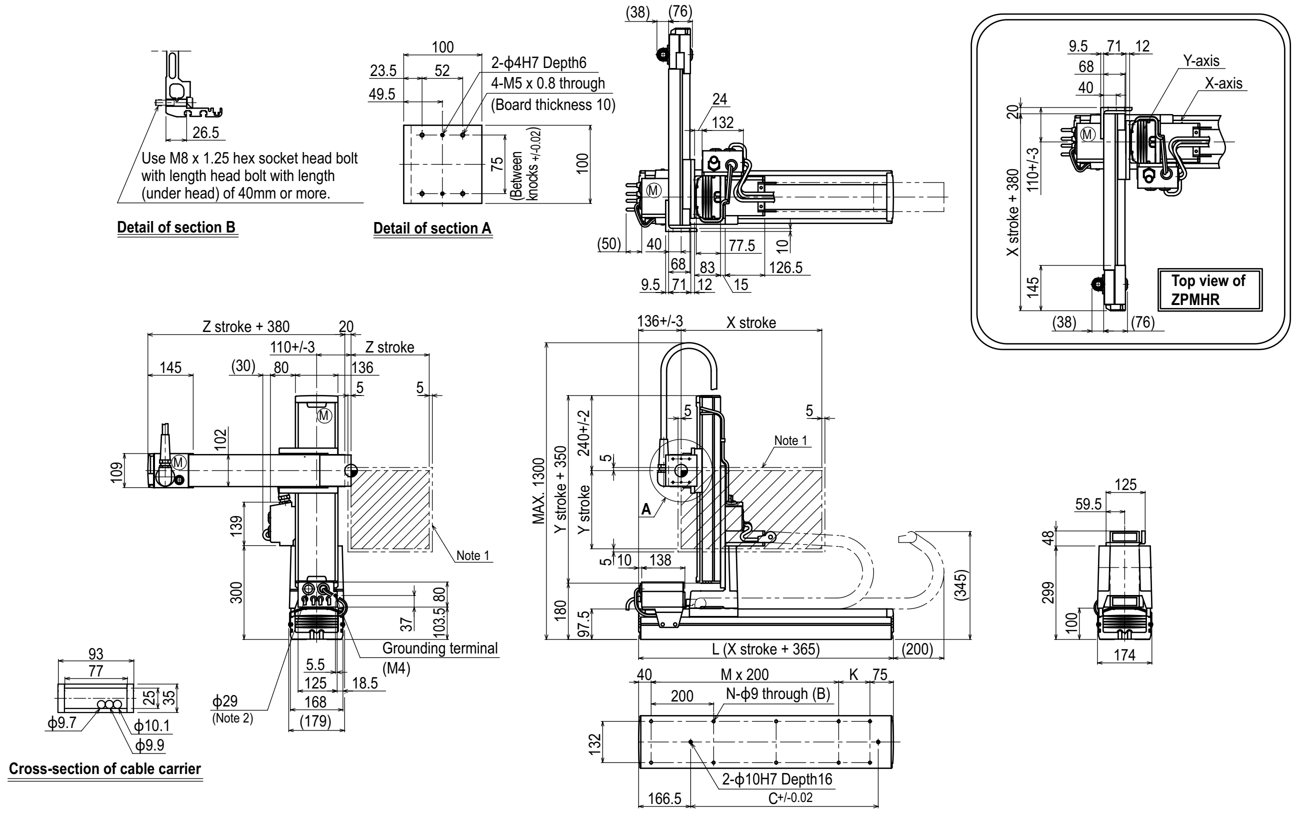
Maximum payload (kg)

	Z stroke (mm)		
Y stroke (mm)	150	250	350
150 to 650	10	9	8

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 3 axes / ZPMHL P2



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke	150	250	350	450	550	650

Z stroke	150	250	350

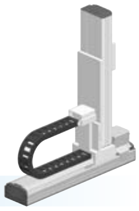
Maximum speed for each stroke (mm/sec) Note 3							
	X-axis	1200	960	840	720	600	480
	Speed setting	–	80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. This figure shows the combination for ZPMHL. For the combination for ZPMHR, see the top view in the figure.

Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes

Pole type　Cable carrier



Ordering method

HXYx	- C	- P2	-	-	-	- RCX222HP	-	- R	-	-
Model	**Cable**	**Combination**	**X-axis stroke**	**Y-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
			25 to 125cm	25 to 105cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222HP	No entry: Standard E: CE marking	R: RG2	N: NPN [Note 1] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note 2]	No entry: None N1: OP.DIO24/16 (NPN) [Note 1] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 3]

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	F20	F20-BK
AC servo motor output (W)	600	600
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	10
Maximum speed [Note 4] **(mm/sec)**	1200	600
Moving range (mm)	250 to 1250	250 to 1050
Robot cable length (m)	Standard: 3.5　Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

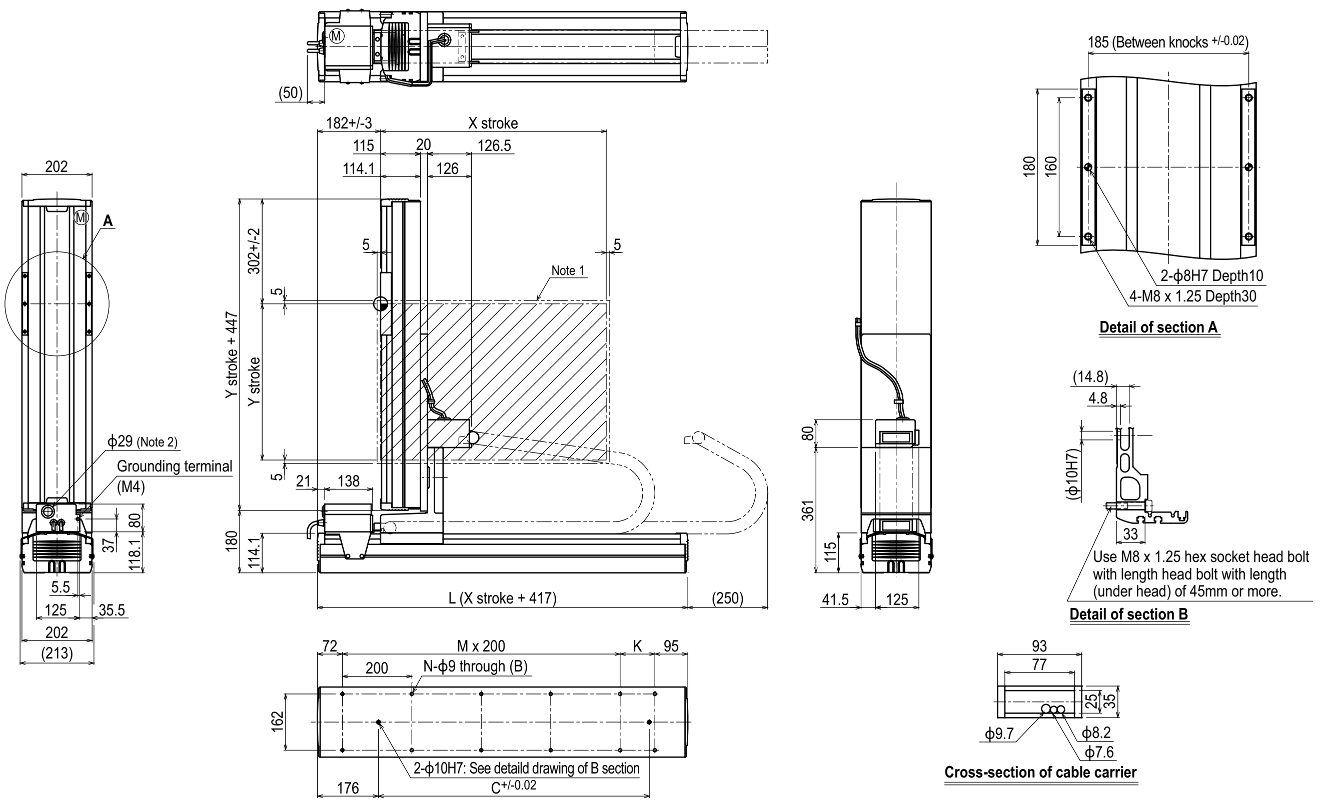
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250 to 1050	30

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes P2



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	708	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18
Y stroke	**250**	**350**	**450**	**550**	**650**	**750**	**850**	**950**	**1050**		

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Maximum speed for each stroke (mm/sec) [Note 3]		250 to 750	850	950	1050	1150	1250
	X-axis	1200	960	840	720	600	480
	Y-axis	600	480	420	360		
	Speed setting	–	80%	70%	60%	50%	40%

Note 3. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes

Pole type Whipover

Ordering method

HXYx	S	P1				RCX222HP		R		
Model	**Cable**	**Combination**	**X-axis stroke** [Note 1]	**Y-axis stroke** [Note 1]	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
			25 to 85cm	25 to 85cm	3L: 3.5m	RCX222HP	No entry: Standard	R: RG2	N: NPN [Note 2]	No entry: None
					5L: 5m		E: CE marking		P: PNP	N1: OP.DIO24/16 (NPN) [Note 2]
					10L: 10m				CC: CC-Link	P1: OP.DIO24/17 (PNP)
									DN: DeviceNet™	EN: Ethernet [Note 4]
									PB: PROFIBUS	
									EN: Ethernet	
									YC: YC-Link [Note 3]	

Note 1. The total of the X and Y strokes should be 1100mm or less.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Y-axis
Axis construction [Note 1]	F20	F20-BK
AC servo motor output (W)	600	600
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	10
Maximum speed [Note 4] **(mm/sec)**	1200	600
Moving range (mm)	250 to 850	250 to 850
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

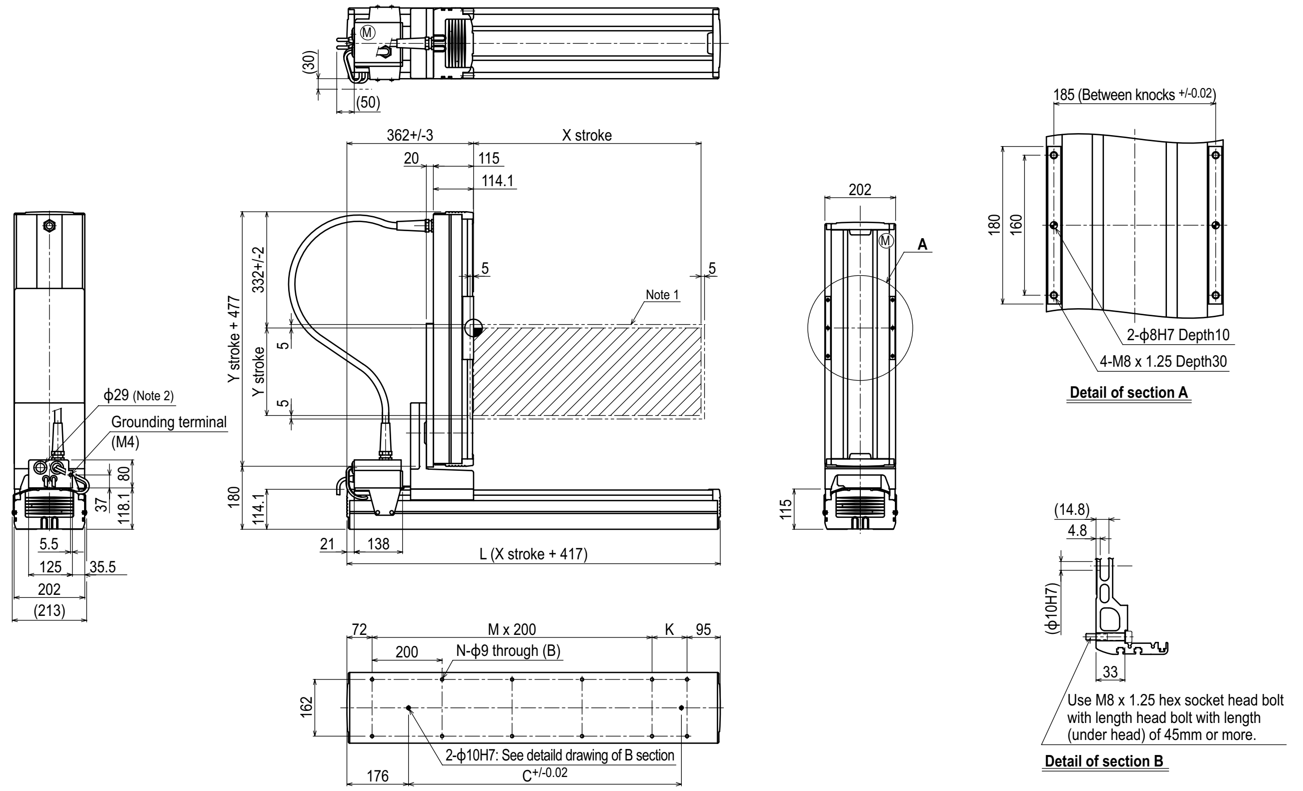
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
250 to 850	30

Controller

Controller	Operation method
RCX222HP-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes P1



X stroke [Note 3]	250	350	450	550	650	750	850
L	667	767	867	967	1067	1167	1267
K	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960
M	2	2	3	3	4	4	5
N	8	8	10	10	12	12	14

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Y stroke [Note 3]		250	350	450	550	650	750	850
Maximum speed for each stroke (mm/sec) [Note 4]	**X-axis**	1200						960
	Y-axis	600						480
	Speed setting	–						80%

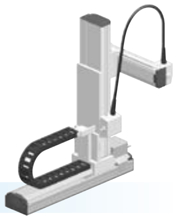
Note 3. The total of the X and Y strokes should be 1100mm or less.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Arm type
Gantry type
Moving arm type
Pole type
XZ type

HXYx

3 axes / ZPH

Pole type · Cable carrier · Z-axis: Clamped table / moving base type (200W) for Pole type



Ordering method

HXYx	C	P2						RCX340-3							
Model	Cable	Combi-nation	X-axis stroke Note 1	Y-axis stroke Note 1	ZR-axis	Z-axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
			25 to 125cm	25 to 95cm	ZPHL ZPHR	25 to 65cm	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240		R					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. The total of the Y and Z strokes should be 1200mm or less.

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F20-BK	F14H
AC servo motor output (W)	600	600	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10	20
Maximum speed Note 4 **(mm/sec)**	1200	600	1200
Moving range (mm)	250 to 1250	250 to 950	250 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

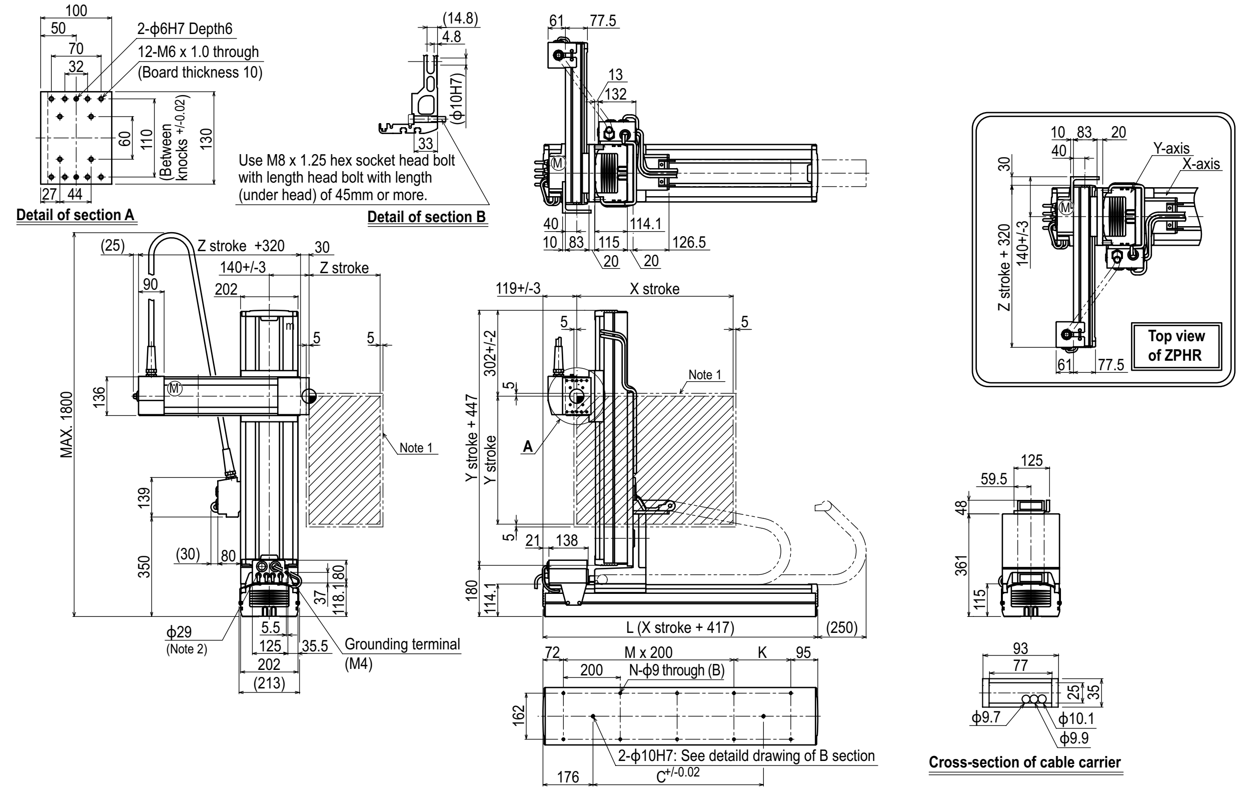
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	**250 to 650**
250 to 950	15

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZPHL P2



X stroke Note 4	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
K	100	200	100	200	100	200	100	200	100	200	100
C	420	420	600	600	780	780	960	960	1140	1320	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Y stroke Note 4	250	350	450	550	650	750	850	950

Z stroke	250	350	450	550	650

Maximum speed for each stroke (mm/sec) Note 5		250	350	450	550	650	750	850	950	1050	1150	1250
	X-axis	1200						960	840	720	600	480
	Y-axis	600						480	420			
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. This figure shows the combination for ZPHL. For the combination for ZPHR, see the top view in the figure.

Note 4. The total of the Y and Z strokes should be 1200mm or less.
Note 5. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx

3 axes / ZPH

● Pole type ● Whipover

● Z-axis: Clamped table / moving base type (200W) for Pole type

Ordering method

HXYx - S - P1 - ☐ - ☐ - ☐ - ☐ - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combi-nation	X-axis stroke Note 1	Y-axis stroke Note 1	ZR-axis	Z-axis stroke	Cable
HXYx	S	P1	25 to 85cm	25 to 85cm	ZPHL ZPHR	25 to 65cm	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - ☐ - R - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Note 1. The total of the X and Y strokes should be 1100mm or less and that of the Y and Z strokes should be 1200mm or less.

Specification

	X-axis	Y-axis	Z-axis
Axis construction Note 1	F20	F20-BK	F14H
AC servo motor output (W)	600	600	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10	20
Maximum speed Note 4 **(mm/sec)**	1200	600	1200
Moving range (mm)	250 to 850	250 to 850	250 to 650
Robot cable length (m)	Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

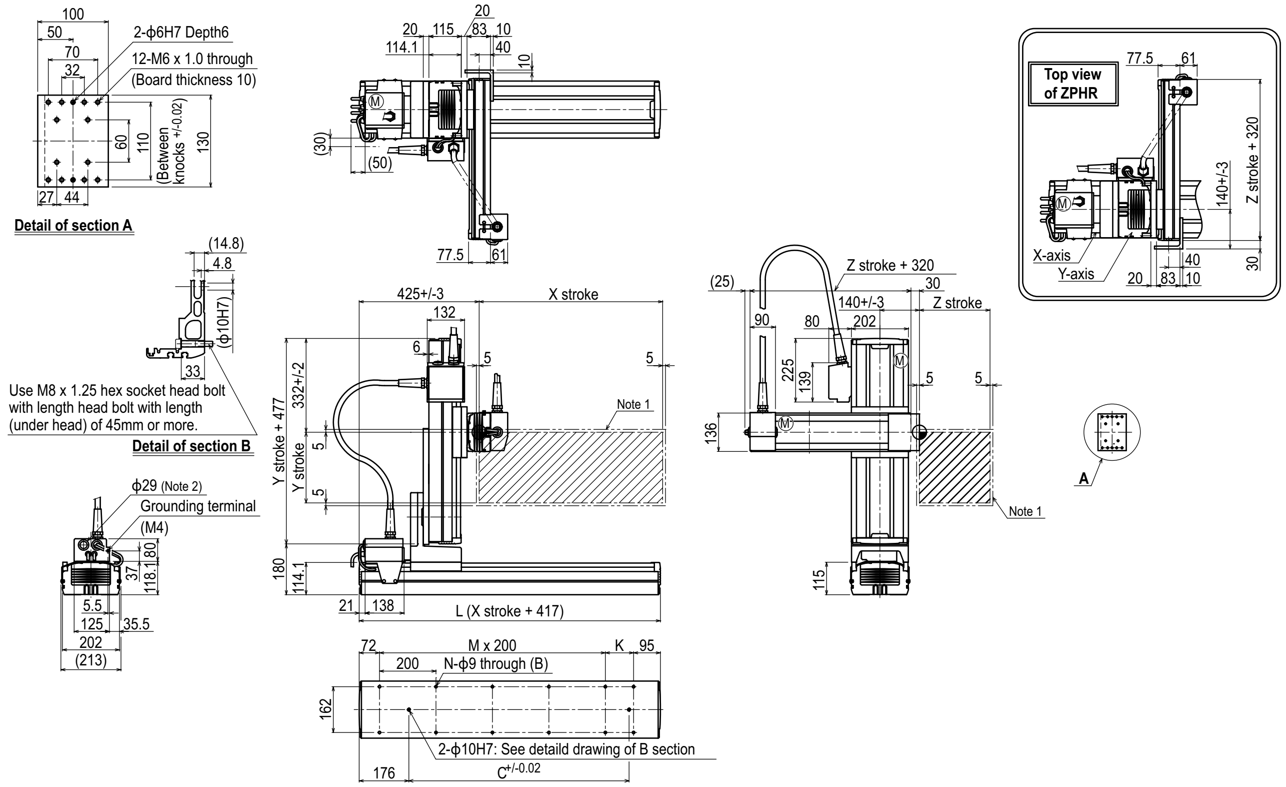
Maximum payload (kg)

	Z stroke (mm)
Y stroke (mm)	**250 to 650**
250 to 850	15

Controller

Controller	Operation method
RCX340 RCX240-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 3 axes / ZPHL P1



X stroke Note 4	250	350	450	550	650	750	850
L	667	767	867	967	1067	1167	1267
K	100	200	100	200	100	200	100
D	420	420	600	600	780	780	960
M	2	2	3	3	4	4	5
N	8	8	10	10	12	12	14

Y stroke Note 4	250	350	450	550	650	750	850

Z stroke	250	350	450	550	650	

Maximum speed for each stroke (mm/sec) Note 5	**X-axis**	1200	960
	Y-axis	600	480
	Speed setting	–	80%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.
Note 3. This figure shows the combination for ZPHL. For the combination for ZPHR, see the top view in the figure.

Note 4. The total of the X and Y strokes should be 1100mm or less and that of the Y and Z strokes should be 1200mm or less.
Note 5. When the X-axis/Y-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 2 axes / ZF

- XZ type
- Cable carrier
- Z-axis: clamped base / moving table type (100W)

Ordering method

SXYx - **C** - ☐ - ☐ - **ZF** - ☐ - ☐ - **RCX222** - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYx	C	F1	15 to 105cm	ZF	15 to 35cm	3L: 3.5m	RCX222	No entry: Standard	N: NPN Note 1	No entry: None
		F3				5L: 5m		E: CE marking	P: PNP	N1: OP.DIO24/16 (NPN) Note 1
						10L: 10m			CC: CC-Link	P1: OP.DIO24/17 (PNP)
									DN: DeviceNet™	EN: Ethernet Note 3
									PB: PROFIBUS	
									EN: Ethernet	
									YC: YC-Link Note 2	

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F14	F10-BK
AC servo motor output (W)	100	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	150 to 1050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

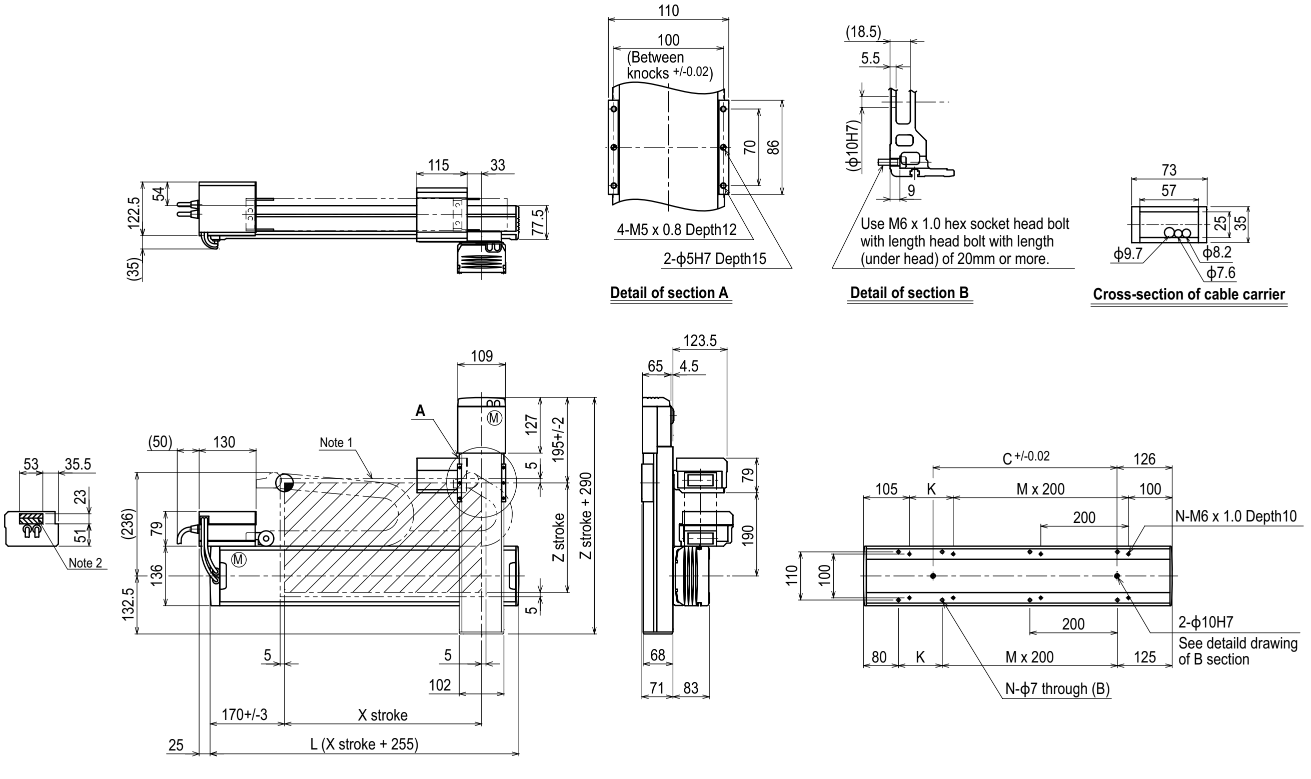
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**150 to 350**
150 to 1050	10

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes / ZF F1



Detail of section A

Detail of section B

Cross-section of cable carrier

X stroke	150	250	350	450	550	650	750	850	950	1050
L	405	505	605	705	805	905	1005	1105	1205	1305
K	200	100	200	100	200	100	200	100	200	100
C	240	240	420	420	600	600	780	780	960	960
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Z stroke		150	250	350
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200		
	Speed setting	–		

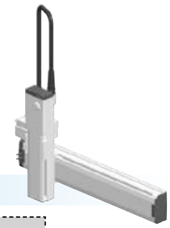
X stroke	150 to 650	750	850	950	1050
Maximum speed for each stroke (mm/sec) Note 3 — X-axis	1200	960	780	600	540
Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 2 axes / ZF

● XZ type ● Whipover ● Z-axis: clamped base / moving table type (100W)



Ordering method

SXYx	S	☐	☐	ZF	☐	☐	RCX222	☐	☐	☐
Model	**Cable**	**Combination**	**X-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Input/Output selection 1**	**Input/Output selection 2**
		F1 F3	15 to 85cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F14	F10-BK
AC servo motor output (W)	100	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	150 to 850	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

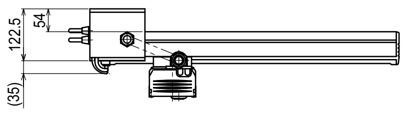
Maximum payload (kg)

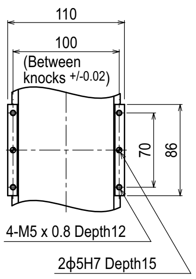
	Z stroke (mm)
X stroke (mm)	**150 to 350**
150 to 850	10

Controller

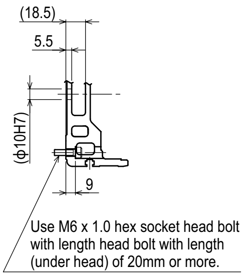
Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes / ZF F1

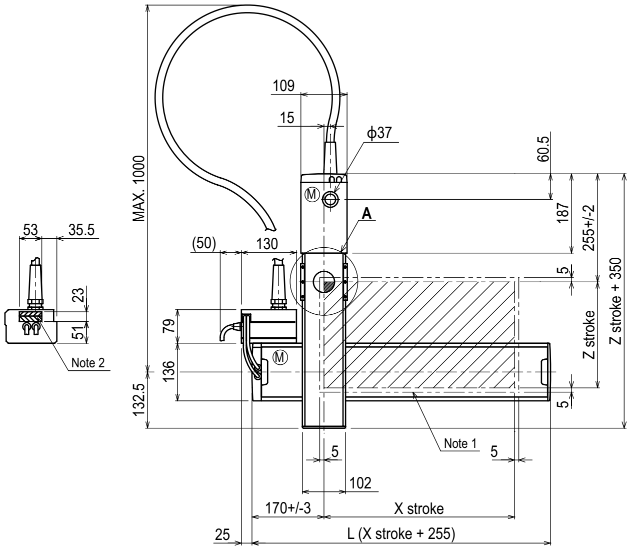


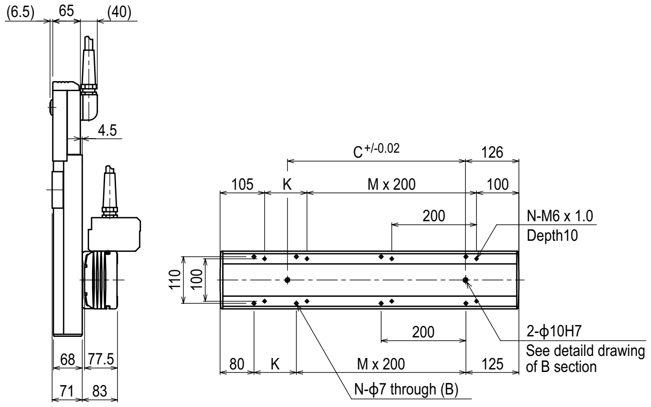


Detail of section A


(18.5)
5.5
(ϕ10H7)
9
Use M6 x 1.0 hex socket head bolt with length head bolt with length (under head) of 20mm or more.

Detail of section B





X stroke	150	250	350	450	550	650	750	850
L	405	505	605	705	805	905	1005	1105
K	200	100	200	100	200	100	200	100
C	240	240	420	420	600	600	780	780
M	0	1	1	2	2	3	3	4
N	4	6	6	8	8	10	10	12

Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3				
	X-axis	1200	960	780
	Speed setting	–	80%	65%

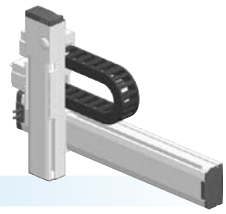
Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Controller RCX222 ▶ 526

SXYx 2 axes / ZFL20

● XZ type ● Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

SXYx	C			ZFL20			RCX222		R		
Model	**Cable**	**Combination**	**X-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit** [Note 1]	**Input/Output selection 1**	**Input/Output selection 2**
		F1	15 to 105cm		15 to 35cm	3L: 3.5m	RCX222	No entry: Standard	R: RG2	N: NPN [Note 2]	No entry: None
		F3				5L: 5m		E: CE marking		P: PNP	N1: OP.DIO24/16 (NPN) [Note 2]
						10L: 10m				CC: CC-Link	P1: OP.DIO24/17 (PNP)
										DN: DeviceNet™	EN: Ethernet [Note 4]
										PB: PROFIBUS	
										EN: Ethernet	
										YC: YC-Link [Note 3]	

Note 1. DRCX0510 uses the RGU-2 regenerative unit. The RCX222 uses the RG2.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction [Note 1]	F14	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	100	200
Repeatability [Note 2] **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead [Note 3] **(Deceleration ratio) (mm)**	20	20
Maximum speed [Note 4] **(mm/sec)**	1200	1200
Moving range (mm)	150 to 1050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

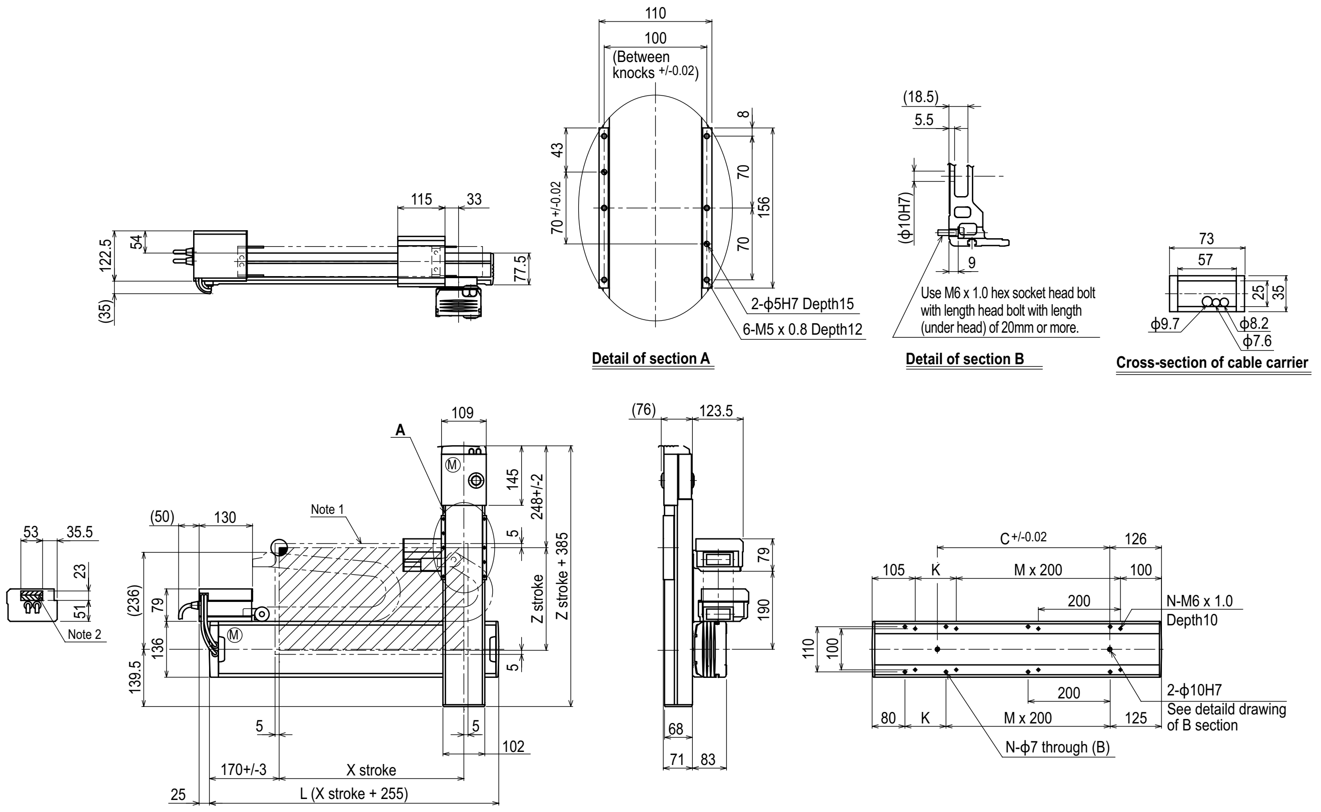
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**150 to 350**
150 to 1050	8

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes / ZFL20 F1



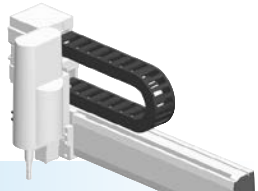
X stroke		150	250	350	450	550	650	750	850	950	1050
L		405	505	605	705	805	905	1005	1105	1205	1305
K		200	100	200	100	200	100	200	100	200	100
C		240	240	420	420	600	600	780	780	960	960
M		0	1	1	2	2	3	3	4	4	5
N		4	6	6	8	8	10	10	12	12	14
Z stroke		**150**	**250**	**350**							
Maximum speed for each stroke (mm/sec) [Note 3]	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYx 2 axes / ZS

XZ type · Cable carrier · Z-axis shaft vertical type



Ordering method

SXYx - C - ☐ - ☐ - ☐ - 15 - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYx	C	F1 F3	15 to 105cm	ZS12 ZS6	15	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

		X-axis	Z-axis: ZS12	Z-axis: ZS6
Axis construction Note 1		F14	–	
AC servo motor output (W)		100	60	
Repeatability Note 2 (mm)		+/-0.01	+/-0.02	
Drive system		Ball screw (Class C7)	Ball screw (Class C10)	
Ball screw lead Note 3 (Deceleration ratio) (mm)		20	12	6
Maximum speed Note 4 (mm/sec)	During RCX240 use	1200	1000	500
	During DRCX use	1200	900	450
Moving range (mm)		150 to 1050	150	
Robot cable length (m)		Standard: 3.5 Option: 5,10		

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

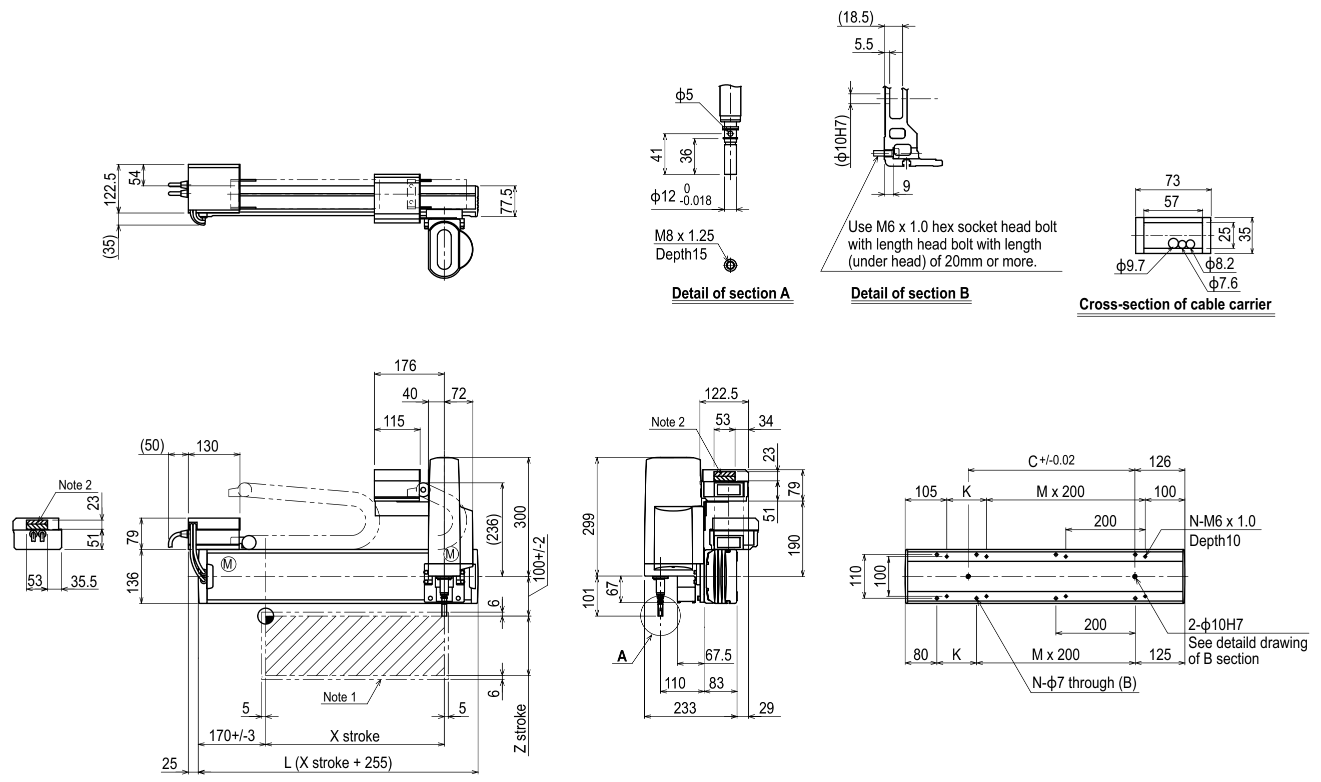
Maximum payload (kg)

Y stroke (mm)	ZS12	ZS6
150 to 1050	3	5

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYx 2 axes / ZS F1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	405	505	605	705	805	905	1005	1105	1205	1305
K	200	100	200	100	200	100	200	100	200	100
C	240	240	420	420	600	600	780	780	960	960
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

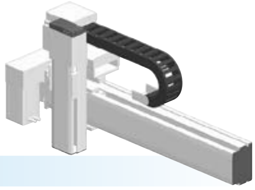
Z stroke		150

		150	250	350	450	550	650	750	850	950	1050
Maximum speed for each stroke (mm/sec) Note 3	X-axis	1200						960	780	600	540
	Speed setting	–						80%	65%	50%	45%

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYBx 2 axes / ZF

XZ type　Cable carrier　Z-axis: clamped base / moving table type (100W)



Ordering method

SXYBx - C - ☐ - ☐ - ZF - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐ - ☐

Model	Cable	Combination	X-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit [Note 1]	Input/Output selection 1	Input/Output selection 2
SXYBx	C	F1 F3	15 to 305cm	ZF	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	No entry: None R: RG2	N: NPN [Note 2] P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note 3]	No entry: None N1: OP.DIO24/16 (NPN) [Note 2] P1: OP.DIO24/17 (PNP) EN: Ethernet [Note 4]

Note 1. Regenerative unit RG2 is required when the maximum speed on the RCX222 exceeds 1250mm/sec.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Available only for the master. See P.68 for details on YC-Link system.
Note 4. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction [Note 1]	B14H	F10-BK
AC servo motor output (W)	200	100
Repeatability [Note 2] (mm)	+/-0.04	+/-0.01
Drive system	Timing belt	Ball screw (Class C7)
Ball screw lead [Note 3] (Deceleration ratio) (mm)	Equivalent to lead 25	10
Maximum speed (mm/sec)	1875	600
Moving range (mm)	150 to 3050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

Maximum payload (kg)

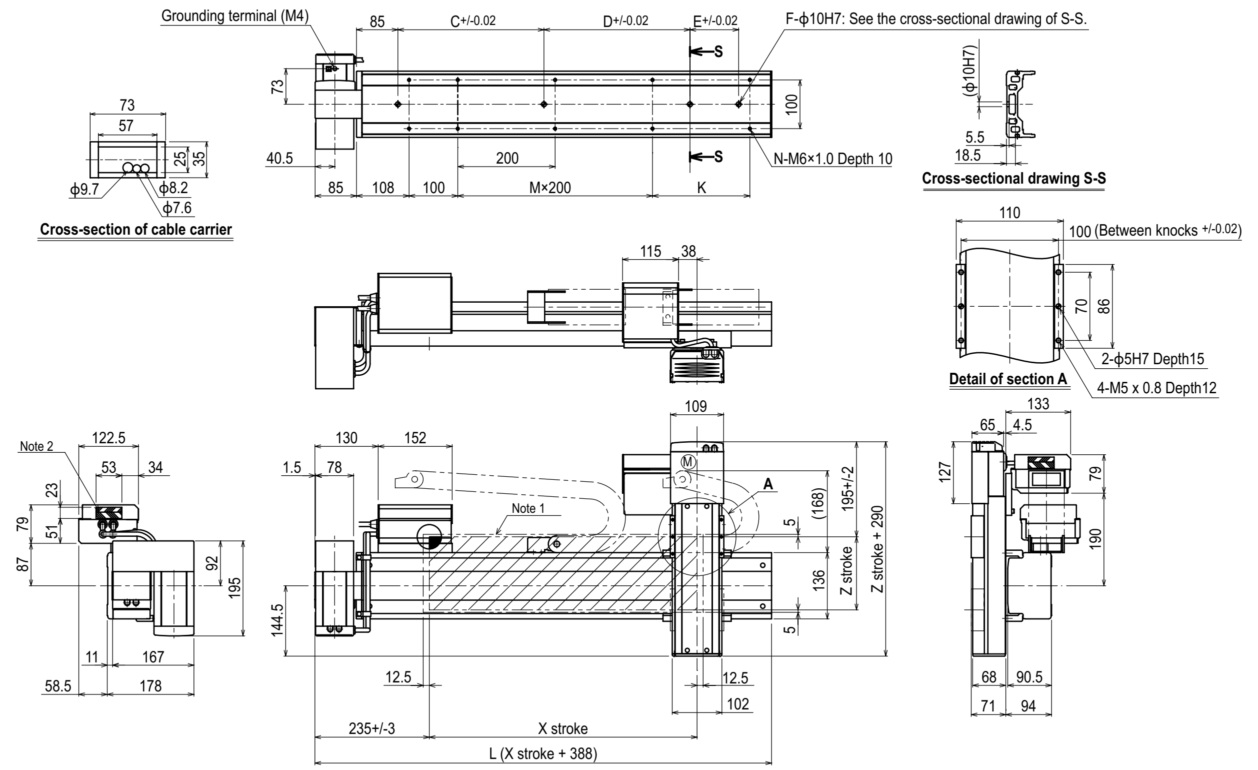
	Z stroke (mm)
X stroke (mm)	150 to 350
150 to 3050	10

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. A regenerative unit is required when the maximum speed exceeds 1250mm/sec.

SXYBx 2 axes / ZF F1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.
Note 3. LU specification should be used for installation of the X axis motor.

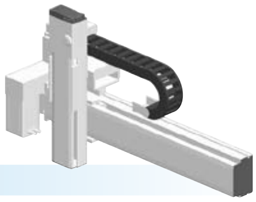
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	538	638	738	838	938	1038	1138	1238	1338	1438	1538	1638	1738	1838	1938	2038	2138	2238	2338	2438	2538	2638	2738	2838	2938	3038	3138	3238	3338	3438
K	-	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	420	600	600	780	780	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	-	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36

Z stroke	150	250	350

SXYBx

2 axes / ZFL20

○ XZ type ○ Cable carrier ● Z-axis: clamped base / moving table type (200W)



Ordering method

Model	Cable	Combination	X-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
SXYBx	C			ZFL20			RCX222		R		
		F1 F3	15 to 305cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	B14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	200
Repeatability Note 2 **(mm)**	+/-0.04	+/-0.01
Drive system	Timing belt	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	Equivalent to lead 25	20
Maximum speed (mm/sec)	1875	1200
Moving range (mm)	150 to 3050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.

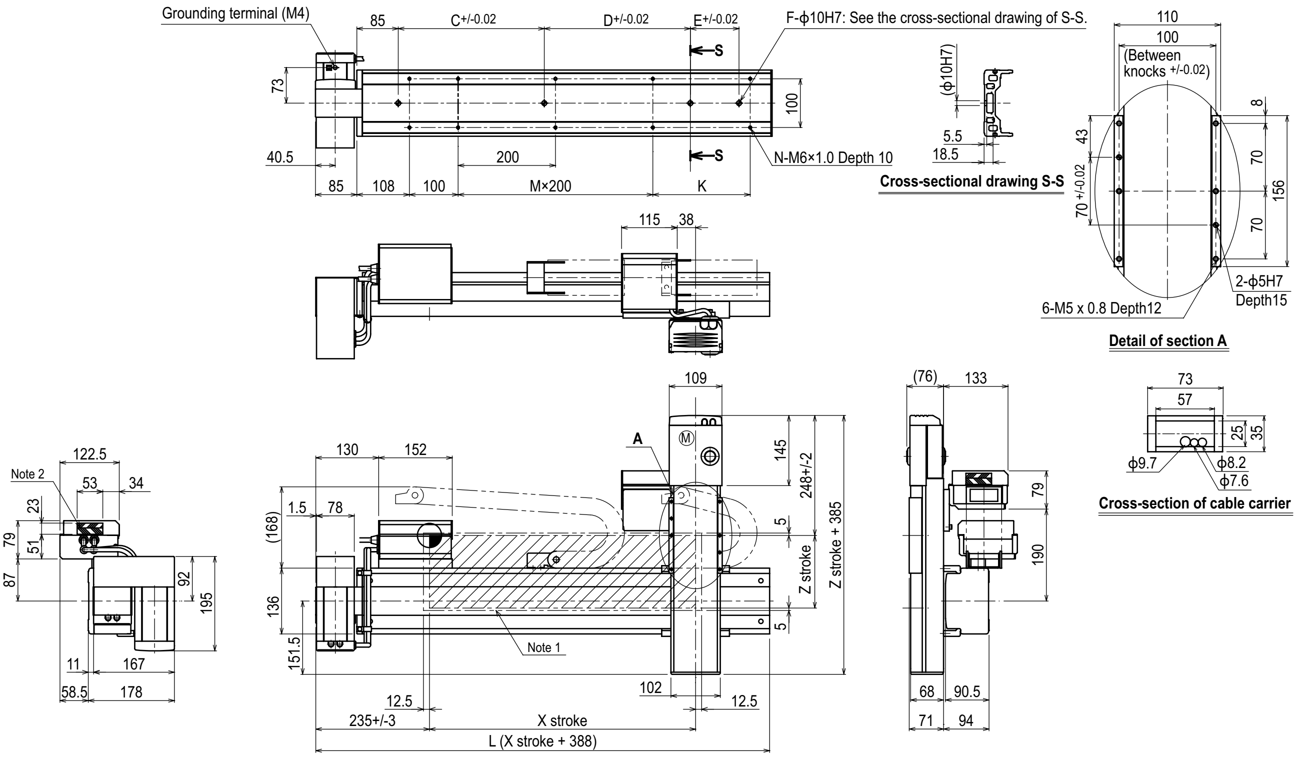
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**150 to 350**
150 to 3050	8

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYBx 2 axes / ZFL20 F1



Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.
Note 3. LU specification should be used for installation of the X axis motor.

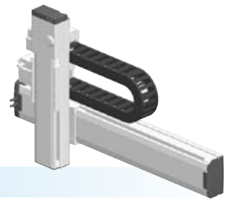
X stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050
L	538	638	738	838	938	1038	1138	1238	1338	1438	1538	1638	1738	1838	1938	2038	2138	2238	2338	2438	2538	2638	2738	2838	2938	3038	3138	3238	3338	3438
K	-	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100
C	240	420	420	600	600	780	780	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
D	-	-	-	-	-	-	-	-	-	-	-	240	240	420	600	600	780	780	960	960	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	420	420	600	600	780	960
F	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
M	1	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36

Z stroke	150	250	350

Controller RCX222 ▶ 526

MXYx 2 axes / ZFL10

XZ type
Cable carrier
Z-axis: clamped base / moving table type (200W)



Ordering method

MXYx	C			ZFL10			RCX222		R		
Model	**Cable**	**Combination**	**X-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
		F1 F3	15 to 105cm		15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	150 to 1050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

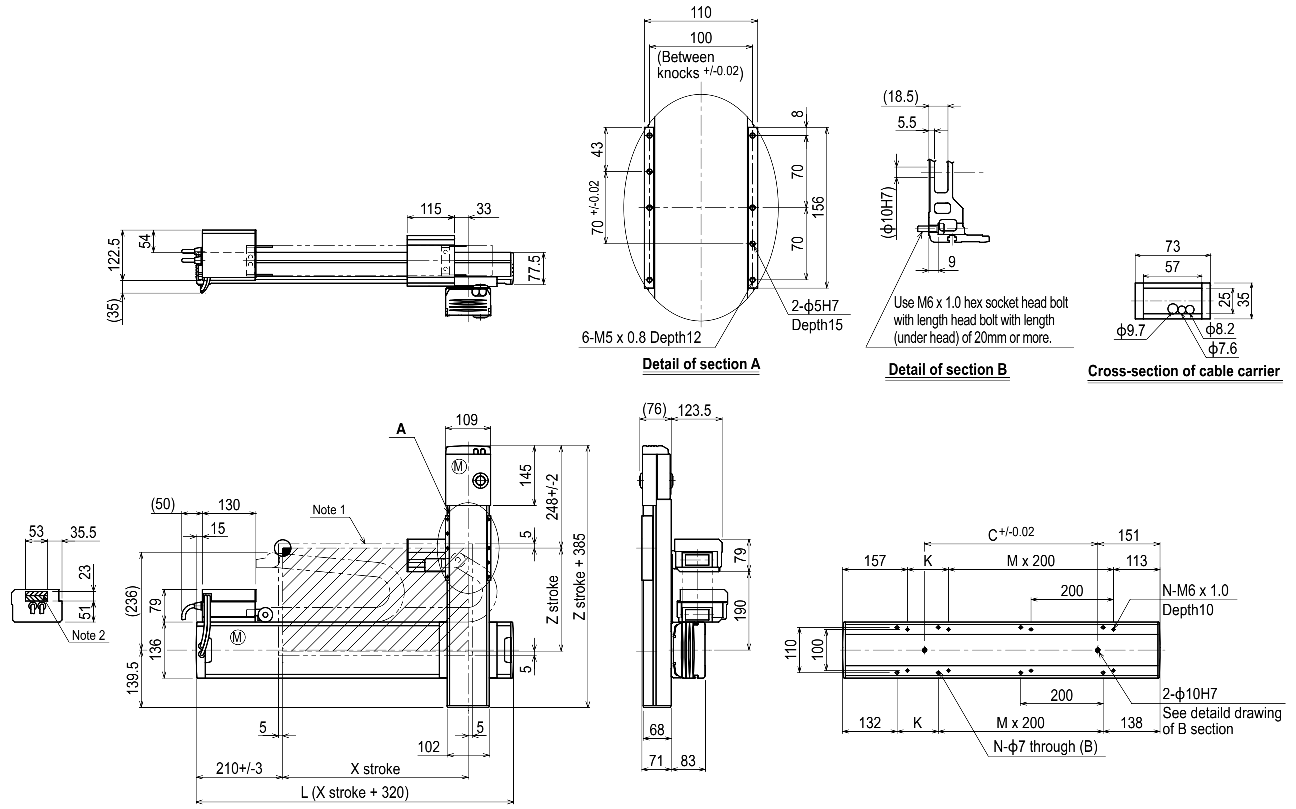
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**150 to 350**
150 to 1050	15

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes / ZFL10 F1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
C	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

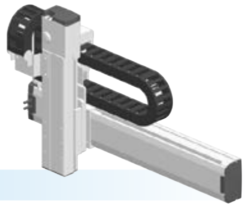
Z stroke	150	250	350

Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200					960	780	600	540
	Speed setting	–					80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MXYx 2 axes / ZFH



● XZ type ● Cable carrier ● Z-axis: clamped table / moving base type (200W)

Ordering method

MXYx - C - ☐ - ☐ - ZFH - ☐ - ☐ - RCX222 - ☐ - R - ☐ - ☐

Model	Cable	Combination	X-axis stroke	ZR-axis	Z-axis stroke	Cable	Controller	Usable for CE	Regeneratine unit	Input/Output selection 1	Input/Output selection 2
MXYx	C	F1 F3	15 to 105cm	ZFH	15 to 35cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1.NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3.Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F14H	F10-BK equivalent guide-reinforced model
AC servo motor output (W)	200	200
Repeatability Note 2 (mm)	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	10
Maximum speed Note 4 (mm/sec)	1200	600
Moving range (mm)	150 to 1050	150 to 350
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

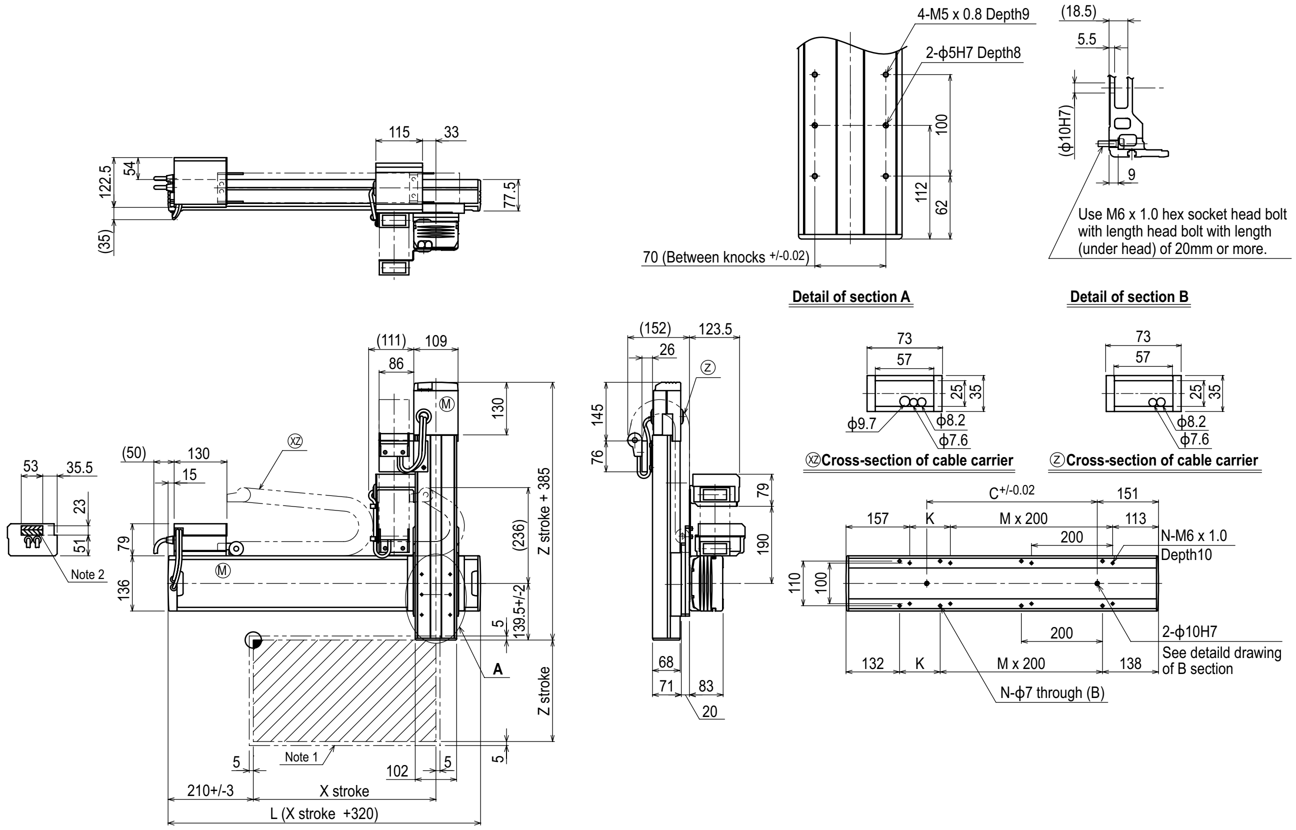
Maximum payload (kg)

	Z stroke (mm)		
X stroke (mm)	150	250	350
150 to 1050	14	13	12

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

MXYx 2 axes / ZFH F1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	470	570	670	770	870	970	1070	1170	1270	1370
K	200	100	200	100	200	100	200	100	200	100
C	240	240	420	420	600	600	780	960	960	1140
M	0	1	1	2	2	3	3	4	4	5
N	4	6	6	8	8	10	10	12	12	14

Z stroke	150	250	350

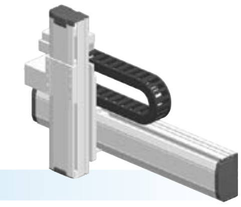
Maximum speed for each stroke (mm/sec) Note 3		X stroke 150–650	750	850	950	1050
	X-axis	1200	960	780	600	540
	Speed setting	–	80%	65%	50%	45%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. The shaded position indicates an user cable extraction port.

Note 3. When the X-axis stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes / ZL

XZ type | Cable carrier | Z-axis: clamped base / moving table type (200W)



Ordering method

HXYx	C			ZL			RCX222		R		
Model	**Cable**	**Combination**	**X-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regeneratine unit**	**Input/Output selection 1**	**Input/Output selection 2**
		F1 F3	25 to 125cm		25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F17	F14H-BK
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	10
Maximum speed Note 4 **(mm/sec)**	1200	600
Moving range (mm)	250 to 1250	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

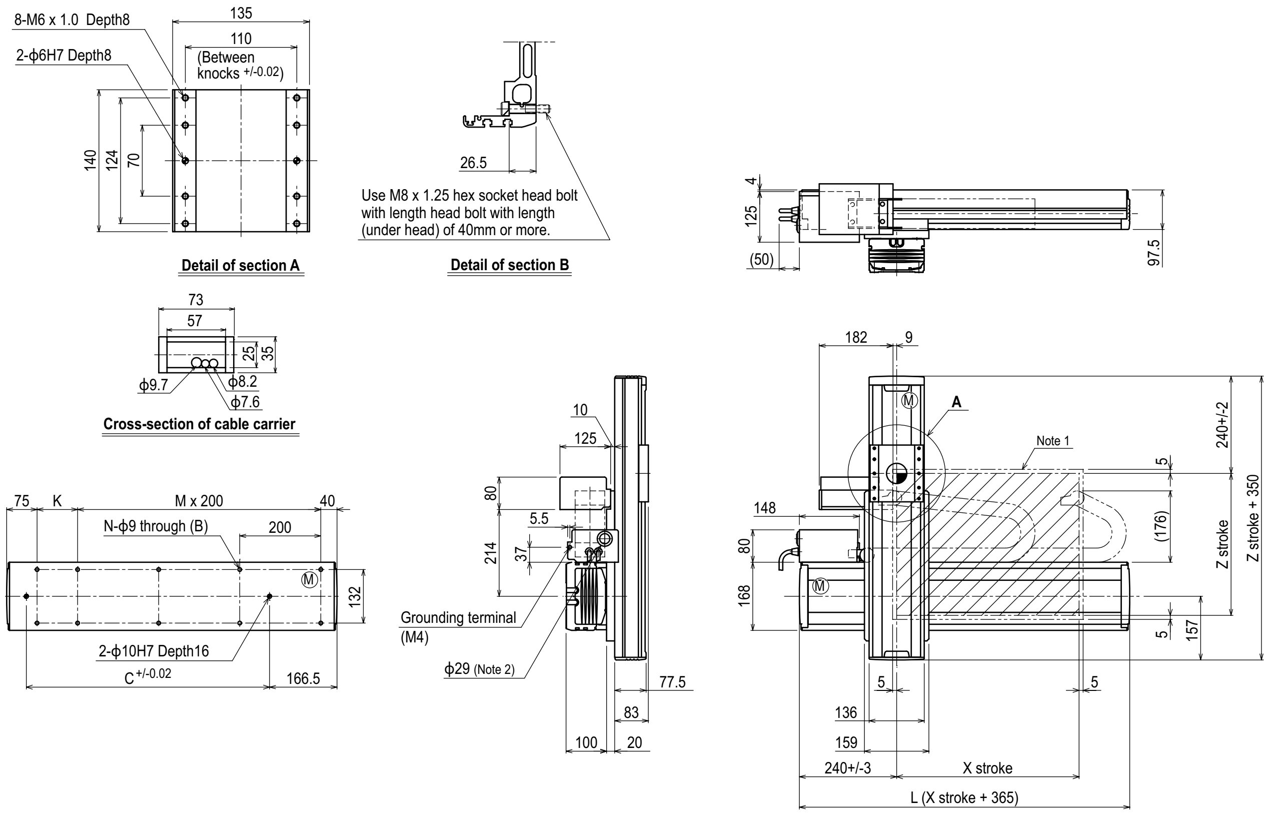
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**250 to 550**
250 to 1250	20

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes / ZL F1



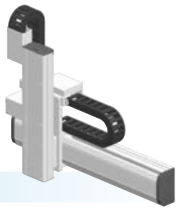
X stroke		250	350	450	550	650	750	850	950	1050	1150	1250
L		615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K		100	200	100	200	100	200	100	200	100	200	100
C		240	420	600	600	780	780	960	960	1140	1140	1320
M		2	2	3	3	4	4	5	5	6	6	7
N		8	8	10	10	12	12	14	14	16	16	18
Z stroke		**250**	**350**	**450**	**550**							
Maximum speed for each stroke (mm/sec) Note 3	**X-axis**	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

HXYx 2 axes / ZH

● XZ type　● Cable carrier　● Z-axis: clamped table / moving base type (200W)



Ordering method

HXYx	C			ZH			RCX222		R		
Model	**Cable**	**Combination**	**X-axis stroke**	**ZR-axis**	**Z-axis stroke**	**Cable**	**Controller**	**Usable for CE**	**Regenerative unit**	**Input/Output selection 1**	**Input/Output selection 2**
		F1 F3	25 to 125cm		25 to 55cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	R: RG2	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 1 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above. EN can be selected in I/O select 2.

Specification

	X-axis	Z-axis
Axis construction Note 1	F17	F14H-BK
AC servo motor output (W)	400	200
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	5
Maximum speed Note 4 **(mm/sec)**	1200	300
Moving range (mm)	250 to 1250	250 to 550
Robot cable length (m)	Standard: 3.5 Option: 5,10	

Note 1. Use caution that the flame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

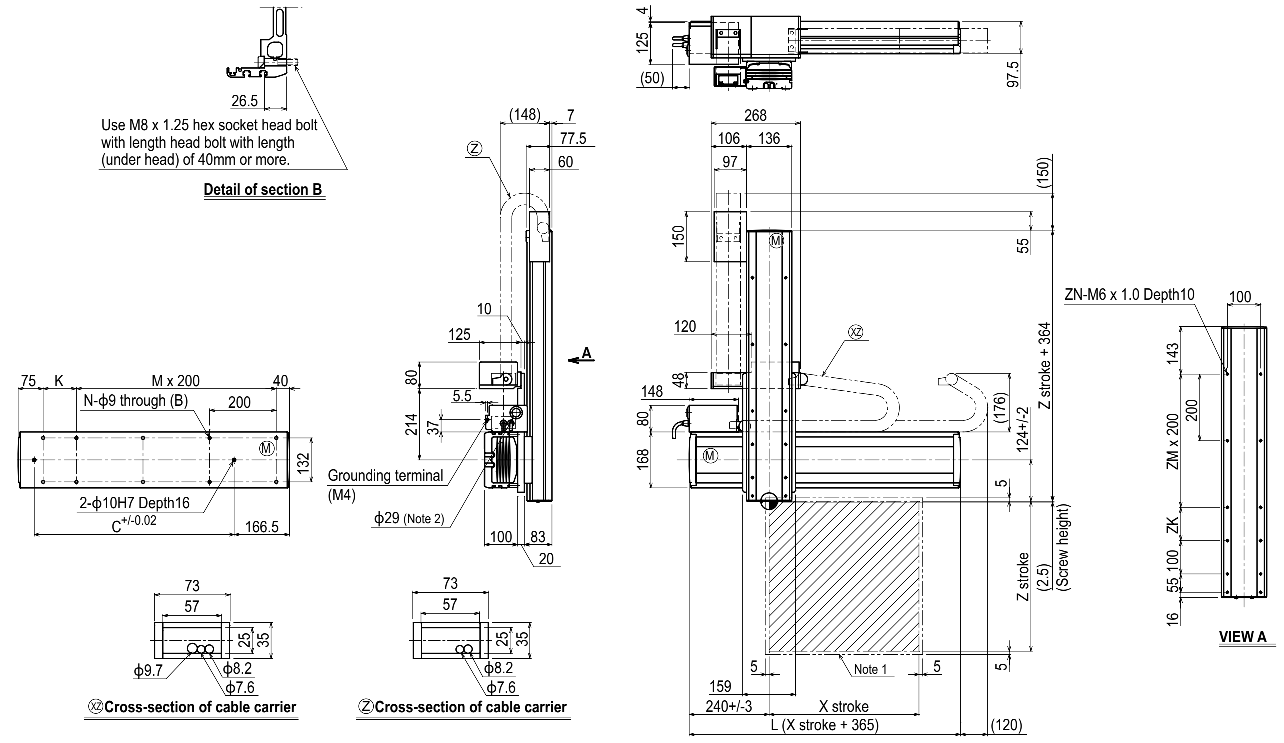
Maximum payload (kg)

	Z stroke (mm)
X stroke (mm)	**250 to 550**
250 to 1250	30

Controller

Controller	Operation method
RCX222-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication

HXYx 2 axes / ZH F1



X stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	615	715	815	915	1015	1115	1215	1315	1415	1515	1615
K	100	200	100	200	100	200	100	200	100	200	100
C	240	420	600	600	780	780	960	960	1140	1140	1320
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18

Z stroke	250	350	450	550
ZK	100	200	100	200
ZM	1	1	2	2
ZN	10	10	12	12

Maximum speed for each stroke (mm/sec) Note 3		250	350	450	550	650	750	850	950	1050	1150	1250
	X-axis	1200						960	840	720	600	480
	Speed setting	–						80%	70%	60%	50%	40%

Note 1. The moving range when returning to origin and the stop position when stopping by the mechanical stopper.
Note 2. User cable extraction port.

Note 3. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

MEMO

SCARA ROBOTS
YK-X SERIES

CONTENTS

ORBIT TYPE

TINY TYPE

SMALL TYPE

MEDIUM TYPE

LARGE TYPE

WALL-MOUNT / INVERSE TYPE

DUST-PROOF & DRIP-PROOF TYPE

Main functions ▶ P.40

YK-X SPECIFICATION SHEET

Type		Model	Arm length (mm) and XY axis resultant maximum speed (m/s)															Standard cycle time (sec) Note 1	Maximum payload (kg)	R-axis tolerable moment of inertia (kgm^2)	Completely beltless structure Note 2	R-axis harmonic drive Note 3	Detailed info page
			120	150	180	220	250	300	350	400	500	600	700	800	900	1000	1200						
Orbit type		YK350TW								5.6								0.32 (RCX340) 0.38 (RCX240)	5	0.005 (Rated) 0.05 (Maximum)			P.372
		YK500TW									6.8							0.29	5 (RCX340) 4 (RCX240)	0.005 (Rated) 0.05 (Maximum)			P.374
Standard	Tiny type	YK120XG	3.3															0.33	1	0.01	●	●	P.376
		YK150XG		3.4														0.33	1	0.01	●	●	P.377
		YK180XG			3.3													0.33	1	0.01	●	●	P.378
		YK180X			3.3													0.39	1	0.01	●	●	P.379
		YK220X				3.4												0.42	1	0.01	●	●	P.380
	Small type	YK250XG					4.5											0.49	5	0.05	●	●	P.381
		YK350XG							5.6									0.49	5	0.05	●	●	P.383
		YK400XG								6.1								0.49	5	0.05	●	●	P.385
		YK400XR								6								0.45	3	0.05			P.387
	Medium type	YK500XGL									5.1							0.59	5	0.05	●	●	P.388
		YK500XG									7.6							0.45	10	0.30	●	●	P.390
		YK600XGL										4.9						0.63	5	0.05	●	●	P.391
		YK600XG										8.4						0.46	10	0.30	●	●	P.393
		YK600XGH										7.7						0.47	20	1.0	●	●	P.394
	Large type	YK700XGL												9.2				0.50	10	0.30	●	●	P.395
		YK700XG											8.4					0.42	20	1.0	●	●	P.396
		YK800XG												9.2				0.48	20	1.0	●	●	P.397
		YK900XG													9.9			0.49	20	1.0	●	●	P.398
		YK1000XG														10.6		0.49	20	1.0	●	●	P.399
		YK1200X															7.4	0.91	50	2.45		●	P.400
Wall-mount / inverse type		YK300XGS						4.4										0.49	5	0.05	●	●	P.401
		YK400XGS								6.1								0.49	5	0.05	●	●	P.403
		YK500XGS									7.6							0.45	10	0.3	●	●	P.405
		YK600XGS										8.4						0.46	10	0.3	●	●	P.406
		YK700XGS											8.4					0.42	20	1.0	●	●	P.407
		YK800XGS												9.2				0.48	20	1.0	●	●	P.408
		YK900XGS													9.9			0.49	20	1.0	●	●	P.409
		YK1000XGS														10.6		0.49	20	1.0	●	●	P.410
Dust-proof & drip-proof type		YK250XGP					4.5											0.57	4	0.05	●	●	P.411
		YK350XGP							5.6									0.57	4	0.05	●	●	P.413
		YK400XGP								6.1								0.57	4	0.05	●	●	P.415
		YK500XGLP									5.1							0.74	4	0.05	●	●	P.417
		YK500XGP									7.6							0.55	8	0.3	●	●	P.419
		YK600XGLP										4.9						0.74	4	0.05	●	●	P.420
		YK600XGP										8.4						0.56	8	0.3	●	●	P.422
		YK600XGHP										7.7						0.57	18	1.0	●	●	P.423
		YK700XGP											8.4					0.52	18	1.0	●	●	P.424
		YK800XGP												9.2				0.58	18	1.0	●	●	P.425
		YK900XGP													9.9			0.59	18	1.0	●	●	P.426
		YK1000XGP														10.6		0.59	18	1.0	●	●	P.427

Note 1. The standard cycle time is measured under the following conditions.
- During back and forth movement 25mm vertically and 100mm horizontally (TINY)
- During back and forth movement 25mm vertically and 300mm horizontally (small type / medium type / large type)

Note 2. Maintains high accuracy over long periods because the beltless structure drastically cuts down on wasted motion.
Operation is also nearly maintenance-free for long periods with no worries about belt breakage, stretching or deterioration over time.

Note 3. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Robot ordering method description

In the order format for the YAMAHA SCARA robots YK-X series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

● **Mechanical ▶ YK250XG**
- Z-axis stroke ▷ 150mm
- Tool flange ▷ With tool flange
- Hollow shaft ▷ With hollow shaft
- Cable length ▷ 3.5m

● **Controller ▶ RCX240S**

● **Ordering method**

YK250XG-150-F -S-3L-RCX240S

Mechanical section Controller section

To find detailed controller information see the controller page. **RCX240 ▶** P.534, **RCX340 ▶** P.544

① Model	② Z-axis stroke		③ Tool flange		④ Hollow shaft		⑤ Cable		⑥ Controller
YK***	50	50mm	No entry	None	No entry	None	2L	2m	RCX240
	100	100mm	F	With tool flange	S	With hollow shaft	3L	3.5m	RCX240S
	150	150mm					5L	5m	RCX340
	200	200mm					10L	10m	
	300	300mm							
	400	400mm							

Note 1. Available only for the master.

Robot ordering method terminology

① **Model**	Enter the robot unit model.
② **Z-axis stroke**	Select the Z axis stroke. The stroke varies with the model you select so see that model's page to confirm the specifications.
③ **Tool flange**	Tool flange option for easy mounting of a tool to the tip. **No entry**: None **F**: With tool flange
④ **Hollow shaft**	Hollow shaft option for easy routing of air tubes and harness wires. **No entry**: None **S**: With hollow shaft
⑤ **Cable**	Select the length of the robot cable connecting the robot and controller. **2L**: 2m (Note 1) **3L**: 3.5m **5L**: 5m **10L**: 10m Note 1. Only selectable for YK120XG, YK150XG, YK180XG.
⑥ **Controller**	Select either the RCX240 (RCX240S) or RCX340.

YK350TW

Orbit type

- Arm length 350mm
- Maximum payload 5kg

Ordering method

YK350TW	- 130	-	-	-
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**
	130: 130mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	-	- R3	-	-	-	-	-
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		175 mm	175 mm	130 mm	-
	Rotation angle		+/-225 °	+/-225 °	-	+/-720 °
AC servo motor output			750 W	400 W	200 W	105 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Belt speed reduction
	Transmission method	**Motor to speed reducer**	Timing belt	Direct-coupled	Timing belt	Timing belt
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.01 °
Maximum speed			5.6 m/sec		1.5 m/sec	3000 °/sec
Maximum payload Note 2			5 kg			
Standard cycle time: with 1kg payload Note 3			0.32 sec (RCX340) / 0.38 sec (RCX240)			
R-axis tolerable moment of inertia Note 4		**Rated**	0.005 kgm^2			
		Maximum	0.05 kgm^2			
User wiring			0.15 sq × 8 wires			
User tubing (Outer diameter)			ϕ 6 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			26 kg			

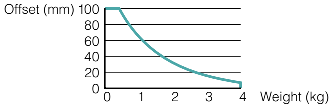
Note 1. This is the value at a constant ambient temperature.
Note 2. Tool flange specifications (option) are 4 kg.
Note 3. When moving a 1 kg load back and forth 300mm horizontally and 25mm vertically (rough positioning arch motion).
Note 4. Limits must be placed on parameters such as acceleration according to the moment of inertia being used. See P.608.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

R-axis moment of inertia (load inertia)

Recommended positional relationship between the load weight and the offset amount from the center of the R-axis (center of gravity position)

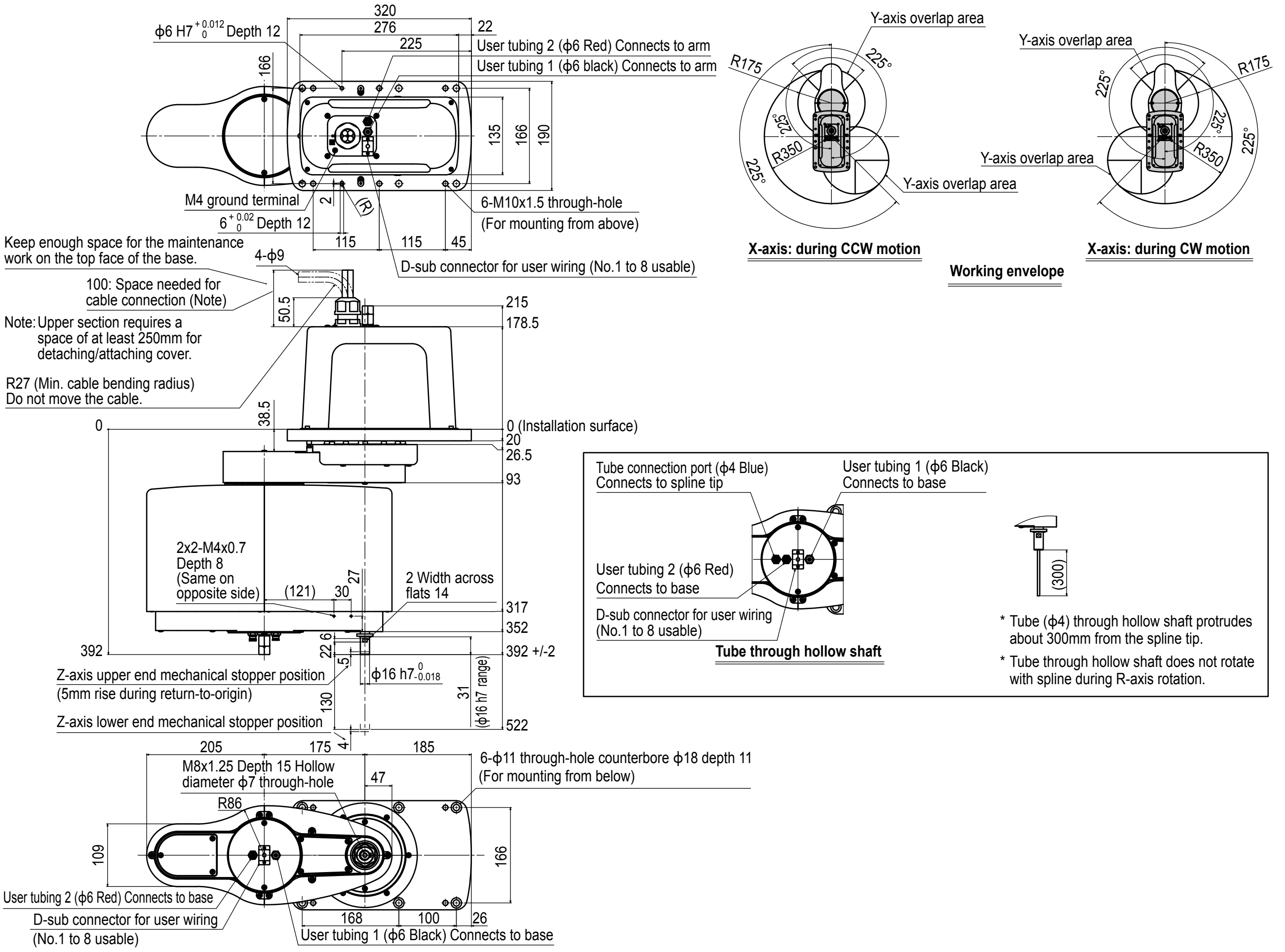


Note. When the payload exceeds 4kg, it is predicted that the R-axis moment of inertia may exceed the rated value. So, make proper parameter setting.

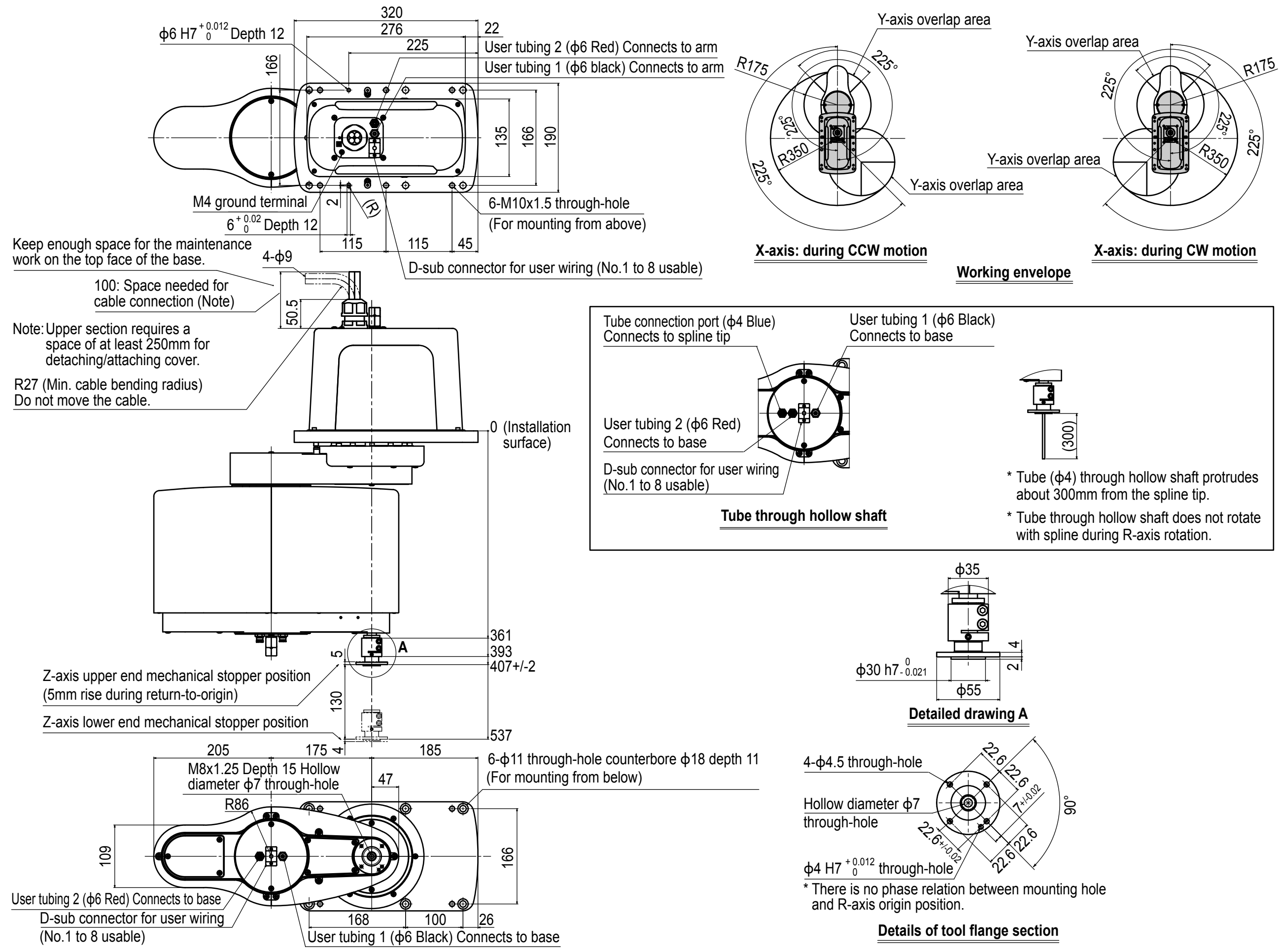
Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK350TW


320
276
225
22
ϕ6 H7 +0.012 0 Depth 12
166
User tubing 2 (ϕ6 Red) Connects to arm
User tubing 1 (ϕ6 black) Connects to arm
135
166
190
M4 ground terminal
2
(R)
6 +0.02 0 Depth 12
6-M10x1.5 through-hole
(For mounting from above)
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
115
115
45
D-sub connector for user wiring (No.1 to 8 usable)
100: Space needed for cable connection (Note)
Note: Upper section requires a space of at least 250mm for detaching/attaching cover.
R27 (Min. cable bending radius)
Do not move the cable.
50.5
215
178.5
38.5
0
0 (Installation surface)
20
26.5
93
2x2-M4x0.7 Depth 8 (Same on opposite side)
(121)
30
27
2 Width across flats 14
317
352
392
392 +/-2
22.6
5
ϕ16 h7 0 -0.018
31
(ϕ16 h7 range)
130
4
522
Z-axis upper end mechanical stopper position
(5mm rise during return-to-origin)
Z-axis lower end mechanical stopper position
205
175
185
M8x1.25 Depth 15 Hollow diameter ϕ7 through-hole
47
6-ϕ11 through-hole counterbore ϕ18 depth 11
(For mounting from below)
R86
109
166
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
168
100
26
User tubing 1 (ϕ6 Black) Connects to base
Y-axis overlap area
R175
225°
225°
R350
225°
Y-axis overlap area
X-axis: during CCW motion
Y-axis overlap area
R175
225°
225°
R350
225°
Y-axis overlap area
X-axis: during CW motion
Working envelope
Tube connection port (ϕ4 Blue) Connects to spline tip
User tubing 1 (ϕ6 Black) Connects to base
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
Tube through hollow shaft
(300)
* Tube (ϕ4) through hollow shaft protrudes about 300mm from the spline tip.
* Tube through hollow shaft does not rotate with spline during R-axis rotation.

YK350TW Tool flange mount type


ϕ6 H7 $^{+0.012}_{0}$ Depth 12
320
276
225
22
User tubing 2 (ϕ6 Red) Connects to arm
User tubing 1 (ϕ6 black) Connects to arm
166
135
166
190
M4 ground terminal
2
(R)
6 $^{+0.02}_{0}$ Depth 12
6-M10x1.5 through-hole
(For mounting from above)
115
115
45
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
D-sub connector for user wiring (No.1 to 8 usable)
100: Space needed for cable connection (Note)
50.5
Note: Upper section requires a space of at least 250mm for detaching/attaching cover.
R27 (Min. cable bending radius) Do not move the cable.
0 (Installation surface)
361
393
407+/-2
A
5
Z-axis upper end mechanical stopper position (5mm rise during return-to-origin)
130
Z-axis lower end mechanical stopper position
537
4
205
175
185
M8x1.25 Depth 15 Hollow diameter ϕ7 through-hole
47
R86
6-ϕ11 through-hole counterbore ϕ18 depth 11
(For mounting from below)
109
166
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
168
100
26
User tubing 1 (ϕ6 Black) Connects to base
Y-axis overlap area
R175
225°
225°
225°
R350
Y-axis overlap area
X-axis: during CCW motion
Y-axis overlap area
225°
R175
225°
225°
R350
Y-axis overlap area
X-axis: during CW motion
Working envelope
Tube connection port (ϕ4 Blue) Connects to spline tip
User tubing 1 (ϕ6 Black) Connects to base
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
(300)
Tube through hollow shaft
* Tube (ϕ4) through hollow shaft protrudes about 300mm from the spline tip.
* Tube through hollow shaft does not rotate with spline during R-axis rotation.
ϕ35
4
ϕ30 h7 $^{0}_{-0.021}$
2
ϕ55
Detailed drawing A
4-ϕ4.5 through-hole
22.6
22.6
7+/-0.02
90°
Hollow diameter ϕ7 through-hole
22.6+/-0.02
22.6
22.6
ϕ4 H7 $^{+0.012}_{0}$ through-hole
* There is no phase relation between mounting hole and R-axis origin position.
Details of tool flange section

YK500TW

Orbit type

- Arm length 500mm
- Maximum payload 5kg

Ordering method

YK500TW - **130** - ☐ - ☐ - ☐ ┬ **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable
YK500TW	130: 130mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

└ **RCX240** - ☐ - **R3** - ☐ - ☐ - ☐ - ☐ - ☐

RCX240: Controller – CE Marking – Regeneratizve unit – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		250 mm	250 mm	130 mm	-
	Rotation angle		+/-225 °	+/-225 °	-	+/-720 °
AC servo motor output			750 W	400 W	200 W	105 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Belt speed reduction
	Transmission method	Motor to speed reducer	Timing belt	Direct-coupled	Timing belt	Timing belt
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.015 mm		+/-0.01 mm	+/-0.01 °
Maximum speed			6.8 m/sec		1.5 m/sec	3000 °/sec
Maximum payload [Note 2]			5 kg (RCX340), 4 kg (RCX240)			
Standard cycle time: with 1kg payload [Note 3]			0.29 sec			
R-axis tolerable moment of inertia [Note 4]	Rated		0.005 kgm^2			
	Maximum		0.05 kgm^2			
User wiring			0.15 sq × 8 wires			
User tubing (Outer diameter)			ϕ 6 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			27 kg			

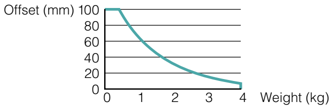
Note 1. This is the value at a constant ambient temperature.
Note 2. For the option specifications (tool flange mount type), the maximum payload becomes 4 kg (RCX340) or 3 kg (RCX240).
Note 3. When moving a 1 kg load back and forth 300 mm horizontally and 25 mm vertically (rough positioning arch motion).
Note 4. Limits must be placed on parameters such as acceleration according to the moment of inertia being used. See P.608.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

R-axis moment of inertia (load inertia)

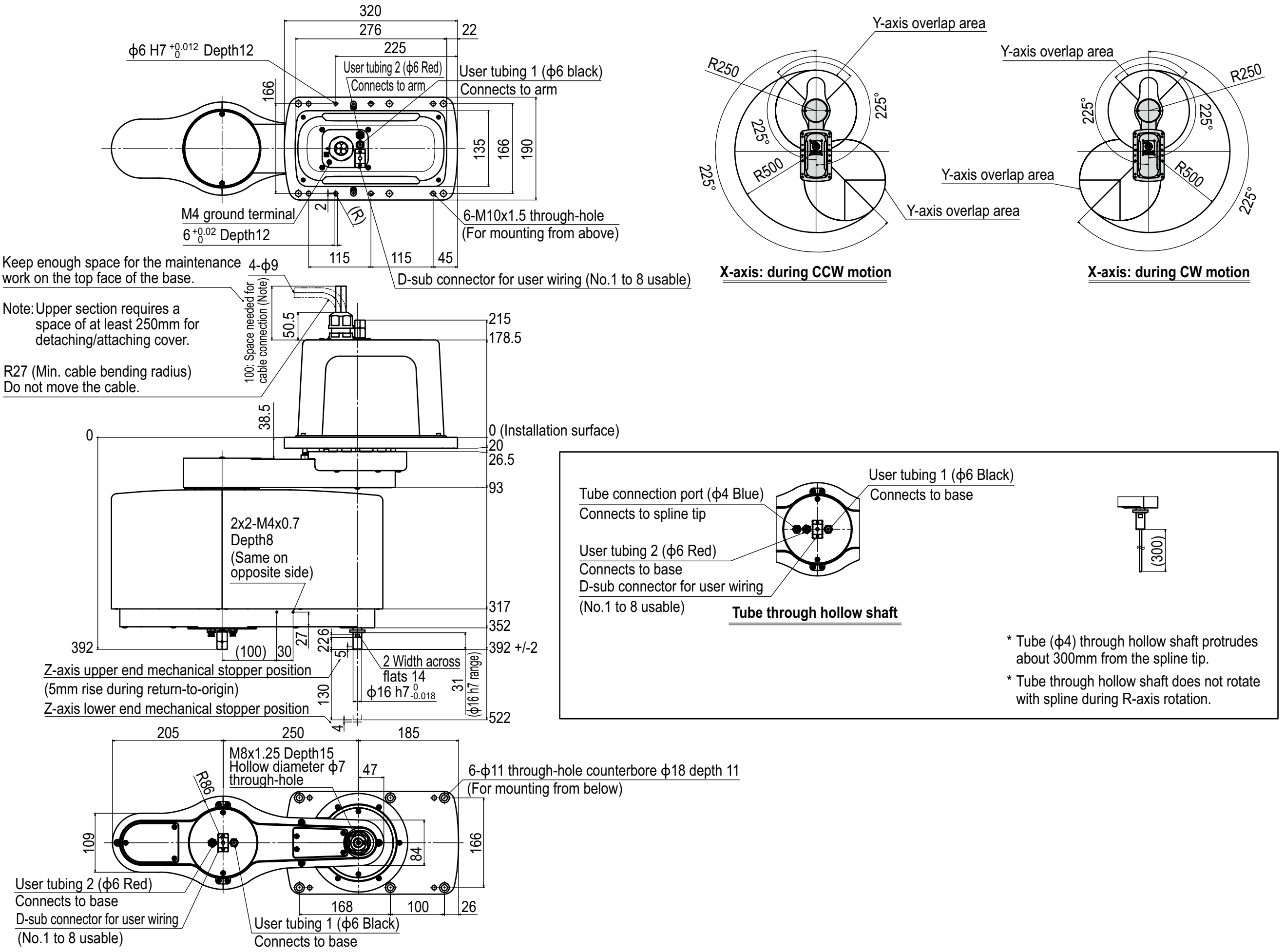
Recommended positional relationship between the load weight and the offset amount from the center of the R-axis (center of gravity position)



Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

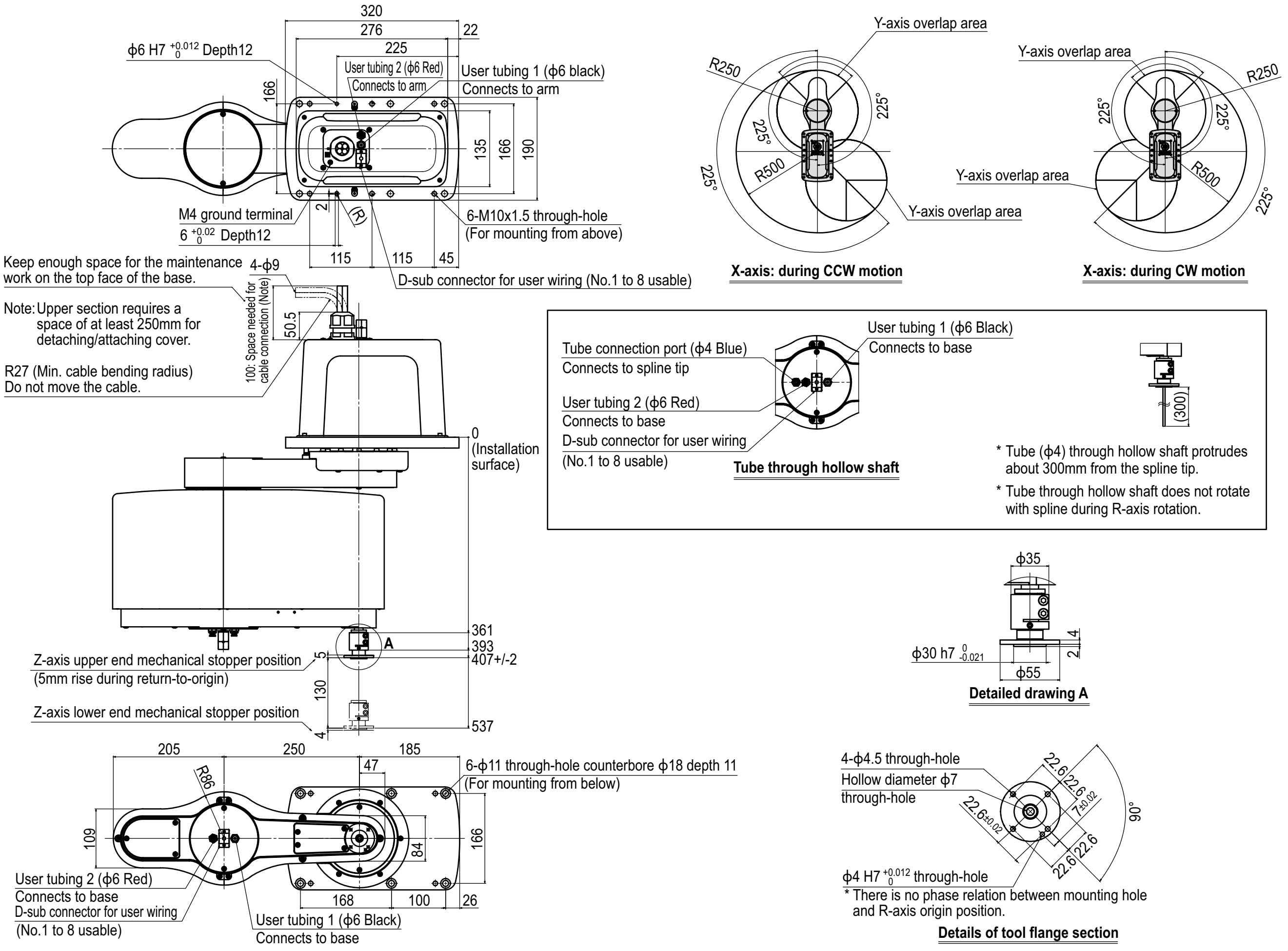
Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK500TW


320
276
225
22
ϕ6 H7 +0.012 0 Depth12
User tubing 2 (ϕ6 Red) Connects to arm
User tubing 1 (ϕ6 black) Connects to arm
166
135
166
190
M4 ground terminal
6 +0.02 0 Depth12
2
(R)
6-M10x1.5 through-hole (For mounting from above)
115
115
45
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
D-sub connector for user wiring (No.1 to 8 usable)
Note: Upper section requires a space of at least 250mm for detaching/attaching cover.
R27 (Min. cable bending radius) Do not move the cable.
100: Space needed for cable connection (Note)
50.5
215
178.5
38.5
0
0 (Installation surface)
20
26.5
93
2x2-M4x0.7 Depth8 (Same on opposite side)
317
352
392
392 +/-2
(100)
30
27
226
5
Z-axis upper end mechanical stopper position (5mm rise during return-to-origin)
Z-axis lower end mechanical stopper position
2 Width across flats 14
ϕ16 h7 0 -0.018
31
(ϕ16 h7 range)
130
4
522
205
250
185
M8x1.25 Depth15 Hollow diameter ϕ7 through-hole
47
R86
6-ϕ11 through-hole counterbore ϕ18 depth 11 (For mounting from below)
109
84
166
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
168
100
26
User tubing 1 (ϕ6 Black) Connects to base
Y-axis overlap area
R250
225°
225°
225°
R500
Y-axis overlap area
X-axis: during CCW motion
Y-axis overlap area
R250
225°
225°
R500
225°
Y-axis overlap area
X-axis: during CW motion
Tube connection port (ϕ4 Blue) Connects to spline tip
User tubing 1 (ϕ6 Black) Connects to base
User tubing 2 (ϕ6 Red) Connects to base
D-sub connector for user wiring (No.1 to 8 usable)
Tube through hollow shaft
(300)

* Tube (ϕ4) through hollow shaft protrudes about 300mm from the spline tip.
* Tube through hollow shaft does not rotate with spline during R-axis rotation.

YK500TW Tool flange mount type


320
276
22
225
ϕ6 H7 +0.012 0 Depth12
User tubing 2 (ϕ6 Red)
Connects to arm
User tubing 1 (ϕ6 black)
Connects to arm
166
135
166
190
M4 ground terminal
2
(R)
6 +0.02 0 Depth12
6-M10x1.5 through-hole
(For mounting from above)
115
115
45
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
D-sub connector for user wiring (No.1 to 8 usable)
Note: Upper section requires a space of at least 250mm for detaching/attaching cover.
R27 (Min. cable bending radius)
Do not move the cable.
100: Space needed for cable connection (Note)
50.5
0
(Installation surface)
361
393
407+/-2
A
Z-axis upper end mechanical stopper position
(5mm rise during return-to-origin)
5
130
Z-axis lower end mechanical stopper position
4
537
205
250
185
47
R86
6-ϕ11 through-hole counterbore ϕ18 depth 11
(For mounting from below)
109
84
166
168
100
26
User tubing 2 (ϕ6 Red)
Connects to base
D-sub connector for user wiring
(No.1 to 8 usable)
User tubing 1 (ϕ6 Black)
Connects to base
Y-axis overlap area
R250
225°
225°
225°
R500
Y-axis overlap area
X-axis: during CCW motion
Y-axis overlap area
R250
225°
225°
R500
225°
Y-axis overlap area
X-axis: during CW motion
Tube connection port (ϕ4 Blue)
Connects to spline tip
User tubing 1 (ϕ6 Black)
Connects to base
User tubing 2 (ϕ6 Red)
Connects to base
D-sub connector for user wiring
(No.1 to 8 usable)
Tube through hollow shaft
(300)
* Tube (ϕ4) through hollow shaft protrudes about 300mm from the spline tip.
* Tube through hollow shaft does not rotate with spline during R-axis rotation.
ϕ35
ϕ30 h7 0 -0.021
4
2
ϕ55
Detailed drawing A
4-ϕ4.5 through-hole
Hollow diameter ϕ7
through-hole
22.6
22.6
7±0.02
22.6±0.02
90°
22.6
22.6
ϕ4 H7 +0.012 0 through-hole
* There is no phase relation between mounting hole and R-axis origin position.
Details of tool flange section

YK120XG

Standard type: Tiny type

● Arm length 120mm ● Maximum payload 1kg

Ordering method

YK120XG - **50** - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Cable
	50: 50mm	2L: 2m 3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

RCX240S: Controller – CE Marking – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		45 mm	75 mm	50 mm	–
	Rotation angle		+/-125 °	+/-145 °	–	+/-360 °
AC servo motor output			30 W	30 W	30 W	30 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			3.3 m/sec		0.9 m/sec	1700 °/sec
Maximum payload			1.0 kg			
Standard cycle time: with 0.1kg payload [Note 2]			0.33 sec			
R-axis tolerable moment of inertia [Note 3]			0.01 kgm^2			
User wiring			0.1 sq × 8 wires			
User tubing (Outer diameter)			ϕ 4 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 2 m Option: 3.5 m, 5 m, 10 m			
Weight (Excluding robot cable) [Note 4]			3.9 kg			
Robot cable weight			0.9 kg (2 m) 1.5 kg (3.5 m) 2.1 kg (5 m) 4.2 kg (10 m)			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When moving 25mm in vertical direction and 100mm in horizontal direction reciprocally.
Note 3. There are limits to acceleration coefficient settings. See P.608.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	300	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

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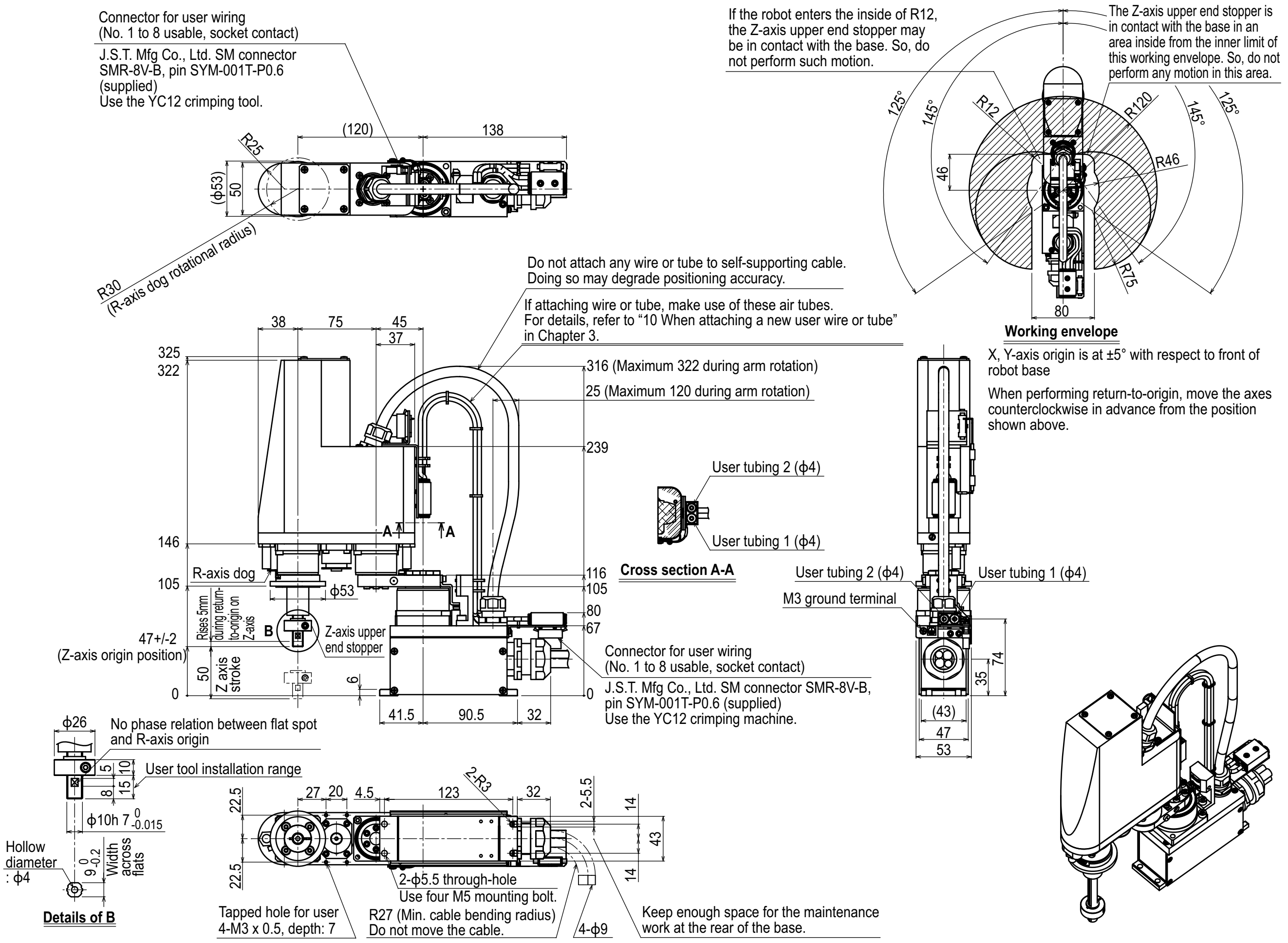
YK120XG



Connector for user wiring
(No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping tool.

Do not attach any wire or tube to self-supporting cable.
Doing so may degrade positioning accuracy.

If attaching wire or tube, make use of these air tubes.
For details, refer to "10 When attaching a new user wire or tube" in Chapter 3.

If the robot enters the inside of R12, the Z-axis upper end stopper may be in contact with the base. So, do not perform such motion.

The Z-axis upper end stopper is in contact with the base in an area inside from the inner limit of this working envelope. So, do not perform any motion in this area.

X, Y-axis origin is at ±5° with respect to front of robot base

When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.

Connector for user wiring
(No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping machine.

No phase relation between flat spot and R-axis origin

User tool installation range

Tapped hole for user
4-M3 x 0.5, depth: 7

R27 (Min. cable bending radius)
Do not move the cable.

Keep enough space for the maintenance work at the rear of the base.

YK150XG

Standard type: Tiny type

● Arm length 150mm ● Maximum payload 1kg

Ordering method

YK150XG - 50 - ☐ - RCX340-4 ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK150XG	50: 50mm	2L: 2m 3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		75 mm	75 mm	50 mm	–
	Rotation angle		+/-125 °	+/-145 °	–	+/-360 °
AC servo motor output			30 W	30 W	30 W	30 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			3.4 m/sec		0.9 m/sec	1700 °/sec
Maximum payload			1.0 kg			
Standard cycle time: with 0.1kg payload [Note 2]			0.33 sec			
R-axis tolerable moment of inertia [Note 3]			0.01 kgm^2			
User wiring			0.1 sq × 8 wires			
User tubing (Outer diameter)			ϕ 4 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 2 m Option: 3.5 m, 5 m, 10 m			
Weight (Excluding robot cable) [Note 4]			4.0 kg			
Robot cable weight			0.9 kg (2 m) 1.5 kg (3.5 m) 2.1 kg (5 m) 4.2 kg (10 m)			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When moving 25mm in vertical direction and 100mm in horizontal direction reciprocally.
Note 3. There are limits to acceleration coefficient settings. See P.608.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	300	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

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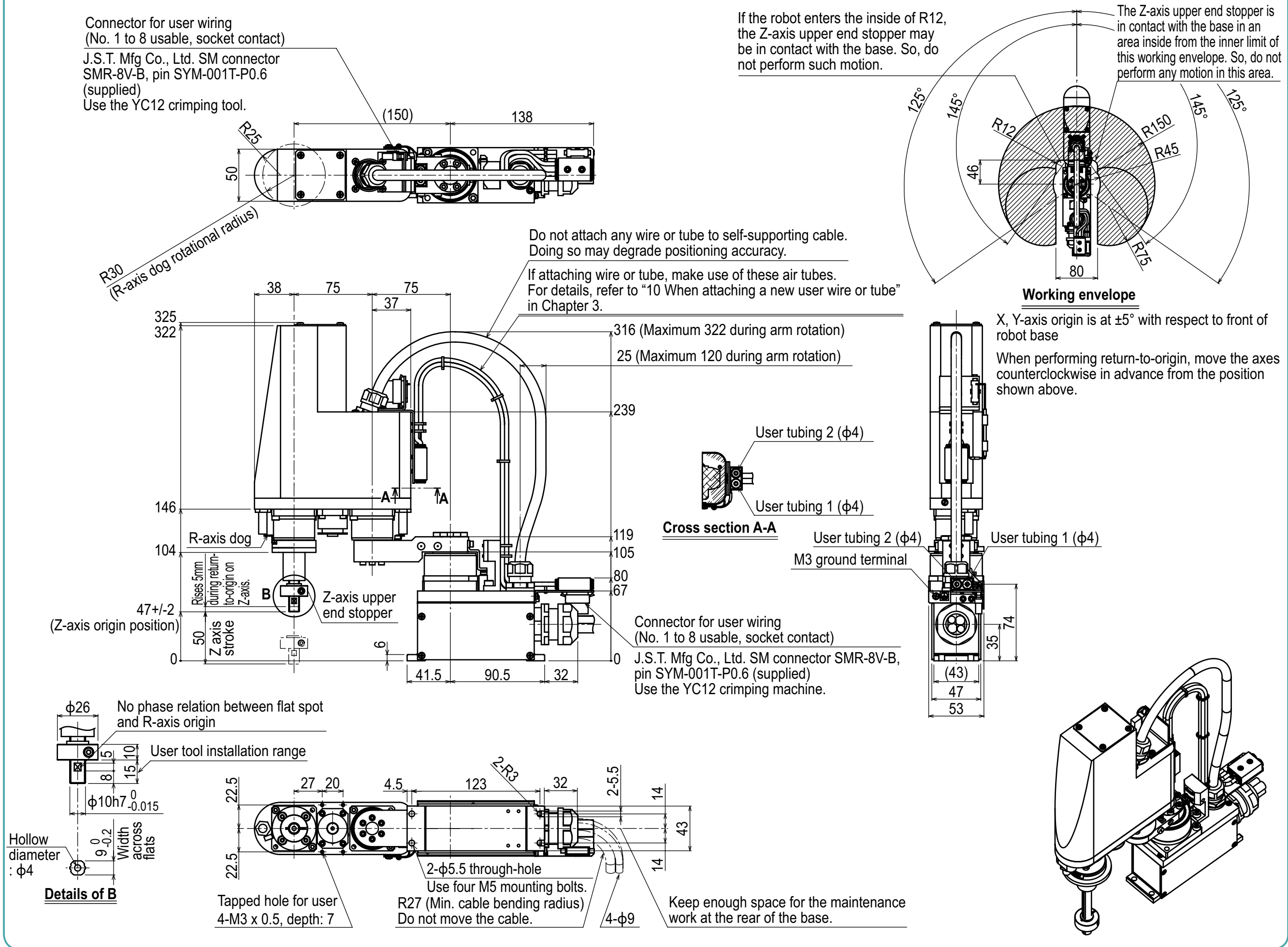
http://global.yamaha-motor.com/business/robot/

YK150XG



Connector for user wiring (No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping tool.

If the robot enters the inside of R12, the Z-axis upper end stopper may be in contact with the base. So, do not perform such motion.

The Z-axis upper end stopper is in contact with the base in an area inside from the inner limit of this working envelope. So, do not perform any motion in this area.

Do not attach any wire or tube to self-supporting cable. Doing so may degrade positioning accuracy.

If attaching wire or tube, make use of these air tubes. For details, refer to "10 When attaching a new user wire or tube" in Chapter 3.

X, Y-axis origin is at ±5° with respect to front of robot base

When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.

Connector for user wiring (No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping machine.

No phase relation between flat spot and R-axis origin

User tool installation range

Tapped hole for user 4-M3 x 0.5, depth: 7

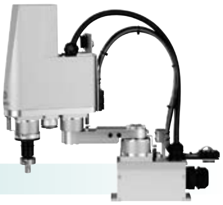
Use four M5 mounting bolts.

R27 (Min. cable bending radius) Do not move the cable.

Keep enough space for the maintenance work at the rear of the base.

YK180XG

Standard type: Tiny type



- Arm length 180mm
- Maximum payload 1kg

Ordering method

YK180XG	50		RCX340-4							
Model	Z axis stroke 50 : 50mm	Cable 2L: 2m 3L: 3.5m 5L: 5m 10L: 10m	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		105 mm	75 mm	50 mm	–
	Rotation angle		+/-125 °	+/-145 °	–	+/-360 °
AC servo motor output			30 W	30 W	30 W	30 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			3.3 m/sec		0.9 m/sec	1700 °/sec
Maximum payload			1.0 kg			
Standard cycle time: with 0.1kg payload Note 2			0.33 sec			
R-axis tolerable moment of inertia Note 3			0.01 kgm^2			
User wiring			0.1 sq × 8 wires			
User tubing (Outer diameter)			ϕ 4 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 2 m Option: 3.5 m, 5 m, 10 m			
Weight (Excluding robot cable) Note 4			4.1 kg			
Robot cable weight			0.9 kg (2 m) 1.5 kg (3.5 m) 2.1 kg (5 m) 4.2 kg (10 m)			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When moving 25mm in vertical direction and 100mm in horizontal direction reciprocally.
Note 3. There are limits to acceleration coefficient settings. See P.608.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

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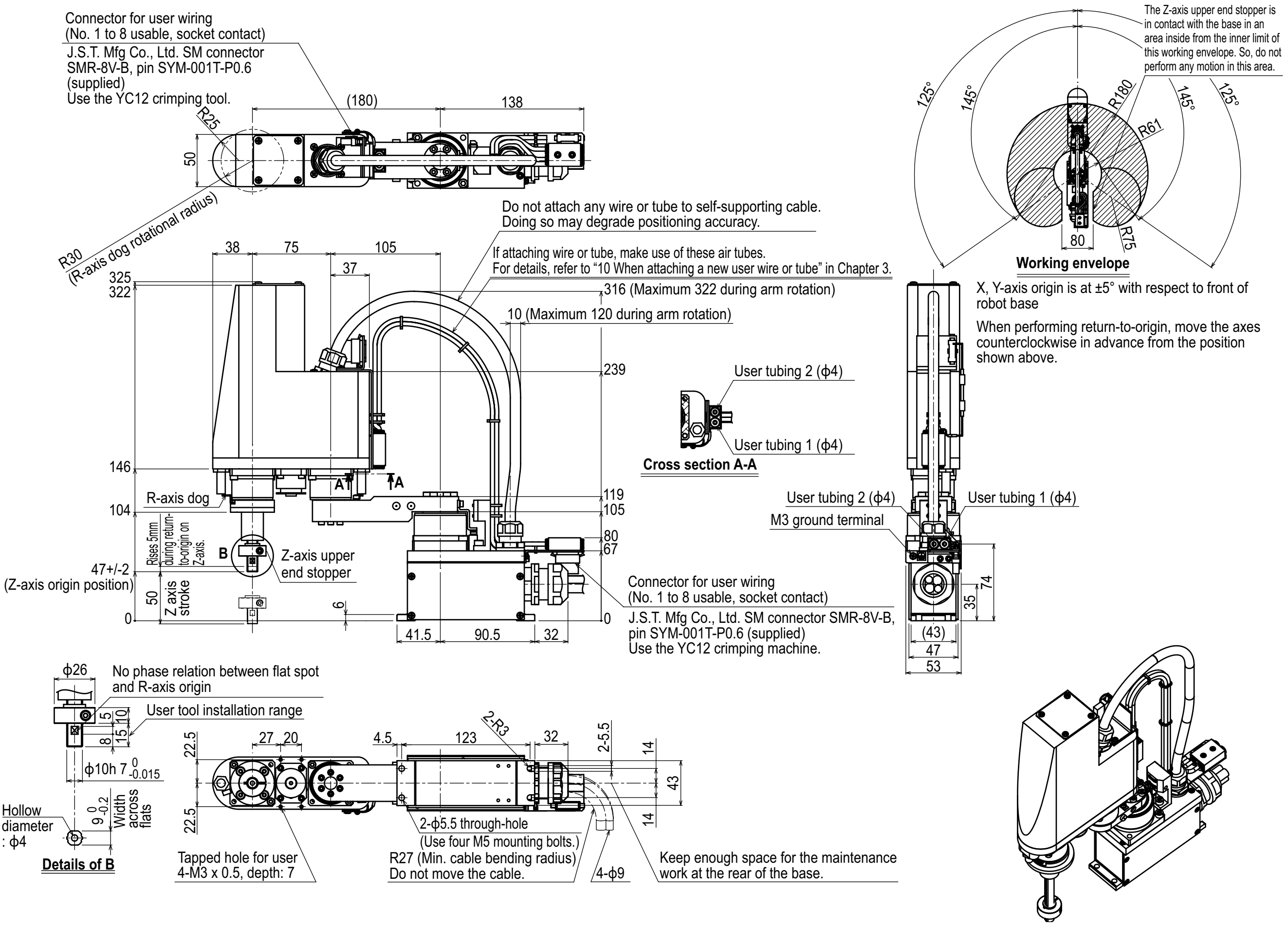
http://global.yamaha-motor.com/business/robot/

YK180XG


Connector for user wiring (No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping tool.
(180)
138
R25
50
R30 (R-axis dog rotational radius)
Do not attach any wire or tube to self-supporting cable. Doing so may degrade positioning accuracy.
If attaching wire or tube, make use of these air tubes.
For details, refer to "10 When attaching a new user wire or tube" in Chapter 3.
38
75
105
37
325
322
316 (Maximum 322 during arm rotation)
10 (Maximum 120 during arm rotation)
239
146
104
R-axis dog
A
Rises 5mm during return-to-origin on Z-axis.
B
Z-axis upper end stopper
47+/-2 (Z-axis origin position)
50
Z axis stroke
0
6
119
105
80
67
0
41.5
90.5
32
User tubing 2 (ϕ4)
User tubing 1 (ϕ4)
Cross section A-A
The Z-axis upper end stopper is in contact with the base in an area inside from the inner limit of this working envelope. So, do not perform any motion in this area.
125°
145°
R180
R61
145°
125°
80
R75
Working envelope
X, Y-axis origin is at ±5° with respect to front of robot base
When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.
User tubing 2 (ϕ4)
User tubing 1 (ϕ4)
M3 ground terminal
Connector for user wiring (No. 1 to 8 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping machine.
74
35
(43)
47
53
ϕ26
No phase relation between flat spot and R-axis origin
User tool installation range
5
10
8
15
ϕ10h 7 0 -0.015
Hollow diameter : ϕ4
9 0 -0.2
Width across flats
Details of B
22.5
27
20
22.5
4.5
123
2-R3
32
2-5.5
14
43
14
2-ϕ5.5 through-hole (Use four M5 mounting bolts.)
R27 (Min. cable bending radius) Do not move the cable.
4-ϕ9
Tapped hole for user 4-M3 x 0.5, depth: 7
Keep enough space for the maintenance work at the rear of the base.

YK180X

Standard type: Tiny type

● Arm length 180mm ● Maximum payload 1kg

Ordering method

YK180X - **100** - ☐ - **RCX340-4** ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK180X	100: 100mm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		71 mm	109 mm	100 mm	–
	Rotation angle		+/-120 °	+/-140 °	–	+/-360 °
AC servo motor output			50 W	30 W	30 W	30 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			3.3 m/sec		0.7 m/sec	1700 °/sec
Maximum payload			1.0 kg			
Standard cycle time: with 0.1kg payload Note 2			0.39 sec			
R-axis tolerable moment of inertia Note 3			0.01 kgm^2			
User wiring			0.1 sq × 6 wires			
User tubing (Outer diameter)			ϕ 3 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight (Excluding robot cable) Note 4			5.5 kg			
Robot cable weight			1.5 kg (3.5 m) 2.1 kg (5 m) 4.2 kg (10 m)			

Note 1. This is the value at a constant ambient temperature.
Note 2. When reciprocating 100mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
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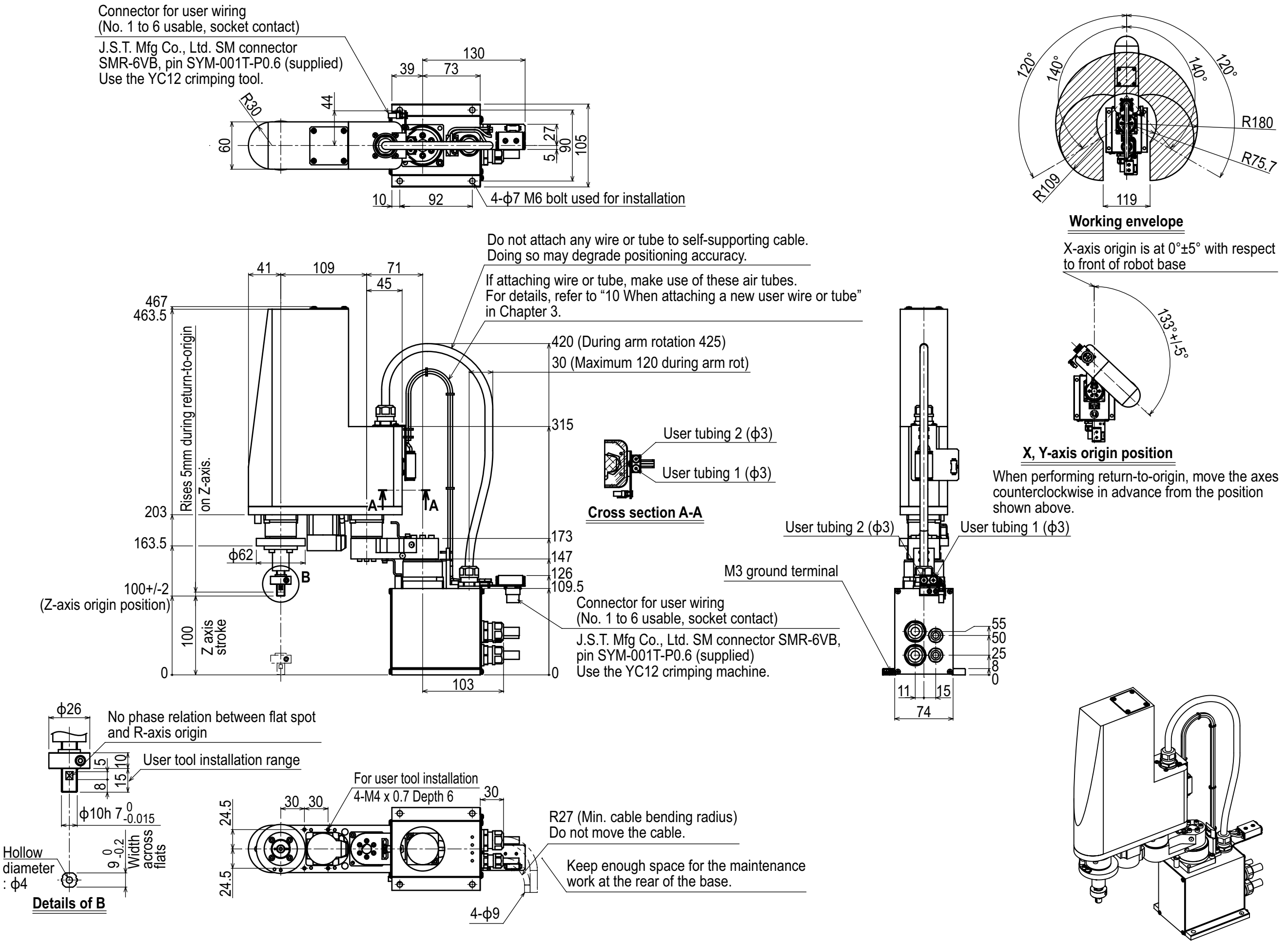
YK180X


Connector for user wiring
(No. 1 to 6 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector
SMR-6VB, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping tool.
130
39
73
R30
44
60
27
5
90
105
10
92
4-ϕ7 M6 bolt used for installation
120°
140°
140°
120°
R180
R75.7
R109
119
Working envelope
X-axis origin is at 0°±5° with respect to front of robot base
133°+/-5°
X, Y-axis origin position
When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.
Do not attach any wire or tube to self-supporting cable.
Doing so may degrade positioning accuracy.
If attaching wire or tube, make use of these air tubes.
For details, refer to "10 When attaching a new user wire or tube" in Chapter 3.
41
109
71
45
467
463.5
Rises 5mm during return-to-origin on Z-axis.
420 (During arm rotation 425)
30 (Maximum 120 during arm rot)
315
User tubing 2 (ϕ3)
User tubing 1 (ϕ3)
Cross section A-A
A
A
203
163.5
ϕ62
B
100+/-2
(Z-axis origin position)
100
Z axis stroke
0
173
147
126
109.5
0
103
User tubing 2 (ϕ3)
User tubing 1 (ϕ3)
M3 ground terminal
Connector for user wiring
(No. 1 to 6 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-6VB,
pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping machine.
55
50
25
8
0
11
15
74
ϕ26
No phase relation between flat spot and R-axis origin
User tool installation range
5
8
10
15
ϕ10h 7 0 -0.015
9 0 -0.2
Width across flats
Hollow diameter : ϕ4
Details of B
For user tool installation
4-M4 x 0.7 Depth 6
30
30
30
24.5
24.5
4-ϕ9
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.

YK220X

Standard type: Tiny type

● Arm length 220mm ● Maximum payload 1kg

Ordering method

YK220X	- 100	-
Model	Z axis stroke	Cable
	100: 100mm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S	-	-	-	-	-	-
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		111 mm	109 mm	100 mm	–
	Rotation angle		+/-120 °	+/-140 °	–	+/-360 °
AC servo motor output			50 W	30 W	30 W	30 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			3.4 m/sec		0.7 m/sec	1700 °/sec
Maximum payload			1.0 kg			
Standard cycle time: with 0.1kg payload Note 2			0.42 sec			
R-axis tolerable moment of inertia Note 3			0.01 kgm^2			
User wiring			0.1 sq × 6 wires			
User tubing (Outer diameter)			ϕ 3 × 2			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight (Excluding robot cable) Note 4			5.5 kg			
Robot cable weight			1.5 kg (3.5 m) 2.1 kg (5 m) 4.2 kg (10 m)			

Note 1. This is the value at a constant ambient temperature.
Note 2. When reciprocating 100mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

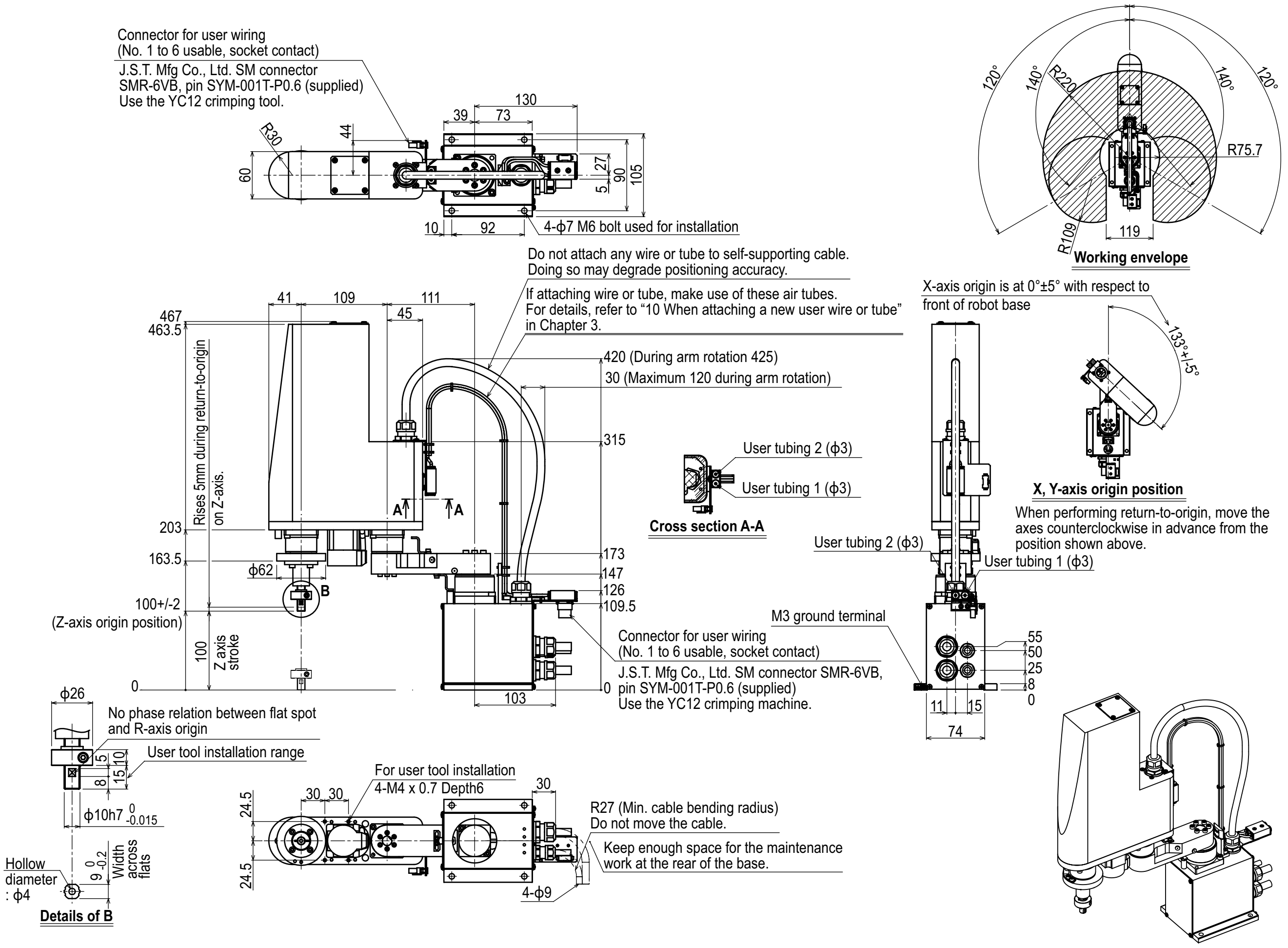
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK220X


Connector for user wiring
(No. 1 to 6 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector
SMR-6VB, pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping tool.
130
39
73
R30
44
60
27
5
90
105
10
92
4-ϕ7 M6 bolt used for installation
120°
140°
R220
140°
120°
R75.7
R109
119
Working envelope
Do not attach any wire or tube to self-supporting cable.
Doing so may degrade positioning accuracy.
If attaching wire or tube, make use of these air tubes.
For details, refer to "10 When attaching a new user wire or tube" in Chapter 3.
X-axis origin is at 0°±5° with respect to front of robot base
133°+/-5°
41
109
111
45
467
463.5
420 (During arm rotation 425)
30 (Maximum 120 during arm rotation)
315
Rises 5mm during return-to-origin on Z-axis.
User tubing 2 (ϕ3)
User tubing 1 (ϕ3)
Cross section A-A
X, Y-axis origin position
When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.
A
A
203
163.5
ϕ62
B
173
147
126
109.5
User tubing 2 (ϕ3)
User tubing 1 (ϕ3)
100+/-2
(Z-axis origin position)
100
Z axis stroke
M3 ground terminal
Connector for user wiring
(No. 1 to 6 usable, socket contact)
J.S.T. Mfg Co., Ltd. SM connector SMR-6VB,
pin SYM-001T-P0.6 (supplied)
Use the YC12 crimping machine.
0
103
0
55
50
25
8
0
11
15
74
ϕ26
No phase relation between flat spot and R-axis origin
User tool installation range
5
10
8
15
ϕ10h7 0 -0.015
Hollow diameter : ϕ4
9 0 -0.2
Width across flats
Details of B
For user tool installation
4-M4 x 0.7 Depth6
30
30
30
24.5
24.5
4-ϕ9
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.

YK250XG

Standard type: Small type

- Arm length 250mm
- Maximum payload 5kg

Ordering method

YK250XG	150			
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**
	150: 150mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S						
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		100 mm	150 mm	150 mm	-
	Rotation angle		+/-140 °	+/-144 °	-	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			4.5 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications Note 4)			
Standard cycle time: with 2kg payload Note 2			0.49 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2 (0.5 kgfcms^2)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			18.5 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

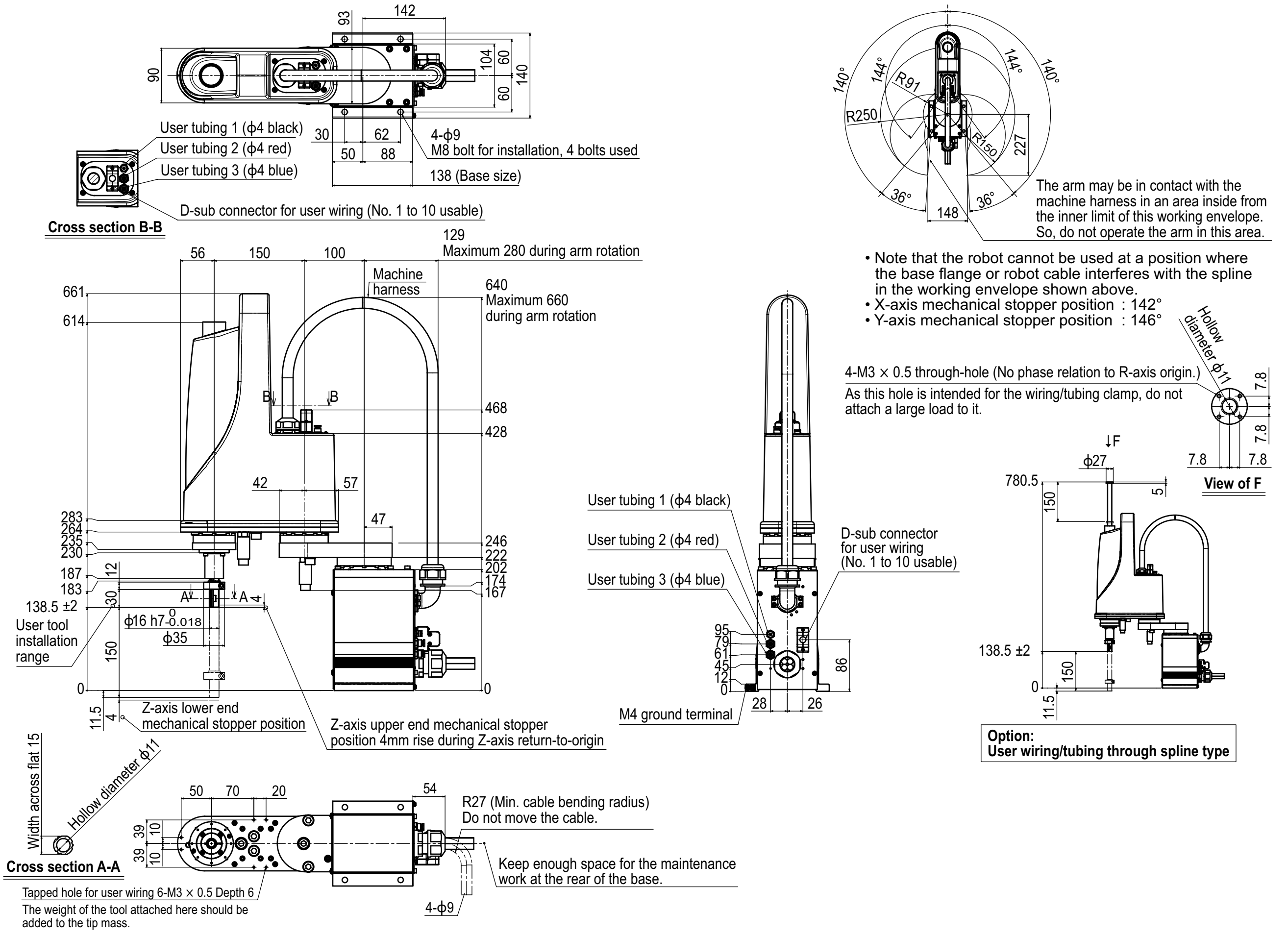
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

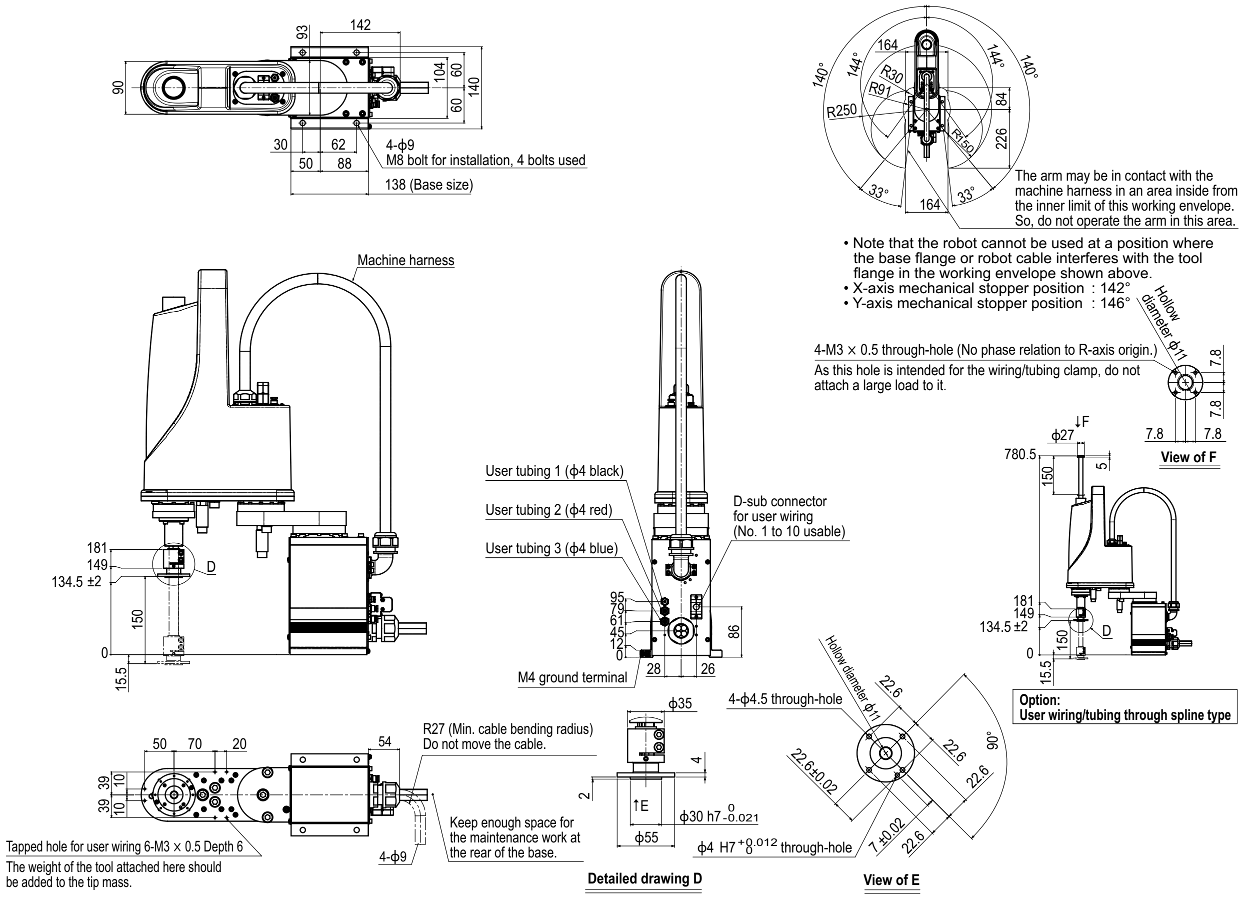
YK250XG


93
142
90
104
60
140
60
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
30
62
50
88
4-ϕ9
M8 bolt for installation, 4 bolts used
138 (Base size)
D-sub connector for user wiring (No. 1 to 10 usable)
Cross section B-B
56
150
100
129
Maximum 280 during arm rotation
Machine harness
661
614
640
Maximum 660 during arm rotation
468
428
42
57
47
283
264
235
230
246
222
202
174
167
187
183
12
30
138.5 ±2
User tool installation range
ϕ16 h7 0 -0.018
ϕ35
150
0
0
11.5
4
Z-axis lower end mechanical stopper position
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
50
70
20
54
39
39
10
10
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
D-sub connector for user wiring (No. 1 to 10 usable)
95
79
61
45
12
0
28
26
86
M4 ground terminal
140°
144°
144°
140°
R91
R250
R150
227
36°
36°
148
The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.
Hollow diameter ϕ11
4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
7.8
7.8
7.8
7.8
View of F
F
ϕ27
780.5
150
5
138.5 ±2
150
0
11.5
Option:
User wiring/tubing through spline type

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the spline in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

YK250XG

YK250XG Tool flange mount type



The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the tool flange in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

4-M3 × 0.5 through-hole (No phase relation to R-axis origin.) As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

The weight of the tool attached here should be added to the tip mass.

YK350XG

Standard type: Small type

● Arm length 350mm ● Maximum payload 5kg

Ordering method

YK350XG - 150 - ☐ - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable
YK350XG	150: 150mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		200 mm	150 mm	150 mm	-
	Rotation angle		+/-140 °	+/-144 °	-	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			5.6 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications [Note 4])			
Standard cycle time: with 2kg payload [Note 2]			0.49 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2 (0.5 kgfcms^2)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			19 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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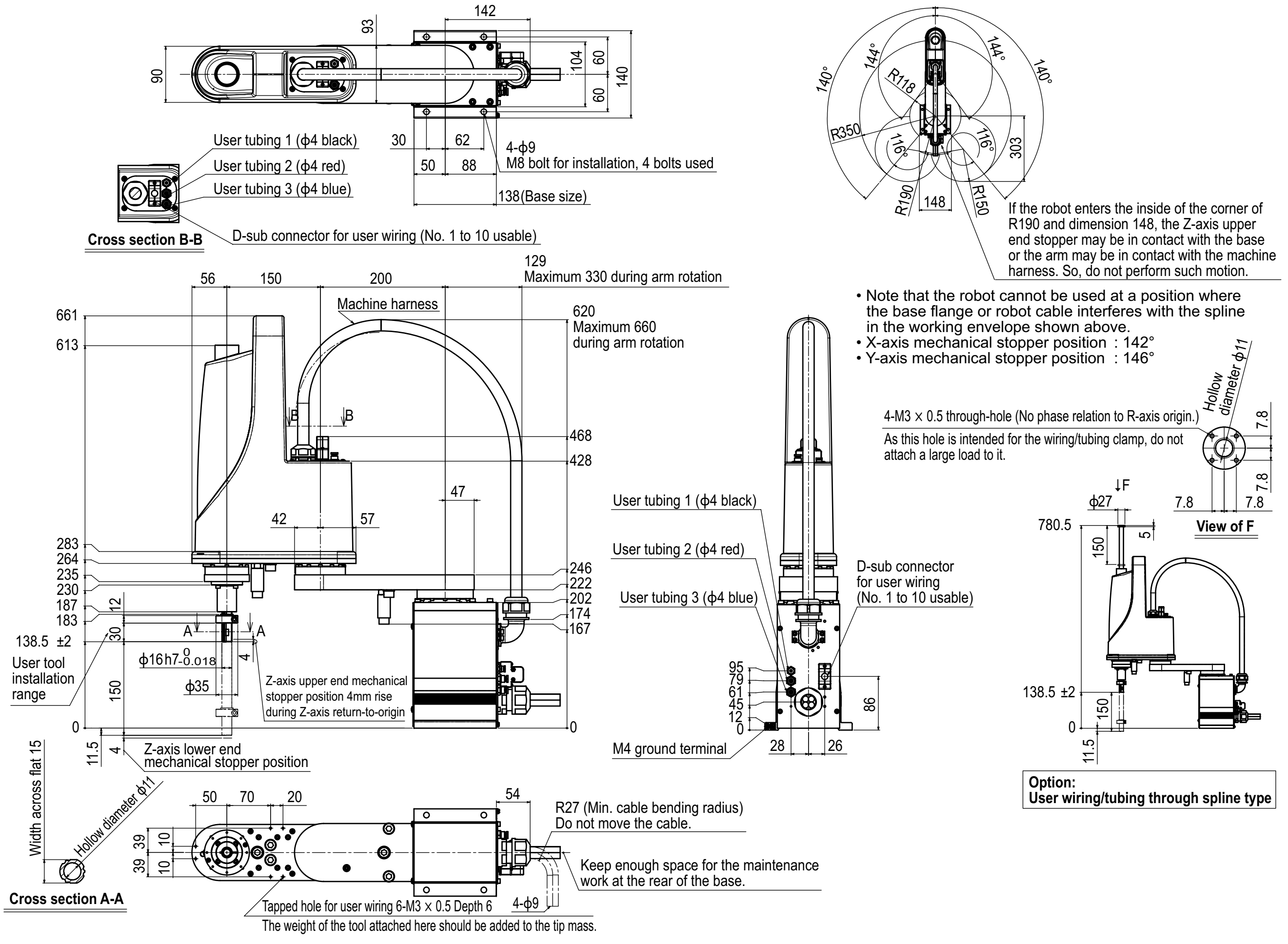
http://global.yamaha-motor.com/business/robot/

YK350XG

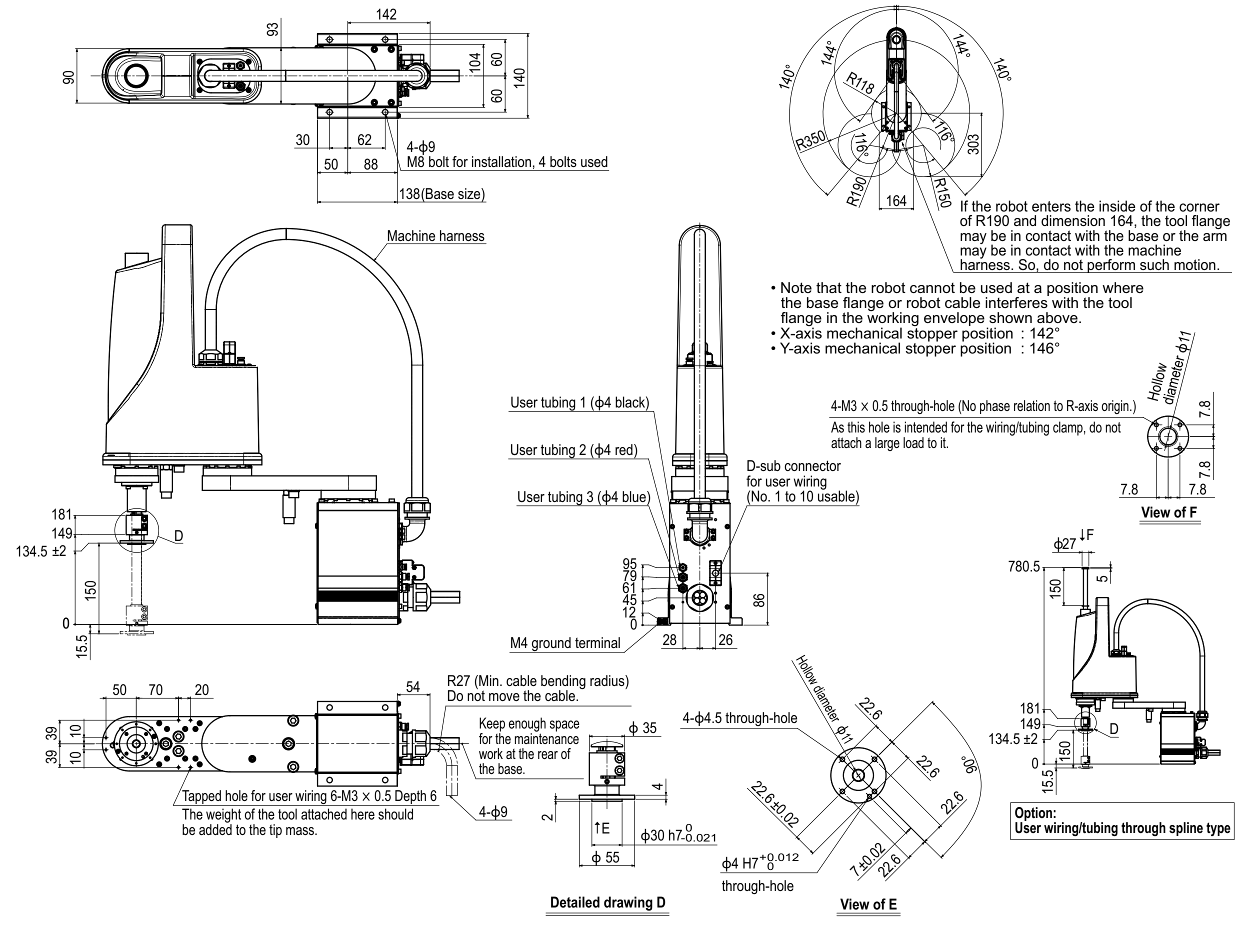

142
93
90
104
60
60
140
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
30
62
50
88
4-ϕ9
M8 bolt for installation, 4 bolts used
138(Base size)
Cross section B-B
D-sub connector for user wiring (No. 1 to 10 usable)
140°
144°
144°
140°
R118
R350
116°
116°
303
R190
148
R150
56
150
200
129
Maximum 330 during arm rotation
Machine harness
661
613
620
Maximum 660
during arm rotation
B
B
468
428
47
42
57
283
264
235
230
187
183
246
222
202
174
167
12
30
A
A
4
138.5 ±2
User tool installation range
ϕ16h7$^{0}_{-0.018}$
ϕ35
150
0
0
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
11.5
4
Z-axis lower end mechanical stopper position
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
50
70
20
54
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
4-ϕ9
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
D-sub connector for user wiring (No. 1 to 10 usable)
95
79
61
45
12
0
86
28
26
M4 ground terminal
4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter ϕ11
7.8
7.8
7.8
F
ϕ27
View of F
780.5
150
5
138.5 ±2
0
150
11.5
Option:
User wiring/tubing through spline type

If the robot enters the inside of the corner of R190 and dimension 148, the Z-axis upper end stopper may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the spline in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

YK350XG

YK350XG Tool flange mount type



If the robot enters the inside of the corner of R190 and dimension 164, the tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the tool flange in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)

As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

View of F

R27 (Min. cable bending radius)
Do not move the cable.

Keep enough space for the maintenance work at the rear of the base.

Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.

Detailed drawing D

View of E

Option:
User wiring/tubing through spline type

YK400XG

Standard type: Small type

- Arm length 400mm
- Maximum payload 5kg

Ordering method

YK400XG - 150 - ☐ - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable
YK400XG	150: 150mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		250 mm	150 mm	150 mm	-
	Rotation angle		+/-140 °	+/-144 °	-	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			6.1 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications [Note 4])			
Standard cycle time: with 2kg payload [Note 2]			0.49 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2 (0.5 kgfcms^2)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			19.5 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

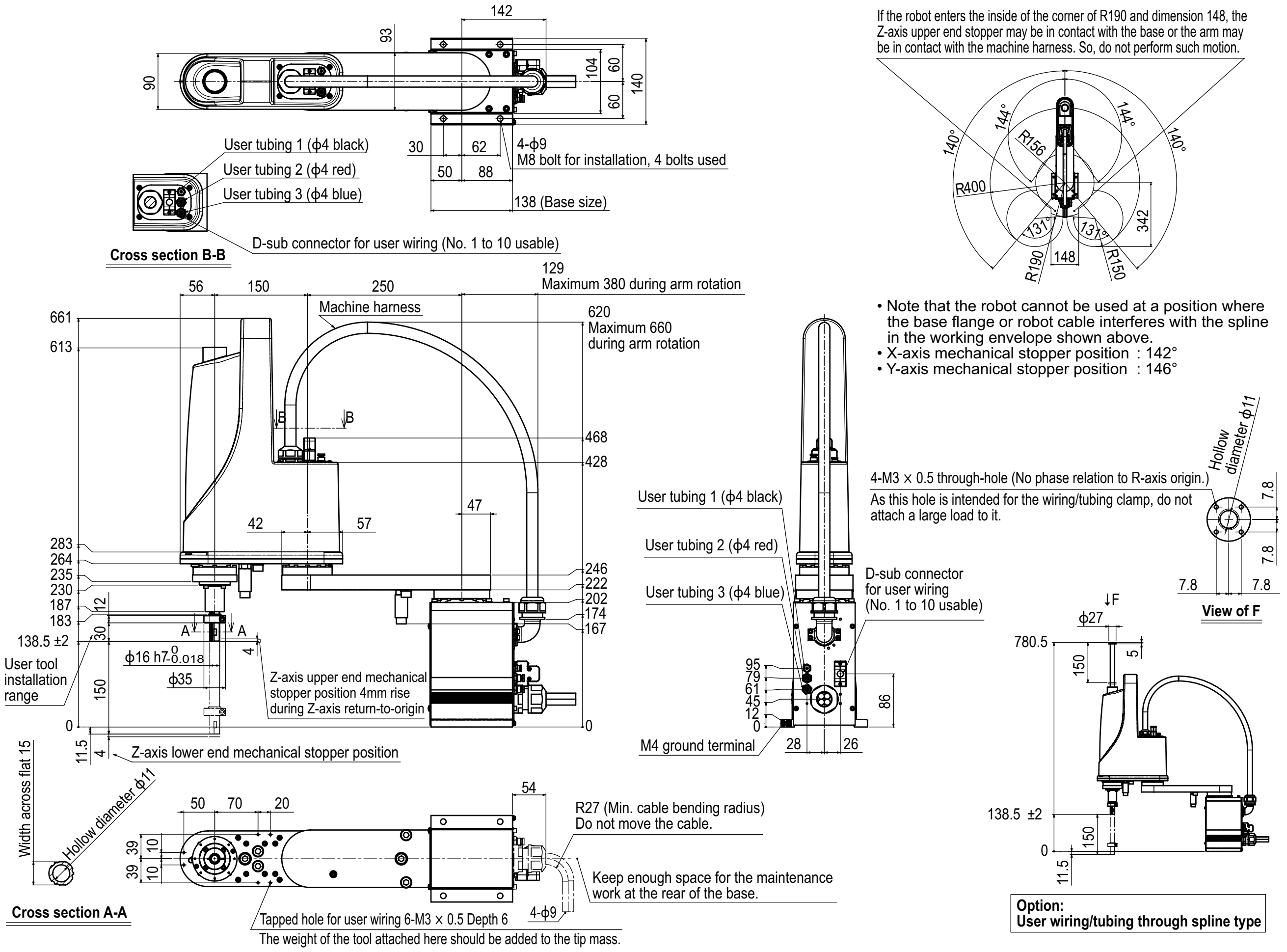
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK400XG


142
93
90
104
60
60
140
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
30
62
50
88
4-ϕ9
M8 bolt for installation, 4 bolts used
138 (Base size)
Cross section B-B
D-sub connector for user wiring (No. 1 to 10 usable)
56
150
250
129
Maximum 380 during arm rotation
Machine harness
661
613
620
Maximum 660 during arm rotation
B
B
468
428
42
57
47
283
264
235
230
187
183
12
30
138.5 ±2
User tool installation range
A
A
4
ϕ16 h7 0 -0.018
ϕ35
150
0
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
246
222
202
174
167
0
11.5
4
Z-axis lower end mechanical stopper position
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
50
70
20
39
39
10
10
54
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
D-sub connector for user wiring (No. 1 to 10 usable)
95
79
61
45
12
0
86
M4 ground terminal
28
26
140°
144°
144°
140°
R156
R400
131°
131°
342
R190
148
R150
Hollow diameter ϕ11
7.8
7.8
7.8
7.8
View of F
F
ϕ27
780.5
150
5
138.5 ±2
0
11.5
150

If the robot enters the inside of the corner of R190 and dimension 148, the Z-axis upper end stopper may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

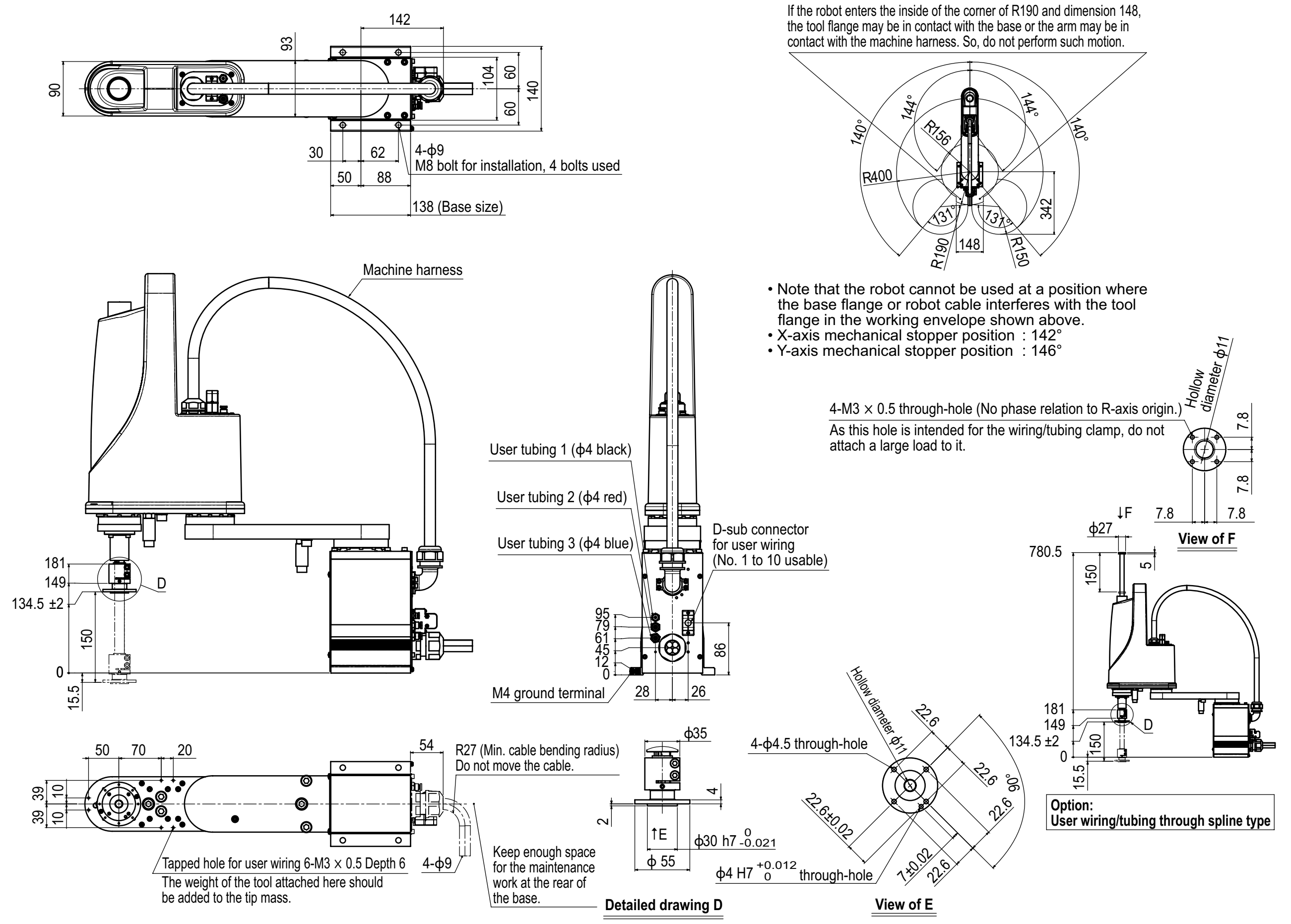
- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the spline in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

Option:
User wiring/tubing through spline type

YK400XG

YK400XG Tool flange mount type



If the robot enters the inside of the corner of R190 and dimension 148, the tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the tool flange in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.

Option:
User wiring/tubing through spline type

YK400XR

Standard type: Small type

LOW COST HIGH PERFORMANCE MODEL

Arm length 400mm **Maximum payload 3kg**

Ordering method

YK400XR		150			RCX340-4							
Model	Return-to-origin method	Z axis stroke	Hollow shaft	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	S: Sensor T: Stroke end		No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								4: 4 pcs. 3: 3 pcs. 2: 2 pcs. 1: 1 pc. 0: 0 pc.

Specify various controller setting items. RCX340 ▶ **P.544**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		225 mm	175 mm	150 mm	-
	Rotation angle		+/-132 °	+/-150 °	-	+/-360 °
AC servo motor output			200 W	100 W	100 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Belt speed reduction
	Transmission method	Motor to speed reducer	Direct-coupled		Timing belt	
		Speed reducer to output	Direct-coupled			Timing belt
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.01 °
Maximum speed			6 m/sec		1.1 m/sec	2600 °/sec
Maximum payload			3 kg (Standard specification), 2 kg (Option specifications Note 4)			
Standard cycle time: with 2kg payload Note 2			0.45 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2 (0.5 kgfcms^2)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			17 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.
Note 3. It is necessary to input the moment of inertia in the actual operating environment.
Note 4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 2kg.

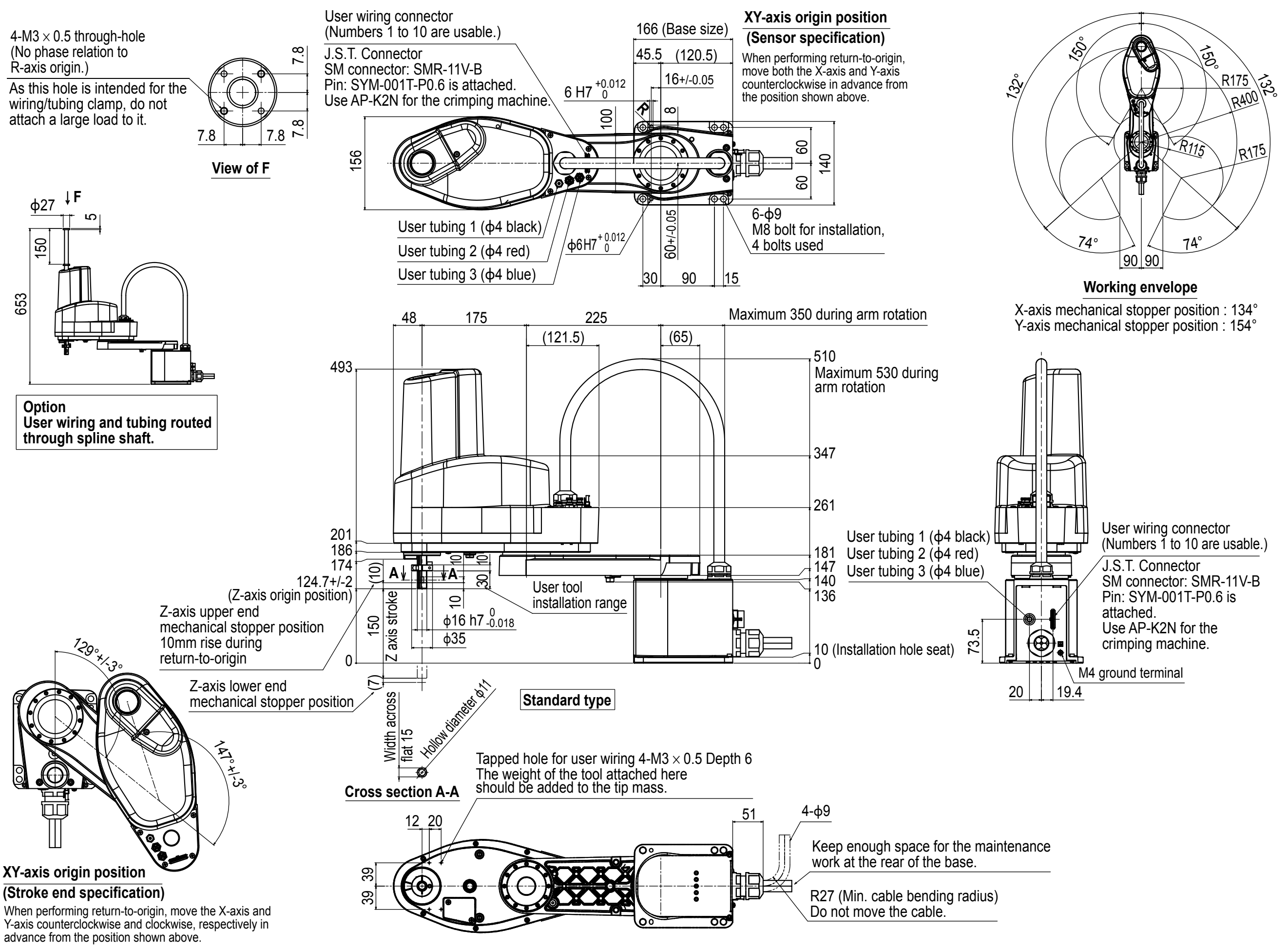
Controller

Controller	Power capacity (VA)	Operation method
RCX340	1000	Programming / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be restricted by adding the X- and Y-axis mechanical stoppers. (The maximum movement range was set at shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK400XR


4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
7.8
7.8
7.8
7.8
View of F
User wiring connector (Numbers 1 to 10 are usable.)
J.S.T. Connector
SM connector: SMR-11V-B
Pin: SYM-001T-P0.6 is attached.
Use AP-K2N for the crimping machine.
166 (Base size)
45.5
(120.5)
16+/-0.05
6 H7 +0.012 0
100
8
156
60
60
140
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
ϕ6H7 +0.012 0
60+/-0.05
6-ϕ9
M8 bolt for installation, 4 bolts used
30
90
15
XY-axis origin position
(Sensor specification)
When performing return-to-origin, move both the X-axis and Y-axis counterclockwise in advance from the position shown above.
150°
150°
132°
132°
R175
R400
R115
R175
74°
74°
90
90
Working envelope
X-axis mechanical stopper position : 134°
Y-axis mechanical stopper position : 154°
ϕ27
F
5
150
653
Option
User wiring and tubing routed through spline shaft.
48
175
225
(121.5)
(65)
Maximum 350 during arm rotation
493
510
Maximum 530 during arm rotation
347
261
201
186
174
124.7+/-2
(Z-axis origin position)
Z-axis upper end mechanical stopper position
10mm rise during return-to-origin
(10)
150
Z axis stroke
A
A
10
10
30
10
ϕ16 h7 0 -0.018
ϕ35
User tool installation range
181
147
140
136
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
10 (Installation hole seat)
0
0
(7)
Z-axis lower end mechanical stopper position
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
Standard type
Tapped hole for user wiring 4-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
User wiring connector (Numbers 1 to 10 are usable.)
J.S.T. Connector
SM connector: SMR-11V-B
Pin: SYM-001T-P0.6 is attached.
Use AP-K2N for the crimping machine.
73.5
M4 ground terminal
20
19.4
129°+/-3°
147°+/-3°
XY-axis origin position
(Stroke end specification)
When performing return-to-origin, move the X-axis and Y-axis counterclockwise and clockwise, respectively in advance from the position shown above.
12
20
39
39
51
4-ϕ9
Keep enough space for the maintenance work at the rear of the base.
R27 (Min. cable bending radius)
Do not move the cable.

YK500XGL

Standard type: Medium type

- Arm length 500mm
- Maximum payload 5kg

Ordering method

YK500XGL - 150 - ☐ - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable
YK500XGL	150: 150mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller – CE Marking – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		250 mm	250 mm	150 mm	-
	Rotation angle		+/-140 °	+/-144 °	-	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			5.1 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications [Note 4])			
Standard cycle time: with 2kg payload [Note 2]			0.59 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2 (0.5 kgfcms^2)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			21 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

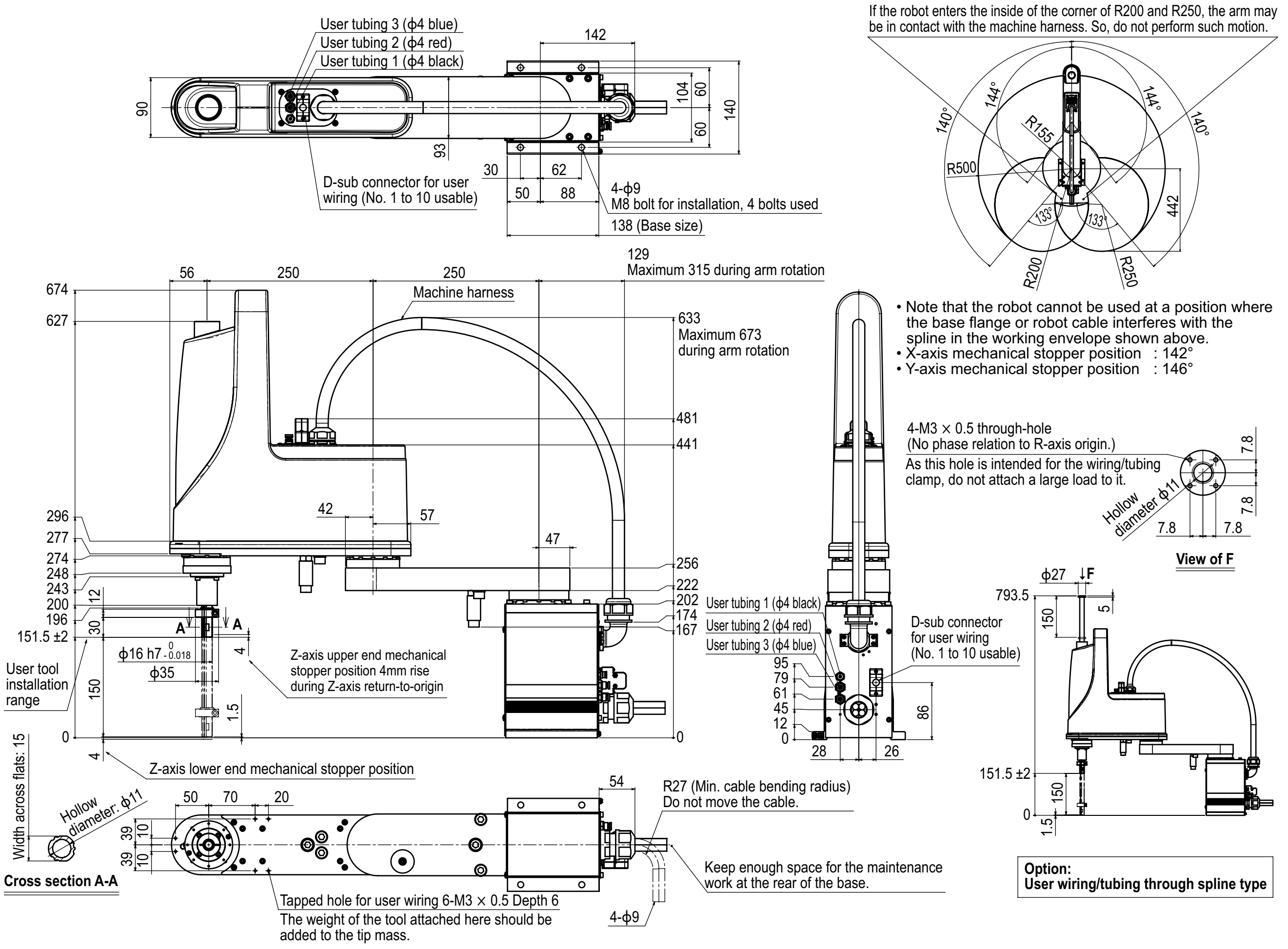
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

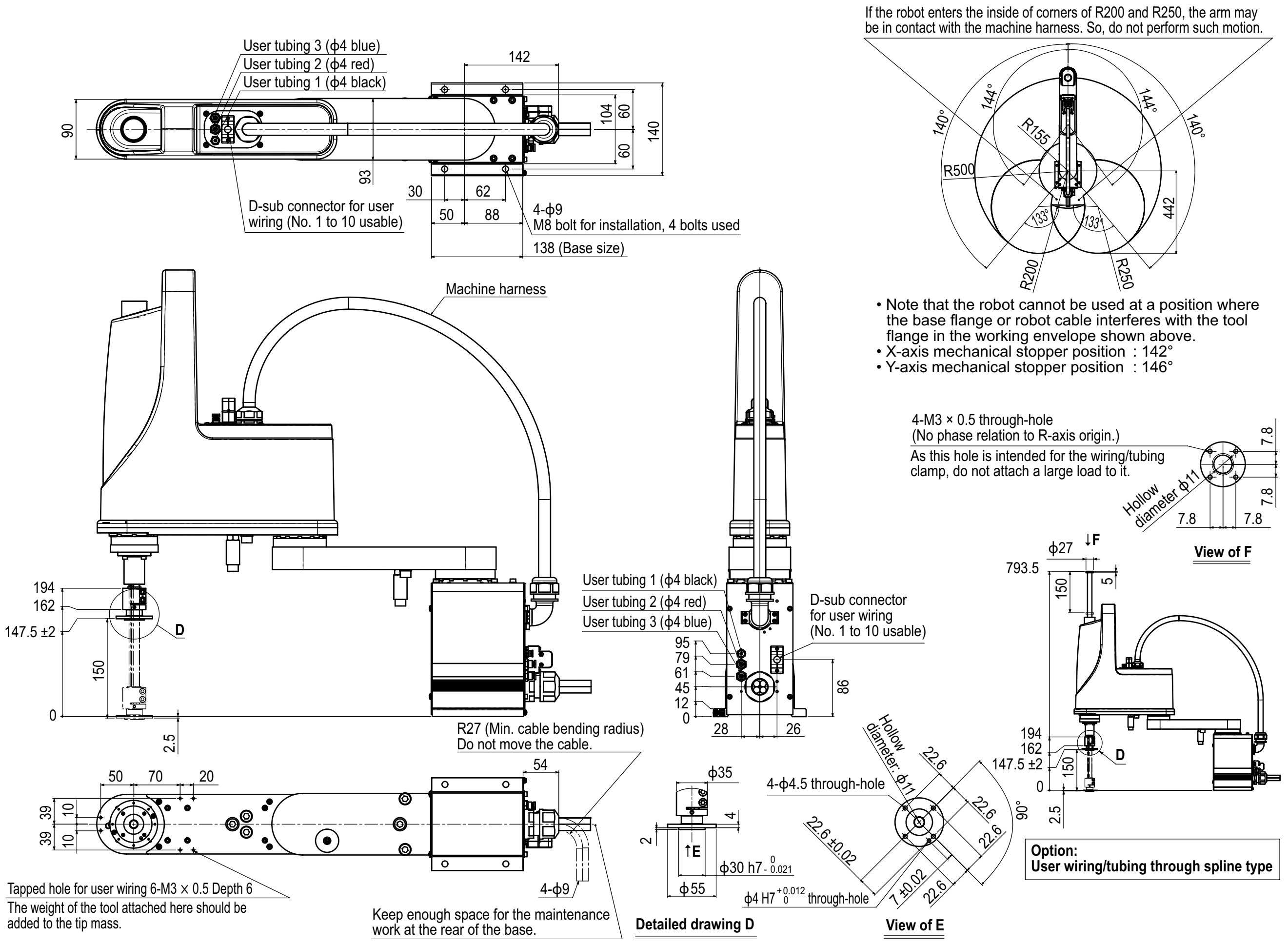
YK500XGL


User tubing 3 (ϕ4 blue)
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
142
90
104
60
60
140
93
30
62
50
88
D-sub connector for user wiring (No. 1 to 10 usable)
4-ϕ9
M8 bolt for installation, 4 bolts used
138 (Base size)
140°
144°
144°
140°
R155
R500
133°
133°
442
R200
R250
129
Maximum 315 during arm rotation
56
250
250
Machine harness
674
627
633
Maximum 673 during arm rotation
481
441
296
277
274
248
243
200
196
151.5 ±2
42
57
47
256
222
202
174
167
12
30
A
A
ϕ16 h7 0 -0.018
ϕ35
4
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
User tool installation range
150
1.5
0
0
4
Z-axis lower end mechanical stopper position
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
95
79
61
45
12
0
28
26
86
D-sub connector for user wiring (No. 1 to 10 usable)
4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter ϕ11
7.8
7.8
7.8
7.8
View of F
ϕ27
F
793.5
150
5
151.5 ±2
150
0
1.5
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
39
10
39
10
54
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
4-ϕ9
Option:
User wiring/tubing through spline type

If the robot enters the inside of the corner of R200 and R250, the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

YK500XGL Tool flange mount type



If the robot enters the inside of corners of R200 and R250, the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the tool flange in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

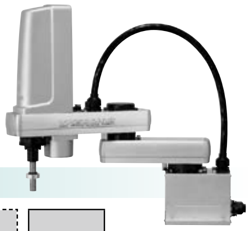
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.

Keep enough space for the maintenance work at the rear of the base.

YK500XG

Standard type: Medium type



- Arm length 500mm
- Maximum payload 10kg

Ordering method

YK500XG	–	–	–	RCX340-4	–	–	–	–	–	–	–
Model	**Z axis stroke**	**Tool flange**	**Cable**	**Controller / Number of controllable axes**	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**
	200: 200mm 300: 300mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	–	R3	–	–	–	–	–
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		200 mm	300 mm	200 mm 300 mm	–
	Rotation angle		+/-130 °	+/-145 °	–	+/-360 °
AC servo motor output			400 W	200 W	200 W	200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			7.6 m/sec		2.3 m/sec 1.7 m/sec	1700 °/sec
Maximum payload			10 kg			
Standard cycle time: with 2kg payload Note 2			0.45 sec			
R-axis tolerable moment of inertia Note 3			0.30 kgm^2			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			30 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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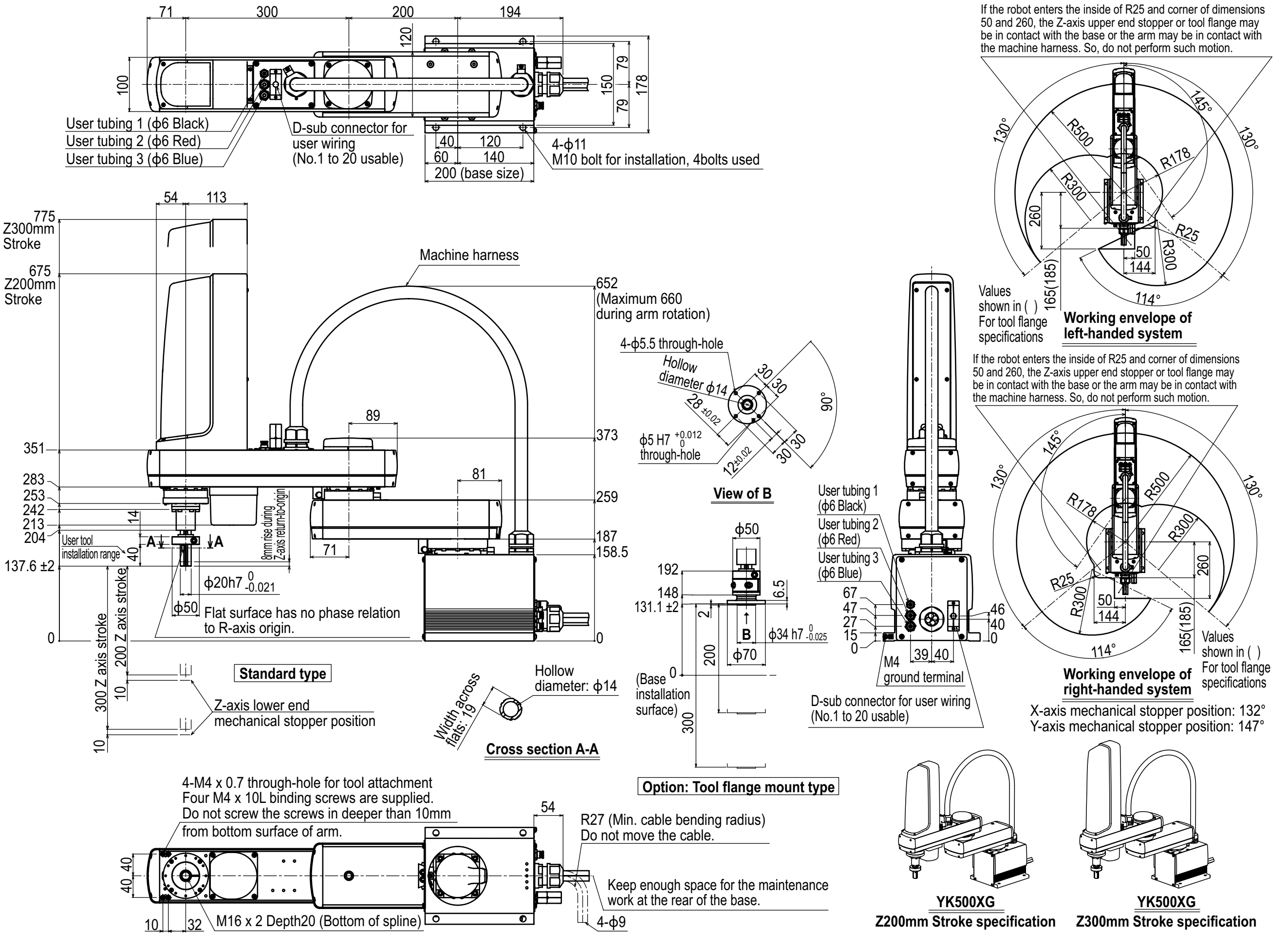
http://global.yamaha-motor.com/business/robot/

YK500XG


71
300
200
194
120
100
79
150
79
178
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
40
120
60
140
200 (base size)
4-ϕ11
M10 bolt for installation, 4bolts used
54
113
775
Z300mm Stroke
675
Z200mm Stroke
Machine harness
652 (Maximum 660 during arm rotation)
4-ϕ5.5 through-hole
Hollow diameter ϕ14
28 ±0.02
30
30
90°
30
30
ϕ5 H7 +0.012 0 through-hole
12 ±0.02
View of B
89
373
351
81
283
253
242
213
204
14
User tool installation range
A
A
8mm rise during Z-axis return-to-origin
71
259
187
158.5
137.6 ±2
40
ϕ20h7 0 -0.021
ϕ50
Flat surface has no phase relation to R-axis origin.
0
0
300 Z axis stroke
200 Z axis stroke
10
10
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 19
Hollow diameter: ϕ14
Cross section A-A
ϕ50
192
148
131.1 ±2
6.5
2
B
ϕ34 h7 0 -0.025
ϕ70
200
0
(Base installation surface)
300
Option: Tool flange mount type
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
67
47
27
15
0
46
40
0
M4 ground terminal
39
40
D-sub connector for user wiring (No.1 to 20 usable)
If the robot enters the inside of R25 and corner of dimensions 50 and 260, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
130°
145°
130°
R500
R178
R300
260
R25
50
R300
144
165(185)
114°
Values shown in ( ) For tool flange specifications
Working envelope of left-handed system
If the robot enters the inside of R25 and corner of dimensions 50 and 260, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
130°
145°
130°
R178
R500
R300
260
R25
R300
50
144
165(185)
114°
Values shown in ( ) For tool flange specifications
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 147°
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
R27 (Min. cable bending radius)
Do not move the cable.
40
40
10
32
M16 x 2 Depth20 (Bottom of spline)
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
YK500XG
Z200mm Stroke specification
YK500XG
Z300mm Stroke specification

YK600XGL

Standard type: Medium type

- Arm length 600mm
- Maximum payload 5kg

Ordering method

YK600XGL	150				RCX340-4							
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**	**Controller / Number of controllable axes**	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**
	150: 150mm	No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		350 mm	250 mm	150 mm	-
	Rotation angle		+/-140 °	+/-144 °	-	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			4.9 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications [Note 4])			
Standard cycle time: with 2kg payload [Note 2]			0.63 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2 (0.5 $kgfcms^2$)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			22 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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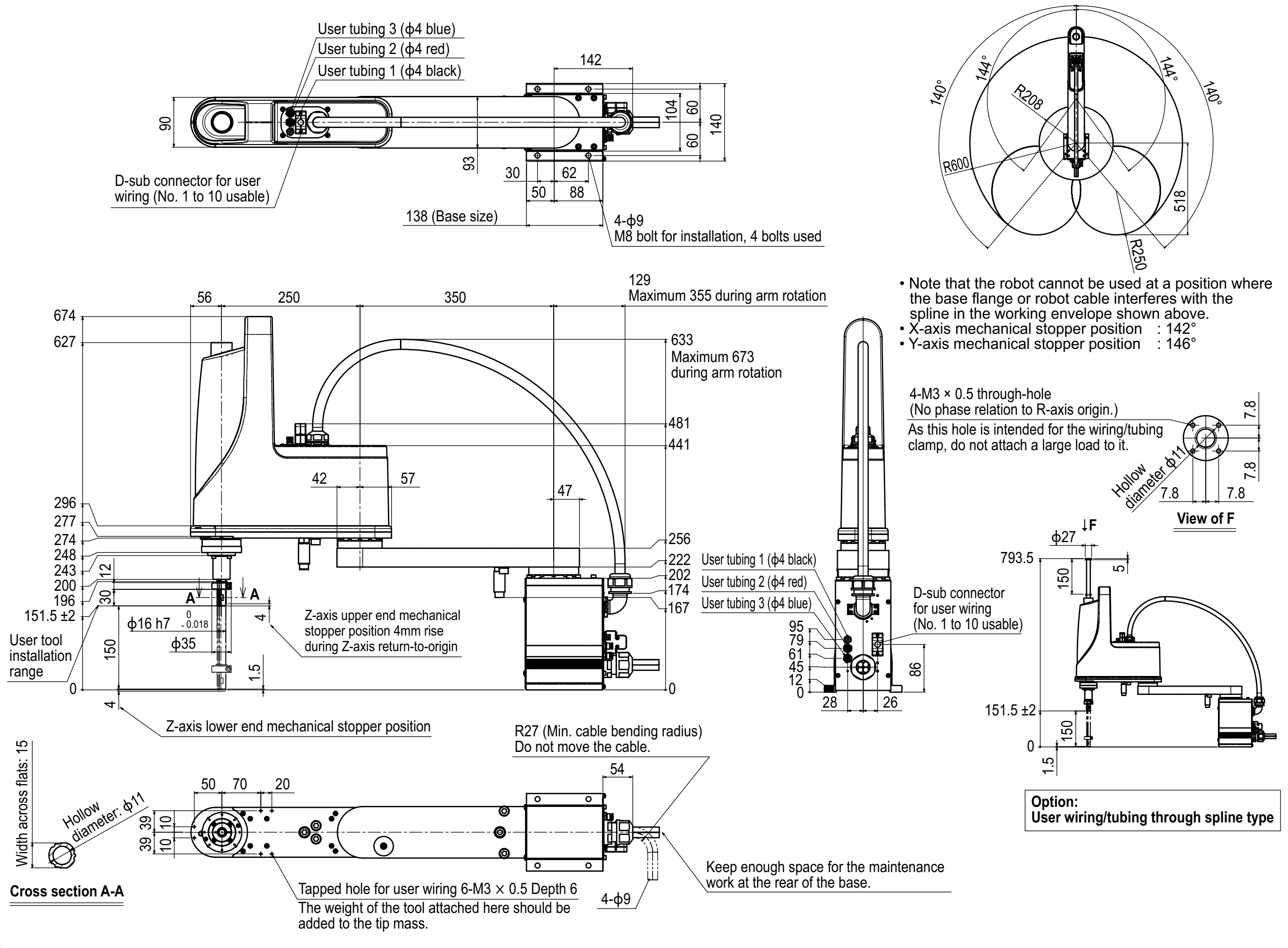
http://global.yamaha-motor.com/business/robot/

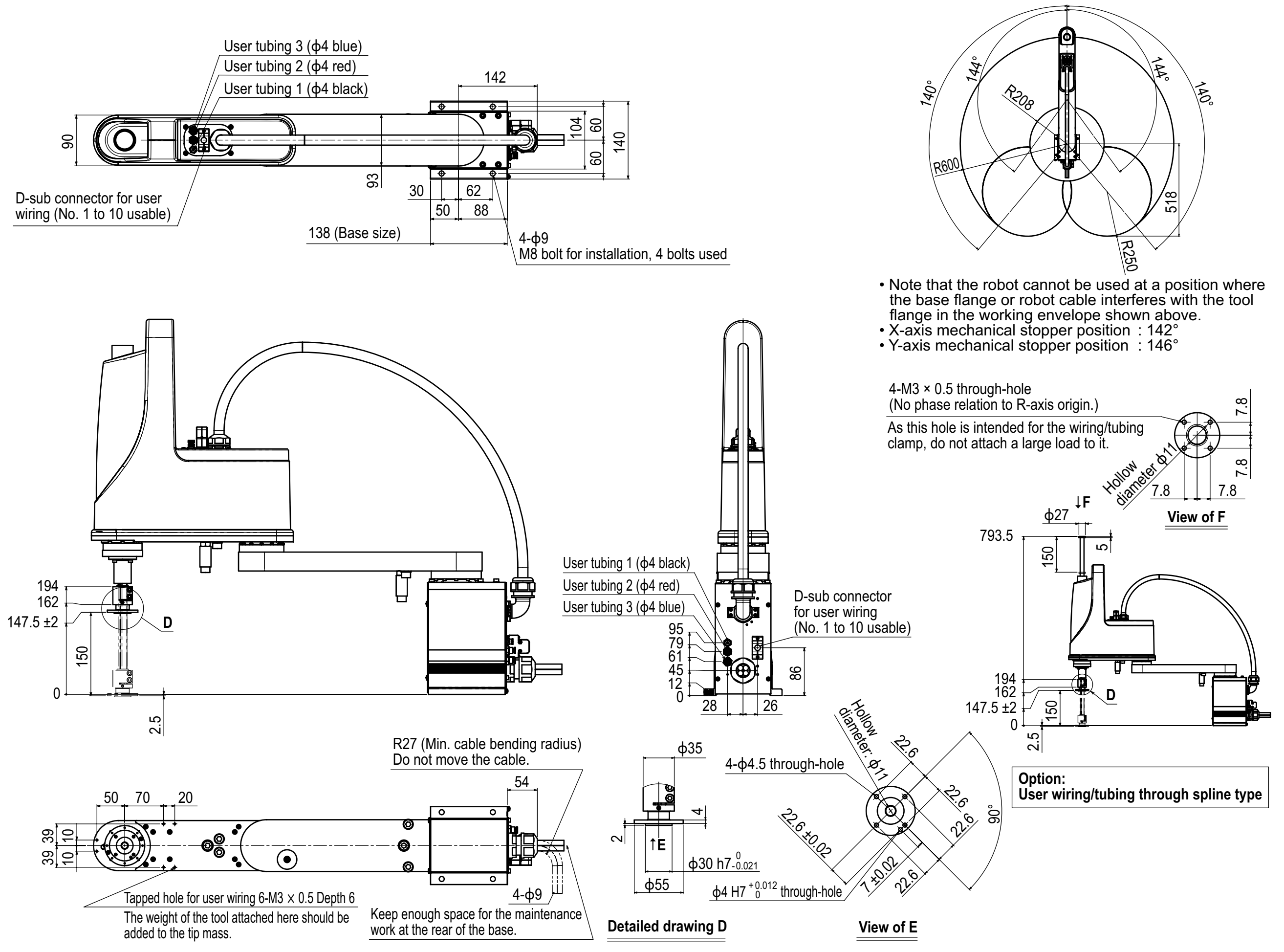
YK600XGL


User tubing 3 (ϕ4 blue)
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
142
90
104
60
60
140
93
30
62
50
88
D-sub connector for user wiring (No. 1 to 10 usable)
138 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
140°
144°
144°
140°
R208
R600
518
R250
56
250
350
129
Maximum 355 during arm rotation
674
627
633
Maximum 673 during arm rotation
481
441
42
57
47
296
277
274
248
243
200
196
151.5 ±2
12
30
A
A
ϕ16 h7 0 -0.018
ϕ35
4
150
1.5
User tool installation range
0
4
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
Z-axis lower end mechanical stopper position
256
222
202
174
167
0
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
95
79
61
45
12
0
28
26
86
D-sub connector for user wiring (No. 1 to 10 usable)
4-M3 × 0.5 through-hole (No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter ϕ11
7.8
7.8
7.8
7.8
View of F
F
ϕ27
793.5
150
5
151.5 ±2
150
0
1.5
Option: User wiring/tubing through spline type
R27 (Min. cable bending radius)
Do not move the cable.
54
50
70
20
Width across flats: 15
Hollow diameter: ϕ11
39
39
10
10
Cross section A-A
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
4-ϕ9
Keep enough space for the maintenance work at the rear of the base.

- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

YK600XGL

YK600XGL Tool flange mount type



- Note that the robot cannot be used at a position where the base flange or robot cable interferes with the tool flange in the working envelope shown above.
- X-axis mechanical stopper position : 142°
- Y-axis mechanical stopper position : 146°

Option:
User wiring/tubing through spline type

YK600XG

Standard type: Medium type

- Arm length 600mm
- Maximum payload 10kg

Ordering method

YK600XG - □ - □ - □ - **RCX340-4** - □ - □ - □ - □ - □ - □ - □

Model - Z axis stroke - Tool flange - Cable - Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Z axis stroke	Tool flange	Cable
200: 200mm	No entry: None	3L: 3.5m
300: 300mm	F: With tool flange	5L: 5m
		10L: 10m

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - □ - **R3** - □ - □ - □ - □ - □

Controller - CE Marking - Regeneratizve unit - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		300 mm	300 mm	200 mm	300 mm	–
	Rotation angle		+/-130 °	+/-145 °	–		+/-360 °
AC servo motor output			400 W	200 W	200 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec	1.7 m/sec	1700 °/sec
Maximum payload			10 kg				
Standard cycle time: with 2kg payload [Note 2]			0.46 sec				
R-axis tolerable moment of inertia [Note 3]			0.30 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			31 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.

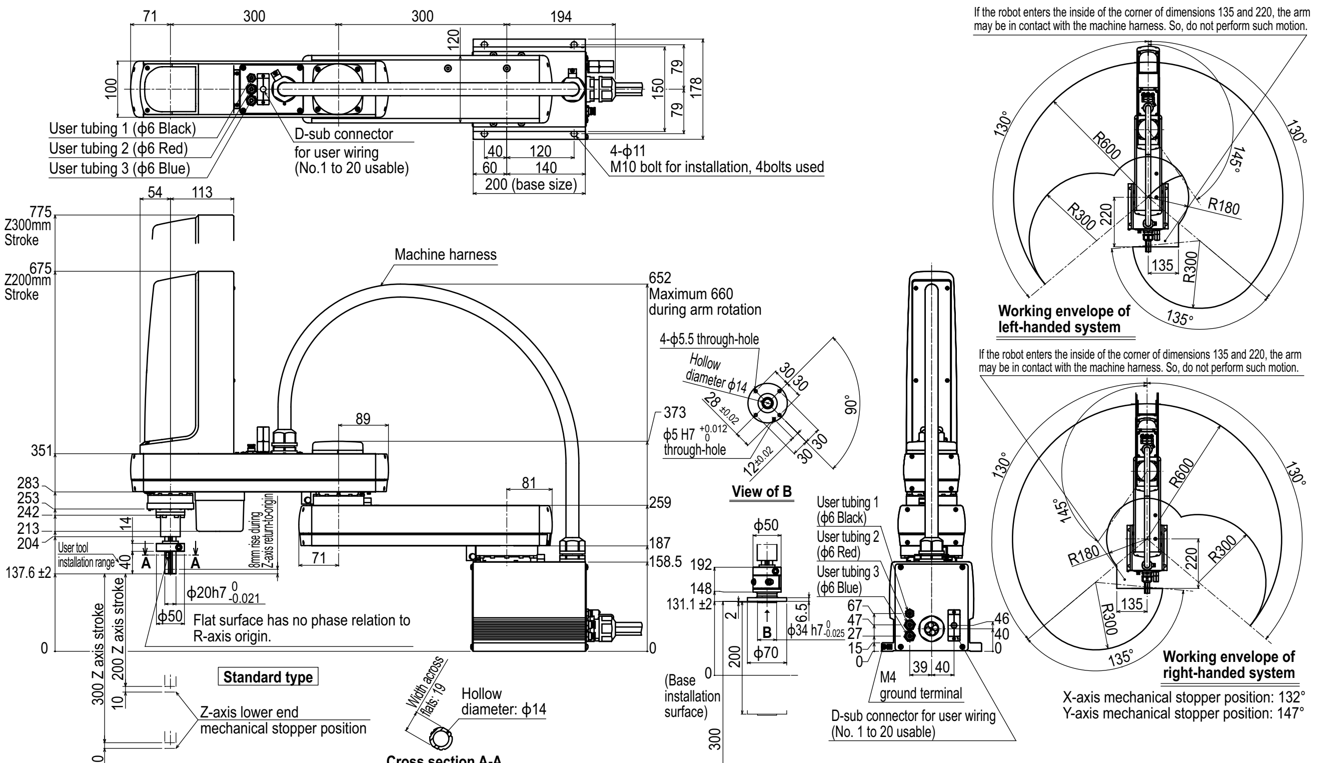
Controller

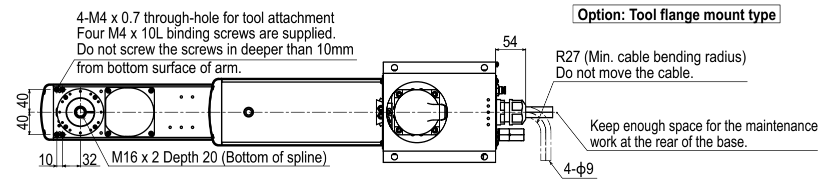
Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

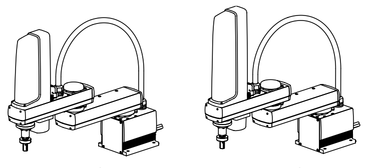
Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XG


71
300
300
194
120
100
79
150
79
178
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
40
120
60
140
200 (base size)
4-ϕ11
M10 bolt for installation, 4bolts used
If the robot enters the inside of the corner of dimensions 135 and 220, the arm may be in contact with the machine harness. So, do not perform such motion.
130°
130°
R600
145°
R300
220
R180
135
R300
135°
Working envelope of left-handed system
54
113
775
Z300mm Stroke
675
Z200mm Stroke
Machine harness
652
Maximum 660 during arm rotation
4-ϕ5.5 through-hole
Hollow diameter ϕ14
30
30
28 ±0.02
90°
373
ϕ5 H7 +0.012 0 through-hole
12±0.02
30
30
View of B
89
351
81
283
253
242
213
204
14
User tool installation range
8mm rise during Z-axis return-to-origin
71
259
187
158.5
192
148
131.1 ±2
137.6 ±2
40
A
A
ϕ20h7 0 -0.021
ϕ50
Flat surface has no phase relation to R-axis origin.
0
0
ϕ50
2
6.5
B
ϕ34 h7 0 -0.025
ϕ70
200
67
47
27
15
0
46
40
0
39
40
M4 ground terminal
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No. 1 to 20 usable)
(Base installation surface)
300
Option: Tool flange mount type
300 Z axis stroke
200 Z axis stroke
10
10
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 19
Hollow diameter: ϕ14
Cross section A-A
If the robot enters the inside of the corner of dimensions 135 and 220, the arm may be in contact with the machine harness. So, do not perform such motion.
130°
130°
R600
145°
R180
R300
220
135
R300
135°
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 147°


4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
40
40
10
32
M16 x 2 Depth 20 (Bottom of spline)
4-ϕ9



YK600XGH

Standard type: Medium type

● Arm length 600mm ● Maximum payload 20kg

Ordering method

Model	Z axis stroke	Tool flange	Cable
YK600XGH	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		200 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			7.7 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			20 kg				
Standard cycle time: with 2kg payload Note 2			0.47 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 48 kg Z axis 400 mm: 50 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

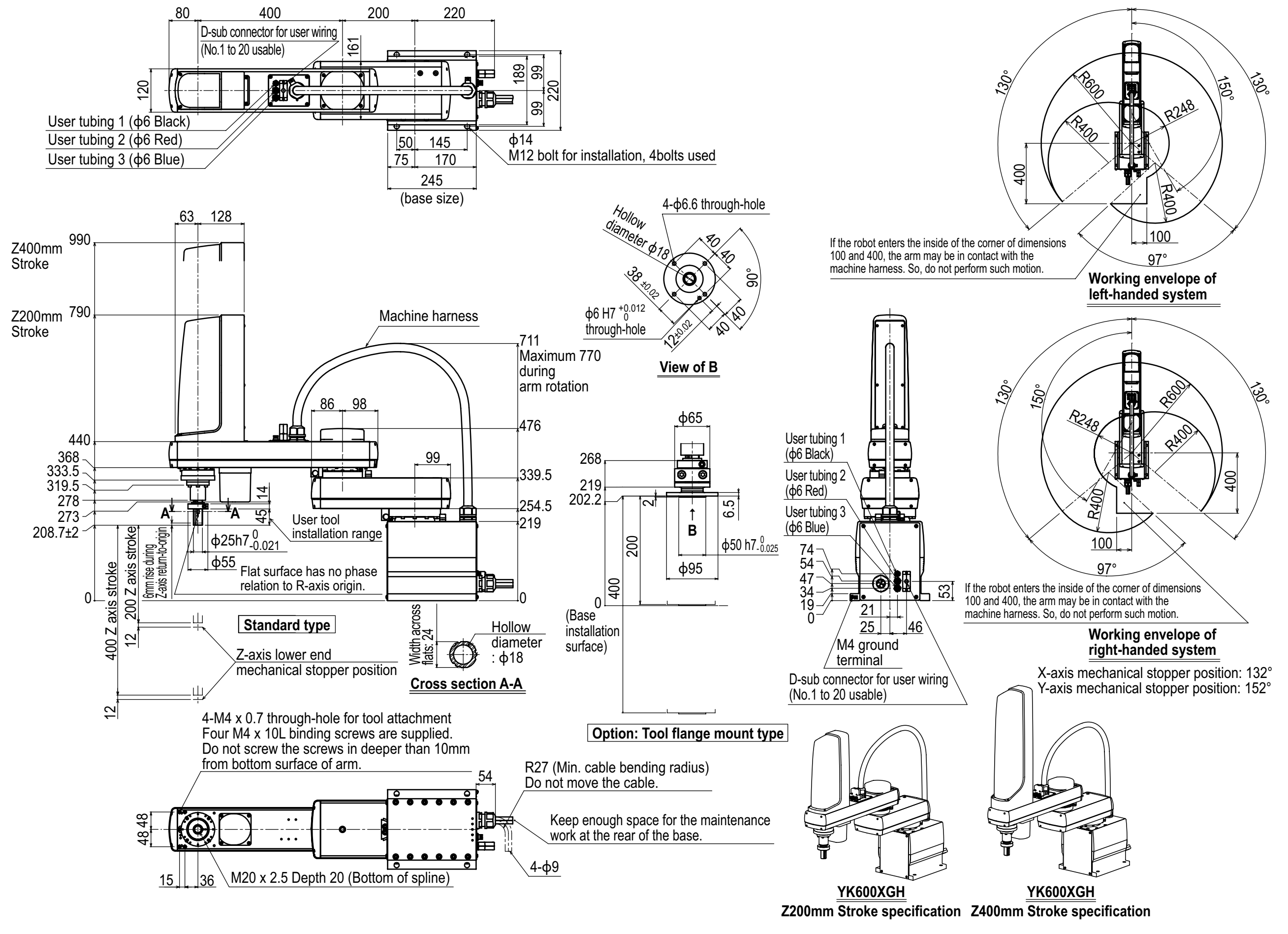
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XGH


80
400
200
220
D-sub connector for user wiring (No.1 to 20 usable)
161
120
189
99
220
99
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
50
145
75
170
245
(base size)
ϕ14
M12 bolt for installation, 4bolts used
Z400mm Stroke
990
Z200mm Stroke
790
63
128
Machine harness
711
Maximum 770 during arm rotation
86
98
476
440
368
333.5
319.5
278
273
208.7±2
99
339.5
254.5
219
A
A
14
45
ϕ25h7 0 -0.021
ϕ55
User tool installation range
Flat surface has no phase relation to R-axis origin.
0
400 Z axis stroke
200 Z axis stroke
6mm rise during Z-axis return-to-origin
12
12
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 24
Hollow diameter : ϕ18
Cross section A-A
Hollow diameter ϕ18
4-ϕ6.6 through-hole
40
40
90°
38 ±0.02
ϕ6 H7 +0.012 0 through-hole
12 ±0.02
40
40
View of B
ϕ65
268
219
202.2
2
6.5
B
ϕ50 h7 0 -0.025
200
400
ϕ95
0
(Base installation surface)
Option: Tool flange mount type
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
48
48
15
36
M20 x 2.5 Depth 20 (Bottom of spline)
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
74
54
47
34
19
0
21
25
46
53
M4 ground terminal
D-sub connector for user wiring (No.1 to 20 usable)
130°
150°
130°
R600
R248
R400
R400
400
100
97°
If the robot enters the inside of the corner of dimensions 100 and 400, the arm may be in contact with the machine harness. So, do not perform such motion.
Working envelope of left-handed system
130°
150°
130°
R248
R600
R400
R400
400
100
97°
If the robot enters the inside of the corner of dimensions 100 and 400, the arm may be in contact with the machine harness. So, do not perform such motion.
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°
YK600XGH
Z200mm Stroke specification
YK600XGH
Z400mm Stroke specification

YK700XGL

Standard type: Large type

Arm length 700mm **Maximum payload 10kg**

Note. This model is a special order product. Please consult us for delivery time.

Ordering method

YK700XGL	–	–	–	RCX340-4	–	–	–	–	–	–	–
Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	200: 200mm 300: 300mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		400 mm	300 mm	200 mm	300 mm	-
	Rotation angle		+/-130 °	+/-145 °	-		+/-360 °
AC servo motor output			400 W	200 W	200 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm		+/-0.005 °
Maximum speed			9.2 m/sec		2.3 m/sec	1.7 m/sec	1700 °/sec
Maximum payload			10 kg (Standard type), 9 kg (Option: Tool flange mount type)				
Standard cycle time: with 2kg payload [Note 2]			0.50 sec				
R-axis tolerable moment of inertia [Note 3]			0.30 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5, 10 m				
Weight			32 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings.

Controller

Controller	Power capacity (VA)	Operation method
RCX340	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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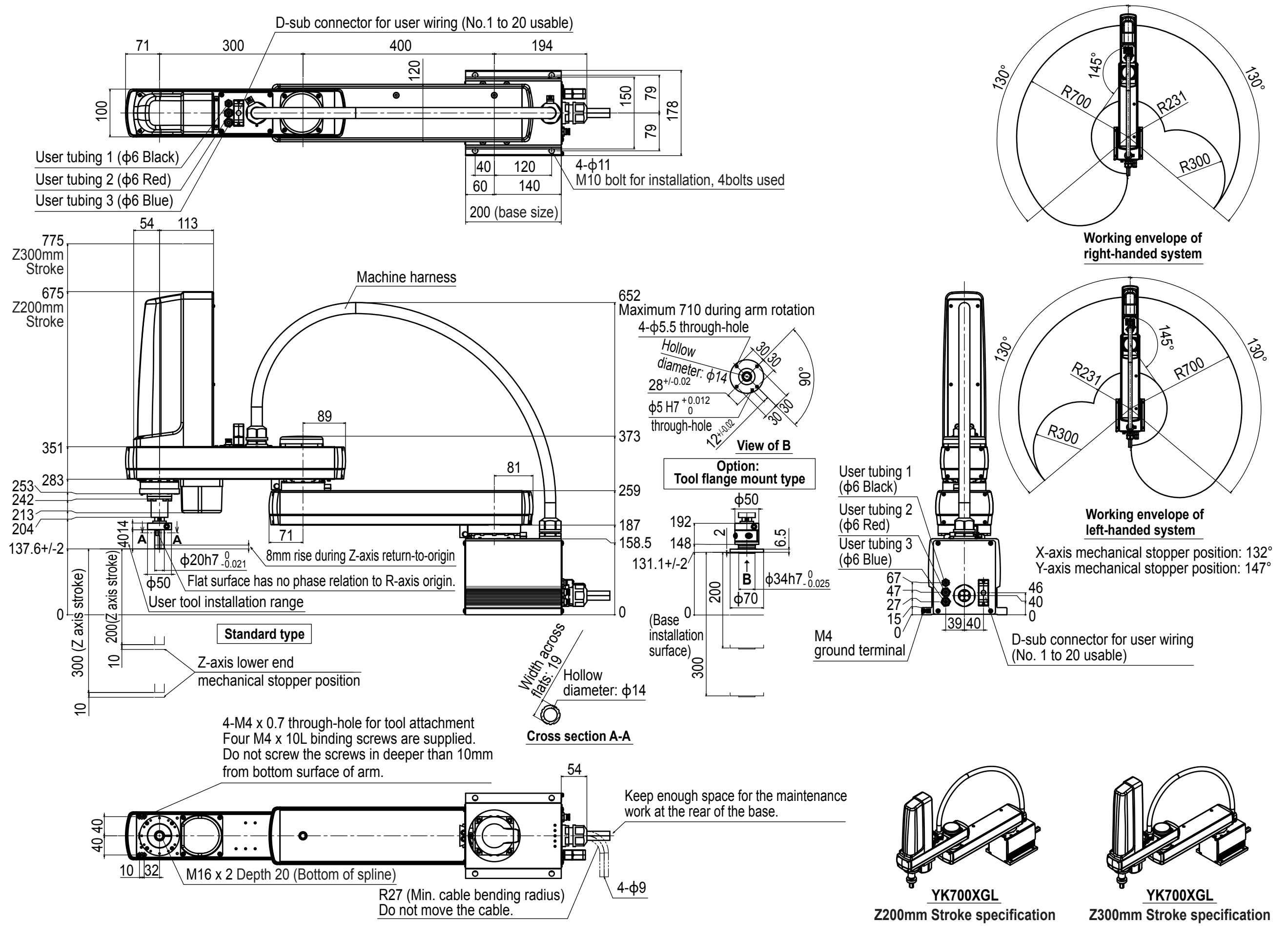
YK700XGL


D-sub connector for user wiring (No.1 to 20 usable)
71
300
400
194
120
100
150
79
178
79
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
40 120
60 140
4-ϕ11
M10 bolt for installation, 4bolts used
200 (base size)
54 113
775
Z300mm Stroke
675
Z200mm Stroke
Machine harness
652
Maximum 710 during arm rotation
4-ϕ5.5 through-hole
Hollow diameter: ϕ14
28+/-0.02
ϕ5 H7 +0.012 0 through-hole
12+/-0.02
30 30
30 30
90°
View of B
Option: Tool flange mount type
89
351
373
81
283
253
242
213
204
259
137.6+/-2
40 14
A A
71
187
158.5
131.1+/-2
192
148
ϕ50
2
6.5
B
ϕ34h7 0 -0.025
ϕ70
200
300
(Base installation surface)
0
ϕ20h7 0 -0.021
8mm rise during Z-axis return-to-origin
ϕ50
Flat surface has no phase relation to R-axis origin.
User tool installation range
0
300 (Z axis stroke)
200(Z axis stroke)
10
10
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 19
Hollow diameter: ϕ14
Cross section A-A
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
Keep enough space for the maintenance work at the rear of the base.
40 40
10 32
M16 x 2 Depth 20 (Bottom of spline)
R27 (Min. cable bending radius)
Do not move the cable.
4-ϕ9
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
67
47
27
15
0
39 40
46
40
0
M4 ground terminal
D-sub connector for user wiring (No. 1 to 20 usable)
130°
145°
130°
R700
R231
R300
Working envelope of right-handed system
130°
145°
130°
R231
R700
R300
Working envelope of left-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 147°
YK700XGL Z200mm Stroke specification
YK700XGL Z300mm Stroke specification

YK700XG

Standard type: Large type

- Arm length 700mm
- Maximum payload 20kg

Ordering method

YK700XG - ☐ - ☐ - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Cable
YK700XG	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240		R3					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		300 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			20 kg				
Standard cycle time: with 2kg payload [Note 2]			0.42 sec				
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 50 kg Z axis 400 mm: 52 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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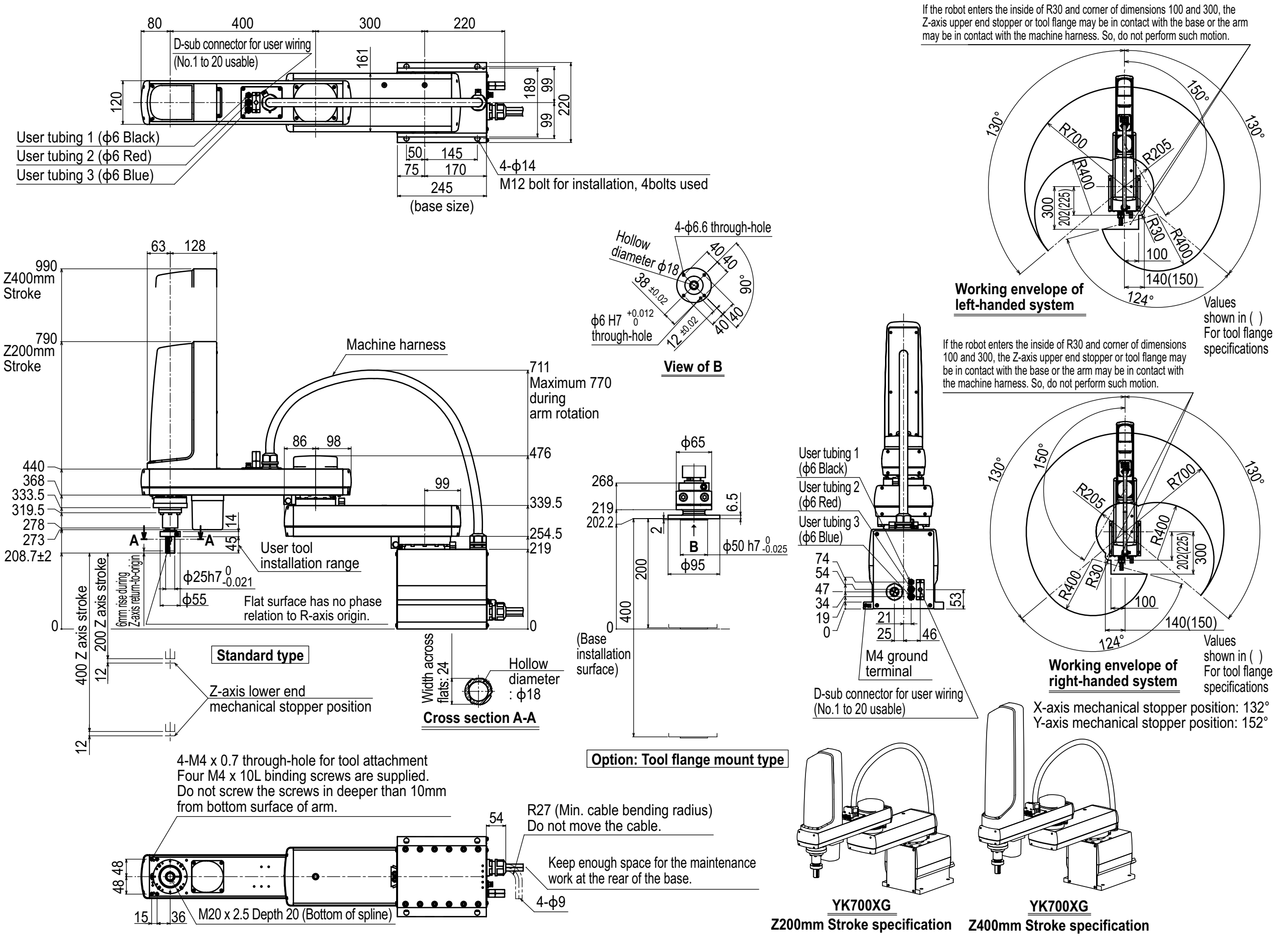
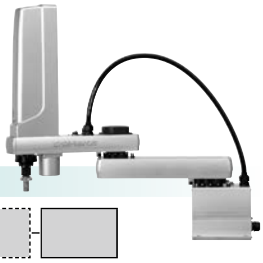
http://global.yamaha-motor.com/business/robot/

YK700XG


80
400
300
220
D-sub connector for user wiring
(No.1 to 20 usable)
161
120
189
99
99
220
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
50
145
75
170
245
(base size)
4-ϕ14
M12 bolt for installation, 4bolts used
4-ϕ6.6 through-hole
Hollow diameter ϕ18
38 ±0.02
40
40
90°
ϕ6 H7 +0.012 0
through-hole
12 ±0.02
40
40
View of B
63
128
990
Z400mm Stroke
790
Z200mm Stroke
Machine harness
711
Maximum 770 during arm rotation
86
98
476
99
339.5
254.5
219
0
440
368
333.5
319.5
278
273
208.7±2
14
45
A
A
User tool installation range
ϕ25h7 0 -0.021
ϕ55
Flat surface has no phase relation to R-axis origin.
6mm rise during Z-axis return-to-origin
0
400 Z axis stroke
200 Z axis stroke
12
12
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 24
Hollow diameter : ϕ18
Cross section A-A
ϕ65
268
219
202.2
6.5
2
B
ϕ50 h7 0 -0.025
ϕ95
200
400
0
(Base installation surface)
Option: Tool flange mount type
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
48
48
15
36
M20 x 2.5 Depth 20 (Bottom of spline)
If the robot enters the inside of R30 and corner of dimensions 100 and 300, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
150°
130°
130°
R700
R205
R400
300
202(225)
R30
R400
100
140(150)
124°
Working envelope of left-handed system
Values shown in ( ) For tool flange specifications
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
74
54
47
34
19
0
53
21
25
46
M4 ground terminal
D-sub connector for user wiring
(No.1 to 20 usable)
If the robot enters the inside of R30 and corner of dimensions 100 and 300, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
130°
150°
130°
R205
R700
R400
202(225)
300
R400
R30
100
140(150)
124°
Working envelope of right-handed system
Values shown in ( ) For tool flange specifications
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°
YK700XG
Z200mm Stroke specification
YK700XG
Z400mm Stroke specification

YK800XG

Standard type: Large type



● Arm length 800mm
● Maximum payload 20kg

Ordering method

YK800XG	–	–	–
Model	**Z axis stroke**	**Tool flange**	**Cable**
	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	–	–	–	–	–	–	–
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	–	R3	–	–	–	–	–
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		400 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			9.2 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			20 kg				
Standard cycle time: with 2kg payload [Note 2]			0.48 sec				
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 52 kg Z axis 400 mm: 54 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

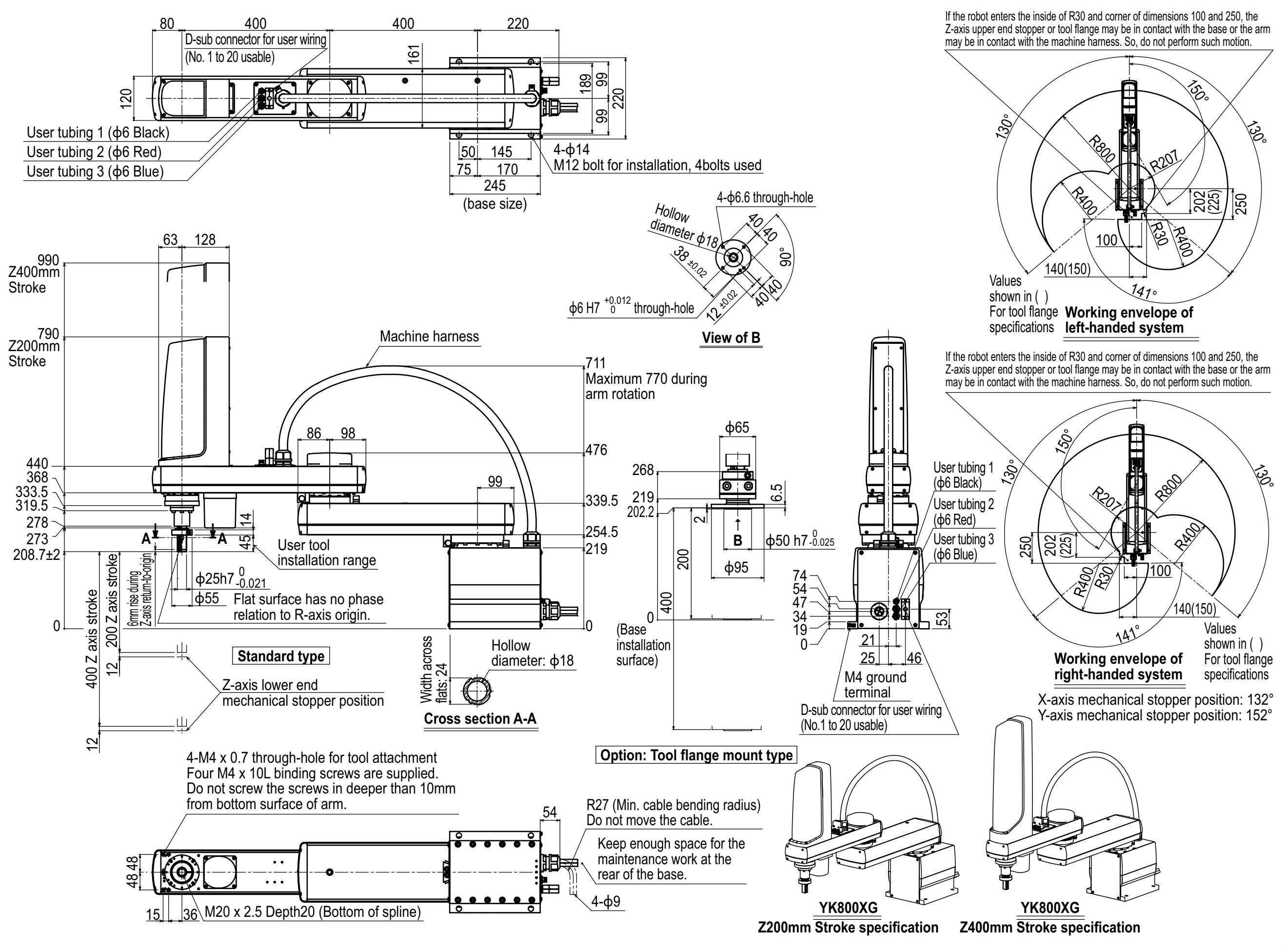
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK800XG



If the robot enters the inside of R30 and corner of dimensions 100 and 250, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

If the robot enters the inside of R30 and corner of dimensions 100 and 250, the Z-axis upper end stopper or tool flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°

4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.

M20 x 2.5 Depth20 (Bottom of spline)

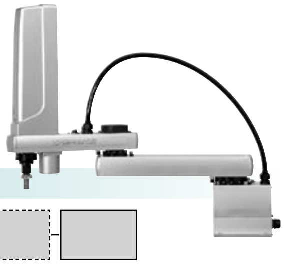
R27 (Min. cable bending radius)
Do not move the cable.

Keep enough space for the maintenance work at the rear of the base.

YK900XG

Standard type: Large type

- Arm length 900mm
- Maximum payload 20kg



Ordering method

YK900XG				RCX340-4							
Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R3					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		500 mm	400 mm	200 mm 400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–	+/-360 °
AC servo motor output			750 W	400 W	400 W	200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			9.9 m/sec		2.3 m/sec 1.7 m/sec	920 °/sec
Maximum payload			20 kg			
Standard cycle time: with 2kg payload [Note 2]			0.49 sec			
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			Z axis 200 mm: 54 kg Z axis 400 mm: 56 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

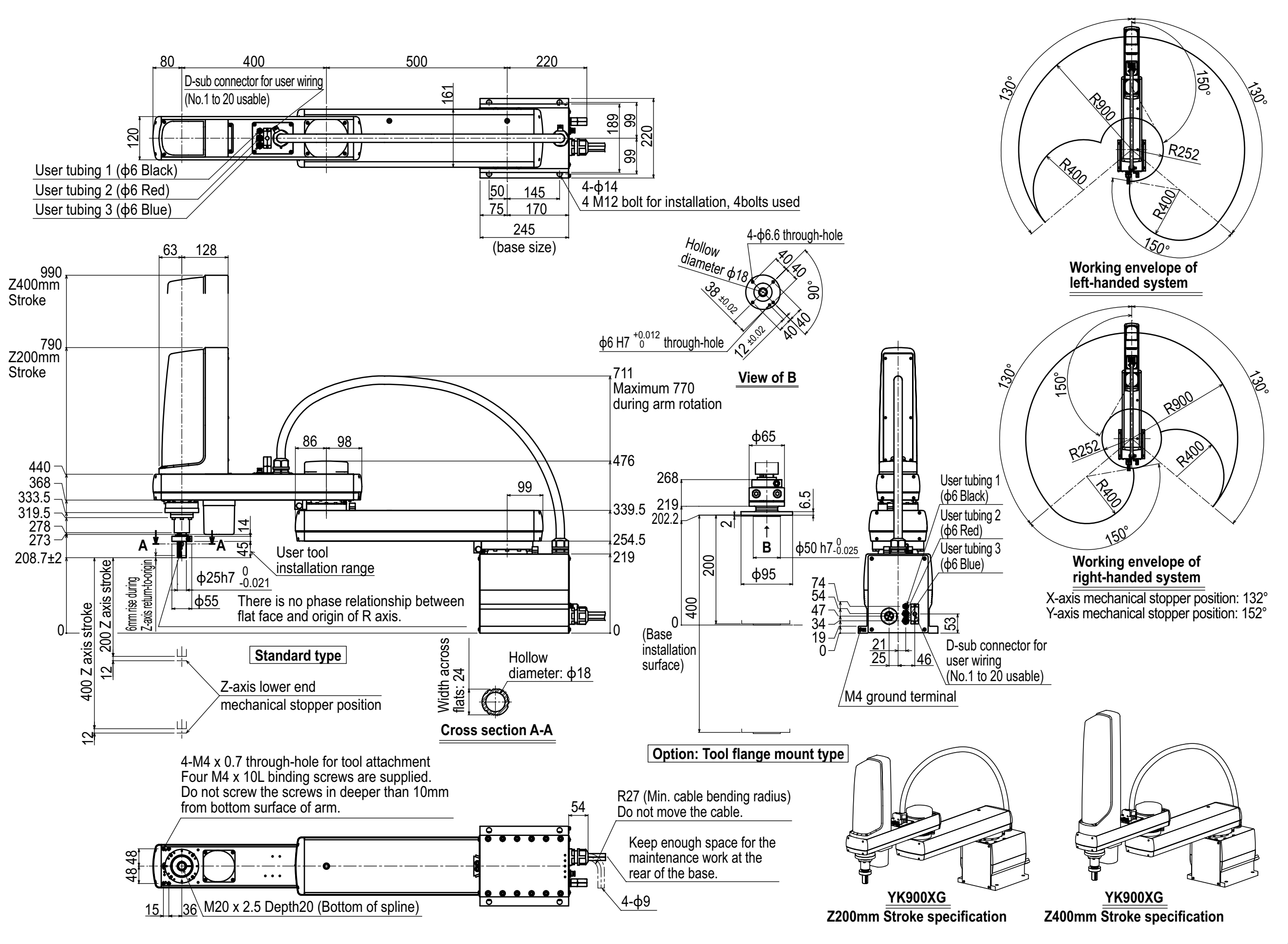
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

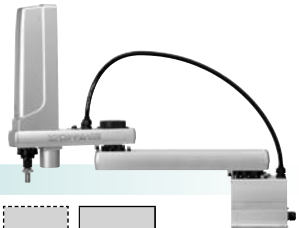
YK900XG


80
400
500
220
D-sub connector for user wiring
(No.1 to 20 usable)
161
120
189
99
99
220
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
50
145
75
170
245
(base size)
4-ϕ14
4 M12 bolt for installation, 4bolts used
Hollow diameter ϕ18
4-ϕ6.6 through-hole
40
40
90°
38 ±0.02
12 ±0.02
ϕ6 H7 +0.012 0 through-hole
View of B
63
128
990
Z400mm Stroke
790
Z200mm Stroke
711
Maximum 770 during arm rotation
86
98
440
368
333.5
319.5
278
273
208.7±2
476
99
339.5
254.5
219
A
A
14
45
User tool installation range
ϕ25h7 0 -0.021
ϕ55
There is no phase relationship between flat face and origin of R axis.
0
0
400 Z axis stroke
200 Z axis stroke
12
12
6mm rise during Z-axis return-to-origin
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 24
Hollow diameter: ϕ18
Cross section A-A
ϕ65
268
219
202.2
6.5
2
B
ϕ50 h7 0 -0.025
ϕ95
200
400
0
(Base installation surface)
Option: Tool flange mount type
74
54
47
34
19
0
21
25
46
53
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
M4 ground terminal
130°
150°
130°
R900
R252
R400
R400
150°
Working envelope of left-handed system
130°
150°
130°
R900
R252
R400
R400
150°
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
48
48
15
36
M20 x 2.5 Depth20 (Bottom of spline)
4-ϕ9
YK900XG
Z200mm Stroke specification
YK900XG
Z400mm Stroke specification

YK1000XG

Standard type: Large type

- Arm length 1000mm
- Maximum payload 20kg



Ordering method

YK1000XG – ☐ – ☐ – ☐ – RCX340-4 – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Z axis stroke	Tool flange	Cable
YK1000XG	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		600 mm	400 mm	200 mm | 400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–	+/-360 °
AC servo motor output			750 W	400 W	400 W	200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			10.6 m/sec		2.3 m/sec | 1.7 m/sec	920 °/sec
Maximum payload			20 kg			
Standard cycle time: with 2kg payload [Note 2]			0.49 sec			
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			Z axis 200 mm: 56 kg Z axis 400 mm: 58 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

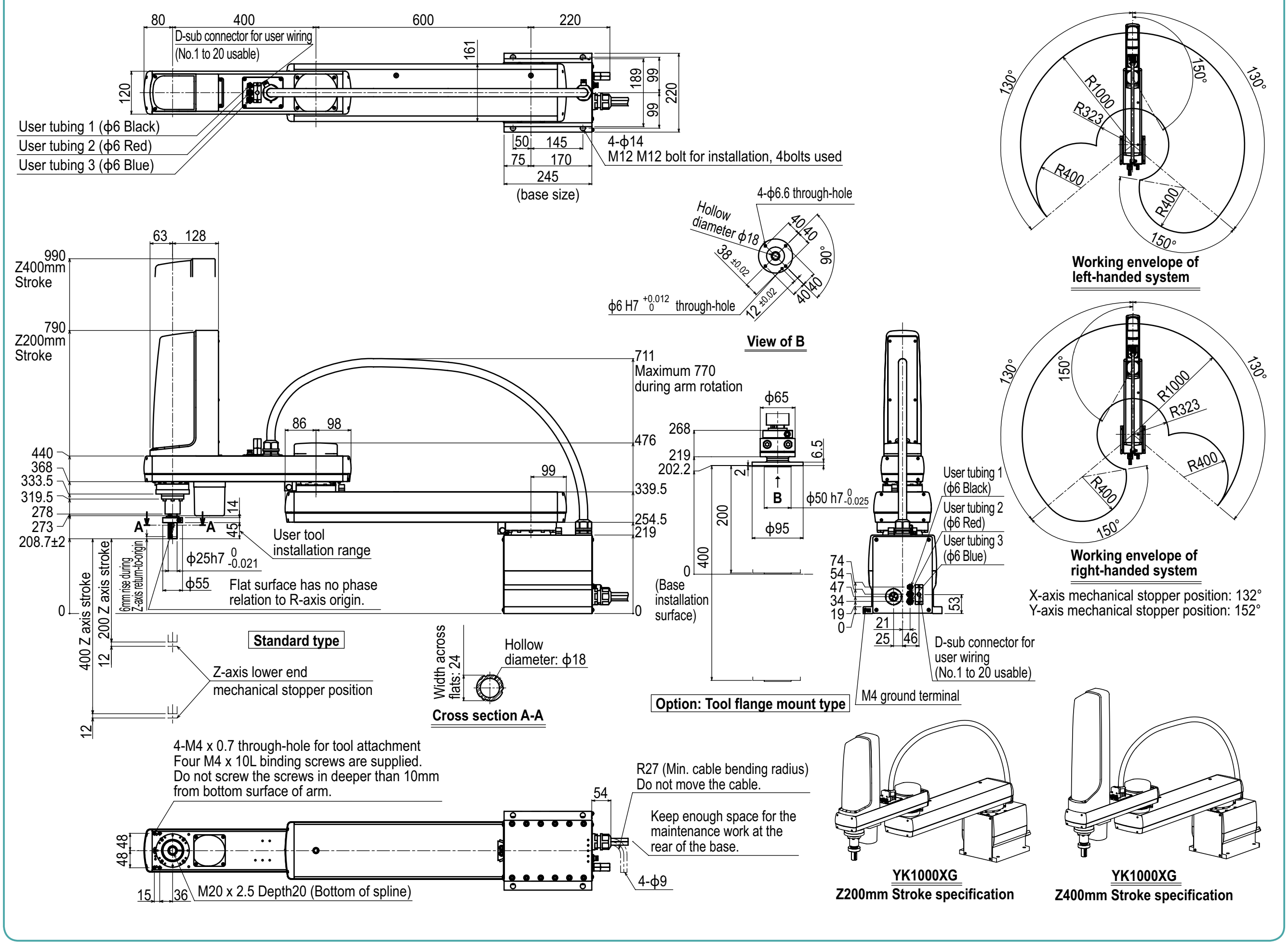
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

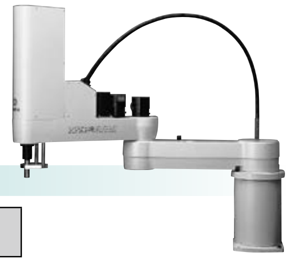
YK1000XG


80
400
600
220
D-sub connector for user wiring (No.1 to 20 usable)
161
120
189
99
99
220
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
50 145
75 170
245 (base size)
4-ϕ14
M12 M12 bolt for installation, 4bolts used
4-ϕ6.6 through-hole
Hollow diameter ϕ18
40 40
38 ±0.02
90°
ϕ6 H7 +0.012 0 through-hole
12 ±0.02
40 40
View of B
63 128
990 Z400mm Stroke
790 Z200mm Stroke
711 Maximum 770 during arm rotation
86 98
476
268
219
202.2
339.5
254.5
219
0
99
ϕ65
6.5
2
B
ϕ50 h7 0 -0.025
200
400
ϕ95
(Base installation surface)
440
368
333.5
319.5
278
273
208.7±2
A A
14
45
ϕ25h7 0 -0.021
ϕ55
User tool installation range
Flat surface has no phase relation to R-axis origin.
6mm rise during Z-axis return-to-origin
400 Z axis stroke
200 Z axis stroke
12
12
0
Standard type
Z-axis lower end mechanical stopper position
Width across flats: 24
Hollow diameter: ϕ18
Cross section A-A
Option: Tool flange mount type
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
74
54
47
34
19
0
53
21
25 46
D-sub connector for user wiring (No.1 to 20 usable)
M4 ground terminal
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
54
48 48
15 36
M20 x 2.5 Depth20 (Bottom of spline)
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work at the rear of the base.
4-ϕ9
130°
150°
130°
R1000
R323
R400
R400
150°
Working envelope of left-handed system
130°
150°
130°
R1000
R323
R400
R400
150°
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°
YK1000XG Z200mm Stroke specification
YK1000XG Z400mm Stroke specification

YK1200X

Standard type: Large type

● Arm length 1200mm ● Maximum payload 50kg



Ordering method

YK1200X	-	400	-	☐	-	RCX340-4	-	☐	-	☐	-	☐	-	☐	-	☐	-	☐	-	☐
Model	-	**Z axis stroke**	-	**Cable**		**Controller / Number of controllable axes**	-	**Safety standard**	-	**Option A (OP.A)**	-	**Option B (OP.B)**	-	**Option C (OP.C)**	-	**Option D (OP.D)**	-	**Option E (OP.E)**	-	**Absolute battery**
				3L: 3.5m 5L: 5m 10L: 10m																

Specify various controller setting items. RCX340 ▶ P.544

RCX240	-	☐	-	R	-	☐	-	☐	-	☐	-	☐	-	☐
Controller	-	**CE Marking**	-	**Regeneratizve unit**	-	**Expansion I/O**	-	**Network option**	-	**iVY System**	-	**Gripper**	-	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		600 mm	600 mm	400 mm	–
	Rotation angle		+/-125 °	+/-150 °	–	+/-180 °
AC servo motor output			900 W	800 W	600 W	400 W
Deceleration mechanism	**Speed reducer**		Planetary gear	Planetary gear	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled		Timing belt transmission	Timing belt transmission
		Speed reducer to output	Direct-coupled		Direct-coupled	Direct-coupled
Repeatability Note 1			+/-0.05 mm		+/-0.02 mm	+/-0.005 °
Maximum speed			7.4 m/sec		0.75 m/sec	600 °/sec
Maximum payload			50 kg			
Standard cycle time: with 2kg payload Note 2			0.91 sec			
R-axis tolerable moment of inertia Note 3			2.45 kgm^2			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			124 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.612.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
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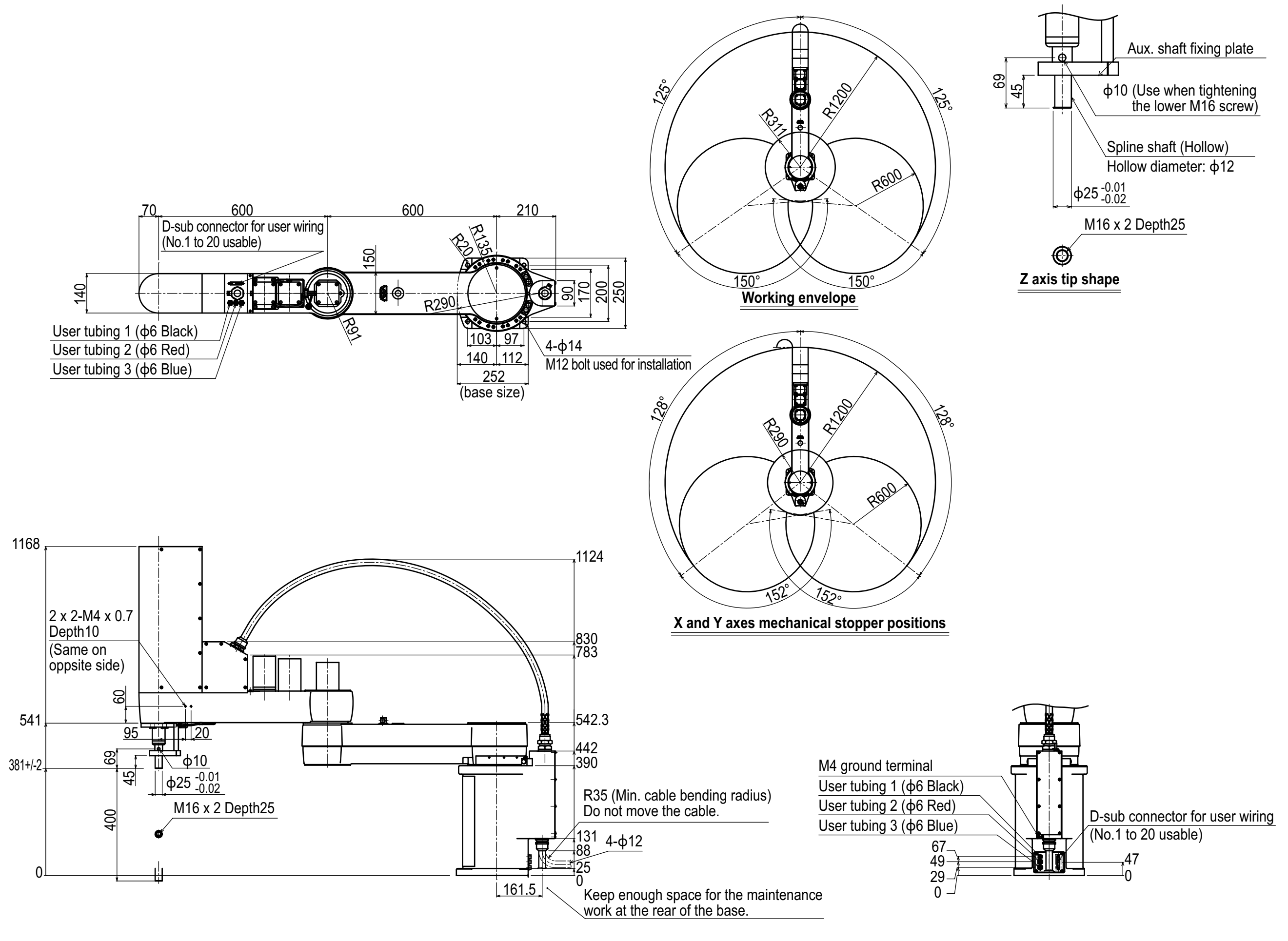
YK1200X



YK300XGS

Wall-mount / inverse type

Arm length 300mm **Maximum payload 5kg** Note. Built-to-order product. Contact us for the delivery period.

Ordering method

YK300XGS	–		–	150	–		–		–	
Model	–	**Installation method** Note1	–	**Z axis stroke**	–	**Tool flange**	–	**Hollow shaft**	–	**Cable**
		W: Wall-mount (same as per external view)		150: 150mm		No entry: None		No entry: None		3L: 3.5m
		U: Inverse wall-mount (upside down)				F: With tool flange		S: With hollow shaft		5L: 5m
										10L: 10m

RCX340-4	–		–		–		–		–		–		–	
Controller / Number of controllable axes	–	**Safety standard**	–	**Option A (OP.A)**	–	**Option B (OP.B)**	–	**Option C (OP.C)**	–	**Option D (OP.D)**	–	**Option E (OP.E)**	–	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	–		–		–		–		–		–	
Controller	–	**CE Marking**	–	**Expansion I/O**	–	**Network option**	–	**iVY System**	–	**Gripper**	–	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		150 mm	150 mm	150 mm	–
	Rotation angle		+/-120 °	+/-130 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			4.4 m/sec		1.0 m/sec	1020 °/sec (wall-mount) 720 °/sec (inverse wall-mount)
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications Note 4)			
Standard cycle time: with 2kg payload Note 2			0.49 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			19.5 kg			

Note 1. This is the value at a constant ambient temperature.
Note 2. When reciprocating 25mm horizontally and 300mm horizontally (with a 2kg payload in rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

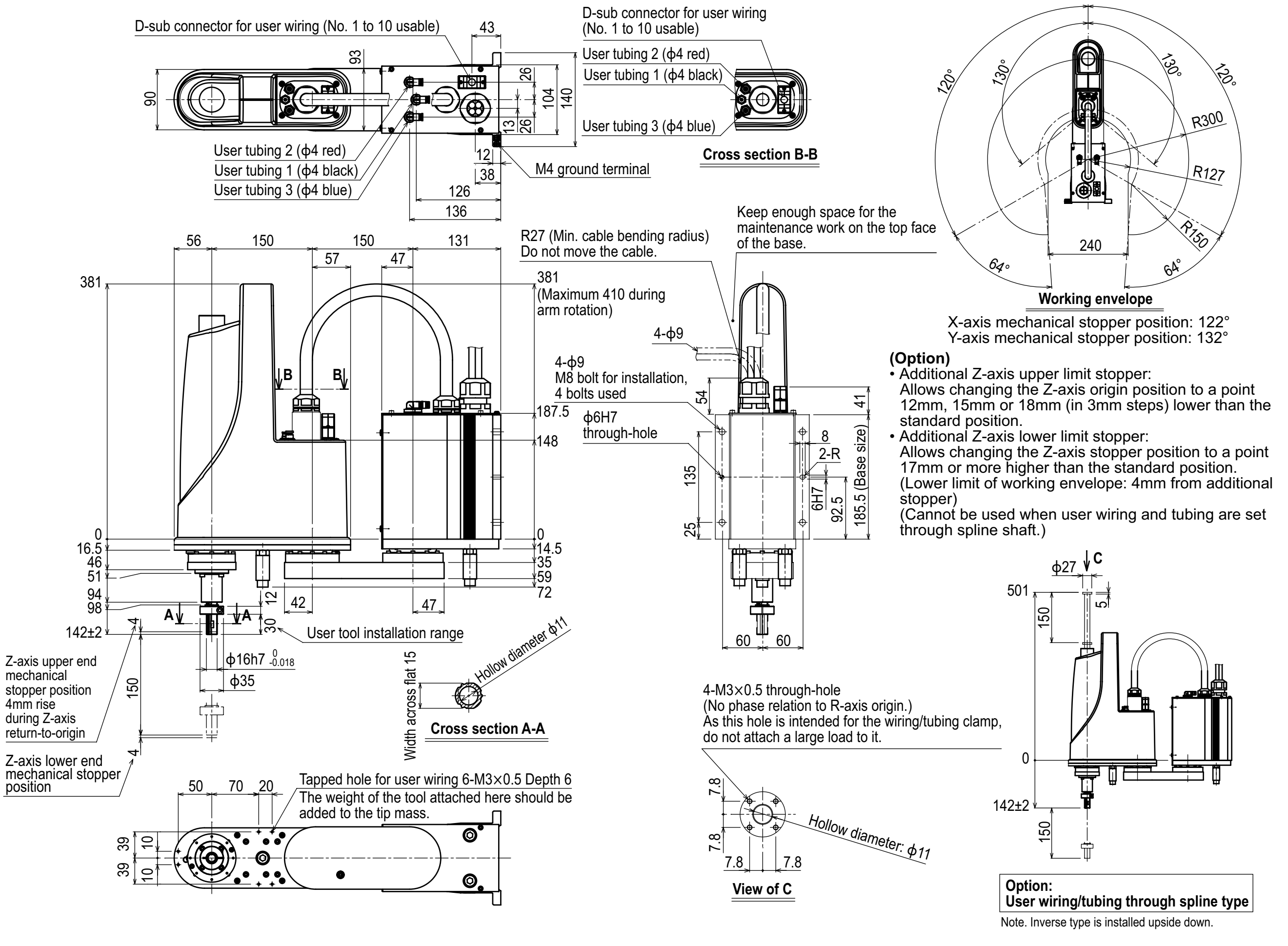
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the position of Y axis mechanical stopper. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK300XGS

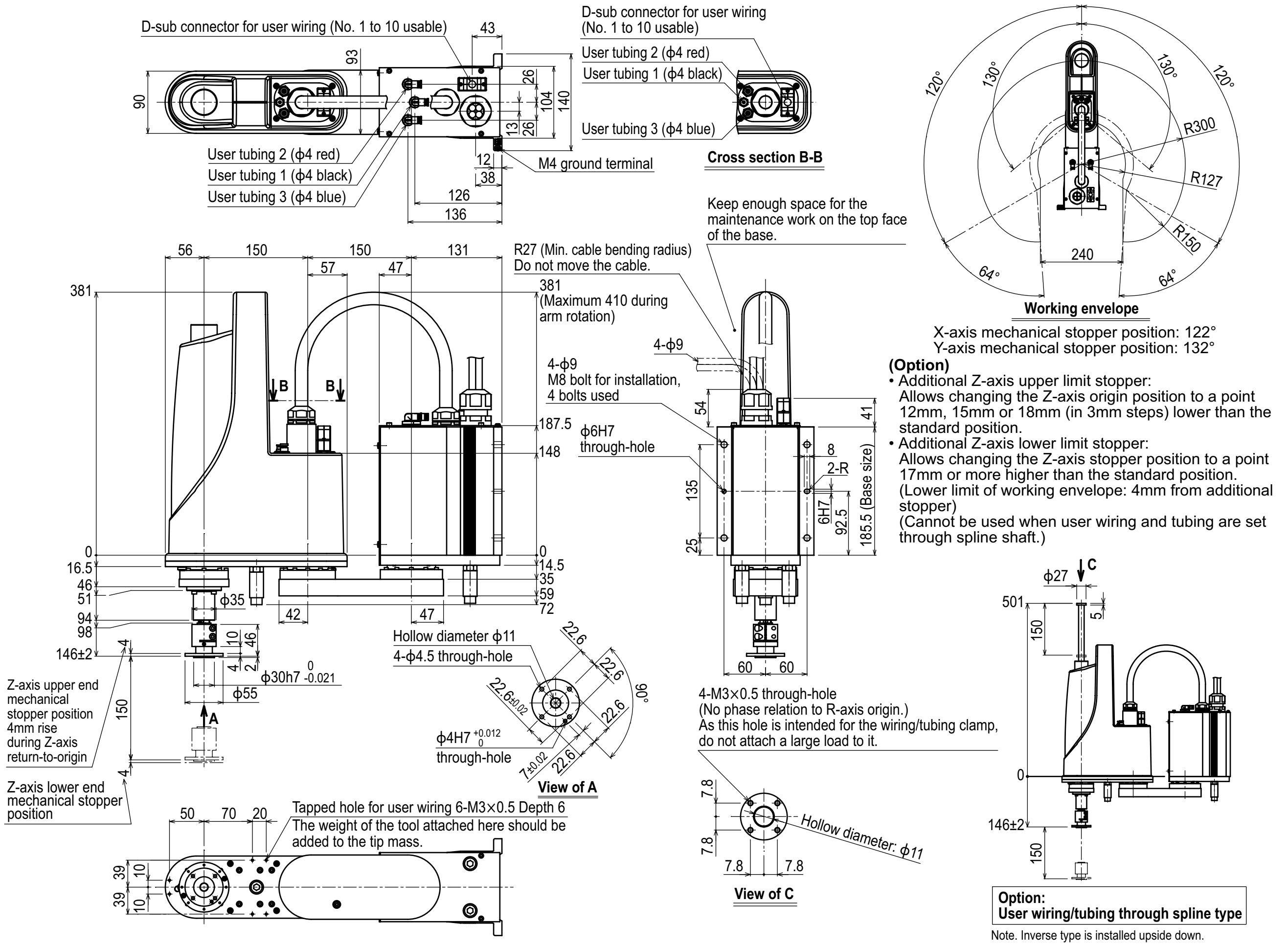

D-sub connector for user wiring (No. 1 to 10 usable)
43
93
90
26
104
140
13
26
12
38
126
136
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
M4 ground terminal
D-sub connector for user wiring (No. 1 to 10 usable)
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
Cross section B-B
120°
130°
130°
120°
R300
R127
R150
240
64°
64°
Working envelope
56
150
150
131
57
47
381
R27 (Min. cable bending radius)
Do not move the cable.
381
(Maximum 410 during arm rotation)
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
4-ϕ9
M8 bolt for installation, 4 bolts used
ϕ6H7 through-hole
187.5
148
B
B
54
41
8
2-R
135
6H7
92.5
185.5 (Base size)
25
0
16.5
46
51
94
98
142±2
0
14.5
35
59
72
A
A
12
42
47
30
4
User tool installation range
ϕ16h7 0 -0.018
ϕ35
150
4
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
Z-axis lower end mechanical stopper position
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
60
60
4-M3×0.5 through-hole
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
7.8
7.8
7.8
7.8
Hollow diameter: ϕ11
View of C
50
70
20
Tapped hole for user wiring 6-M3×0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
39
39
10
10
ϕ27
C
501
150
5
0
142±2
150
Option:
User wiring/tubing through spline type
Note. Inverse type is installed upside down.

X-axis mechanical stopper position: 122°
Y-axis mechanical stopper position: 132°

(Option)
- Additional Z-axis upper limit stopper:
  Allows changing the Z-axis origin position to a point 12mm, 15mm or 18mm (in 3mm steps) lower than the standard position.
- Additional Z-axis lower limit stopper:
  Allows changing the Z-axis stopper position to a point 17mm or more higher than the standard position. (Lower limit of working envelope: 4mm from additional stopper)
  (Cannot be used when user wiring and tubing are set through spline shaft.)

YK300XGS

YK300XGS Tool flange mount type



X-axis mechanical stopper position: 122°
Y-axis mechanical stopper position: 132°

(Option)

- Additional Z-axis upper limit stopper:
  Allows changing the Z-axis origin position to a point 12mm, 15mm or 18mm (in 3mm steps) lower than the standard position.
- Additional Z-axis lower limit stopper:
  Allows changing the Z-axis stopper position to a point 17mm or more higher than the standard position.
  (Lower limit of working envelope: 4mm from additional stopper)
  (Cannot be used when user wiring and tubing are set through spline shaft.)

Note. Inverse type is installed upside down.

YK400XGS

Wall-mount / inverse type

Arm length 400mm **Maximum payload 5kg** Note. Built-to-order product. Contact us for the delivery period.

Ordering method

YK400XGS	-		-	150	-		-		-		-	
Model	-	**Installation method** Note1	-	**Z axis stroke**	-	**Tool flange**	-	**Hollow shaft**	-	**Cable**		
		W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)		150: 150mm		No entry: None F: With tool flange		No entry: None S: With hollow shaft		3L: 3.5m 5L: 5m 10L: 10m		

RCX340-4	-		-		-		-		-		-		-	
Controller / Number of controllable axes	-	**Safety standard**	-	**Option A (OP.A)**	-	**Option B (OP.B)**	-	**Option C (OP.C)**	-	**Option D (OP.D)**	-	**Option E (OP.E)**	-	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	-		-		-		-		-		-	
Controller	-	**CE Marking**	-	**Expansion I/O**	-	**Network option**	-	**iVY System**	-	**Gripper**	-	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		250 mm	150 mm	150 mm	–
	Rotation angle		+/-125 °	+/-144 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			6.1 m/sec		1.1 m/sec	1020 °/sec (wall-mount) 720 °/sec (inverse wall-mount)
Maximum payload			5 kg (Standard specification), 4 kg (Option specifications Note 4)			
Standard cycle time: with 2kg payload Note 2			0.49 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			20 kg			

Note 1. This is the value at a constant ambient temperature.
Note 2. When reciprocating 25mm horizontally and 300mm horizontally (with a 2kg payload in rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

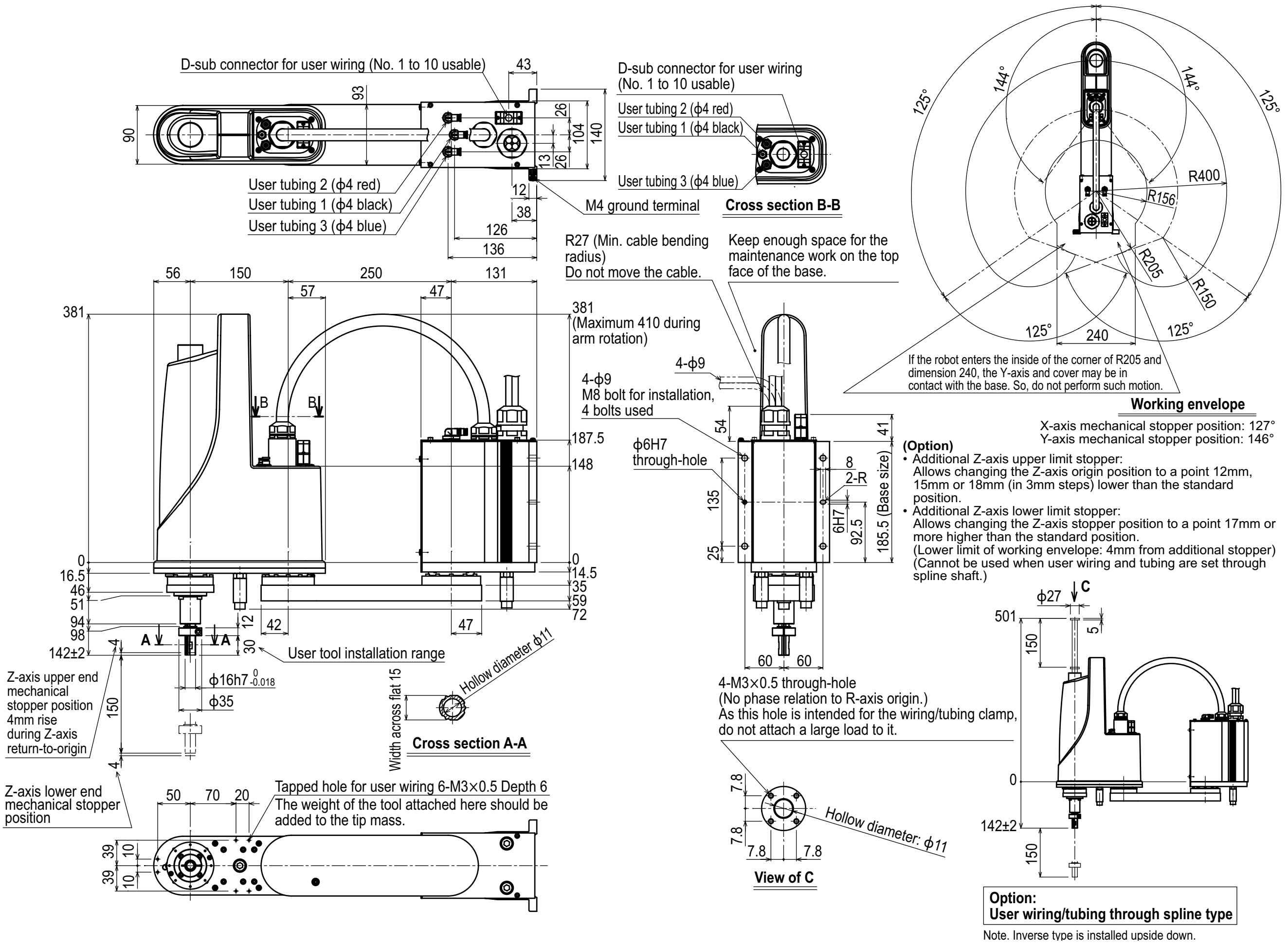
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the position of Y axis mechanical stopper. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK400XGS


D-sub connector for user wiring (No. 1 to 10 usable)
43
93
90
26
104
140
13
26
12
38
126
136
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
D-sub connector for user wiring
(No. 1 to 10 usable)
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
M4 ground terminal
Cross section B-B
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
56
150
250
131
57
47
381
381
(Maximum 410 during arm rotation)
4-ϕ9
4-ϕ9
M8 bolt for installation,
4 bolts used
B
B
187.5
148
ϕ6H7
through-hole
54
41
135
25
8
2-R
6H7
92.5
185.5 (Base size)
0
16.5
46
51
94
98
142±2
0
14.5
35
59
72
A
A
12
42
47
30
User tool installation range
4
150
4
Z-axis upper end mechanical stopper position 4mm rise during Z-axis return-to-origin
ϕ16h7 0 -0.018
ϕ35
Width across flat 15
Hollow diameter ϕ11
Cross section A-A
Z-axis lower end mechanical stopper position
50
70
20
Tapped hole for user wiring 6-M3×0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
39
39
10
10
60
60
4-M3×0.5 through-hole
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
7.8
7.8
7.8
7.8
Hollow diameter: ϕ11
View of C
125°
144°
144°
125°
R400
R156
R205
R150
125°
240
125°
Working envelope
ϕ27
C
501
150
5
0
142±2
150

If the robot enters the inside of the corner of R205 and dimension 240, the Y-axis and cover may be in contact with the base. So, do not perform such motion.

Working envelope

X-axis mechanical stopper position: 127°
Y-axis mechanical stopper position: 146°

(Option)

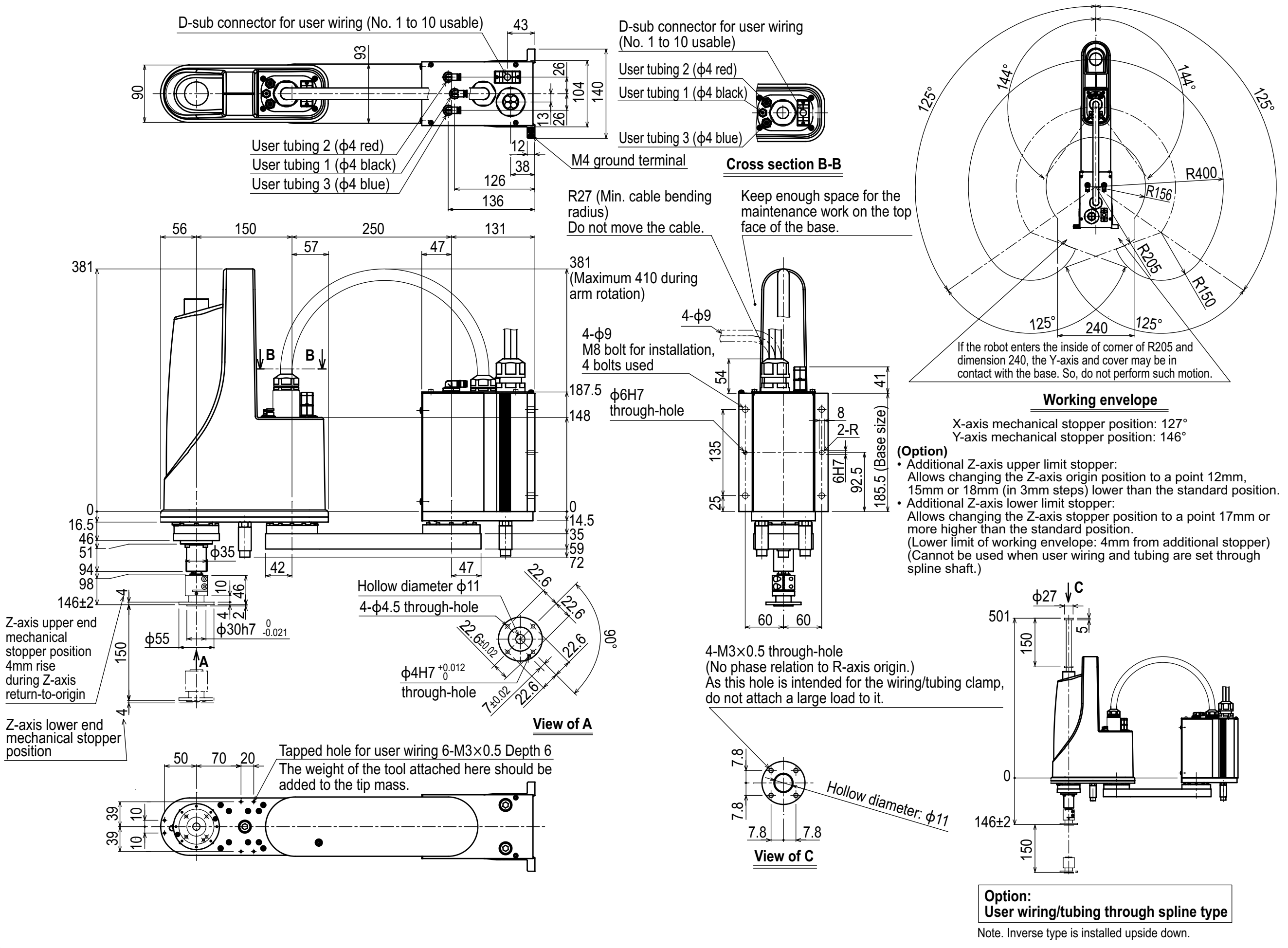
- Additional Z-axis upper limit stopper: Allows changing the Z-axis origin position to a point 12mm, 15mm or 18mm (in 3mm steps) lower than the standard position.
- Additional Z-axis lower limit stopper: Allows changing the Z-axis stopper position to a point 17mm or more higher than the standard position. (Lower limit of working envelope: 4mm from additional stopper) (Cannot be used when user wiring and tubing are set through spline shaft.)

Option: User wiring/tubing through spline type

Note. Inverse type is installed upside down.

YK400XGS

YK400XGS Tool flange mount type


D-sub connector for user wiring (No. 1 to 10 usable)
43
93
90
26
104
140
13
26
12
38
126
136
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
M4 ground terminal
D-sub connector for user wiring (No. 1 to 10 usable)
User tubing 2 (ϕ4 red)
User tubing 1 (ϕ4 black)
User tubing 3 (ϕ4 blue)
Cross section B-B
56
150
250
131
57
47
381
B
B
0
16.5
46
51
94
98
146±2
ϕ35
42
47
10
46
4
2
4
ϕ30h7 0 -0.021
ϕ55
150
4
A
4
14.5
35
59
72
187.5
148
381 (Maximum 410 during arm rotation)
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
4-ϕ9
M8 bolt for installation, 4 bolts used
ϕ6H7 through-hole
54
41
8
2-R
135
6H7
92.5
185.5 (Base size)
25
60
60
Hollow diameter ϕ11
4-ϕ4.5 through-hole
22.6
22.6
22.6±0.02
22.6
ϕ4H7 +0.012 0 through-hole
7±0.02
22.6
90°
View of A
Z-axis upper end mechanical stopper position
4mm rise during Z-axis return-to-origin
Z-axis lower end mechanical stopper position
50
70
20
39
39
10
10
Tapped hole for user wiring 6-M3×0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
4-M3×0.5 through-hole
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
7.8
7.8
7.8
7.8
Hollow diameter: ϕ11
View of C
125°
144°
144°
125°
R400
R156
R205
R150
125°
240
125°
If the robot enters the inside of corner of R205 and dimension 240, the Y-axis and cover may be in contact with the base. So, do not perform such motion.
Working envelope
ϕ27
C
501
150
5
0
146±2
150
Option: User wiring/tubing through spline type

X-axis mechanical stopper position: 127°
Y-axis mechanical stopper position: 146°

(Option)
- Additional Z-axis upper limit stopper:
  Allows changing the Z-axis origin position to a point 12mm, 15mm or 18mm (in 3mm steps) lower than the standard position.
- Additional Z-axis lower limit stopper:
  Allows changing the Z-axis stopper position to a point 17mm or more higher than the standard position.
  (Lower limit of working envelope: 4mm from additional stopper)
  (Cannot be used when user wiring and tubing are set through spline shaft.)

Note. Inverse type is installed upside down.

YK500XGS

Wall-mount / inverse type

● Arm length 500mm ● Maximum payload 10kg

YK500XGS-W
(Wall-mount)

YK500XGS-U
(Inverse wall-mount)

Ordering method

YK500XGS - ☐ - ☐ - ☐ - ☐

Model	Installation method [Note 1]	Z axis stroke	Tool flange	Cable
YK500XGS	W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)	200: 200mm 300: 300mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - **R3** - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		200 mm	300 mm	200 mm	300 mm	–
	Rotation angle		+/-105 °	+/-125 °	–		+/-360 °
AC servo motor output			400 W	200 W	200 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			7.6 m/sec		2.3 m/sec	1.7 m/sec	1700 °/sec (wall-mount) 800 °/sec (inverse wall-mount)
Maximum payload			10 kg (Standard specification), 9 kg (Option specifications)				
Standard cycle time: with 2kg payload [Note 2]			0.45 sec				
R-axis tolerable moment of inertia [Note 3]			0.30 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			30 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

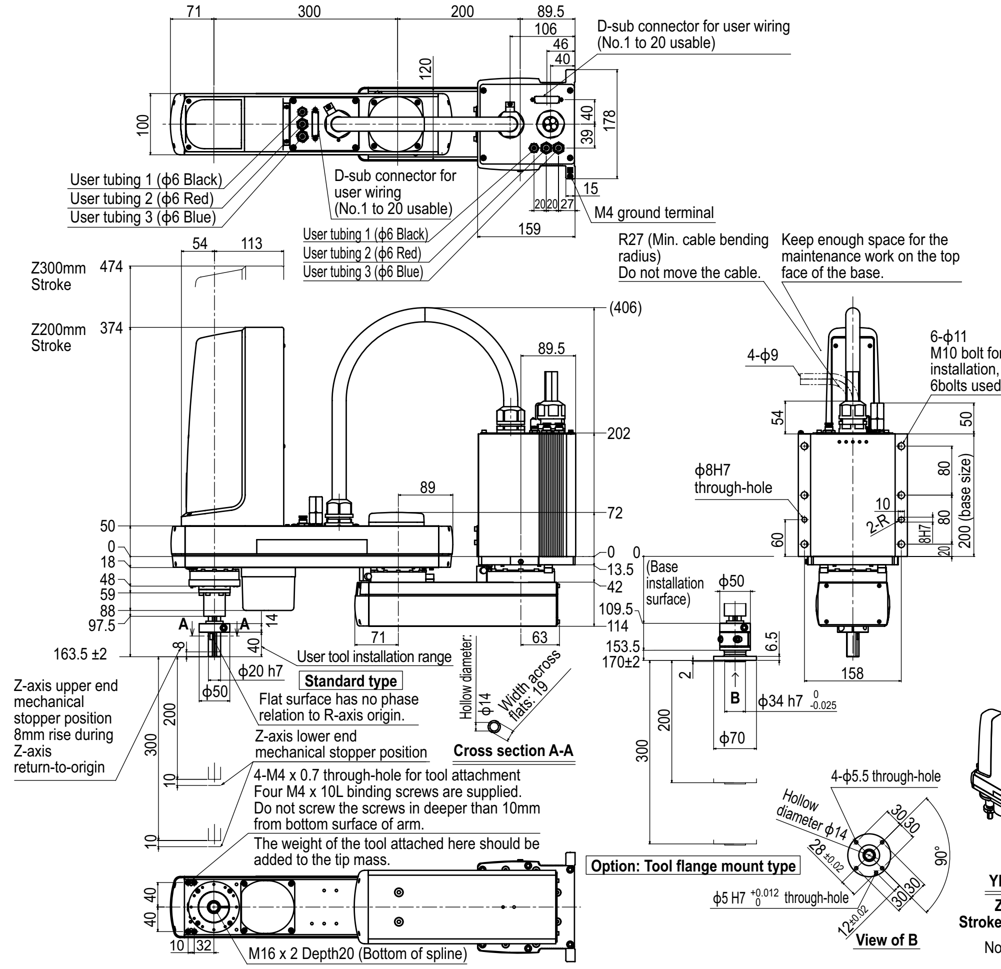
Controller

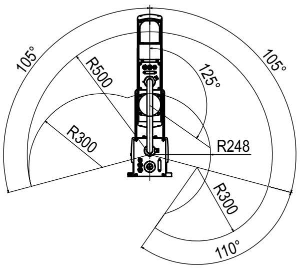
Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

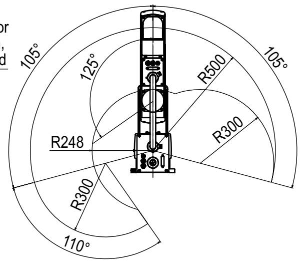
Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK500XGS


71
300
200
89.5
106
46
40
120
100
40
39
178
D-sub connector for user wiring (No.1 to 20 usable)
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
15
20
20
27
M4 ground terminal
159
54
113
Z300mm Stroke 474
Z200mm Stroke 374
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
(406)
89.5
202
89
72
4-ϕ9
6-ϕ11
M10 bolt for installation, 6bolts used
ϕ8H7 through-hole
54
50
80
10
2-R
80
8H7
20
200 (base size)
60
50
0
18
48
59
88
97.5
0
13.5
42
109.5
114
153.5
170±2
0
(Base installation surface)
ϕ50
6.5
158
A
A
14
8
40
163.5 ±2
71
63
User tool installation range
ϕ20 h7
ϕ50
Standard type
Flat surface has no phase relation to R-axis origin.
Hollow diameter: ϕ14
Width across flats: 19
Cross section A-A
2
B
ϕ34 h7 0 -0.025
ϕ70
200
300
Z-axis upper end mechanical stopper position 8mm rise during Z-axis return-to-origin
200
300
10
10
Z-axis lower end mechanical stopper position
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
40
40
10
32
M16 x 2 Depth20 (Bottom of spline)
Option: Tool flange mount type
4-ϕ5.5 through-hole
Hollow diameter ϕ14
28±0.02
30
30
30
30
90°
ϕ5 H7 +0.012 0 through-hole
12±0.02
View of B

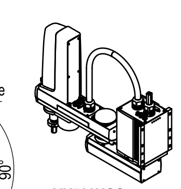


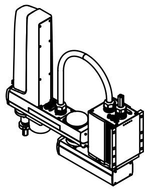
Working envelope of left-handed system



Working envelope of right-handed system

X-axis mechanical stopper position: 107°
Y-axis mechanical stopper position: 127°


YK500XGS
Z200mm
Stroke specification


YK500XGS
Z300mm
Stroke specification

Note. Inverse type is installed upside down.

YK600XGS

Wall-mount / inverse type

● Arm length 600mm ● Maximum payload 10kg

YK600XGS-W
(Wall-mount)

YK600XGS-U
(Inverse wall-mount)

Ordering method

YK600XGS - Installation method [Note 1] - Z axis stroke - Tool flange - Cable - RCX340-4 - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Model	Installation method [Note 1]	Z axis stroke	Tool flange	Cable
YK600XGS	W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)	200: 200mm 300: 300mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		300 mm	300 mm	200 mm	300 mm	–
	Rotation angle		+/-130 °	+/-145 °	–		+/-360 °
AC servo motor output			400 W	200 W	200 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec	1.7 m/sec	1700 °/sec (wall-mount) 800 °/sec (inverse wall-mount)
Maximum payload			10 kg (Standard specification), 9 kg (Option specifications)				
Standard cycle time: with 2kg payload [Note 2]			0.46 sec				
R-axis tolerable moment of inertia [Note 3]			0.30 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			31 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

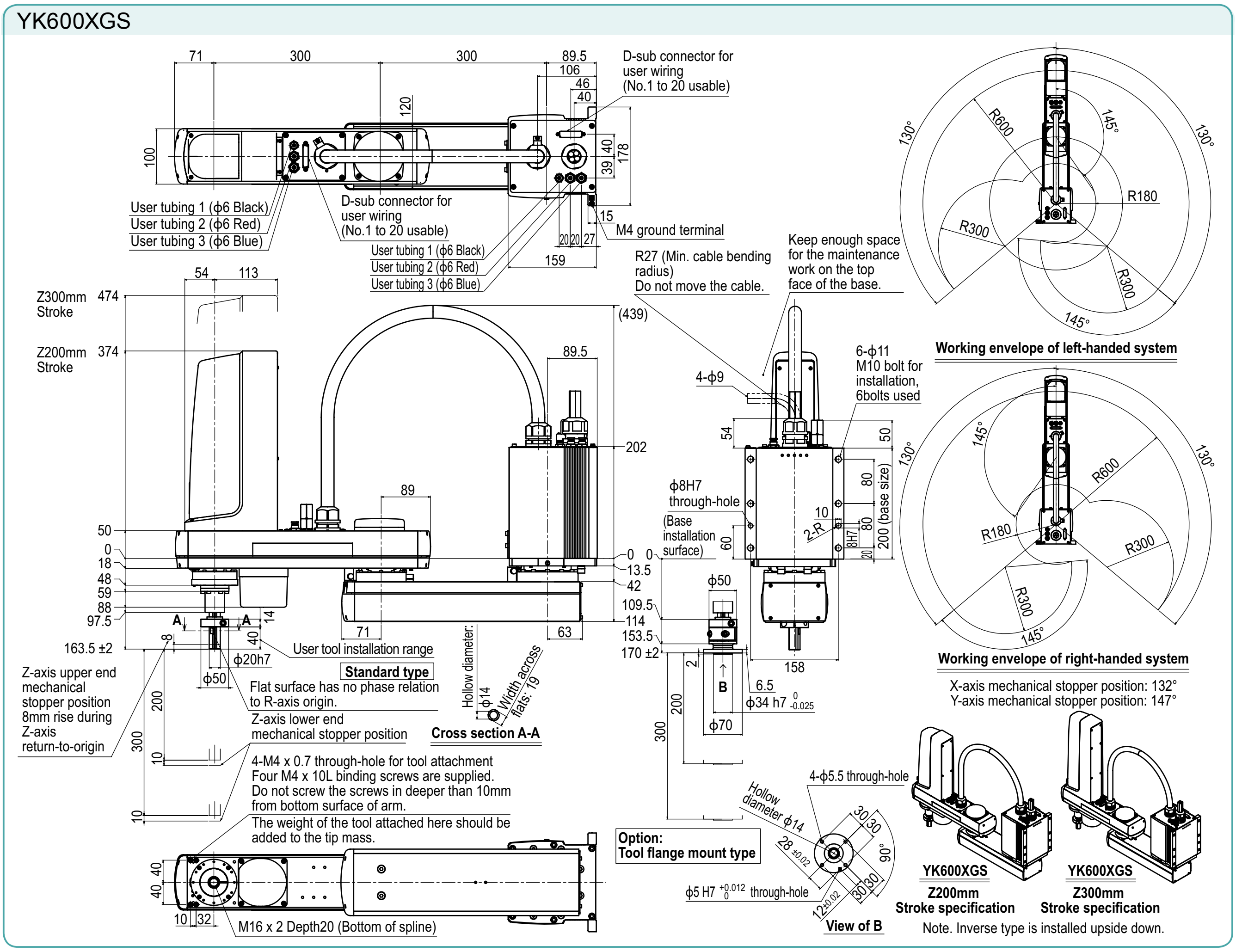
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XGS


71
300
300
89.5
106
46
40
120
100
39
40
178
15
20
20
27
159
D-sub connector for user wiring (No.1 to 20 usable)
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
M4 ground terminal
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
54
113
Z300mm Stroke
474
Z200mm Stroke
374
(439)
89.5
202
89
4-ϕ9
6-ϕ11 M10 bolt for installation, 6bolts used
ϕ8H7 through-hole
(Base installation surface)
60
80
80
50
10
2-R
8H7
20
200 (base size)
50
0
18
48
59
88
97.5
163.5 ±2
A
A
14
8
40
ϕ20h7
ϕ50
71
63
User tool installation range
Standard type
Flat surface has no phase relation to R-axis origin.
Z-axis lower end mechanical stopper position
Z-axis upper end mechanical stopper position 8mm rise during Z-axis return-to-origin
Hollow diameter: ϕ14
Width across flats: 19
Cross section A-A
0
0
13.5
42
109.5
114
153.5
170 ±2
ϕ50
2
B
6.5
ϕ34 h7 $^{0}_{-0.025}$
ϕ70
158
200
300
200
300
10
10
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
40
40
10
32
M16 x 2 Depth20 (Bottom of spline)
Option:
Tool flange mount type
4-ϕ5.5 through-hole
Hollow diameter ϕ14
30
30
90°
30
30
28 ±0.02
12±0.02
ϕ5 H7 $^{+0.012}_{0}$ through-hole
View of B
130°
130°
R600
145°
R180
R300
R300
145°
YK600XGS
Z200mm Stroke specification
YK600XGS
Z300mm Stroke specification

Working envelope of left-handed system

Working envelope of right-handed system

X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 147°

Note. Inverse type is installed upside down.

YK700XGS

Wall-mount / inverse type

● Arm length 700mm ● Maximum payload 20kg

Ordering method

YK700XGS				
Model	Installation method [Note 1]	Z axis stroke	Tool flange	Cable
	W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R3					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		300 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-130 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec (wall-mount) 480 °/sec (inverse wall-mount)
Maximum payload			20 kg (Standard specification), 19 kg (Option specifications)				
Standard cycle time: with 2kg payload [Note 2]			0.42 sec				
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 50 kg Z axis 400 mm: 52 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Controller

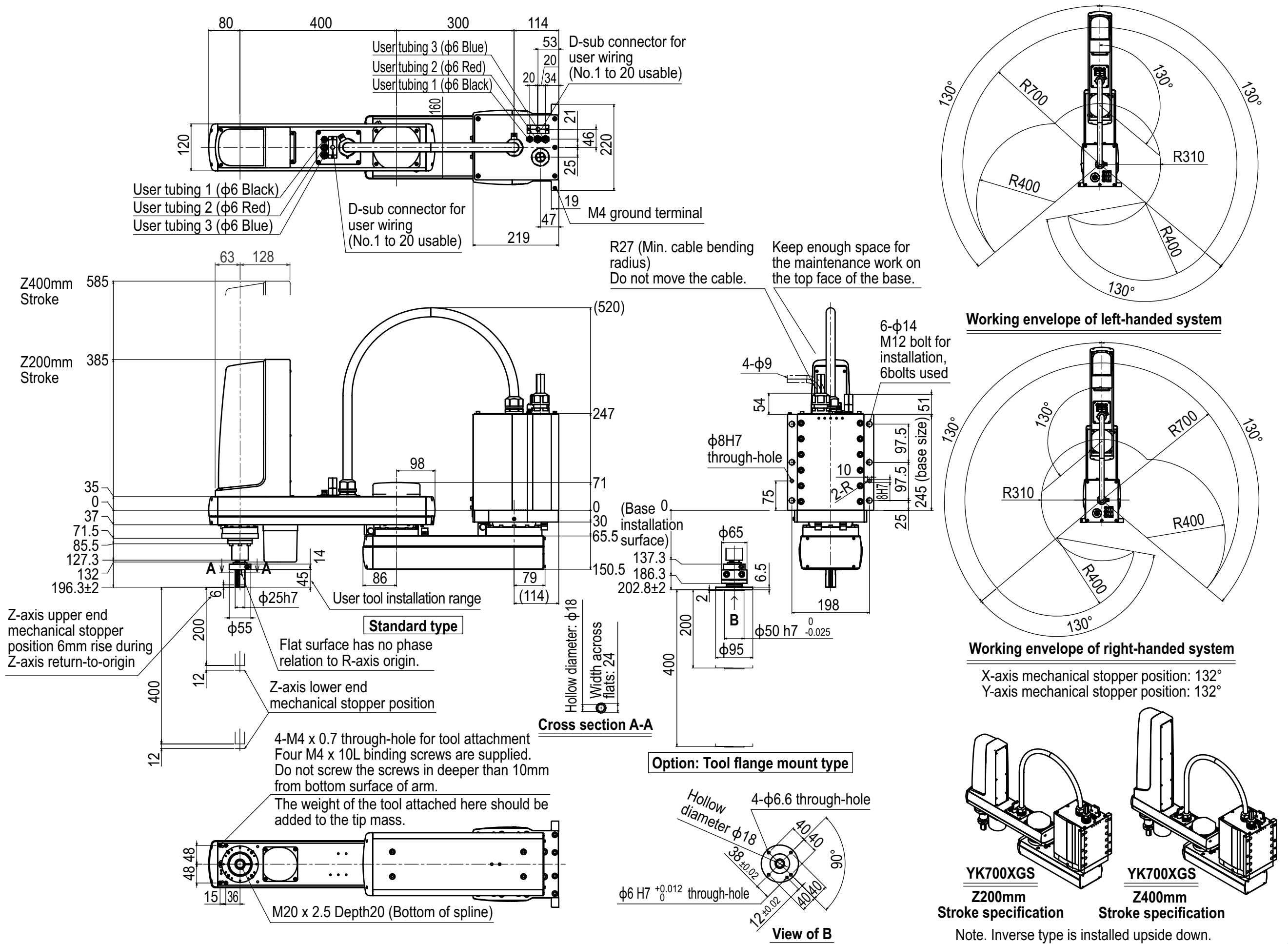
Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK700XGS


80
400
300
114
User tubing 3 (ϕ6 Blue)
User tubing 2 (ϕ6 Red)
User tubing 1 (ϕ6 Black)
D-sub connector for user wiring (No.1 to 20 usable)
M4 ground terminal
R27 (Min. cable bending radius) Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
Z400mm Stroke
Z200mm Stroke
Z-axis upper end mechanical stopper position 6mm rise during Z-axis return-to-origin
User tool installation range
Standard type
Flat surface has no phase relation to R-axis origin.
Z-axis lower end mechanical stopper position
4-M4 x 0.7 through-hole for tool attachment Four M4 x 10L binding screws are supplied. Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
M20 x 2.5 Depth20 (Bottom of spline)
(Base installation surface)
6-ϕ14 M12 bolt for installation, 6bolts used
4-ϕ9
ϕ8H7 through-hole
245 (base size)
Hollow diameter: ϕ18
Width across flats: 24
Cross section A-A
Option: Tool flange mount type
View of B
4-ϕ6.6 through-hole
ϕ6 H7 +0.012 0 through-hole
ϕ50 h7 0 -0.025
Working envelope of left-handed system
Working envelope of right-handed system
R700
R310
R400
130°
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 132°
YK700XGS Z200mm Stroke specification
YK700XGS Z400mm Stroke specification
Note. Inverse type is installed upside down.

YK800XGS

Wall-mount / inverse type

● Arm length 800mm ● Maximum payload 20kg

Ordering method

YK800XGS – ☐ – ☐ – ☐ – ☐ – **RCX340-4** – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Installation method [Note 1]	Z axis stroke	Tool flange	Cable
YK800XGS	W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)	200: 200mm 400: 400mm	No entry: None F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	**Arm length**		400 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-145 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			9.2 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec (wall-mount) 480 °/sec (inverse wall-mount)
Maximum payload			20 kg (Standard specification), 19 kg (Option specifications)				
Standard cycle time: with 2kg payload [Note 2]			0.48 sec				
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 52 kg Z axis 400 mm: 54 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

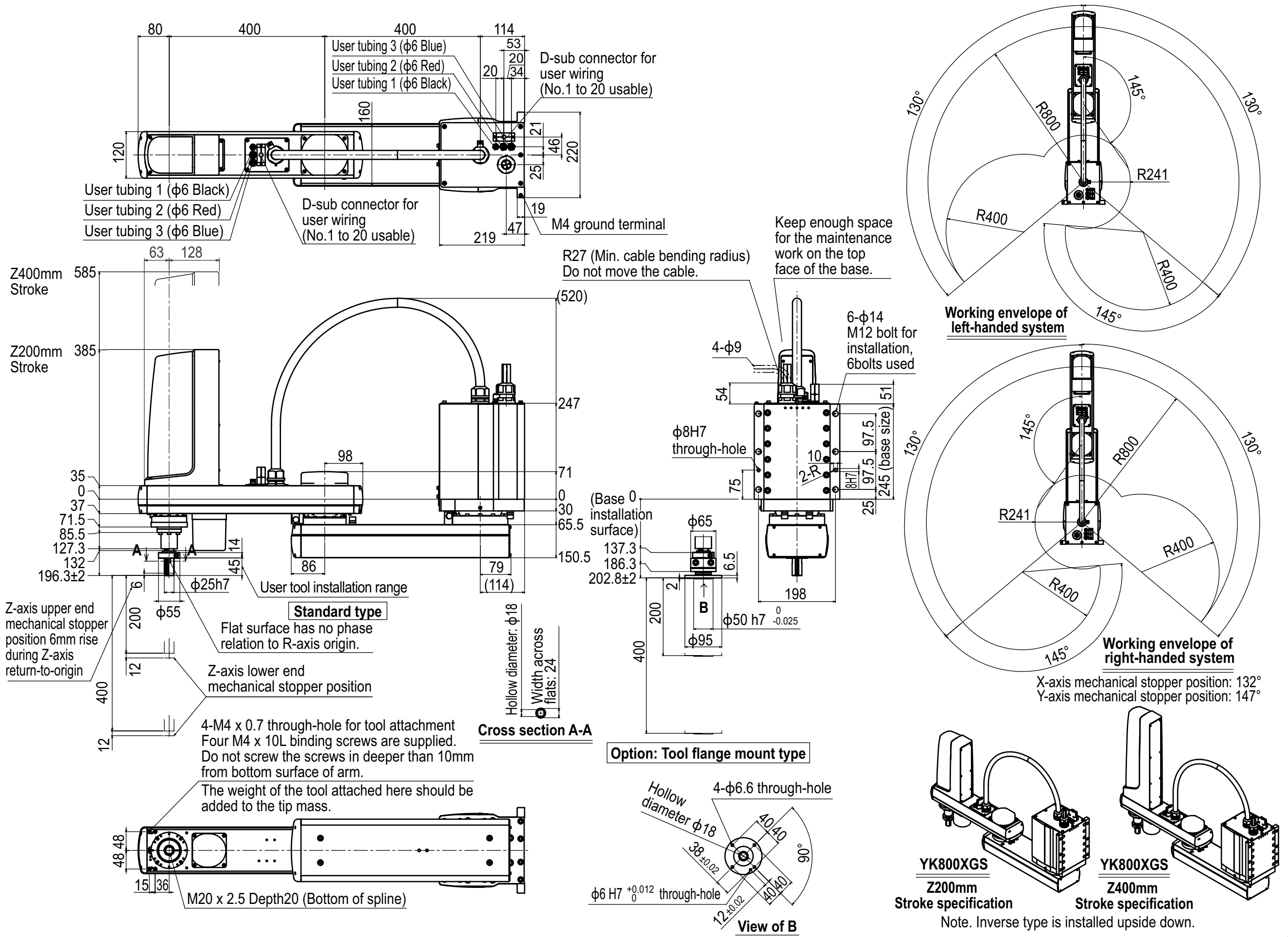
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK800XGS


80
400
400
114
53
20
34
20
User tubing 3 (ϕ6 Blue)
User tubing 2 (ϕ6 Red)
User tubing 1 (ϕ6 Black)
D-sub connector for user wiring (No.1 to 20 usable)
160
120
21
46
220
25
19
47
219
M4 ground terminal
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
63
128
R27 (Min. cable bending radius) Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
Z400mm Stroke
585
Z200mm Stroke
385
(520)
247
98
35
0
37
71.5
85.5
127.3
132
196.3±2
71
0
30
65.5
150.5
A
A
14
45
86
79
(114)
ϕ25h7
User tool installation range
6
ϕ55
200
Standard type
Flat surface has no phase relation to R-axis origin.
Z-axis upper end mechanical stopper position 6mm rise during Z-axis return-to-origin
12
Z-axis lower end mechanical stopper position
400
12
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
48
48
15
36
M20 x 2.5 Depth20 (Bottom of spline)
Hollow diameter: ϕ18
Width across flats: 24
Cross section A-A
4-ϕ9
54
ϕ8H7 through-hole
75
(Base installation surface)
0
137.3
186.3
202.8±2
10
2-R
8H7
97.5
97.5
245 (base size)
51
25
6-ϕ14 M12 bolt for installation, 6bolts used
ϕ65
6.5
2
B
ϕ50 h7 0 -0.025
198
200
ϕ95
400
Option: Tool flange mount type
Hollow diameter ϕ18
4-ϕ6.6 through-hole
40
40
38 ±0.02
90°
ϕ6 H7 +0.012 0 through-hole
12 ±0.02
40
40
View of B
130°
145°
130°
R800
R241
R400
R400
145°
Working envelope of left-handed system
145°
130°
130°
R800
R241
R400
R400
145°
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 147°
YK800XGS
Z200mm Stroke specification
YK800XGS
Z400mm Stroke specification
Note. Inverse type is installed upside down.

YK900XGS

Wall-mount / inverse type

- Arm length 900mm
- Maximum payload 20kg

Ordering method

YK900XGS	–		–		–		–	
Model	–	**Installation method** Note 1	–	**Z axis stroke**	–	**Tool flange**	–	**Cable**
		W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)		200: 200mm 400: 400mm		No entry: None F: With tool flange		3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240		R3					
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	**Arm length**		500 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			9.9 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec (wall-mount) 480 °/sec (inverse wall-mount)
Maximum payload			20 kg (Standard specification), 19 kg (Option specifications)				
Standard cycle time: with 2kg payload Note 2			0.49 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 54 kg Z axis 400 mm: 56 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
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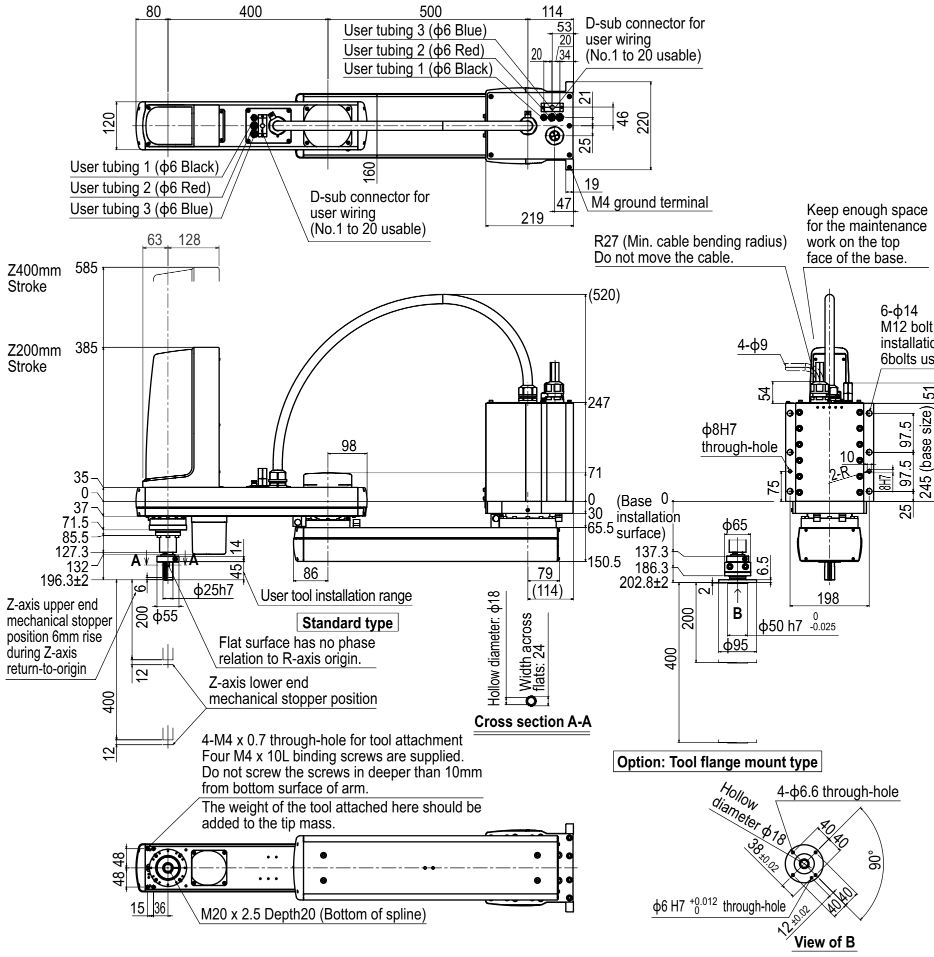
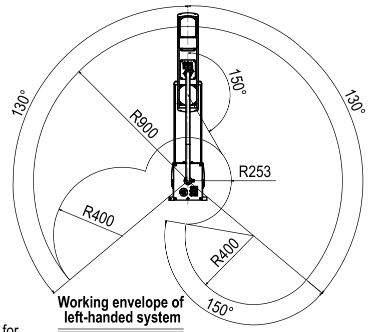
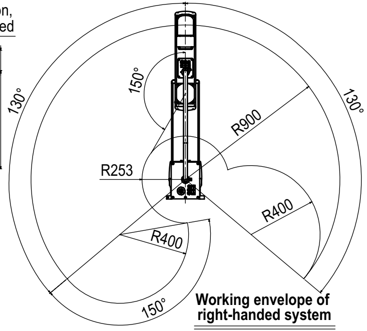
YK900XGS


80
400
500
114
53
20
20
34
User tubing 3 (ϕ6 Blue)
User tubing 2 (ϕ6 Red)
User tubing 1 (ϕ6 Black)
D-sub connector for user wiring (No.1 to 20 usable)
120
21
46
220
25
160
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
19
47
M4 ground terminal
219
63
128
Z400mm Stroke
585
Z200mm Stroke
385
(520)
247
98
71
35
0
37
71.5
85.5
127.3
132
196.3±2
0
30
65.5
150.5
A
A
14
45
ϕ25h7
86
79
(114)
6
200
ϕ55
12
400
12
User tool installation range
Standard type
Flat surface has no phase relation to R-axis origin.
Z-axis upper end mechanical stopper position 6mm rise during Z-axis return-to-origin
Z-axis lower end mechanical stopper position
Hollow diameter ϕ18
Width across flats: 24
Cross section A-A
R27 (Min. cable bending radius) Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
4-ϕ9
6-ϕ14 M12 bolt for installation, 6bolts used
54
ϕ8H7 through-hole
10
2-R
8H7
97.5
97.5
51
245 (base size)
75
25
(Base installation surface)
0
137.3
186.3
202.8±2
ϕ65
6.5
198
2
200
B
ϕ50 h7 0 -0.025
ϕ95
400
Option: Tool flange mount type
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
48
48
15
36
M20 x 2.5 Depth20 (Bottom of spline)
Hollow diameter ϕ18
4-ϕ6.6 through-hole
38±0.02
40
40
90°
ϕ6 H7 +0.012 0 through-hole
12±0.02
40
40
View of B

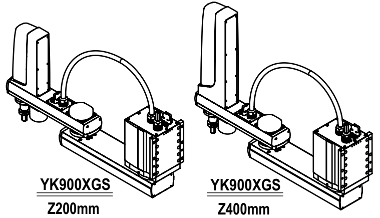


Working envelope of left-handed system



Working envelope of right-handed system

X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°



YK900XGS
Z200mm Stroke specification

YK900XGS
Z400mm Stroke specification

Note. Inverse type is installed upside down.

YK1000XGS

Wall-mount / inverse type

● Arm length 1000mm ● Maximum payload 20kg

Ordering method

YK1000XGS	-		-		-		-		
Model		**Installation method** Note 1		**Z axis stroke**		**Tool flange**		**Cable**	
		W: Wall-mount (same as per external view) U: Inverse wall-mount (upside down)		200: 200mm 400: 400mm		No entry: None F: With tool flange		3L: 3.5m 5L: 5m 10L: 10m	

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R3					
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Note 1. When installing the robot, always follow the specifications.
Do not install the ceiling-mount robot upside down or do not install the inverse type robot to a ceiling.
Incorrect installation can cause trouble or malfunction.

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		600 mm	400 mm	200 mm 400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–	+/-360 °
AC servo motor output			750 W	400 W	400 W	200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			10.6 m/sec		2.3 m/sec 1.7 m/sec	920 °/sec (wall-mount) 480 °/sec (inverse wall-mount)
Maximum payload			20 kg (Standard specification), 19 kg (Option specifications)			
Standard cycle time: with 2kg payload Note 2			0.49 sec			
R-axis tolerable moment of inertia Note 3			1.0 kgm^2			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			Z axis 200 mm: 56 kg Z axis 400 mm: 58 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

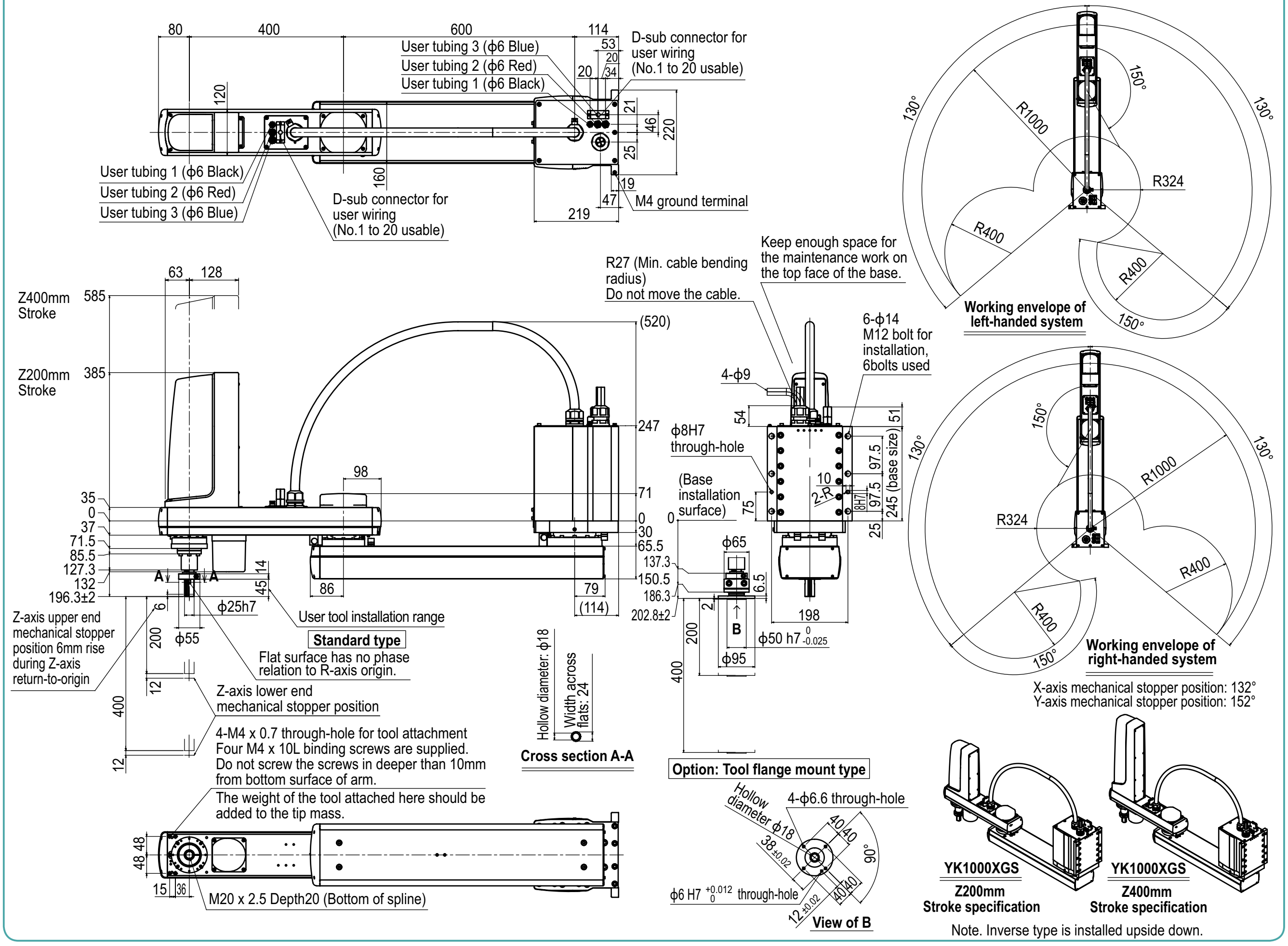
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK1000XGS


80
400
600
114
User tubing 3 (ϕ6 Blue)
User tubing 2 (ϕ6 Red)
User tubing 1 (ϕ6 Black)
53
20
20
34
D-sub connector for user wiring (No.1 to 20 usable)
120
21
46
220
25
19
160
User tubing 1 (ϕ6 Black)
User tubing 2 (ϕ6 Red)
User tubing 3 (ϕ6 Blue)
D-sub connector for user wiring (No.1 to 20 usable)
219
47
M4 ground terminal
R27 (Min. cable bending radius)
Do not move the cable.
Keep enough space for the maintenance work on the top face of the base.
(520)
63
128
Z400mm Stroke
585
Z200mm Stroke
385
247
98
71
0
30
65.5
150.5
35
0
37
71.5
85.5
127.3
132
196.3±2
45
14
86
79
(114)
A
A
ϕ25h7
ϕ55
6
200
12
400
12
Z-axis upper end mechanical stopper position 6mm rise during Z-axis return-to-origin
User tool installation range
Standard type
Flat surface has no phase relation to R-axis origin.
Z-axis lower end mechanical stopper position
4-M4 x 0.7 through-hole for tool attachment
Four M4 x 10L binding screws are supplied.
Do not screw the screws in deeper than 10mm from bottom surface of arm.
The weight of the tool attached here should be added to the tip mass.
48
48
15
36
M20 x 2.5 Depth20 (Bottom of spline)
Hollow diameter: ϕ18
Width across flats: 24
Cross section A-A
6-ϕ14
M12 bolt for installation, 6bolts used
4-ϕ9
54
51
ϕ8H7 through-hole
(Base installation surface)
75
10
2-R
8H7
97.5
97.5
245 (base size)
25
0
ϕ65
137.3
186.3
202.8±2
6.5
2
200
400
B
ϕ50 h7 0 -0.025
ϕ95
198
Option: Tool flange mount type
Hollow diameter ϕ18
4-ϕ6.6 through-hole
38 ±0.02
40
40
90°
ϕ6 H7 +0.012 0 through-hole
12 ±0.02
40
40
View of B
150°
130°
130°
R1000
R324
R400
R400
150°
Working envelope of left-handed system
150°
130°
130°
R1000
R324
R400
R400
150°
Working envelope of right-handed system
X-axis mechanical stopper position: 132°
Y-axis mechanical stopper position: 152°
YK1000XGS
Z200mm Stroke specification
YK1000XGS
Z400mm Stroke specification
Note. Inverse type is installed upside down.

YK250XGP

Dust-proof & drip-proof type

● Arm length 250mm ● Maximum payload 4kg

Ordering method

YK250XGP	150		S	
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		100 mm	150 mm	150 mm	–
	Rotation angle		+/-129 °	+/-134 °	–	+/-360 °
AC servo motor output (W)			200	150	50	100
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			4.5 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			4 kg			
Standard cycle time: with 2kg payload [Note 2]			0.57 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2			
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 4			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			21.5 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

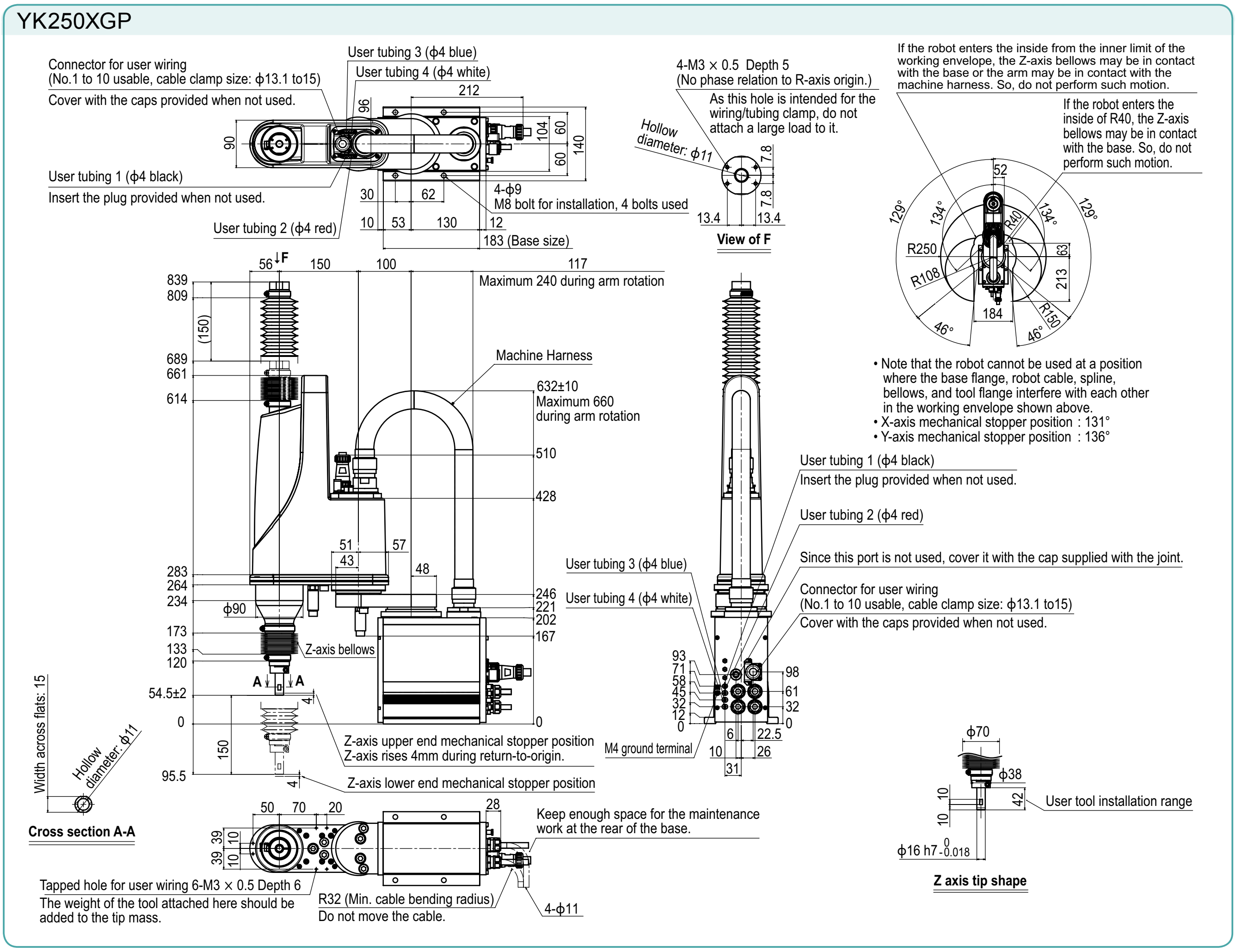
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

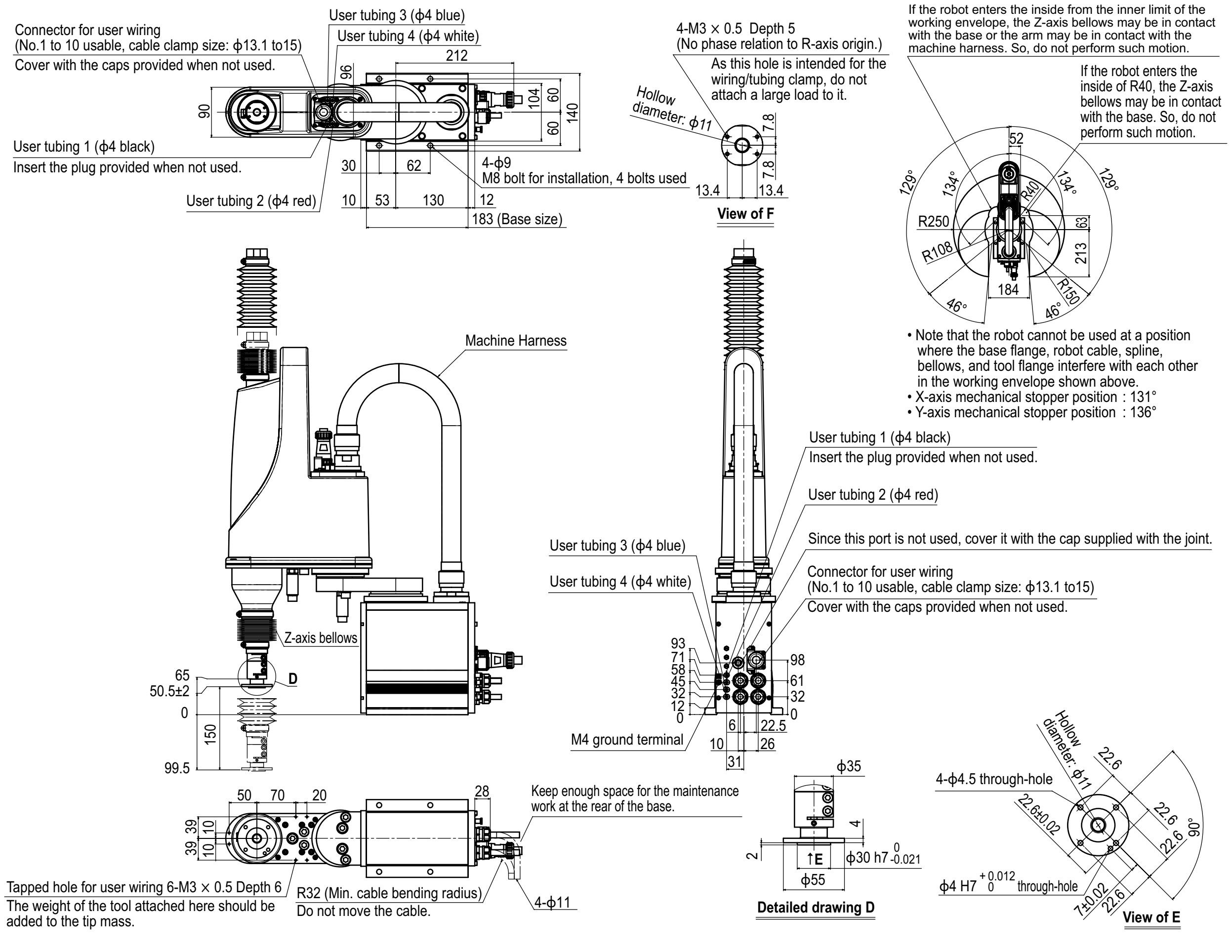
Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK250XGP


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
User tubing 2 (ϕ4 red)
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No position relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
If the robot enters the inside of R40, the Z-axis bellows may be in contact with the base. So, do not perform such motion.
52
129°
134°
R40
134°
129°
R250
63
R108
213
184
R150
46°
46°
• Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
• X-axis mechanical stopper position : 131°
• Y-axis mechanical stopper position : 136°
56
F
150
100
117
Maximum 240 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660 during arm rotation
510
428
51
57
43
48
283
264
234
ϕ90
173
133
120
246
221
202
167
Z-axis bellows
A
A
54.5±2
0
95.5
150
4
4
0
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
M4 ground terminal
6
22.5
10
26
31
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 0 -0.018
Z axis tip shape
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11

YK250XGP

YK250XGP Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
User tubing 2 (ϕ4 red)
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
If the robot enters the inside of R40, the Z-axis bellows may be in contact with the base. So, do not perform such motion.
52
129°
134°
R40
134°
129°
R250
63
R108
213
R150
184
46°
46°
• Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
• X-axis mechanical stopper position : 131°
• Y-axis mechanical stopper position : 136°
Machine Harness
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
Z-axis bellows
65
50.5±2
D
0
150
99.5
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
ϕ35
4
2
E
ϕ30 h7 0 -0.021
ϕ55
Detailed drawing D
4-ϕ4.5 through-hole
Hollow diameter: ϕ11
22.6
22.6±0.02
22.6
22.6
90°
ϕ4 H7 +0.012 0 through-hole
7±0.02
22.6
View of E
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11

YK350XGP

Dust-proof & drip-proof type

● Arm length 350mm ● Maximum payload 4kg

Ordering method

YK350XGP	-	150	-		-	S	-		-
Model	-	**Z axis stroke**	-	**Tool flange**	-	**Hollow shaft**	-	**Cable**	
		150: 150mm		No entry: None F: With tool flange		S: With hollow shaft		3L: 3.5m 5L: 5m 10L: 10m	

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		200 mm	150 mm	150 mm	–
	Rotation angle		+/-129 °	+/-134 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			5.6 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			4 kg			
Standard cycle time: with 2kg payload Note 2			0.57 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2			
Protection class Note 4			Equivalent to IP65 (IEC 60529)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 4			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			22 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

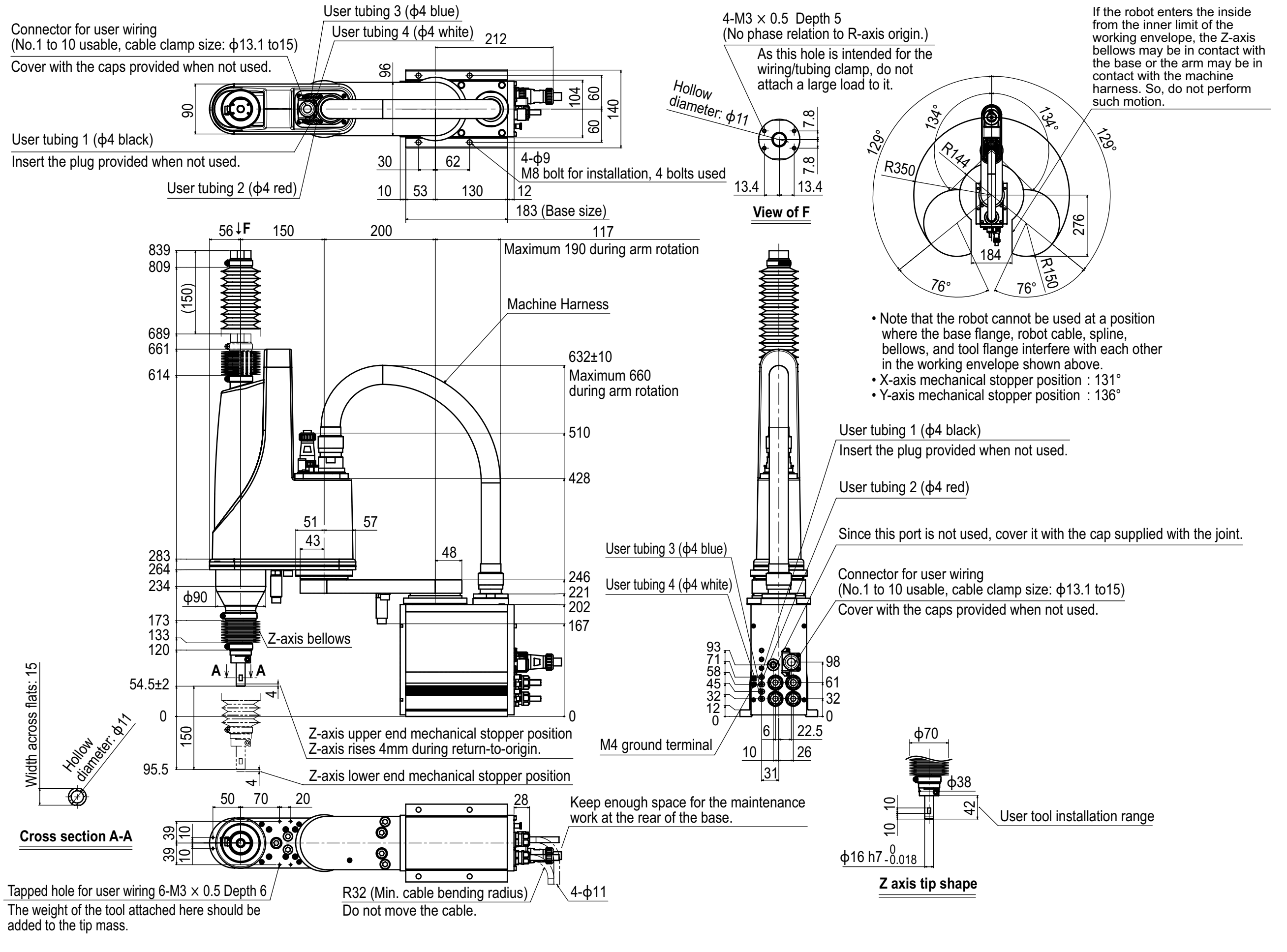
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

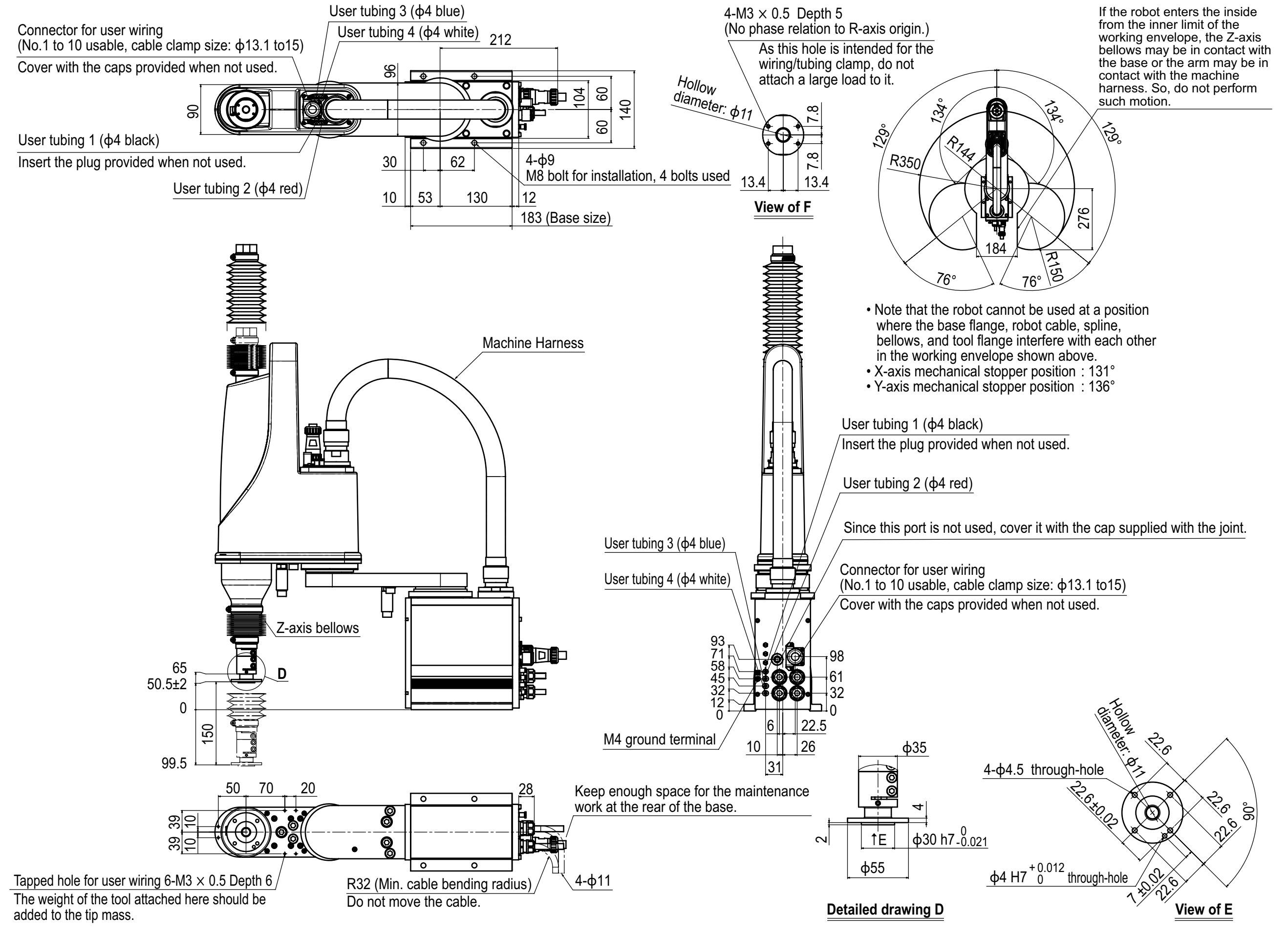
YK350XGP


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
60
140
30
62
10
53
130
12
4-ϕ9
M8 bolt for installation, 4 bolts used
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
129°
134°
134°
129°
R350
R144
276
184
R150
76°
76°
56
F
150
200
117
Maximum 190 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660
during arm rotation
510
428
51
57
43
48
283
264
234
ϕ90
246
221
202
167
173
133
120
Z-axis bellows
A
A
4
54.5±2
0
0
150
95.5
4
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
ϕ70
ϕ38
42
10
10
ϕ16 h7 0 -0.018
User tool installation range
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 136°

YK350XGP

YK350XGP Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
10
53
130
12
183 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
129°
134°
134°
129°
R144
R350
276
184
R150
76°
76°
Machine Harness
Z-axis bellows
D
65
50.5±2
0
150
99.5
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ35
4
2
E
ϕ30 h7 0 -0.021
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
4-ϕ4.5 through-hole
22.6±0.02
22.6
22.6
90°
ϕ4 H7 +0.012 0 through-hole
7 ±0.02
22.6
View of E

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 136°

YK400XGP

Dust-proof & drip-proof type

- Arm length 400mm
- Maximum payload 4kg

Ordering method

YK400XGP	150		S		RCX340-4								
Model	Z axis stroke	Tool flange	Hollow shaft	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		250 mm	150 mm	150 mm	–
	Rotation angle		+/-129 °	+/-144 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			6.1 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			4 kg			
Standard cycle time: with 2kg payload [Note 2]			0.57 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2			
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 4			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			22.5 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

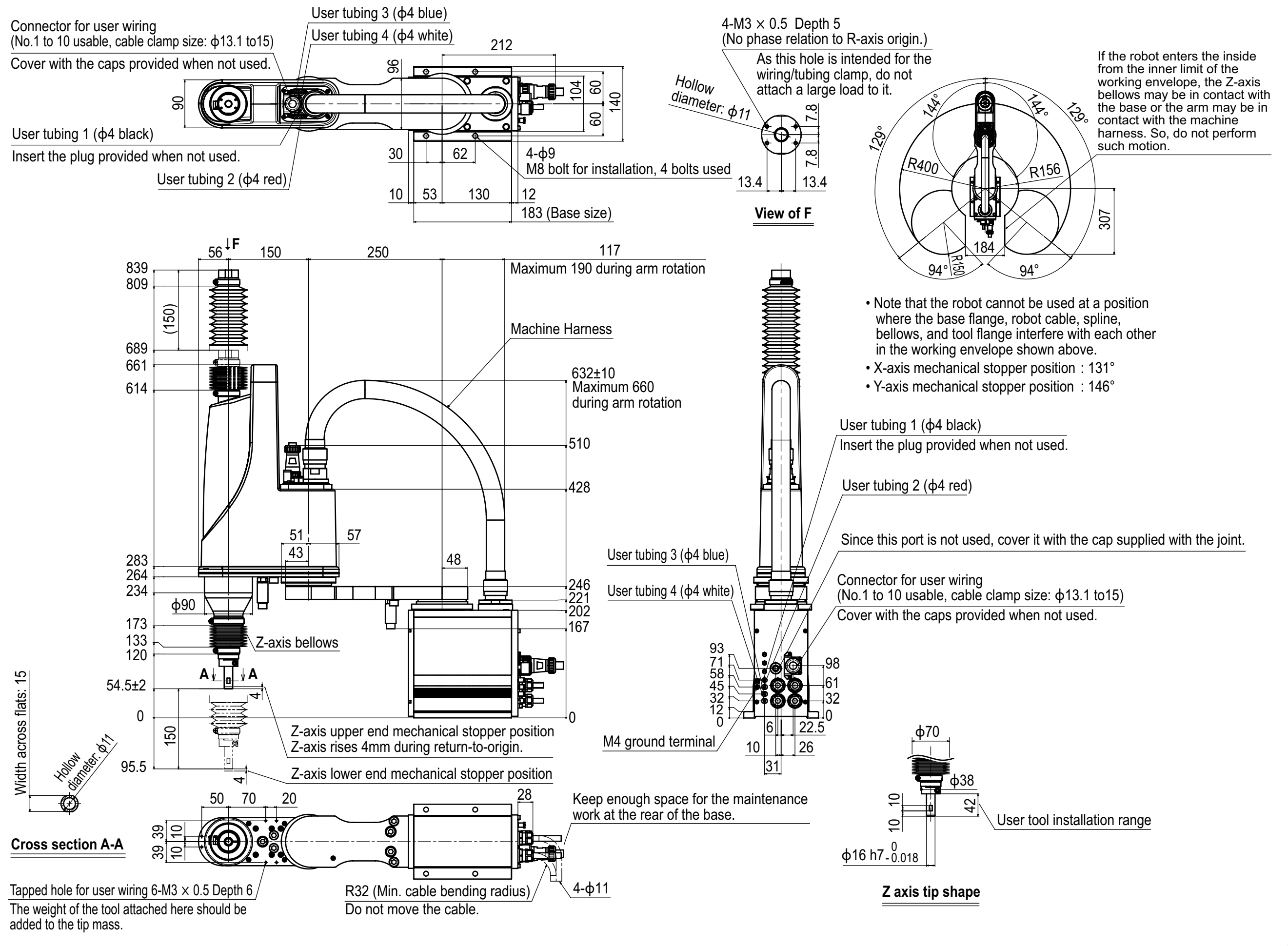
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

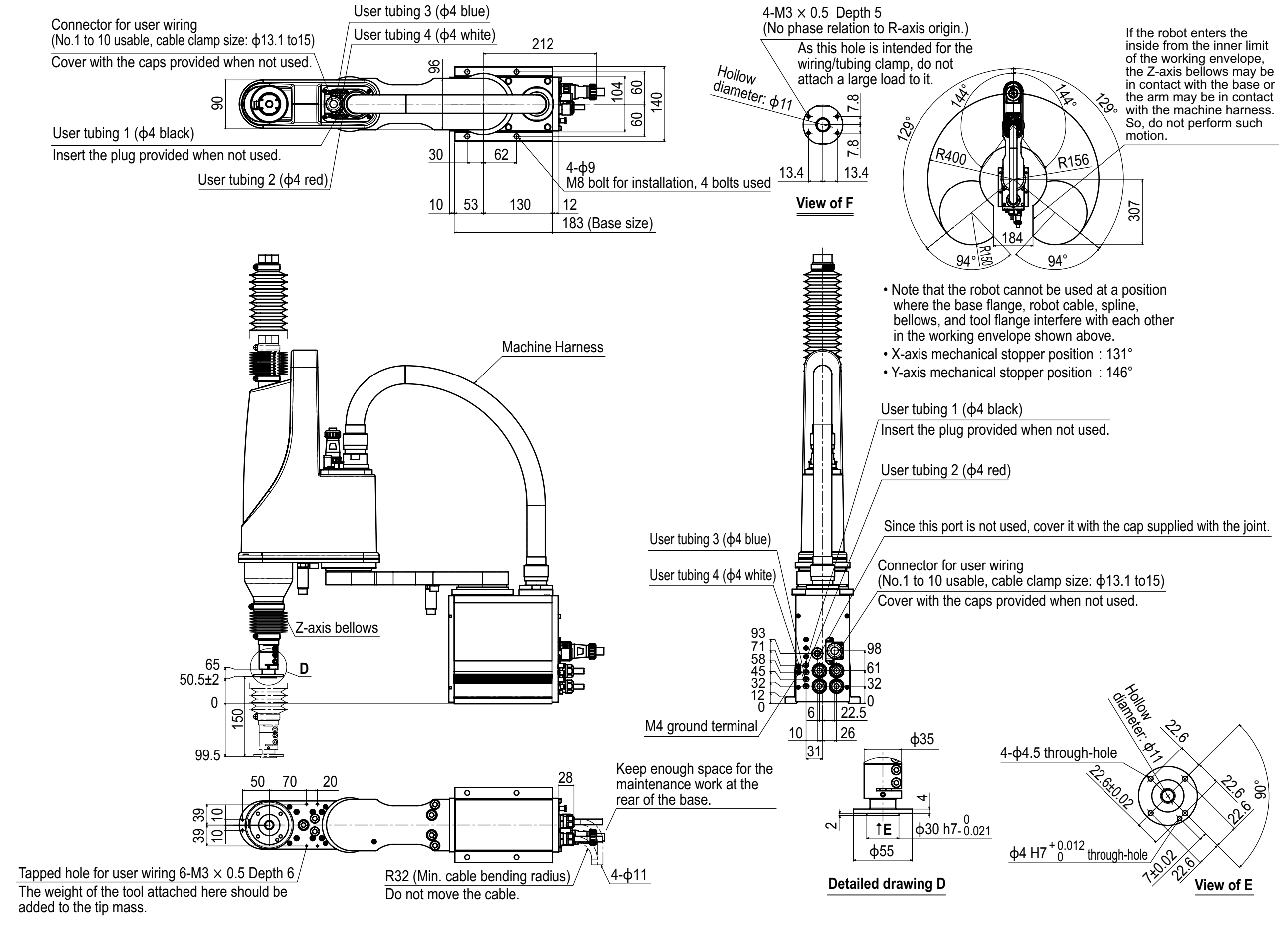
YK400XGP


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
144°
144°
129°
129°
R400
R156
307
184
R150
94°
94°
56
F
150
250
117
Maximum 190 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660
during arm rotation
510
428
51
57
43
48
283
264
234
ϕ90
173
133
120
Z-axis bellows
246
221
202
167
54.5±2
0
95.5
A
A
4
150
4
0
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
ϕ70
ϕ38
10
10
42
ϕ16 h7 0 -0.018
User tool installation range
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK400XGP

YK400XGP Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
144°
144°
129°
129°
R400
R156
R150
184
307
94°
94°
Machine Harness
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
Z-axis bellows
65
50.5±2
D
0
150
99.5
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ35
4
2
E
ϕ30 h7 0 -0.021
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
4-ϕ4.5 through-hole
22.6±0.02
22.6
22.6
90°
ϕ4 H7 +0.012 0 through-hole
7±0.02
22.6
View of E

If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XGLP

Dust-proof & drip-proof type

- Arm length 500mm
- Maximum payload 4kg

Ordering method

YK500XGLP	- 150	-	- S	-	- RCX340-4	-	-	-	-	-	-	-
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**	**Controller / Number of controllable axes**	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S	-	-	-	-	-	-
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		250 mm	250 mm	150 mm	–
	Rotation angle		+/-129 °	+/-144 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			5.1 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			4 kg			
Standard cycle time: with 2kg payload [Note 2]			0.74 sec			
R-axis tolerable moment of inertia [Note 3]			0.05 kgm^2			
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)			
User wiring			0.2 sq × 10 wires			
User tubing (Outer diameter)			ϕ 4 × 4			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			25 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

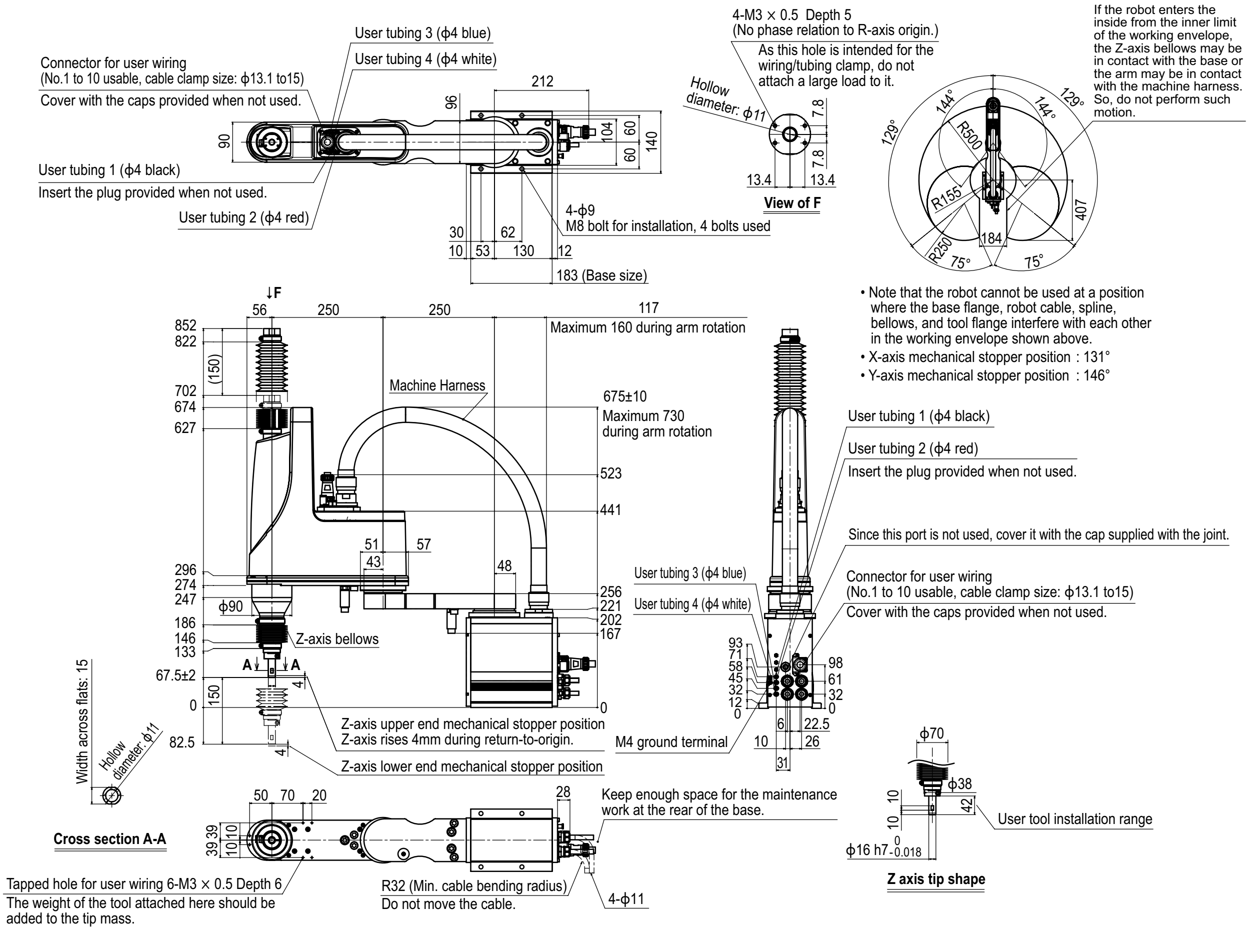
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

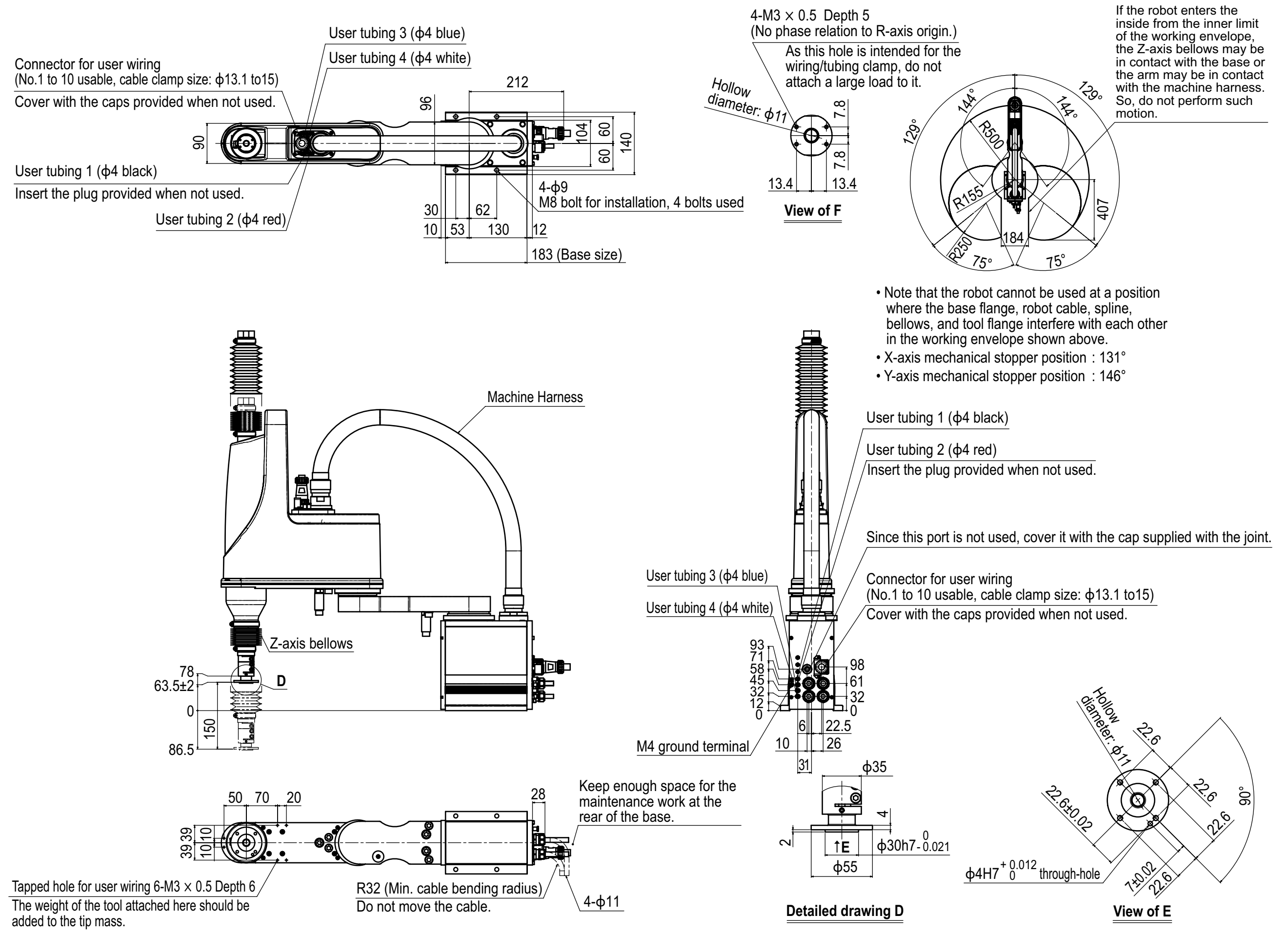
YK500XGLP


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
60
140
4-ϕ9
M8 bolt for installation, 4 bolts used
30
62
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
129°
144°
144°
129°
R500
R155
R250
407
184
75°
75°
↓F
56
250
250
117
Maximum 160 during arm rotation
852
822
(150)
702
674
627
Machine Harness
675±10
Maximum 730 during arm rotation
523
441
51
57
43
48
296
274
247
ϕ90
186
146
133
Z-axis bellows
A
A
67.5±2
4
150
0
82.5
4
256
221
202
167
0
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
M4 ground terminal
6
22.5
10
26
31
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 0 -0.018
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XGLP

YK500XGLP Tool flange mount type


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
4-ϕ9
M8 bolt for installation, 4 bolts used
30
62
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
144°
144°
129°
129°
R500
R155
R250
184
407
75°
75°
Machine Harness
Z-axis bellows
78
63.5±2
0
150
86.5
D
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ35
4
2
E
ϕ30h7-0.021 0
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
22.6
22.6
22.6
22.6±0.02
90°
7±0.02
ϕ4H7 +0.012 0 through-hole
View of E

If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XGP

Dust-proof & drip-proof type

- Arm length 500mm
- Maximum payload 8kg

Ordering method

Model	Z axis stroke	Tool flange	Cable
YK500XGP		**F**	
	200: 200mm 300: 300mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		**R3**					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		200 mm	300 mm	200 mm 300 mm	–
	Rotation angle		+/-130 °	+/-145 °	–	+/-360 °
AC servo motor output			400 W	200 W	200 W	200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			7.6 m/sec		2.3 m/sec 1.7 m/sec	1700 °/sec
Maximum payload			8 kg			
Standard cycle time: with 2kg payload [Note 2]			0.55 sec			
R-axis tolerable moment of inertia [Note 3]			0.3 kgm^2			
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)			
User wiring			0.2 sq × 20 wires			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			Z axis 200 mm: 32 kg Z axis 300 mm: 33 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

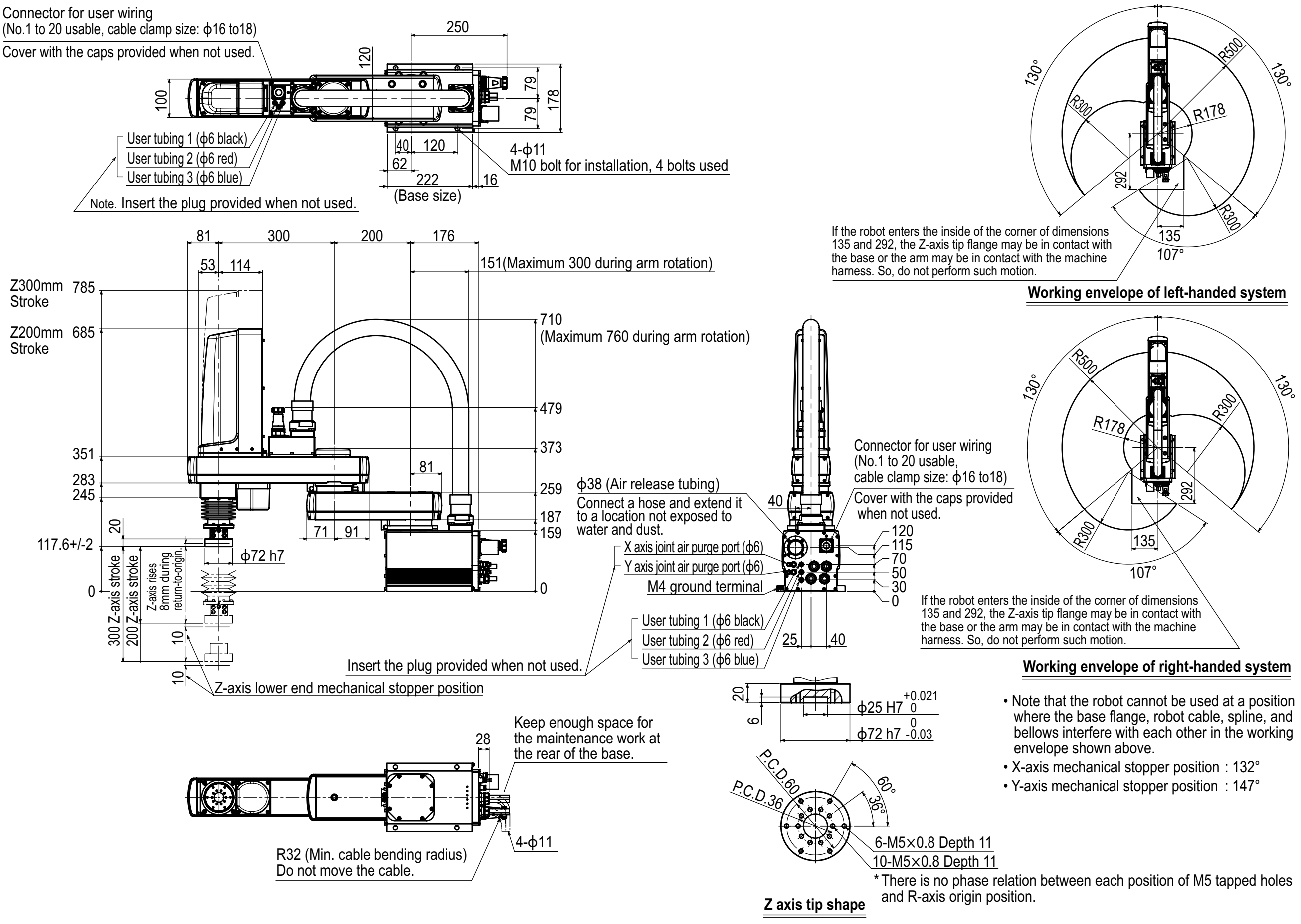
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK500XGP



Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
250
120
100
79
79
178
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
40
120
62
222
16
(Base size)
4-ϕ11
M10 bolt for installation, 4 bolts used
Note. Insert the plug provided when not used.
81
300
200
176
53
114
151(Maximum 300 during arm rotation)
Z300mm Stroke
785
Z200mm Stroke
685
710
(Maximum 760 during arm rotation)
479
373
351
283
245
81
259
187
159
71
91
117.6+/-2
20
ϕ72 h7
0
0
300 Z-axis stroke
200 Z-axis stroke
Z-axis rises 8mm during return-to-origin.
10
10
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
Insert the plug provided when not used.
Z-axis lower end mechanical stopper position
40
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
120
115
70
50
30
0
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
25
40
Keep enough space for the maintenance work at the rear of the base.
28
4-ϕ11
R32 (Min. cable bending radius)
Do not move the cable.
20
6
ϕ25 H7 +0.021 0
ϕ72 h7 0 -0.03
P.C.D.60
P.C.D.36
60°
36°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11
*There is no phase relation between each position of M5 tapped holes and R-axis origin position.
Z axis tip shape
130°
130°
R500
R300
R178
292
R300
135
107°
If the robot enters the inside of the corner of dimensions 135 and 292, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
Working envelope of left-handed system
130°
130°
R500
R300
R178
292
R300
135
107°
If the robot enters the inside of the corner of dimensions 135 and 292, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
Working envelope of right-handed system

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 147°

YK600XGLP

Dust-proof & drip-proof type

● Arm length 600mm ● Maximum payload 4kg

Ordering method

YK600XGLP	150		S		
Model	**Z axis stroke**	**Tool flange**	**Hollow shaft**	**Cable**	
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m	

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	**Arm length**		350 mm	250 mm	150 mm	–
	Rotation angle		+/-129 °	+/-144 °	–	+/-360 °
AC servo motor output			200 W	150 W	50 W	100 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			4.9 m/sec		1.1 m/sec	1020 °/sec
Maximum payload			4 kg			
Standard cycle time: with 2kg payload Note 2			0.74 sec			
R-axis tolerable moment of inertia Note 3			0.05 kgm^2			
Protection class Note 4			Equivalent to IP65 (IEC 60529)			
User wiring (sq × wires)			0.2 × 10			
User tubing (Outer diameter)			ϕ 4 × 4			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			26 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

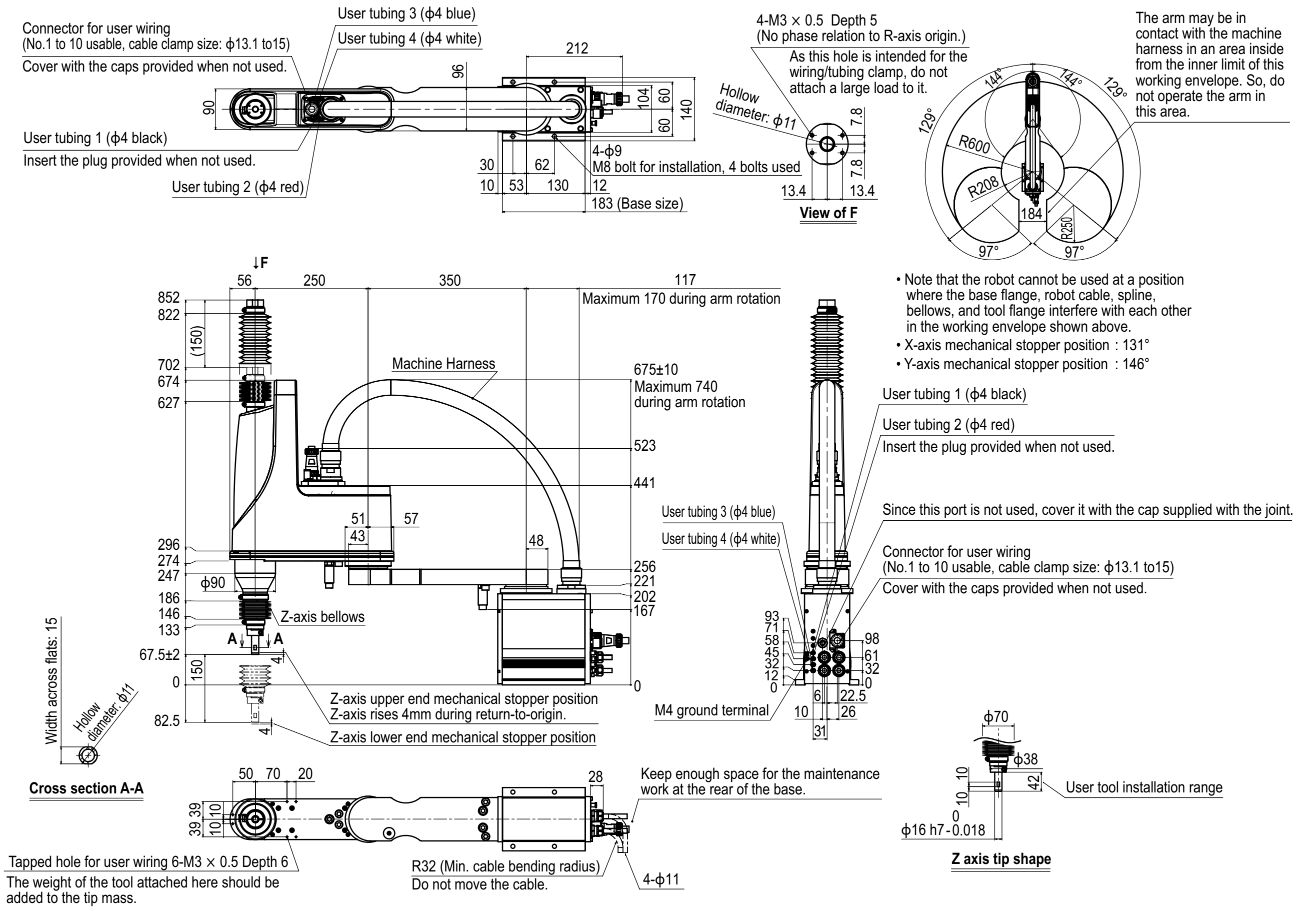
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

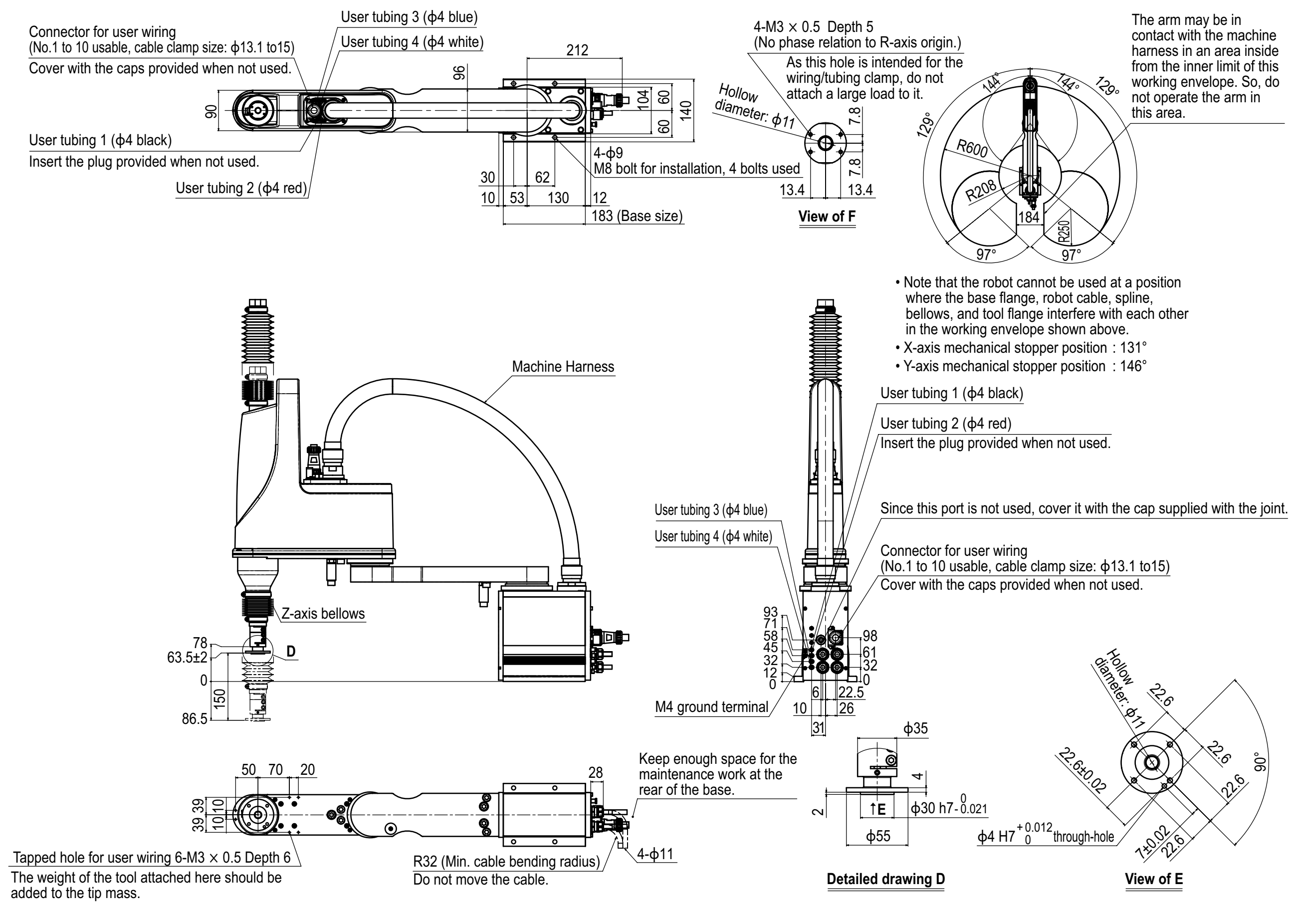
Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XGLP


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
10
53
130
4-ϕ9
M8 bolt for installation, 4 bolts used
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
144°
144°
129°
129°
R600
R208
184
R250
97°
97°
The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.
↓F
56
250
350
117
Maximum 170 during arm rotation
852
822
(150)
702
674
627
Machine Harness
675±10
Maximum 740
during arm rotation
523
441
51
57
43
48
296
274
247
ϕ90
186
146
133
Z-axis bellows
A
A
67.5±2
150
0
82.5
4
4
256
221
202
167
0
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
M4 ground terminal
6
22.5
10
26
31
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ70
ϕ38
10
10
42
0
ϕ16 h7 -0.018
User tool installation range
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK600XGLP Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
60
140
30
62
10
53
130
12
183 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
144°
144°
129°
129°
R600
R208
184
R250
97°
97°
Machine Harness
Z-axis bellows
78
63.5±2
0
150
86.5
D
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
M4 ground terminal
6
22.5
10
26
31
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
ϕ35
4
2
↑E
ϕ30 h7-0.021 0
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
22.6
22.6
22.6
22.6±0.02
90°
7±0.02
ϕ4 H7 +0.012 0 through-hole
View of E

The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK600XGP

Dust-proof & drip-proof type

● Arm length 600mm ● Maximum payload 8kg

Ordering method

YK600XGP		F		RCX340-4							
Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	200: 200mm 300: 300mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240		R3					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis	R-axis
Axis specifications	Arm length		300 mm	300 mm	200 mm 300 mm	–
	Rotation angle		+/-130 °	+/-145 °	–	+/-360 °
AC servo motor output			400 W	200 W	200 W	200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw	Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled			
		Speed reducer to output	Direct-coupled			
Repeatability [Note 1]			+/-0.01 mm		+/-0.01 mm	+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec 1.7 m/sec	1700 °/sec
Maximum payload			8 kg			
Standard cycle time: with 2kg payload [Note 2]			0.56 sec			
R-axis tolerable moment of inertia [Note 3]			0.3 kgm^2			
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)			
User wiring (sq × wires)			0.2 × 20			
User tubing (Outer diameter)			ϕ 6 × 3			
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m			
Weight			Z axis 200 mm: 33 kg Z axis 300 mm: 34 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

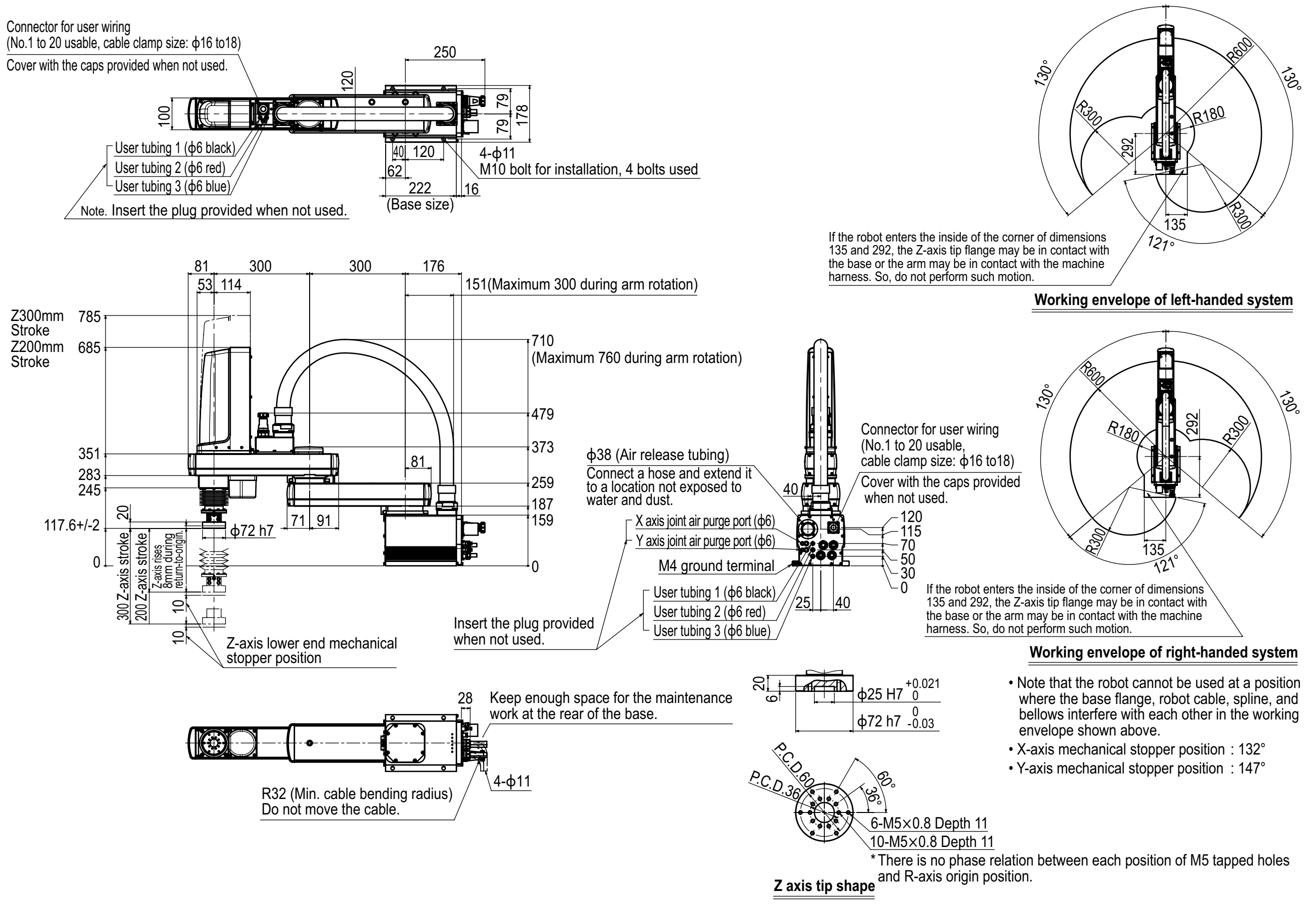
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XGP


Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
250
120
100
79
79
178
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Note. Insert the plug provided when not used.
40
120
62
222
(Base size)
16
4-ϕ11
M10 bolt for installation, 4 bolts used
81
300
300
176
53
114
151(Maximum 300 during arm rotation)
Z300mm Stroke
Z200mm Stroke
785
685
710
(Maximum 760 during arm rotation)
479
373
259
187
159
0
351
283
245
117.6+/-2
0
20
81
71
91
ϕ72 h7
300 Z-axis stroke
200 Z-axis stroke
Z-axis rises 8mm during return-to-origin.
10
10
Z-axis lower end mechanical stopper position
Insert the plug provided when not used.
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
40
25
40
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
120
115
70
50
30
0
28
Keep enough space for the maintenance work at the rear of the base.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
130°
130°
R600
R300
R180
292
135
R300
121°
130°
130°
R600
R180
292
R300
R300
135
121°
20
6
ϕ25 H7 +0.021 0
ϕ72 h7 0 -0.03
P.C.D.60
P.C.D.36
60°
36°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11

If the robot enters the inside of the corner of dimensions 135 and 292, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of left-handed system

If the robot enters the inside of the corner of dimensions 135 and 292, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of right-handed system

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 147°

*There is no phase relation between each position of M5 tapped holes and R-axis origin position.

Z axis tip shape

YK600XGHP

Dust-proof & drip-proof type

- Arm length 600mm
- Maximum payload 18kg

Ordering method

YK600XGHP		F	
Model	**Z axis stroke**	**Tool flange**	**Cable**
	200: 200mm 400: 400mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4							
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240		R3					
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		200 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability [Note 1]			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			7.7 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			18 kg				
Standard cycle time: with 2kg payload [Note 2]			0.57 sec				
R-axis tolerable moment of inertia [Note 3]			1.0 kgm^2				
Protection class [Note 4]			Equivalent to IP65 (IEC 60529)				
User wiring (sq × wires)			0.2 × 20				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 52 kg Z axis 400 mm: 54 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

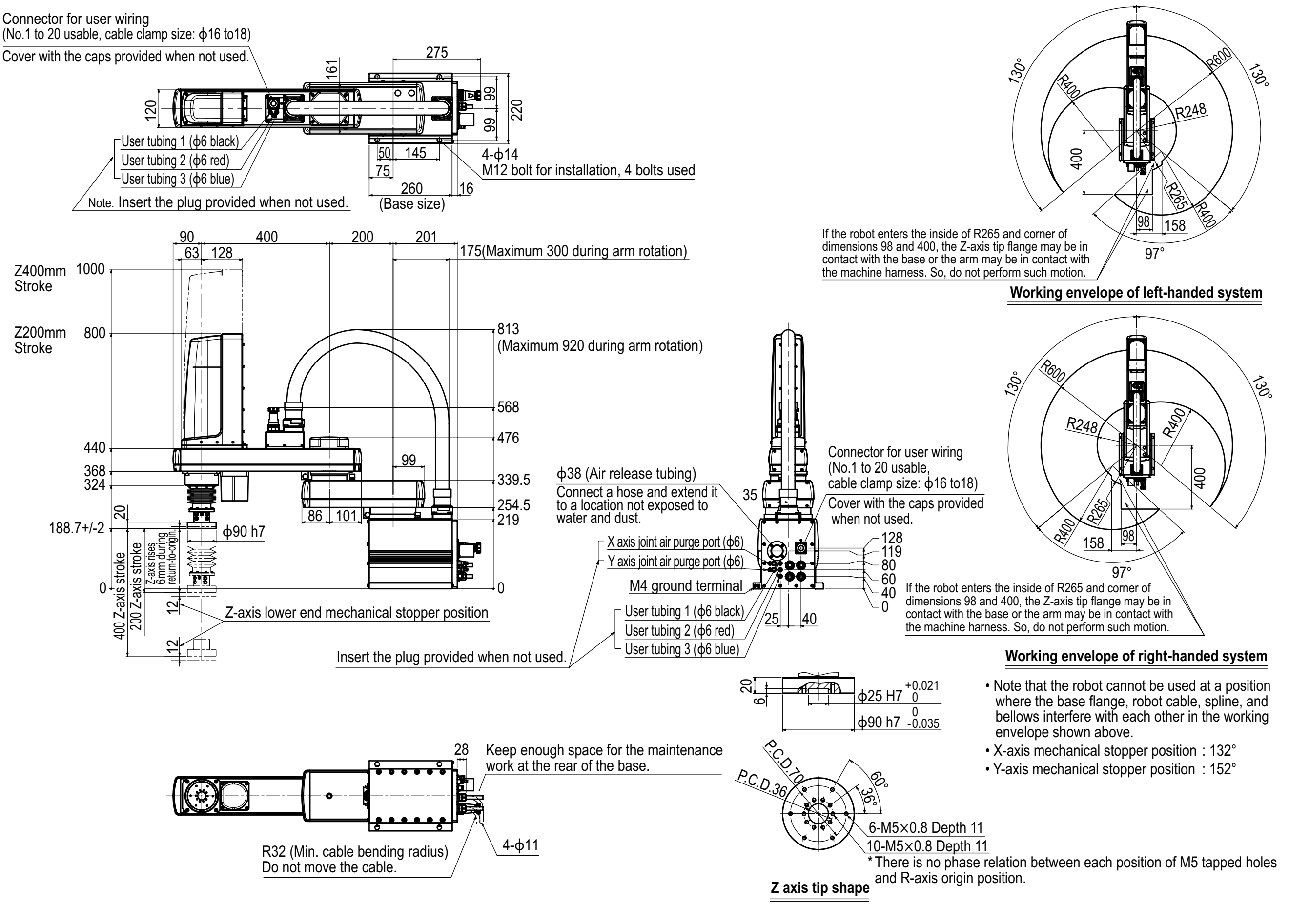
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK600XGHP


Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
275
161
120
99
99
220
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Note. Insert the plug provided when not used.
50 145
75
260
16
(Base size)
4-ϕ14
M12 bolt for installation, 4 bolts used
90 400 200 201
63 128
175(Maximum 300 during arm rotation)
Z400mm Stroke 1000
Z200mm Stroke 800
813
(Maximum 920 during arm rotation)
568
476
440
368
324
99
339.5
254.5
219
86 101
188.7+/-2
20
ϕ90 h7
0
400 Z-axis stroke
200 Z-axis stroke
Z-axis rises 6mm during return-to-origin.
12
12
Z-axis lower end mechanical stopper position
Insert the plug provided when not used.
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
35
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
128
119
80
60
40
0
25 40
130°
130°
R600
R400
R248
400
R265
R400
98 158
97°
Working envelope of left-handed system
130°
130°
R600
R248
R400
400
R265
R400
158 98
97°
Working envelope of right-handed system
20
6
ϕ25 H7 +0.021 0
ϕ90 h7 0 -0.035
P.C.D.70
P.C.D.36
60°
36°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11
Z axis tip shape
28
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
R32 (Min. cable bending radius)
Do not move the cable.

If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

*There is no phase relation between each position of M5 tapped holes and R-axis origin position.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 152°

YK700XGP

Dust-proof & drip-proof type

● Arm length 700mm ● Maximum payload 18kg

Ordering method

YK700XGP	-	- F	-	- RCX340-4	-	-	-	-	-	-	-
Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	200: 200mm 400: 400mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	-	R3	-	-	-	-	-
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		300 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			8.4 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			18 kg				
Standard cycle time: with 2kg payload Note 2			0.52 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
Protection class Note 4			Equivalent to IP65 (IEC 60529)				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 54 kg Z axis 400 mm: 56 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

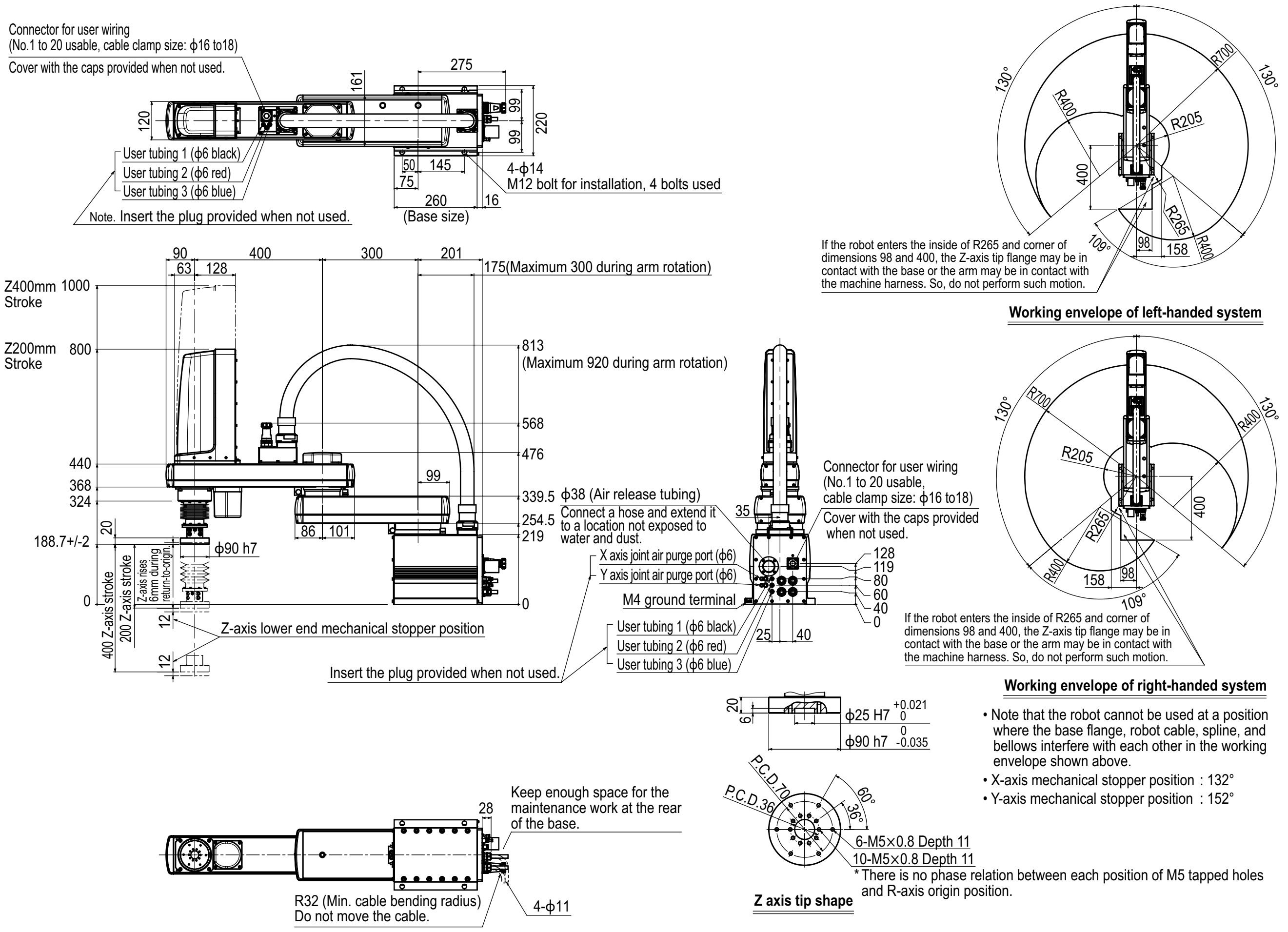
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK700XGP


Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
275
161
120
99
99
220
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
50
145
75
4-ϕ14
M12 bolt for installation, 4 bolts used
260
16
(Base size)
Note. Insert the plug provided when not used.
90
63
128
400
300
201
175(Maximum 300 during arm rotation)
Z400mm Stroke 1000
Z200mm Stroke 800
813
(Maximum 920 during arm rotation)
568
476
440
368
324
99
339.5
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
254.5
219
86
101
20
188.7+/-2
ϕ90 h7
0
Z-axis rises 6mm during return-to-origin.
400 Z-axis stroke
200 Z-axis stroke
12
12
Z-axis lower end mechanical stopper position
Insert the plug provided when not used.
35
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
128
119
80
60
40
0
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
25
40
20
6
ϕ25 H7 +0.021 0
ϕ90 h7 0 -0.035
P.C.D.70
P.C.D.36
60°
30°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11
Z axis tip shape
28
Keep enough space for the maintenance work at the rear of the base.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
130°
130°
R700
R400
R205
400
R265
R400
109°
98
158
Working envelope of left-handed system
130°
130°
R700
R400
R205
400
R265
R400
158
98
109°
Working envelope of right-handed system

* There is no phase relation between each position of M5 tapped holes and R-axis origin position.

If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 152°

YK800XGP

Dust-proof & drip-proof type

Arm length 800mm **Maximum payload 18kg**

Ordering method

YK800XGP - ☐ - **F** - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK800XGP	200: 200mm 400: 400mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240 - ☐ - **R3** - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	**Arm length**		400 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			9.2 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			18 kg				
Standard cycle time: with 2kg payload Note 2			0.58 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
Protection class Note 4			Equivalent to IP65 (IEC 60529)				
User wiring			0.2 sq × 20 wires				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 56 kg Z axis 400 mm: 58 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

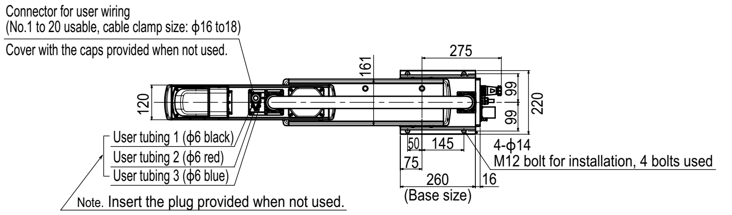
Controller

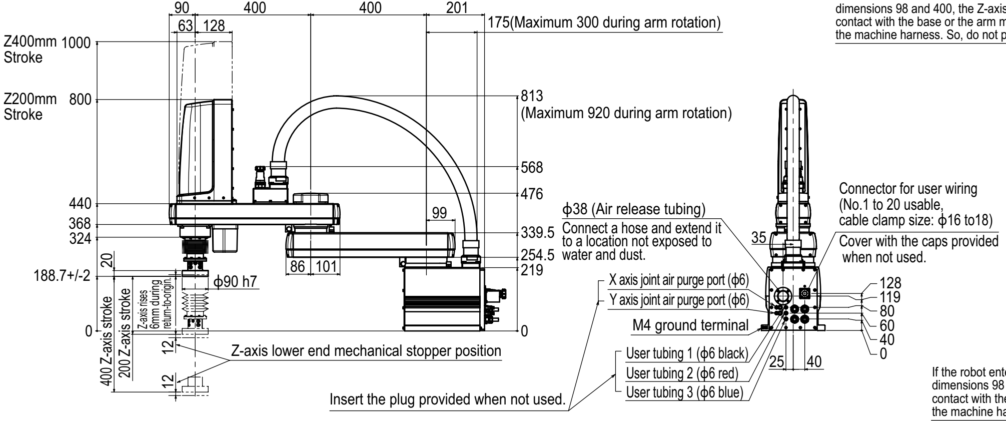
Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

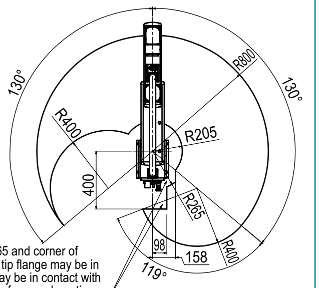
Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK800XGP

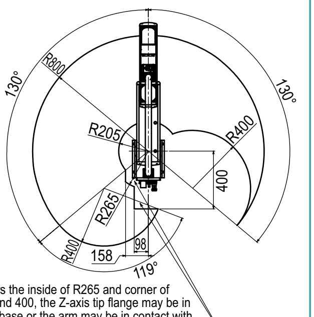

Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
275
161
120
99
99
220
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
50 145
75
4-ϕ14
M12 bolt for installation, 4 bolts used
260
16
(Base size)
Note. Insert the plug provided when not used.


90 400 400 201
63 128
175(Maximum 300 during arm rotation)
Z400mm Stroke 1000
Z200mm Stroke 800
813
(Maximum 920 during arm rotation)
568
476
440
368
324
99
339.5
254.5
219
86 101
188.7+/-2
20
ϕ90 h7
0
400 Z-axis stroke
200 Z-axis stroke
Z-axis rises 6mm during return-to-origin
12
12
Z-axis lower end mechanical stopper position
0
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
35
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Insert the plug provided when not used.
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
128
119
80
60
40
0
25 40



If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

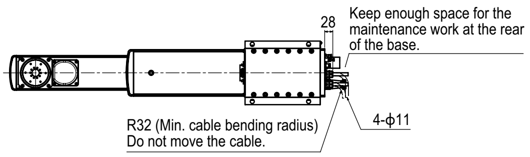
Working envelope of left-handed system

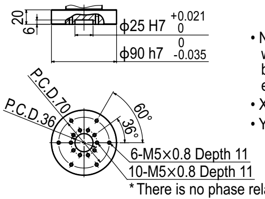


If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of right-handed system

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 152°


28
Keep enough space for the maintenance work at the rear of the base.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11



*There is no phase relation between each position of M5 tapped holes and R-axis origin position.

Z axis tip shape

YK900XGP

Dust-proof & drip-proof type

- Arm length 900mm
- Maximum payload 18kg

Ordering method

YK900XGP	–	– F	–	– RCX340-4	–	–	–	–	–	–	–
Model	**Z axis stroke**	**Tool flange**	**Cable**	**Controller / Number of controllable axes**	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**
	200: 200mm 400: 400mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240	–	– R3	–	–	–	–	–
Controller	**CE Marking**	**Regeneratizve unit**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	**Arm length**		500 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	**Speed reducer**		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	**Motor to speed reducer**	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			9.9 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			18 kg				
Standard cycle time: with 2kg payload Note 2			0.59 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
Protection class Note 4			Equivalent to IP65 (IEC 60529)				
User wiring (sq × wires)			0.2 × 20				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 58 kg Z axis 400 mm: 60 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

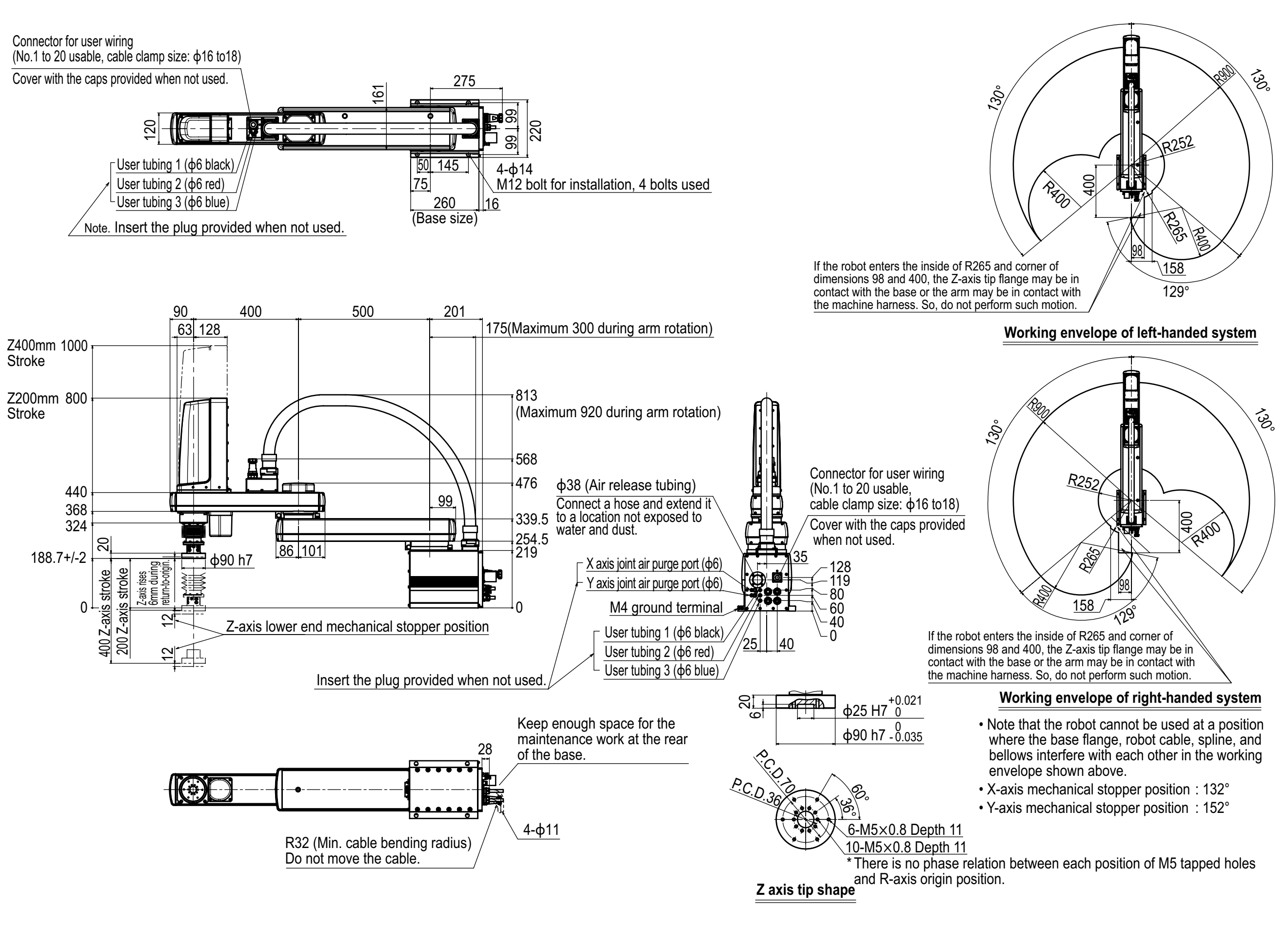
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK900XGP


Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Note. Insert the plug provided when not used.
275
161
120
99
99
220
50
145
75
260
(Base size)
16
4-ϕ14
M12 bolt for installation, 4 bolts used
90
400
500
201
63
128
175(Maximum 300 during arm rotation)
Z400mm Stroke 1000
Z200mm Stroke 800
813
(Maximum 920 during arm rotation)
568
476
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
440
368
324
339.5
254.5
219
99
86
101
188.7+/-2
20
ϕ90 h7
0
0
400 Z-axis stroke
200 Z-axis stroke
Z-axis rises 6mm during return-to-origin.
12
12
Z-axis lower end mechanical stopper position
Insert the plug provided when not used.
Connector for user wiring
(No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
35
128
119
80
60
40
0
25
40
Keep enough space for the maintenance work at the rear of the base.
28
4-ϕ11
R32 (Min. cable bending radius)
Do not move the cable.
20
6
ϕ25 H7 +0.021 0
ϕ90 h7 0 -0.035
P.C.D.70
P.C.D.36
60°
36°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11
Z axis tip shape
130°
130°
R900
R252
R400
400
R265
R400
98
158
129°
R900
R252
400
R400
R265
R400
98
158
129°

*There is no phase relation between each position of M5 tapped holes and R-axis origin position.

If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of left-handed system

If the robot enters the inside of R265 and corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of right-handed system

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 152°

YK1000XGP

Dust-proof & drip-proof type

- Arm length 1000mm
- Maximum payload 18kg

Ordering method

YK1000XGP - ☐ - F - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Cable	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK1000XGP	200: 200mm 400: 400mm	F: With tool flange	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

RCX240 - ☐ - R3 - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R3					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

			X-axis	Y-axis	Z-axis		R-axis
Axis specifications	Arm length		600 mm	400 mm	200 mm	400 mm	–
	Rotation angle		+/-130 °	+/-150 °	–		+/-360 °
AC servo motor output			750 W	400 W	400 W		200 W
Deceleration mechanism	Speed reducer		Harmonic drive	Harmonic drive	Ball screw		Harmonic drive
	Transmission method	Motor to speed reducer	Direct-coupled				
		Speed reducer to output	Direct-coupled				
Repeatability Note 1			+/-0.02 mm		+/-0.01 mm		+/-0.004 °
Maximum speed			10.6 m/sec		2.3 m/sec	1.7 m/sec	920 °/sec
Maximum payload			18 kg				
Standard cycle time: with 2kg payload Note 2			0.59 sec				
R-axis tolerable moment of inertia Note 3			1.0 kgm^2				
Protection class Note 4			Equivalent to IP65 (IEC 60529)				
User wiring (sq × wires)			0.2 × 20				
User tubing (Outer diameter)			ϕ 6 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			Z axis 200 mm: 60 kg Z axis 400 mm: 62 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.611.
Note 4. Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof structure preventing liquid other than water.

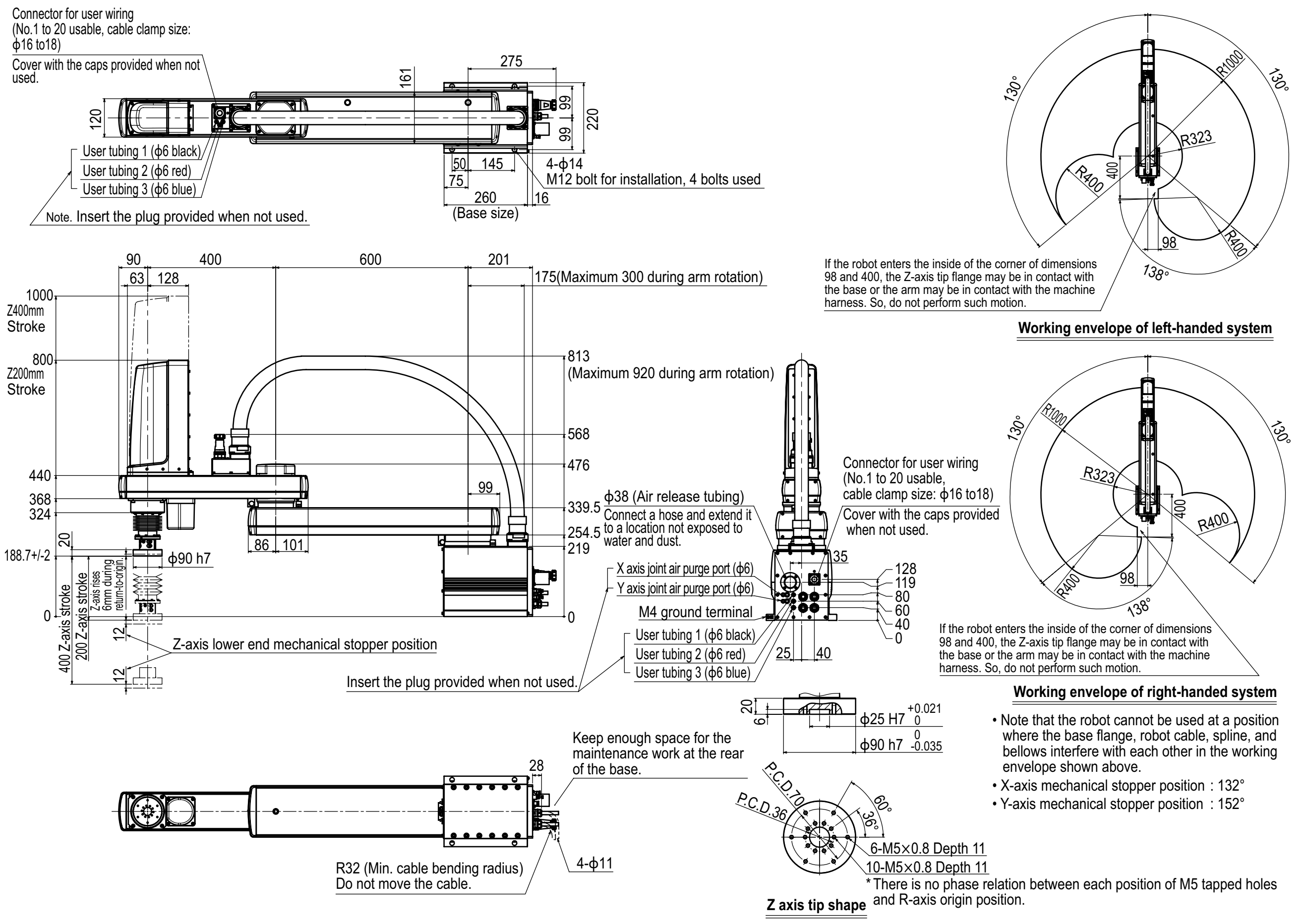
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R3	2500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK1000XGP


Connector for user wiring (No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Note. Insert the plug provided when not used.
275
161
120
99
99
220
50
145
75
260
16
(Base size)
4-ϕ14
M12 bolt for installation, 4 bolts used
90
400
600
201
63
128
175(Maximum 300 during arm rotation)
1000
Z400mm Stroke
800
Z200mm Stroke
813
(Maximum 920 during arm rotation)
568
476
440
368
324
99
339.5
254.5
219
86
101
188.7+/-2
20
ϕ90 h7
0
0
400 Z-axis stroke
200 Z-axis stroke
Z-axis rises 6mm during return-to-origin.
12
12
Z-axis lower end mechanical stopper position
Insert the plug provided when not used.
ϕ38 (Air release tubing)
Connect a hose and extend it to a location not exposed to water and dust.
X axis joint air purge port (ϕ6)
Y axis joint air purge port (ϕ6)
M4 ground terminal
User tubing 1 (ϕ6 black)
User tubing 2 (ϕ6 red)
User tubing 3 (ϕ6 blue)
Connector for user wiring (No.1 to 20 usable, cable clamp size: ϕ16 to18)
Cover with the caps provided when not used.
35
128
119
80
60
40
0
25
40
Keep enough space for the maintenance work at the rear of the base.
28
R32 (Min. cable bending radius) Do not move the cable.
4-ϕ11
20
6
ϕ25 H7 +0.021 0
ϕ90 h7 0 -0.035
P.C.D.70
P.C.D.36
60°
36°
6-M5×0.8 Depth 11
10-M5×0.8 Depth 11
Z axis tip shape
130°
130°
R1000
R323
R400
400
98
R400
138°
130°
130°
R1000
R323
400
R400
R400
98
138°

*There is no phase relation between each position of M5 tapped holes and R-axis origin position.

If the robot enters the inside of the corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of left-handed system

If the robot enters the inside of the corner of dimensions 98 and 400, the Z-axis tip flange may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

Working envelope of right-handed system

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, and bellows interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 132°
- Y-axis mechanical stopper position : 152°

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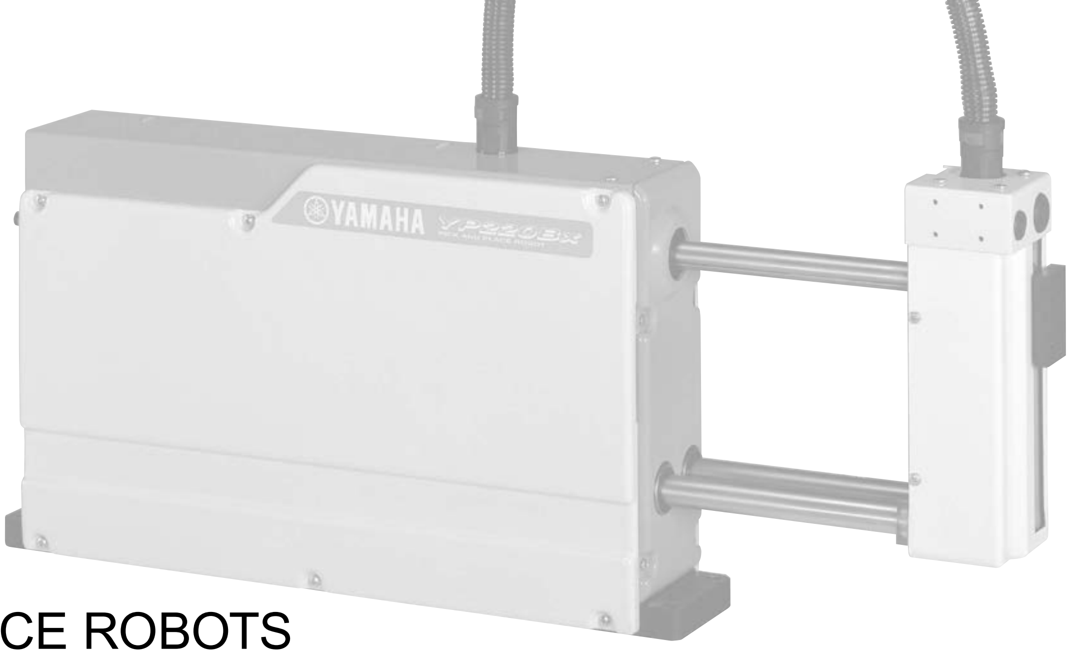


PICK & PLACE ROBOTS
YP-X
SERIES

CONTENTS

Main functions ▶ P.48

YP-X SPECIFICATION SHEET

Type	Model	Maximum payload (kg)	Cycle time (sec) Note 1	Structure		Moving range	Detailed info page
2-axes	YP220BX	3	0.45	X-axis	Belt	200mm	P.431
				Z-axis	Belt	100mm	
	YP320X	3	0.57	X-axis	Ball screw	330mm	P.432
				Z-axis	Belt	100mm	
3-axes	YP220BXR	1	0.62	X-axis	Belt	200mm	P.433
				Z-axis	Belt	100mm	
				R-axis	Rotation axis	+/-180°	
	YP320XR	1	0.67	X-axis	Ball screw	330mm	P.434
				Z-axis	Belt	100mm	
				R-axis	Rotation axis	+/-180°	
	YP330X	3	0.57	X-axis	Ball screw	330mm	P.435
				Y-axis	Ball screw	150mm	
				Z-axis	Belt	100mm	
4-axes	YP340X	1	0.67	X-axis	Ball screw	330mm	P.436
				Y-axis	Ball screw	150mm	
				Z-axis	Belt	100mm	
				R-axis	Rotation axis	+/-180°	

Note 1. Cycle time is the time required for moving back and forth 150mm (arch 50) and vertically 50mm (during rough-positioning motion with 1kg load).

Robot ordering method description

In the order format for the YAMAHA pick & place robots YP-X series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

■ 2-axis specifications

● **Mechanical ▶ YP220BX**

- Robot cable length ▷ 3.5m

● **Controller ▶ RCX222**

- Usable for CE ▷ Not required
- Input/Output selection 1 ▷ NPN
- Input/Output selection 2 ▷ None

● **Ordering method**

YP220BX - 3L - RCX222 - N

Mechanical section | Controller section

☐ – ☐ – RCX222 – ☐ – ☐ – ☐

①Model

YP220BX
YP320X

②Cable length

3L	3.5m
5L	5m
10L	10m

③Controller

④Usable for CE

No entry	Standard
E	CE marking

⑤Input/Output selection 1

N	NPN Note 1
P	PNP
CC	CC-Link
DN	DeviceNet™
PB	PROFIBUS
EN	Ethernet
YC	YC-Link Note 2

⑥Input/Output selection 2

No entry	None
N1	OP.DIO 24/16 (NPN) Note 1
P1	OP.DIO 24/17 (PNP)
EN	Ethernet Note 3

Note 1. With the CE marking, it is not possible to select NPN or Ethernet.
Note 2. Available only for the master.
Note 3. Only when CC-Link or DeviceNet™ or PROFIBUS was selected for I/O select 1 above. Ethenet can be selected in I/O select 2.

■ 3 / 4 axis specifications

● **Mechanical ▶ YP340X**

- Robot cable length ▷ 5m

● **Controller ▶ RCX240S**

● **Ordering method**

YP340X - 5L - RCX240S

Mechanical section | Controller section

☐ – ☐ – ☐

①Model

YP220BXR
YP320XR
YP330X
YP340X

②Cable length

3L	3.5m
5L	5m
10L	10m

③Controller

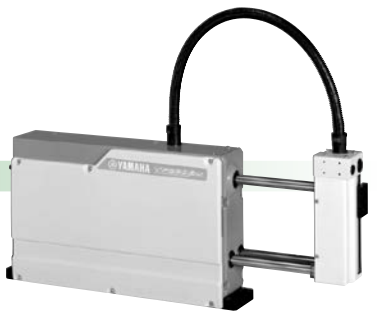
RCX240S
RCX340

To find detailed controller information see the controller page. **RCX222 ▶** P.526, **RCX240S ▶** P.534, **RCX340 ▶** P.544

Robot ordering method terminology

① Model	Enter the robot unit model.
② Cable length	Select the length of the robot cable connecting the robot and controller. **3L**: 3.5m **5L**: 5m **10L**: 10m
③ Controller	**2-axis specifications:** Select the RCX222. **3 / 4 axis specifications:** Select either the RCX240S or RCX340.

YP220BX 2 axes



Ordering method

Model	Cable length	Controller	Usable for CE	Inputs/Outputs selection 1	Inputs/Outputs selection 2
YP220BX		RCX222			
	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 2 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 1	No entry: None N1: OP.DIO24/16 (NPN) Note 2 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. Available only for the master.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.

Specifications

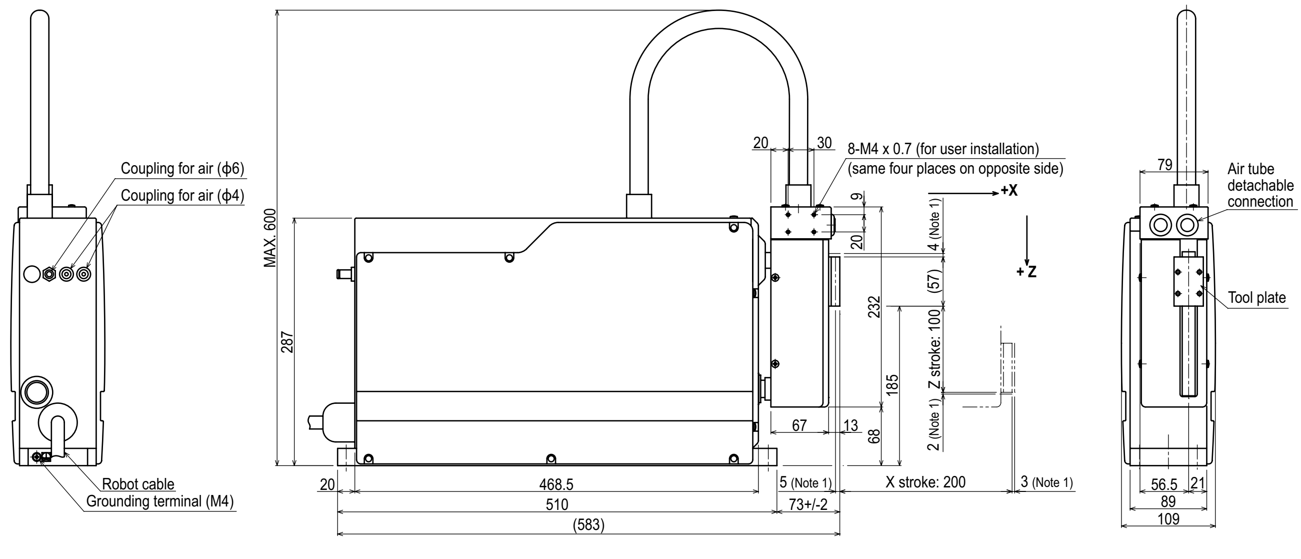
	X axis	Z axis
AC servo motor output (W)	200	200
Repeatability Note 1 (mm)	+/-0.05	+/-0.05
Drive system	Timing belt	Timing belt
Deceleration ratio (mm)	Equivalent to lead 24	Equivalent to lead 20
Maximum speed Note 2 (mm/sec)	1440	1200
Moving range (mm)	200	100
Cycle time (sec)	0.45 Note 3	
Maximum payload (kg)	3	
Robot cable length (m)	Standard: 3.5 Option: 5,10	
Weight (kg)	17	

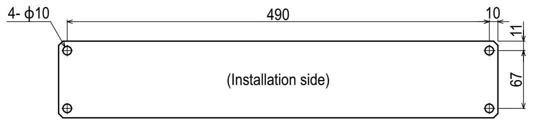
Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).

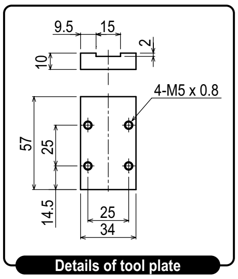
Controller

Controller	Power consumption (VA)	Operating method
RCX222	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP220BX







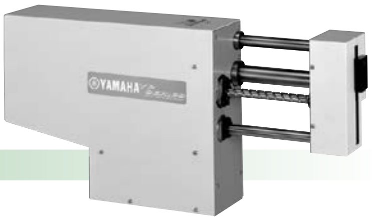
Details of tool plate

Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP220BX is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.

Controller RCX222 ▶ 526

YP320X

2 axes



Ordering method

YP320X	-		-	RCX222	-		-		-	
Model	-	**Cable length**	-	**Controller**	-	**Usable for CE**	-	**Inputs/Outputs selection 1**	-	**Inputs/Outputs selection 2**
		3L: 3.5m		RCX222		No entry: Standard		N: NPN Note 2		No entry: None
		5L: 5m				E: CE marking		P: PNP		N1: OP.DIO24/16 (NPN) Note 2
		10L: 10m						CC: CC-Link		P1: OP.DIO24/17 (PNP)
								DN: DeviceNet™		EN: Ethernet Note 3
								PB: PROFIBUS		
								EN: Ethernet		
								YC: YC-Link Note 1		

Note 1. Available only for the master.
Note 2. NPN cannot be selected if using CE marking.
Note 3. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.

Specifications

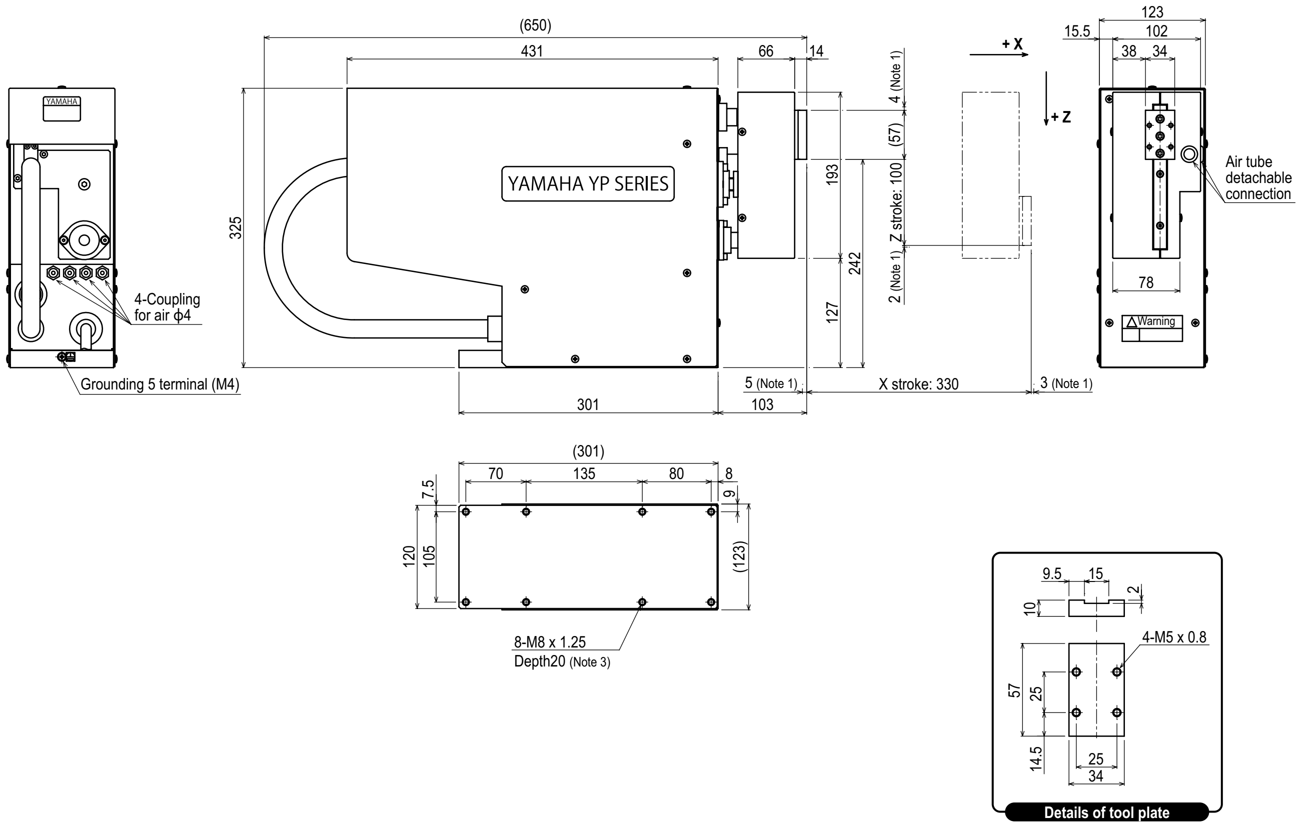
	X axis	Z axis
AC servo motor output (W)	200	200
Repeatability Note 1 (mm)	+/-0.02	+/-0.05
Drive system	Ball screw (C7 class)	Timing belt
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 25
Maximum speed Note 2 (mm/sec)	1500	1500
Moving range (mm)	330	100
Cycle time (sec)	0.57 Note 3, 0.78 Note 4	
Maximum payload (kg)	3	
Robot cable length (m)	Standard: 3.5 Option: 5,10	
Weight (kg)	21	

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX222	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP320X



Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP320X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

Controller RCX222 ▶ 526

YP220BXR 3 axes

Ordering method

YP220BXR	–	☐
Model		Cable length 3L: 3.5m 5L: 5m 10L: 10m

RCX340-3	☐	☐	☐	☐	☐	☐	☐
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S	☐	☐	☐	☐	☐	☐
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

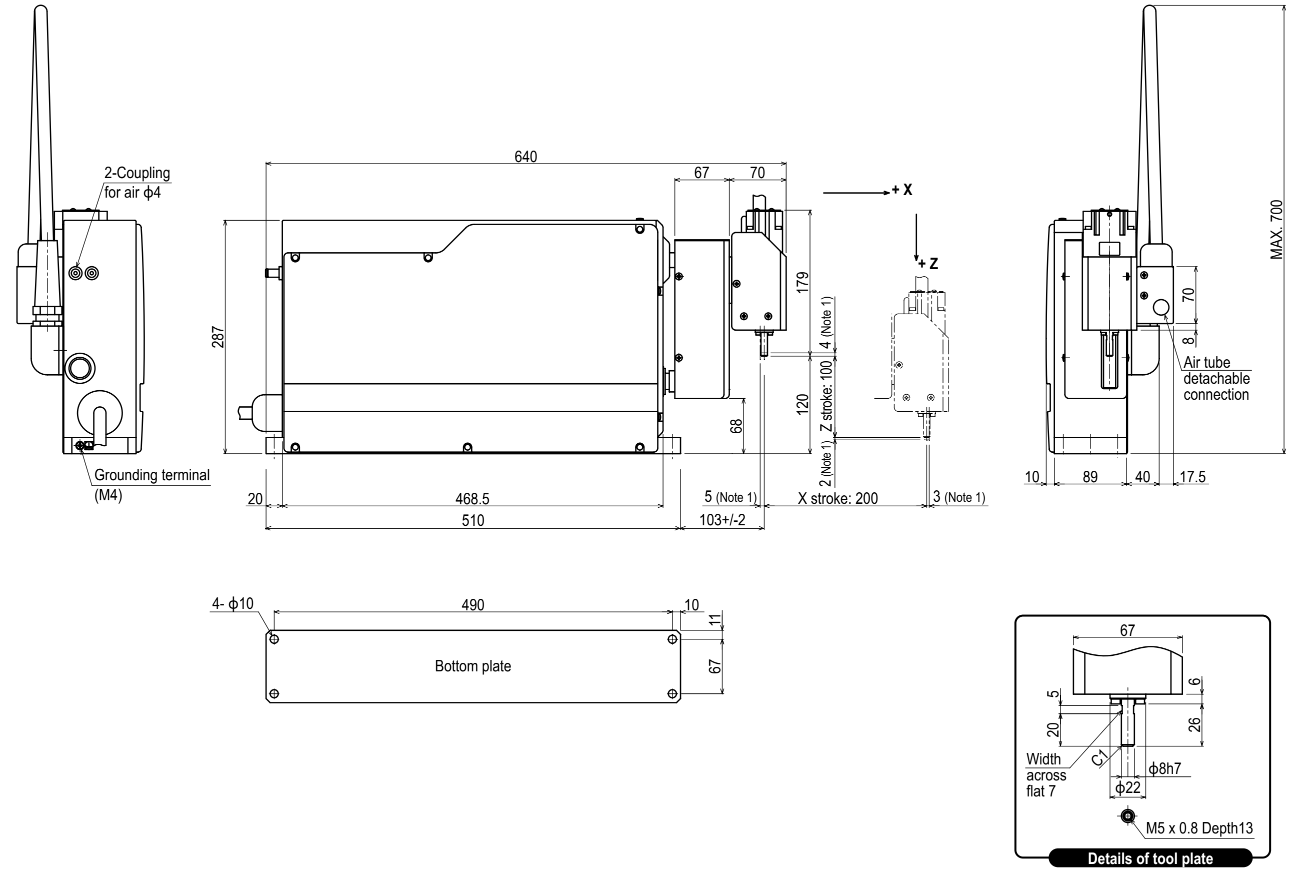
	X axis	Z axis	R axis
AC servo motor output (W)	200	200	60
Repeatability Note1 (mm)	+/-0.05	+/-0.05	+/-0.1
Drive system	Timing belt	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 24	Equivalent to lead 20	1/18
Maximum speed Note 2 (XZ: mm/sec) (R: °/sec)	1440	1200	1000
Moving range (XZ: mm) (R: °)	200	100	+/-180
Cycle time (sec)	0.62 Note 3		
Maximum payload (kg)	1		
R-axis allowable moment inertia ($kgm^2[kgfcms^2]$)	0.00098 [0.01]		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	19		

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX340 RCX240S	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP220BXR



Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP220BXR is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.

YP320XR 3 axes

Ordering method

YP320XR – ☐ – **RCX340-3** ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model – **Cable length** – **Controller / Number of controllable axes** – **Safety standard** – **Option A (OP.A)** – **Option B (OP.B)** – **Option C (OP.C)** – **Option D (OP.D)** – **Option E (OP.E)** – **Absolute battery**

Cable length:
3L: 3.5m
5L: 5m
10L: 10m

Specify various controller setting items. RCX340 ▶ P.544

RCX240S – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Controller – **CE Marking** – **Expansion I/O** – **Network option** – **iVY System** – **Gripper** – **Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

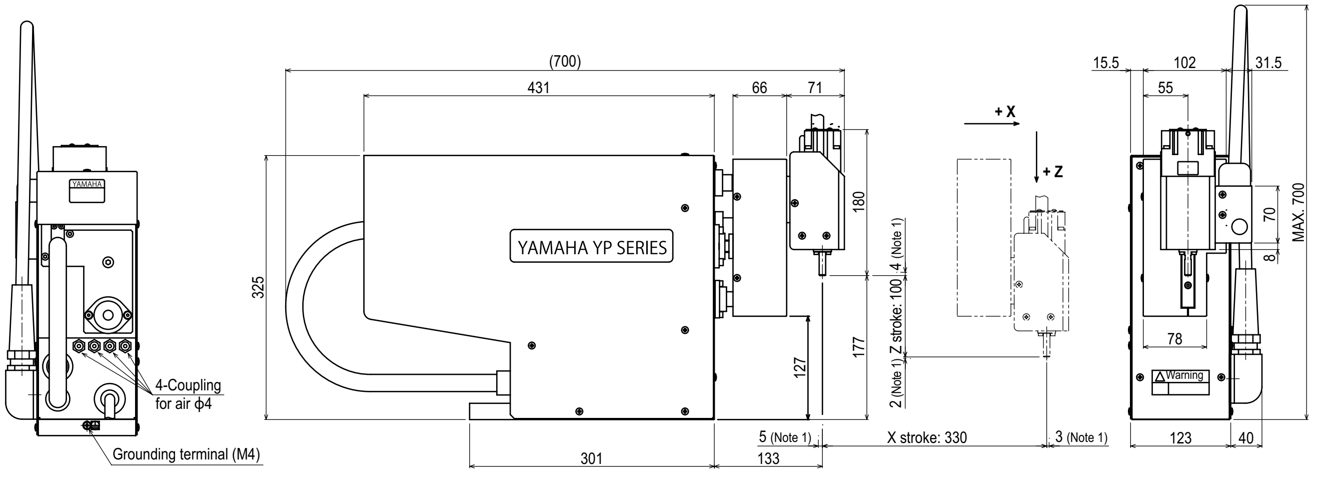
	X axis	Z axis	R axis
AC servo motor output (W)	200	200	60
Repeatability Note 1 (XZ: mm) (R: °)	+/-0.02	+/-0.05	+/-0.1
Drive system	Ball screw (C7 class)	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 25	1/18
Maximum speed Note 2 (XZ: mm/sec) (R: °/sec)	1500	1500	1000
Moving range (XZ: mm) (R: °)	330	100	+/-180
Cycle time (sec)	0.67 Note 3, 0.87 Note 4		
Maximum payload (kg)	1		
R-axis allowable moment inertia (kgm^2[kgfcms^2])	0.00098 [0.01]		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	23		

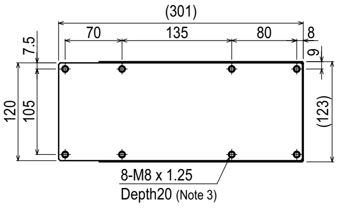
Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

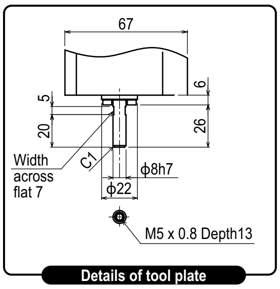
Controller

Controller	Power consumption (VA)	Operating method
RCX340 RCX240S	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP320XR



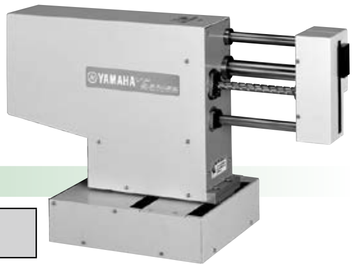




Details of tool plate

Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP320XR is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

YP330X 3 axes



Ordering method

YP330X - ☐
Model **Cable length**
3L: 3.5m
5L: 5m
10L: 10m

RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐
Controller / Number of controllable axes - **Safety standard** - **Option A (OP.A)** - **Option B (OP.B)** - **Option C (OP.C)** - **Option D (OP.D)** - **Option E (OP.E)** - **Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐
Controller - **CE Marking** - **Expansion I/O** - **Network option** - **iVY System** - **Gripper** - **Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Specifications

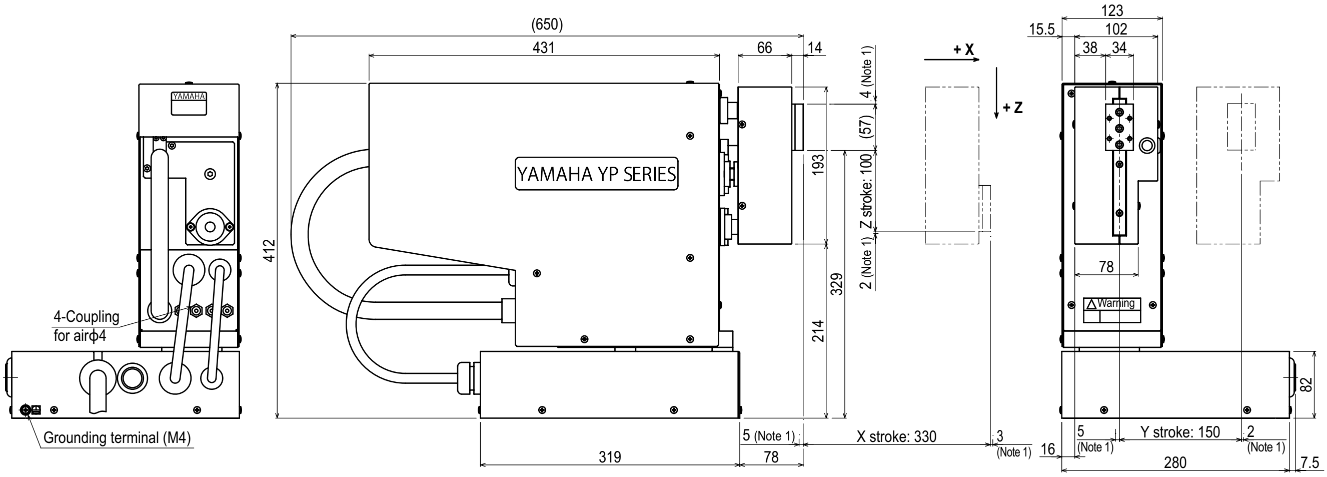
	X axis	Y axis	Z axis
AC servo motor output (W)	200	200	200
Repeatability Note 1 **(mm)**	+/-0.02	+/-0.02	+/-0.05
Drive system	Ball screw (C7 class)	Ball screw (C7 class)	Timing belt
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 20	Equivalent to lead 25
Maximum speed Note 2 **(mm/sec)**	1500	1000	1500
Moving range (mm)	330	150	100
Cycle time (sec)	0.57 Note 3, 0.78 Note 4		
Maximum payload (kg)	3		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	32		

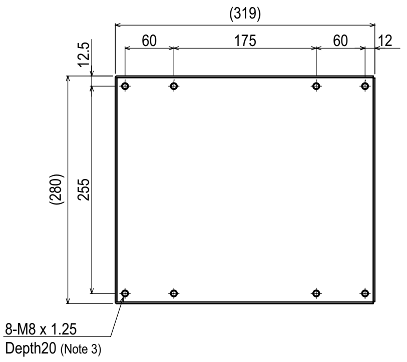
Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

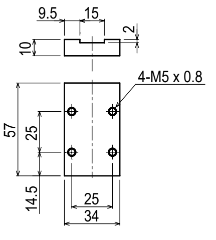
Controller

Controller	Power consumption (VA)	Operating method
RCX340 RCX240S	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP330X







Details of tool plate

Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP330X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

YA Articulated robots
LCM100 Linear conveyor modules
TRANSERVO Compact single-axis robots
FLIP-X Single-axis robots
PHASER Linear motor single-axis robots
XY-X Cartesian robots
YK-X SCARA robots
YP-X Pick & place robots
CLEAN
CONTROLLER
INFORMATION
2-axes
3-axes
4-axes

YP340X 4 axes

Ordering method

YP340X	– ☐	– RCX340-4	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐
Model	Cable length 3L: 3.5m 5L: 5m 10L: 10m	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Specifications

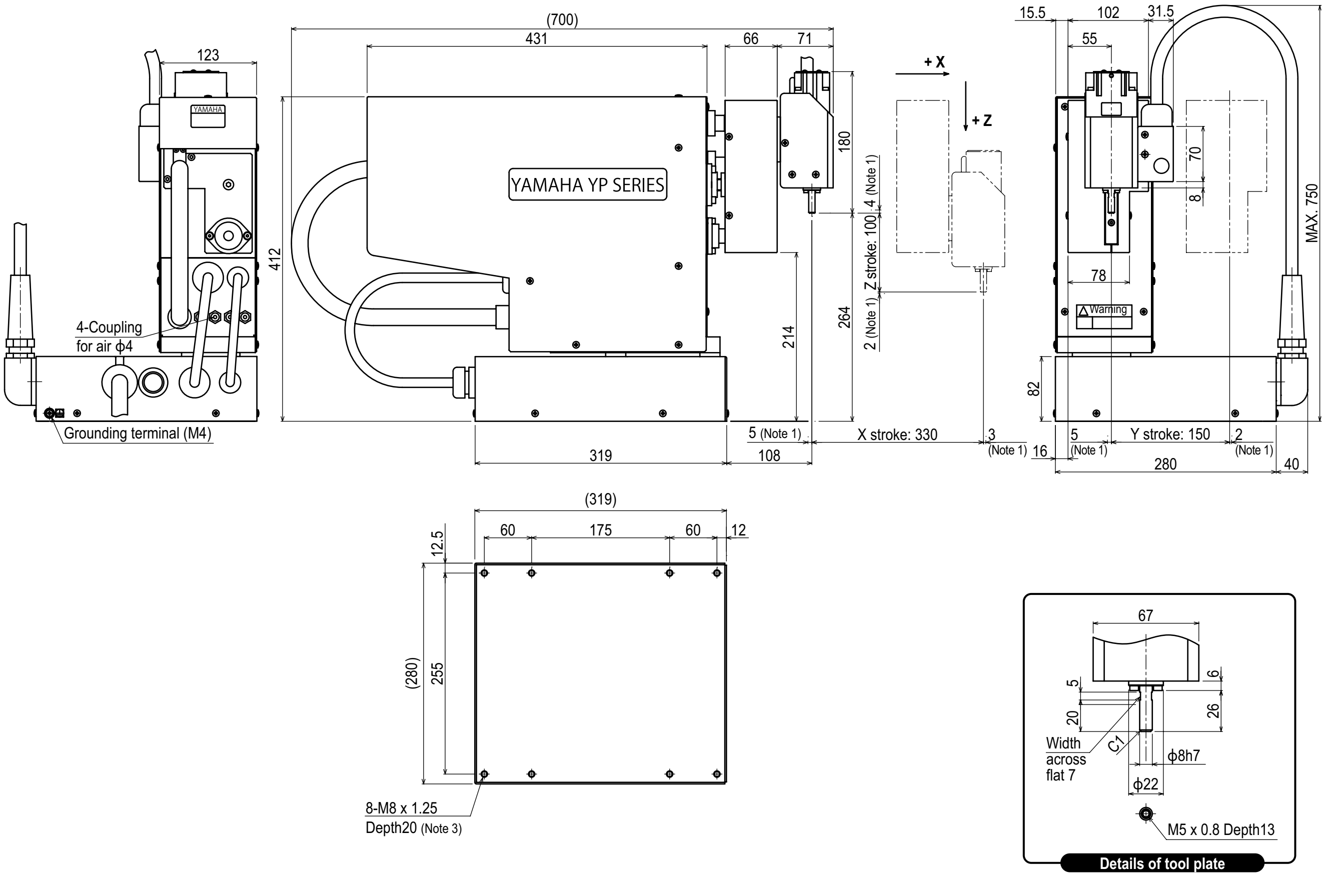
	X axis	Y axis	Z axis	R axis
AC servo motor output (W)	200	200	200	60
Repeatability Note 1 **(XYZ: mm)(R: °)**	+/-0.02	+/-0.02	+/-0.05	+/-0.1
Drive system	Ball screw (C7 class)	Ball screw (C7 class)	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 20	Equivalent to lead 25	1/18
Maximum spee Note 2 **(XYZ: mm/sec) (R: °/sec)**	1500	1000	1500	1000
Moving range (XYZ: mm) (R: °)	330	150	100	+/-180
Cycle time (sec)	0.67 Note 3, 0.87 Note 4			
Maximum payload (kg)	1			
R-axis allowable moment inertia (kgm^2[$kgfcms^2$])	0.00098 [0.01]			
Robot cable length (m)	Standard: 3.5 Option: 5,10			
Weight (kg)	34			

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
Note 2. When the moving stroke is short, the maximum speed may not be reached.
Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

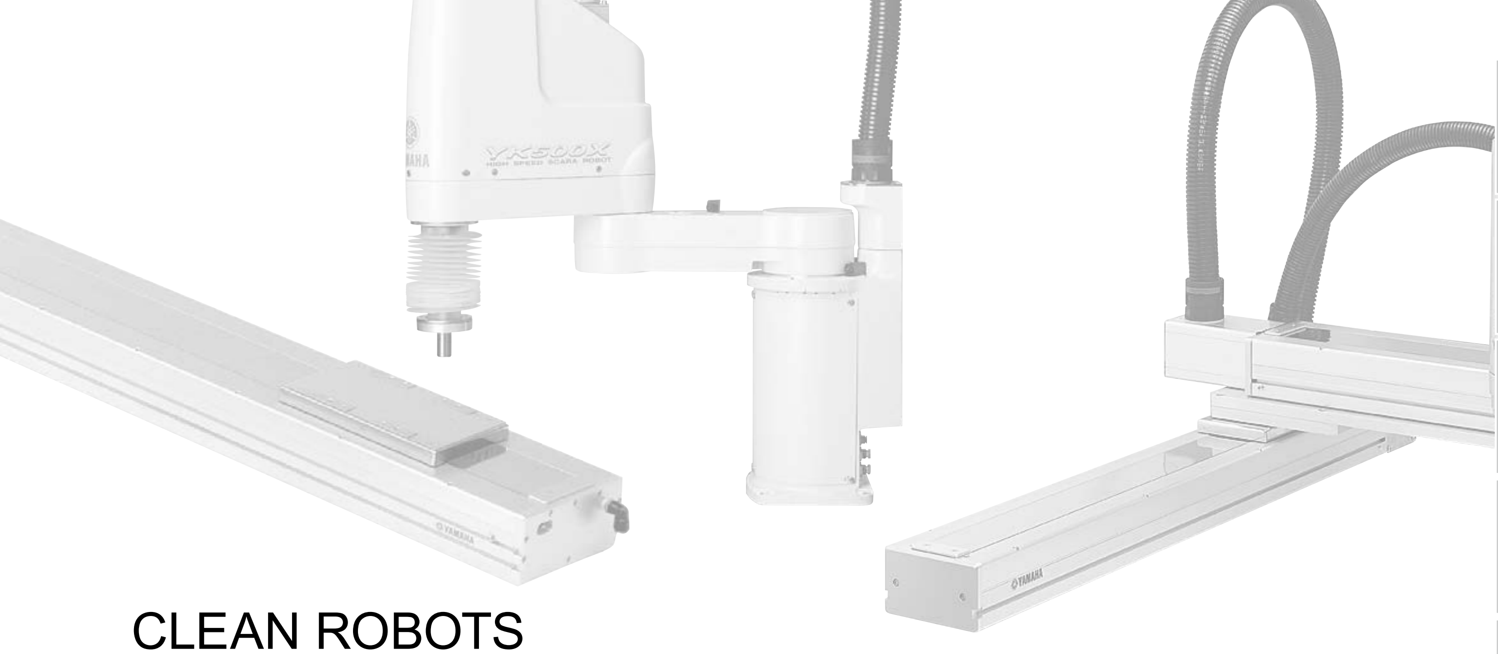
Controller

Controller	Power consumption (VA)	Operating method
RCX340 RCX240S	800	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP340X



Note 1. Distance to mechanical stopper.
Note 2. Return-to-origin on the YP340X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).



CLEAN ROBOTS

CLEAN TYPE

CONTENTS

SINGLE-AXIS

● TRANSERVO

● FLIP-XC

CARTESIAN XY-XC

● 2 axes

● 3 axes / ZSC

● 4 axes / ZRSC

SCARA YK-XC

Main functions ▶ P.50

CLEAN ROBOTS SPECIFICATION SHEET

Clean single-axis robots

●TRANSERVO

- Degree of cleanliness CLASS 10
- Intake air 15 to 80Nℓ/min

<table>
<tr><th rowspan="2">Model</th><th rowspan="2">Lead (mm)</th><th colspan="2">Payload (kg)</th><th colspan="16">Stroke (mm) and maximum speed (mm/sec)</th><th rowspan="2">Detailed info page</th></tr>
<tr><th>Horizontal</th><th>Vertical</th><th>50</th><th>100</th><th>150</th><th>200</th><th>250</th><th>300</th><th>350</th><th>400</th><th>450</th><th>500</th><th>550</th><th>600</th><th>650</th><th>700</th><th>750</th><th>800</th></tr>
<tr><td rowspan="3">SSC04</td><td>12</td><td>2</td><td>1</td><td colspan="8">600</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td rowspan="3">P.441</td></tr>
<tr><td>6</td><td>4</td><td>2</td><td colspan="8">300</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>6</td><td>4</td><td colspan="8">100</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">SSC05</td><td>20</td><td>4</td><td>–</td><td colspan="12">1000</td><td>933</td><td>833</td><td>733</td><td>633</td><td rowspan="3">P.442</td></tr>
<tr><td>12</td><td>6</td><td>1</td><td colspan="12">600</td><td>560</td><td>500</td><td>440</td><td>380</td></tr>
<tr><td>6</td><td>10</td><td>2</td><td colspan="12">300</td><td>280</td><td>250</td><td>220</td><td>190</td></tr>
<tr><td rowspan="5">SSC05H</td><td>20</td><td>6</td><td>–</td><td colspan="12">1000</td><td>933</td><td>833</td><td>733</td><td>633</td><td rowspan="5">P.443</td></tr>
<tr><td rowspan="2">12</td><td>8</td><td>–</td><td colspan="12">600</td><td>560</td><td>500</td><td>440</td><td>380</td></tr>
<tr><td>–</td><td>2</td><td colspan="14">500</td><td>440</td><td>380</td></tr>
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<tr><td>–</td><td>4</td><td colspan="14">250</td><td>220</td><td>190</td></tr>
</table>

●FLIP-XC

- Degree of cleanliness C4L/C4LH/C5L/C5LH/C6L .... ISO CLASS 3 (ISO14644-1) Note
  Models other than those shown above .... CLASS 10
  Note. Class 10 (0.1μm) equivalent to FED-STD-209D
- Intake air 20 to 90Nℓ/min

<table>
<tr><th rowspan="2">Model</th><th rowspan="2">AC servo motor output (W)</th><th rowspan="2">Repeatability (mm)</th><th rowspan="2">Lead (mm)</th><th colspan="2">Payload (kg)</th><th colspan="19">Stroke (mm) and maximum speed (mm/sec)</th></tr>
<tr><th>Horizontal</th><th>Vertical</th><th>50</th><th>100</th><th>150</th><th>200</th><th>250</th><th>300</th><th>350</th><th>400</th><th>450</th><th>500</th><th>550</th><th>600</th><th>650</th><th>700</th><th>750</th><th>800</th><th>850</th><th>900</th><th>950</th></tr>
<tr><td rowspan="3">C4L /
C4LH</td><td rowspan="3">30</td><td rowspan="3">+/-0.02</td><td>12</td><td>4.5</td><td>1.2</td><td colspan="8">720</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6</td><td>6</td><td>2.4</td><td colspan="8">360</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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C5LH</td><td rowspan="3">30</td><td rowspan="3">+/-0.02</td><td>20</td><td>3</td><td>–</td><td colspan="16">1000</td><td></td><td></td><td></td></tr>
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<tr><td>6</td><td>9</td><td>2.4</td><td colspan="16">400</td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">C6L</td><td rowspan="3">60</td><td rowspan="3">+/-0.02</td><td>20</td><td>10</td><td>–</td><td colspan="16">1000</td><td></td><td></td><td></td></tr>
<tr><td>12</td><td>12</td><td>4</td><td colspan="16">800</td><td></td><td></td><td></td></tr>
<tr><td>6</td><td>30</td><td>8</td><td colspan="16">400</td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">C8</td><td rowspan="3">100</td><td rowspan="3">+/-0.02</td><td>20</td><td>12</td><td>–</td><td></td><td></td><td colspan="9">1000</td><td>900</td><td>800</td><td>700</td><td>650</td><td></td><td></td><td></td></tr>
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<tr><td>10</td><td>40</td><td>8</td><td></td><td></td><td colspan="11">600</td><td>510</td><td>450</td><td>390</td><td>360</td><td>330</td><td>300</td></tr>
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<tr><td>5</td><td>100</td><td>30</td><td></td><td></td><td colspan="12">250</td><td colspan="2">237</td><td colspan="2">187</td><td>150</td></tr>
<tr><td rowspan="2">C17</td><td rowspan="2">400</td><td rowspan="2">+/-0.01</td><td>20</td><td>80</td><td>15</td><td></td><td></td><td></td><td></td><td colspan="14">1000</td><td>800</td></tr>
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</table>

1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	Detailed info page
																						C4L : P.444 C4LH :P.445
																						C5L : P.446 C5LH :P.447
																						P.448
																						P.449
550	500																					P.450
270	240																					
135	120																					
500	450																					P.451
240	210																					
120	105																					
600	500																					P.452
300	250																					
150	125																					
600	500																					P.453
300	250																					
150	125																					
600	500																					P.454
300	250																					
150	125																					
800	700		600		500																	P.455
400	350		300		250																	
			1000		1000		1000		1000		1000		1000		1000		900		800		800	P.456
800	700		600		500																	P.457
400	350		300		250																	

CLEAN ROBOTS SPECIFICATION SHEET

Clean cartesian robots

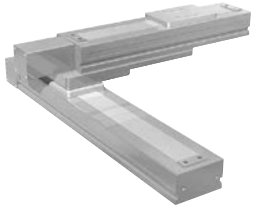
● XY-XC

- Degree of cleanliness CLASS 10
- Intake air 60 to 90Nℓ/min
- Aperture designed to minimal dimensions by use of stainless steel sheet
- Installed clean robot dedicated cable duct

Note : User cable D-Sub 25 pin connector
: 24 conductors, 0.3 sq
(No. 1 through 24 are already connected and No.25 is for grounding)
Note : User tube three ϕ6 air tubes

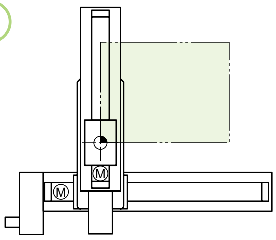
Type	Model	Axis	Moving range	Maximun speed (mm/sec)	Maximum payload (kg)	Detailed info page
2 axes	SXYXC	X	150 to 1050mm	1000	20	P.458
		Y	150 to 650mm	1000		
3 axes	SXYXC (ZSC12)	X	150 to 1050mm	1000	3	P.460
		Y	150 to 650mm	1000		
		Z	150mm	1000		
	SXYXC (ZSC6)	X	150 to 1050mm	1000	5	P.460
		Y	150 to 650mm	1000		
		Z	150mm	500		
4 axes	SXYXC (ZRSC12)	X	150 to 1050mm	1000	3	P.462
		Y	150 to 650mm	1000		
		Z	150mm	1000		
		R	360°	1020°/sec		
	SXYXC (ZRSC6)	X	150 to 1050mm	1000	5	P.462
		Y	150 to 650mm	1000		
		Z	150mm	500		
		R	360°	1020°/sec		

Arm variations

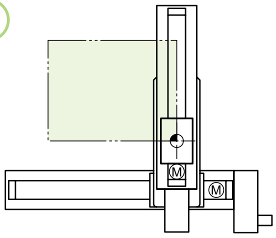


Special model for clean rooms with moving Y-axis carriage installed upward.

T1



T3



Clean SCARA robots

● YK-XC/YK-XGC/YK-XGLC

- Degree of cleanliness YK-XC .... CLASS 10
  YK-XGC/YK-XGLC... ISO CLASS 3 (ISO14644-1) Note

Note. Class 10 (0.1μm) equivalent to FED-STD-209D

- Intake air 30 to 60Nℓ/min
- Harness placed completely on inside
- Bellows cover fitted in axial tip

Passed 20 million stroke durability test

Type	Model	Arm length (mm) and XY axis combined maximum speed (m/s)															Standard cycle time (sec)	Maximum payload (kg)	R axis tolerable moment of inertia (kgm^2)	Detailed info page
		120	150	180	220	250	300	350	400	500	600	700	800	900	1000	1200				
Tiny type	YK180XC	3.3m/s	▬	▬													0.42	1	0.01	P.464
	YK220XC	3.4m/s	▬	▬	▬												0.45	1	0.01	P.465
Small type	YK250XGC	4.5m/s	▬	▬	▬	▬											0.57	4	0.05	P.466
	YK350XGC	5.6m/s	▬	▬	▬	▬	▬	▬									0.57	4	0.05	P.468
	YK400XGC	6.1m/s	▬	▬	▬	▬	▬	▬	▬								0.57	4	0.05	P.470
Medium type	YK500XGLC	5.1m/s	▬	▬	▬	▬	▬	▬	▬	▬							0.74	4	0.05	P.472
	YK500XC	4.9m/s	▬	▬	▬	▬	▬	▬	▬	▬							0.53	10	0.12	P.474
	YK600XGLC	4.9m/s	▬	▬	▬	▬	▬	▬	▬	▬	▬						0.74	4	0.05	P.475
	YK600XC	5.6m/s	▬	▬	▬	▬	▬	▬	▬	▬	▬						0.56	10	0.12	P.477
Large type	YK700XC	6.7m/s	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬					0.57	20	0.32	P.478
	YK800XC	7.3m/s	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬				0.57	20	0.32	P.479
	YK1000XC	8.0m/s	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬		0.60	20	0.32	P.480

SSC04

● CE compliance ● Origin on the non-motor side is selectable

Ordering method

SSC04 – ☐ – **S** – ☐ – ☐ – ☐ – ☐ – ☐ – **S2** ☐ / **SH** ☐ – ☐ / **SD** **1**

Model	Lead	Type	Brake	Direction of air coupler installation	Origin position	Stroke	Cable length Note 2
SSC04	12: 12mm 6: 6mm 2: 2mm	S: Straight	N: With no brake B: With brake	RJ: Right (Standard) LJ: Left	N: Standard Note 1 Z: Non-motor side	50 to 400 (50mm pitch)	1L: 1m 3L: 3m 5L: 5m 10L: 10m

Robot positioner	I/O
S2: TS-S2 Note 3	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

Robot driver	I/O cable
SD: TS-SD	1: 1m

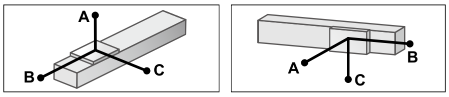
Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 2. The robot cable is flexible and resists bending.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

Motor		42 ☐ Step motor		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Maximum motor torque (N·m)		0.27		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		600	300	100
Maximum payload (kg)	**Horizontal**	2	4	6
	Vertical	1	2	4
Max. pressing force (N)		45	90	150
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+216		
	Vertical	Stroke+261		
Maximum outside dimension of body cross-section (mm)		W49 × H59		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		
Degree of cleanliness		CLASS 10 Note 2		
Intake air (Nℓ/min)		Lead 12	Lead 6	Lead 2
		50	30	15

Note 1. Positioning repeatability in one direction.
Note 2. Per 1cf (0.1μm base), when suction blower is used.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 12	1kg	807	218	292
	2kg	667	107	152
Lead 6	2kg	687	116	169
	3kg	556	76	112
	4kg	567	56	84
Lead 2	4kg	869	61	92
	6kg	863	40	60

Wall installation (Unit: mm)

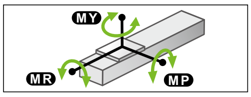
		A	B	C
Lead 12	1kg	274	204	776
	2kg	133	93	611
Lead 6	2kg	149	102	656
	3kg	92	62	516
	4kg	63	43	507
Lead 2	4kg	72	48	829
	6kg	39	29	789

Vertical installation (Unit: mm)

		A	C
Lead 12	0.5kg	407	408
	1kg	204	204
Lead 6	1kg	223	223
	2kg	107	107
Lead 2	2kg	118	118
	4kg	53	53

Note. Distance from center of slider upper surface to conveyor center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 400mm stroke models).

Static loading moment



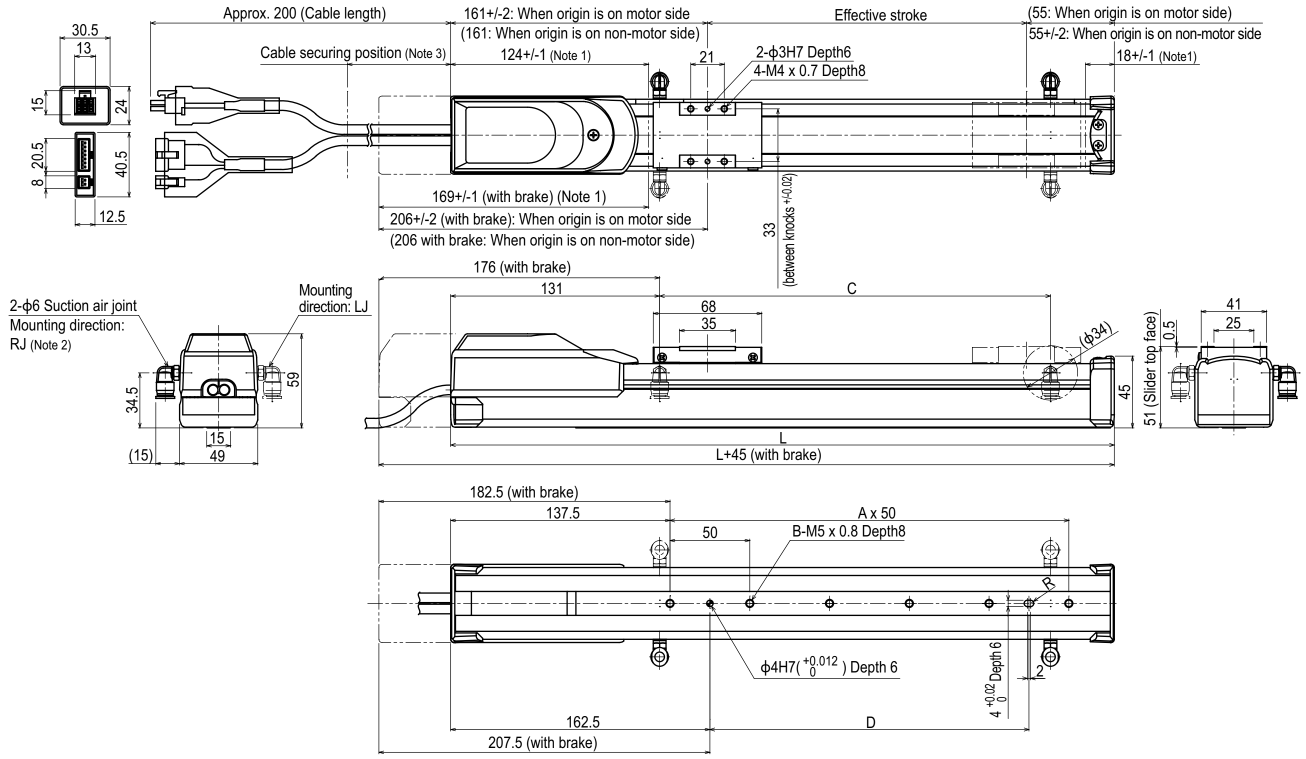
(Unit: N·m)

MY	MP	MR
16	19	17

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

SSC04


30.5
13
15
24
8
20.5
40.5
12.5
Approx. 200 (Cable length)
Cable securing position (Note 3)
161+/-2: When origin is on motor side
(161: When origin is on non-motor side)
124+/-1 (Note 1)
21
2-ϕ3H7 Depth6
4-M4 x 0.7 Depth8
Effective stroke
(55: When origin is on motor side)
55+/-2: When origin is on non-motor side
18+/-1 (Note1)
169+/-1 (with brake) (Note 1)
206+/-2 (with brake): When origin is on motor side
(206 with brake: When origin is on non-motor side)
33 (between knocks +/-0.02)
176 (with brake)
131
68
35
C
2-ϕ6 Suction air joint
Mounting direction:
RJ (Note 2)
Mounting
direction: LJ
59
34.5
15
(15)
49
(ϕ34)
45
51 (Slider top face)
0.5
41
25
L
L+45 (with brake)
182.5 (with brake)
137.5
50
A x 50
B-M5 x 0.8 Depth8
R
ϕ4H7($^{+0.012}_{0}$) Depth 6
4 $^{+0.02}_{0}$ Depth 6
2
162.5
D
207.5 (with brake)

Effective stroke	50	100	150	200	250	300	350	400
L	266	316	366	416	466	516	566	616
A	2	3	4	5	6	7	8	9
B	3	4	5	6	7	8	9	10
C	50	100	150	200	250	300	350	400
Weight (kg) Note 5	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Either right or left can be selected for the suction air joint mounting direction. This drawing shows the RJ (standard) direction.
Note 3. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 4. The cable's minimum bend radius is R30.
Note 5. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

SSC05

● High lead: Lead 20 ● CE compliance ● Origin on the non-motor side is selectable

Ordering method

SSC05 - [Lead] - S - [Brake] - [Direction of air coupler installation] - [Origin position] - [Stroke] - [Cable length]

Model	Lead	Type	Brake [Note 1]	Direction of air coupler installation	Origin position	Stroke	Cable length [Note 3]
SSC05	20: 20mm 12: 12mm 6: 6mm	S: Straight	N: With no brake B: With brake	RJ: Right (Standard) LJ: Left	N: Standard [Note 2] Z: Non-motor side	50 to 800 (50mm pitch)	1L: 1m 3L: 3m 5L: 5m 10L: 10m

S2 - [I/O]

Robot positioner	I/O
S2: TS-S2 [Note 4]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]

SH - [I/O] - [Battery]

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]	B: With battery (Absolute) N: None (Incremental)

SD **1**

Robot driver	I/O cable
SD: TS-SD	1: 1m

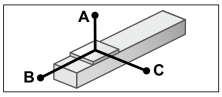
Note 1. Only the model with a lead of 12mm or 6mm can select specifications with brake.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

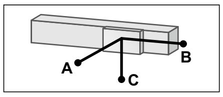
Basic specifications

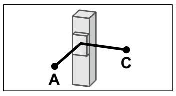
Motor		42 ☐ Step motor		
Repeatability [Note 1] **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Maximum motor torque (N·m)		0.27		
Ball screw lead (mm)		20	12	6
Maximum speed (mm/sec) [Note 2]		1000	600	300
Maximum payload (kg)	**Horizontal**	4	6	10
	Vertical	–	1	2
Max. pressing force (N)		27	45	90
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+230		
	Vertical	Stroke+270		
Maximum outside dimension of body cross-section (mm)		W55 × H56		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		
Degree of cleanliness		CLASS 10 [Note 3]		
Intake air (Nℓ/min)		Lead 20	Lead 12	Lead 6
		80	50	30

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	413	139	218
	4kg	334	67	120
Lead 12	4kg	347	72	139
	6kg	335	47	95
Lead 6	4kg	503	78	165
	8kg	332	37	79
	10kg	344	29	62

Wall installation (Unit: mm)

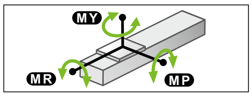
		A	B	C
Lead 20	2kg	192	123	372
	4kg	92	51	265
Lead 12	4kg	109	57	300
	6kg	63	31	263
Lead 6	4kg	134	63	496
	6kg	76	35	377
	8kg	47	22	355

Vertical installation (Unit: mm)

		A	C
Lead 12	0.5kg	578	579
	1kg	286	286
Lead 6	1kg	312	312
	2kg	148	148

Note. Distance from center of slider upper surface to conveyor center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

Static loading moment



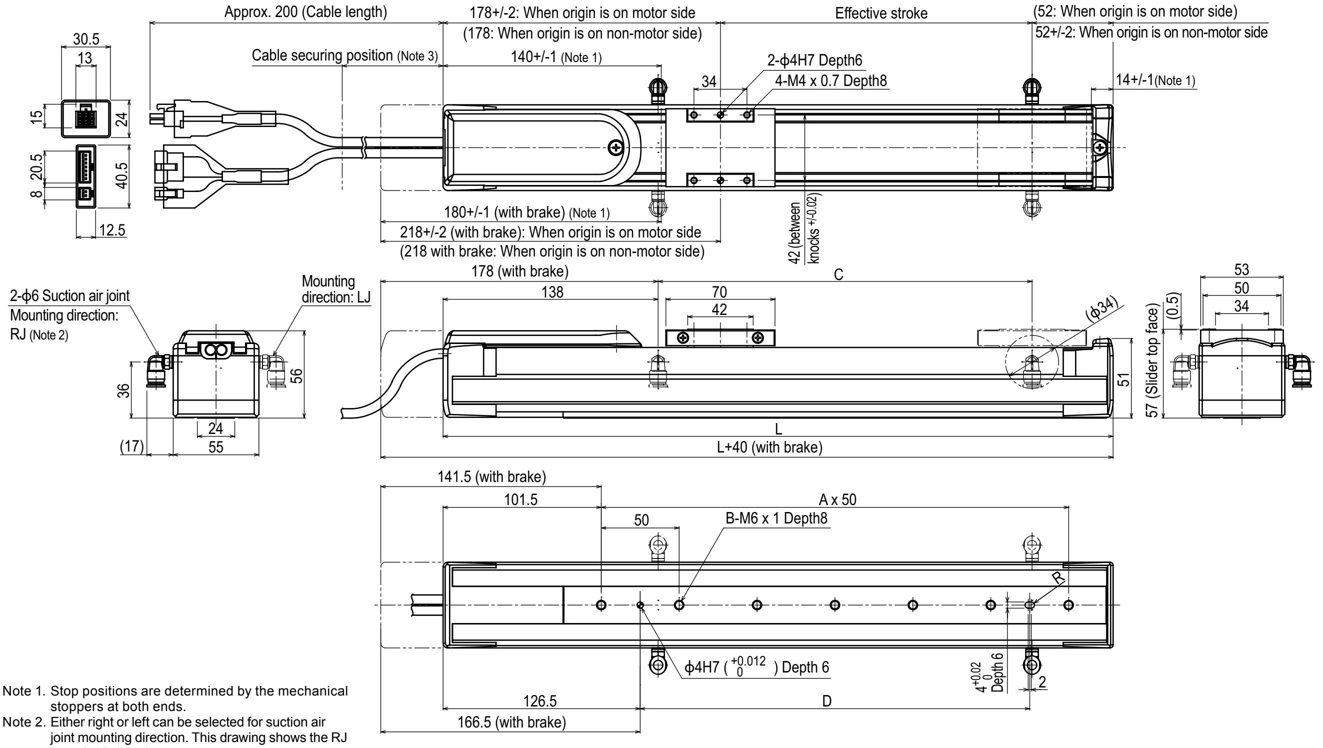
(Unit: N·m)

MY	MP	MR
25	33	30

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

SSC05


30.5
13
15
24
8
20.5
40.5
12.5
Approx. 200 (Cable length)
Cable securing position (Note 3)
178+/-2: When origin is on motor side
(178: When origin is on non-motor side)
140+/-1 (Note 1)
Effective stroke
(52: When origin is on motor side)
52+/-2: When origin is on non-motor side
14+/-1(Note 1)
34
2-ϕ4H7 Depth6
4-M4 x 0.7 Depth8
180+/-1 (with brake) (Note 1)
218+/-2 (with brake): When origin is on motor side
(218 with brake: When origin is on non-motor side)
42 (between knocks +/-0.02)
178 (with brake)
138
70
42
C
53
50
34
(ϕ34)
(0.5)
51
57 (Slider top face)
2-ϕ6 Suction air joint
Mounting direction: RJ (Note 2)
Mounting direction: LJ
36
56
24
(17)
55
L
L+40 (with brake)
141.5 (with brake)
101.5
A x 50
50
B-M6 x 1 Depth8
R
ϕ4H7 (+0.012 0) Depth 6
4 +0.02 0 Depth 6
2
126.5
D
166.5 (with brake)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Either right or left can be selected for suction air joint mounting direction. This drawing shows the RJ (standard) direction.
Note 3. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 4. The cable's minimum bend radius is R30.
Note 5. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 6. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		280	330	380	430	480	530	580	630	680	730	780	830	880	930	980	1030
A		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) [Note 5]		2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0
Maximum speed for each stroke (mm/sec) [Note 6]	Lead 20	1000												933	833	733	633
	Lead 12	600												560	500	440	380
	Lead 6	300												280	250	220	190

SSC05H

- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable

Ordering method

SSC05H - ☐ - S - ☐ - ☐ - ☐ - ☐ - ☐ - S2 / SH / SD

Model	Lead	Type	Brake [Note 1]	Direction of air coupler installation	Origin position	Stroke	Cable length [Note 3]
SSC05H	20: 20mm 12: 12mm 6: 6mm	S: Straight	N: With no brake B: With brake	RJ: Right (Standard) LJ: Left	N: Standard [Note 2] Z: Non-motor side	50 to 800 (50mm pitch)	1L: 1m 3L: 3m 5L: 5m 10L: 10m

S2 - ☐

Robot positioner	I/O
S2: TS-S2 [Note 4]	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]

SH - ☐ - ☐

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 5]	B: With battery (Absolute) N: None (Incremental)

SD - 1

Robot driver	I/O cable
SD: TS-SD	1: 1m

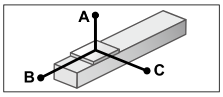
Note 1. Only the model with a lead of 12mm or 6mm can select specifications with brake.
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
Note 3. The robot cable is flexible and resists bending.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.

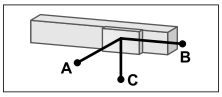
Basic specifications

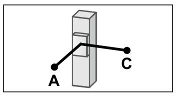
Motor		42☐ Step motor		
Repeatability [Note 1] **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Maximum motor torque (N·m)		0.47		
Ball screw lead (mm)		20	12	6
Maximum speed [Note 2] **(mm/sec)**	**Horizontal**	1000	600	300
	Vertical	–	500	250
Maximum payload (kg)	**Horizontal**	6	8	12
	Vertical	–	2	4
Max. pressing force (N)		36	60	120
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+286		
	Vertical	Stroke+306		
Maximum outside dimension of body cross-section (mm)		W55 × H56		
Cable length (m)		Standard: 1 / Option: 3, 5, 10		
Degree of cleanliness		CLASS 10 [Note 3]		
Intake air (Nℓ/min)		Lead 20	Lead 12	Lead 6
		80	50	30

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.

Allowable overhang [Note]







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	599	225	291
	4kg	366	109	148
	6kg	352	71	104
Lead 12	4kg	500	118	179
	6kg	399	79	118
	8kg	403	56	88
Lead 6	6kg	573	83	136
	8kg	480	61	100
	10kg	442	47	78
	12kg	465	39	64

Wall installation (Unit: mm)

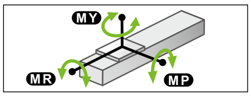
		A	B	C
Lead 20	2kg	262	203	554
	4kg	118	88	309
	6kg	71	49	262
Lead 12	4kg	146	96	449
	6kg	85	55	334
	8kg	55	34	305
Lead 6	6kg	101	62	519
	8kg	64	39	413
	10kg	43	26	355
	12kg	28	17	338

Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	458	459
	2kg	224	224
Lead 6	2kg	244	245
	4kg	113	113

Note. Distance from center of slider upper surface to conveyor center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

Static loading moment



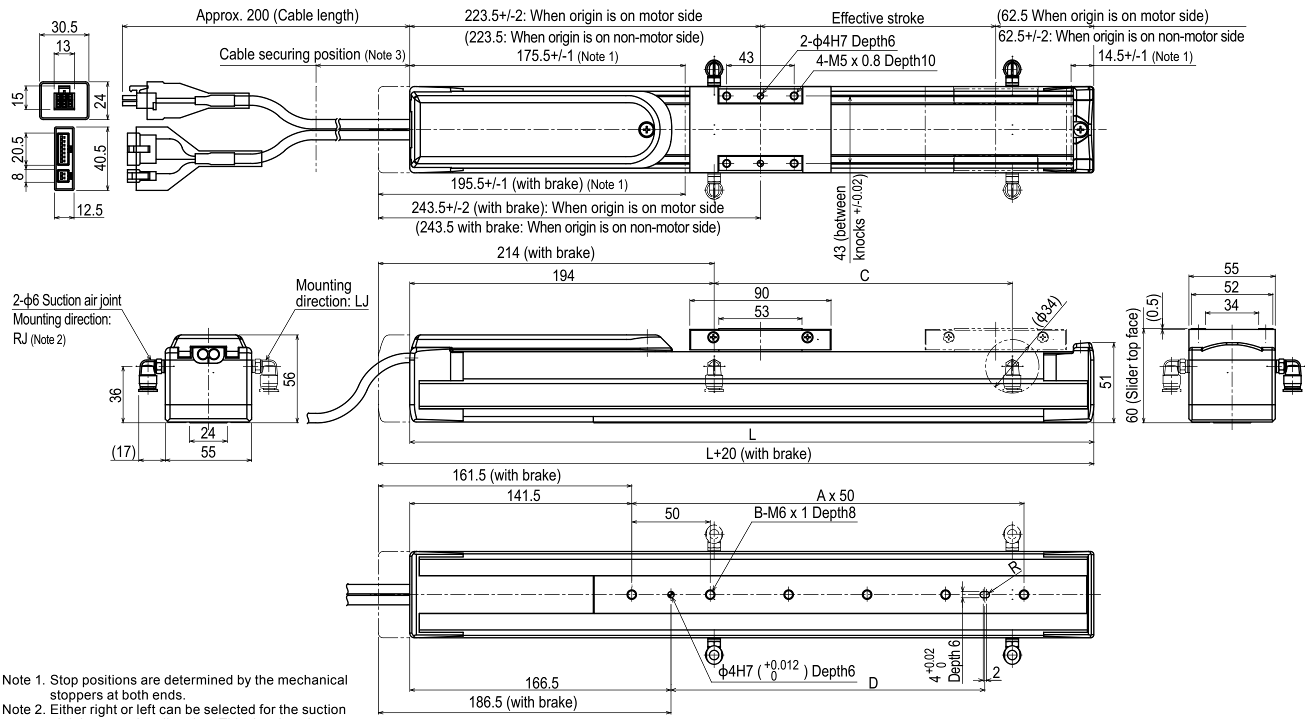
(Unit: N·m)

MY	MP	MR
32	38	34

Controller

Controller	Operation method
TS-S2 TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

SSC05H


30.5
13
15
24
20.5
8
40.5
12.5
Approx. 200 (Cable length)
Cable securing position (Note 3)
223.5+/-2: When origin is on motor side
(223.5: When origin is on non-motor side)
175.5+/-1 (Note 1)
43
2-ϕ4H7 Depth6
4-M5 x 0.8 Depth10
Effective stroke
(62.5 When origin is on motor side)
62.5+/-2: When origin is on non-motor side
14.5+/-1 (Note 1)
195.5+/-1 (with brake) (Note 1)
243.5+/-2 (with brake): When origin is on motor side
(243.5 with brake: When origin is on non-motor side)
43 (between knocks +/-0.02)
214 (with brake)
194
C
90
53
(ϕ34)
55
52
34
(0.5)
51
60 (Slider top face)
2-ϕ6 Suction air joint
Mounting direction:
RJ (Note 2)
Mounting direction: LJ
36
56
24
(17)
55
L
L+20 (with brake)
161.5 (with brake)
141.5
50
A x 50
B-M6 x 1 Depth8
R
ϕ4H7 ($^{+0.012}_{0}$) Depth6
D
4 $^{+0.02}_{0}$ Depth 6
2
166.5
186.5 (with brake)

Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		336	386	436	486	536	586	636	686	736	786	836	886	936	986	1036	1086
A		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C		100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) [Note 5]		2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.3
Maximum speed for each stroke (mm/sec) [Note 6]	Lead 20	1000												933	833	733	633
	Lead 12 (Horizontal)	600												560	500	440	380
	Lead 12 (Vertical)	500														440	380
	Lead 6 (Horizontal)	300												280	250	220	190
	Lead 6 (Vertical)	250														220	190

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Either right or left can be selected for the suction air joint mounting direction. This drawing shows the RJ (standard) direction.
Note 3. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
Note 4. The cable's minimum bend radius is R30.
Note 5. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 6. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C4L

Origin on the non-motor side is selectable

Ordering method

C4L	-		-		-		-		-		-		-	ERCD	-	
Model	-	**Lead designation**	-	**Brake**	-	**Direction of air coupler installation**	-	**Origin position change**	-	**Stroke**	-	**Cable length** Note 1	-	**Controller**	-	**I/O connector specification**
		12: 12mm 6: 6mm 2: 2mm		No entry: With no brake BK: With brake		LJ: Left (Standard) RJ: Right		None: Standard Z: Non-motor side		50 to 400 (50mm pitch)		1L: 1m 3L: 3.5m 5L: 5m 10L: 10m 1K/3K/5K/10K (Flexible cable)				CN1: I/O flat cable 1m (Standard) CN2: Twisted-pair cable 2m (pulse train function)

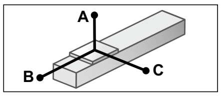
Note 1. The robot cable is standard cable (1L/3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

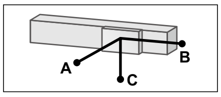
Basic specifications

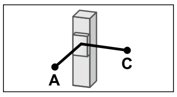
AC servo motor output (W)		30		
Repeatability Note 1 **(mm)**		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		720	360	120
Maximum payload (kg)	**Horizontal**	4.5	6	6
	Vertical	1.2	2.4	7.2
Rated thrust (N)		32	64	153
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+205		
	Vertical	Stroke+240		
Maximum outside dimension of body cross-section (mm)		W45×H55		
Cable length (m)		Standard: 3.5 / Option: 1, 5, 10		
Degree of cleanliness		ISO CLASS 3 (ISO14644-1) Note 2		
Intake air (Nℓ/min) Note 3		50	30	15

Note 1. Positioning repeatability in one direction.
Note 2. CLASS 10 (0.1μm) FED-STD-209D or equivalent when a suction blower is used.
Note 3. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 12	**2kg**	429	87	179
	4.5kg	219	32	74
Lead 6	**3kg**	511	58	135
	6kg	336	26	62
Lead 2	**3kg**	1571	58	142
	6kg	751	27	66

Wall installation (Unit: mm)

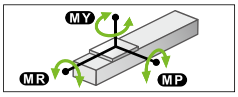
		A	B	C
Lead 12	**2kg**	145	52	368
	4.5kg	46	0	139
Lead 6	**3kg**	103	22	370
	6kg	27	0	185
Lead 2	**3kg**	109	23	1150
	6kg	27	0	420

Vertical installation (Unit: mm)

		A	C
Lead 12	**1.2kg**	121	122
Lead 6	**2.4kg**	52	54
Lead 2	**3kg**	37	39
	7.2kg	0	0

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 300mm stroke models.

Static loading moment



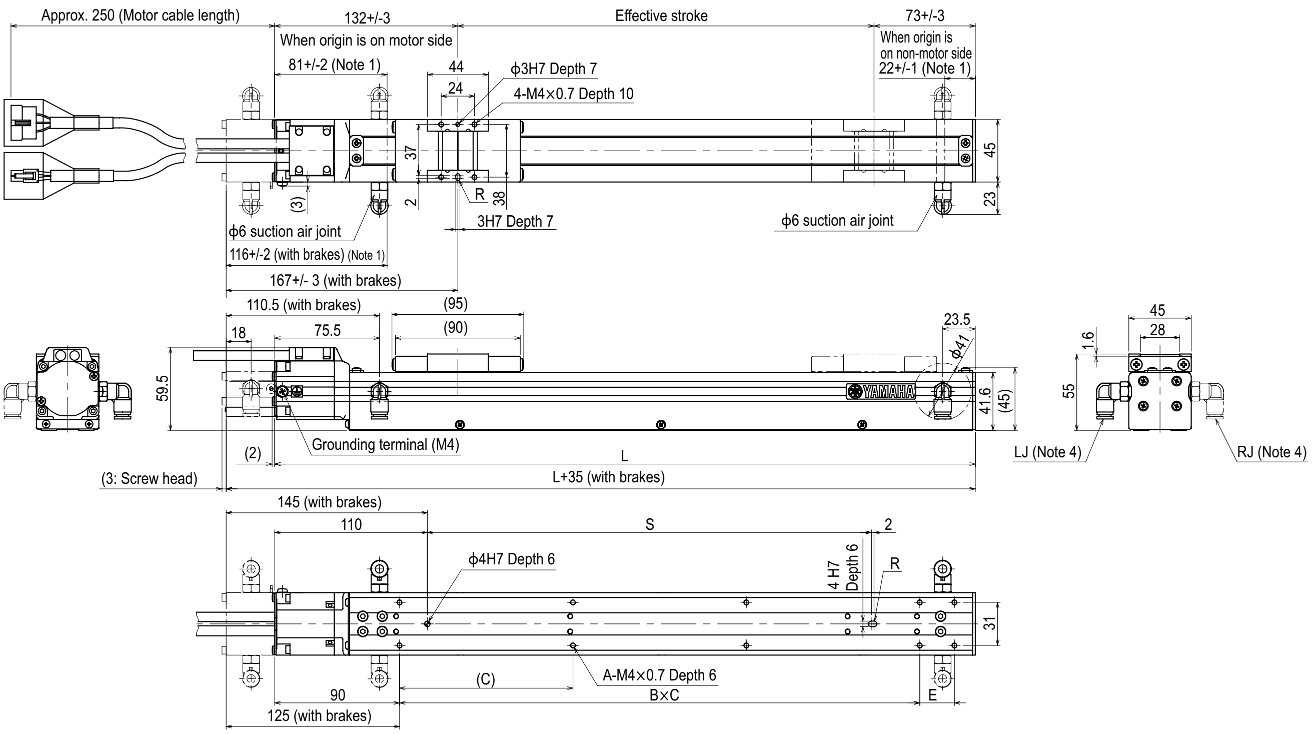
(Unit: N·m)

MY	MP	MR
15	19	18

Controller

Controller	Operation method
ERCD	Pulse train control / Programming / I/O point trace / Remote command / Operation using RS-232C communication

C4L



Effective stroke		50	100	150	200	250	300	350	400
L		255	305	355	405	455	505	555	605
A		4	6	6	8	8	10	10	10
B		1	2	2	2	2	3	3	4
C		150	100	125	125	125	125	125	125
E		0	0	0	50	100	25	75	0
S		70	120	170	220	270	320	370	420
Weight (kg) Note 3		1.4	1.5	1.7	1.8	2	2.1	2.3	2.4
Maximum speed for each stroke (mm/sec)	Lead 12	720							
	Lead 6	360							
	Lead 2	120							

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. Either right or left can be selected for the installation direction for the ϕ6 intake air joint. (The left side is the standard.)
Note 5. External view of C4LH is identical to C4L.

C4LH

Origin on the non-motor side is selectable

Ordering method

C4LH – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead designation	Brake	Direction of air coupler installation	Origin position change	Stroke	Cable length [Note 1]
	12: 12mm 6: 6mm 2: 2mm	No entry: With no brake BK: With brake	LJ: Left (Standard) RJ: Right	None: Standard Z: Non-motor side	50 to 400 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐

Positioner [Note 2]	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board [Note 3]	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05**

Driver	Power-supply voltage	Driver: Power capacity
	2: AC200V	05: 100W or less

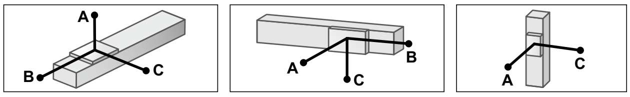
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		30		
Repeatability [Note 1] (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ8 (Class C10)		
Ball screw lead (mm)		12	6	2
Maximum speed (mm/sec)		720	360	120
Maximum payload (kg)	Horizontal	4.5	6	6
	Vertical	1.2	2.4	7.2
Rated thrust (N)		32	64	153
Stroke (mm)		50 to 400 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+205		
	Vertical	Stroke+240		
Maximum outside dimension of body cross-section (mm)		W45×H55		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		ISO CLASS 3 (ISO14644-1) [Note 2]		
Intake air (Nℓ/min) [Note 3]		50	30	15

Note 1. Positioning repeatability in one direction.
Note 2. CLASS 10 (0.1μm) FED-STD-209D or equivalent when a suction blower is used.
Note 3. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang [Note]



Horizontal installation (Unit: mm)

		A	B	C
Lead 12	2kg	339	90	174
	4.5kg	169	37	72
Lead 6	3kg	352	58	133
	6kg	234	27	62
Lead 2	3kg	1105	59	142
	6kg	520	27	66

Wall installation (Unit: mm)

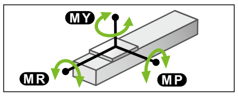
		A	B	C
Lead 12	2kg	136	72	295
	4.5kg	44	20	111
Lead 6	3kg	101	41	254
	6kg	27	10	127
Lead 2	3kg	110	41	805
	6kg	28	10	290

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	118	118
Lead 6	2.4kg	52	54
Lead 2	3kg	38	39
	7.2kg	0	0

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 300mm stroke models.

Static loading moment



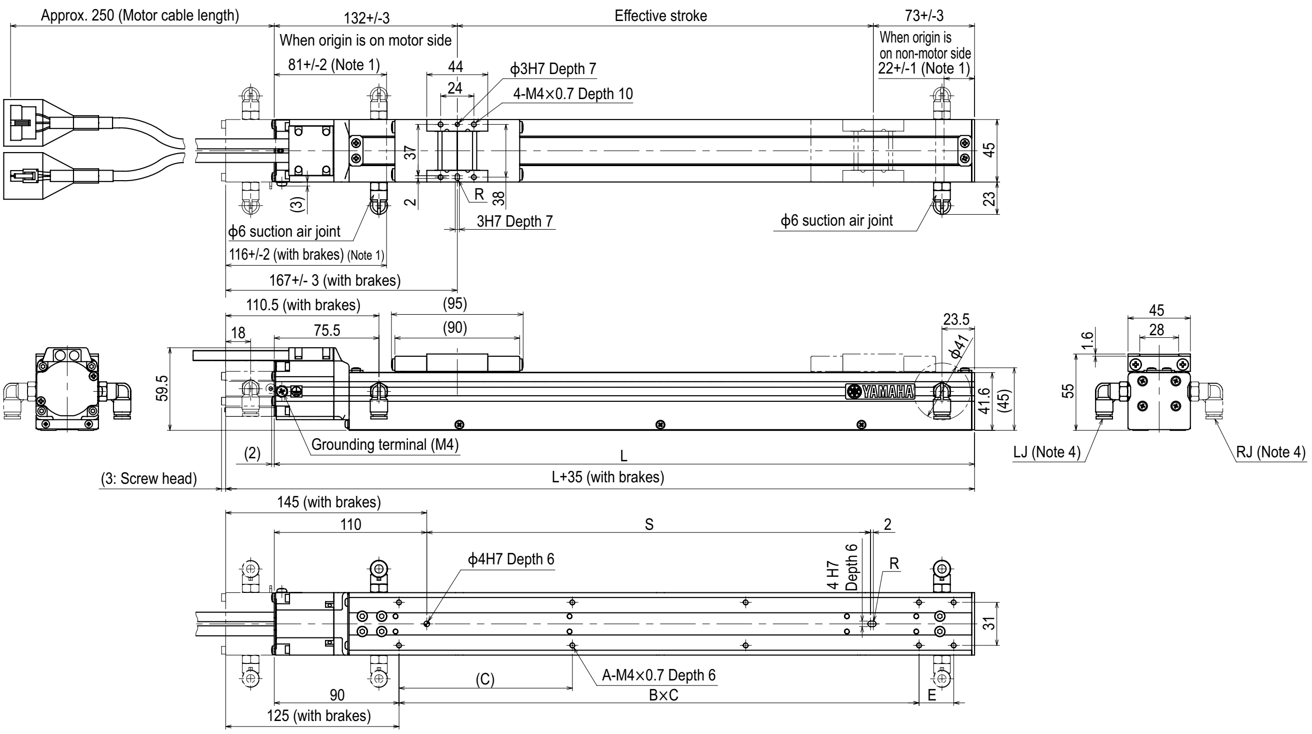
(Unit: N·m)

MY	MP	MR
15	19	18

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205	Pulse train control

C4LH



Effective stroke		50	100	150	200	250	300	350	400
L		255	305	355	405	455	505	555	605
A		4	6	6	8	8	10	10	10
B		1	2	2	2	2	3	3	4
C		150	100	125	125	125	125	125	125
E		0	0	0	50	100	25	75	0
S		70	120	170	220	270	320	370	420
Weight (kg) [Note 3]		1.4	1.5	1.7	1.8	2	2.1	2.3	2.4
Maximum speed for each stroke (mm/sec)	Lead 12	720							
	Lead 6	360							
	Lead 2	120							

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. Either right or left can be selected for the installation direction for the ϕ6 intake air joint. (The left side is the standard.)
Note 5. External view of C4LH is identical to C4L.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

C5L

- High lead: Lead 20
- Origin on the non-motor side is selectable

Ordering method

Model		Lead designation		Brake Note 1		Direction of air coupler installation		Origin position change		Stroke		Cable length Note 2		Controller		I/O connector specification
C5L	-		-		-		-		-		-		-	ERCD	-	
		20: 20mm 12: 12mm 6: 6mm		No entry: With no brake BK: With brake		LJ: Left (Standard) RJ: Right		None: Standard Z: Non-motor side		50 to 800 (50mm pitch)		1L: 1m 3L: 3.5m 5L: 5m 10L: 10m 1K/3K/5K/10K (Flexible cable)				CN1: I/O flat cable 1m (Standard) CN2: Twisted-pair cable 2m (pulse train function)

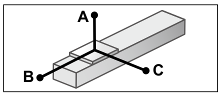
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (1L/3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.

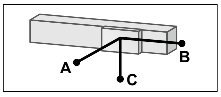
Basic specifications

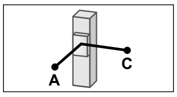
AC servo motor output (W)		30		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed (mm/sec)		1000	800	400
Maximum payload (kg)	Horizontal	3	5	9
	Vertical	-	1.2	2.4
Rated thrust (N)		19	32	64
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+201.5		
	Vertical	Stroke+236.5		
Maximum outside dimension of body cross-section (mm)		W55×H65		
Cable length (m)		Standard: 3.5 / Option: 1,5, 10		
Degree of cleanliness		ISO CLASS 3 (ISO14644-1) Note 2		
Intake air (Nℓ/min) Note 3		80	50	30

Note 1. Positioning repeatability in one direction.
Note 2. CLASS 10 (0.1μm) FED-STD-209D or equivalent when a suction blower is used.
Note 3. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	1kg	1584	324	745
	3kg	699	104	251
Lead 12	2kg	1166	159	406
	5kg	551	59	155
Lead 6	3kg	1194	104	294
	9kg	624	31	89

Wall installation (Unit: mm)

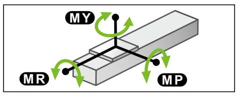
		A	B	C
Lead 20	1kg	679	303	1505
	3kg	215	87	605
Lead 12	2kg	364	126	1073
	5kg	123	28	438
Lead 6	3kg	259	72	354
	9kg	50	0	154

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	246	245
Lead 6	2.4kg	110	110

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



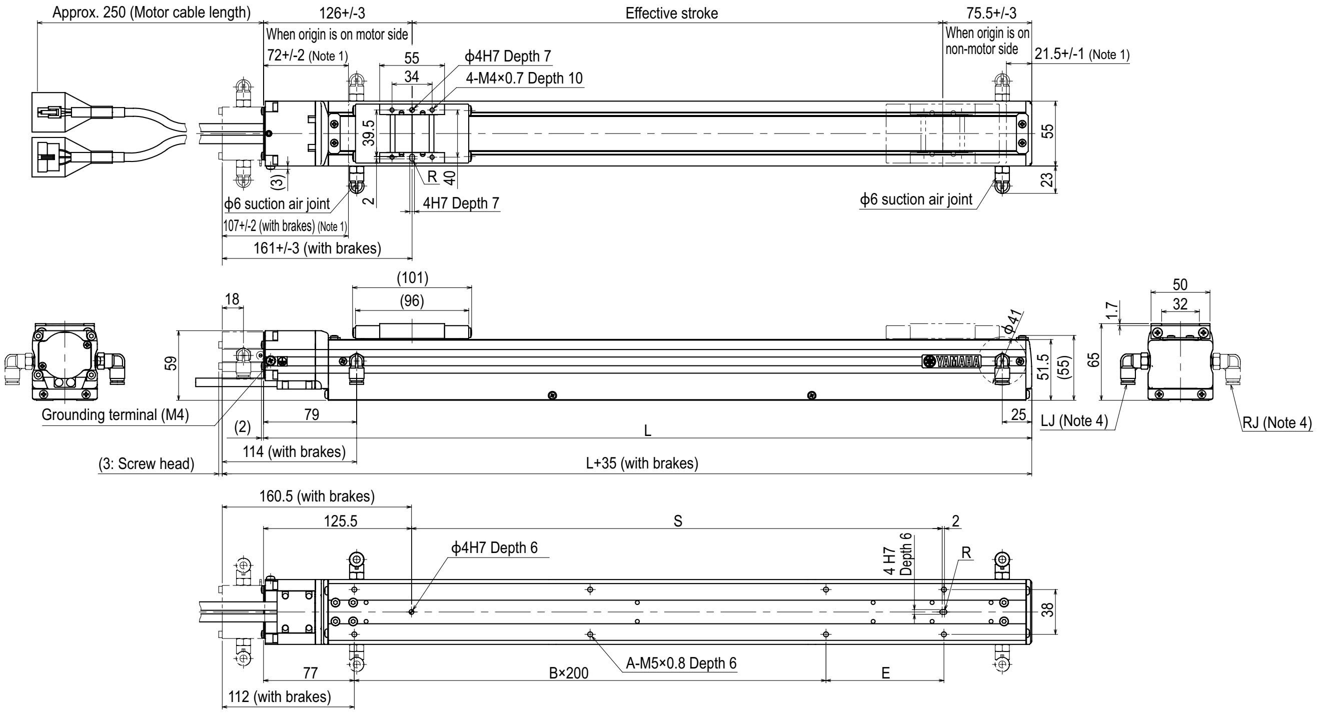
(Unit: N·m)

MY	MP	MR
30	34	40

Controller

Controller	Operation method
ERCD	Pulse train control / Programming / I/O point trace / Remote command / Operation using RS-232C communication

C5L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5	1001.5
A		4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12
B		0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4
E		100	200	200	100	100	200	200	100	100	200	200	100	100	200	200	100
S		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg) Note 3		1.7	2.0	2.2	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9	5.1	5.4
Maximum speed for each stroke Note 5 (mm/sec)	Lead 20	1000													900	800	700
	Speed setting	-													90%	80%	70%
	Lead 12	800												640	560	480	440
	Lead 6	400												320	280	240	220
	Speed setting	-												80%	70%	60%	55%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. Either right or left can be selected for the installation direction for the ϕ6 intake air joint. (The left side is the standard.)
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
Note 6. External view of C5LH is identical to C5L.

C5LH

- High lead: Lead 20
- Origin on the non-motor side is selectable

Ordering method

C5LH - [Lead designation] - [Brake] - [Direction of air coupler installation] - [Origin position change] - [Stroke] - [Cable length]

Model	Lead designation	Brake Note 1	Direction of air coupler installation	Origin position change	Stroke	Cable length Note 2
C5LH	20: 20mm 12: 12mm 6: 6mm	No entry: With no brake BK: With brake	LJ: Left (Standard) RJ: Right	None: Standard Z: Non-motor side	50 to 800 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TSX TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05 05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

Driver	Power-supply voltage	Driver: Power capacity
RDV-X	2 2: AC200V	05 05: 100W or less

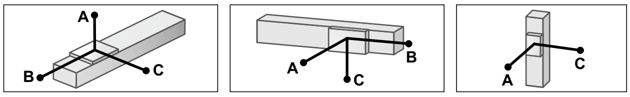
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		30		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed (mm/sec)		1000	800	400
Maximum payload (kg)	Horizontal	3	5	9
	Vertical	-	1.2	2.4
Rated thrust (N)		19	32	64
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+201.5		
	Vertical	Stroke+236.5		
Maximum outside dimension of body cross-section (mm)		W55×H65		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		ISO CLASS 3 (ISO14644-1) Note 2		
Intake air (Nℓ/min) Note 3		80	50	30

Note 1. Positioning repeatability in one direction.
Note 2. CLASS 10 (0.1μm) FED-STD-209D or equivalent when a suction blower is used.
Note 3. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	1kg	1099	324	645
	3kg	488	104	241
Lead 12	2kg	916	159	398
	5kg	436	60	152
Lead 6	3kg	1194	105	294
	9kg	624	31	89

Wall installation (Unit: mm)

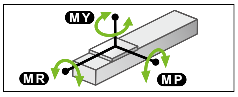
		A	B	C
Lead 20	1kg	602	303	950
	3kg	197	87	432
Lead 12	2kg	347	141	800
	5kg	119	44	355
Lead 6	3kg	259	87	950
	9kg	50	15	385

Vertical installation (Unit: mm)

		A	C
Lead 12	1.2kg	240	239
Lead 6	2.4kg	109	110

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



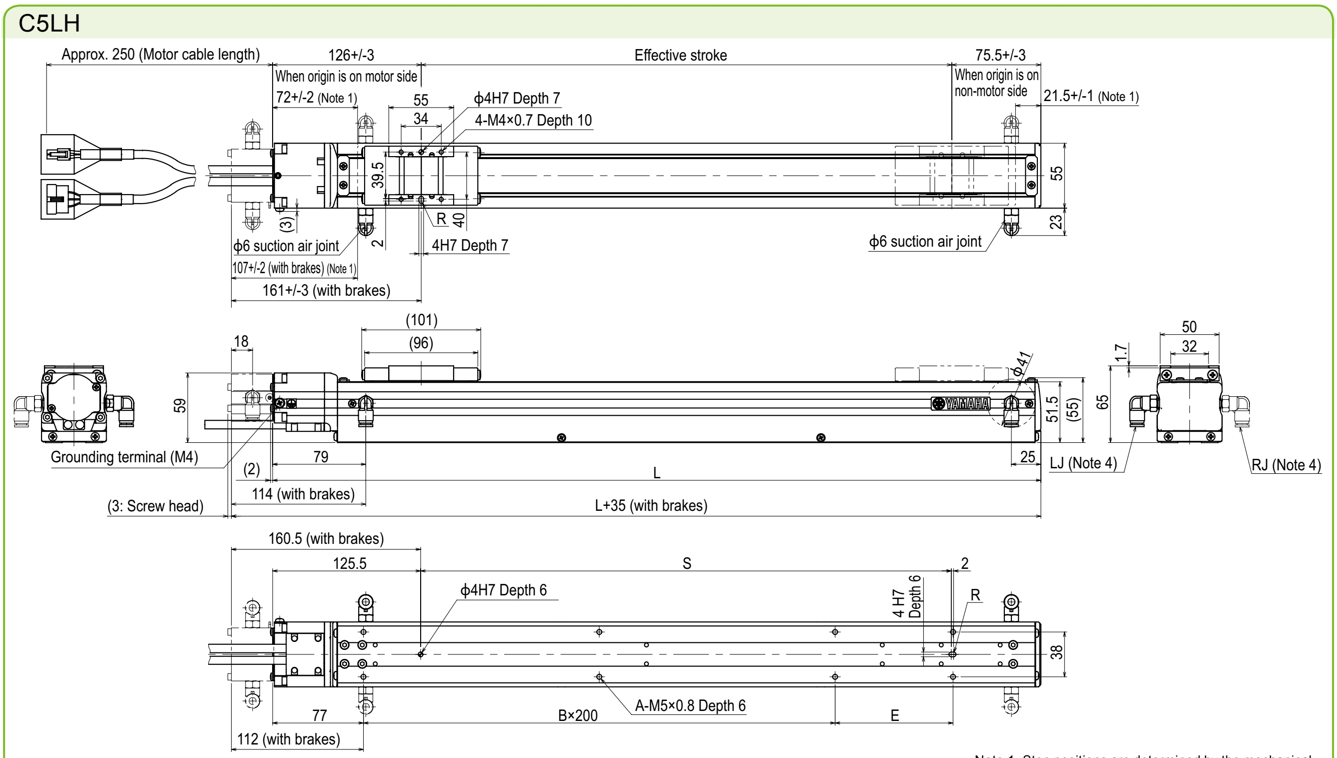
(Unit: N·m)

MY	MP	MR
30	34	40

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205	Pulse train control

C5LH



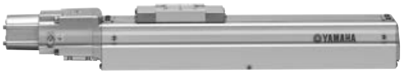
Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5	1001.5
A		4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12
B		0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4
E		100	200	200	100	100	200	200	100	100	200	200	100	100	200	200	100
S		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg) Note 3		1.7	2.0	2.2	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9	5.1	5.4
Maximum speed for each stroke Note 5 (mm/sec)	Lead 20	1000													900	800	700
	Speed setting	-													90%	80%	70%
	Lead 12	800												640	560	480	440
	Lead 6	400												320	280	240	220
	Speed setting	-												80%	70%	60%	55%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. Either right or left can be selected for the installation direction for the ϕ6 intake air joint. (The left side is the standard.)
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
Note 6. External view of C5LH is identical to C5L.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

C6L

- High lead: Lead 20
- Origin on the non-motor side is selectable



Ordering method

C6L - [Lead designation] - [Brake Note 1] - [Direction of air coupler installation] - [Origin position change] - [Stroke] - [Cable length Note 2]

Model	Lead designation	Brake Note 1	Direction of air coupler installation	Origin position change	Stroke	Cable length Note 2
C6L	20: 20mm 12: 12mm 6: 6mm	No entry: With no brake BK: With brake	LJ: Left (Standard) RJ: Right	None: Standard Z: Non-motor side	50 to 800 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX - [Driver: Power-supply voltage / Power capacity] - [LCD monitor] - [I/O selection] - [Battery]

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** - [Usable for CE] - [I/O selection] - [Battery]

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** - **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

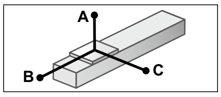
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

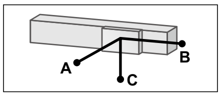
Basic specifications

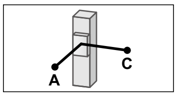
AC servo motor output (W)		60		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw ϕ12 (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed (mm/sec)		1000	800	400
Maximum payload (kg)	Horizontal	10	12	30
	Vertical	-	4	8
Rated thrust (N)		51	85	170
Stroke (mm)		50 to 800 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+247.5		
	Vertical	Stroke+282.5		
Maximum outside dimension of body cross-section (mm)		W65×H65		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		ISO CLASS 3 (ISO14644-1) Note 2		
Intake air (Nℓ/min) Note 3		80	50	30

Note 1. Positioning repeatability in one direction.
Note 2. CLASS 10 (0.1μm) FED-STD-209D or equivalent when a suction blower is used.
Note 3. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	2kg	433	192	295
	6kg	145	59	104
	10kg	110	33	75
Lead 12	3kg	622	125	336
	8kg	271	41	121
	12kg	214	24	76
Lead 6	5kg	692	73	236
	10kg	372	33	109
	30kg	157	0	25

Wall installation (Unit: mm)

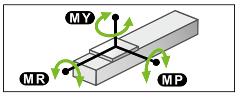
		A	B	C
Lead 20	2kg	300	174	365
	6kg	83	44	105
	10kg	43	18	71
Lead 12	3kg	291	96	317
	8kg	87	13	110
	12kg	41	0	126
Lead 6	5kg	202	45	237
	10kg	70	5	97
	30kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	353	351
	2kg	163	164
	4kg	68	70
Lead 6	2kg	169	170
	4kg	71	73
	8kg	21	24

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 600mm stroke models.

Static loading moment



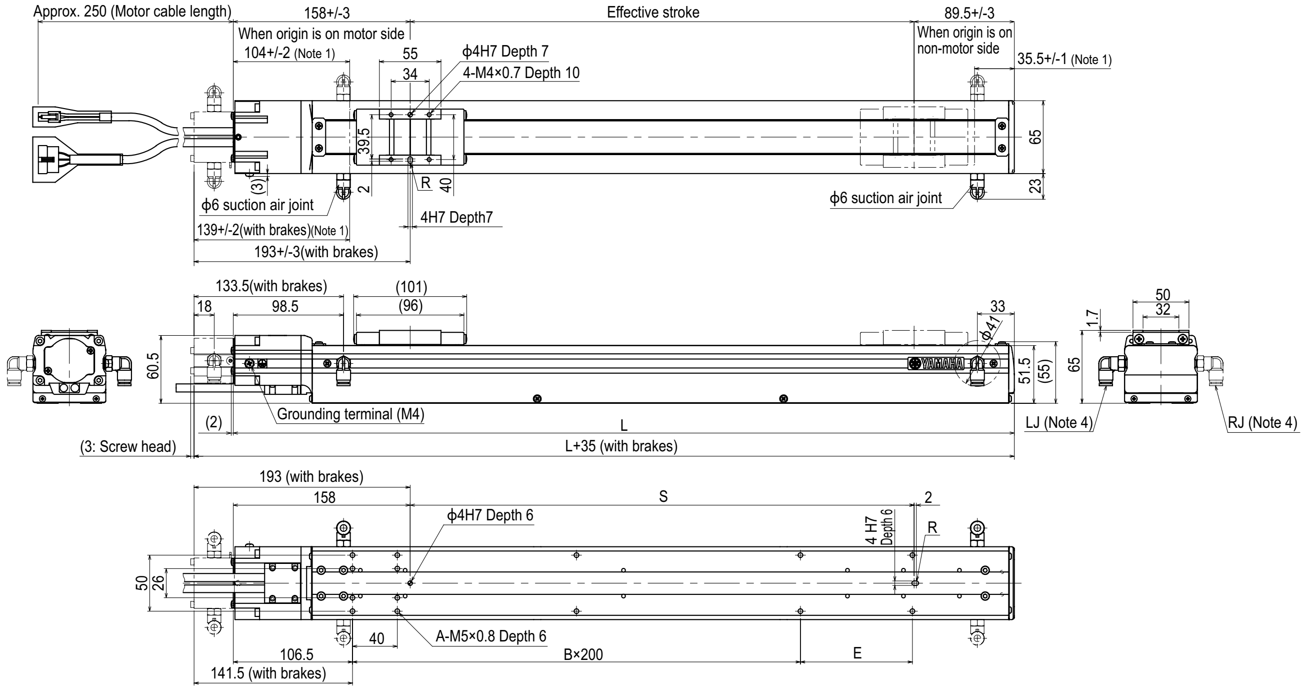
(Unit: N·m)

MY	MP	MR
35	40	50

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

C6L



Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		297.5	347.5	397.5	447.5	497.5	547.5	597.5	647.5	697.5	747.5	797.5	847.5	897.5	947.5	997.5	1047.5
A		10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18
B		0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4
E		150	200	200	100	100	200	200	100	100	200	200	100	100	200	200	100
S		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg) Note 3		2.6	2.9	3.1	3.4	3.7	4.0	4.3	4.6	4.9	5.2	5.4	5.7	6.0	6.3	6.6	6.8
Maximum speed for each stroke Note 5 (mm/sec)	Lead 20	1000													900	800	700
	Speed setting	-													90%	80%	70%
	Lead 12	800												680	600	520	480
	Lead 6	400												340	300	260	240
	Speed setting	-												85%	75%	65%	60%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R30.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.
Note 4. Either right or left can be selected for the installation direction for the ϕ6 intake air joint. (The left side is the standard.)
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C8

High lead: Lead 20

Origin on the non-motor side is selectable

Ordering method

C8 – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead	Brake Note 1	Option	Stroke	Cable length Note 2
C8	20: 20mm 12: 12mm 6: 6mm	No entry: With no brake BK: With brake	Origin position change: None: Standard Z: Non-motor side	150 to 800 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

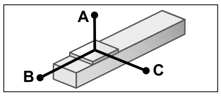
Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		100		
Repeatability Note 1 (mm)		+/-0.02		
Deceleration mechanism		Ball screw (Class C10)		
Ball screw lead (mm)		20	12	6
Maximum speed Note 2 (mm/sec)		1000	720	360
Maximum payload (kg)	**Horizontal**	12	20	40
	Vertical	–	4	8
Rated thrust (N)		84	141	283
Stroke (mm)		150 to 800 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+320		
	Vertical	Stroke+355		
Maximum outside dimension of body cross-section (mm)		W80 × H75		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 Note 3		
Intake air (Nℓ/min)		30 to 90 Note 4		

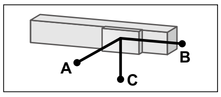
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



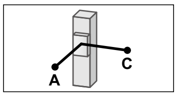
Horizontal installation (Unit: mm)

		A	B	C
Lead 20	5kg	245	85	146
	10kg	131	39	69
	12kg	115	31	57
Lead 12	5kg	364	92	192
	10kg	207	43	92
	15kg	144	26	41
	20kg	112	18	40
Lead 6	10kg	406	47	124
	20kg	225	20	54
	30kg	162	11	31
	40kg	168	7	20



Wall installation (Unit: mm)

		A	B	C
Lead 20	5kg	121	71	211
	10kg	42	24	88
	12kg	29	16	66
Lead 12	5kg	164	78	328
	10kg	62	29	158
	15kg	26	12	83
	20kg	7	4	32
Lead 6	10kg	87	33	353
	20kg	18	6	127
	30kg	0	0	0
	40kg	0	0	0

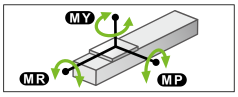


Vertical installation (Unit: mm)

		A	C
Lead 12	1kg	440	442
	2kg	207	209
	3kg	130	132
	4kg	91	92
Lead 6	2kg	237	238
	4kg	106	96
	6kg	62	62
	8kg	34	40

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



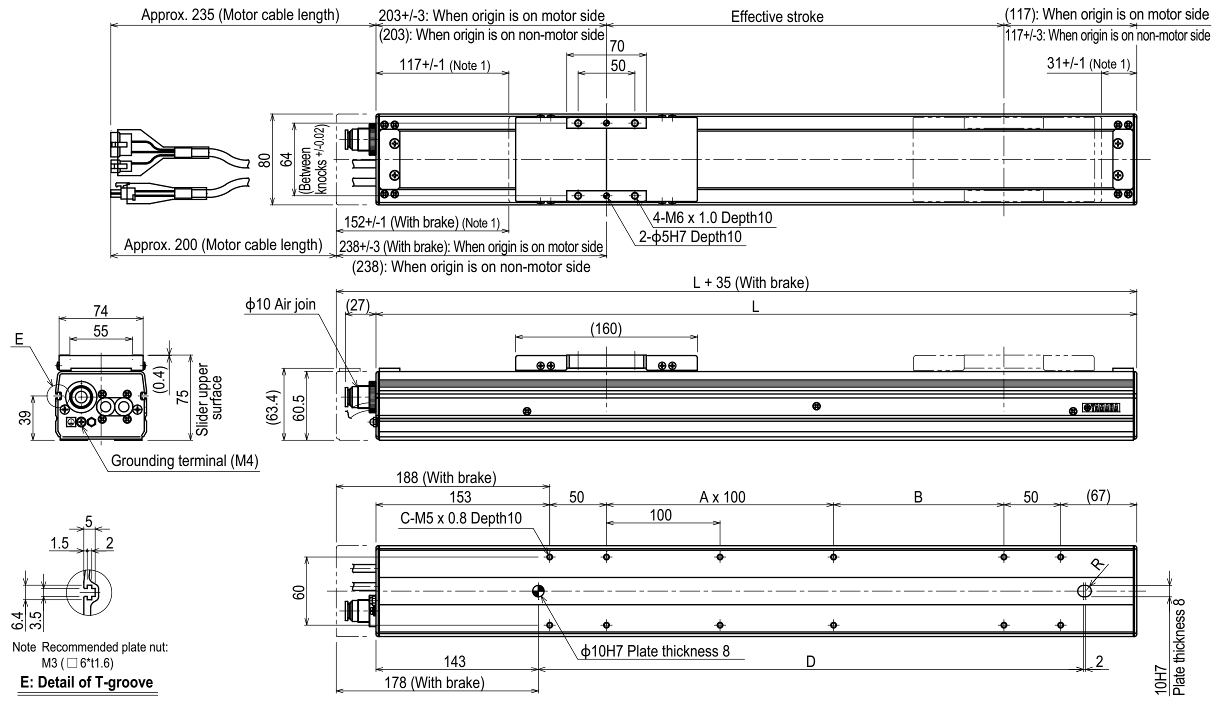
(Unit: N·m)

MY	MP	MR
70	95	110

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

C8



Note Recommended plate nut:
M3 (☐6*t1.6)

E: Detail of T-groove

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120
A		0	1	1	2	2	3	3	4	4	5	5	6	6	7
B		150	100	150	100	150	100	150	100	150	100	150	100	150	100
C		8	10	10	12	12	14	14	16	16	18	18	20	20	22
D		280	330	380	430	480	530	580	630	680	730	780	830	880	930
Weight (kg) Note 3		3.6	3.9	4.1	4.4	4.7	5.0	5.3	5.6	5.9	6.2	6.4	6.7	7.0	7.3
Maximum speed Note 4 (mm/sec)	Lead 20	1000										950	800	700	650
	Speed setting	–										95%	80%	70%	65%
	Lead 12	720									648	540	468	432	360
	Lead 6	360									324	270	234	216	180
	Speed setting	–									90%	75%	65%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.3 kg heavier than the models with no brake shown in the table.
Note 4. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C8L

Origin on the non-motor side is selectable

Ordering method

C8L – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead	Brake	Option		Stroke	Cable length Note 1
C8L	20: 20mm	No entry: With no brake	Origin position change	None: Standard	150 to 1050 (50mm pitch)	3L: 3.5m
	10: 10mm	BK: With brake		Z: Non-motor side		5L: 5m
	5: 5mm					10L: 10m
						3K/5K/10K (Flexible cable)

TSX ☐ – ☐ – ☐ – ☐

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	L: With LCD	PN: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			EP: EtherNet/IP™	
			PT: PROFINET	
			GW: No I/O board Note 3	

SR1-X **05** – ☐ – ☐ – ☐

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard	N: NPN	B: With battery (Absolute)
		E: CE marking	P: PNP	N: None (Incremental)
			CC: CC-Link	
			DN: DeviceNet™	
			PB: PROFIBUS	

RDV-X **2** **05** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

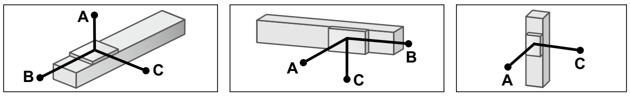
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		100		
Repeatability Note 1 (mm)		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed Note 2 (mm/sec)		1000	600	300
Maximum payload (kg)	Horizontal	20	40	50
	Vertical	4	8	16
Rated thrust (N)		84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+325		
	Vertical	Stroke+360		
Maximum outside dimension of body cross-section (mm)		W80 × H75		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 Note 3		
Intake air (Nℓ/min)		30 to 90 Note 4		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	5kg	259	122	179
	10kg	149	55	89
	15kg	100	33	56
	20kg	95	22	41
Lead 10	10kg	251	61	130
	20kg	127	25	55
	30kg	90	14	31
	40kg	69	8	18
Lead 5	20kg	256	29	76
	30kg	188	16	43
	40kg	96	10	28
	50kg	33	6	18

Wall installation (Unit: mm)

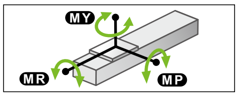
		A	B	C
Lead 20	5kg	147	100	220
	10kg	53	32	97
	15kg	17	10	39
	20kg	0	0	0
Lead 10	10kg	87	41	197
	20kg	10	4	37
	30kg	0	0	0
	40kg	0	0	0
Lead 5	20kg	24	9	152
	30kg	0	0	0
	40kg	0	0	0
	50kg	0	0	0

Vertical installation (Unit: mm)

		A	C
Lead 20	2kg	255	260
	4kg	111	115
Lead 10	2kg	300	302
	4kg	131	133
	6kg	75	77
	8kg	47	49
Lead 5	5kg	113	114
	10kg	37	38
	15kg	12	12
	16kg	9	9

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



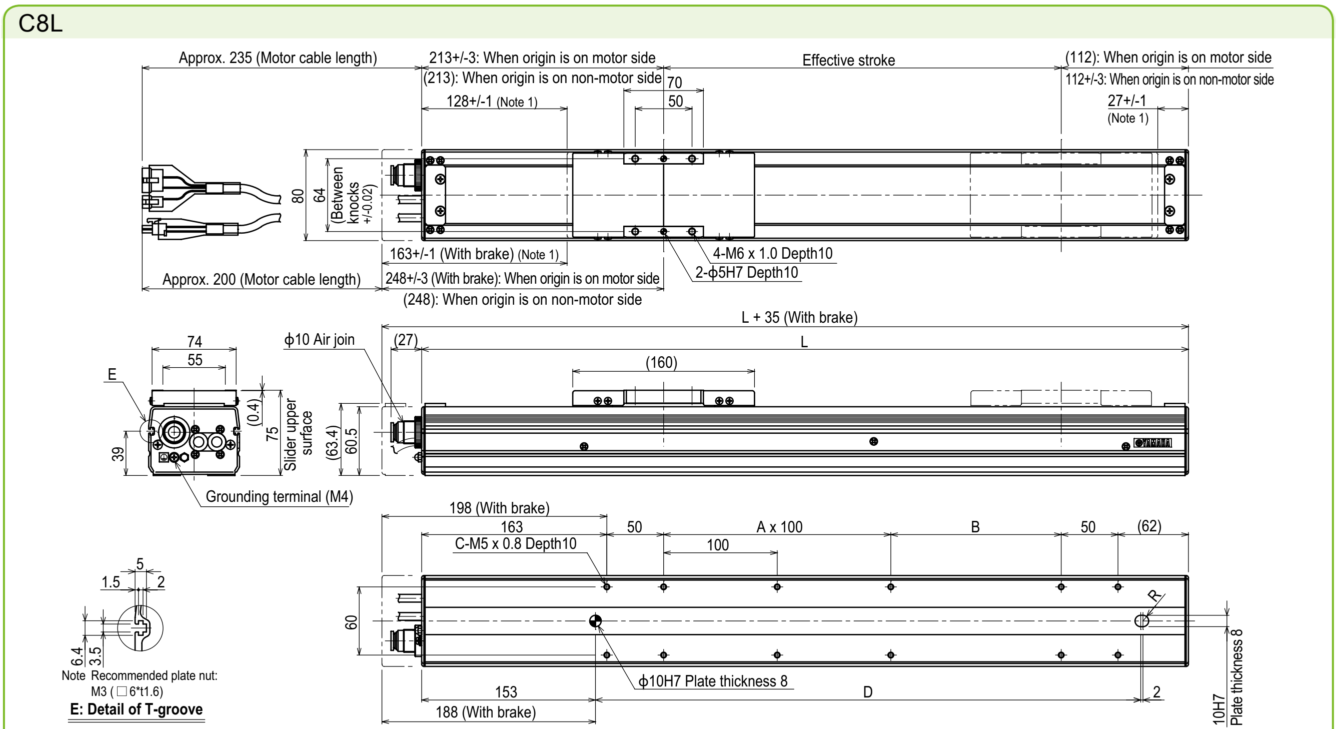
(Unit: N·m)

MY	MP	MR
70	95	110

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

C8L


Approx. 235 (Motor cable length)
213+/-3: When origin is on motor side
(213): When origin is on non-motor side
128+/-1 (Note 1)
70
50
Effective stroke
(112): When origin is on motor side
112+/-3: When origin is on non-motor side
27+/-1
(Note 1)
80
64 (Between knocks +/-0.02)
163+/-1 (With brake) (Note 1)
248+/-3 (With brake): When origin is on motor side
(248): When origin is on non-motor side
4-M6 x 1.0 Depth10
2-ϕ5H7 Depth10
Approx. 200 (Motor cable length)
L + 35 (With brake)
L
74
55
ϕ10 Air join
(27)
(160)
E
(0.4)
75
Slider upper surface
(63.4)
60.5
39
Grounding terminal (M4)
198 (With brake)
163
50
A x 100
B
50
(62)
C-M5 x 0.8 Depth10
100
R
60
5
1.5
2
6.4
3.5
Note Recommended plate nut: M3 (☐6*t1.6)
E: Detail of T-groove
ϕ10H7 Plate thickness 8
153
188 (With brake)
D
2
10H7 Plate thickness 8

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		475	525	575	625	675	725	775	825	875	925	975	1025	1075	1125	1175	1225	1275	1325	1375
A		0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9
B		150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150
C		8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
D		280	330	380	430	480	530	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180
Weight (kg) Note 3		3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.0	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5	8.8	9.2	9.5
Maximum speed Note 4 (mm/sec)	Lead 20	1000												900	800	700	650	600	550	500
	Speed setting	–												90%	80%	70%	65%	60%	55%	50%
	Lead 10	600											510	450	390	360	330	300	270	240
	Lead 5	300											255	225	195	180	165	150	135	120
	Speed setting	–											85%	75%	65%	60%	55%	50%	45%	40%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.3 kg heavier than the models with no brake shown in the table.
Note 4. When the stroke is longer than 700mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C8LH

Origin on the non-motor side is selectable

Ordering method

C8LH – Lead – Option – Stroke – Cable length Note 1

Model	Lead	Option		Stroke	Cable length Note 1
C8LH	20: 20mm 10: 10mm 5: 5mm	Origin position change	None: Standard Z: Non-motor side	150 to 1050 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX – Driver: Power-supply voltage / Power capacity – LCD monitor – I/O selection – Battery

Positioner Note 2	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SR1-X 05 – Usable for CE – I/O selection – Battery

Controller	Driver: Power capacity	Usable for CE	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 05 – RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

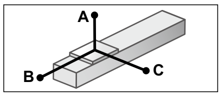
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

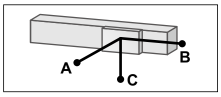
Basic specifications

AC servo motor output (W)		100		
Repeatability Note 1 **(mm)**		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed Note 2 **(mm/sec)**		1000	600	300
Maximum payload (kg)	**Horizontal**	30	60	80
Rated thrust (N)		84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)		Stroke+389		
Maximum outside dimension of body cross-section (mm)		W80 × H75		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 Note 3		
Intake air (Nℓ/min)		30 to 90 Note 4		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note





Horizontal installation (Unit: mm)

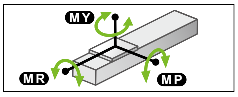
		A	B	C
Lead 20	10kg	687	274	200
	20kg	401	125	92
	30kg	338	76	57
Lead 10	20kg	622	137	111
	40kg	472	57	47
	60kg	375	30	25
Lead 5	20kg	1087	148	127
	40kg	844	63	54
	60kg	707	34	29
	80kg	594	20	17

Wall installation (Unit: mm)

		A	B	C
Lead 20	10kg	163	225	617
	20kg	56	76	302
	30kg	20	27	182
Lead 10	20kg	74	90	517
	40kg	8	11	196
	60kg	–	–	–
Lead 5	20kg	89	104	974
	40kg	15	18	505
	60kg	–	–	–
	80kg	–	–	–

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



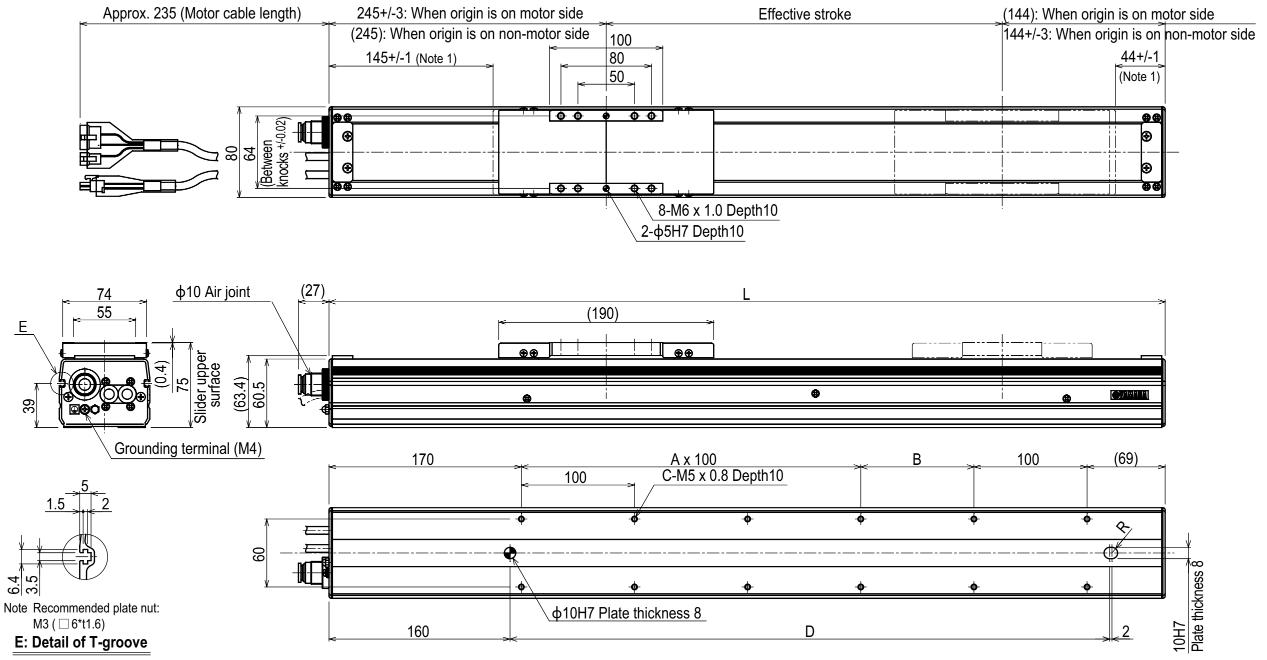
(Unit: N·m)

MY	MP	MR
128	163	143

Controller

Controller	Operation method
SR1-X05 RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 TS-X205	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

C8LH



Note Recommended plate nut: M3 (☐6*t1.6)

E: Detail of T-groove

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339	1389	1439
A		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10
B		100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100	150	100
C		8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
D		330	380	430	480	530	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230
Weight (kg)		4.7	5.0	5.3	5.6	5.9	6.2	6.6	6.9	7.2	7.5	7.8	8.1	8.4	8.7	9.0	9.3	9.7	10.0	10.3
Maximum speed Note 3 (mm/sec)	Lead 20	1000										–	900	800	700	650	600	550	500	450
	Speed setting	–										–	90%	80%	70%	65%	60%	55%	50%	45%
	Lead 10	600										510	450	390	360	330	300	270	240	210
	Lead 5	300										255	225	195	180	165	150	135	120	105
	Speed setting	–										85%	75%	65%	60%	55%	50%	45%	40%	35%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. When the stroke is longer than 650mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C10

● Origin on the non-motor side is selectable: Lead 20 • 10

Ordering method

C10 – [Lead] – [Brake] – [Option] – [Stroke] – [Cable length]

Model	Lead	Brake	Option		Stroke	Cable length Note 2
C10	20: 20mm 10: 10mm 5: 5mm	No entry: With no brake BK: With brake	Origin position change	None: Standard Z: Non-motor side Note 1	150 to 1050 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX – [Driver: Power-supply voltage / Power capacity] – [Regenerative unit] – [LCD monitor] – [I/O selection] – [Battery]

Positioner Note 3	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less 205: 200V/100W or less	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X **05** – [Usable for CE] – [Regenerative unit] – [I/O selection] – [Battery]

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **05** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

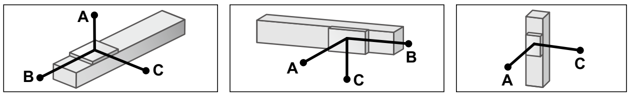
Note 1. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		100		
Repeatability Note 1 **(mm)**		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed Note 2 **(mm/sec)**		1000	500	250
Maximum payload (kg)	**Horizontal**	20	40	60
	Vertical	4	10	20
Rated thrust (N)		84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)	**Horizontal**	Stroke+283		
	Vertical	Stroke+313		
Maximum outside dimension of body cross-section (mm)		W104 × H85		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 Note 3		
Intake air (Nℓ/min)		30 to 90 Note 4		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	5kg	1875	530	510
	10kg	1079	247	242
	20kg	628	106	107
Lead 10	15kg	765	156	164
	30kg	425	62	66
	40kg	350	38	42
Lead 5	30kg	960	63	68
	50kg	565	25	28
	60kg	470	16	17

Wall installation (Unit: mm)

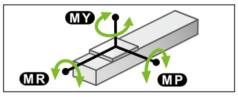
		A	B	C
Lead 20	5kg	496	451	1826
	10kg	218	168	1002
	20kg	78	27	497
Lead 10	10kg	230	170	1036
	20kg	80	29	506
	30kg	30	0	311
Lead 5	10kg	234	170	2716
	20kg	82	29	1206
	30kg	31	0	711

Vertical installation (Unit: mm)

		A	C
Lead 20	1kg	2461	2492
	2kg	1213	1244
	4kg	585	617
Lead 10	4kg	627	658
	8kg	280	312
	10kg	210	242
Lead 5	10kg	213	244
	15kg	119	151
	20kg	72	104

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

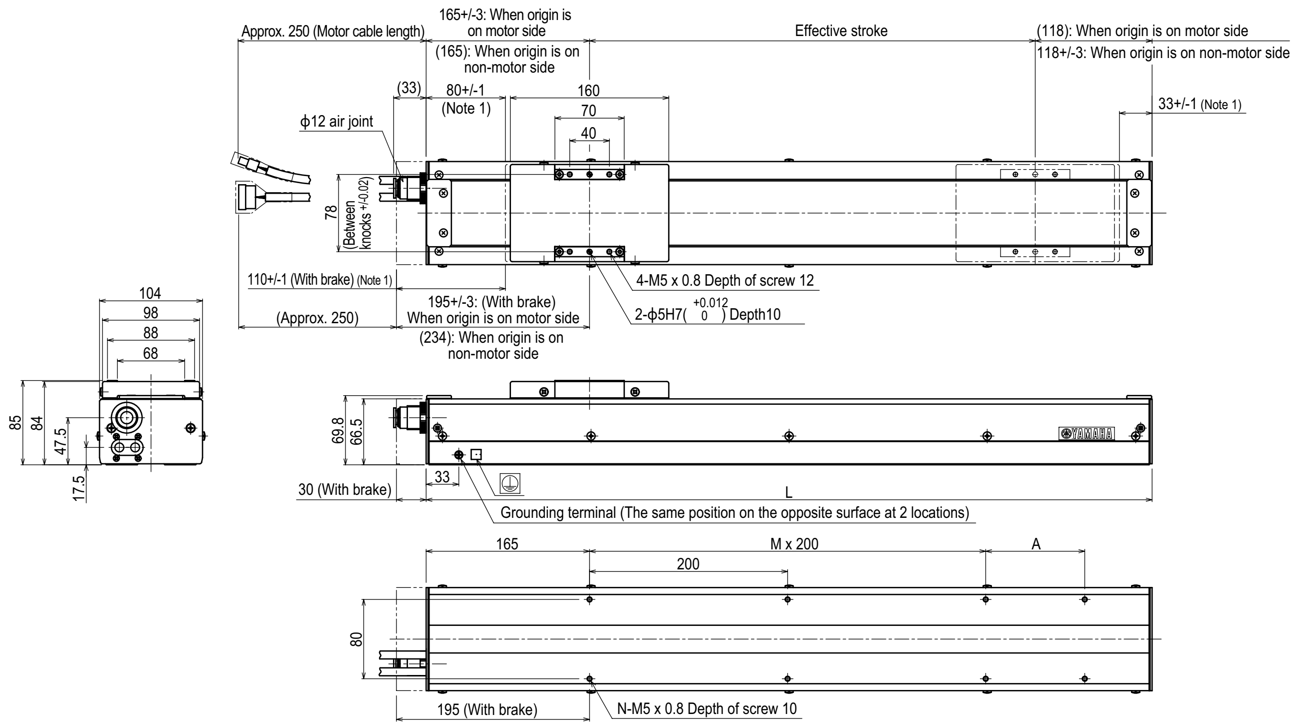
MY	MP	MR
119	119	105

Controller

Controller	Operation method
SR1-X05 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 Note TS-X205 Note	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

Note. Regenerative unit is required when the models used vertically and with 700mm or larger stroke.

C10


Approx. 250 (Motor cable length)
165+/-3: When origin is on motor side
(165): When origin is on non-motor side
Effective stroke
(118): When origin is on motor side
118+/-3: When origin is on non-motor side
(33)
80+/-1
(Note 1)
160
70
40
33+/-1 (Note 1)
ϕ12 air joint
78
(Between knocks +/-0.02)
110+/-1 (With brake) (Note 1)
(Approx. 250)
195+/-3: (With brake)
When origin is on motor side
(234): When origin is on non-motor side
4-M5 x 0.8 Depth of screw 12
2-ϕ5H7(+0.012 0) Depth10
104
98
88
68
85
84
47.5
17.5
69.8
66.5
30 (With brake)
33
L
Grounding terminal (The same position on the opposite surface at 2 locations)
165
M x 200
200
A
80
195 (With brake)
N-M5 x 0.8 Depth of screw 10
YAMAHA

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
Weight (kg) Note 3		4.4	5.0	5.5	6.1	6.7	7.3	7.8	8.4	9.0	9.6	10.1	10.7	11.3	11.9	12.4	13.0	13.6	14.2	14.7
Maximum speed Note 4 (mm/sec)	Lead 20	1000												950	950	750	750	600	600	500
	Lead 10	500												475	475	375	375	300	300	250
	Lead 5	250												237	237	187	187	150	150	125
	Speed setting	–												95%	95%	75%	75%	60%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.4 kg heavier than the models with no brake shown in the table.

Note 4. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C14

Origin on the non-motor side is selectable

Ordering method

C14 – Lead – Brake – Option – Stroke – Cable length

Model	Lead	Brake	Option		Stroke	Cable length [Note 1]
C14	20: 20mm	No entry: With no brake	Origin position change	None: Standard	150 to 1050 (50mm pitch)	3L: 3.5m
	10: 10mm	BK: With brake		Z: Non-motor side		5L: 5m
	5: 5mm					10L: 10m
						3K/5K/10K (Flexible cable)

TSX – Driver: Power-supply voltage / Power capacity – Regenerative unit – LCD monitor – I/O selection – Battery

Positioner [Note 2]	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	105: 100V/100W or less	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
	205: 200V/100W or less	R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board [Note 3]	

SR1-X 05 – Usable for CE – Regenerative unit – I/O selection – Battery

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	05: 100W or less	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 05 – RBR1

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	05: 100W or less	RBR1

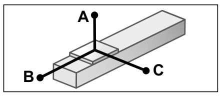
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		100		
Repeatability [Note 1] (mm)		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed [Note 2] (mm/sec)		1000	500	250
Maximum payload (kg)	Horizontal	30	55	80
	Vertical	4	10	20
Rated thrust (N)		84	169	339
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+285		
	Vertical	Stroke+315		
Maximum outside dimension of body cross-section (mm)		W136 × H96		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 [Note 3]		
Intake air (Nℓ/min)		30 to 90 [Note 4]		

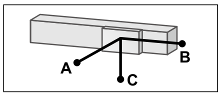
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1µm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang [Note]



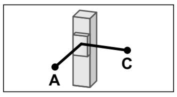
Horizontal installation (Unit: mm)

		A	B	C
Lead 20	5kg	2127	1384	968
	15kg	1177	459	425
	30kg	1247	242	291
Lead 10	20kg	1120	349	353
	40kg	857	179	215
	55kg	932	138	182
Lead 5	50kg	2017	250	335
	60kg	1477	134	192
	80kg	1452	106	157



Wall installation (Unit: mm)

		A	B	C
Lead 20	5kg	1047	968	1553
	15kg	387	264	748
	30kg	206	97	633
Lead 10	20kg	299	180	658
	40kg	127	49	363
	55kg	79	16	296
Lead 5	50kg	233	103	1033
	60kg	75	13	433
	80kg	35	0	242

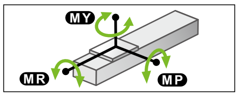


Vertical installation (Unit: mm)

		A	C
Lead 20	1kg	600	600
	2kg	1200	1200
	4kg	1141	885
Lead 10	4kg	1216	943
	8kg	621	482
	10kg	503	390
Lead 5	10kg	574	445
	15kg	370	287
	20kg	268	208

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

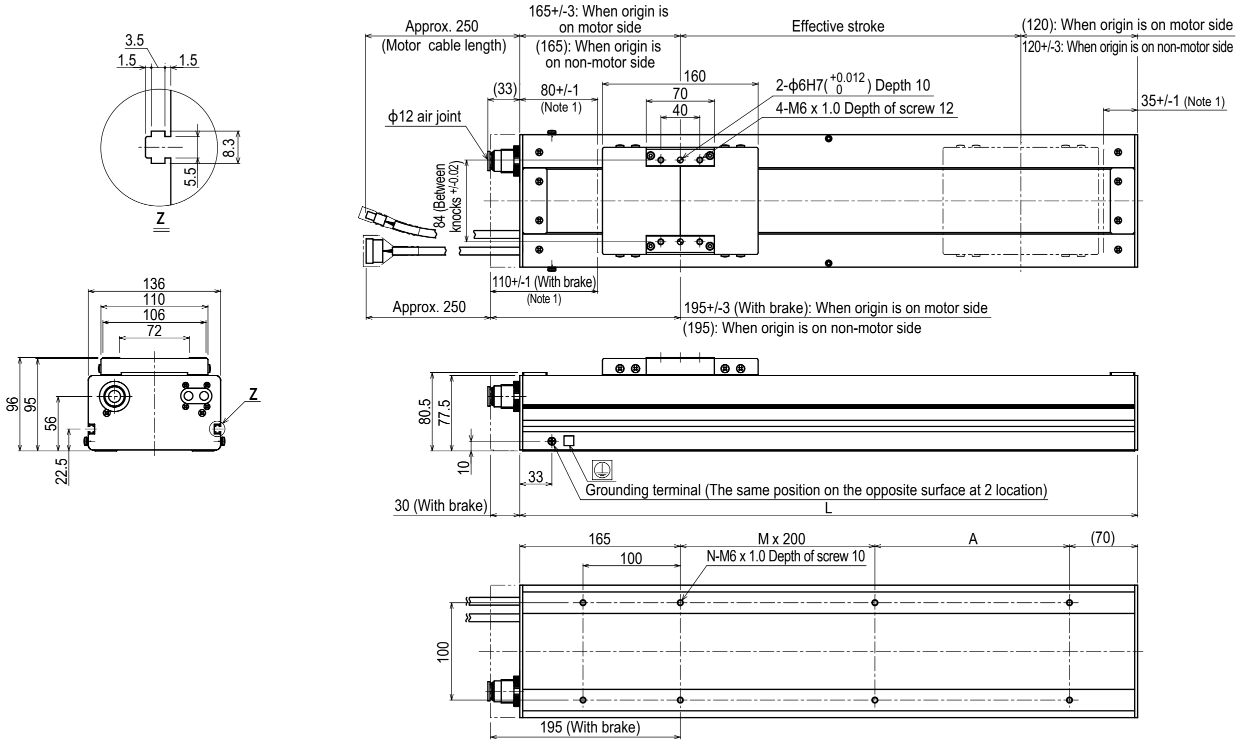
MY	MP	MR
232	233	204

Controller

Controller	Operation method
SR1-X-05 [Note] RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X105 [Note] TS-X205 [Note]	I/O point trace / Remote command
RDV-X205-RBR1	Pulse train control

Note. Regenerative unit is required when the models used vertically and with 700mm or larger stroke.

C14


3.5
1.5
1.5
8.3
5.5
Z
136
110
106
72
96
95
56
22.5
Z
Approx. 250
(Motor cable length)
165+/-3: When origin is on motor side
(165): When origin is on non-motor side
Effective stroke
(120): When origin is on motor side
120+/-3: When origin is on non-motor side
(33)
80+/-1
(Note 1)
160
70
40
2-ϕ6H7(+0.012 0) Depth 10
4-M6 x 1.0 Depth of screw 12
35+/-1 (Note 1)
ϕ12 air joint
84 (Between knocks +/-0.02)
110+/-1 (With brake)
(Note 1)
Approx. 250
195+/-3 (With brake): When origin is on motor side
(195): When origin is on non-motor side
80.5
77.5
10
33
30 (With brake)
Grounding terminal (The same position on the opposite surface at 2 location)
L
165
100
M x 200
N-M6 x 1.0 Depth of screw 10
A
(70)
100
195 (With brake)

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		435	485	535	585	635	685	735	785	835	885	935	985	1035	1085	1135	1185	1235	1285	1335
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N		6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
Weight (kg) [Note 3]		9.2	9.9	10.5	11.2	11.7	12.4	13.0	13.7	14.3	15.0	15.5	16.2	16.8	17.5	18.1	18.8	19.3	20.0	20.6
Maximum speed [Note 4] (mm/sec)	Lead 20	1000												950	950	750	750	600	600	500
	Lead 10	500												475	475	375	375	300	300	250
	Lead 5	250												237	237	187	187	150	150	125
	Speed setting	–												95%	95%	75%	75%	60%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.4 kg heavier than the models with no brake shown in the table.

Note 4. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C14H

● Origin on the non-motor side is selectable: Lead 20 • 10

Ordering method

C14H – [Lead] – [Brake] – [Option] – [Stroke] – [Cable length] –

Model	Lead	Brake	Option		Stroke	Cable length Note 2
C14H	20: 20mm 10: 10mm 5: 5mm	No entry: With no brake BK: With brake	Origin position change	None: Standard Z: Non-motor side Note 1	150 to 1050 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX [ ] – [ ] – [ ] – [ ] – [ ]

Positioner Note 3	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	110: 100V/200W 210: 200V/200W	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X **10** – [ ] – [ ] – [ ] – [ ]

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	10: 200W	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X **2** **10** – **RBR1**

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	10: 200W or less	RBR1

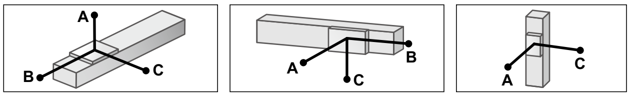
Note 1. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		200		
Repeatability Note 1 (mm)		+/-0.01		
Deceleration mechanism		Ball screw (Class C7)		
Ball screw lead (mm)		20	10	5
Maximum speed Note 2 (mm/sec)		1000	500	250
Maximum payload (kg)	Horizontal	40	80	100
	Vertical	8	20	30
Rated thrust (N)		170	341	683
Stroke (mm)		150 to 1050 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+349		
	Vertical	Stroke+379		
Maximum outside dimension of body cross-section (mm)		W136 × H96		
Cable length (m)		Standard: 3.5 / Option: 5, 10		
Degree of cleanliness		CLASS 10 Note 3		
Intake air (Nℓ/min)		30 to 90 Note 4		

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



Horizontal installation (Unit: mm)

		A	B	C
Lead 20	10kg	2247	1675	958
	20kg	1397	855	528
	40kg	1037	445	318
Lead 10	30kg	1937	583	478
	50kg	1637	364	323
	80kg	1717	242	235
Lead 5	60kg	2443	311	313
	80kg	2193	242	250
	100kg	2000	202	213

Wall installation (Unit: mm)

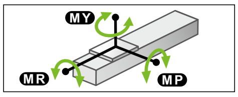
		A	B	C
Lead 20	10kg	987	1210	1678
	20kg	497	548	958
	40kg	247	217	598
Lead 10	30kg	402	328	1238
	50kg	227	152	878
	80kg	119	74	678
Lead 5	60kg	197	108	1308
	80kg	127	53	1008
	100kg	85	20	788

Vertical installation (Unit: mm)

		A	C
Lead 20	4kg	2400	2008
	6kg	1687	1358
	8kg	1287	1033
Lead 10	10kg	1347	1088
	15kg	887	718
	20kg	657	538
Lead 5	20kg	747	608
	25kg	663	484
	30kg	491	396

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

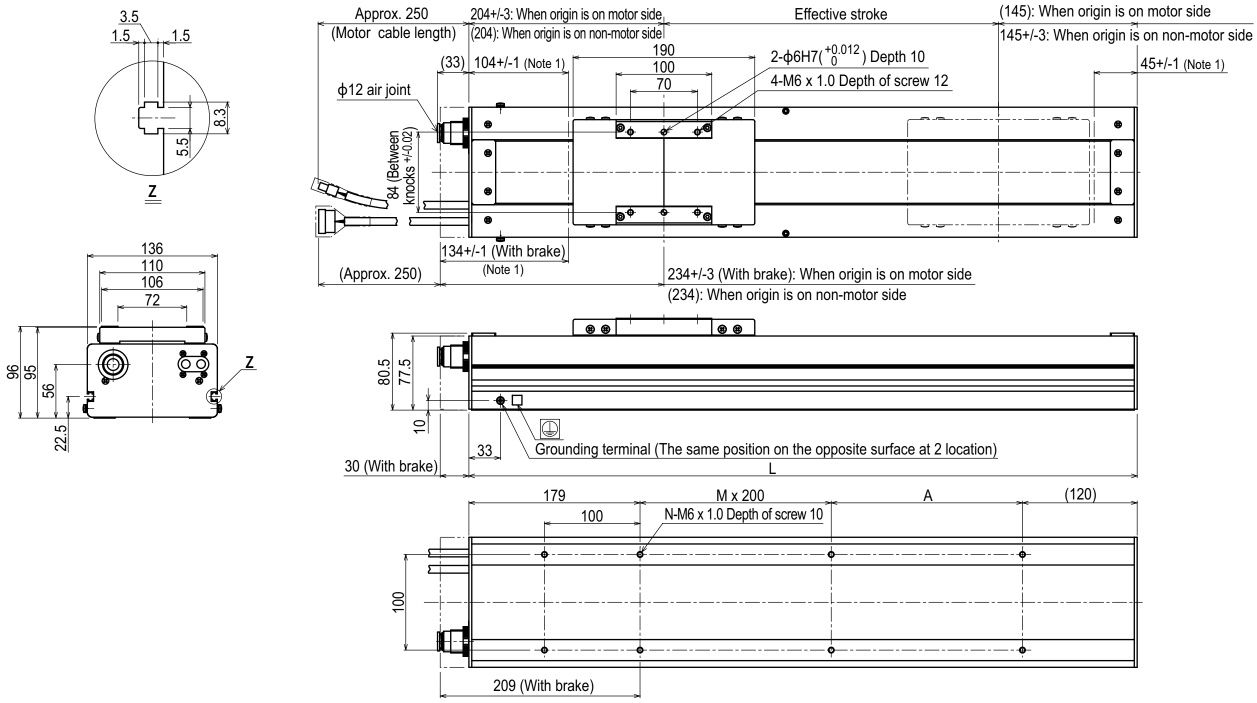
MY	MP	MR
293	294	258

Controller

Controller	Operation method
SR1-X10 Note RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X110 Note TS-X210 Note	I/O point trace / Remote command
RDV-X210-RBR1	Pulse train control

Note. Regenerative unit is required when used vertically.

C14H


3.5
1.5
1.5
8.3
5.5
Z
136
110
106
72
96
95
56
22.5
Z
Approx. 250
(Motor cable length)
204+/-3: When origin is on motor side
(204): When origin is on non-motor side
Effective stroke
(145): When origin is on motor side
145+/-3: When origin is on non-motor side
(33)
104+/-1 (Note 1)
190
100
70
2-ϕ6H7($^{+0.012}_{0}$) Depth 10
4-M6 x 1.0 Depth of screw 12
45+/-1 (Note 1)
ϕ12 air joint
84 (Between knocks +/-0.02)
134+/-1 (With brake)
(Note 1)
(Approx. 250)
234+/-3 (With brake): When origin is on motor side
(234): When origin is on non-motor side
80.5
77.5
10
33
Grounding terminal (The same position on the opposite surface at 2 location)
30 (With brake)
L
179
100
M x 200
N-M6 x 1.0 Depth of screw 10
A
(120)
100
209 (With brake)

Effective stroke		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L		499	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399
A		200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N		6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
Weight (kg) Note 3		10.7	11.4	12.0	12.7	13.2	13.9	14.5	15.2	15.8	16.5	17.0	17.7	18.3	19.0	19.6	20.3	20.8	21.5	22.1
Maximum speed Note 4 (mm/sec)	Lead 20	1000												950	950	750	750	600	600	500
	Lead 10	500												475	475	375	375	300	300	250
	Lead 5	250												237	237	187	187	150	150	125
	Speed setting	–												95%	95%	75%	75%	60%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 0.4 kg heavier than the models with no brake shown in the table.

Note 4. When the stroke is longer than 750mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C17

Origin on the non-motor side is selectable

Ordering method

C17 – [Lead] – [Brake] – [Option] – [Stroke] – [Cable length]

Model	Lead	Brake	Option	Stroke	Cable length Note 1
C17	20: 20mm 10: 10mm	No entry: With no brake BK: With brake	Origin position change: None: Standard Z: Non-motor side	200 to 1250 (50mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

TSX 220 – [ ] – [ ] – [ ] – [ ]

Positioner Note 2	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3	B: With battery (Absolute) N: None (Incremental)

SR1-X 20 – [ ] – [ ] – [ ] – [ ]

Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard E: CE marking	No entry: None R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 20 – [ ]

Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit
RDV-X	2: AC200V	20: 400W or less	RBR1 (Horizontal) RBR2 (Vertical)

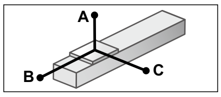
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

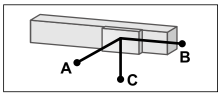
Basic specifications

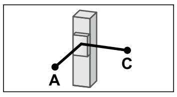
AC servo motor output (W)		400	
Repeatability Note 1 (mm)		+/-0.01	
Deceleration mechanism		Ball screw (Class C7)	
Ball screw lead (mm)		20	10
Maximum speed Note 2 (mm/sec)		1000	600
Maximum payload (kg)	**Horizontal**	80	120
	Vertical	15	35
Rated thrust (N)		339	678
Stroke (mm)		200 to 1250 (50mm pitch)	
Overall length (mm)	**Horizontal**	Stroke+395	
	Vertical	Stroke+425	
Maximum outside dimension of body cross-section (mm)		W168 × H114	
Cable length (m)		Standard: 3.5 / OP: 5, 10	
Degree of cleanliness		CLASS 10 Note 3	
Intake air (Nℓ/min)		30 to 90 Note 4	

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 950mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1µm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 20	30kg	2660	871	1040
	50kg	1911	508	615
	80kg	1541	303	377
Lead 10	60kg	2443	418	580
	100kg	2000	237	330
	120kg	1841	192	268

Wall installation (Unit: mm)

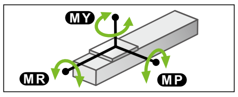
		A	B	C
Lead 20	30kg	1017	789	2576
	50kg	583	426	1808
	80kg	338	221	1380
Lead 10	60kg	525	336	2443
	100kg	271	155	2000
	120kg	207	109	1841

Vertical installation (Unit: mm)

		A	C
Lead 20	5kg	3000	3000
	10kg	2443	2443
	15kg	1633	1633
Lead 10	15kg	1728	1728
	25kg	1013	1013
	35kg	707	707

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

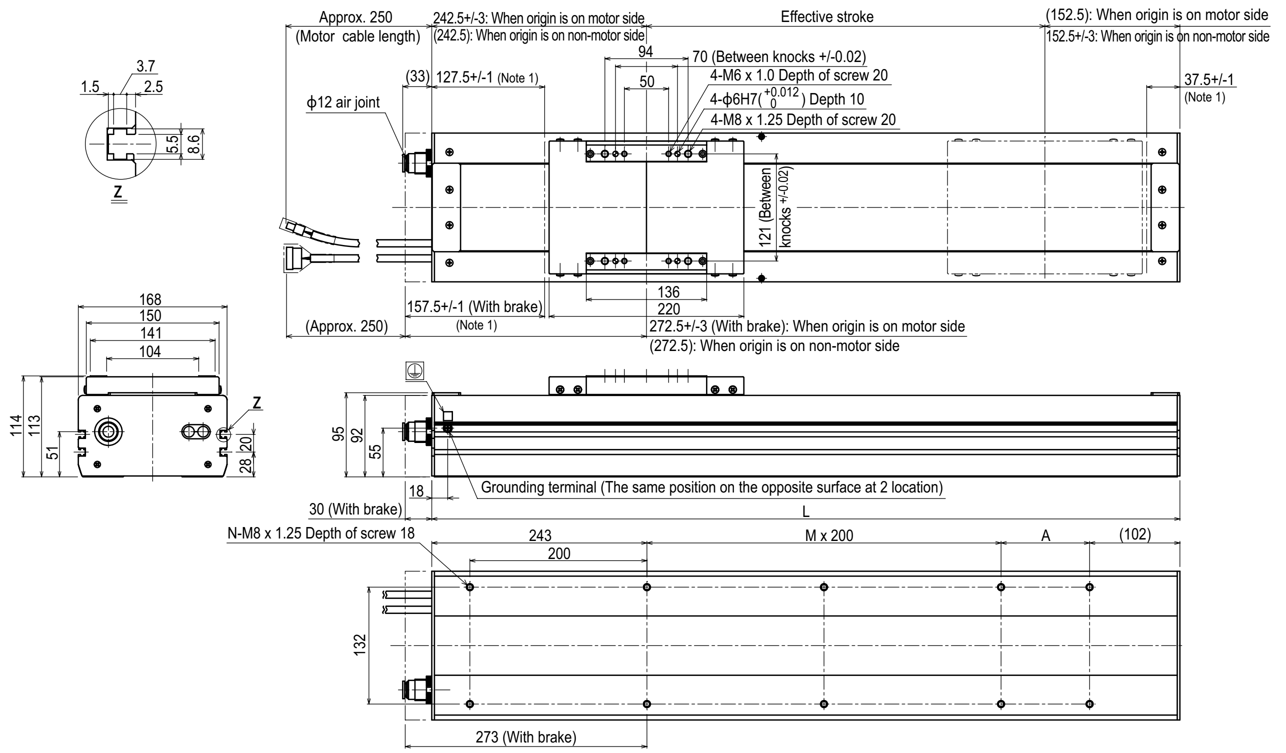
MY	MP	MR
1032	1034	908

Controller

Controller	Operation method
SR1-X20 Note RCX221/222, RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220 Note	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

Note. [The following arrangements require a regeneration unit.]
- Using in the upright position.
- To move at a speed exceeding 1,000 mm/sec horizontally.
- High lead (40) used horizontally.

C17


Approx. 250
(Motor cable length)
242.5+/-3: When origin is on motor side
(242.5): When origin is on non-motor side
Effective stroke
(152.5): When origin is on motor side
152.5+/-3: When origin is on non-motor side
94
70 (Between knocks +/-0.02)
50
(33)
127.5+/-1 (Note 1)
4-M6 x 1.0 Depth of screw 20
4-ϕ6H7(+0.012 0) Depth 10
4-M8 x 1.25 Depth of screw 20
37.5+/-1
(Note 1)
ϕ12 air joint
3.7
1.5
2.5
5.5
8.6
Z
121 (Between knocks +/-0.02)
157.5+/-1 (With brake)
(Note 1)
136
220
(Approx. 250)
272.5+/-3 (With brake): When origin is on motor side
(272.5): When origin is on non-motor side
168
150
141
104
114
113
51
Z
28
20
95
92
55
18
Grounding terminal (The same position on the opposite surface at 2 location)
30 (With brake)
L
N-M8 x 1.25 Depth of screw 18
243
200
M x 200
A
(102)
132
273 (With brake)

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L		595	645	695	745	795	845	895	945	995	1045	1095	1145	1195	1245	1295	1345	1395	1445	1495	1545	1595	1645
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18
Weight (kg) Note 3		15.0	16.0	17.0	17.9	18.9	19.8	20.8	21.7	22.7	23.6	24.6	25.5	26.5	27.4	28.4	29.3	30.3	31.2	32.2	33.1	34.1	35.0
Maximum speed Note 4 (mm/sec)	Lead 20	1000															800	800	700	700	600	600	500
	Lead 10	500															400	400	350	350	300	300	250
	Speed setting	–															80%	80%	70%	70%	60%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 1.5 kg heavier than the models with no brake shown in the table.

Note 4. When the stroke is longer than 950mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

Controller SR1-X ▶ 518 TS-X ▶ 492 RDV-X ▶ 506

C17L

Origin on the non-motor side is selectable

Note. Built-to-order product. Contact us for the delivery period.

Ordering method

C17L – 50 – [ ] – [ ] – [ ] – [ ] – TSX 220 – R – [ ] – [ ] – [ ]

Model	Lead	Brake	Option	Stroke	Cable length Note 1
C17L	50	No entry: With no brake BK: With brake	Origin position change — None: Standard Z: Non-motor side	1150 to 2050 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)

Positioner Note 2	Driver: Power-supply voltage / Power capacity Note 3	Regenerative unit	LCD monitor	I/O selection	Battery
TSX	220	R			
TS-X	220: 200V/400 to 600W	R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 4	B: With battery (Absolute) N: None (Incremental)

SR1-X – 20 – [ ] – R – [ ] – [ ]

Controller	Driver: Power capacity Note 3	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20		R		
	20: 400 to 600W	No entry: Standard E: CE marking	R: With RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	B: With battery (Absolute) N: None (Incremental)

RDV-X 2 20 – [ ]

Driver	Power-supply voltage	Driver: Power capacity Note 3	Regenerative unit
RDV-X	2	20	
	2: AC200V	20: 400W or less	RBR1 (Horizontal) RBR2 (Vertical)

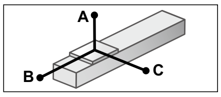
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Acceleration / deceleration is different depending the Positioner or Controller or Driver.
Note 4. Select this selection when using the gateway function. For details, see P.62.

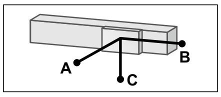
Basic specifications

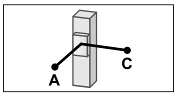
AC servo motor output (W)		600
Repeatability Note 1 (mm)		+/-0.02
Deceleration mechanism		Ball screw (Class C10)
Ball screw lead (mm)		50
Maximum speed Note 2 (mm/sec)		1000
Maximum payload (kg)	Horizontal	50
	Vertical	10
Rated thrust (N)		204
Stroke (mm)		1150 to 2050 (100 pitch)
Overall length (mm)	Horizontal	Stroke+485
	Vertical	Stroke+515
Maximum outside dimension of body cross-section (mm)		W168 × H114
Cable length (m)		Standard: 3.5 / Option: 5, 10
Degree of cleanliness		CLASS 10 Note 3
Intake air (Nℓ/min)		30 to 90 Note 4

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 1850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note







Horizontal installation (Unit: mm)

		A	B	C
Lead 50	10kg	4000	2687	3327
	30kg	3045	872	929
	50kg	2602	509	714

Wall installation (Unit: mm)

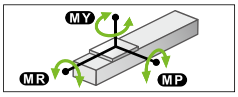
		A	B	C
Lead 50	10kg	3436	2605	4000
	30kg	1169	790	3045
	50kg	666	427	2602

Vertical installation (Unit: mm)

		A	C
Lead 50	2kg	1200	1200
	5kg	3000	3000
	10kg	2579	2579

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



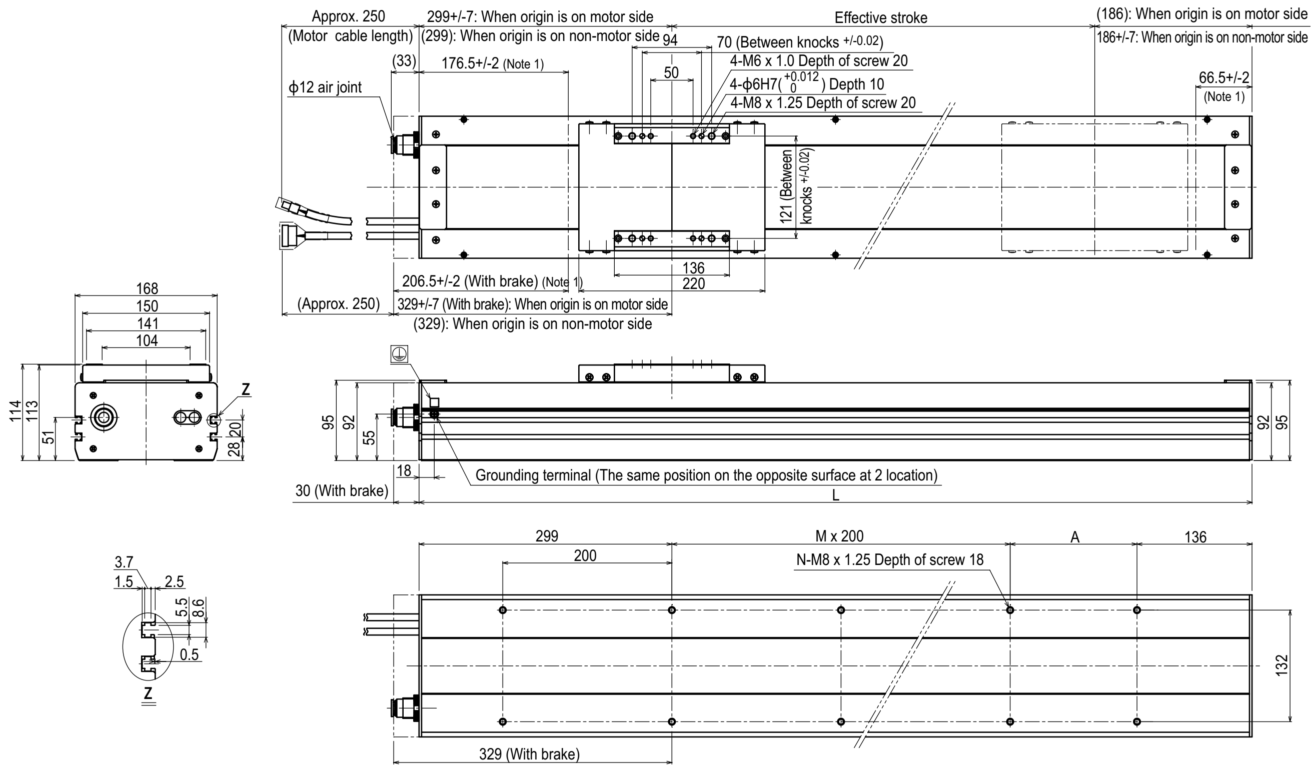
(Unit: N·m)

MY	MP	MR
1032	1034	908

Controller

Controller	Operation method
SR1-X20-R RCX221/222 RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220-R	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

C17L


Approx. 250
(Motor cable length)
299+/-7: When origin is on motor side
(299): When origin is on non-motor side
Effective stroke
(186): When origin is on motor side
186+/-7: When origin is on non-motor side
94
70 (Between knocks +/-0.02)
4-M6 x 1.0 Depth of screw 20
4-ϕ6H7(+0.012 0) Depth 10
4-M8 x 1.25 Depth of screw 20
(33)
176.5+/-2 (Note 1)
50
ϕ12 air joint
66.5+/-2
(Note 1)
121 (Between knocks +/-0.02)
136
220
206.5+/-2 (With brake) (Note 1)
(Approx. 250)
329+/-7 (With brake): When origin is on motor side
(329): When origin is on non-motor side
168
150
141
104
114
113
51
Z
28
20
95
92
55
18
30 (With brake)
Grounding terminal (The same position on the opposite surface at 2 location)
L
92
95
3.7
1.5
2.5
5.5
8.6
0.5
Z
299
200
M x 200
A
136
N-M8 x 1.25 Depth of screw 18
132
329 (With brake)

Effective stroke		1150	1250	1350	1450	1550	1650	1750	1850	1950	2050
L		1635	1735	1835	1935	2035	2135	2235	2335	2435	2535
A		200	100	200	100	200	100	200	100	200	100
M		5	6	6	7	7	8	8	9	9	10
N		16	18	18	20	20	22	22	24	24	26
Weight (kg) Note 3		39.1	41.2	43.2	45.2	47.3	49.3	51.3	53.4	55.4	57.4
Maximum speed (mm/sec) Note 4	Lead 50	1000							900	800	
	Speed setting	–							90%	80%	

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 1.5 kg heavier than the models with no brake shown in the table.
Note 4. When the stroke is longer than 1850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

C20

Origin on the non-motor side is selectable

Ordering method

C20 – ☐ – ☐ – ☐ – ☐ – ☐

Model	Lead Note 1	Brake	Option		Stroke	Cable length Note 2
C20	20: 20mm	No entry: With no brake	Origin position change	None: Standard	200 to 1250 (50mm pitch)	3L: 3.5m
	10: 10mm	BK: With brake		Z: Non-motor side		5L: 5m
						10L: 10m
						3K/5K/10K (Flexible cable)

TSX 220 – ☐ – ☐ – ☐ – ☐

Positioner Note 3	Driver: Power-supply voltage / Power capacity Note 4	Regenerative unit	LCD monitor	I/O selection	Battery
TS-X	220: 200V/400 to 600W	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute)
		R: With RGT	L: With LCD	PN: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				EP: EtherNet/IP™	
				PT: PROFINET	
				GW: No I/O board Note 5	

SR1-X 20 – ☐ – ☐ – ☐ – ☐

Controller	Driver: Power capacity Note 4	Usable for CE	Regenerative unit	I/O selection	Battery
SR1-X	20: 400 to 600W	No entry: Standard	No entry: None	N: NPN	B: With battery (Absolute)
		E: CE marking	R: With RG1	P: PNP	N: None (Incremental)
				CC: CC-Link	
				DN: DeviceNet™	
				PB: PROFIBUS	

RDV-X 2 20 – ☐

Driver	Power-supply voltage	Driver: Power capacity Note 4	Regenerative unit
RDV-X	2: AC200V	20: 400W or less	RBR1 (Horizontal)
			RBR2 (Vertical)

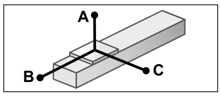
Note 1. Only the model with specifications with brake (vertical specifications) can select a lead of 10mm.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Acceleration / deceleration is different depending the Positioner or Controller or Driver.
Note 5. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

AC servo motor output (W)		600	
Repeatability Note 1 (mm)		+/-0.01	
Deceleration mechanism		Ball screw (Class C7)	
Ball screw lead (mm)		20	10
Maximum speed Note 2 (mm/sec)		1000	500
Maximum payload (kg)	Horizontal	120	–
	Vertical	25	45
Rated thrust (N)		510	1020
Stroke (mm)		200 to 1250 (50mm pitch)	
Overall length (mm)	Horizontal	Stroke+441	
	Vertical	Stroke+471	
Maximum outside dimension of body cross-section (mm)		W202 × H117	
Cable length (m)		Standard: 3.5 / Option: 5, 10	
Degree of cleanliness		CLASS 10 Note 3	
Intake air (Nℓ/min)		30 to 90 Note 4	

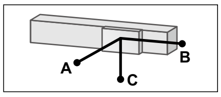
Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 950mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Allowable overhang Note



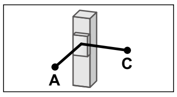
Horizontal installation (Unit: mm)

		A	B	C
Lead 20	50kg	2602	869	1145
	80kg	2193	528	720
	120kg	1841	339	505



Wall installation (Unit: mm)

		A	B	C
Lead 20	50kg	1144	798	2602
	80kg	717	456	2193
	120kg	466	267	1841

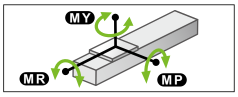


Vertical installation (Unit: mm)

		A	C
Lead 20	15kg	2711	2711
	20kg	2045	2045
	25kg	1647	1647
Lead 10	20kg	2182	2182
	30kg	1437	1437
	45kg	939	939

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Static loading moment



(Unit: N·m)

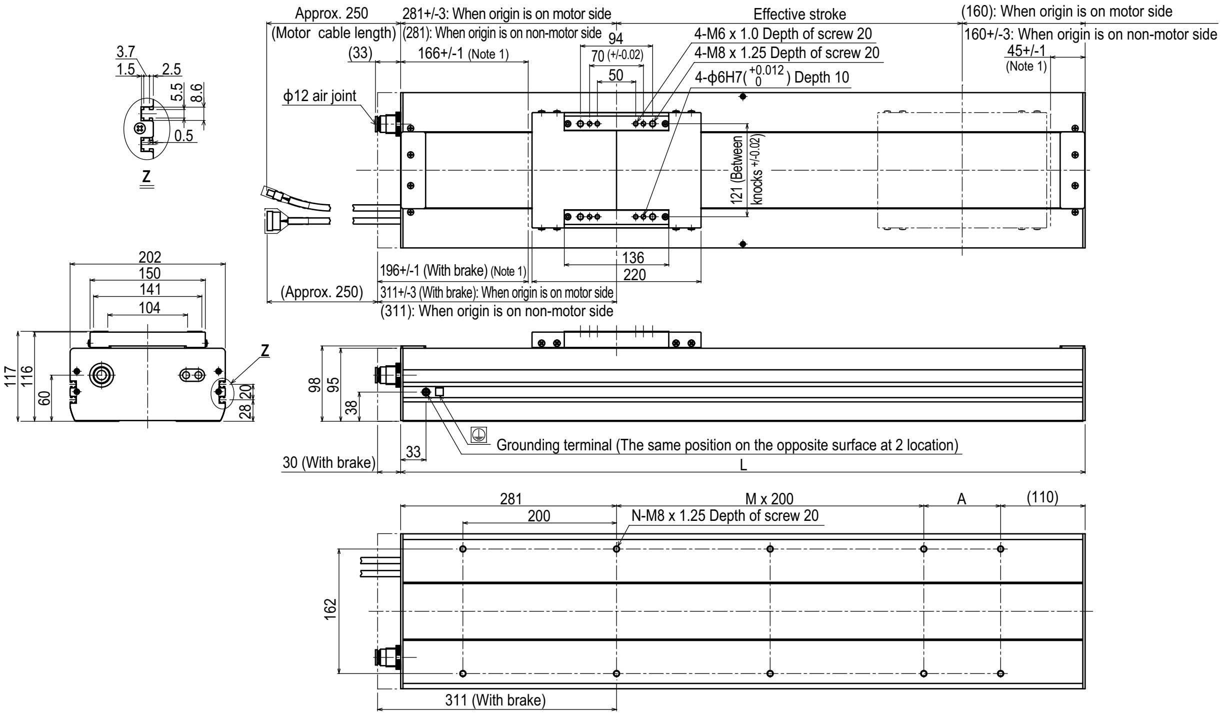
MY	MP	MR
1101	1103	968

Controller

Controller	Operation method
SR1-X20 Note RCX221/222, RCX240/340	Programming / I/O point trace / Remote command / Operation using RS-232C communication
TS-X220 Note	I/O point trace / Remote command
RDV-X220-RBR1 (Horizontal) RDV-X220-RBR2 (Vertical)	Pulse train control

Note. [The following arrangements require a regeneration unit.]
- Using in the upright position.
- To move at a speed exceeding 1,000 mm/sec horizontally.
- High lead (40) used horizontally.

C20


3.7
1.5
2.5
5.5
8.6
0.5
Z
Approx. 250
(Motor cable length)
(33)
281+/-3: When origin is on motor side
(281): When origin is on non-motor side
166+/-1 (Note 1)
94
70 (+/-0.02)
50
Effective stroke
4-M6 x 1.0 Depth of screw 20
4-M8 x 1.25 Depth of screw 20
4-ϕ6H7(+0.012 0) Depth 10
(160): When origin is on motor side
160+/-3: When origin is on non-motor side
45+/-1
(Note 1)
ϕ12 air joint
121 (Between knocks +/-0.02)
196+/-1 (With brake) (Note 1)
136
220
(Approx. 250)
311+/-3 (With brake): When origin is on motor side
(311): When origin is on non-motor side
202
150
141
104
Z
117
116
60
28
20
98
95
38
Grounding terminal (The same position on the opposite surface at 2 location)
30 (With brake)
33
L
281
200
M x 200
N-M8 x 1.25 Depth of screw 20
A
(110)
162
311 (With brake)

Effective stroke		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L		641	691	741	791	841	891	941	991	1041	1091	1141	1191	1241	1291	1341	1391	1441	1491	1541	1591	1641	1691
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M		1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
N		8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18
Weight (kg) Note 3		25.0	26.0	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0
Maximum speed Note 4 (mm/sec)	Lead 20	1000															800	800	700	700	600	600	500
	Lead 10	500															400	400	350	350	300	300	250
	Speed setting	–															80%	80%	70%	70%	60%	60%	50%

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Minimum bend radius of motor cable is R50.
Note 3. Weight of models with no brake. The weight of brake-attached models is 2.0 kg heavier than the models with no brake shown in the table.

Note 4. When the stroke is longer than 950mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC 2 axes

Clean type **Cable duct**

Ordering method

SXYxC - D - ☐ - ☐ - ☐ - ☐ - RCX222 - ☐ - ☐ - ☐

Model	Cable	Combination	X axis stroke	Y axis stroke	Cable length	Controller	Usable for CE	Input/Output selection 1	Input/Output selection 2
SXYxC	D: Cable duct	T1 T3	15 to 105cm	15 to 65cm	3L: 3.5m 5L: 5m 10L: 10m	RCX222	No entry: Standard E: CE marking	N: NPN Note 1 P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link Note 2	No entry: None N1: OP.DIO24/16 (NPN) Note 2 P1: OP.DIO24/17 (PNP) EN: Ethernet Note 3

Note 1. NPN cannot be selected if using CE marking.
Note 2. Available only for the master. See P.68 for details on YC-Link system.
Note 3. Only when CC or DN or PB was selected for I/O select 1 above, EN can be selected in I/O select 2.

Basic specifications

	X axis	Y axis
Axis construction Note 1	C14H	C14
AC servo motor output (W)	200	100
Repeatability Note 2 **(mm)**	+/-0.01	+/-0.01
Drive system	Ball screw (Class C7)	Ball screw (Class C7)
Ball screw lead Note 3 **(Deceleration ratio) (mm)**	20	20
Maximum speed Note 4 **(mm/sec)**	1000	1000
Moving range (mm)	150 to 1050	150 to 650
Robot cable length (m)	Standard: 3.5 Option: 5, 10	
Degree of cleanliness	CLASS 10 Note 5	
Intake air (Nℓ/min)	60 Note 6	

Note 1. Use caution that the frame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 5. Per 1cf (0.1μm base), when suction blower is used.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

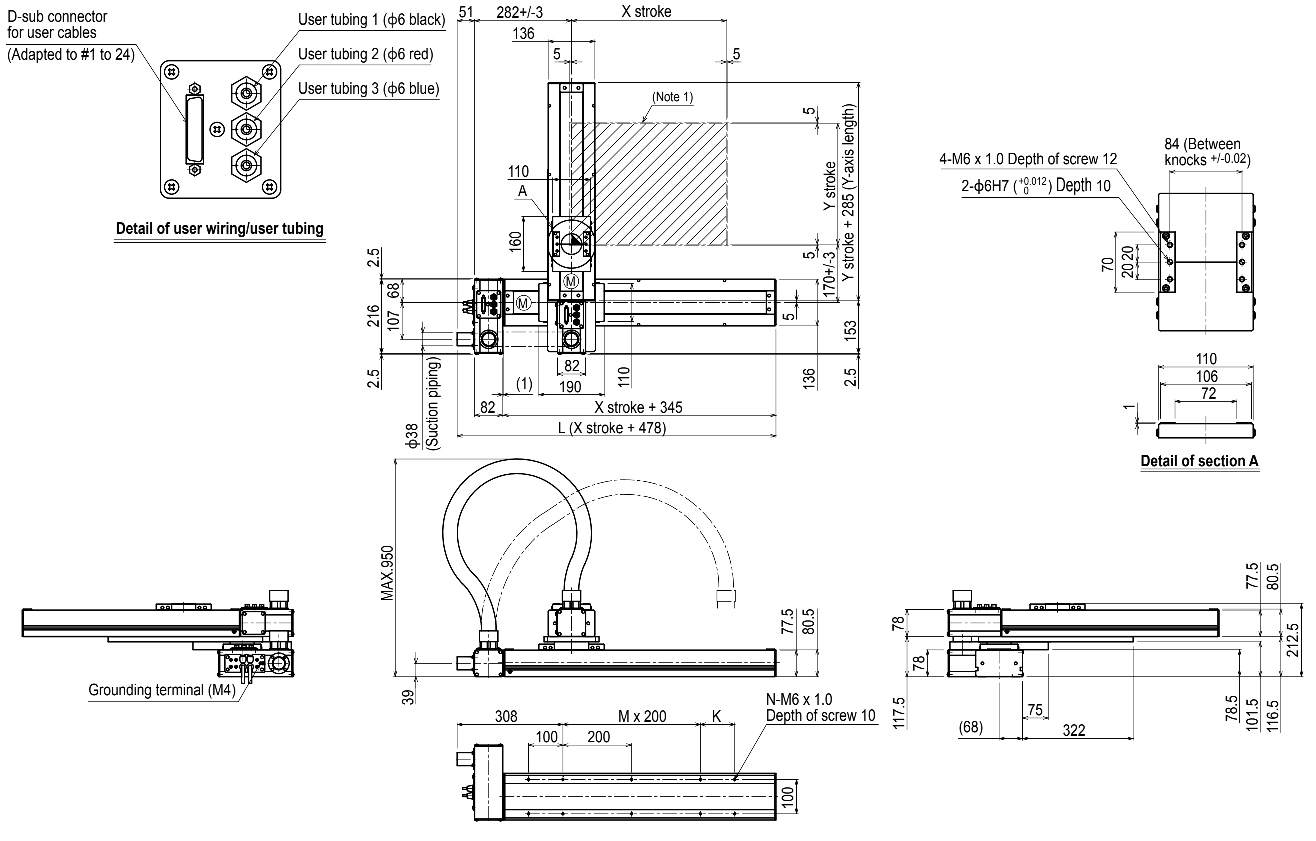
Maximum payload (kg)

Y stroke (mm)	XY 2 axes
150	20
250	17
350	15
450	13
550	11
650	9

Controller

Controller	Operation method
RCX222	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYxC 2 axes T1



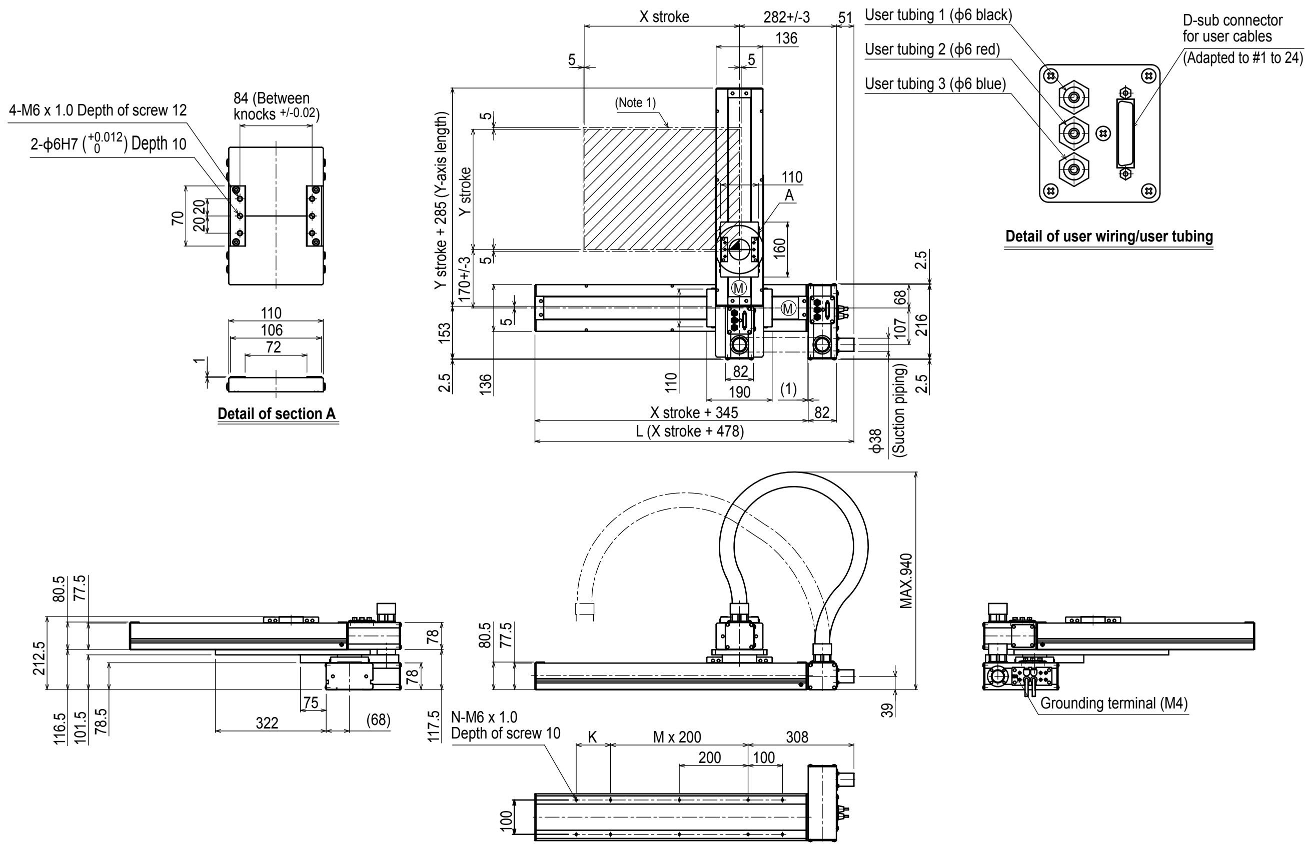
X stroke	150	250	350	450	550	650	750	850	950	1050
L	628	728	828	928	1028	1128	1228	1328	1428	1528
K	200	100	200	100	200	100	200	100	200	100
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke		150	250	350	450	550	650				
Maximum speed for each stroke (mm/sec) Note 2	**X axis**	1000							800	650	550
	Speed setting	–							80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC 2 axes T3



X stroke	150	250	350	450	550	650	750	850	950	1050
L	628	728	828	928	1028	1128	1228	1328	1428	1528
K	200	100	200	100	200	100	200	100	200	100
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke		150	250	350	450	550	650			
Maximum speed for each stroke (mm/sec) Note 2	X axis	1000						800	650	550
	Speed setting	–						80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC

3 axes / ZSC

● Clean type ● Cable duct ● Z-axis shaft vertical type

Ordering method

SXYxC - D - ☐ - ☐ - ☐ - ☐ - 15 - ☐ - RCX340-3 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Cable	Combi-nation	X axis stroke	Y axis stroke	ZR axis	Z axis stroke	Cable length
SXYxC	D: Cable duct	T1 T3	15 to 105cm	15 to 65cm	ZSC12 ZSC6	15	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
RCX340-3							

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

	X axis	Y axis	Z axis: ZSC12	Z axis: ZSC6
Axis construction Note 1	C14H	C14	–	
AC servo motor output (W)	200	100	60	
Repeatability Note 2 (mm)	+/-0.01	+/-0.01	+/-0.02	
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)	
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	12	6
Maximum speed Note 4 (mm/sec)	1000	1000	1000	500
Moving range (mm)	150 to 1050	150 to 650	150	
Robot cable length (m)	Standard: 3.5 Option: 5, 10			
Degree of cleanliness	CLASS 10 Note 5			
Intake air (Nℓ/min)	90 Note 6			

Note 1. Use caution that the frame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 5. Per 1cf (0.1μm base), when suction blower is used.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

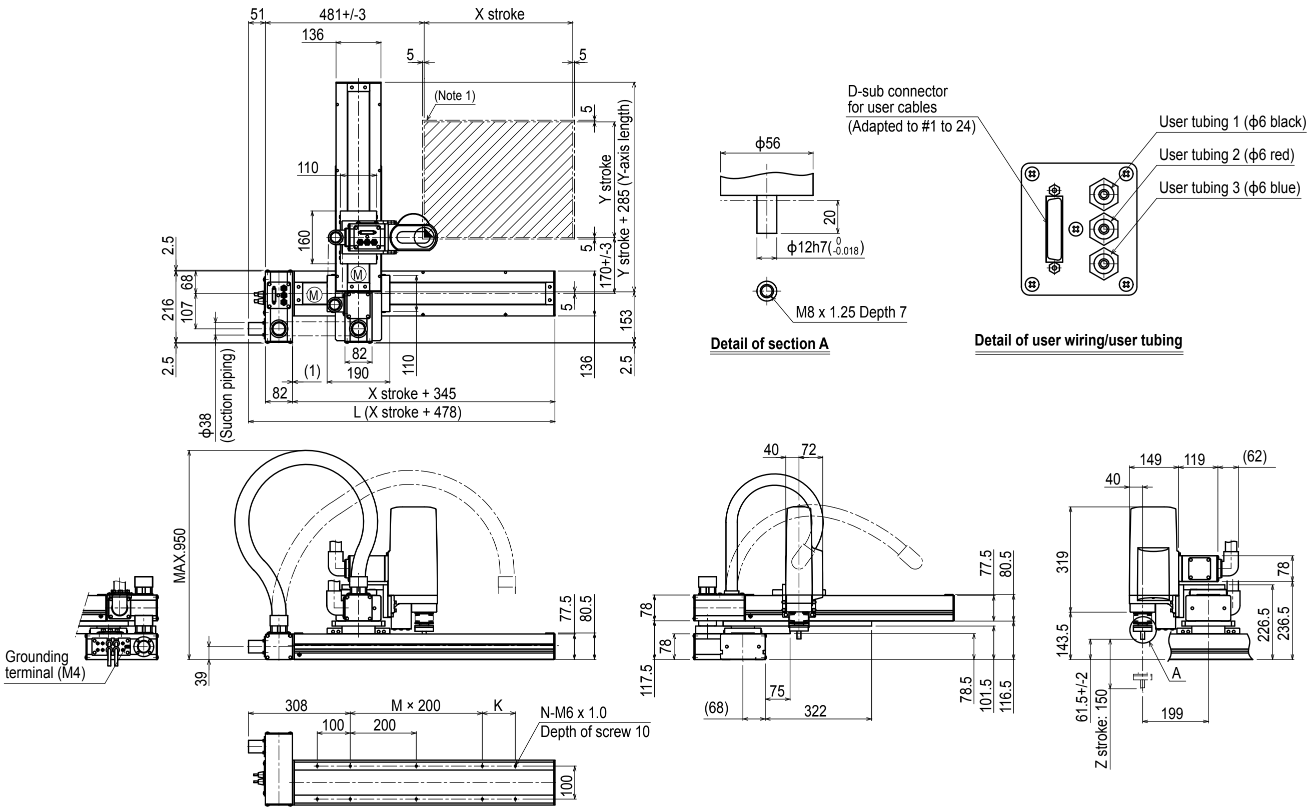
Maximum payload (kg)

Y stroke (mm)	ZSC12	ZSC6
150 to 650	3	5

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYxC 3 axes / ZSC T1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	628	728	828	928	1028	1128	1228	1328	1428	1528
K	200	100	200	100	200	100	200	100	200	100
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke	150	250	350	450	550	650

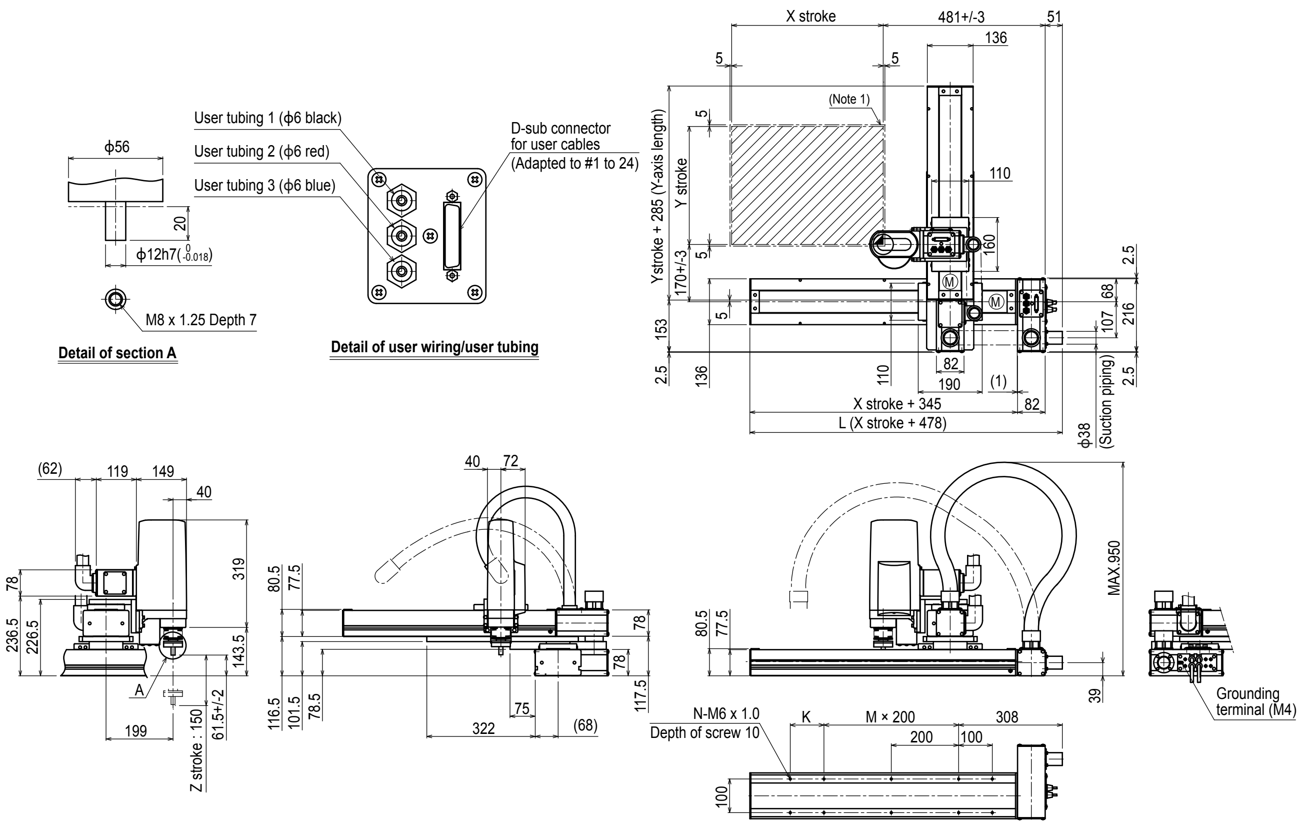
Z stroke	150

Maximum speed for each stroke (mm/sec) Note 2					
X axis	1000	800	650	550
Speed setting	–	80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC 3 axes / ZSC T3



X stroke	150	250	350	450	550	650	750	850	950	1050
L	628	728	828	928	1028	1128	1228	1328	1428	1528
K	200	100	200	100	200	100	200	100	200	100
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke	150	250	350	450	550	650

Z stroke	150

Maximum speed for each stroke (mm/sec) Note 2	X axis	1000							800	650	550
	Speed setting	–							80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC

4 axes / ZRSC

● Clean type ● Cable duct ● ZR-axis integrated type

Ordering method

SXYxC	- D	-	-	-	-	- 15	-
Model	**Cable**	**Combi-nation**	**X axis stroke**	**Y axis stroke**	**ZR axis**	**Z axis stroke**	**Cable length**
	D: Cable duct	T1 T3	15 to 105cm	15 to 65cm	ZRSC12 ZRSC6		3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ P.544

RCX240S	-	-	-	-	-	-
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

	X axis	Y axis	Z axis ZRSC12	Z axis ZRSC6	R axis
Axis construction Note 1	C14H	C14	–		R5
AC servo motor output (W)	200	100	60		100
Repeatability Note 2 (XYZ: mm) (R: °)	+/-0.01	+/-0.01	+/-0.02		+/-0.005
Drive system	Ball screw (Class C7)	Ball screw (Class C7)	Ball screw (Class C10)		Harmonic gear
Ball screw lead Note 3 (Deceleration ratio) (mm)	20	20	12	6	(1/50)
Maximum speed Note 4 (XYZ: mm/sec) (R: °/sec)	1000	1000	1000	500	1020
Moving range (XYZ: mm) (R: °)	150 to 1050	150 to 650	150		360
Robot cable length (m)	Standard: 3.5 Option: 5, 10				
Degree of cleanliness	CLASS 10 Note 5				
Intake air (Nℓ/min)	90 Note 6				

Note 1. Use caution that the frame machining (installation holes, tap holes) differs from single-axis robots'.
Note 2. Positioning repeatability in one direction.
Note 3. Leads not listed in the catalog are also available. Contact us for details.
Note 4. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.
Note 5. Per 1cf (0.1μm base), when suction blower is used.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

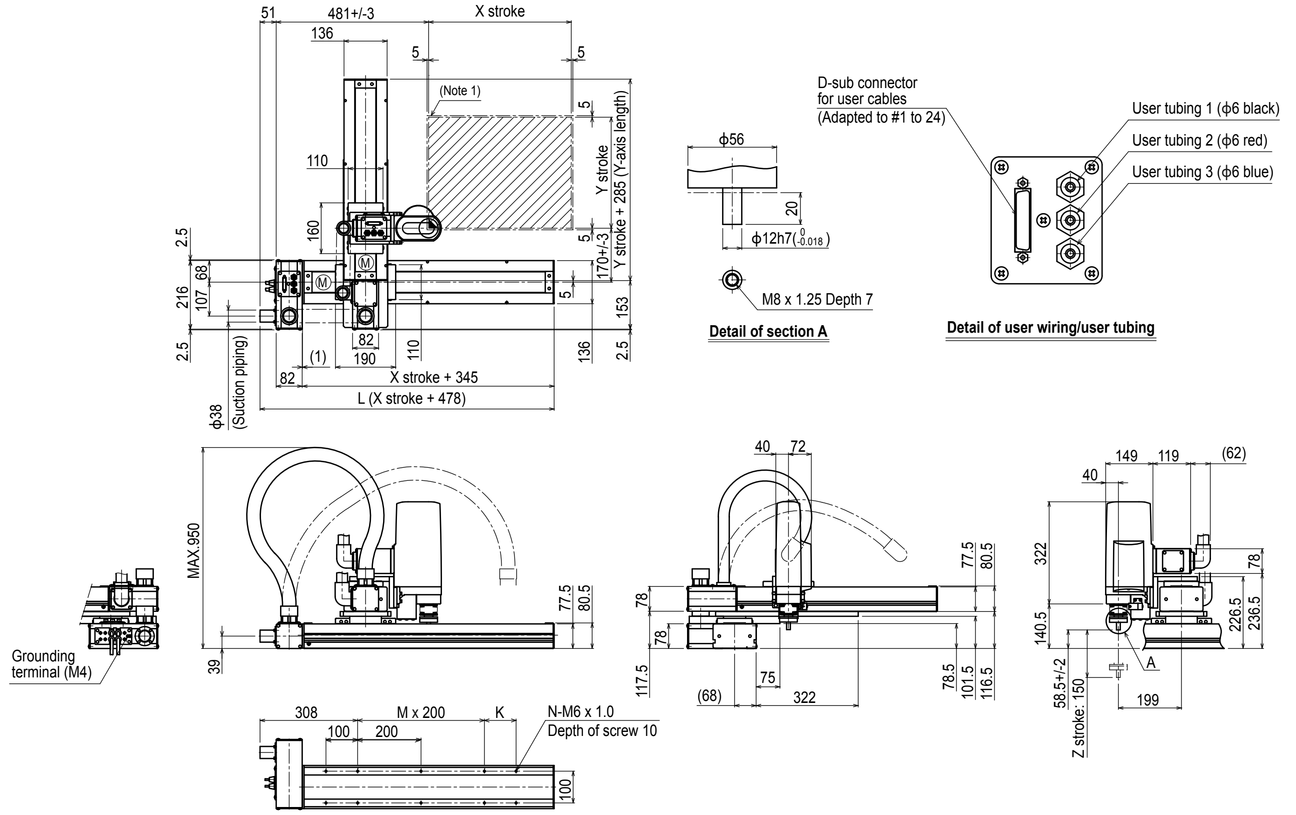
Maximum payload (kg)

Y stroke (mm)	ZRSC12	ZRSC6
150	3	5
250		
350		
450		
550		
650		4

Controller

Controller	Operation method
RCX340 RCX240S	Programming / I/O point trace / Remote command / Operation using RS-232C communication

SXYxC 4 axes / ZRSC T1



X stroke	150	250	350	450	550	650	750	850	950	1050
L	628	728	828	928	1028	1128	1228	1328	1428	1528
K	200	100	200	100	200	100	200	100	200	100
M	0	1	1	2	2	3	3	4	4	5
N	6	8	8	10	10	12	12	14	14	16

Y stroke	150	250	350	450	550	650

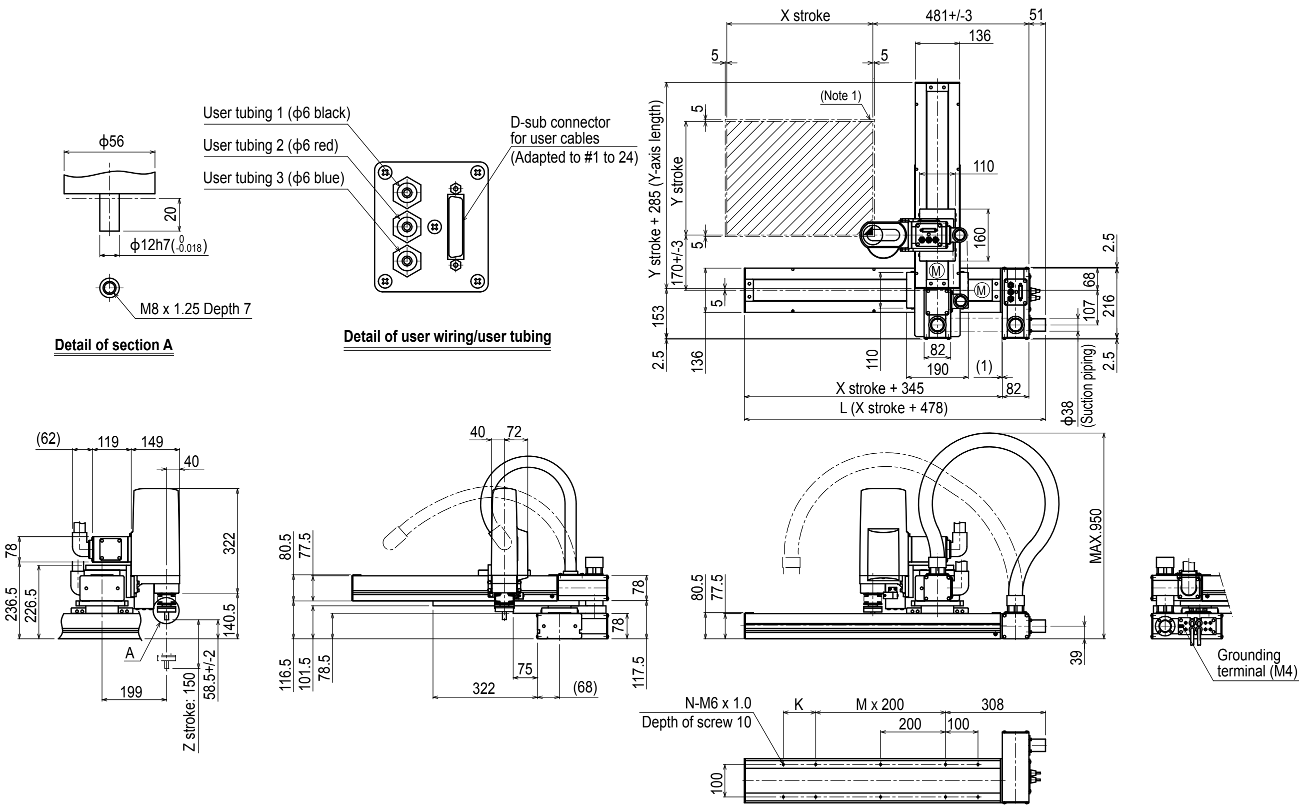
Z stroke	150

Maximum speed for each stroke (mm/sec) Note 2					
	X axis	1000	800	650	550
	Speed setting	–	80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

SXYxC 4 axes / ZRSC **T3**



X stroke		150	250	350	450	550	650	750	850	950	1050
L		628	728	828	928	1028	1128	1228	1328	1428	1528
K		200	100	200	100	200	100	200	100	200	100
M		0	1	1	2	2	3	3	4	4	5
N		6	8	8	10	10	12	12	14	14	16
Y stroke		150	250	350	450	550	650				
Z stroke		150									
Maximum speed for each stroke (mm/sec) Note 2	X axis	1000							800	650	550
	Speed setting	–							80%	65%	55%

Note 1. The moving range when returning to origin and the stop position when stopping by mechanical stopper.

Note 2. When the X-axis stroke is longer than 850mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.

YK180XC

Note. Built-to-order product. Contact us for the delivery period.

● Arm length 180mm ● Maximum payload 1kg

Ordering method

YK180XC - **100** - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK180XC	100: 100mm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240S						

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	71	109	100	–
	Rotation angle (°)	+/-120	+/-140	–	+/-360
AC servo motor output (W)		50	30	30	30
Repeatability Note 1 (XYZ: mm) (R: °)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: °/sec)		3.3		0.7	1700
Maximum payload (kg)		1.0			
Standard cycle time: with 0.1kg payload Note 2 (sec)		0.42			
R-axis tolerable moment of inertia Note 3 (kgm²)		0.01			
User wiring (sq × wires)		0.1 × 8			
User tubing (Outer diameter)		ϕ3 × 2			
Travel limit		1.Soft limit, 2.Mechanical limit (X, Y, Zaxis)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg) (Excluding robot cable) Note 4		6.5			
Robot cable weight		1.5kg (3.5m) 2.1kg (5m) 4.2kg (10m)			
Degree of cleanliness		CLASS 10 (0.1μm base)			
Intake air (Nℓ/min)		30			

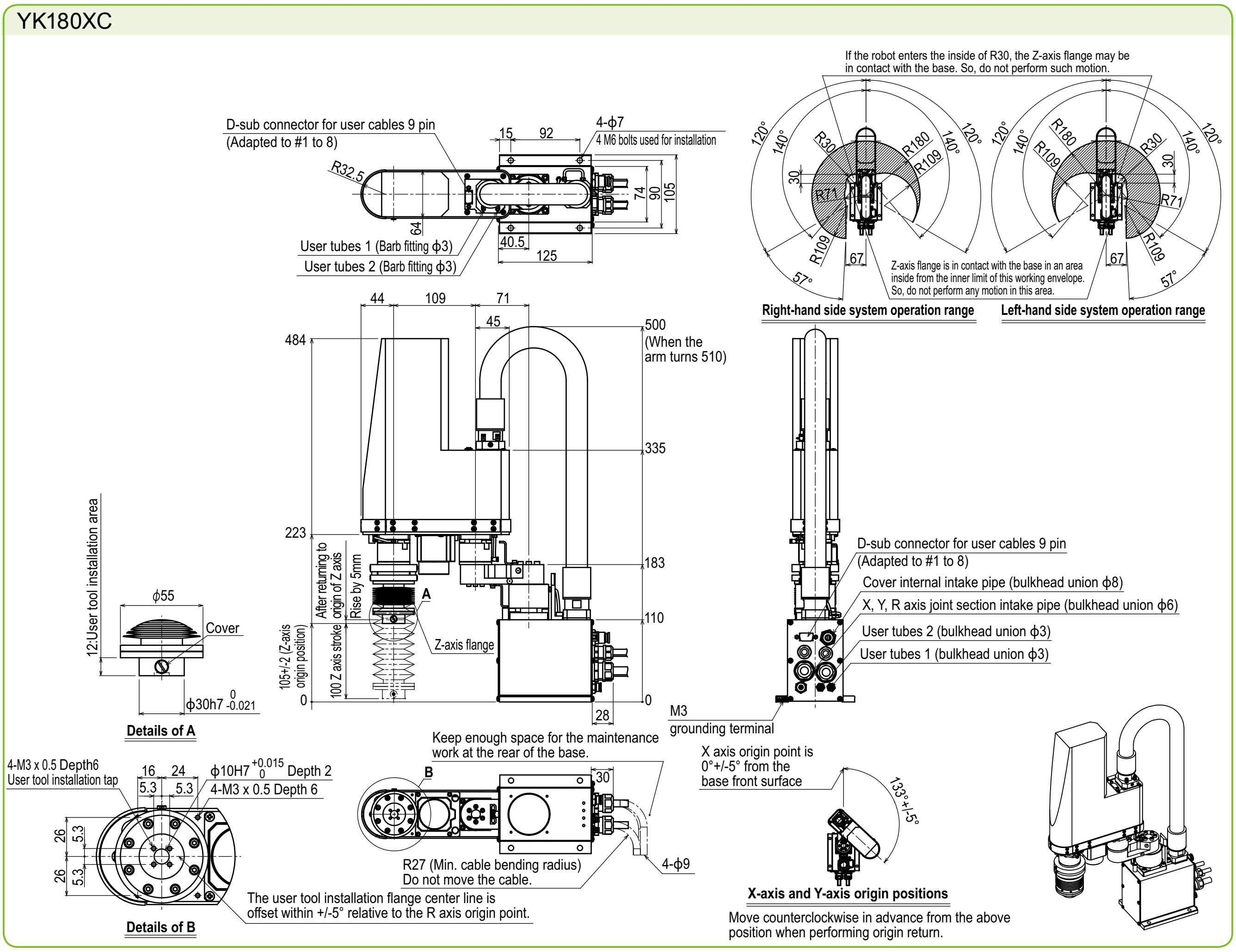
Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When moving 25mm in vertical direction and 100mm in horizontal direction reciprocally.
Note 3. There are limits to acceleration coefficient settings.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

YK180XC


D-sub connector for user cables 9 pin
(Adapted to #1 to 8)
4-ϕ7
4 M6 bolts used for installation
15
92
R32.5
74
90
105
64
40.5
125
User tubes 1 (Barb fitting ϕ3)
User tubes 2 (Barb fitting ϕ3)
If the robot enters the inside of R30, the Z-axis flange may be in contact with the base. So, do not perform such motion.
120°
140°
R30
R180
R109
R71
30
67
57°
Z-axis flange is in contact with the base in an area inside from the inner limit of this working envelope. So, do not perform any motion in this area.
Right-hand side system operation range
Left-hand side system operation range
44
109
71
45
484
500
(When the arm turns 510)
335
223
183
110
0
A
Z-axis flange
After returning to origin of Z axis
Rise by 5mm
100 Z axis stroke
105+/-2 (Z-axis origin position)
28
12:User tool installation area
ϕ55
Cover
ϕ30h7 0 -0.021
Details of A
D-sub connector for user cables 9 pin
(Adapted to #1 to 8)
Cover internal intake pipe (bulkhead union ϕ8)
X, Y, R axis joint section intake pipe (bulkhead union ϕ6)
User tubes 2 (bulkhead union ϕ3)
User tubes 1 (bulkhead union ϕ3)
M3
grounding terminal
Keep enough space for the maintenance work at the rear of the base.
4-M3 x 0.5 Depth6
User tool installation tap
16
24
5.3
5.3
ϕ10H7 +0.015 0 Depth 2
4-M3 x 0.5 Depth 6
26
26
5.3
5.3
Details of B
B
30
R27 (Min. cable bending radius)
Do not move the cable.
4-ϕ9
The user tool installation flange center line is offset within +/-5° relative to the R axis origin point.
X axis origin point is 0°+/-5° from the base front surface
133°+/-5°
X-axis and Y-axis origin positions
Move counterclockwise in advance from the above position when performing origin return.

YK220XC

Note. Built-to-order product. Contact us for the delivery period.

● Arm length 220mm ● Maximum payload 1kg

Ordering method

YK220XC	- 100	-
Model	**Z axis stroke**	**Cable length**
	100: 100mm	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4	-	-	-	-	-	-	-
Controller / Number of controllable axes	**Safety standard**	**Option A (OP.A)**	**Option B (OP.B)**	**Option C (OP.C)**	**Option D (OP.D)**	**Option E (OP.E)**	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S	-	-	-	-	-	-
Controller	**CE Marking**	**Expansion I/O**	**Network option**	**iVY System**	**Gripper**	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	111	109	100	–
	Rotation angle (˚)	+/-120	+/-140	–	+/-360
AC servo motor output (W)		50	30	30	30
Repeatability Note 1 (XYZ: mm) (R: ˚)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: ˚/sec)		3.4		0.7	1700
Maximum payload (kg)		1.0			
Standard cycle time: with 0.1kg payload Note 2 (sec)		0.45			
R-axis tolerable moment of inertia Note 3 (kgm^2)		0.01			
User wiring (sq × wires)		0.1 × 8			
User tubing (Outer diameter)		ϕ3 × 2			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg) (Excluding robot cable) Note 4		6.5			
Robot cable weight		1.5kg (3.5m) 2.1kg (5m) 4.2kg (10m)			
Degree of cleanliness		CLASS 10 (0.1μm base)			
Intake air (Nℓ/min)		30			

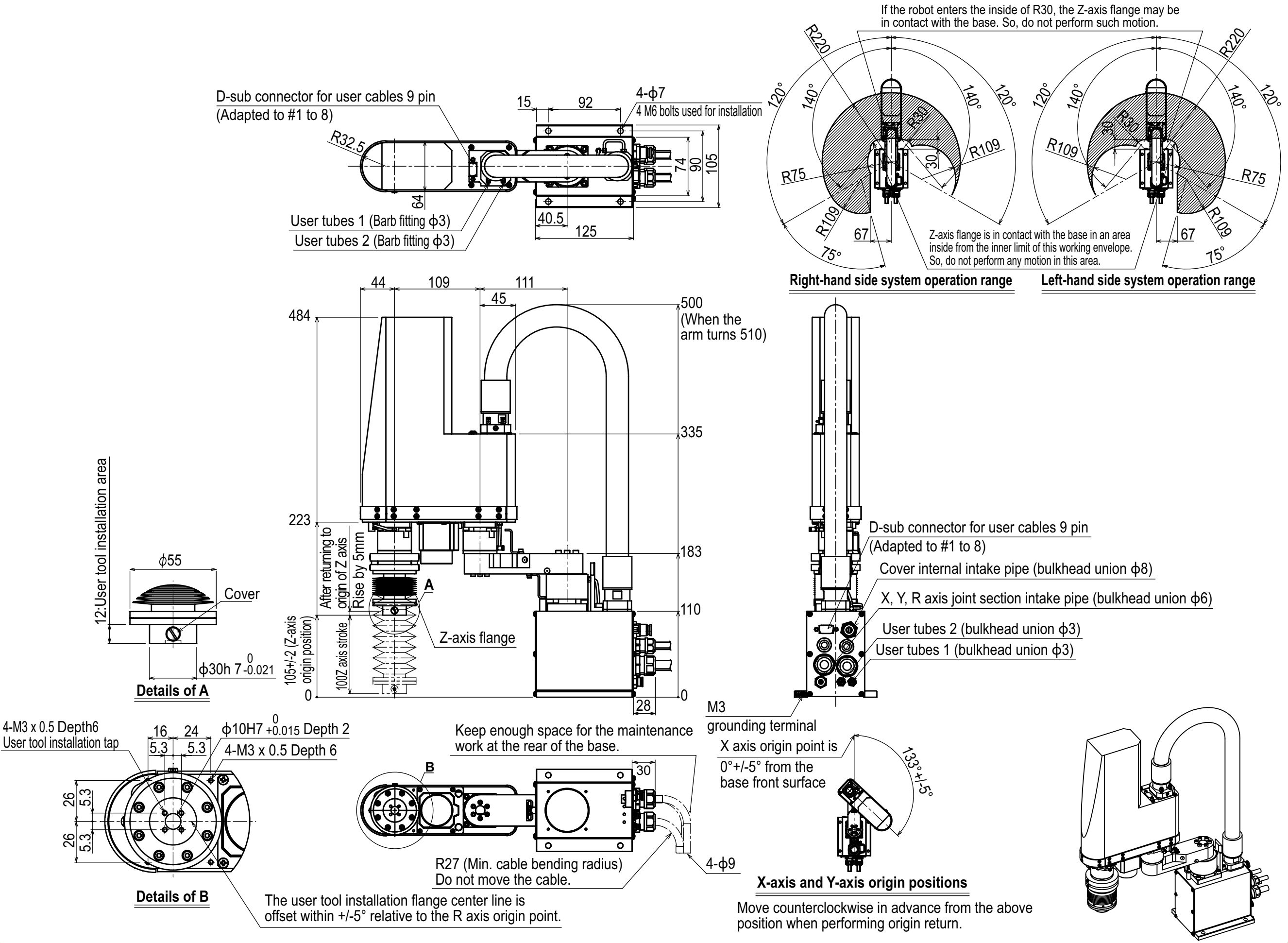
Note 1. This is the value at a constant ambient temperature.
Note 2. When reciprocating 100mm in horizontal and 25mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings.
Note 4. The total robot weight is the sum of the robot body weight and the cable weight.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

YK220XC


D-sub connector for user cables 9 pin
(Adapted to #1 to 8)
R32.5
15
92
4-ϕ7
4 M6 bolts used for installation
74
90
105
64
User tubes 1 (Barb fitting ϕ3)
User tubes 2 (Barb fitting ϕ3)
40.5
125
If the robot enters the inside of R30, the Z-axis flange may be in contact with the base. So, do not perform such motion.
R220
120°
140°
R30
30
R109
R75
67
75°
Z-axis flange is in contact with the base in an area inside from the inner limit of this working envelope. So, do not perform any motion in this area.
Right-hand side system operation range
Left-hand side system operation range
44
109
111
45
484
500
(When the arm turns 510)
335
223
183
110
0
28
12:User tool installation area
ϕ55
Cover
ϕ30h 7 0 -0.021
Details of A
After returning to origin of Z axis Rise by 5mm
105+/-2 (Z-axis origin position)
100Z axis stroke
A
Z-axis flange
D-sub connector for user cables 9 pin
(Adapted to #1 to 8)
Cover internal intake pipe (bulkhead union ϕ8)
X, Y, R axis joint section intake pipe (bulkhead union ϕ6)
User tubes 2 (bulkhead union ϕ3)
User tubes 1 (bulkhead union ϕ3)
M3
grounding terminal
4-M3 x 0.5 Depth6
User tool installation tap
16
24
5.3
ϕ10H7 +0.015 0 Depth 2
4-M3 x 0.5 Depth 6
26
5.3
Details of B
Keep enough space for the maintenance work at the rear of the base.
B
30
R27 (Min. cable bending radius)
Do not move the cable.
4-ϕ9
The user tool installation flange center line is offset within +/-5° relative to the R axis origin point.
X axis origin point is 0°+/-5° from the base front surface
133°+/-5°
X-axis and Y-axis origin positions
Move counterclockwise in advance from the above position when performing origin return.

YK250XGC

● Arm length 250mm ● Maximum payload 4kg

Ordering method

YK250XGC - **150** - ☐ - **S** - ☐ - **RCX340-4** - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable length
YK250XGC	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes – Safety standard – Option A (OP.A) – Option B (OP.B) – Option C (OP.C) – Option D (OP.D) – Option E (OP.E) – Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller – CE Marking – Expansion I/O – Network option – iVY System – Gripper – Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	100	150	150	–
	Rotation angle (°)	+/-129	+/-134	–	+/-360
AC servo motor output (W)		200	150	50	100
Repeatability [Note 1] (XYZ: mm) (R: °)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: °/sec)		4.5		1.1	1020
Maximum payload (kg)		4			
Standard cycle time: with 2kg payload (sec) [Note 2]		0.57			
R-axis tolerable moment of inertia [Note 3] (kgm^2)		0.05			
User wiring (sq × wires)		0.2×10			
User tubing (Outer diameter)		ϕ4×4			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg)		21.5			
Degree of cleanliness		ISO CLASS 3 (ISO 14644-1) [Note 4]+ESD [Note 5]			
Intake air (Nℓ/min)		30 [Note 6]			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Class 10 (0.1μm) equivalent to FED-STD-209D
Note 5. ESD (ElectroStatic Discharge) prevention is an option. Please contact our distributor.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

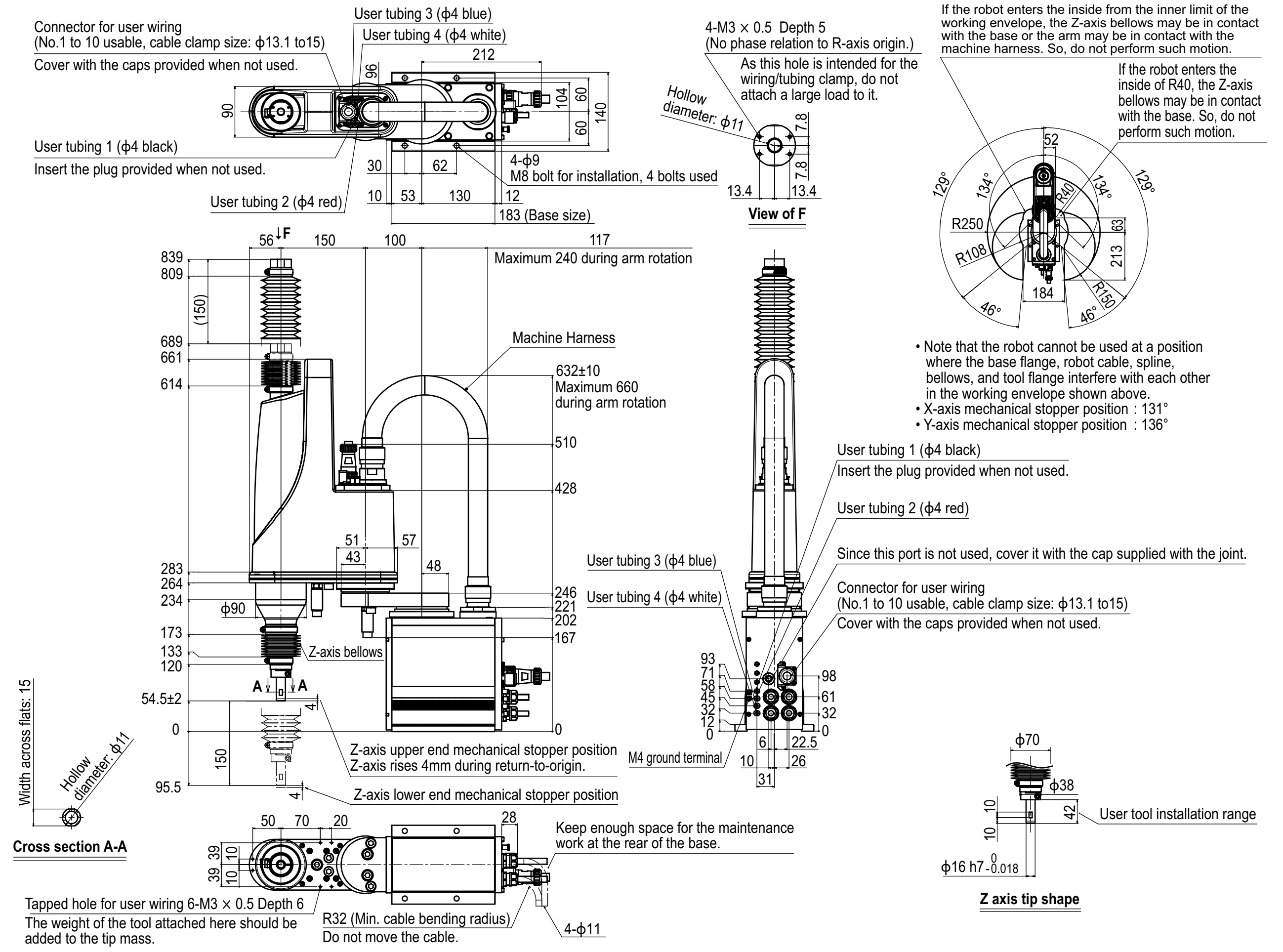
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

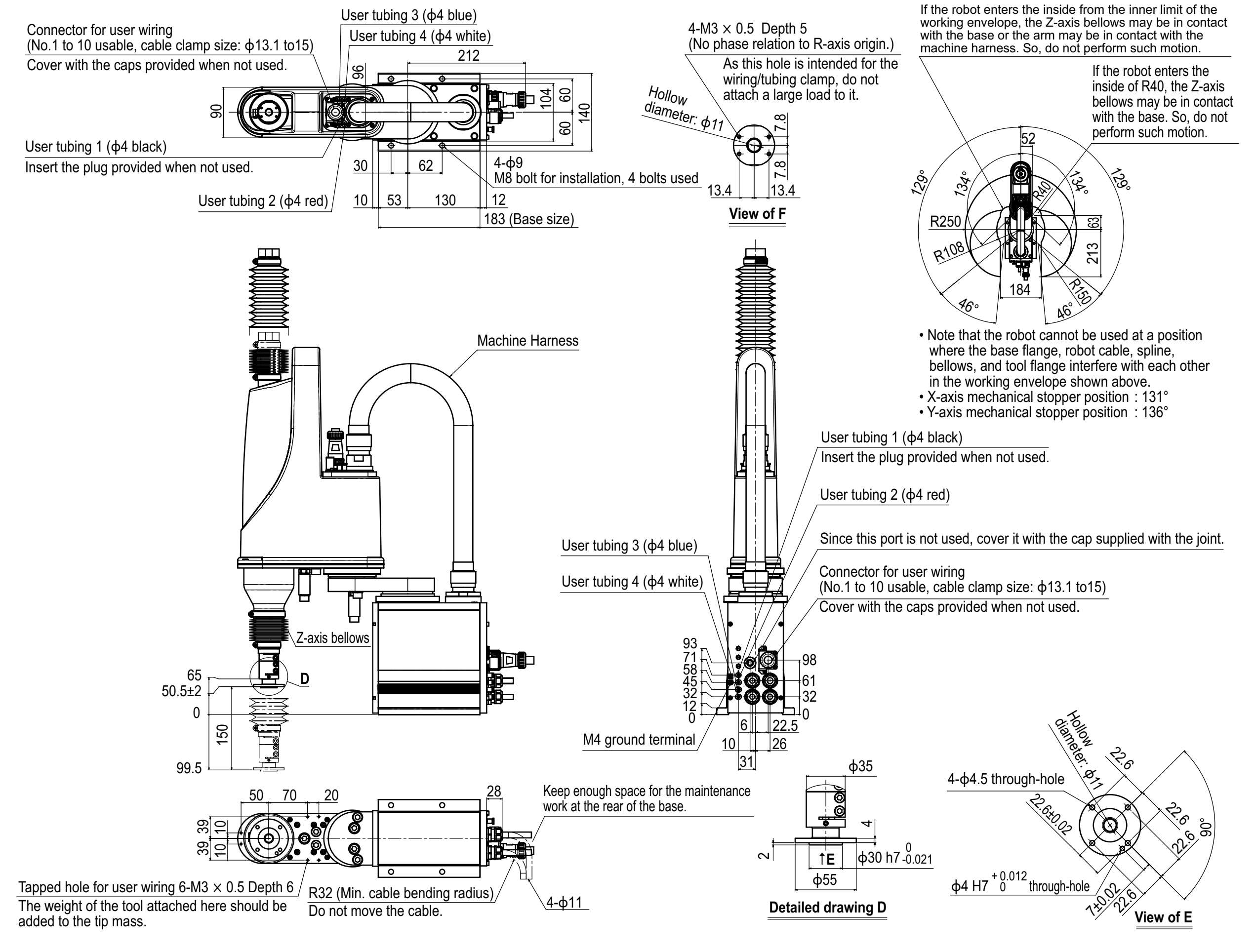
Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK250XGC


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
User tubing 2 (ϕ4 red)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
If the robot enters the inside of R40, the Z-axis bellows may be in contact with the base. So, do not perform such motion.
52
129°
134°
R40
134°
129°
R250
R108
63
213
184
R150
46°
46°
• Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
• X-axis mechanical stopper position : 131°
• Y-axis mechanical stopper position : 136°
56
F
150
100
117
Maximum 240 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660
during arm rotation
510
428
51
43
57
48
283
264
234
ϕ90
173
133
120
246
221
202
167
Z-axis bellows
A
A
54.5±2
4
0
0
150
95.5
4
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 0 -0.018
Z axis tip shape

YK250XGC Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
10
53
130
12
183 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
52
129°
134°
134°
129°
R40
R250
R108
63
213
184
R150
46°
46°
Machine Harness
Z-axis bellows
65
50.5±2
0
150
99.5
D
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
ϕ35
4
2
E
ϕ30 h7 0 -0.021
ϕ55
Detailed drawing D
4-ϕ4.5 through-hole
Hollow diameter: ϕ11
22.6
22.6±0.02
22.6
22.6
90°
ϕ4 H7 +0.012 0 through-hole
7±0.02
22.6
View of E

If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

If the robot enters the inside of R40, the Z-axis bellows may be in contact with the base. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 136°

YK350XGC

● Arm length 350mm ● Maximum payload 4kg

Ordering method

YK350XGC	150		S		RCX340-4							
Model	Z axis stroke	Tool flange	Hollow shaft	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	200	150	150	–
	Rotation angle (°)	+/-129	+/-134	–	+/-360
AC servo motor output (W)		200	150	50	100
Repeatability Note 1 (XYZ: mm) (R: °)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: °/sec)		5.6		1.1	1020
Maximum payload (kg)		4			
Standard cycle time: with 2kg payload (sec) Note 2		0.57			
R-axis tolerable moment of inertia Note 3 (kgm^2)		0.05			
User wiring (sq × wires)		0.2×10			
User tubing (Outer diameter)		ϕ4×4			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg)		22			
Degree of cleanliness		ISO CLASS 3 (ISO 14644-1) Note 4 +ESD Note 5			
Intake air (Nℓ/min)		30 Note 6			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.609.
Note 4. Class 10 (0.1μm) equivalent to FED-STD-209D
Note 5. ESD (ElectroStatic Discharge) prevention is an option. Please contact our distributor.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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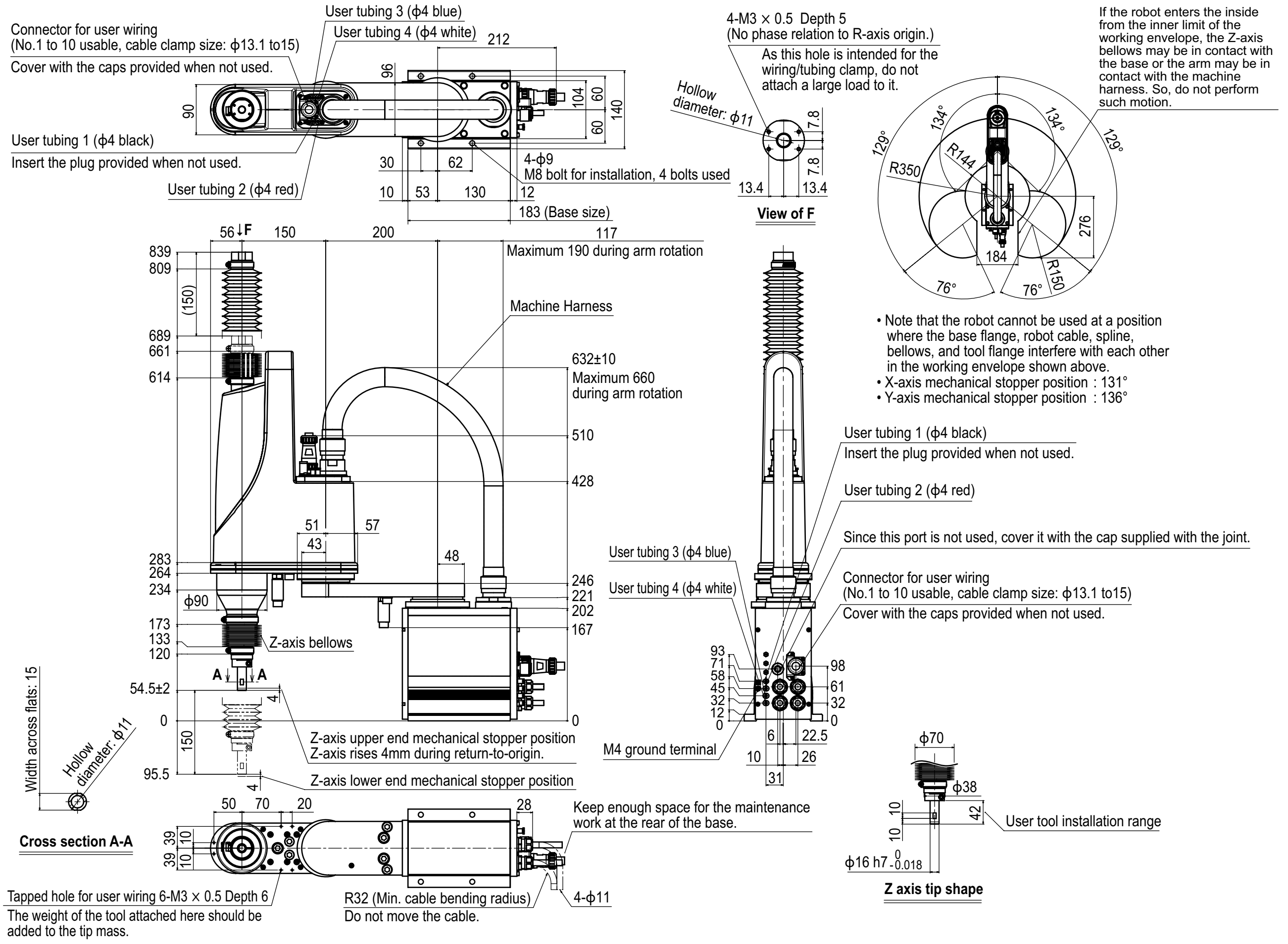
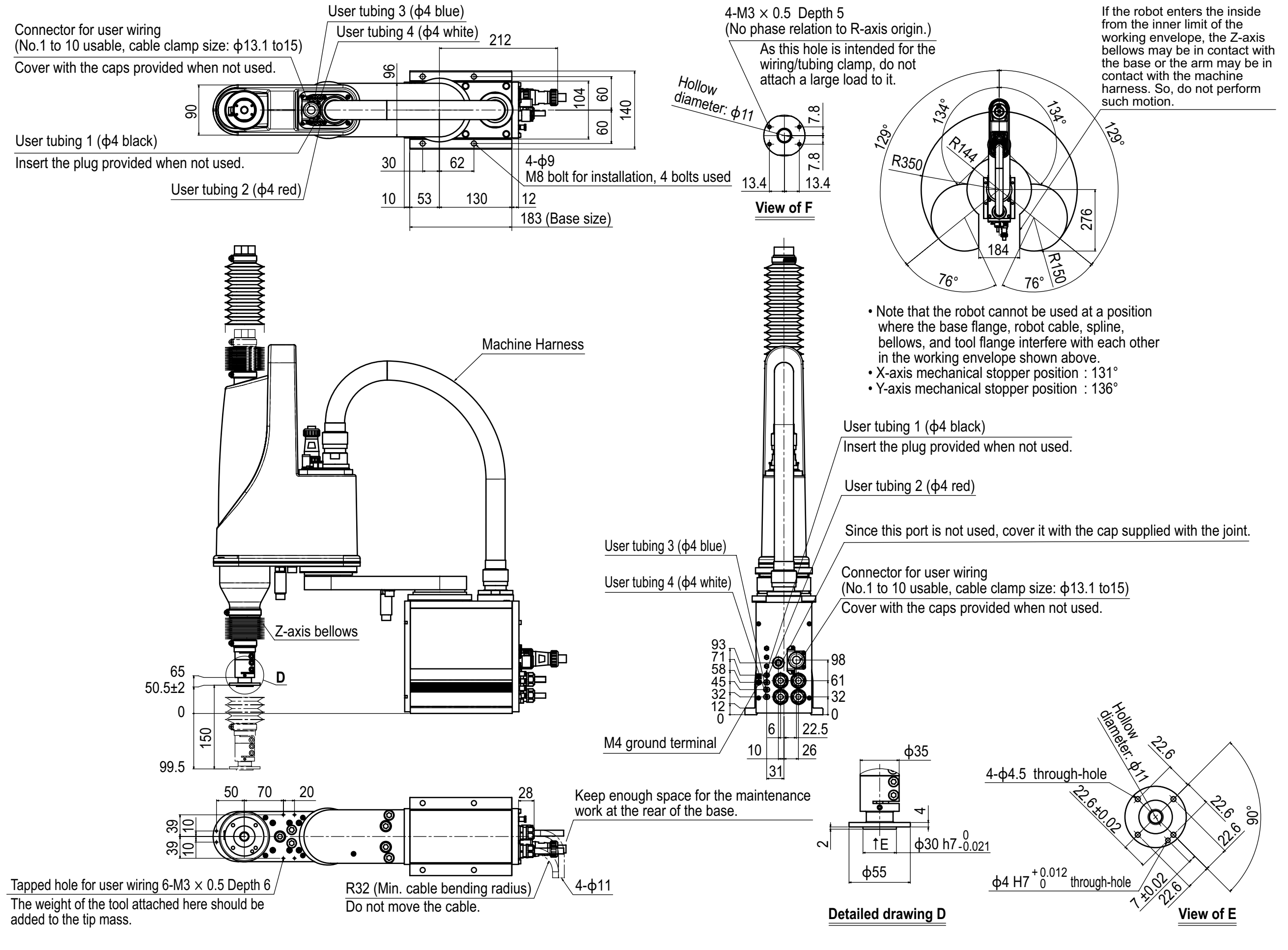
YK350XGC


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
134°
134°
129°
129°
R144
R350
276
184
R150
76°
76°
56
F
150
200
117
Maximum 190 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660 during arm rotation
510
428
51
57
43
48
283
264
234
ϕ90
173
133
120
246
221
202
167
Z-axis bellows
A
A
54.5±2
0
4
150
95.5
4
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
0
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
93
71
58
45
32
12
0
98
61
32
0
M4 ground terminal
6
22.5
10
26
31
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 $^{0}_{-0.018}$
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 136°

YK350XGC Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
134°
134°
129°
129°
R350
R144
276
184
R150
76°
76°
Machine Harness
Z-axis bellows
65
50.5±2
0
150
99.5
D
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ35
4
2
E
ϕ30 h7 $^{0}_{-0.021}$
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
4-ϕ4.5 through-hole
22.6±0.02
22.6
22.6
90°
ϕ4 H7 $^{+0.012}_{0}$ through-hole
7 ±0.02
22.6
View of E

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 136°

YK400XGC

● Arm length 400mm ● Maximum payload 4kg

Ordering method

YK400XGC - 150 - ☐ - S - ☐ - RCX340-4 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable length
YK400XGC	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

RCX340-4: Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240S: Controller - CE Marking - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	250	150	150	–
	Rotation angle (˚)	+/-129	+/-144	–	+/-360
AC servo motor output (W)		200	150	50	100
Repeatability [Note 1] (XYZ: mm) (R: ˚)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: ˚/sec)		6.1		1.1	1020
Maximum payload (kg)		4			
Standard cycle time: with 2kg payload (sec) [Note 2]		0.57			
R-axis tolerable moment of inertia [Note 3] (kgm^2)		0.05			
User wiring (sq × wires)		0.2×10			
User tubing (Outer diameter)		ϕ4×4			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg)		22.5			
Degree of cleanliness		ISO CLASS 3 (ISO 14644-1) [Note 4] +ESD [Note 5]			
Intake air (Nℓ/min)		30 [Note 6]			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Class 10 (0.1μm) equivalent to FED-STD-209D
Note 5. ESD (ElectroStatic Discharge) prevention is an option. Please contact our distributor.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

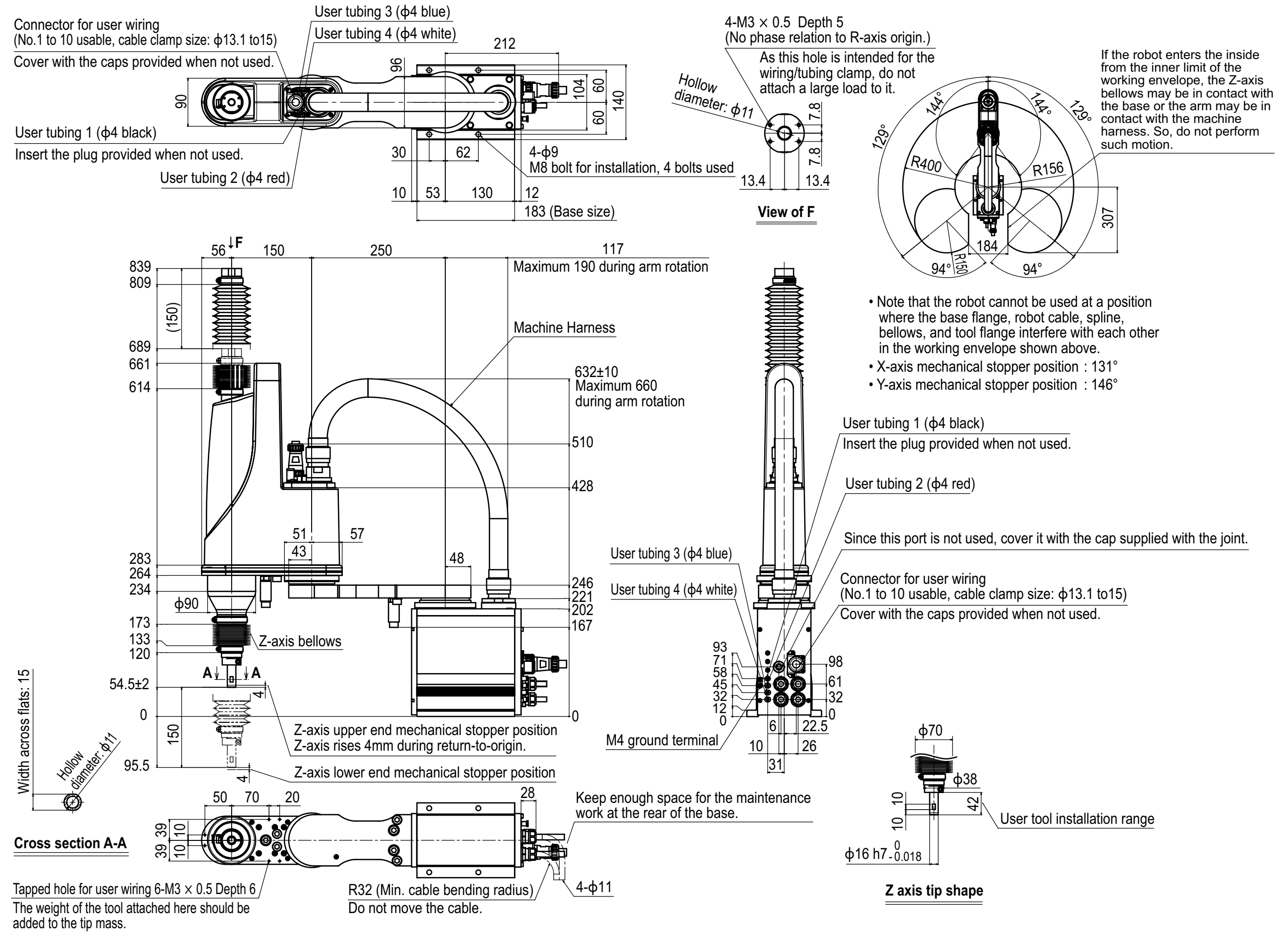
Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

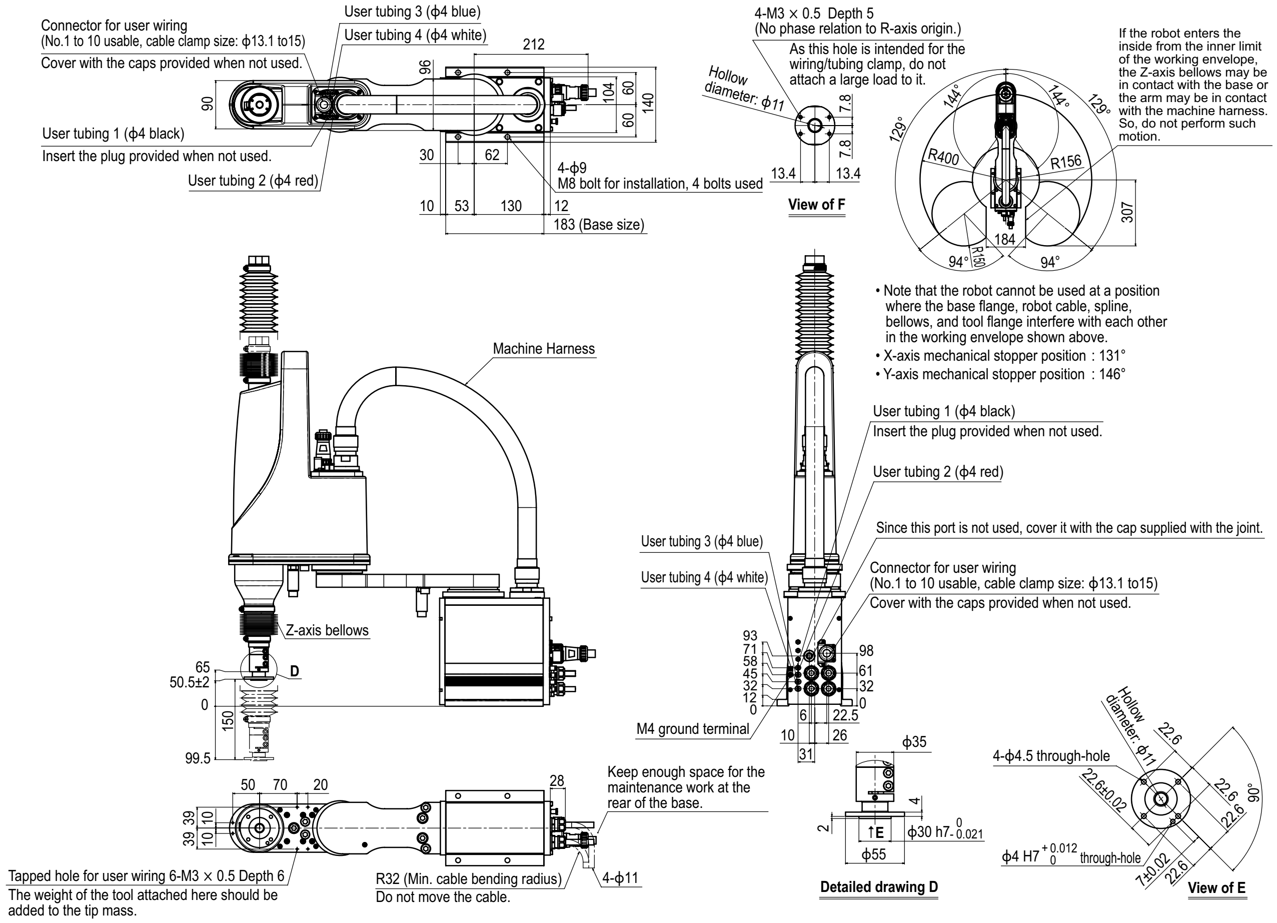
Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/

YK400XGC


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
212
96
90
104
60
60
140
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
30
62
4-ϕ9
M8 bolt for installation, 4 bolts used
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
144°
144°
129°
129°
R400
R156
R150
184
307
94°
94°
• Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
• X-axis mechanical stopper position : 131°
• Y-axis mechanical stopper position : 146°
56
F
150
250
117
Maximum 190 during arm rotation
839
809
(150)
689
661
614
Machine Harness
632±10
Maximum 660
during arm rotation
510
428
51
57
43
48
283
264
234
246
221
202
167
ϕ90
173
133
120
Z-axis bellows
A
A
54.5±2
4
0
0
150
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
95.5
4
Z-axis lower end mechanical stopper position
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 0 -0.018
Z axis tip shape

YK400XGC Tool flange mount type


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
60
140
30
62
10
53
130
12
183 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
144°
144°
129°
129°
R400
R156
R150
184
307
94°
94°
Machine Harness
Z-axis bellows
65
50.5±2
D
0
150
99.5
50
70
20
28
39
39
10
10
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ35
4
2
E
ϕ30 h7 $^{0}_{-0.021}$
ϕ55
Detailed drawing D
4-ϕ4.5 through-hole
Hollow diameter: ϕ11
22.6
22.6±0.02
22.6
22.6
90°
ϕ4 H7 $^{+0.012}_{0}$ through-hole
7±0.02
22.6
View of E

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XGLC

● Arm length 500mm ● Maximum payload 4kg

Ordering method

YK500XGLC - **150** - ☐ - **S** - ☐ - **RCX340-4** ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model	Z axis stroke	Tool flange	Hollow shaft	Cable length
YK500XGLC	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m

Controller / Number of controllable axes - Safety standard - Option A (OP.A) - Option B (OP.B) - Option C (OP.C) - Option D (OP.D) - Option E (OP.E) - Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240S - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller - CE Marking - Expansion I/O - Network option - iVY System - Gripper - Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	250	250	150	–
	Rotation angle (˚)	+/-129	+/-144	–	+/-360
AC servo motor output (W)		200	150	50	100
Repeatability Note 1 (XYZ: mm) (R: ˚)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: ˚/sec)		5.1		1.1	1020
Maximum payload (kg)		4			
Standard cycle time: with 2kg payload (sec) Note 2		0.74			
R-axis tolerable moment of inertia Note 3 (kgm^2)		0.05			
User wiring (sq × wires)		0.2×10			
User tubing (Outer diameter)		ϕ4×4			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg)		25			
Degree of cleanliness		ISO CLASS 3 (ISO 14644-1) Note 4 +ESD Note 5			
Intake air (Nℓ/min)		30 Note 6			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Class 10 (0.1μm) equivalent to FED-STD-209D
Note 5. ESD (ElectroStatic Discharge) prevention is an option. Please contact our distributor.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.
Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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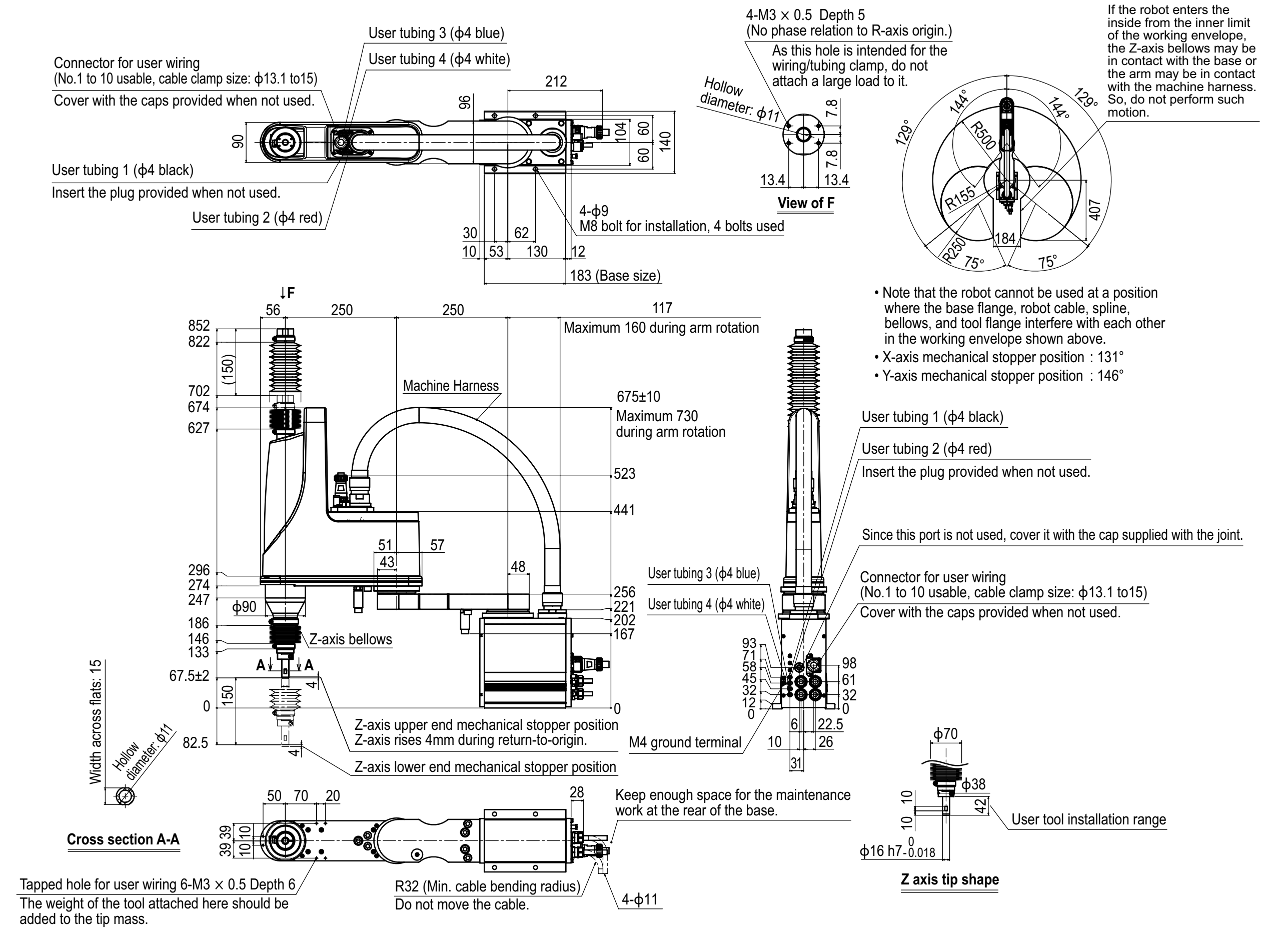
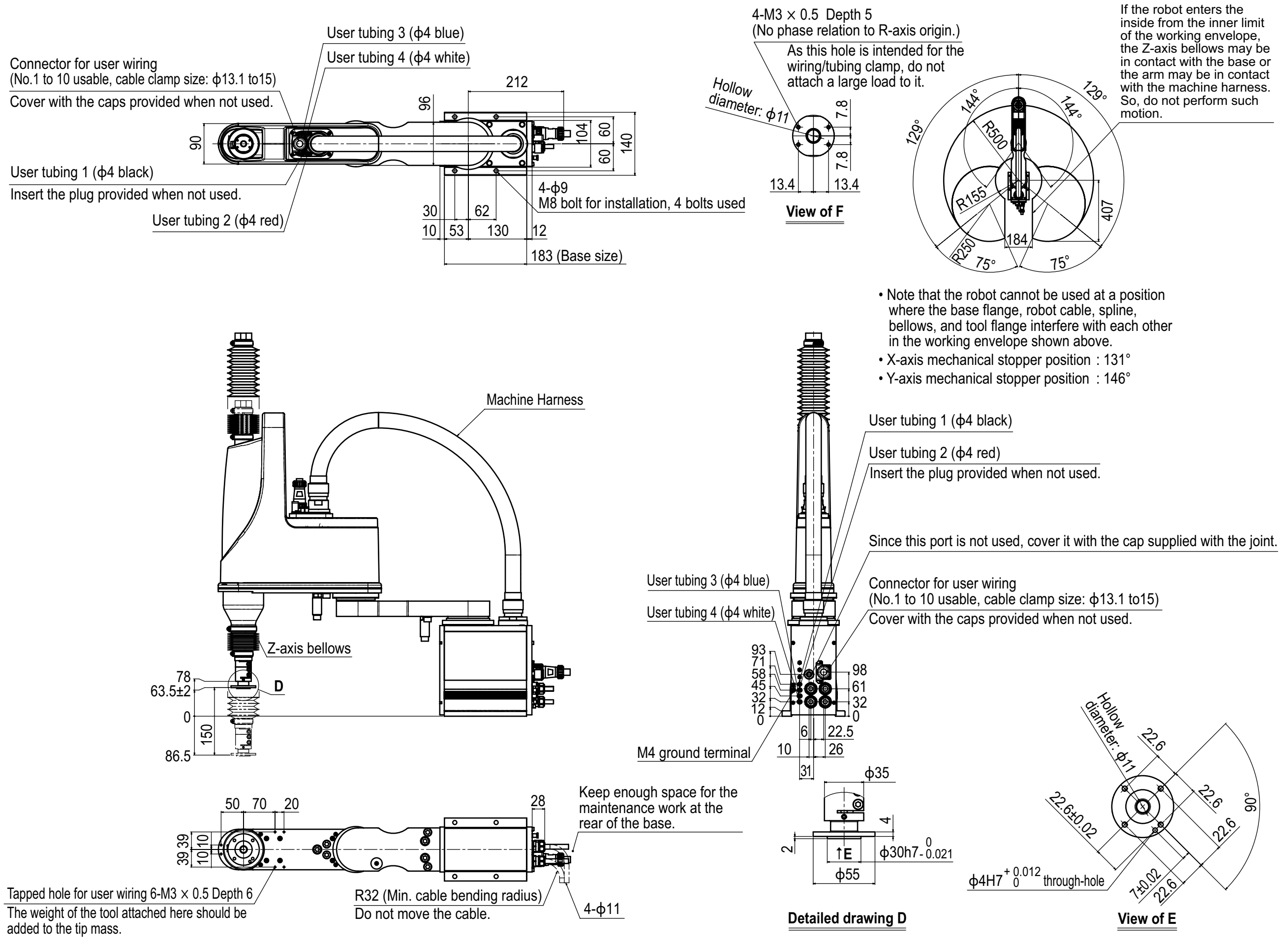
YK500XGLC


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
140
60
30
62
10
53
130
12
183 (Base size)
4-ϕ9
M8 bolt for installation, 4 bolts used
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.
129°
144°
144°
129°
R500
R155
R250
184
407
75°
75°
↓F
56
250
250
117
Maximum 160 during arm rotation
852
822
(150)
702
674
627
Machine Harness
675±10
Maximum 730 during arm rotation
523
441
51
57
43
48
296
274
247
ϕ90
186
146
133
Z-axis bellows
256
221
202
167
A
A
4
67.5±2
0
150
82.5
4
0
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
M4 ground terminal
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
ϕ70
ϕ38
10
10
42
ϕ16 h7 0/-0.018
User tool installation range
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XGLC Tool flange mount type


User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
212
96
90
104
60
140
60
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
4-ϕ9
M8 bolt for installation, 4 bolts used
30
62
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
129°
144°
144°
129°
R500
R155
R250
184
407
75°
75°
Machine Harness
Z-axis bellows
78
63.5±2
D
0
150
86.5
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
M4 ground terminal
31
ϕ35
4
2
E
ϕ30h7 $^{0}_{-0.021}$
ϕ55
Detailed drawing D
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Hollow diameter: ϕ11
22.6
22.6
22.6
22.6±0.02
90°
7±0.02
22.6
ϕ4H7 $^{+0.012}_{0}$ through-hole
View of E

If the robot enters the inside from the inner limit of the working envelope, the Z-axis bellows may be in contact with the base or the arm may be in contact with the machine harness. So, do not perform such motion.

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK500XC

● Arm length 500mm ● Maximum payload 10kg

Ordering method

YK500XC	-		-		-	RCX340-4	-		-		-		-		-		-		-		-	
Model		**Z axis stroke** 200: 200mm 300: 300mm		**Cable length** 3L: 3.5m 5L: 5m 10L: 10m		**Controller / Number of controllable axes**		**Safety standard**		**Option A (OP.A)**		**Option B (OP.B)**		**Option C (OP.C)**		**Option D (OP.D)**		**Option E (OP.E)**		**Absolute battery**		

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	-		-	R	-		-		-		-		-	
Controller	-	**CE Marking**	-	**Regeneratizve unit**	-	**Expansion I/O**	-	**Network option**	-	**iVY System**	-	**Gripper**	-	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis		R axis
Axis specifications	Arm length (mm)	250	250	200	300	–
	Rotation angle (˚)	+/-120	+/-142	–		+/-180
AC servo motor output (W)		400	200	200		100
Repeatability Note 1 (XYZ: mm) (R: ˚)		+/-0.02		+/-0.01		+/-0.005
Maximum speed (XYZ: m/sec) (R: ˚/sec)		4.9		1.7		876
Maximum payload (kg)		10				
Standard cycle time: with 2kg payload (sec)		0.53				
R-axis tolerable moment of inertia Note 2 (kgm^2)		0.12				
User wiring (sq × wires)		0.2 × 20				
User tubing (Outer diameter)		ϕ6 × 3				
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)				
Robot cable length (m)		Standard: 3.5 Option: 5, 10				
Weight (kg)		31				
Degree of cleanliness		CLASS 10 Note 3				
Intake air (Nℓ/min)		60 Note 4				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. There are limits to acceleration coefficient settings.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	1500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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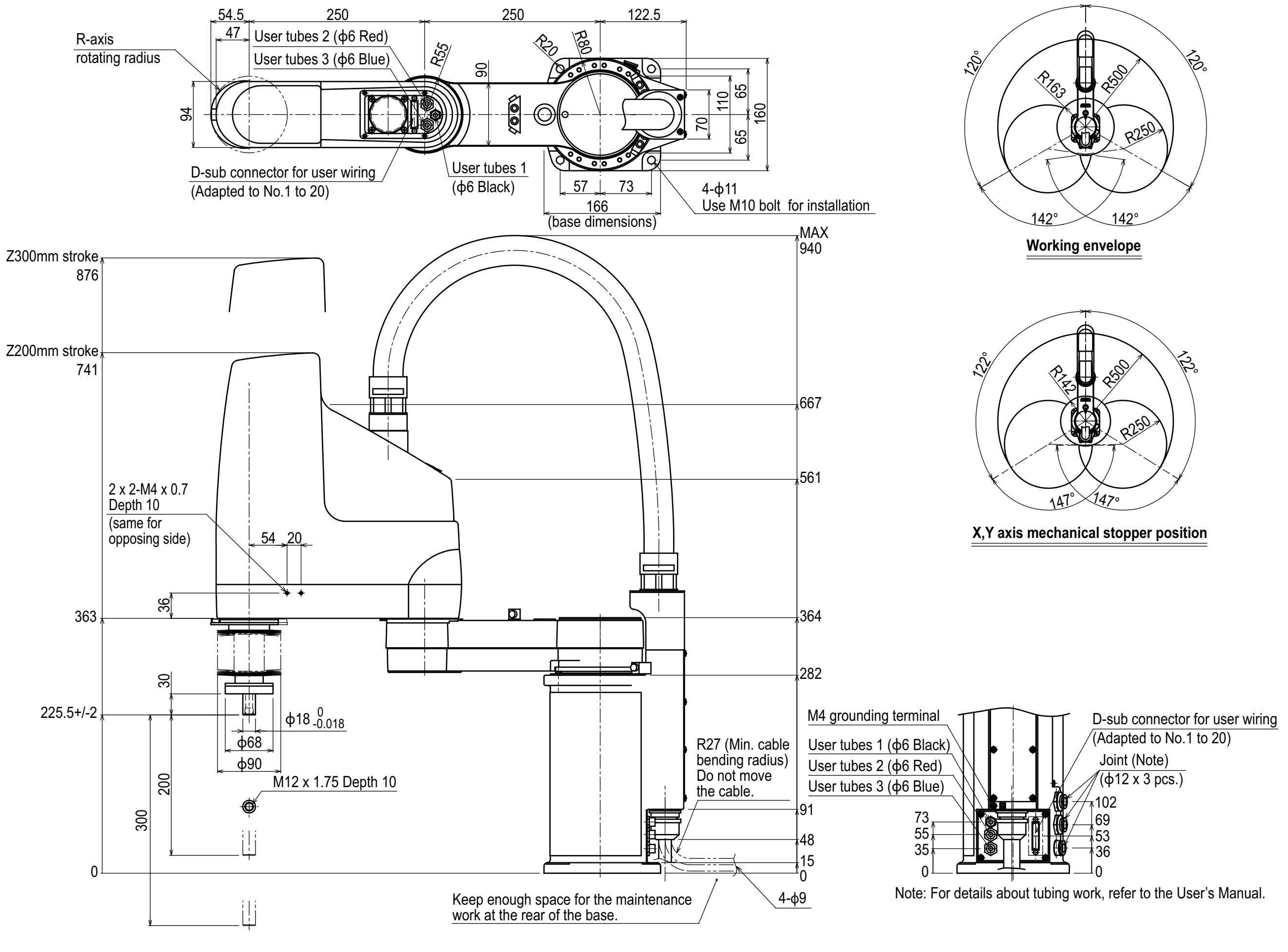
YK500XC



Working envelope

X,Y axis mechanical stopper position

Note: For details about tubing work, refer to the User's Manual.

YK600XGLC

Arm length 600mm **Maximum payload 4kg**

Ordering method

YK600XGLC	150		S		RCX340-4							
Model	Z axis stroke	Tool flange	Hollow shaft	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	150: 150mm	No entry: None F: With tool flange	S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.544

RCX240S						
Controller	CE Marking	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

		X axis	Y axis	Z axis	R axis
Axis specifications	Arm length (mm)	350	250	150	–
	Rotation angle (°)	+/-129	+/-144	–	+/-360
AC servo motor output (W)		200	150	50	100
Repeatability [Note 1] (XYZ: mm) (R: °)		+/-0.01		+/-0.01	+/-0.004
Maximum speed (XYZ: m/sec) (R: °/sec)		4.9		1.1	1020
Maximum payload (kg)		4			
Standard cycle time: with 2kg payload (sec) [Note 2]		0.74			
R-axis tolerable moment of inertia [Note 3] (kgm^2)		0.05			
User wiring (sq × wires)		0.2×10			
User tubing (Outer diameter)		ϕ4×4			
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)			
Robot cable length (m)		Standard: 3.5 Option: 5, 10			
Weight (kg)		26			
Degree of cleanliness		ISO CLASS 3 (ISO 14644-1) [Note 4] +ESD [Note 5]			
Intake air (Nℓ/min)		30 [Note 6]			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 25mm in vertical direction and 300mm in horizontal direction (rough-positioning arch motion).
Note 3. There are limits to acceleration coefficient settings. See P.610.
Note 4. Class 10 (0.1μm) equivalent to FED-STD-209D
Note 5. ESD (ElectroStatic Discharge) prevention is an option. Please contact our distributor.
Note 6. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240S	1000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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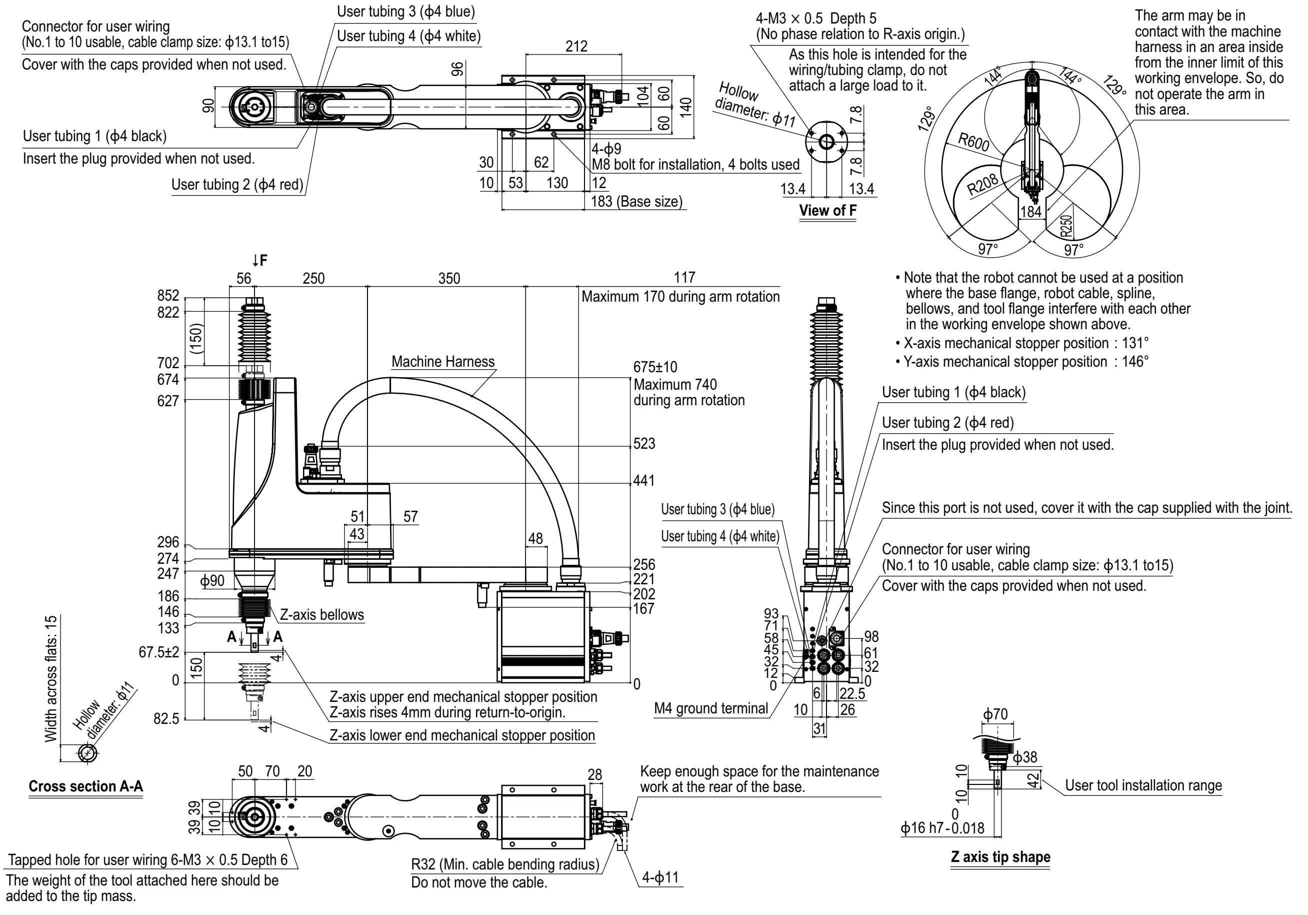
YK600XGLC

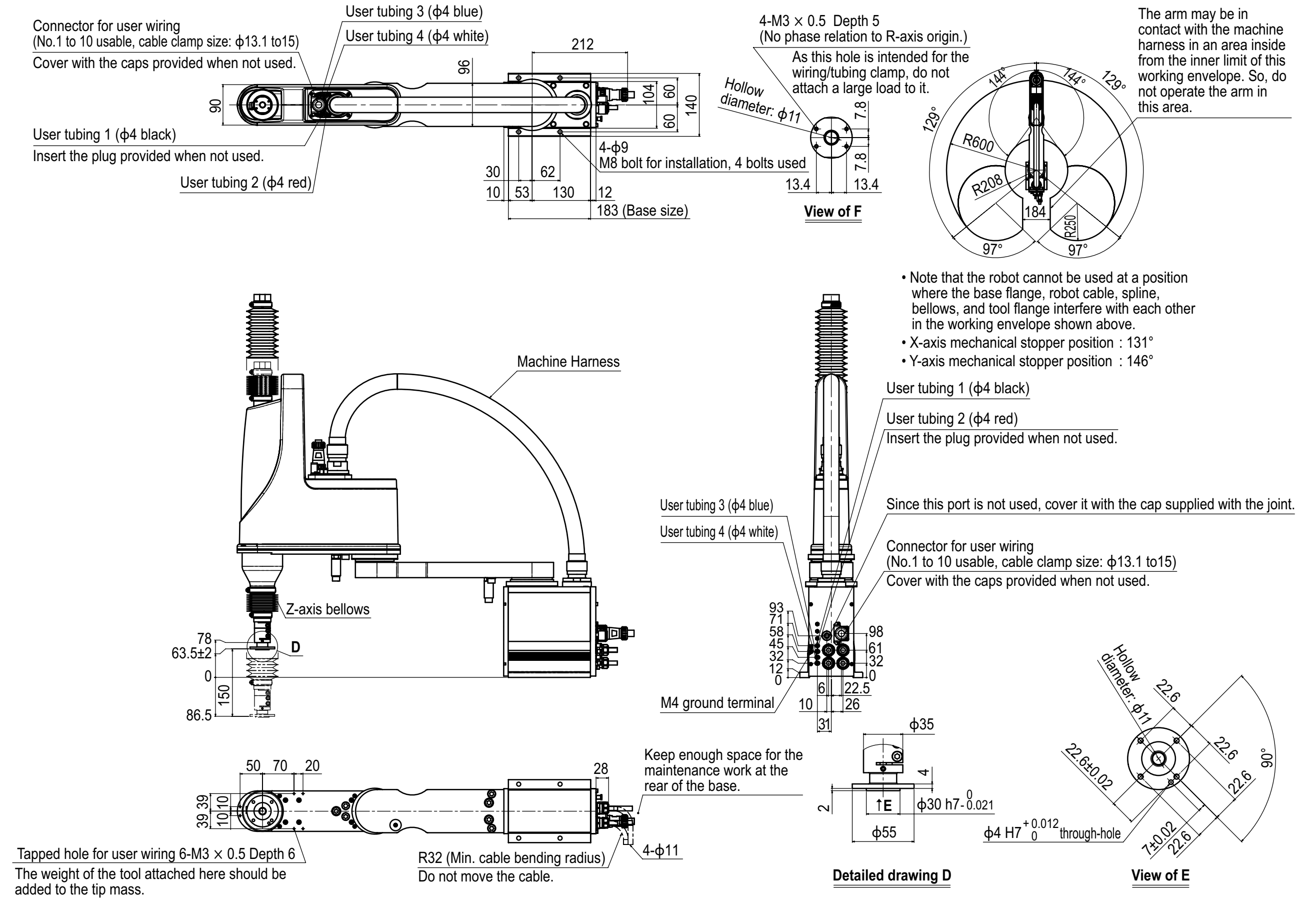

Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
90
96
212
104
60
60
140
30
62
10
53
130
12
4-ϕ9
M8 bolt for installation, 4 bolts used
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.
144°
144°
129°
129°
R600
R208
184
R250
97°
97°
↓F
56
250
350
117
Maximum 170 during arm rotation
852
822
(150)
702
674
627
Machine Harness
675±10
Maximum 740
during arm rotation
523
441
51
57
43
48
296
274
247
ϕ90
256
221
202
167
186
146
133
Z-axis bellows
A
A
67.5±2
4
150
0
82.5
4
Z-axis upper end mechanical stopper position
Z-axis rises 4mm during return-to-origin.
Z-axis lower end mechanical stopper position
0
Width across flats: 15
Hollow diameter: ϕ11
Cross section A-A
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
Since this port is not used, cover it with the cap supplied with the joint.
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
50
70
20
28
39
39
10
10
Keep enough space for the maintenance work at the rear of the base.
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
ϕ70
ϕ38
10
10
42
User tool installation range
ϕ16 h7 0 -0.018
Z axis tip shape

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Single-axis
Cartesian
SCARA

YK600XGLC

YK600XGLC Tool flange mount type


Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
User tubing 1 (ϕ4 black)
Insert the plug provided when not used.
User tubing 2 (ϕ4 red)
212
96
90
104
60
60
140
4-ϕ9
M8 bolt for installation, 4 bolts used
30
62
10
53
130
12
183 (Base size)
4-M3 × 0.5 Depth 5
(No phase relation to R-axis origin.)
As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.
Hollow diameter: ϕ11
7.8
7.8
13.4
13.4
View of F
The arm may be in contact with the machine harness in an area inside from the inner limit of this working envelope. So, do not operate the arm in this area.
144°
144°
129°
129°
R600
R208
184
R250
97°
97°
Machine Harness
Z-axis bellows
78
63.5±2
D
0
150
86.5
93
71
58
45
32
12
0
98
61
32
0
6
22.5
10
26
31
M4 ground terminal
User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
Insert the plug provided when not used.
User tubing 3 (ϕ4 blue)
User tubing 4 (ϕ4 white)
Since this port is not used, cover it with the cap supplied with the joint.
Connector for user wiring
(No.1 to 10 usable, cable clamp size: ϕ13.1 to15)
Cover with the caps provided when not used.
50
70
20
28
39
39
10
10
Tapped hole for user wiring 6-M3 × 0.5 Depth 6
The weight of the tool attached here should be added to the tip mass.
R32 (Min. cable bending radius)
Do not move the cable.
4-ϕ11
Keep enough space for the maintenance work at the rear of the base.
ϕ35
4
2
E
ϕ30 h7-0/-0.021
ϕ55
Detailed drawing D
Hollow diameter: ϕ11
22.6
22.6
22.6
22.6
22.6±0.02
7±0.02
90°
ϕ4 H7 +0.012/0 through-hole
View of E

- Note that the robot cannot be used at a position where the base flange, robot cable, spline, bellows, and tool flange interfere with each other in the working envelope shown above.
- X-axis mechanical stopper position : 131°
- Y-axis mechanical stopper position : 146°

YK600XC

● Arm length 600mm ● Maximum payload 10kg

Ordering method

YK600XC	–	–	–
Model	Z axis stroke	Cable length	
	200: 200mm 300: 300mm	3L: 3.5m 5L: 5m 10L: 10m	

RCX340-4							
Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery

Specify various controller setting items. RCX340 ▶ P.544

RCX240		R					
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

		X axis	Y axis	Z axis		R axis
Axis specifications	Arm length (mm)	350	250	200	300	–
	Rotation angle (˚)	+/-120	+/-145	–		+/-180
AC servo motor output (W)		400	200	200		100
Repeatability Note 1 (XYZ: mm) (R: ˚)		+/-0.02		+/-0.01		+/-0.005
Maximum speed (XYZ: m/sec) (R: ˚/sec)		5.6		1.7		876
Maximum payload (kg)		10				
Standard cycle time: with 2kg payload (sec)		0.56				
R-axis tolerable moment of inertia Note 2 (kgm^2)		0.12				
User wiring (sq × wires)		0.2 × 20				
User tubing (Outer diameter)		ϕ6 × 3				
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)				
Robot cable length (m)		Standard: 3.5 Option: 5, 10				
Weight (kg)		33				
Degree of cleanliness		CLASS 10 Note 3				
Intake air (Nℓ/min)		60 Note 4				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. There are limits to acceleration coefficient settings.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	1500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

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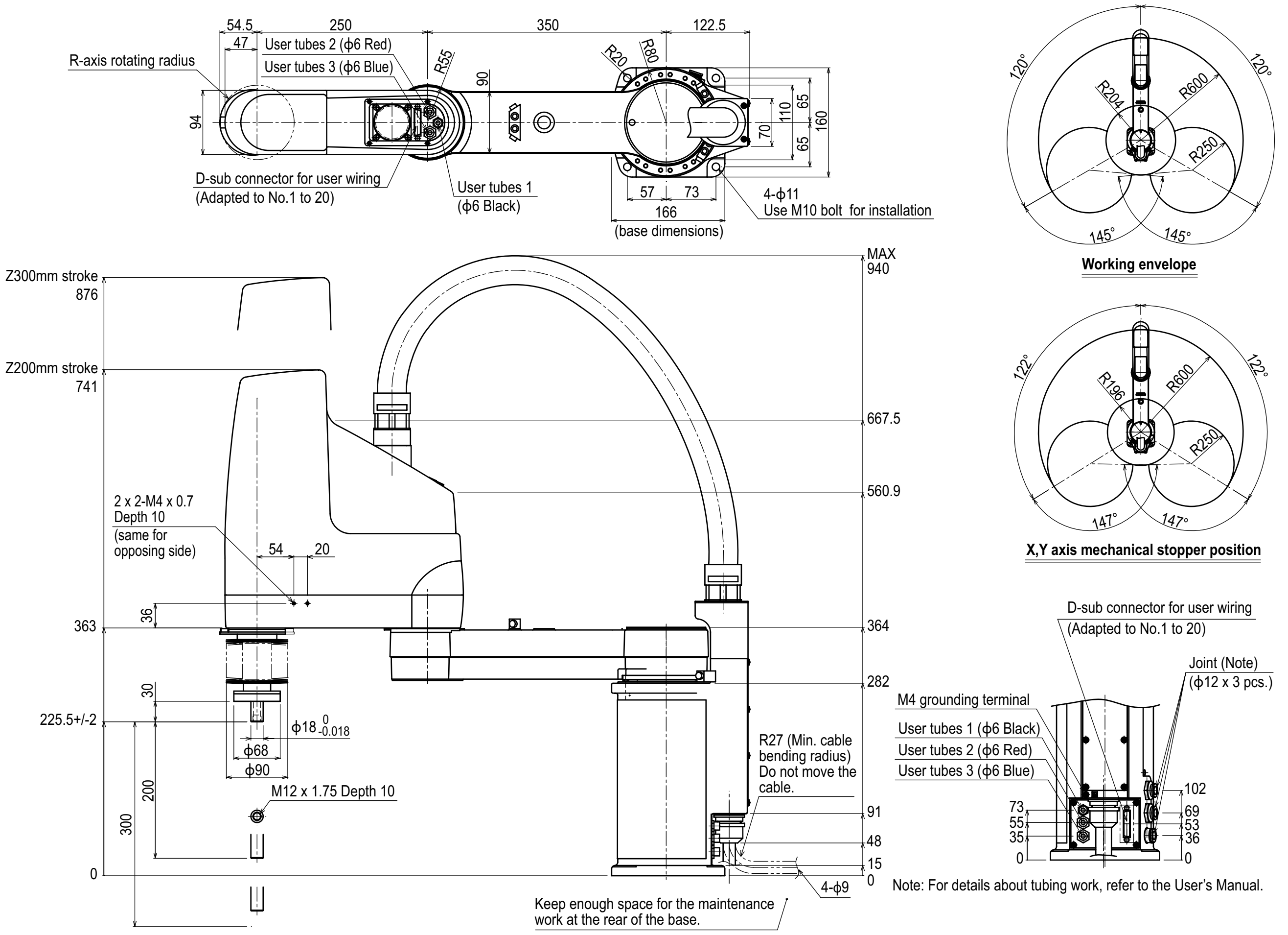
YK600XC



Note: For details about tubing work, refer to the User's Manual.

YK700XC

● Arm length 700mm ● Maximum payload 20kg

Ordering method

YK700XC – [ ] – [ ] – RCX340-4 – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Model	Z axis stroke	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
YK700XC	200: 200mm 400: 400mm	3L: 3.5m 5L: 5m 10L: 10m	RCX340-4							

Specify various controller setting items. RCX340 ▶ P.544

RCX240 – [ ] – R – [ ] – [ ] – [ ] – [ ] – [ ]

Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery
RCX240		R					

Specify various controller setting items. RCX240/RCX240S ▶ P.534

Basic specifications

		X axis	Y axis	Z axis		R axis
Axis specifications	Arm length (mm)	350	350	200	400	–
	Rotation angle (°)	+/-120	+/-145	–		+/-180
AC servo motor output (W)		800	400	400		200
Repeatability Note 1 (XYZ: mm) (R: °)		+/-0.02		+/-0.01		+/-0.005
Maximum speed (XYZ: m/sec) (R: °/sec)		6.7		1.7		600
Maximum payload (kg)		20				
Standard cycle time: with 2kg payload (sec)		0.57				
R-axis tolerable moment of inertia Note 2 (kgm^2)		0.32				
User wiring (sq × wires)		0.2 × 20				
User tubing (Outer diameter)		φ6 × 3				
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)				
Robot cable length (m)		Standard: 3.5 Option: 5, 10				
Weight (kg)		57				
Degree of cleanliness		CLASS 10 Note 3				
Intake air (Nℓ/min)		60 Note 4				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. There are limits to acceleration coefficient settings.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	2000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.) See our robot manuals (installation manuals) for detailed information.

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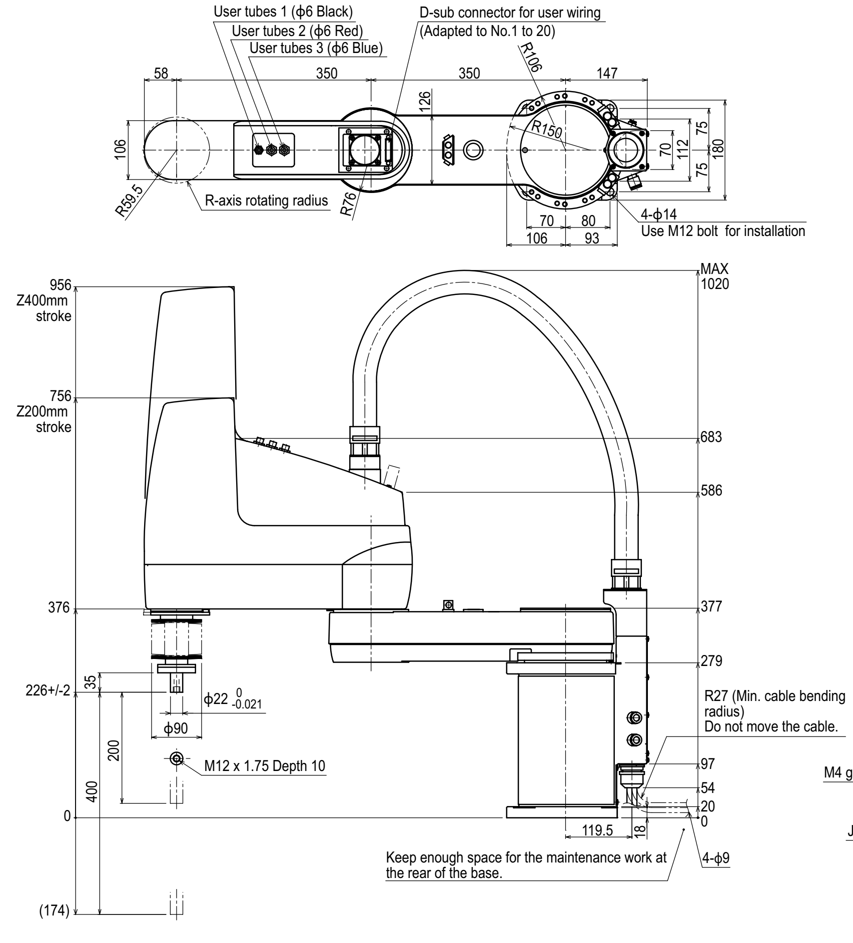
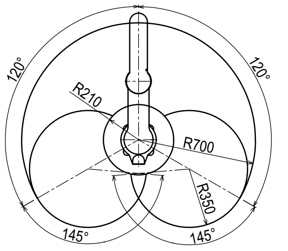
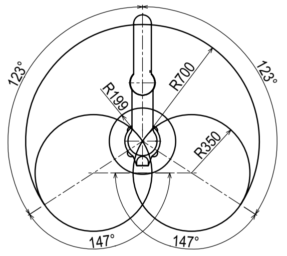
YK700XC

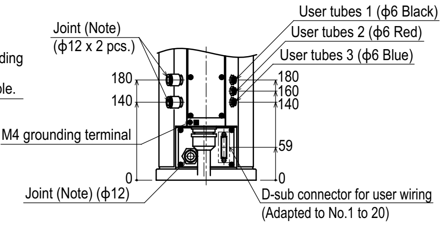




Working envelope



X,Y axis mechanical stopper position



Note: For details about tubing work, refer to the User's Manual.

YK800XC

● Arm length 800mm ● Maximum payload 20kg

Ordering method

YK800XC	☐	☐	**RCX340-4**	☐	☐	☐	☐	☐	☐	☐			
Model	Z axis stroke	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery			
	200: 200mm 400: 400mm	3L: 3.5m 5L: 5m 10L: 10m											

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	☐	**R**	☐	☐	☐	☐	☐
Controller	CE Marking	Regeneratizve unit	Expansion I/O	Network option	iVY System	Gripper	Battery

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis		R axis
Axis specifications	Arm length (mm)	450	350	200	400	–
	Rotation angle (°)	+/-120	+/-145	–		+/-180
AC servo motor output (W)		800	400	400		200
Repeatability [Note 1] (XYZ: mm) (R: °)		+/-0.02		+/-0.01		+/-0.005
Maximum speed (XYZ: m/sec) (R: °/sec)		7.3		1.7		600
Maximum payload (kg)		20				
Standard cycle time: with 2kg payload (sec)		0.57				
R-axis tolerable moment of inertia [Note 2] (kgm^2)		0.32				
User wiring (sq × wires)		0.2 × 20				
User tubing (Outer diameter)		ϕ6 × 3				
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)				
Robot cable length (m)		Standard: 3.5 Option: 5, 10				
Weight (kg)		58				
Degree of cleanliness		CLASS 10 [Note 3]				
Intake air (Nℓ/min)		60 [Note 4]				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. There are limits to acceleration coefficient settings.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	2000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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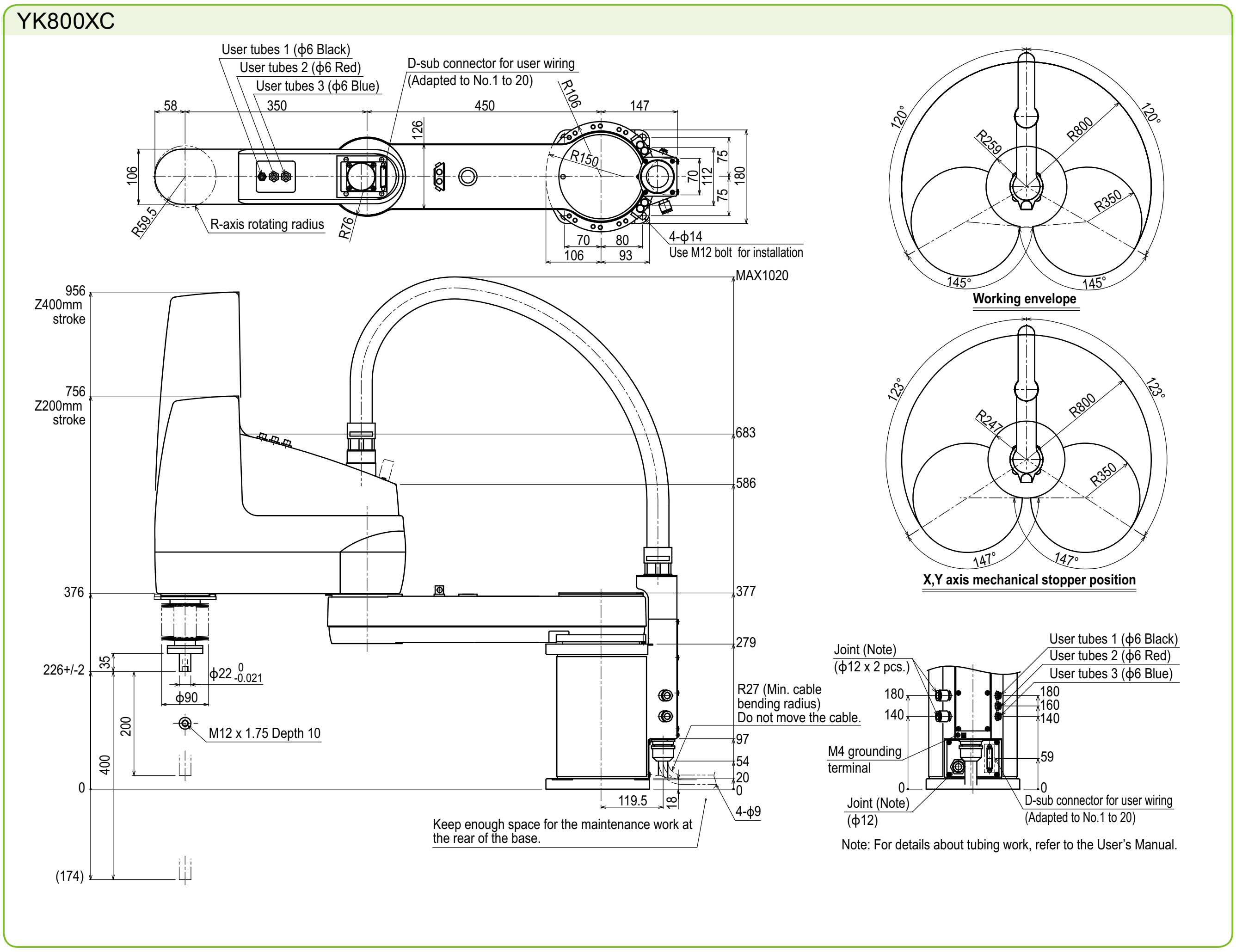
YK800XC



YK1000XC

● Arm length 1000mm **● Maximum payload 20kg**

Ordering method

YK1000XC	-		-		-	RCX340-4	-		-		-		-		-		-		-	
Model	-	**Z axis stroke** 200: 200mm 400: 400mm	-	**Cable length** 3L: 3.5m 5L: 5m 10L: 10m	-	**Controller / Number of controllable axes**	-	**Safety standard**	-	**Option A (OP.A)**	-	**Option B (OP.B)**	-	**Option C (OP.C)**	-	**Option D (OP.D)**	-	**Option E (OP.E)**	-	**Absolute battery**

Specify various controller setting items. RCX340 ▶ **P.544**

RCX240	-		-	R	-		-		-		-		-	
Controller	-	**CE Marking**	-	**Regeneratizve unit**	-	**Expansion I/O**	-	**Network option**	-	**iVY System**	-	**Gripper**	-	**Battery**

Specify various controller setting items. RCX240/RCX240S ▶ **P.534**

Basic specifications

		X axis	Y axis	Z axis		R axis
Axis specifications	Arm length (mm)	550	450	200	400	–
	Rotation angle (˚)	+/-120	+/-145	–		+/-180
AC servo motor output (W)		800	400	400		200
Repeatability Note 1 (XYZ: mm) (R: ˚)		+/-0.02		+/-0.01		+/-0.005
Maximum speed (XYZ: m/sec) (R: ˚/sec)		8.0		1.7		600
Maximum payload (kg)		20				
Standard cycle time: with 2kg payload (sec)		0.60				
R-axis tolerable moment of inertia Note 2 (kgm^2)		0.32				
User wiring (sq × wires)		0.2 × 20				
User tubing (Outer diameter)		ϕ6 × 3				
Travel limit		1.Soft limit, 2.Mechanical stopper (X, Y, Z axes)				
Robot cable length (m)		Standard: 3.5 Option: 5, 10				
Weight (kg)		59				
Degree of cleanliness		CLASS 10 Note 3				
Intake air (Nℓ/min)		60 Note 4				

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. There are limits to acceleration coefficient settings.
Note 3. Per 1cf (0.1μm base), when suction blower is used.
Note 4. The necessary intake amount varies depending on the use conditions and environment.

Controller

Controller	Power capacity (VA)	Operation method
RCX340 RCX240-R	2000	Programming / I/O point trace / Remote command / Operation using RS-232C communication

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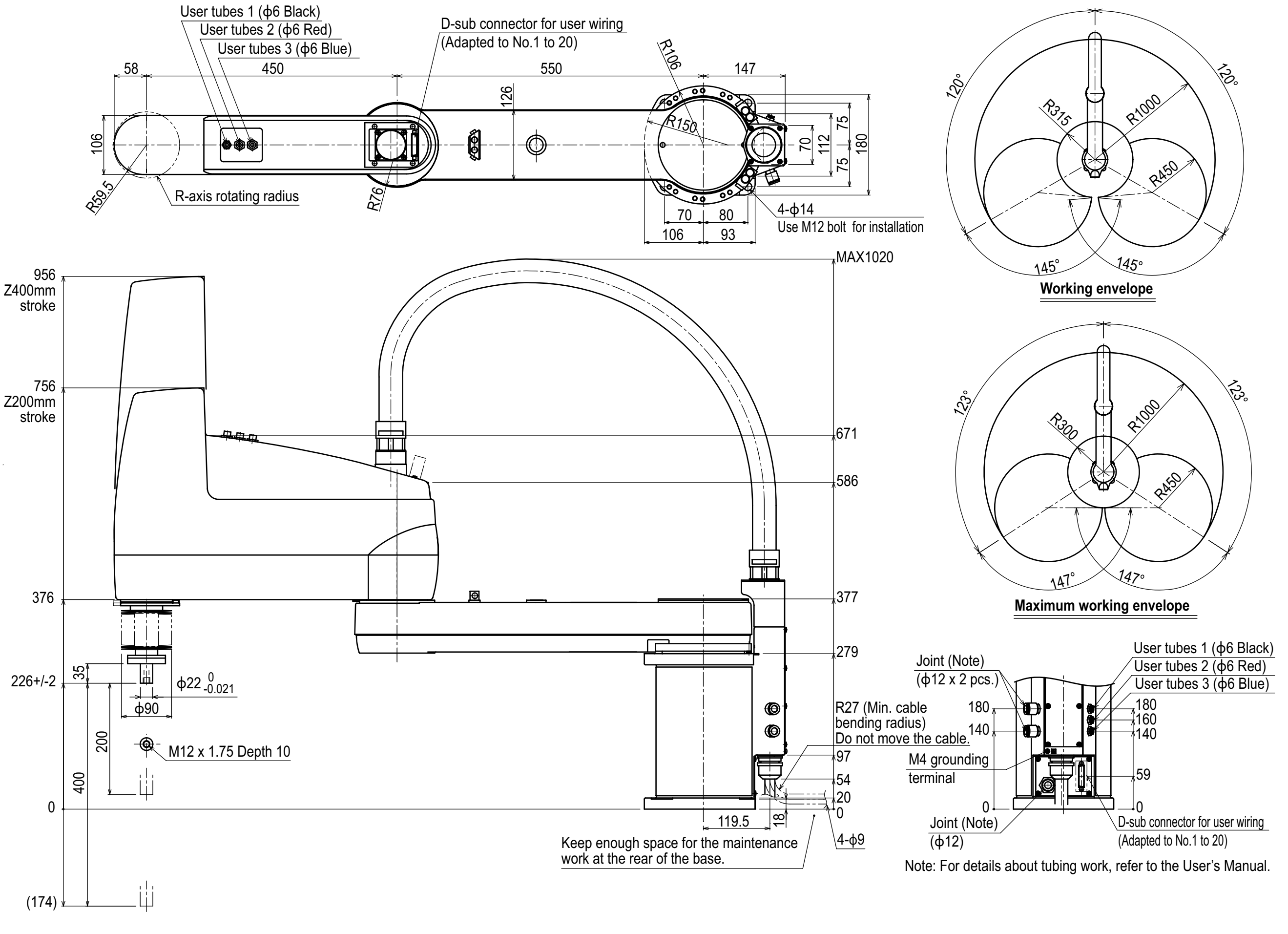
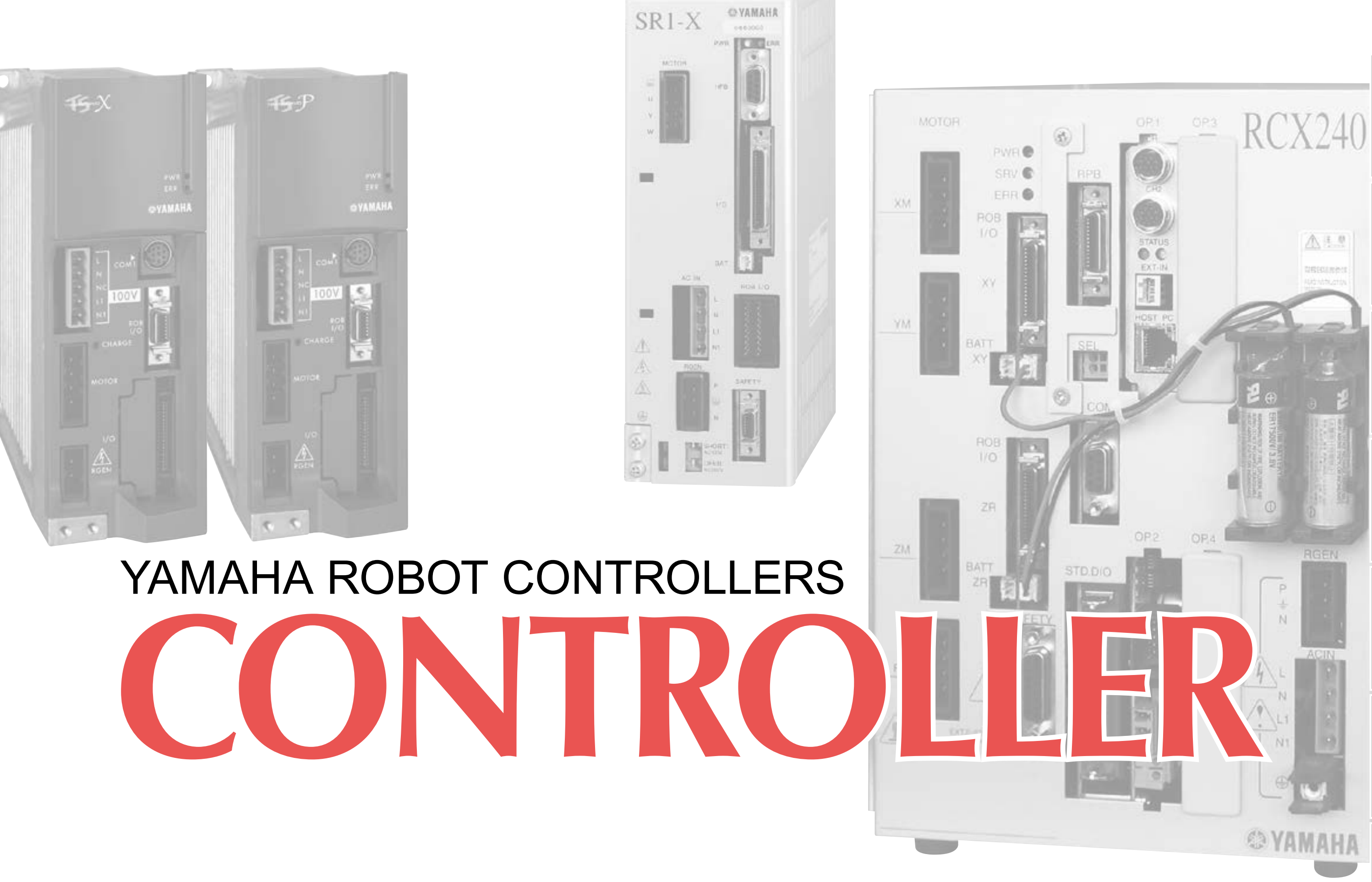
YK1000XC



Note: For details about tubing work, refer to the User's Manual.



YAMAHA ROBOT CONTROLLERS

CONTROLLER

CONTENTS

CONTROLLER

POSITIONER

DRIVER

CONTROLLER

OPTION DETAILS

ROBOT VISION iVY SYSTEM

ROBOT VISION iVY2 SYSTEM

ELECTRIC GRIPPER

Main functions ▶ P.54

CONTROLLER FEATURE DESCRIPTION

Single-axis

Dedicated robot controller for the LCM100

Linear conveyor module

LCC140

Linear conveyor module LCM100

P.486

Operating method	Programming/I/O point tracing/ Remote command/Operation using RS-232C communication
Points	10,000 points
Input power	Single phase 200 to 230V AC +/-10% maximum (50/60Hz)
Origin search method	Incremental
Field networks	CC-Link, DeviceNet™, EtherNet/IP™

Single-axis robot positioner

TS-S2/TS-SH

Dedicated compact single-axis...TRANSERVO Note 1

P.492

Note 1. SG07 is only applicable to TS-SH.

Operating method	I/O point tracing/Remote command/ Operation using RS-232C communication
Points	255 points
Input power	Main power supply DC24V +/-10% Control power supply DC24V +/-10%
Origin search method	TS-S2 : Incremental TS-SH : Absolute Incremental
Field networks	CC-Link, DeviceNet™, EtherNet/IP™, PROFINET

Single-axis robot positioner

TS-X/TS-P

Single-axis robot ....FLIP-X
Linear motor single-axis .....PHASER

P.492

Operating method	I/O point tracing/Remote command/ Operation using RS-232C communication
Points	255 points
Input power	AC100V/AC200V
Origin search method	TS-X : Absolute Incremental TS-P : Incremental Semi-absolute
Field networks	CC-Link, DeviceNet™, EtherNet/IP™, PROFINET

Single-axis robot driver

TS-SD

Dedicated compact single-axis...TRANSERVO

P.502

Operating method	Pulse train control
Input power	Main power supply DC24V +/-10% Control power supply DC24V +/-10%
Origin search method	Incremental
Field networks	Not supported

Single-axis robot driver

RDV-X/RDV-P

[RDV-X] Single-axis robot.............FLIP-X
[RDV-P] Linear motor single-axis.....PHASER

P.506

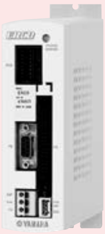
Operating method	Pulse train control
Input power	Main power supply Single phase/3-phase 200V to 230V Control power supply Single phase 200V to 230V
Origin search method	Incremental
Field networks	Not supported

Single-axis robot controller

ERCD

Single-axis robot...................T4L/T5L
Clean single-axis C4L/C5L

P.512



Operating method	Pulse train control/Programming/ I/O point tracing/Operation using RS-232C communication
Points	1000 points
Input power	DC24V +/-10% maximum
Origin search method	Incremental
Field networks	Not supported

Single-axis robot controller

SR1-X/SR1-P

Single-axis robot...................FLIP-X
Linear motor single-axis .....PHASER

P.518

Operating method	Programming/I/O point tracing/ Remote command/Operation using RS-232C communication
Points	1000 points
Input power	AC100V/AC200V
Origin search method	SR1-X Absolute Incremental SR1-P Incremental Semi-absolute
Field networks	CC-Link, DeviceNet™, PROFIBUS

1 to 2 axis

Multi-axis robot controller

RCX221/ RCX221HP

Single-axis robot	**FLIP-X**
Linear motor single-axis	**PHASER**
Cartesian robot	**XY-X**
Pick & place	**YP-X**

P.526

Operating method	Programming/Remote command/ Operation using RS-232C communication
Points	10000 points
Input power	AC200V
Origin search method	Incremental Semi-absolute
Field networks	CC-Link, DeviceNet™, Ethernet, PROFIBUS

Multi-axis robot controller

RCX222/ RCX222HP

Single-axis robot	**FLIP-X**
Cartesian robot	**XY-X**
Pick & place	**YP-X**

P.526

Operating method	Programming/Remote command/ Operation using RS-232C communication
Points	10000 points
Input power	AC200V
Origin search method	Absolute Incremental
Field networks	CC-Link, DeviceNet™, Ethernet, PROFIBUS

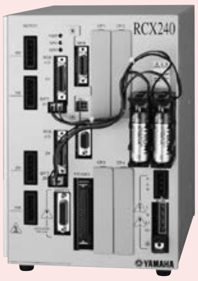
1 to 4 axis

Multi-axis robot controller

RCX240/ RCX240S

Single-axis robot	**FLIP-X**
Linear motor single-axis	**PHASER**
Cartesian robot	**XY-X**
SCARA robot	**YK-TW, YK-XG, YK-XGS, YK-XGP**
Pick & place	**YP-X**

P.534



Operating method	Programming/Remote command/ Operation using RS-232C communication
Points	10000 points
Input power	Single phase 200 to 230V AC +/-10% maximum (50/60Hz)
Origin search method	Absolute Incremental
Field networks	CC-Link, DeviceNet™, EtherNet/IP™, Ethernet, PROFIBUS

Multi-axis robot controller

RCX340

Single-axis robot	**FLIP-X**
Linear motor single-axis	**PHASER**
Cartesian robot	**XY-X**
SCARA robot	**YK-TW, YK-XG, YK-XR, YK-XGS, YK-XGP**
Pick & place	**YP-X**

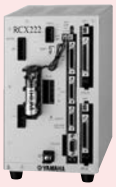
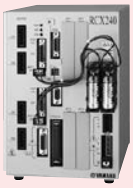
P.544

Operating method	Programming/Remote command/ Operation using RS-232C communication
Points	30000 points
Input power	Single phase 200 to 230V AC +/-10% maximum (50/60Hz)
Origin search method	Absolute Incremental
Field networks	CC-Link, DeviceNet™, EtherNet/IP™, Ethernet, PROFIBUS, PROFINET

CONTROLLER SPECIFICATION SHEET

Category			Robot controller	Robot positioner				Robot driver		
Name			**LCC140**	**TS-S2**	**TS-SH**	**TS-X**	**TS-P**	**TS-SD**	**RDV-X**	**RDV-P**
External view										
Operating method			Programming/ I/O point tracing/ Remote command/ Operation using RS-232C communication	I/O point tracing/Remote command/ Operation using RS-232C communication				Pulse train control		
Applicable robot	**LCM100**		●	—	—	—	—	—	—	—
	TRANSERVO		—	● Note 2	●	—	—	●	—	—
	FLIP-X	**T4L/T5L/C4L/C5L**	—	—	—	—	—	—	—	—
		FLIP-X other than above	—	—	—	●	—	—	●	—
	PHASER		—	—	—	—	●	—	—	●
	XY-X		—	—	—	—	—	—	—	—
	YK-X		—	—	—	—	—	—	—	—
	YP-X		—	—	—	—	—	—	—	—
Input power	**Main power supply**		Single phase 200 to 230V AC +/-10% maximum (50/60Hz)	DC24V +/-10% maximum		● **AC100V specifications** Note 1 (105 / 110 driver) Single phase 100 to 115V AC +/-10% maximum (50/60Hz) ● **AC200V specifications** (205 / 210 / 220 driver) Single phase 200 to 230V AC +/-10% maximum (50/60Hz)		DC24V +/-10% maximum	Single phase / 3-phase 200 to 230V +10% to -15% (50/60Hz +/-5%)	
	Control power supply			DC24V +/-10% maximum				DC24V +/-10% maximum	Single phase 200 to 230V AC +10% to -15% (50/60Hz +/-5%)	
Number of controllable axes			Single-axis	Single-axis				Single-axis		
Origin search method			Incremental	Incremental	Absolute/ Incremental	Absolute/ Incremental	Incremental/ Semi-absolute	Incremental		
Maximum number of programs			100	(program not required)				—	—	
Maximum number of steps per program			999 steps	(program not required)				—	—	
Points			10,000 points	255 points				—	—	
Multitasks			4	—	—	—	—	—	—	
I/O points		**Dedicated I/O**	8 points/4 points	16 points/16 points	16 points/16 points	16 points/16 points	16 points/16 points	—	—	
		General I/O	16 points/16 points	—	—	—	—	—	—	
Field network support		CC-Link	●	●	●	●	●	—	—	—
		DeviceNet	●	●	●	●	●	—	—	—
		EtherNet/IP	●	●	●	●	●	—	—	—
		Ethernet	—	—	—	—	—	—	—	—
		PROFIBUS	—	—	—	—	—	—	—	—
		PROFINET	—	●	●	●	●	—	—	—
CE marking			—	●	●	●	●	●	●	●
Programming box			HPB / HPB-D (with enable switch)	HT1 / HT1-D (with enable switch)				—	—	
Support software for PC			POPCOM+	TS-Manager				TS-Manager	RDV-Manager	
Detailed info page			P.486	P.492				P.502	P.506	

Note 1. 20A specifications provide only 200V.
Note 2. Exclude SG07
Note 3. Exclude YK400XR
Note 4. Maximum number of general-purpose I/O points when a total of two option boards OP.1 and OP.2 (one each) are installed.
Note 5. Maximum number of general-purpose I/O points when option OP.DIO boards (4 boards) are installed.

	Robot controller						
	ERCD	**SR1-X**	**SR1-P**	**RCX221** **RCX221HP**	**RCX222** **RCX222HP**	**RCX240** **RCX240S**	**RCX340**
							
	Pulse train control/ Programming/ I/O point tracing/ Operation using RS-232C communication	Programming/I/O point tracing/ Remote command/ Operation using RS-232C communication		Programming/Remote command/ Operation using RS-232C communication			
	—	—	—	—	—	—	—
	—	—	—	—	—	—	—
	●	—	—	—	—	—	—
	—	●	—	●	●	●	●
	—	—	●	●	—	●	●
	—	—	—	●	●	●	●
	—	—	—	—	—	● Note 3	●
	—	—	—	—	●	●	●
	DC24V +/-10% maximum	● **05 / 10 driver** Single phase 100 to 115V/200 to 230V AC +/-10% maximum (50/60Hz) ● **20 driver** Single phase 200 to 230V AC +/-10% maximum (50/60Hz)		Single phase 200 to 230V AC +/-10% maximum (50/60Hz)			
	Single-axis	Single-axis		2 axes maximum	2 axes maximum	4 axes maximum Max. number of controllable axes 8	Max. number of robots 4 Max. number of controllable axes 16
	Incremental	Absolute/ Incremental	Incremental/ Semi-absolute	Incremental/ Semi-absolute	Absolute/ Incremental	Absolute/ Incremental/ Semi-absolute	Absolute/ Incremental/ Semi-absolute
	100	100		100	100	100	100
	1024 steps	3000 steps		9999 steps	9999 steps	9999 steps	9999 steps
	1000 points	1000 points		10000 points	10000 points	10000 points	30000 points
	4	4		8	8	8	16
	8 points/3 points	8 points/4 points		10 points/12 points	10 points/12 points	10 points/11 points	8 points/9 points
	6 points/6 points	16 points/16 points		40 points/24 points(Max.) Note 4	40 points/24 points(Max.) Note 4	112 points/72 points (Max.) Note 5	96 points/64 points (Max.) Note 5
	—	●	●	●	●	●	●
	—	●	●	●	●	●	●
	—	—	—	—	—	●	●
	—	—	—	●	●	●	●
	—	●	●	●	●	●	●
	—	—	—	—	—	—	●
	—	●	●	●	●	●	●
	HPB / HPB-D (with enable switch)			RPB / RPB-E (with enable switch)			PBX / PBX-E (with enable switch)
	POPCOM^{+}			VIP^{+}			RCX-Studio Pro
	P.512	P.518		P.526		P.534	P.544

Controller operating methods

- Point trace : Host device specifies a binary point number and robot moves to the specified point when a start signal is input. Controller does not need a program and operates just by teaching point data.
- Remote command : Controller issues a wide range of commands and data to the robot via CC-Link or DeviceNet^{TM} word functions. Host device can freely use robot controller functions as needed.
- Pulse train : Controller operates robot by pulse train from positioner unit. Controller needs no programs or point data. Pulse train operation is convenient to allow the host device to concentrate on robot control.
- Online instructions : PC can send various commands and data directly to the robot controller via RS232C or Ethernet and receive status information and data.

LCC140

Dedicated controller for LCM100

This is a dedicated controller for the LCM100 linear conveyor module. In addition to controlling movement, positioning, and input/output signals, it can also perform operations related to slider insertion and ejection.

LCC140

Main functions ▶ P.15

Programming box
▶ HPB/HPB-D
P.563

Support software for PC
▶ POPCOM+
P.556

Basic specifications

Item		LCC140
Controllable robot		Linear conveyor module LCM series
Power supply capacity		1200 VA
External dimensions		W:402.5 × H:229 × D:106.5 mm
Weight		4.8 kg
Control power supply input		Single-phase 200 to 230 V AC +/-10% (50/60 Hz)
Main power supply input		Single-phase 200 to 230 V AC +/-10% (50/60 Hz)
Control method		AC fully digital software servo
Position detection method		Magnetic linear scale
Emergency stop input		Normal close contact input
Output signal		Contact output: MPRDY
Communication		RS-232C 2ch (HPB/COM, RFID)
Program		Max. 999 steps/single program, Max. 10000 steps/all programs, Max. 100 programs
Points		10000 points
System backup		Lithium battery
Multitasking		Max. 4 tasks
Usage temperature		0 to 40 °C
Storage temperature		-10 to 65 °C
Usage humidity		35 to 85%RH (no dewing)
Noise resistance		IEC61000-4-4 level 3
CC-Link unit	CC-Link compatible version	Ver. 1.10
	Remote station type	Remove device station
	Number of occupied stations	Fixed to 2 stations
	Station number	1 to 63 (Set from HPB)
	Communication speed	10M/5M/2.5M/625K/156Kbps (Set using HPB or POPCOM+.)
	Shortest length between stations	0.2 m or more
	Total length	100m/10Mbps, 160m/5Mbps, 4000m/2.5Mbps, 900m/625Kbps, 1200m/156Kbps
	Monitor LED	None
	CC-Link I/O points	General-purpose input 32 points General-purpose output 32 points Dedicated input 16 points Dedicated output 16 points Input register 8 words Output register 8 words

LCC140

Controllable robot	LCM100 P.122		
CE marking	—	Field networks	CC-Link DeviceNet EtherNet/IP

Model Overview

Name	LCC140
Controllable robot	Linear conveyor module LCM100
Power	Single-phase AC200 to 230V +/-10% or less (50/60Hz)
Operating method	Programming/I/O point tracing/Remote command/ Operation using RS-232C communication

Ordering method

LCC140 - 10 - ☐

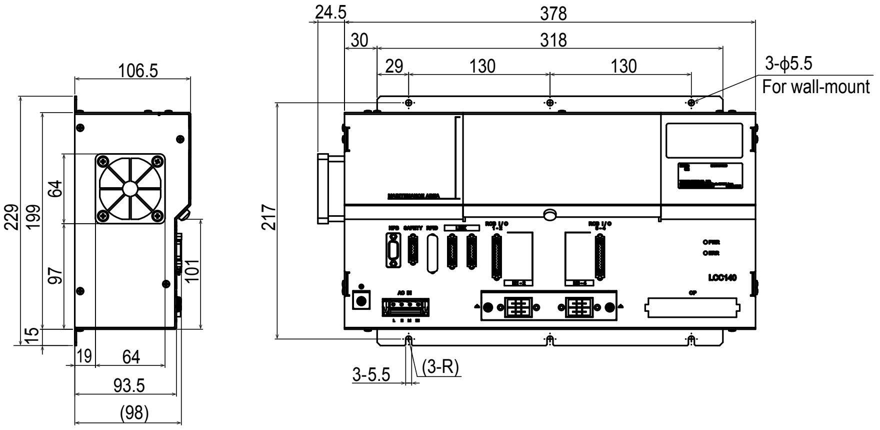
Controller	Current sensor	Network option Note
	10:10A	No entry: None
		CC: CC-Link
		DN: DeviceNet™
		EP: EtherNet/IP™

Note. For 2MT, be sure to select an appropriate network option.

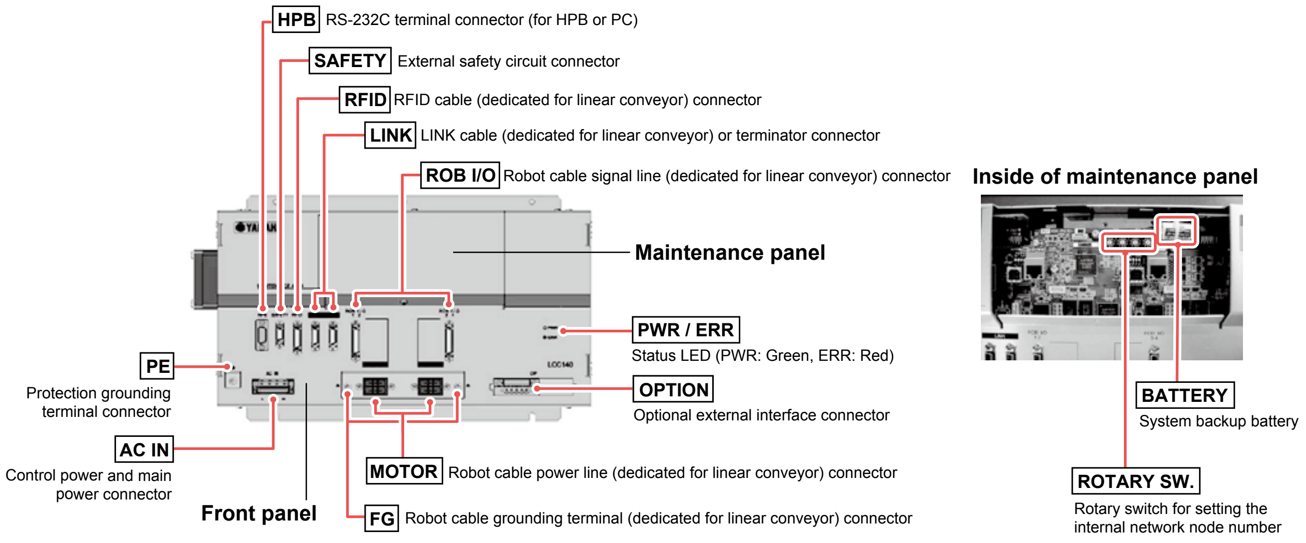
Item			LCC140	
DeviceNet™ unit	Applicable DeviceNet™ specifications		Volume 1 Release2.0, Volume 2 Release2.0	
	DeviceNet™ Conformance test		Compliant with CT24	
	Device profile/Device type number		Generic Device (keyable) / 2B Hex	
	Vendor name/Vendor ID		YAMAHA MOTOR CO.,LTD. / 636	
	Product code		21	
	Product revision		1.0	
	EDS file name		Yamaha_LCC1(DEV).eds	
	MAC ID setting		0 to 63 (Set using HPB or POPCOM+.)	
	Communication speed setting		500K/250K/125Kbps (Set using HPB or POPCOM+.)	
	Communication data		Predefined Master/Slave Connection Set: Group 2 only server Dynamic connection support (UCMM): None Support for divided transmission of explicit message: Yes	
	Network length	Total length	100m/500Kbps, 250m/250Kbps, 500m/125Kbps	
		Branch length	6m or less	
		Total branch length	39m or less/500Kbps, 78m or less/250Kbps, 156m or less/125Kbps	
	Monitor LED		None	
	Number of DeviceNet™ I/O points/number of occupied channels		General-purpose input 32 points General-purpose output 32 points Dedicated input 16 points Dedicated output 16 points Input register 8 words Output register 8 words	Input: 24byte Output: 24byte
EtherNet/IP™ unit	Applicable software version		LCC140: Ver. 64.07 or higher HPB/HPB-D: Ver. 24.06 or higher POPCOM+: Ver. 2.1.0 or higher	
	Applicable EtherNet/IP™ specifications		Volume 1: Common Industrial protocol(CIP™) Edition 3.14 Volume 2: EtherNet/IP™ Adaptation of CIP Edition 1.15	
	EtherNet/IP™ Conformance test		Compliant with CT11	
	Device profile/Device type number		Generic Device (keyable) / 2B Hex	
	Vendor name/Vendor ID		YAMAHA MOTOR CO.,LTD. / 636	
	Product code		23	
	Product revision		1.1	
	EDS file name		Yamaha_LCC1(EIP2).eds	
	Communication speed		10Mbps / 100Mbps	
	Connector specifications		RJ-45 connector (8-pole modular connector), 2 ports	
	Applicable cable specifications		STP cable (double shield) with CAT 5e or higher	
	Maximum cable length		100m	
	Monitor LED		Module Status(MS), Network Status(NS), Link/Activity:Port1-2	
	Number of EtherNet/IP™ I/O points/number of occupied channels		General-purpose input 32 points General-purpose output 32 points Dedicated input 16 points Dedicated output 16 points Input register 8 words Output register 8 words	Input: 24byte Output: 24byte

LCC140

Dimensions

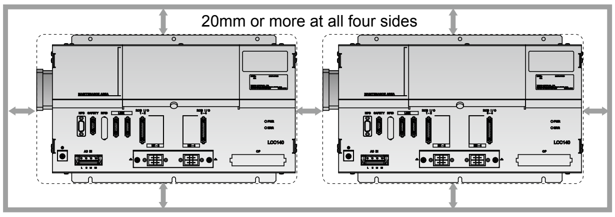


Part names


HPB RS-232C terminal connector (for HPB or PC)
SAFETY External safety circuit connector
RFID RFID cable (dedicated for linear conveyor) connector
LINK LINK cable (dedicated for linear conveyor) or terminator connector
ROB I/O Robot cable signal line (dedicated for linear conveyor) connector
Maintenance panel
PWR / ERR
Status LED (PWR: Green, ERR: Red)
OPTION
Optional external interface connector
PE
Protection grounding terminal connector
AC IN
Control power and main power connector
Front panel
MOTOR Robot cable power line (dedicated for linear conveyor) connector
FG Robot cable grounding terminal (dedicated for linear conveyor) connector
Inside of maintenance panel
BATTERY
System backup battery
ROTARY SW.
Rotary switch for setting the internal network node number

Installation conditions

- Reserve a space for the controller in the vicinity of the module.
- Install the controller perpendicularly to the wall.
- Reserve enough margins around the controller (20 mm or more on each side) and ensure sufficient ventilation. (See fig. at right.)
- Environmental temperature: 0 to 40°C
- Environmental humidity: 35 to 85%RH (no condensation)



Reference for power supply capacity and heat generation quantity

The power capacity and heat generation quantity required for the linear conveyor may vary depending on the module type or operation duty. Prepare the power supply and investigate the control panel size, controller layout, and cooling method while referring to the table below.

Reference values for actual operation (per LCC140 controller)

Module type	Number of motors	Power supply capacity			Heat generation quantity (during operation)
		Control power supply	During waiting	During slider operation	During slider operation
LCM100-4M	4	35VA	60VA	350VA	20W
LCM100-3M	3	35VA	54VA	271VA	16W
LCM100-2MT	2	35VA	48VA	193VA	11W

The power capacity and heat generation quantity values stated in the table show the maximum values of LCC140 and they do not exceed these values. Since the operation duty of each motor of the linear conveyor is low due to operating characteristics, the power capacity required for actual operation becomes about 1/4 to 1/3 of the maximum capacity value.

Maximum capacity values (per LCC140 controller)

Model	Power supply capacity	Heat generated
LCM100	1200VA	70W

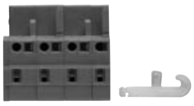
Option parts

LCC140

Options

Power connector + wiring connection lever

One set of parts per LCC140 is required.



Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

HPB dummy connector

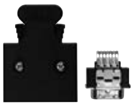
When performing the operation with the programming box HPB removed, connect this dummy connector to the HPB connector.
One connector per LCC140 is required.

Model	KDK-M5163-00

LCC140
SR1-X
SR1-P

SAFETY connector

One connector per LCC140 is required.



Not wired (plug + shell kit)

Wired [Note]

Model	Not wired	KDK-M5370-10
	Wired [Note]	KDK-M5370-00

Note. The wired connector is that the wiring for the emergency stop cancel was performed inside the connector. Select this model when performing the operation check or debugging with single linear conveyor.

LCC140

LINK cable

([Number of modules] - 1) cables per line are required.

Model	1m	KDK-M5361-10
	3m	KDK-M5361-30
	5m	KDK-M5361-50

LCC140

Terminator connector

When connecting modules, two connectors per line are required.

Model	KDK-M5361-00

LCC140

Dust cover (for LINK connector)

This dust cover is attached to the insertion port, into which the the LINK cable terminator connector is not inserted.
When using only one module without connections, two dust covers are required.

Model	KDK-M658K-00 (for MDR20 pin)

Note. The dust cover is essential for the 2MT.

LCC140

Programming box HPB/HPB-D

P.563

All operations, such as robot manual operation, program input or edit, teaching, and parameter setting can be performed with this programming box.

HPB

HPB-D

	HPB	HPB-D
Model	KBB-M5110-01	KBB-M5110-21
Enable switch	–	3-position
CE marking	Not supported	Applicable

LCC140
ERCD
SR1-X
SR1-P

Support software for PC POPCOM+

P.556

POPCOM is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

Model	KBG-M4966-00

LCC140
ERCD
SR1-X
SR1-P

POPCOM+ environment

OS	Microsoft Windows XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit) / 8,8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/LCC140 [Note 1]

Note 1. LCC140 is applicable to Ver. 2.1.1 or later.
Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Continues on next page

Options

Data cables

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model		
Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140
ERCD
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

RFID

RFID (manufactured by BALLUFF GmbH)

Reader/writer cable

Model	KDK-M6300-00

Note. Whether or not the RFID system can be used may vary depending on the destination place (country).
Before selecting a RFID system, please contact YAMAHA.

RFID (manufactured by OMRON)

Antenna amplifier controller cable

Model	KDK-M6300-A0

Note. Whether or not the RFID system can be used may vary depending on the destination place (country).
Before selecting a RFID system, please contact YAMAHA.

Dust cover (for RFID)

This cover is attached to the insertion port if RFID is not used. (Included as standard)

Model	KDK-M658K-10 (for MDR26 pin)

Note. Whether or not the RFID system can be used may vary depending on the destination place (country).
Before selecting a RFID system, please contact YAMAHA.

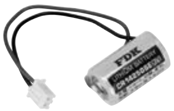
Maintenance parts

Robot cable for LCM100

Model	KDJ-M4751-30 (3m×1 pc.)
	KDJ-M4751-50 (5m×1 pc.)
	KDJ-M4755-30 (Flexible cable 3m×1 pc.)
	KDJ-M4755-50 (Flexible cable 5m×1 pc.)

LCC140

Lithium battery for system backup



Model	KDK-M4252-00

LCC140

Replacement filter for LCC140 (5 pcs. in package)

Model	KDK-M427G-00

LCC140

MEMO

TS-S2/TS-SH/TS-X/TS-P

● CE compliance

TS series are positioner type controllers that only performs point trace. No program is needed. Operation is simple. After setting point data, specify the point number and enter a START signal from host controller such as a PLC. Positioning or pushing operation then begins.

Main functions ▶ P.60

Handy terminal
▶ HT1/HT1-D
P.562

Support software for PC
▶ TS-Manager
P.554

Basic specifications

TS-S2/TS-SH

	Item	Model	TS-S2	TS-SH
Basic specifications	Number of controllable axes		Single-axis	
	Controllable robots		TRANSERVO series	
	Current consumption		2.5A (Rating) 4.5A (Max.)	3.5A (Rating) 6.5A (Max.)
	Dimensions		W30 × H162 × D82mm	W30 × H162 × D123mm
	Weight		Approx. 0.2kg	Approx. 0.3kg
	Input power supply	Control power supply	DC24V +/-10%	
		Motor power supply	DC24V +/-10%	
Axis control	Control method		Closed loop vector control method	
	Operating method		I/O point tracing (Positioning operation by specifying point number) / Remote command	
	Operation types		Positioning, merge-positioning, push, and jog operations	
	Position detection method		Resolver	Resolver with multi-turn absolute function
	Resolution		20480 pulses/rev. or 4096 pulses/rev. depending on the robot	
	Origin search method		Incremental	Absolute / Incremental
Points	Points		255 points	
	Point type setting		(1) Standard setting: Set speed and acceleration in percent of the respective maximum settings. (2) Custom setting: Set speed and acceleration in SI units.	
	Point teaching method		Manual data input (coordinates input), Teaching, Direct teaching	
External input/output	I/O interface		Selectable from the following: NPN, PNP, CC-Link, DeviceNet™, EtherNet/IP™, PROFINET	
	Input		Servo ON (SERVO), reset (RESET), start (START), interlock (/LOCK) origin search (ORG), manual mode (MANUAL), jog motion - (JOG-), jog motion + (JOG+), Point number selection (PIN0 to PIN7)	
	Output		Servo status (SRV-S), alarm (/ALM), operation end (END), operation in-progress (BUSY), control outputs (OUT0 to 3), Point number output 0 to 7 (POUT0 to POUT7)	
	External communications		RS-232C 1CH	
	Safety circuit		Emergency stop input, emergency stop contact output (1 system: When the HT1 is used.)	
Options	Handy terminal		HT1, HT1-D (with enable switch)	
	Support software for PC		TS-Manager	
General specifications	Operating temperature / Operating humidity		0°C to 40°C, 35% to 85%RH (non-condensing)	
	Storage temperature/ Storage humidity		-10°C to 65°C, 10% to 85%RH (non-condensing)	
	Atmosphere		Indoor location not exposed to direct sunlight. No corrosive , flammable gases, oil mist, or dust particles	
	Anti-vibration		All XYZ directions 10 to 57Hz unidirectional amplitude 0.075mm 57 to 150Hz 9.8m/s^2	
	Protective functions		Position detection error, temperature error, overload, overvoltage, low voltage, excessive position deviation, overcurrent, motor current error, motor cable faulty wiring, Excitation power failure error Note 1	

Note 1. The excitation power failure error is a protection function that is available only in TS-SH.

TS-S2/TS-SH/TS-X/TS-P

Controllable robot	TS-S2/TS-SH ▶ TRANSERVO P.129	TS-X ▶ FLIP-X P.171	TS-P ▶ PHASER P.217
CE marking	○	Field networks	CC-Link DeviceNet EtherNet/IP PROFINET

Model Overview

Name		TS-S2	TS-SH	TS-X/TS-P	
Controllable robot		Dedicated compact single-axis TRANSERVO		TS-X: Single-axis robot FLIP-X TS-P: Linear motor single-axis PHASER	
Input power	Main power supply	DC24V +/-10%		● AC100V specifications Main power supply AC100 to 115V+/-10% Control power supply AC100 to 115V+/-10%	● AC200V specifications Main power supply AC200 to 230V+/-10% Control power supply AC200 to 230V+/-10%
	Control power supply	DC24V +/-10%			
Operating method		I/O point tracing / Remote command /Operation using RS-232C communication			
Maximum number of controllable axes		Single-axis			
Origin search method		Incremental	Absolute / Incremental	TS-X: Absolute / Incremental TS-P: Absolute / Semi-absolute	

Ordering method

TS-S2/TS-SH (TRANSERVO)

Robot positioner	Type	I/O	– Battery Note 1
S2: TS-S2	No entry: Standard	NP: NPN	B: With battery (Absolute model)
SH: TS-SH	S: Sensor	PN: PNP	N: None (Incremental model)
		CC: CC-Link	
		DN: DeviceNet™	
		EP: EtherNet/IP™	
		PT: PROFINET	
		GW: With no I/O board	

Note 1. Battery can only be selected for TS-SH. (Not provided for TS-S2).

TS-X/TS-P (FLIP-X/PHASER)

Controller	Driver: Power-supply voltage/ Power capacity	– Regenerative unit	– LCD monitor	– Input/Output Selection	– Battery Note 2
TSX: TS-X	105: 100V / 100W more less	No entry: None	No entry: None	NP: NPN	B: With battery (Absolute model)
TSP: TS-P	110: 100V / 200W	R: With RGT	L: With LCD	PN: PNP	N: None (Incremental model)
	205: 200V / 100W more less	R: With RGU-2		CC: CC-Link	
	210: 200V / 200W			DN: DeviceNet™	
	220: 200V / 400 to 600W			EP: EtherNet/IP™	
				PT: PROFINET	
				GW: With no I/O board	

Note 2. Battery can only be selected for TS-X. (Not provided for TS-P).

TS-X/TS-P

Item		Model	TS-X / TS-P				
			100V AC input		200V AC input		
Basic specifications	Driver model		TS-X105 / TS-P105	TS-X110 / TS-P110	TS-X205 / TS-P205	TS-X210 / TS-P210	TS-X220 / TS-P220
	Number of controllable axes		Single-axis				
	Controllable robots		TS-X: Single-axis robot FLIP-X series TS-P: Linear motor single-axis robot PHASER series				
	Power capacity		400VA	600VA	400VA	600VA	1400VA
	Dimensions		W58 × H162 × D131mm				W70 × H162 × D131mm
	Weight		Approx. 0.9kg				Approx. 1.1kg
	Input power supply	Control power supply	Single phase AC100 to 115V +/-10% 50/60Hz		Single phase AC200 to 230V +/-10% 50/60Hz		
		Motor power supply	Single phase AC100 to 115V +/-10% 50/60Hz		Single phase AC200 to 230V +/-10% 50/60Hz		
Axis control	Control method		Closed loop vector control method				
	Operating method		I/O point tracing (Positioning operation by specifying point number) / Remote command				
	Operation types		Positioning, merge-positioning, push, and jog operations				
	Position detection method		TS-X: Resolver with multi-rotation absolute function TS-P: Magnetic type linear scale				
	Resolution		TS-X: 16384 pulses/rev. or 20480 pulses/rev. depending on the robot TS-P: 1μm				
	Origin search method		TS-X: Absolute / Incremental TS-P: Incremental / Semi-absolute				
Points	Number of points		255 points				
	Point type setting		(1) Standard setting: Set speed and acceleration in percent of the respective maximum settings. (2) Custom setting: Set speed and acceleration in SI units.				
	Point teaching method		Manual data input (coordinates input) , Teaching, Direct teaching				
External input/output	I/O interface		Selectable from the following: NPN, PNP, CC-Link, DeviceNet™, EtherNet/IP™, PROFINET				
	Input		Servo ON (SERVO), reset (RESET), start (START), interlock (/LOCK) origin search (ORG), manual mode (MANUAL), jog motion - (JOG-), jog motion + (JOG+), Point number selection (PIN0 to PIN7)				
	Output		Servo status (SRV-S), alarm (/ALM), operation end (END), operation in-progress (BUSY), control outputs (OUT0 to 3), Point number output 0 to 7 (POUT0 to POUT7)				
	External communications		RS-232C 1CH				
	Power supply for brake		DC24V +/-10% 300mA (prepared by the customer)				
	Safety circuit		Emergency stop input, main power input ready output, emergency stop contact output (1 system: When the HT1 is used.)				
Options	Handy terminal		HT1, HT1-D (with enable switch)				
	Support software for PC		TS-Manager				
General specifications	Operating temperature / Operating humidity		0°C to 40°C, 35% to 85%RH (non-condensing)				
	Storage temperature / Storage humidity		-10°C to 65°C, 10% to 85%RH (non-condensing)				
	Atmosphere		Indoor location not exposed to direct sunlight. No corrosive , flammable gases, oil mist, or dust particles				
	Anti-vibration		All XYZ directions 10 to 57Hz unidirectional amplitude 0.075mm 57 to 150Hz 9.8m/s^2				
	Protective functions		Position detection error, power module error, temperature error, overload, overvoltage, low voltage, excessive position deviation, overcurrent, motor current error				
	Protective structure		IP20				

TS-S2/TS-SH/TS-X/TS-P

TS-X / TS-P specification selection table

Some specifications are automatically determined by the robot model.

TS-X

			T4LH/ C4LH	T5LH/ C5LH	T6L/ C6L	T9	T9H	F8/ C8	F8L/ C8L	F8LH/ C8LH	F10/ C10	F10H	F14/ C14	F14H/ C14H	GF14XL	F17/ C17	F17L/ C17L	GF17XL	F20/ C20	F20N	N15/ N15D	N18/ N18D	B10	B14	B14H	R5	R10	R20
Power supply voltage / Current sensor	TS-X	105	●	●	●	●		●	●	●	●		●										●	●	●	●	●	
		110					●					●		●	●													●
		205	●	●	●	●		●	●	●	●		●										●	●	●	●	●	
		210					●					●		●	●													●
		220														●	●	●	●	●	●	●						
Regenerative unit	No entry (None)					(1)	(2)				(1)	(2)	(1)	(2)	●	(3)		(6)	(3)	(4)					(5)			
	R (RGT)					(1)	(2)				(1)	(2)	(1)	(2)		(3)	●	(6)	(3)	(4)	●	●			(5)			

(1) Regenerative unit is needed if using in a perpendicular position and movement stroke is 700mm or more.
(2) Regenerative unit is needed if using in a perpendicular position.
(3) [The following arrangements require a regeneration unit.]
- Using in the upright position.
- To move at a speed exceeding 1,000 mm/sec horizontally.
- High lead (40) used horizontally.

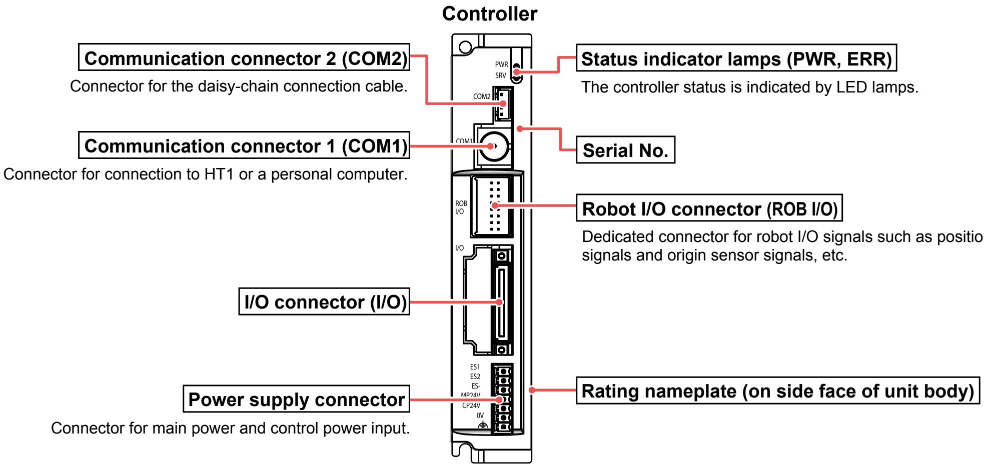
(4) Regenerative unit is needed if using at maximum speeds exceeding 1000mm per second.
(5) Regenerative unit is needed if using at maximum speeds exceeding 1250mm per second.
(6) Regenerative unit is needed if using at maximum speeds exceeding 750mm per second.

TS-P

			MR12/12D	MF7/7D	MF15/15D	MF20/20D	MF30/30D	MF75/75D
Power supply voltage / Current sensor	TS-P	105	●					
		110		●	●	●		
		205	●					
		210		●	●	●		
		220					●	●
Regenerative unit	No entry (None)		●	●	●			
	R (RGT)					●	●	
	R (RGU-2)							●

Part names

TS-S2/TS-SH



Communication connector 2 (COM2)
Connector for the daisy-chain connection cable.

Communication connector 1 (COM1)
Connector for connection to HT1 or a personal computer.

I/O connector (I/O)

Power supply connector
Connector for main power and control power input.

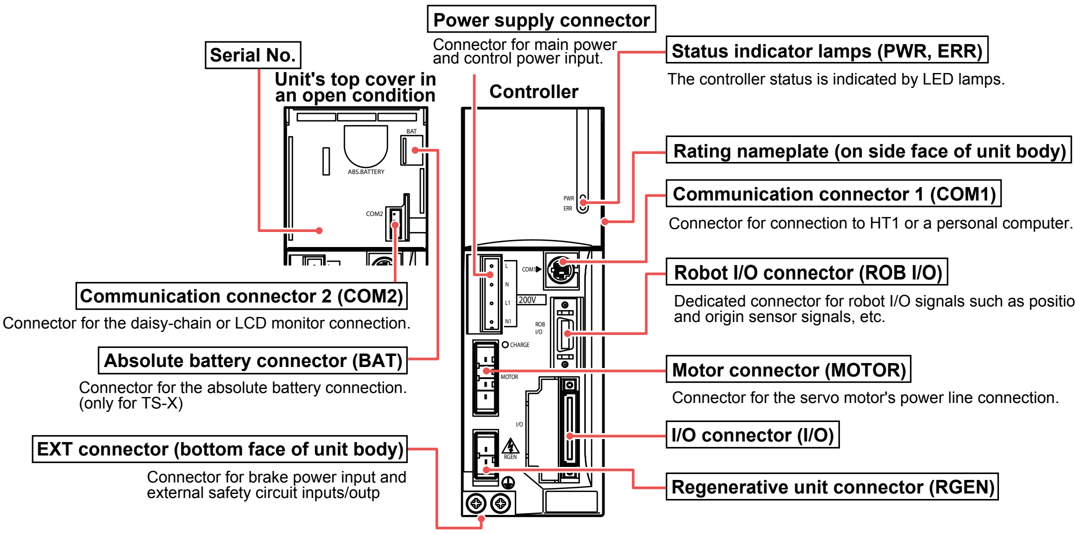
Status indicator lamps (PWR, ERR)
The controller status is indicated by LED lamps.

Serial No.

Robot I/O connector (ROB I/O)
Dedicated connector for robot I/O signals such as position signals and origin sensor signals, etc.

Rating nameplate (on side face of unit body)

TS-X/TS-P



Serial No.

Power supply connector
Connector for main power and control power input.

Status indicator lamps (PWR, ERR)
The controller status is indicated by LED lamps.

Rating nameplate (on side face of unit body)

Communication connector 1 (COM1)
Connector for connection to HT1 or a personal computer.

Robot I/O connector (ROB I/O)
Dedicated connector for robot I/O signals such as position signals and origin sensor signals, etc.

Communication connector 2 (COM2)
Connector for the daisy-chain or LCD monitor connection.

Absolute battery connector (BAT)
Connector for the absolute battery connection.
(only for TS-X)

Motor connector (MOTOR)
Connector for the servo motor's power line connection.

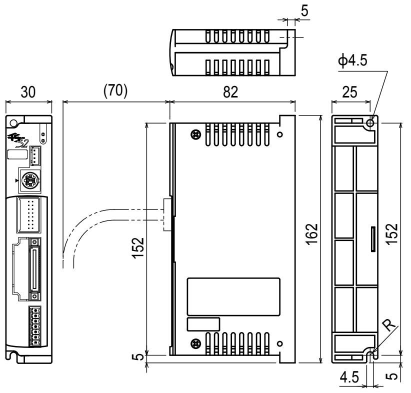
I/O connector (I/O)

EXT connector (bottom face of unit body)
Connector for brake power input and external safety circuit inputs/outp

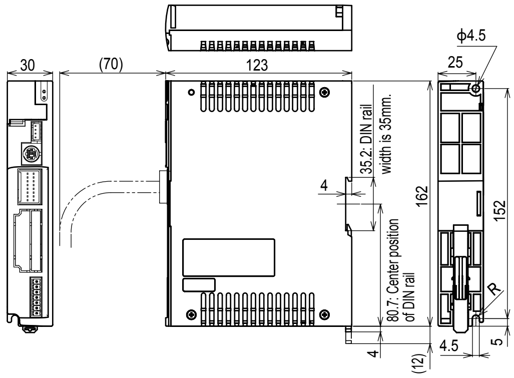
Regenerative unit connector (RGEN)

Dimensions

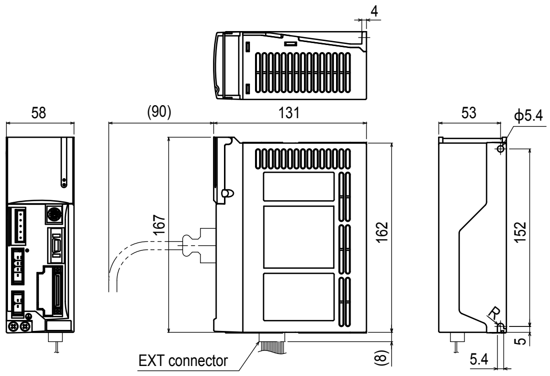
TS-S2



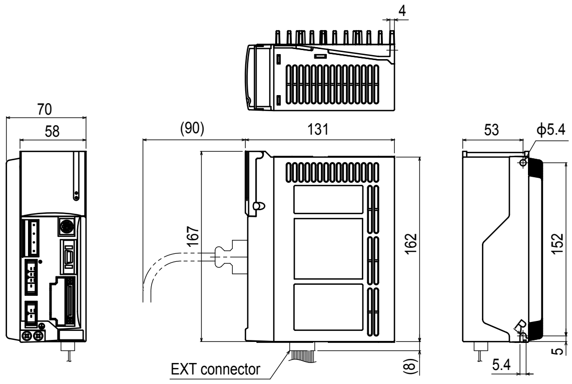
TS-SH


30
(70)
123
ϕ4.5
25
35.2: DIN rail width is 35mm.
4
162
152
80.7: Center position of DIN rail
4
(12)
4.5
5
R

TS-X/TS-P (105/110/205/210)



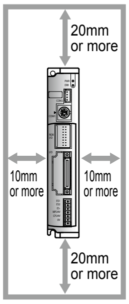
TS-X/TS-P (220)



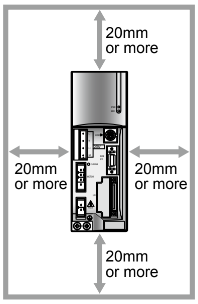
Installation conditions

- Install the TS-S2/TS-SH/TS-X/TS-P inside the control panel.
- Install the TS-S2/TS-SH/TS-X/TS-P on a vertical wall.
- Install the TS-S2/TS-SH/TS-X/TS-P in a well ventilated location, with space on all sides of the TS-S2/TS-SH/TS-X/TS-P (See fig. at right.).
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)

TS-S2/TS-SH



TS-X/TS-P



Cautions on TS-S2 / TS-SH

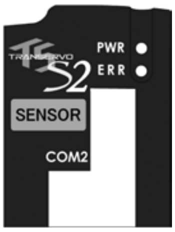
For the RF type sensor specifications, the controllers “TS-S2” and “TS-SH” become “TS-S2S” and “TS-SHS”, respectively.

TS-S2 / TS-SH (Standard specifications)

“BK” label is affixed to the front of the controller.

TS-S2S / TS-SHS (Sensor specifications)

“SENSOR” label is affixed to the front of the controller.
(Be aware that “TS-S2S” is affixed to the front of the controller.)

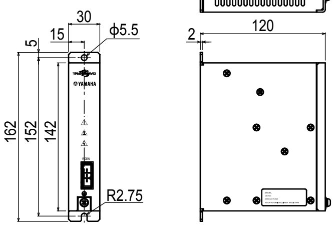


TS-S2/TS-SH/TS-X/TS-P

Regenerative unit RGT/RGU-2

Regenerative unit RGT

Dimensions



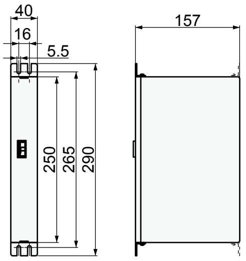
Basic specifications

Item	RGT
Model	KCA-M4107-0A (including cable supplied with unit)
Dimensions	W30 × H142 × D118mm (Not including installation stay)
Weight	470g
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller.
Also, always use the dedicated cable when connecting the controller.

Regenerative unit RGU-2

Dimensions



Basic specifications

Item	RGU-2 TS-P
Model	KCA-M4107-2A (including cable supplied with unit)
Dimensions	W40 × H250 × D157mm
Weight	0.9kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller. Also, always use the dedicated cable when connecting the controller.

Data overview

Point data and parameter data settings must be specified in order to operate a robot from a TS series controller.

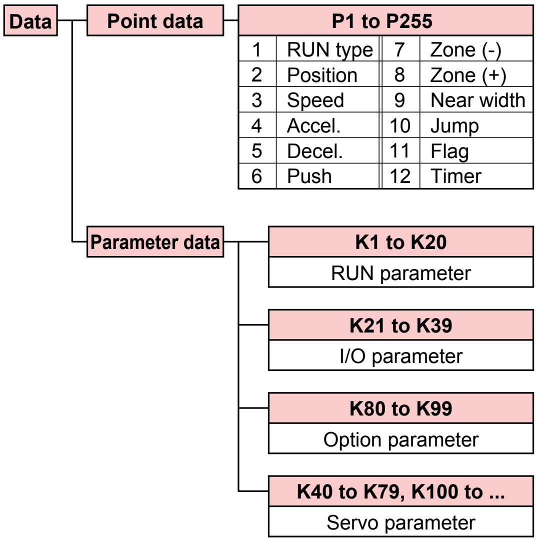
Point data

The point data used in positioning operations includes items such as the "RUN type", "Position", and "Speed", etc. Up to 255 points (P1 to P255) can be registered. There are two point data setting types: "Standard setting" type that automatically defines optimal positioning simply by specifying the payload and "Custom setting" type that allows setting the speed (mm/s) and acceleration (m/s^2) in SI units. Select the desired setting type according to the application.

Parameter data

Parameter data is divided into the following categories: "RUN parameters", "I/O parameters", "option parameters", and "servo parameters".

Data structure



P1 to P255			
1	RUN type	7	Zone (-)
2	Position	8	Zone (+)
3	Speed	9	Near width
4	Accel.	10	Jump
5	Decel.	11	Flag
6	Push	12	Timer

Sets the point data to be used in positioning. Select the desiredsetting type ("standard setting" or "custom setting") according to the application.

(1) Standard setting
Optimum positioning is provided simply by specifying the payload.

(2) Custom setting
Speed and acceleration can be set in SI units.

K1 to K20
RUN parameter
Specifies parameter settings related to positioning and return to-origin operations.

K21 to K39
I/O parameter
Specifies parameter settings related to terminal assignments and I/O function selection.

K80 to K99
Option parameter
Specifies parameter settings related to options such as CC-Link, etc.

K40 to K79, K100 to ...
Servo parameter
Specifies parameter settings specified to the connected robot.
These parameters are specified during initial processing.

Point data

Point data item list

P1 to P255		
Item		Description
1	RUN type	Specifies the positioning operation pattern.
2	Position	Specifies the positioning target position or movement amount.
3	Speed	Specifies the positioning speed.
4	Accel.	Specifies the positioning acceleration.
5	Decel.	Specifies the positioning deceleration (as a percentage of the acceleration).
6	Push	Specifies the electrical current limit value for "Push" operations.
7	Zone (-)	Specifies the "personal zone" output range.
8	Zone (+)	
9	Near width	Specifies the "near width" zone (distance tolerance relative to target position).
10	Jump	Specifies the next movement destination, or the next merge operation merge destination point No. following positioning completion.
11	Flag	Specifies other information related to the positioning operation.
12	Timer	Specifies the waiting time (delay) after positioning completion.

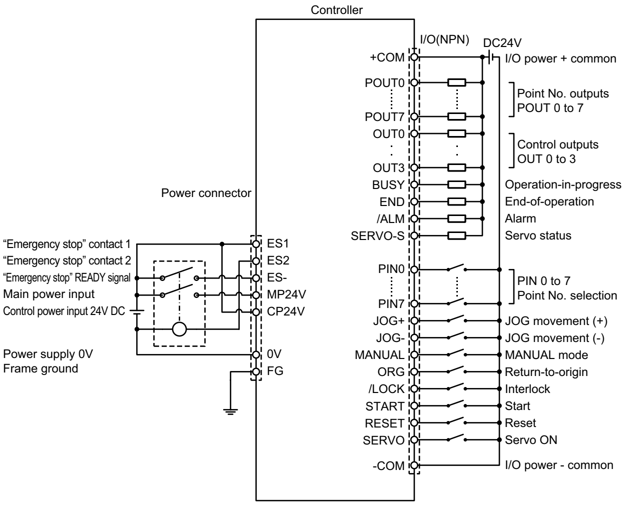
"Standard setting" and "custom setting"

There are 2 setting types for point data ("standard setting" or "custom setting"). Select the desired setting type according to the application.
The maximum number of setting points for both setting types is 255 points (P1 to P255).

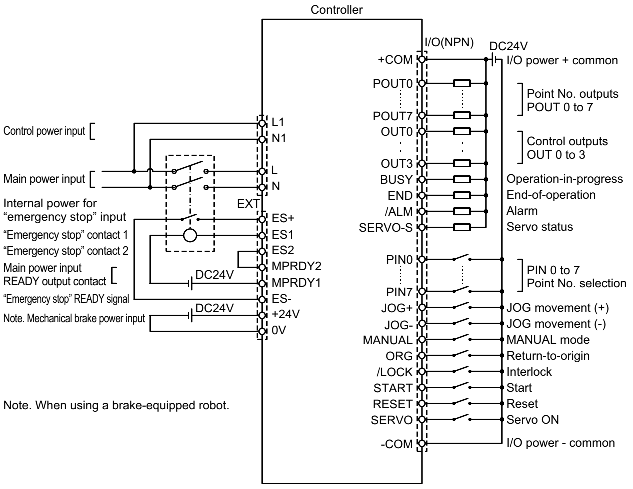
Setting Type	Description
Standard setting	Optimum positioning is provided simply by specifying the payload. This setting type is well-suited to assembly and transport applications.
Custom setting	Allows changing the speed and acceleration in SI units so the desired positioning operation can be set. This setting type is suited for machining and inspection systems.

NPN type input / output wiring diagram

TS-S2/TS-SH

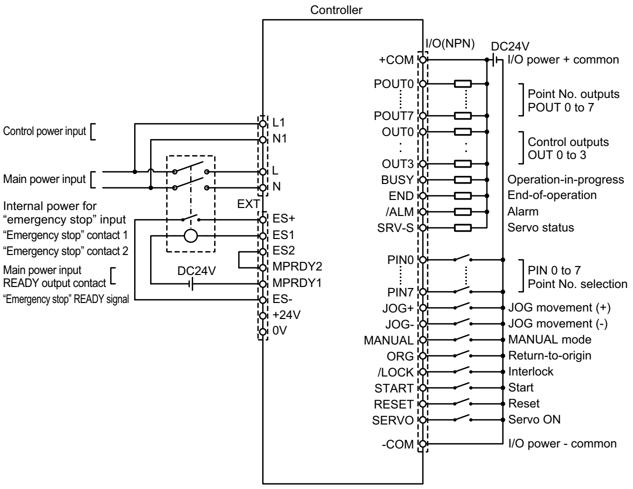


TS-X



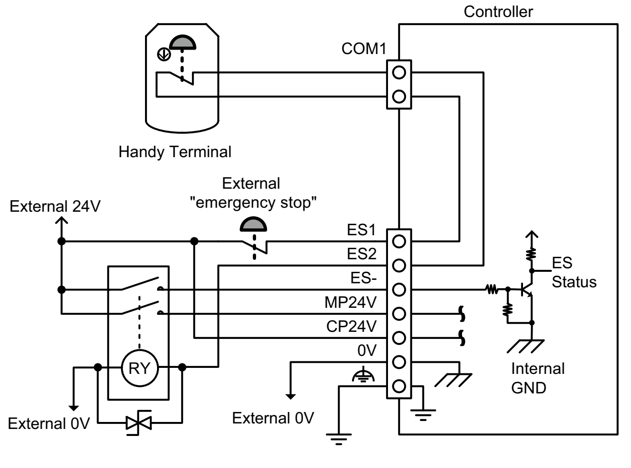
Note. When using a brake-equipped robot.

TS-P



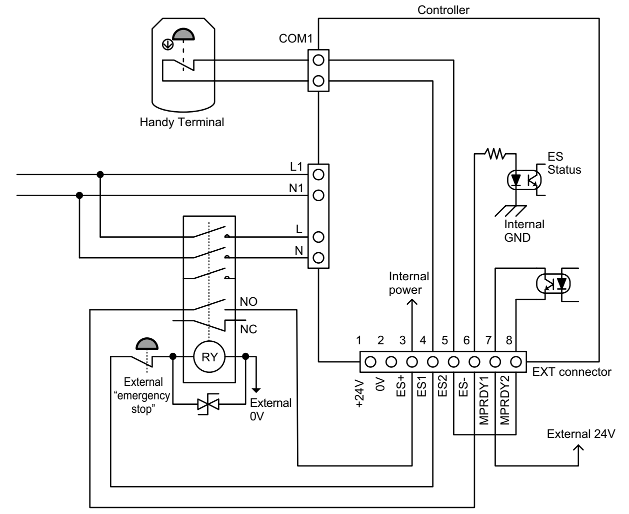
Emergency stop circuit example

TS-S2/TS-SH (power connector and host unit connection example)



Note. Always connect a surge absorber unit to the coil on the electromagnetic contactor.

TS-X/TS-P (EXT connector and host unit connection example)



Note. Always connect a surge absorber unit to the coil on the electromagnetic contactor.

Installing an external safety circuit will satisfy safety category class 4 standards. See P.615 for more information.

I/O Specifications

Item	Description
NPN	Input 16 points, 24VDC +/-10%, 5.1mA/point, positive common Output 16 points, 24VDC +/-10%, 50mA/point, sink type
PNP	Input 16 points, 24VDC +/-10%, 5.5mA/point, minus common Output 16 points, 24VDC +/-10%, 50mA/point, source type
CC-Link	CC-Link Ver.1.10 compatible, Remote station device (1 node)
DeviceNet™	DeviceNet™ Slave 1 node
EtherNet/IP™	EtherNet/IP™ adapter (2 ports)
PROFINET	PROFINET Slave 1 node

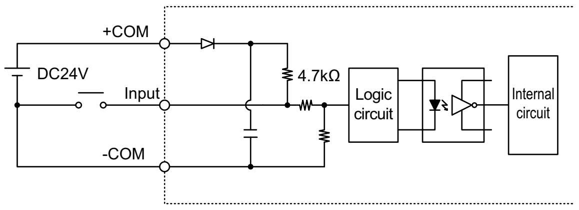
TS-S2/TS-SH/TS-X/TS-P

I/O signals (NPN / PNP)

No.	Signal Name	Description		No.	Signal Name	Description	
A1	+COM	I/O power input, positive common (24VDC +/-10%)		B1	POUT0	Outputs	Point No. outputs
A2				B2	POUT1		
A3	NC	No connection		B3	POUT2		
A4	NC			B4	POUT3		
A5	PIN0	Inputs	Point No. select	B5	POUT4		
A6	PIN1			B6	POUT5		
A7	PIN2			B7	POUT6		
A8	PIN3			B8	POUT7		
A9	PIN4			B9	OUT0		OUT0 to OUT3 assignments include: • Zone output • Personal zone output • MANUAL mode status • Return-to-origin end status • NEAR output • Movement-in-progress • Push status • Warning output
A10	PIN5			B10	OUT1		
A11	PIN6			B11	OUT2		
A12	PIN7			B12	OUT3		
A13	JOG+		JOG movement (+ direction)	B13	BUSY		Operation-in-progress
A14	JOG-		JOG movement (- direction)	B14	END		Operation-end
A15	MANUAL		MANUAL mode	B15	/ALM		Alarm
A16	ORG		Return-to-origin	B16	SRV-S		Servo status
A17	/LOCK		Interlock	B17	NC	No connection	
A18	START		Start	B18	NC		
A19	RESET		Reset	B19	-COM	I/O power input, negative common (0V)	
A20	SERVO		Servo ON	B20			

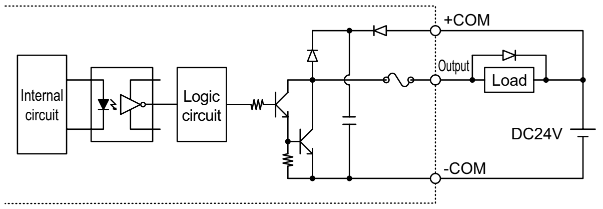
NPN type I/O circuit details

Input circuit



Type : **DC input (plus common type)**
Photo-coupler isolation format
Load : **24VDC +/- 10%, 5.1mA**
OFF voltage : 19.6Vmin (1.0mA)
ON voltage : 4.9Vmax (4.0mA)

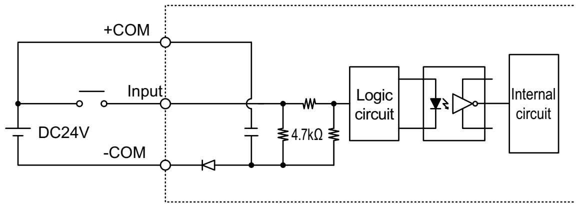
Output circuit



Type : **NPN open collector output**
(Minus common type)
Photo-coupler isolation format
Load : **24VDC, 50mA/point**

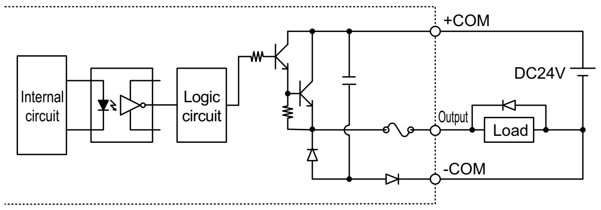
PNP type I/O circuit details

Input circuit



Type : **DC input (minus common type)**
Photo-coupler isolation format
Load : **24VDC +/- 10%, 5.5mA**
ON voltage : 19.6Vmin (4.5mA)
OFF voltage : 4.9Vmax (1.1mA)

Output circuit



Type : **PNP open collector output**
(Plus common type)
Photo-coupler isolation format
Load : **24VDC, 50mA/point**

Accessories and part options

TS-S2/TS-SH/TS-X/TS-P

Standard accessories

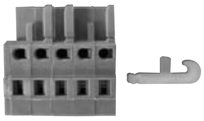
Power connector

Model	KCC-M4421-00

TS-S2
TS-SH
TS-SD

Power connector (AC100V specifications)

Included when 100V model is purchased

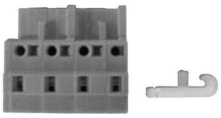


Model	KCA-M5382-00

TS-X
TS-P

Power connector (AC200V specifications)

Included when 200V model is purchased

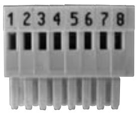


Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

EXT connector

For braking power and safety circuit connections.



Model	KCA-M5370-00

TS-X
TS-P

Dummy connector

Model	KCA-M5163-00

TS-S2
TS-SH
TS-X
TS-P

I/O cables (2m/20-core×2)

Model	KCA-M4421-20

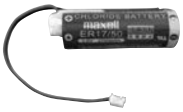
TS-S2
TS-SH
TS-X
TS-P

Absolute battery

Absolute battery basic specifications

Item	For TS-X	For TS-SH
Battery type	Lithium metallic battery	
Battery capacity	3.6V / 1,650mAh	3.6V / 2,750mAh
Data holding time	About 1 year (in state with no power applied)	
Dimensions	ϕ18 × L50mm	ϕ17 × L53mm
Weight	24g	22g

For TS-X


For TS-SH

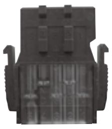
Model	KCA-M53G0-10 (For TS-X) KCA-M53G0-01 (For TS-SH)

Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery. The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

TS-X
TS-SH

CC-Link connector (CC-Link specifications)

Included when CC-Link model is purchased


Connector

Jump socket

Model		
	Connector Note.	KCA-M4872-00
	Jump socket	KCA-M4873-00

Note. This is a single connector type. (Insert two connectors into a branching socket.)

TS-S2
TS-SH
TS-X
TS-P

See next page for optional parts

TS-S2/TS-SH/TS-X/TS-P

Options

Handy terminal HT1/HT1-D

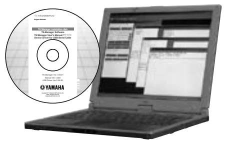
P.562

		HT1	HT1-D
Model	3.5m	KCA-M5110-0J	KCA-M5110-1J
	10m	KCA-M5110-6J	KCA-M5110-7J
Enable switch		–	3-position
CE marking		Not supported	Applicable

TS-S2
TS-SH
TS-X
TS-P

Support software TS-Manager

P.554



Model	KCA-M4966-0J (Japanese) KCA-M4966-0E (English)

TS-S2
TS-SH
TS-X
TS-P
TS-SD

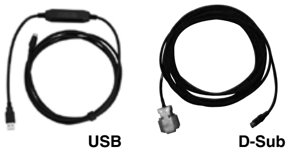
TS-Manager environment

OS	Microsoft Windows 2000 / XP / Vista (32bit/64bit) / 7 (32bit/64bit)
CPU	Exceeding the environment recommended by the OS being used
Memory	Exceeding the environment recommended by the OS being used
Hard disk	Vacant capacity of more than 20MB in the installation destination drive
Communication port	Serial (RS-232C), USB
Applicable controllers	TS-S2 / TS-SH / TS-X / TS-P / TS-SD

Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables

Communication cable for TS-Manager.
Select from USB cable or D-sub cable.



Model	USB type (5m)	KCA-M538F-A0
	D-Sub type (5m)	KCA-M538F-01

Note. USB driver for communication cable can also be downloaded from our website.

TS-S2
TS-SH
TS-X
TS-P
TS-SD

Daisy chain and gateway connection cable

Model	KCA-M532L-00 (300mm)

TS-S2
TS-SH
TS-X
TS-P
TS-SD

CC-Link termination connector (CC-Link specifications)

Model	KCA-M4874-00

TS-S2
TS-SH
TS-X
TS-P

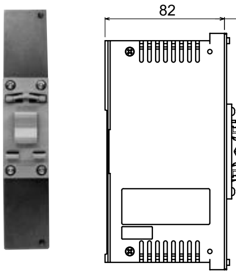
TS-Monitor (LCD monitor)

P.566

Model	For TS-X	KCA-M5119-00
	For TS-P	KCA-M5119-10

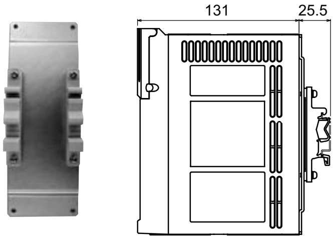
TS-X
TS-P

DIN rail mounting bracket (This bracket is provided in TS-SH as standard equipment.)



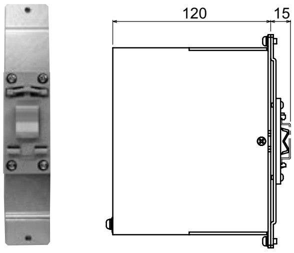
Model	For TS-S2
	KCC-M499A-00

TS-S2



Model	For TS-X / TS-P
	KCA-M499A-00

TS-X
TS-P



Model	For TS-X / TS-P with RGT
	KCA-M499A-10

TS-X
TS-P

MEMO

TS-SD

● CE compliance ● Only for pulse train control ● Dedicated for TRANSERVO

The TS-SD is a high-performance robot driver specifically designed for the TRANSERVO series that supports pulse train command input.

Main functions ▶ P.59

Support software for PC
▶ TS-Manager
P.554

TS-SD

Basic specifications

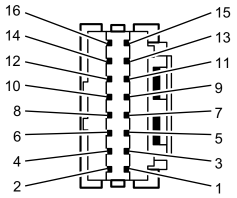
	Item	Model	TS-SD
Basic specifications	Number of controllable axes		Single-axis
	Controllable robots		TRANSERVO series[Note]
	Current consumption		3A (Rating) 4.5A (Max.)
	Dimensions		W30 × H162 × D82mm
	Weight		Approx. 0.2kg
	Input power supply	Control power supply	DC24V +/-10%
		Main power supply	DC24V +/-10%
Axis control	Operating method		Pulse train control
	Control method		Closed loop vector control method
	Position detection method		Resolver
	Resolution		20480 P/rev, 4096 P/rev
	Origin search method		Incremental
External input/output	Pulse train command input		Line driver method : 500 kpps or less
			Open collector method : 100 kpps or less (DC5 to 24V +/-10%)
	Input		Servo ON (SERVO), reset (RESET) origin search (ORG)
	Output		Servo status (SRV-S), alarm (/ALM), positioning completion (IN-POS), return-to-origin end status (ORG-S)
	External communications		RS-232C 1CH
Options	Support software for PC		TS-Manager
General specifications	Operating temperature		0°C to 40°C
	Storage temperature		-10°C to 65°C
	Operating humidity		35% to 85%RH (non-condensing)
	Storage humidity		10% to 85%RH (non-condensing)
	Atmosphere		Indoor location not exposed to direct sunlight. No corrosive , flammable gases, oil mist, or dust particles
	Anti-vibration		All XYZ directions 10 to 57Hz unidirectional amplitude 0.075mm 57 to 150Hz 9.8m/s^2
	Protective functions		Position detection error, overheat, overload, overvoltage, low voltage, position deviation, control power voltage drop, overcurrent, motor current error, CPU error, motor line disconnection, command speed over, pulse frequency over

Note. Except for RF type sensor specifications and STH type vertical specifications.

I/O signal table

No.	Signal Name	Description
1	+COM	I/O power supply input (DC 24V +/- 10%)
2	OPC	Open collector power supply input
3	PULS1	Command pulse input 1
4	PULS2	Command pulse input 2
5	DIR1	Command direction input 1
6	DIR2	Command direction input 2
7	ORG	Return-to-origin
8	NC	Prohibited to use this signal.
9	RESET	Reset
10	SERVO	Servo ON
11	ORG-S	Return-to-origin end status
12	IN-POS	Positioning completion
13	/ALM	Alarm
14	SRV-S	Servo status
15	-COM	I/O power supply input (0V)
16	FG	Ground

I/O connector



TS-SD

Controllable robot	TRANSERVO P.129
CE marking	○
Field networks	—

Model Overview

Name		TS-SD
Controllable robot		Dedicated compact single-axis TRANSERVO
Input power	Main power supply	DC24V +/-10% maximum
	Control power supply	DC24V +/-10% maximum
Operating method		Pulse train control
Maximum number of controllable axes		Single-axis
Origin search method		Incremental

Ordering method

Controller only

TS-SD Note

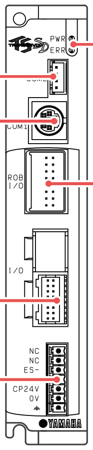
Controller

Robot + Controller

Robot model	–	Cable length	–	SD	1
				Controller	I/O cable
TRANSERVO Series		1L: 1 meter 3L: 3 meters 5L: 5 meters 10L: 10 meters (flexible cables)			1L: 1 meter

Note. I/O cable (1 meter) comes supplied with unit.

Part names



Communication connector (COM2)
Connector for daisy-chain connection cable

Communication connector (COM1)
Connector for PC

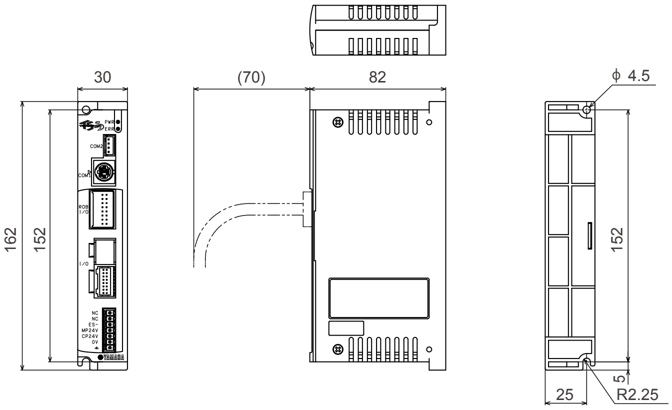
I/O connector (I/O)
Connector for host device such as PLC

Power supply connector
For main and control power input

Status indicator lamps (PWR, ERR)
LED indicator shows TS-SD status

Robot I/O connector (ROB I/O)
Connector for robot peripheral I/O signals such as position and brake signals and motor power line

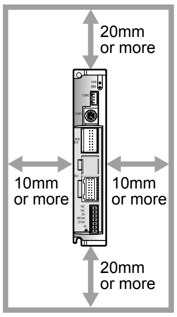
Dimensions



TS-SD

Installation conditions

- Install the TS-SD inside the control panel.
- Install the TS-SD on a vertical wall.
- Install the TS-SD in a well ventilated location, with space on all sides of the TS-SD (See fig. at right.).
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



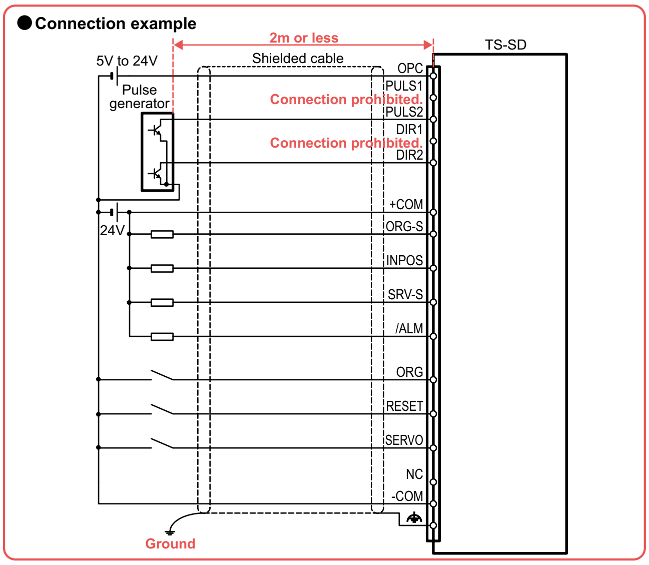
I/O signal list

Type	Signal Name	Open collector	Line driver	Description
Inputs	OPC	Open collector power supply input	(Connection prohibited. Note 2)	Input the power supply for the open collector. (DC5 to 24V +/- 10%)
	PULS1	(Connection prohibited. Note 1)	Command pulse input (+)	Input terminal for pulse train input commands. Select from 3 command forms by changing parameters. • Phase A/Phase B input • Pulse/Sign input • CW/CCW input
	DIR1	(Connection prohibited. Note 1)	Command direction input (+)	
	PULS2	Command pulse input	Command pulse input (-)	
	DIR2	Command direction input	Command direction input (-)	
	ORG	Return-to-origin	←	Starts return-to-origin when ON and stops it when OFF.
	RESET	Reset	←	Alarm reset
	SREVO	Servo ON	←	ON: servo on; OFF: servo off.
Outputs	ORG-S	Return-to-origin end status	←	ON at return-to-origin end.
	IN-POS	Positioning completion	←	ON when accumulated pulse in deviation counter are within specified value range.
	/ALM	Alarm	←	ON when normal. OFF when alarm occurs.
	SRV-S	Servo status	←	ON when servo is on.

Note 1. When using the open collector specifications, do not connect any signal to the PULS1 and DIR1 terminals. Doing so may cause the driver to malfunction or breakdown.
Note 2. When using the line driver specifications, do not connect any signal to the OPC terminal. Doing so may cause the driver to malfunction or breakdown.

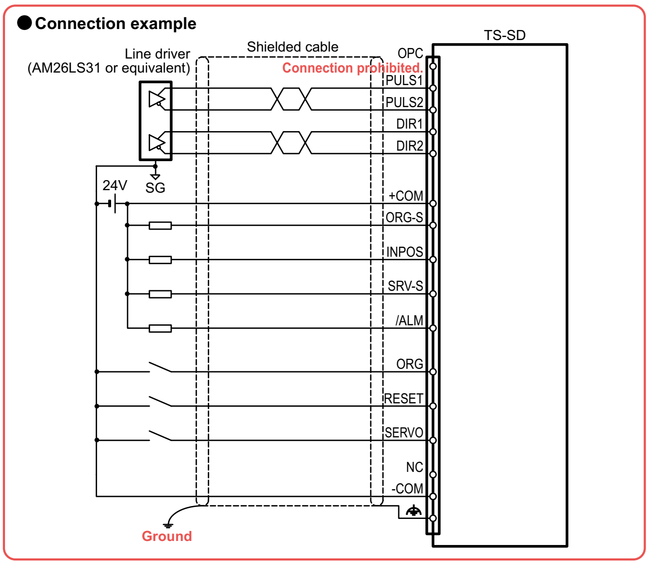
Input / output signal connection diagram [open collector]

●Connection example



Input / output signal connection diagram [line driver]

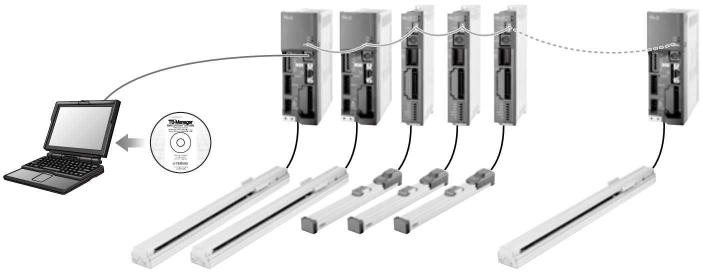
●Connection example



Daisy chain function

Connecting two or more TS series controllers and drivers in a daisy chain allows editing data on any one unit from a PC.

- Up to 16 units connectable
- Requires daisy chain coupler cables.



Accessories and part options

TS-SD

Standard accessories

Power connector

Model	KCC-M4421-00

TS-S2
TS-SH
TS-SD

I/O cables (1m)

Model	KCC-M5362-00

TS-SD

Options

Support software TS-Manager

P.554

Model	KCA-M4966-0J (Japanese)
	KCA-M4966-0E (English)

TS-S2
TS-SH
TS-X
TS-P
TS-SD

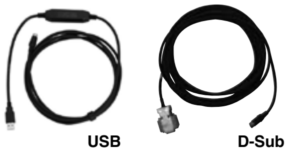
TS-Manager environment

OS	Microsoft Windows 2000 / XP / Vista (32bit/64bit) / 7 (32bit/64bit) / 8, 8.1 (32bit/64bit)
CPU	Exceeding the environment recommended by the OS being used
Memory	Exceeding the environment recommended by the OS being used
Hard disk	Vacant capacity of more than 20MB in the installation destination drive
Communication port	Serial (RS-232C), USB
Applicable controllers	TS-S2 / TS-SH / TS-X / TS-P / TS-SD

Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables

Communication cable for TS-Manager.
Select from USB cable or D-sub cable.



Model	USB type (5m)	KCA-M538F-A0
	D-Sub type (5m)	KCA-M538F-01

Note. USB driver for communication cable can also be downloaded from our website.

TS-S2
TS-SH
TS-X
TS-P
TS-SD

Daisy chain and gateway connection cable

Model	KCA-M532L-00 (300mm)

TS-S2
TS-SH
TS-X
TS-P
TS-SD

RDV-X/RDV-P

● Only for pulse train control

These are high-performance robot drivers for the FLIP-X series and PHASER series which support pulse train command input.

Main functions ▶ P.58

Support software for PC
▶ RDV-Manager
P.560

RDV-X

RDV-P

Basic specifications

Item		Model	RDV-X			RDV-P			
Driver model			RDV-X205	RDV-X210	RDV-X220	RDV-P205	RDV-P210	RDV-P220	RDV-P225
Number of controllable axes			Single-axis						
Controllable robots			Single-axis robot FLIP-X			Linear motor single-axis robot PHASER			
Basic specifications	Capacity of the connected motor		200V 100W or less	200V 200W or less	200V 600W or less	200V 100W or less	200V 200W or less	200V 400W or less	200V 750W or less
	Maximum power consumption		0.3kVA	0.5kVA	0.9kVA	0.3kVA	0.5kVA	0.9kVA	1.3kVA
	Dimensions		W40×H160×D140mm		W40×H160×D170mm	W40×H160×D140mm		W40×H160×D170mm	W55×H160×D170mm
	Weight		0.7kg		1.1kg	0.7kg		1.1kg	1.2kg
	Input power supply	Control power supply	Single phase 200 to 230V +10%, -15%, 50/60Hz +/-5%						
		Motor power supply	Single phase / 3-phase 200 to 230V +10%, -15%, 50/60Hz +/-5%						
Axis control	Position detection method		Resolver			Magnetic linear scale			
	Control system		Sine-wave PWM (pulse width modulation)						
	Control mode		Position control						
	Maximum speed [Note 1]		5000rpm			3.0m/s			
Input/output related function	Position command input		Line driver signal (2M pps or less) (1) Forward pulse + reverse pulse (2) Sign pulse + Command pulse (3) 90-degree phase difference 2-phase pulse command One of (1) to (3) is selectable.						
	Input signal		24V DC contact point signal input (usable for sink/source) (24V DC power supply incorporated) (1) Servo ON (2) Alarm reset (3) Torque limit (4) Forward overtravel (5) Reverse overtravel (6) Origin sensor [Note 3] (7) Return-to-origin (8) Pulse train input enable (9) Deviation counter clear						
	Output signal		Open collector signal output (usable for sink/source) (1) Servo ready (2) Alarm (3) Positioning completed (4) Return-to-origin complete						
	Relay output signal		Braking cancel signal (24V 375mA)			-			
	Position output		Phase A, B signal output: Line driver signal output Phase Z signal output: Line driver signal output / open collector signal output N/8192 (N=1 to 8191), 1/N (N=1 to 64) or 2/N (N=3 to 64)						
	Monitor output		Selectable items: 2ch, 0 to +/-5V voltage output, speed detection value, torque command, etc.						
Internal function	Display		5-digit number indicator, Control power LED						
	External operator		PC software "RDV-Manager" monitoring function, parameter setting function, operation tracing function, trial operation function, etc. USB2.0 is used. Windows Vista / 7 / 8 / 8.1 personal computer can be connected.						
	Regenerative braking circuit		Included (but without braking resistor)						
	Dynamic brake [Note 4]		Included (Operation conditions can be set.) (No DB resistor, connection: 2-phase short circuit)						Included (Operation conditions can be set.) (with DB resistor, connection: 2-phase short circuit)
	Protective function [Note 2]		Semi-enclosure type (IP20)						
	Protective functions		Over-current, overload, braking resistor overload, main circuit overvoltage, memory error, etc.						

Controllable robot	RDV-X ▶ FLIP-X Note 1 P.171	RDV-P ▶ PHASER P.217

CE marking	○	Field networks	—

Note 1. Exclude T4 / T5 / C4 / C5 / YMS

Model Overview

Name		RDV-X	RDV-P
Controllable robot		Single-axis robot FLIP-X Note 1	Linear motor single-axis robot PHASER
Input power	Main power supply	Single phase / 3-phase 200 to 230V +10% to -15% (50/60Hz +/-5%)	
	Control power supply	Single phase 200 to 230V +10% to -15% (50/60Hz +/-5%)	
Operating method		Pulse train control	
Maximum number of controllable axes		Single-axis	
Origin search method		Incremental	

Ordering method

RDV-X

RDV-X ☐ ☐ – ☐

Controller	Power-supply voltage	Driver Note	–	Regenerative unit Note
RDV-X	2: AC200V	05: 100W or less		RBR1
		10: 200W or less		RBR2
		20: 600W or less		

Note. Driver selection and regenerative unit selection depend on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.

RDV-P

RDV-P ☐ ☐ – ☐

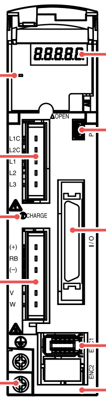
Controller	Power-supply voltage	Driver Note	–	Regenerative unit Note
RDV-P	2: AC200V	05: 100W or less		No entry: None
		10: 200W or less		RBR1
		20: 400W or less		RBR2
		25: 750W or less		

Note. Driver selection and regenerative unit selection depend on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.

Item		RDV-X			RDV-P			
Driver model		RDV-X205	RDV-X210	RDV-X220	RDV-P205	RDV-P210	RDV-P220	RDV-P225
Options	Support software for PC	RDV-Manager						
General specifications	Operating temperature	0°C to +55°C						
	Storage temperature Note 5	-10°C to +70°C						
	Operating humidity	20% to 90%RH (non-condensing)						
	Vibration Note 6	5.9m/s^2 (0.6G) 10 to 55Hz						

Note 1. These data are parameters and calculation range in controlling the robot driver and do not indicate the capacity of the robot at the maximum speed.
Note 2. JIS C 0920 (IEC60529) is used as the base for the protection method.
Note 3. GXL-8FB (made by SUNX) or FL7M-1P5B6-Z (made by YAMATAKE) is used for the origin sensor. The power consumption of the origin sensor is 15mA or less (at open output) and only 1 unit of the origin sensor is connected to each robot driver. (future specification)
Note 4. Use the dynamic brake for emergency stop. Note that the braking may be less effective depending on the robot model.
Note 5. The storage temperature is the temperature in the non-energized state including transportation.
Note 6. The JIS C 60068-2-6:2010 (IEC 60068-2-6:2007) test method is uses as the base.

Part names



CP (green)
Lights up when the control power is turned on.

Main circuit connector 1
Connection connector for main circuit power and control power.

CHARGE (red)
Lights up when the main circuit power is turned on.

Main circuit connector 2
Connection connector for motor power cable, DC power input, and external braking resistor.

Ground terminal

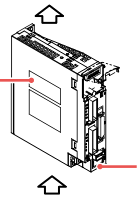
Display
5-digit and 7-segment LED.
Used to display the operating state and alarm.

Connector for PC connection (PC)

Connector for input/output signals (I/O)
Connector for command input signals, programmable controller input signals, and origin sensor.

Connector for position detection signals (ENC1)
This connector is intended to connect the position sensor and resolver of the linear motor.

Serial number nameplate



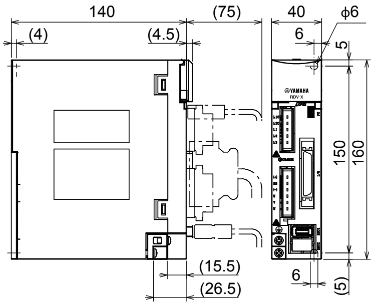
Specification nameplate
Model and rating indication.

Serial number nameplate

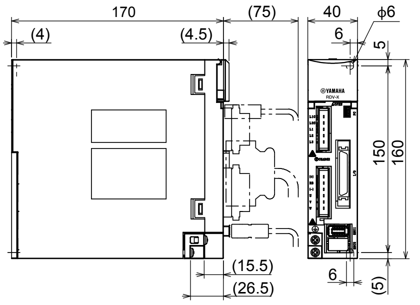
RDV-X/RDV-P

Dimensions

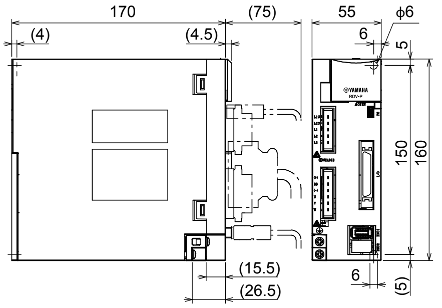
RDV-X205/210
RDV-P205/210



RDV-X220
RDV-P220



RDV-P225



Driver / regenerative unit selection table

RDV-X

			FLIP-X																											
			T4LH/ C4LH	T5LH/ C5LH	T6L/ C6L	T9	T9H	F8/ C8	F8L/ C8L	F8LH/ C8LH	F10/ C10	F10H	F14/ C14	F14H/ C14H	GF14XL	F17/ C17	F17L/ C17L	GF17XL	F20/ C20	F20N	N15	N18	N15D	N18D	B10	B14	B14H	R5	R10	R20
Driver selection	RDV-X	05	●	●	●	●		●	●	●	●		●												●	●		●	●	
		10					●					●		●													●			●
		20													●	●	●	●	●	●	●	●	●	●						
Regenera-tive unit	No entry (None)		●	●																										
	RBR1				●	●	●	●	●	●	●	●	●	●	●	❶	❶	●	❶	●	●	●	●	●	●	●	●	●	●	●
	RBR2															❶	❶		❶											

❶If placed horizontally the RBR1 is required, if placed vertically then RBR2 is required.

RDV-P

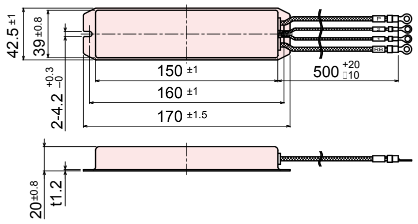
			PHASER					
			MR12/ MR12D	MF7/ MF7D	MF15/ MF15D	MF20/ MF20D	MF30/ MF30D	MF75/ MF75D
Driver selection	RDV-P	05	●					
		10		●	●	●		
		20					●	
		25						●
Regenera-tive unit	No entry (None)		●					
	RBR1			●	●	●	●	
	RBR2							●

Regenerative unit RBR1 / RBR2 dimensions

The regenerative unit is a device that converts the braking current generated when the motor decelerates into heat.
Regenerative unit is required for specified Yamaha models and for operation with loads having large inertia.

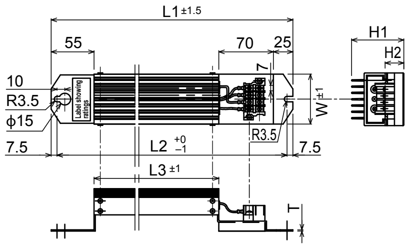
Regenerative unit RBR1

Dimensions



Regenerative unit RBR2

Dimensions



Regenerative unit RBR1 / RBR2 basic specifications

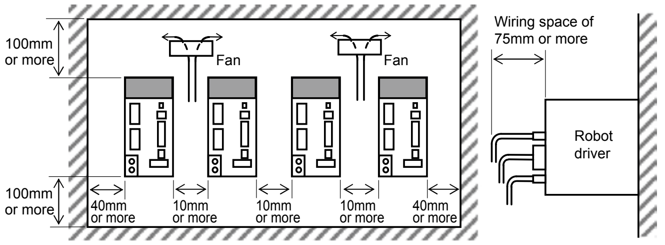
Item	RBR1	RBR2
Model	KBH-M5850-00	KBH-M5850-10
Capacity type	120W	200W
Resistance value	100Ω	100Ω
Permissible braking frequency	2.5%	7.5%
Permissible continuous braking time	12 sec.	30 sec.
Weight	0.27kg	0.97kg

Note. The internal thermal contact point capacity is AC250V, 2A max. ON (b contact point) in the normal state.
Note. The built-in thermal fuse prevents abnormal heat generation which occurs by an erroneous use. (not resettable)
Note. When the thermal relay has worked, reduce the regeneration energy by either stopping the servo amplifier or making the deceleration time longer.
Note. With the regenerative unit, specifications and whether or not required may vary depending on each robot and its operation conditions.

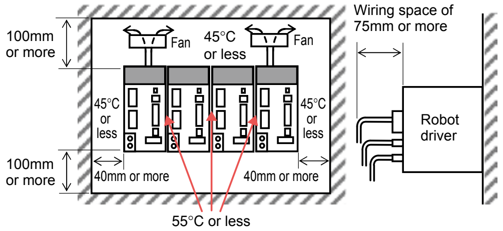
Installation conditions

- Install the RDV-X/RDV-P on a vertical metal wall.
- Install the RDV-X/RDV-P in a well ventilated location, with space on all sides of the RDV-X/RDV-P.
- Ambient temperature: 0 to 55˚C
- Ambient humidity: 20 to 90% RH (no condensation)
- When placing two or more robot drivers in one operating panel, install them as shown in the figure below.

Stored inside RDV-X/RDV-P panel

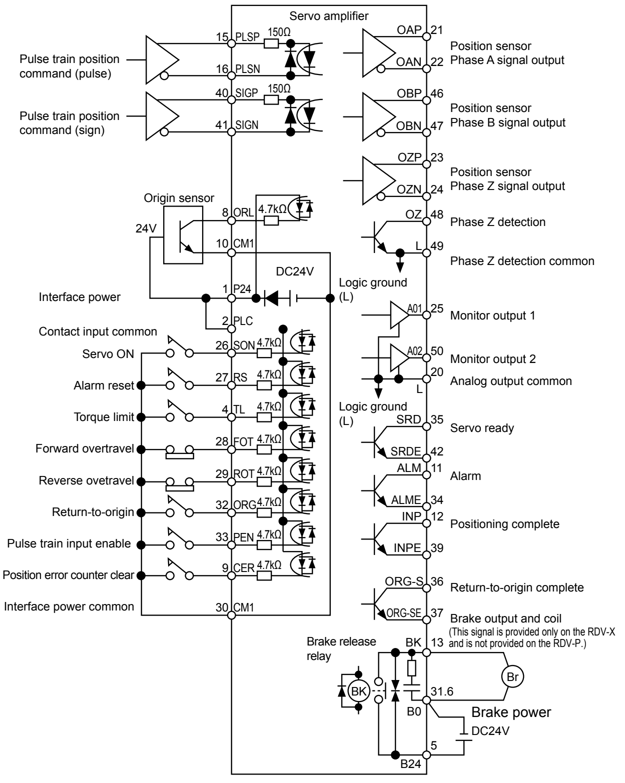


Side-by-side installation



* Note that the ambient temperature is 45°C or less or the effective load factor is 75% or less.

Input / output signal connection diagram



* The above diagram shows a sink type output module using a power supply for internal input.

List of RDV-P / RDV-X terminal functions

Type	Terminal symbol	Terminal name	Description
Input signal	P24	Interface power	Supplies 24V DC for contact inputs. Connecting this signal to the PLC terminal allows using the internal power supply. Use this terminal only for contact input. Do not use for controlling external equipment connected to the driver, such as brakes.
	CM1	Interface power common	This is a ground signal for the power supply connected to P24. If using the internal power supply then input a contact signal between this signal and the contact-point signal.
	PLC	Intelligent input common	Connect this signal to the power supply common contact input. Connect an external supply or internal power supply (P24).
	SON	Servo ON	Setting this signal to ON turns the servo on (supplies power to motor to control it). Additionally, this signal is also used for estimating magnetic pole position when FA-90 is set to oFF4, oFF5.
	RS	Alarm reset	After an alarm has tripped, inputting this signal cancels the alarm. But before inputting this reset signal, first set the SON terminal to OFF and eliminate the cause of the trouble.
	TL	Torque limit	When this signal is ON, the torque limit is enabled.
	FOT	Forward overtravel	When this signal is OFF, the robot will not run in forward direction. (Forward direction limit signal)
	ROT	Reverse overtravel	When this signal is OFF, the robot will not run in reverse direction. (Reverse direction limit signal)
	ORL	Origin sensor	Input an origin limit switch signal showing the origin area.
	ORG	Return-to-origin	Inputting this signal starts return-to-origin operation.
	PEN	Pulse train input enable	When this signal is turned on, the pulse train position command input is enabled.
	CER	Position error counter clear	Inputting this signal clears the position deviation (position error) counter. (Position command value is viewed as current position.)
Output signal	SRD SRDE	Servo ready	This signal is output when the servo is ready to turn on (with main power supply turned on and no alarms tripped)
	ALM ALME	Alarm	This signal is output when an alarm has tripped. (This signal is ON in normal state and OFF when an alarm has tripped.)
	INP INPE	Positioning complete	This signal is output when the deviation between the command position and current position is within the preset positioning range.
	ORG-S ORG-SE	Return-to-origin complete	This signal is output when the return-to-origin is completed successfully.
Relay output	BK (B24) Note 1	Brake release relay output	When the servo is ON, this terminal outputs a signal to allow releasing the brake. (FLIP-X series only)
Monitor output	AO1	Monitor output 1	Outputs speed detection values, torque commands, etc. as analog signal voltages for monitoring. Signals to output are selected by setting parameters. These signals are only for monitoring. Do not use for control.
	AO2	Monitor output 2	
	L	Monitor output common	This is the ground for the monitor signal.
Position command	PLSP	Position command pulse (pulse signal)	Select one of the following signal forms as the pulse-train position command input. 1. Command pulse + direction signal 2. Forward direction pulse train + reverse direction pulse train 3. Phase difference 2-phase pulse
	PLSN		
	SIGP	Position command pulse (sign signal)	
	SIGN		
Position sensor monitor	OAP	Position sensor Phase A signal	Outputs monitor signal obtained by dividing "phase A" signal of position sensor.
	OAN		
	OBP	Position sensor Phase B signal	Outputs monitor signal obtained by dividing "phase B" signal of position sensor.
	OBN		
	OZP	Position sensor Phase Z signal	Outputs monitor signal for position sensor "phase Z" signal.
	OZN		
	OZ	Phase Z detection	Outputs monitor signal for position sensor "phase Z" signal.
	L	Phase Z detection common	
Braking power input	B24 Note 1	Brake power input	Input 24V DC brake power to this terminal.
	B0 Note 1	Brake power common	Common terminal input for brake power.

Note 1. B24, BO and BK are available only with RDV-X, and not with RDV-P.

Accessories and part options

RDV-X/RDV-P

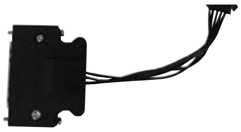
Standard accessories

- **I/O connector (no brake wiring)**

Model	KBH-M4420-00

RDV-X
RDV-P

- **I/O connector (with brake wiring)**



Model	KBH-M4421-00

RDV-X
RDV-P

- **Power supply connector**

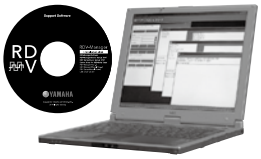
Model	KEF-M4422-00

RDV-X
RDV-P

Options

- **Support software RDV-Manager**

P.560



Model	KEF-M4966-00

RDV-X
RDV-P

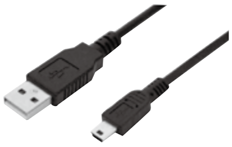
- **Environment**

OS	Microsoft Windows Vista (32bit) Note 1 / 7 (32bit/64bit) / 8, 8.1 (32bit/64bit)
CPU	Pentium4 1.8GHz or more (Recommend)
Memory	1GB or more
Hard disk	1GB of available space required on installation drive.
Disk operation	USB
Applicable controllers	RDV-X / RDV-P

Note 1. SP1 (service pack 1) or higher.
Note. Windows Vista, Windows 7, and Windows 8 / Windows 8.1 are trademarks of Microsoft Corporation registered in U.S.A. and other countries.

- **Communication cable**

Communication cable to connect PC and a controller.



Model	KEF-M538F-00

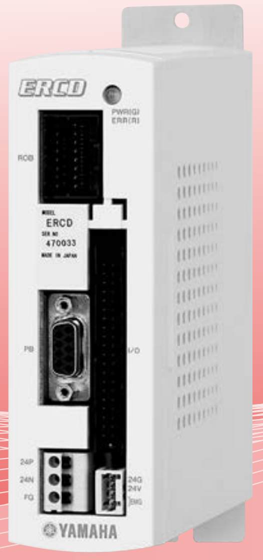
RDV-X
RDV-P

MEMO

ERCD

● Dedicated for T4L / T5L / C4L / C5L

Low price and compact in size.
In addition to the conventional functions, a pulse train function is added for a wider application range.
This is a dedicated controller for the FLIP-X series models T4L, T5L, C4L, and C5L.



ERCD

Main functions ▶ P.64

Programming box
▶ **HPB/HPB-D**
P.563

Support software for PC
▶ **POPCOM+**
P.556

Basic specifications

Item				Model	ERCD
Number of controllable axes					Single-axis
Controllable robots					Single-axis robot FLIP-X series T4L / T5L / C4L / C5L
Basic specifications	Capacity of the connected motor				DC24V 30W or less
	Dimensions				W44 × H166 × D117mm
	Weight				0.45kg
	Input power supply				DC24V +/-10% maximum 3A to 4.5A (Variable depending on robots in use.)
Axis control	Drive method				AC full-digital software servo
	Position detection method				Resolver
	Operating method				Normal mode: point trace movement, program operation, operation using RS-232C communication Pulse Train mode: operation by pulse train input
	Position indication units				mm (millimeters)
	Speed setting				1% to 100% (Setting by 1% unit)
	Acceleration setting				1. Automatic speed setting per robot No. and payload 2. Setting based on acceleration and deceleration parameter 1% to 100% (Setting by 1% unit)
	Resolution				16384 P/rev
	Origin search method				Incremental
Program	Program language				YAMAHA SRC
	Multitasks				4 tasks
	Point-data input method				Manual data input (coordinates input), Direct teaching, Remote teaching
Memory	RAM				32 Kbytes with lithium battery backup (5-year life) Retains programs, point data, parameters and alarm history
	Programs				100 programs (Maximum program number) 255 steps per program 1024 steps / total or less
	Points				1000 points (256 when point tracing)
External input/output	I/O interface	Normal mode Note 1	Sequence input		Dedicated input 8 points, General input 6 points
			Sequence output		Dedicated input 3 points, General input 6 points, Open collector output
		Pulse train mode Note 1	Sequence input		Dedicated input 5 points, General input 6 points
			Sequence output		Dedicated input 3 points, General input 6 points, Open collector output
			Command pulse input	Type	1.Phase A / phase B, 2.Pulse / code, 3.CW / CCW
				Mode	Line driver (+5V)
				Frequency	Maximum 2 Mpps
		Feedback pulse output		Terminal name	PA+, PA-, PB+, PB-, PZ+, PZ-
				Type	Phase A / phase B / phase Z
				Mode	Line driver (+5V)
				Number of pulse	16 to 4096 P/rev
		Power supply for sequence I/O			External DC +24V input
	Emergency stop input				Normal close contact point input
	Brake output				Relay output (for 24V/300mA brake) 1CH
	External communications				RS-232C 1CH (For communication with HPB or PC)

Controllable robot	FLIP-X Dedicated for T4L/T5L P.176 Dedicated for C4L/C5L P.444

CE marking	—	Field networks	—

Model Overview

Name	ERCD
Controllable robot	Deicated for T4L / T5L / C4L / C5L
Input power	DC24V +/-10% maximum 3A to 4.5A (Variable depending on robots in use.)
Operating method	Pulse train control / Programming / I/O point tracing / Operation using RS-232C communication
Maximum number of controllable axes	Single-axis
Origin search method	Incremental

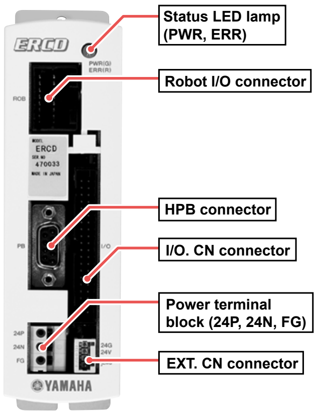
Ordering method

ERCD	–	
Controller	–	I/O connector specification
		CN1: I/O flat cable 1m (Standard)
		CN2: Twisted-pair cable 2m (pilse train function)

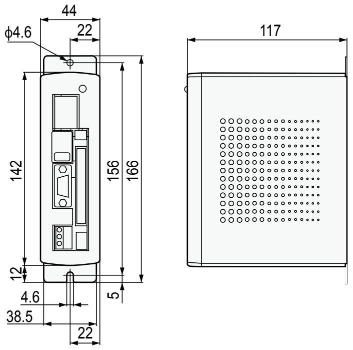
	Item Model	ERCD
Options	Programming box	HPB, HPB-D (with enable switch)
	Support software for PC	POPCOM+
General specifications	Operating temperature	0°C to 40°C
	Storage temperature	-10°C to 65°C
	Operating humidity	35% to 85%RH (non-condensing)
	Noise resistance capacity	IEC61000-4-4 Level 2
	Protective functions	Overload, overvoltage, voltage drop, resolver wire breakage, runaway detection, etc.

Note 1. Switching between the normal mode and pulse train mode is done by use of the parameter.

Part names

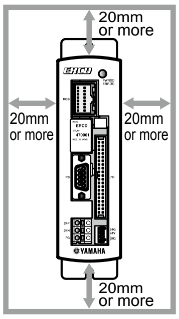


Dimensions



Installation conditions

- Install the ERCD inside the control panel.
- Install the ERCD on a vertical wall.
- Install the ERCD in a well ventilated location, with space on all sides of the ERCD (See fig. below).
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



ERCD

Connector I/O signals

Terminal number	Signal name	Function
A-1	ABS-PT	Move the point from the origin position
B-1	INC-PT	Move the point from the current position
A-2	AUTO-R	Start automatic operation
B-2	STEP-R	Start step operation
A-3	ORG-S	Return to the origin
B-3	RESET	Reset
A-4	SERVO	Return to servo on
B-4	LOCK	Interlock
A-5	DI 0	General input 0
B-5	DI 1	General input 1
A-6	DI 2	General input 2
B-6	DI 3	General input 3
A-7	DI 4	General input 4
B-7	DI 5	General input 5
A-8	(SVCE)	Service mode input
B-8	DO 5	General output 5
A-9	DO 0	General output 0
B-9	DO 1	General output 1
A-10	DO 2	General output 2
B-10	DO 3	General output 3
A-11	DO 4	General output 4
B-11	END	End normal execution
A-12	BUSY	Executing the command
B-12	READY	Ready for operation
A-13	FG	Frame ground
B-13	FG	Frame ground
A-14	GND	Signal ground
B-14	GND	Signal ground
A-15	NC	Reserved (use inhibited)
B-15	NC	Reserved (use inhibited)
A-16	NC	Reserved (use inhibited)
B-16	NC	Reserved (use inhibited)
A-17	PA+	Feedback pulse output
B-17	PA-	Feedback pulse output
A-18	PB+	Feedback pulse output
B-18	PB-	Feedback pulse output
A-19	PZ+	Feedback pulse output
B-19	PZ-	Feedback pulse output
A-20	NC	Reserved (use inhibited)
B-20	NC	Reserved (use inhibited)

Pulse train I/O connector signals

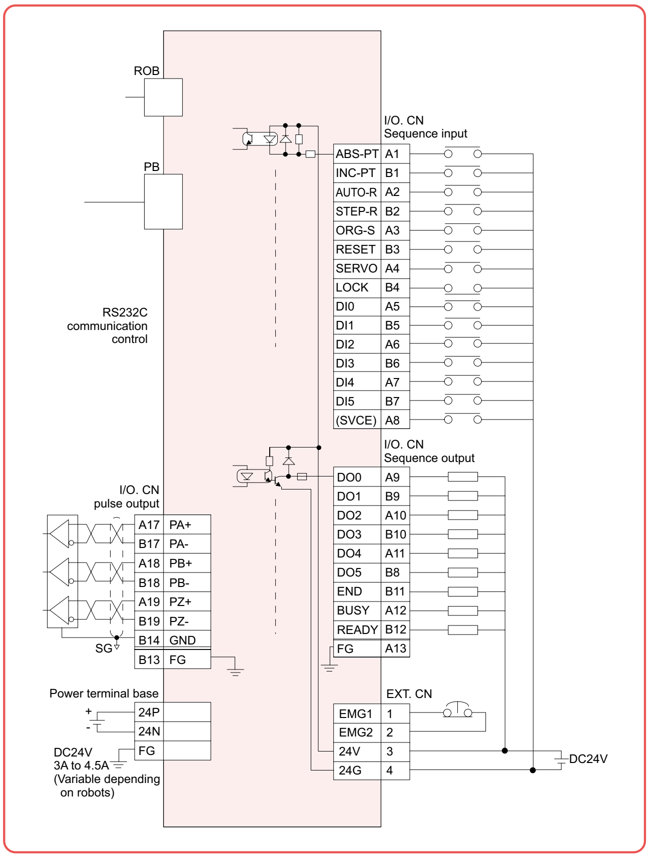
Terminal number	Signal name	Function
A-1	NC	Reserved (use inhibited)
B-1	NC	Reserved (use inhibited)
A-2	NC	Reserved (use inhibited)
B-2	PCLR	Differential clear input
A-3	ORG-S	Return to the origin input
B-3	RESET	Alarm reset input
A-4	SERVO	Servo-ON input
B-4	INH	Command pulse inhibition input
A-5	DI 0	General input 0
B-5	DI 1	General input 1
A-6	DI 2	General input 2
B-6	DI 3	General input 3
A-7	DI 4	General input 4
B-7	DI 5	General input 5
A-8	NC	Reserved (use inhibited)
B-8	DO 5	General output 5
A-9	DO 0	General output 0
B-9	DO 1	General output 1
A-10	DO 2	General output 2
B-10	DO 3	General output 3
A-11	DO 4	General output 4
B-11	IN-POS	In-position output
A-12	SRDY	Servo ready output
B-12	ALM	Alarm output
A-13	FG	Frame ground
B-13	FG	Frame ground
A-14	GND	Signal ground
B-14	GND	Signal ground
A-15	PULS+	Command pulse input
B-15	PULS-	Command pulse input
A-16	DIR+	Command direction input
B-16	DIR-	Command direction input
A-17	PA+	Feedback pulse output
B-17	PA-	Feedback pulse output
A-18	PB+	Feedback pulse output
B-18	PB-	Feedback pulse output
A-19	PZ+	Feedback pulse output
B-19	PZ-	Feedback pulse output
A-20	NC	Reserved (use inhibited)
B-20	NC	Reserved (use inhibited)

Robot Language Table

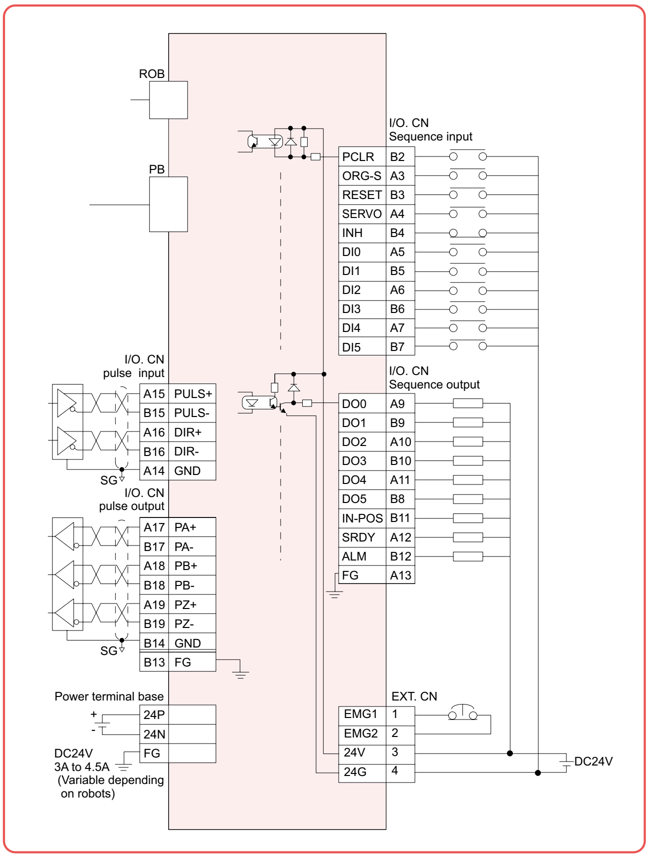
Command	Description
MOVA	Moves to a point data position.
MOVI	Moves from current position by amount of point data.
MOVF	Moves until a specified DI input is received.
JMP	Jumps to a specified label in the specified program.
JMPF	Jumps to a specified label in a specified program according to the input condition.
JMPB	Jumps to a specified label when general-purpose input or memory input is in the specified state.
L	Defines the jump destination for a JMP or JMPF statement, etc.
CALL	Runs another program.
DO	Turns general-purpose output or memory output on or off.
WAIT	Waits until general-purpose input or memory input is in the specified state.
TIMR	Waits the specified amount of time before advancing to the next step.
P	Defines point variable.
P+	Adds 1 to point variable.
P-	Subtracts 1 from point variable.
SRVO	Turns servo on or off.
STOP	Temporarily stops program execution.
ORGN	Performs return-to-origin.
TON	Runs a specified task.
TOFF	Stops a specified task.

Command	Description
JMPP	Jumps to a specified label when the axis position condition meets the specified conditions.
MAT	Defines a matrix.
MSEL	Specifies a matrix to move.
MOVM	Moves to a specified pallet work position on matrix.
JMPC	Jumps to a specified label when the counter array variable C equals the specified value.
JMPD	Jumps to a specified label when the counter variable D equals the specified value.
CSEL	Specifies an array element for counter array variable C.
C	Defines counter array variable C.
C+	Adds a specified value to counter array variable C.
C-	Subtracts a specified value from counter array variable C.
D	Defines counter variable D.
D+	Adds a specified value to counter variable D.
D-	Subtracts a specified value from counter variable D.
SHFT	Shifts the coordinate position by amount of specified point data.
IN	Stores bit information on specified general-purpose input or memory input into counter variable D.
OUT	Outputs the value of counter variable D to specified generalpurpose output or memory output.
LET	Assigns the value of a specified variable to another variable.
TORQ	Defines the maximum torque command value.

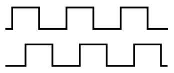
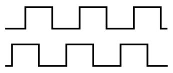
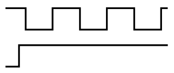
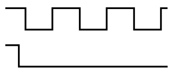
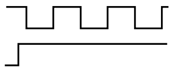
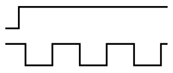
Input / output wiring diagram

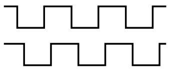
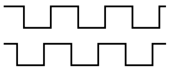
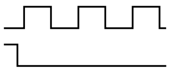
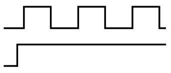
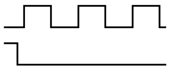
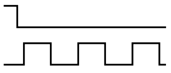


Pulse train input / output wiring diagram



Pulse train input form

Logic	Command pulse form	CW direction	CCW direction
Positive logic	Phase A / phase B		
	Pulse / code		
	CW / CCW		

Logic	Command pulse form	CW direction	CCW direction
Positive logic	Phase A / phase B		
Negative logic	Pulse / code		
	CW / CCW		

Accessories and part options

ERCD

Standard accessories

24V power connector (for EXT. CN)

Model	KAU-M4422-00

ERCD

I/O flat cable (CN1): 1m

Connects the standard parallel I/O to an external device. The end of the cable is cut and left as it is.

Model	KAU-M4421-00

ERCD

I/O twisted-pair cable (CN2): 2m

Connects the parallel I/O to an external device. The end of the cable is cut and left as it is.

Note. Select CN2 when using the pulse train input equipment.

Model	KAU-M4421-10

ERCD

Options

Support software for PC P.556 POPCOM+

POPCOM+ is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

Model	KBG-M4966-00

LCC140 **ERCD** **SR1-X** **SR1-P**

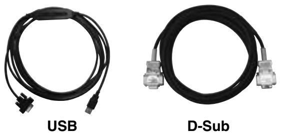
Environment

OS	Microsoft Windows XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/LCC140

Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.



Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140 **ERCD** **SR1-X** **SR1-P** **RCX221** **RCX222** **RCX240/S** **RCX340**

Programming box P.563 HPB/HPB-D

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.

	HPB	HPB-D
Model	KBB-M5110-01	KBB-M5110-21
Enable switch	–	3-position
CE marking	Not supported	Applicable

LCC140 **ERCD** **SR1-X** **SR1-P**

MEMO

SR1-X/SR1-P

Robot controller with advanced functions

**Compact design with high performance.
Although with one axis, functions of upper class controllers.**

Main functions ▶ P.64

Programming box
▶ HPB/HPB-D
P.563

Support software for PC
▶ POPCOM+
P.556

SR1-X

SR1-P

Basic specifications

	Item	Model	SR1-X			SR1-P		
Basic specifications	Driver model		SR1-X05	SR1-X10	SR1-X20	SR1-P05	SR1-P10	SR1-P20
	Applicable motor output		200V 100W or less	200V 200W or less	200V 600W or less	200V 100W or less	200V 200W or less	200V 600W or less
	Number of controllable axes		Single-axis					
	Controllable robots		Single-axis robot FLIP-X (exclude T4L, T5L)			Linear motor single-axis robot PHASER		
	Maximum power consumption		400VA	600VA	1400VA	400VA	600VA	1400VA
	Capacity of the connected motor		100W	200W	600W	100W	200W	600W
	Dimensions		W74 × H210 × D146mm		W99 × H210 × D146mm	W74 × H210 × D146mm		W99 × H210 × D146mm
	Weight		1.54kg		1.92kg	1.54kg		1.92kg
	Input power supply	Control power supply	Single phase AC100 to 115/200 to 230V +/-10% maximum 50/60Hz					
		Motor power supply	Single phase AC100 to 115/200 to 230V +/-10% maximum 50/60Hz		Single phase AC200 to 230V +/-10% maximum 50/60Hz	Single phase AC100 to 115/200 to 230V +/-10% maximum 50/60Hz		Single phase AC200 to 230V +/-10% maximum 50/60Hz
Axis control	Drive method		AC full-digital software servo					
	Position detection method		Multi-turn resolver with data backup function			Magnetic linear scale		
	Operating method		Programming, I/O point tracing, Remote command, Operation using RS-232C communication					
	Position indication units		mm (millimeters), deg (degrees)					
	Speed setting		1% to 100% (Setting by 1% unit)					
	Acceleration setting		1. Automatic speed setting per robot No. and payload 2. Setting based on acceleration and deceleration parameter (Setting by 1% unit)					
	Resolution		16384 P/rev			1μm		
	Origin search method		Absolute, Incremental			Incremental, Semi-absolute		
Program	Program language		YAMAHA SRC					
	Multitasks		4 tasks maximum					
	Point-data input method		Manual data input (coordinate value input), Direct teaching, Teaching playback					
Memory	Programs		100 programs 255 steps / 1 programs 3000 steps / total					
	Points		1000 points					
External input/output	STD.DIO	I/O input	Dedicated input 8 points, General input16 points					
		I/O output	Dedicated Output4 points, General output16 points					
	SAFETY		Emergency stop input (Normal close contact point input), service mode input					
	Brake output		Relay contact			–		
	Origin sensor input		Connectable to DC 24V normally-closed contact sensor					
	External communications		RS-232C: 1CH (For communication with HPB / HPB-D or PC)					
	Analog input/output		Input 1ch (0 to +10V) Output 2ch (0 to +10V)					
	Options	Slots	1					
		Type	NPN/PNP: Dedicated input 8 points, Dedicated Output 4 points, General input 16 points, General output 16 points					
			CC-Link: Dedicated input 16 points, Dedicated Output 16 points, General input 32 points, General output 32 points					
			DeviceNet™: Dedicated input 16 points, Dedicated Output 16 points, General input 32 points, General output 32 points					
			PROFIBUS: Dedicated input 16 points, Dedicated Output 16 points, General input 32 points, General output 32 points					

SR1-X/SR1-P

Controllable robot	SR1-X ▶ FLIP-X P.171	SR1-P ▶ PHASER P.217
CE marking	○	
Field networks	CC-Link DeviceNet PROFIBUS	

■ Model Overview

Name	SR1-X	SR1-P
Controllable robot	Single-axis robot FLIP-X	Linear motor single-axis robot PHASER
Input power	05 / 10 driver Single phase 100 to 115V/200 to 230V +/-10% maximum (50/60Hz)	20 driver Single phase 200 to 230V +/-10% maximum (50/60Hz)
Operating method	Programming / I/O point tracing / Remote command / Operation using RS-232C communication	
Maximum number of controllable axes	Single-axis	
Origin search method	Absolute/Incremental	Incremental/Semi-absolute

■ Ordering method

SR1-X

SR1-X – □ – □ – □ – □ – □

Controller	Driver	Usable for CE	Regenerative unit Note1	Input/Output Selection	Battery
SR1-X	05: 100W or less 10: 200W 20: 400 to 600W	No entry: Standard E: CE marking	No entry: None R: RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS YC: YC-Link Note2	No entry: None (Incremental specification) B: Battery (Absolute specification)

Note 1. Driver selection and regenerative unit selection depends on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.
Note 2. Available only for the slave.

SR1-P

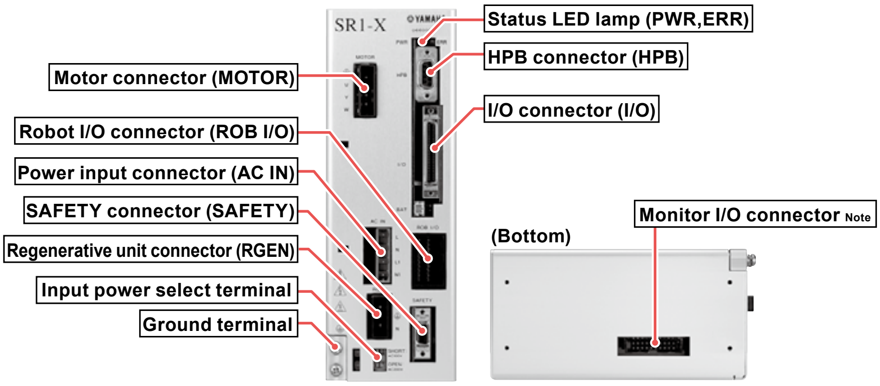
SR1-P – □ – □ – □ – □

Controller	Driver	Usable for CE	Regenerative unit Note1	Input/Output Selection
SR1-P	05: 100W or less 10: 200W 20: 400 to 600W	No entry: Standard E: CE marking	No entry: None R: RG1	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS YC: YC-Link Note2

Note 1. Driver selection and regenerative unit selection depends on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.
Note 2. Available only for the slave.

	Item / Model	SR1-X	SR1-P
Options	Programming box	HPB, HPB-D (with enable switch)	
	Support software for PC	POPCOM+	
General specifications	Operating temperature	0°C to 40°C	
	Storage temperature	-10°C to 65°C	
	Operating humidity	35% to 85%RH (non-condensing)	
	Absolute backup battery	Lithium metallic battery	–
	Absolute data backup period	1 year (in state with no power applied)	–
	Noise immunity	IEC61000-4-4 Level 3	

■ Part names


Status LED lamp (PWR,ERR)
HPB connector (HPB)
Motor connector (MOTOR)
I/O connector (I/O)
Robot I/O connector (ROB I/O)
Power input connector (AC IN)
SAFETY connector (SAFETY)
Monitor I/O connector Note
(Bottom)
Regenerative unit connector (RGEN)
Input power select terminal
Ground terminal
SR1-X
YAMAHA

Note. Cable for monitor I/O (option) is required when using this connector.

YA Articulated robots
LCM100 Linear conveyor modules
TRANSERVO Compact single-axis robots
FLIP-X Single-axis robots
PHASER Linear motor single-axis robots
XY-X Cartesian robots
YK-X SCARA robots
YP-X Pick & place robots
CLEAN
CONTROLLER
INFORMATION
Robot positioner
Pulse string driver
Robot controller
iVY/iVY2 Electric gripper
Option

SR1-X/SR1-P

Driver / regenerative unit selection table

SR1-X

			FLIP-X																									
			T4LH/ C4LH	T5LH/ C5LH	T6L/ C6L	T9	T9H	F8/ C8	F8L/ C8L	F8LH/ C8LH	F10 C10	F10H	F14/ C14	F14H/ C14H	GF14XL	F17/ C17	F17L/ C17L	GF17XL	F20/ C20	F20N	N15/ N15D	N18/ N18D	B10	B14	B14H	R5	R10	R20
Driver selection	SR1-X	05	●	●	●	●		●	●	●	●		●										●	●	●	●	●	
		10					●					●		●	●													●
		20														●	●	●	●	●	●	●						
Regenera-tive unit	No entry (None)		●	●	●	①	②	●	●	●	①	②	①	②	●	③		⑥	③	④			●	●	⑤	●	●	●
	R (RG1)					①	②				①	②	①	②		③	●	⑥	③	④	●	●			⑤			

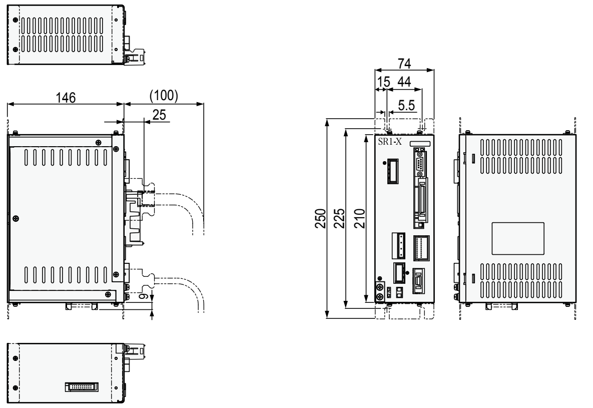
① Regenerative unit is needed if using in a perpendicular position and movement stroke is 700mm or more.
② Regenerative unit is needed if using in a perpendicular position.
③ Regenerative unit is needed if using in a perpendicular position, using at maximum speeds exceeding 1000mm per second, or if using high leads (40).
④ Regenerative unit is needed if using at maximum speeds exceeding 1000mm per second.
⑤ Regenerative unit is needed if using at maximum speeds exceeding 1250mm per second.
⑥ Regenerative unit is needed if using at maximum speeds exceeding 750mm per second.

SR1-P

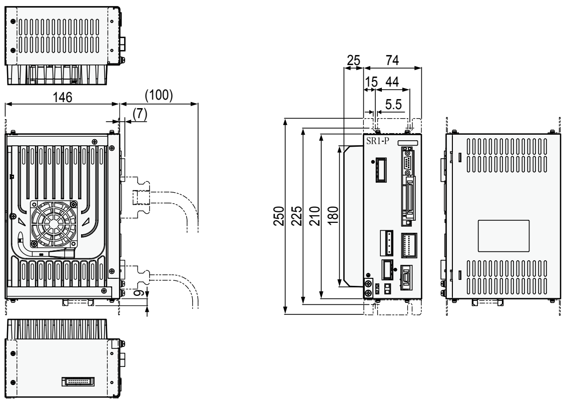
			PHASER									
			MR12/ MR12D	MR16/ MR16D	MR16H/ MR16HD	MR20/ MR20D	MR25/ MR25D	MF7/ MF7D	MF15/ MF15D	MF20/ MF20D	MF30/ MF30D	MF75/ MF75D
Driver selection	SR1-P	05	●	●								
		10			●		●	●	●	●		
		20				●					●	●
Regenera-tive unit	No entry (None)		●	●	●	●	●	●	●			
	R (RG1)									●	●	
	R (RGU-2)											●

Dimensions

SR1-X/SR1-P 05 - 10



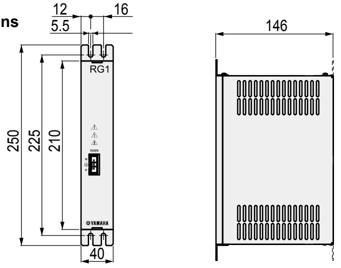
SR1-X/SR1-P 20



Regenerative unit RG1 / RGU-2

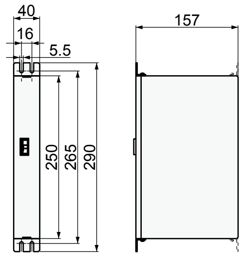
Regenerative unit RG1

Dimensions



Regenerative unit RGU-2

Dimensions



Basic specifications

Item	RG1
Model	KBG-M4107-0A (Including accessory)
Dimensions	W40 × H210 × D146mm
Weight	0.8kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller. Also, always use the dedicated cable when connecting the controller.

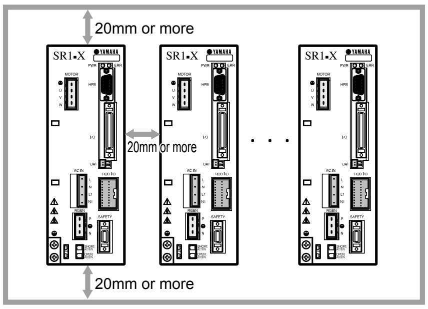
Basic specifications

Item	RGU-2
Model	KS5-M4107-0A (Including accessory)
Dimensions	W40 × H250 × D157mm
Weight	0.9kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller. Also, always use the dedicated cable when connecting the controller.

Installation conditions

- Install the SR1-X/SR1-P inside the control panel.
- Install the SR1-X/SR1-P on a vertical wall.
- Install the SR1-X/SR1-P in a well ventilated location, with space on all sides of the SR1-X/SR1-P (See fig. at right.).
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



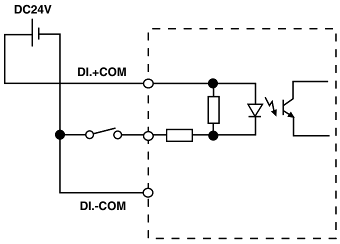
[NPN, PNP type] Input/Output list

Terminal number	Signal name	Function
1	DI.+COM	Input supply+common
2	SERVO	Return to servo on
3	INC-PT	Relative point transfer
4	ABS-PT	Absolute point transfer
5	STEP-R	Step run
6	DI 0	General input 0
7	DI 1	General input 1
8	DI 2	General input 2
9	DI 3	General input 3
10	DI 4	General input 4
11	DI 5	General input 5
12	DI 6	General input 6
13	DI 7	General input 7
14	DO.+COM	Output supply+common
15	DO.+COM	Output supply+common
16	END	Execution result (Execution complete)
17	BUSY	Executing the command
18	DO 0	General output 0
19	DO 1	General output 1
20	DO 2	General output 2
21	DO 3	General output 3
22	DO 4	General output 4
23	DO 5	General output 5
24	DO 6	General output 6
25	DO 7	General output 7
26	DI.-COM	Input supply-common
27	AUTO-R	Auto run
28	RESET	Reset
29	ORG-S	Return to the origin
30	ALMRST	Alarm reset
31	DI 8	General input 8
32	DI 9	General input 9
33	DI 10	General input 10
34	DI 11	General input 11
35	DI 12	General input 12
36	DI 13	General input 13
37	DI 14	General input 14
38	DI 15	General input 15
39	DO.-COM	Output supply-common
40	DO.-COM	Output supply-common
41	READY	Available to operate (Ready for operation)
42	UTL	Utility output
43	DO 8	General output 8
44	DO 9	General output 9
45	DO 10	General output 10
46	DO 11	General output 11
47	DO 12	General output 12
48	DO 13	General output 13
49	DO 14	General output 14
50	DO 15	General output 15

NPN type input/output circuit

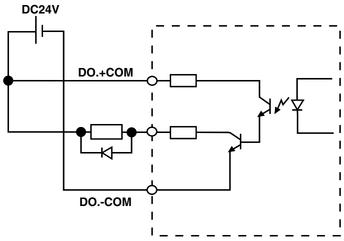
Input circuit

- Form : DC input (positive common type)
  Photo coupler insulation type
- Input power supply : 5mA/point
- Answering time : 30ms or less



Output circuit

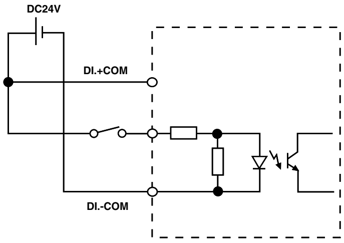
- Form : NPN open collector output (negative common type)
  Photo coupler insulation type
- Load : 50mA/point
- Answering time : 1ms or less



PNP type input/output circuit

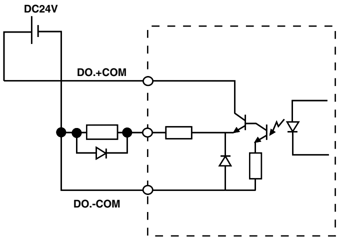
Input circuit

- Form : DC input (negative common type)
  Photo coupler insulation type
- Input power supply : 5mA/point
- Answering time : 30ms or less



Output circuit

- Form : PNP open collector output (positive common type)
  Photo coupler insulation type
- Load : 50mA/point
- Answering time : 1ms or less



SR1-X/SR1-P

SAFETY connector signals

Terminal number	Signal name	Meaning
1	DI.COM	Input supply common
2	LOCK	Interlock
3	SVCE	SERVICE mode
4	DO.COM	Output supply common
5	MPRDY	Main power ready
6	NC	NC
7	NC	NC
8	NC	NC
9	NC	NC
10	NC	NC
11	EMG1	Emergency stop 1
12	EMG2	Emergency stop 2
13	NC	NC
14	NC	NC

Robot Language Table

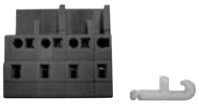
Command	Description
MOVA	Moves to a point data position.
MOVI	Moves from current position by amount of point data.
MOVF	Moves until a specified DI input is received.
JMP	Jumps to a specified label in the specified program.
JMPF	Jumps to a specified label in a specified program according to the input condition.
JMPB	Jumps to a specified label in a specified program when general-purpose input or memory input is in the specified state.
L	Defines the jump destination for a JMP or JMPF statement.
CALL	Runs another program.
DO	Turns general-purpose output or memory output on or off.
WAIT	Waits until general-purpose input or memory input is in the specified state.
TIMR	Waits the specified amount of time before advancing to the next step.
P	Defines point variable.
P+	Adds 1 to point variable.
P-	Subtracts 1 from point variable.
SRVO	Turns servo on or off.
STOP	Temporarily stops program execution.
ORGN	Performs return-to-origin.
TON	Runs a specified task.
TOFF	Stops a specified task.
JMPP	Jumps to a specified label when the axis position condition meets the specified conditions.
MAT	Defines a matrix.
MSEL	Specifies a matrix to move.
MOVM	Moves to a specified pallet work position on matrix.
JMPC	Jumps to a specified label when the counter array variable C equals the specified value.
JMPD	Jumps to a specified label when the counter variable D equals the specified value.
CSEL	Specifies an array element for counter array variable C.
C	Defines counter array variable C.
C+	Adds a specified value to counter array variable C.
C-	Subtracts a specified value from counter array variable C.
D	Defines counter variable D.
D+	Adds a specified value to counter variable D.
D-	Subtracts a specified value from counter variable D.
SHFT	Shifts the coordinate position by amount of specified point data.
IN	Stores bit information on specified general-purpose input or memory input into counter variable D.
OUT	Outputs the value of counter variable D to specified general-purpose output or memory output.
LET	Shifts the coordinate position by amount of specified point data.

Accessories and part options

SR1-X/SR1-P

Standard accessories

Power connector + wiring connection lever



Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

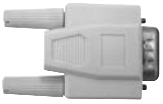
Safety connector

Connector plug model	KBG-M4424-00
Connector cover model	KBG-M4425-00

SR1-X
SR1-P

HPB dummy connector

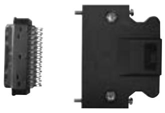
Attach this to the HPB connector during operation with the programming box HPB removed.



Model	KDK-M5163-00

LCC140
SR1-X
SR1-P

NPN / PNP connector



Connector plug model	KBH-M4424-00
Connector cover model	KBH-M4425-00

SR1-X
SR1-P
RCX340

L type stay

Use to install the controller.

Model	KBG-M410H-00

Note. Model No. is for a single bracket (L type stay).

SR1-X
SR1-P

Absolute battery

Battery for absolute data back-up.
(Not included with the SR1-P)

Basic specifications

Item	Absolute battery
Battery type	Lithium metallic battery
Battery capacity	3.6V/2,750mAh
Data holding time	About 1 year (in state with no power applied)
Dimensions	ϕ17 × L53mm
Weight Note1	22g

Model	KAS-M53G0-11

Note 1. Weight of battery itself.
Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery. The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

SR1-X
RCX222
RCX240/S

Battery case

This is the absolute battery holder.

Model	KBG-M5395-00

SR1-X
RCX222
RCX240/S

See next page for optional parts

Options

Cable for monitor I/O

Cable to connect I/O connector of SR1 monitor.
The cable is 1.5m long with its end cut and left as it is.
Required when using analog input / output and feedback pulse output.

Model	KBG-M4421-00

SR1-X **SR1-P**

Support software for PC P.556
POPCOM+

POPCOM+ is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

Model	KBG-M4966-00

LCC140 **ERCD** **SR1-X** **SR1-P**

Environment

OS	Microsoft Windows XP / Vista (32bit/64bit) / 7 (32bit/64bit) 8,8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/ LCC140 Note 1

Note 1. LCC140 is applicable to Ver. 2.1.1 or later.
Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140 **ERCD** **SR1-X** **SR1-P** **RCX221** **RCX222** **RCX240/S** **RCX340**

Programming box P.563
HPB/HPB-D

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.

HPB

HPB-D

	HPB	HPB-D
Model	KBB-M5110-01	KBB-M5110-21
Enable switch	–	3-position
CE marking	Not supported	Applicable

LCC140 **ERCD** **SR1-X** **SR1-P**

Y-Link board (with connection cable)

Model	KBG-M4400-60

SR1-X **SR1-P**

Note. Use the converter cable if changing to the SR1-X, SR1-P from a system using SRCX, SRCP. (See P.605).

MEMO

RCX221/RCX222

● Robot controller with advanced functions

**A 2-axis robot controller with a full range of advanced functions in a compact, space-saving size.
Very easy to use.**

RCX221

RCX222

Main functions ▶ P.66

Programming box
▶ RPB/RPB-E
P.564

Support software for PC
▶ VIP+
P.558

Basic specifications

	Item	Model	RCX221	RCX221HP	RCX222	RCX222HP
Basic specifications	Number of controllable axes		2 axes maximum			
	Controllable robots		Single-axis robot FLIP-X, Linear motor single-axis robot PHASER, Cartesian robot XY-X, Pick & place robot YP-X		Single-axis robot FLIP-X, Cartesian robot XY-X, Pick & place robot YP-X	
	Connected motor capacity		2 axes total: 800W or less	2 axes total: 900W to 1200W	2 axes total: 800W or less	2 axes total: 900W to 1200W
	Maximum power consumption		1700VA	2400VA	1700VA	2400VA
	Dimensions		W130 × H210 × D158mm			
	Weight		Approx. 2.9kg	Approx. 3.1kg	Approx. 2.9kg	Approx. 3.1kg
	Input power supply	Control power supply	Single phase AC200 to 230V +/-10% maximum (50/60Hz)			
		Motor power	Single phase AC200 to 230V +/-10% maximum (50/60Hz)			
Axis control	Drive method		AC full-digital software servo			
	Position detection method		Resolver, Magnetic linear scale		Multi-turn resolver with data backup function	
	Operating method		PTP (Point to Point), Linear interpolation, Circular interpolation, Arch motion			
	Coordinate system		Joint coordinates, Cartesian coordinates			
	Position indication units		Pulses, mm (millimeters), deg (degrees)			
	Speed setting		1% to 100% (In units of 1%. However speed is in units of 0.01% during single-axis operation by DRIVE statement.)			
	Acceleration setting		1.Automatic acceleration setting based on robot model type and end mass parameter 2.Setting based on acceleration and deceleration parameter (Setting by 1% unit)			
	Resolution		1μm		16384 P/rev	
	Origin search method		Incremental / Semi-absolute		Absolute / Incremental	
Program	Program language		YAMAHA BASIC (Conforming to JIS B8439 SLIM Language)			
	Multitasks		8 tasks maximum			
	Sequence program		1 program			
	Point-data input method		Manual data input (coordinate value input), Direct teaching, Teaching playback			
Memory	Memory capacity		364KB (total capacity of program and points) (available program capacity during use of maximum number of points is 84KB)			
	Programs		100 program 9,999: maximum lines per program 98KB: maximum capacity per program			
	Points		10,000 points : maximum numbers of points			
	Memory Backup battery		Lithium metallic battery (service life 4 years at 0℃ to 40℃)			
	Internal flash memory		512KB (ALL data only)			
	External memory backup		SD memory card			

RCX221/RCX222

Controllable robot	**RCX221** ▶ **XY-X** P.241, **FLIP-X** P.171, **PHASER** P.217, **YP-X** P.429 **RCX222** ▶ **XY-X** P.241, **FLIP-X** P.171, **YP-X** P.429
CE marking	○
Field networks	CC-Link DeviceNet Ethernet PROFIBUS

Model Overview

Name	RCX221/RCX221HP	RCX222/RCX222HP
Controllable robot	Cartesian robot XY-X / Single-axis robot FLIP-X / Linear motor single-axis robot PHASER/ Pick & place robot YP-X	Cartesian robot XY-X / Single-axis robot FLIP-X / Pick & place robot YP-X
Power	Single phase: AC200V to 230V +/-10% maximum (50/60Hz)	
Operating method	Programming / Remote command / Operation using RS-232C communication	
Maximum number of controllable axes	2 axes maximum	
Origin search method	Incremental/Semi-absolute	Absolute/Incremental

Ordering method

RCX221/RCX221HP

RCX221 - ☐ - ☐ - ☐ - ☐

Controller [Note 1]	Usable for CE	Regenerative unit [Note 2]	Input/Output Selection 1	Input/Output Selection 2
RCX221 RCX221HP	No entry: Standard E: CE marking	No entry: None R: RG2	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note3]	No entry: None N1: OP.DIO24/16 (NPN) P1: OP.DIO24/16 (PNP) EN: Ethernet [Note4]

Note 1. Driver selection and regenerative unit selection depends on the robot type. See Specification selection table on following page.
Note 2. The regenerative unit (option) is required when operating a model designated by YAMAHA or a load with a large inertia.
Note 3. Available only for the master.
Note 4. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.

RCX222/RCX222HP

RCX222 - ☐ - ☐ - ☐ - ☐

Controller [Note1]	Usable for CE	Regenerative unit [Note2]	Input/Output Selection 1	Input/Output Selection 2
RCX222 RCX222HP	No entry: Standard E: CE marking	No entry: None R: RG2	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet YC: YC-Link [Note3]	No entry: None N1: OP.DIO24/16 (NPN) P1: OP.DIO24/17 (PNP) EN: Ethernet [Note4]

Note 1. Driver selection and regenerative unit selection depends on the robot type. See Specification selection table on following page.
Note 2. The regenerative unit (option) is required when operating a model designated by YAMAHA or a load with a large inertia.
Note 3. Available only for the master.
Note 4. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.

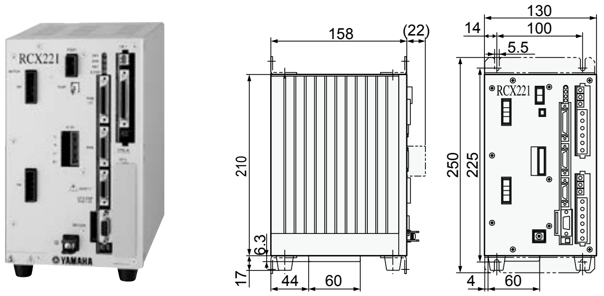
Item		Model	RCX221	RCX221HP	RCX222	RCX222HP
External input/output	STD.DIO	I/O input	Dedicated input 10 points, General input 16 points			
		I/O output	Dedicated Output12 points, General output 8 points			
	SAFETY		Emergency stop input (Relay contact), Service mode input (NPN/PNP specification is set according to STD. DIO setting)			
	Brake output		Relay contact			
	Origin sensor input		Connectable to DC 24V normally-closed contact sensor			
	External communications		RS232C: 1CH D-SUB9 (female) RS422 : 1CH (RPB)			
	Options	Slots	2 (inc.STD.DIO)			
		Type	STD.DIO (NPN/PNP): Dedicated input 10 points, Dedicated output 12 points, General input 16 points, General output 8 points			
			Optional input/output (NPN/PNP): General input 24 points / General output 16 points			
			CC-Link: Dedicated input 16 points, Dedicated output 16 points, General input 96 points, General output 96 points (4 nodes occupied)			
			DeviceNet^{TM}: Dedicated input 16 points, Dedicated output 16 points, General input 96 points, General output 96 points			
			PROFIBUS: Dedicated input 16 points, Dedicated output16 points, General input 96 points, General output 96 points			
			Ethernet: IEEE802.3 10Mbps (10BASE-T)			
Options	Programming box		RPB, RPB-E (with enable switch)			
	Support software for PC		VIP+ / VIP			
General specifications	Operating temperature		0°C to 40°C			
	Storage temperature		-10°C to 65°C			
	Operating humidity		35% to 85%RH (non-condensing)			
	Absolute backup battery		–		Lithium metallic battery 3.6V 5400mAH (2700nAH × 2)	
	Absolute data backup period		–		1 year (in state with no power applied)	
	Noise immunity		IEC61000-4-4 Level3			
	Protecting structure		IP10			

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Robot positioner
Pulse string driver
Robot controller
iVY/iVY2 Electric gripper
Option

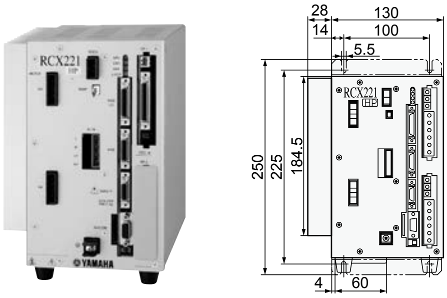
RCX221/RCX222

Dimensions

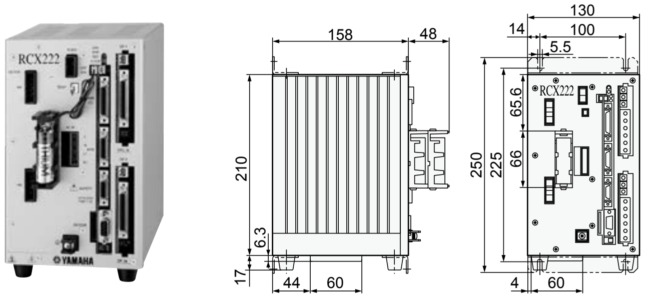
RCX221



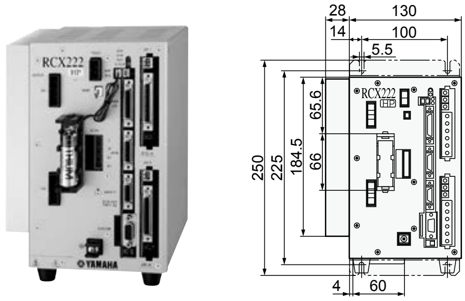
RCX221HP



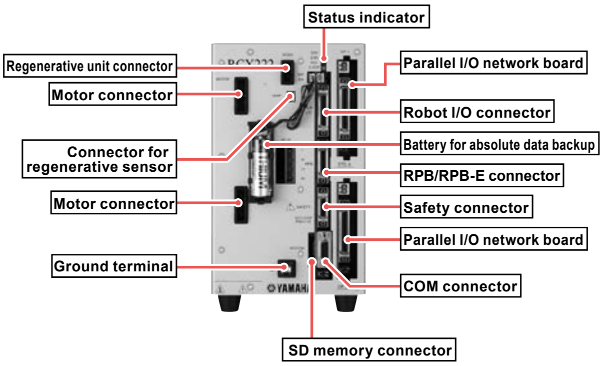
RCX222



RCX222HP

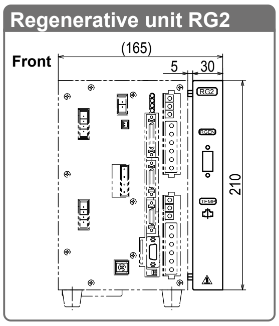


Part names



Note. Photograph shows RCX222. The component names on the RCX221 are the same but it does not come with an absolute backup battery.

Regenerative unit RG2



Note. Depth (D) is 158mm. Installs on the right side of the RCX221 (HP), RCX222 (HP). Cannot be installed as a separate unit.

Basic specifications

Item	RG2
Model	KAS-M4130-00 (including cable supplied with unit)
Dimensions	W35 × H210 × D158mm
Weight	0.8kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Installs on the right side of the RCX221 (HP), RCX222 (HP).Cannot be installed as a separate unit.

Specification selection table

The robot type automatically determines the normal specifications or HP specifications.

RCX221/RCX221HP

		PHASER						
		MR12D	MF7D	MF15D	MF20D	MF30D	MF50D	MF75D
RCX221		●	●	●	●			
RCX221HP						●	●	●
Regenerative unit	No entry (None)	●	●	●				
	R (RG2)				●	●	●	●

● : Applicable

RCX222/RCX222HP

		FLIP-X		XY-X															YP-X		Clean
				Arm type, Gantry type, Moving arm type, Pole type									XZ type								
		N15D	N18D	PXYx	FXYx	FXYBx	SXYx	SXYBx	NXY	MXYx	HXYx	HXYLx	SXYx (ZF)	SXYx (ZFL20)	SXYBx (ZF)	SXYBx (ZFL20)	MXYx	HXYx	YP220BX	YP320X	SXYxC
				2 axes																	2 axes
RCX222				●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●
RCX222HP		●	●								●	●									
Regenerative unit	No entry (None)			●	●	●	●	○					●		●						●
	R (RG2)	●	●					○	●	●	●	●		●		●	●	●			

● : Applicable ○ : Select per conditions

Power capacity

Required power supply capacity varies according to the robot type and number of axes. Prepare a power supply using the following table as a general guide.

When connected to 2 axes (Cartesian robot or multi-axis robot)

Axial current sensor value		Power capacity (VA)
X axis	Y axis	
05	05	500
10	05	700
10	10	900
20	05	1500
20	10	1700
20	20	2000
		2400 (HP)

Note. Even if axial current sensor values for each axis are interchanged no problem will occur.

Motor capacity vs. current sensor table

Connected motor capacity	Current sensor
100W or less	05
200W	10
400W or more	20

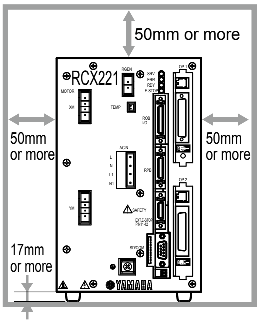
Note. Motor output of the B14H is 200W but the current sensor is 05.

Conditions where regenerative unit is needed on multi robots

- Motor capacity exceeds a total of 450W.
- Motor capacity for perpendicular axis exceeds a total of 240W.
- The following conditions apply when perpendicular axis capacity is 240W or less.
  - perpendicular axis is 200W.
  - perpendicular axis is 100W and stroke is 700mm or more.
  - there are 2 perpendicular axes at 100W, and includes leads of 5mm.
- B14H which maximum speed exceeds 1250mm per second.

Installation conditions

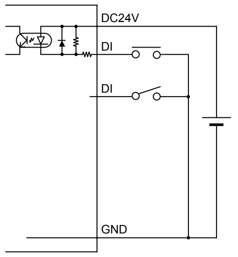
- Install the RCX221/RCX222 inside the control panel.
- Install the RCX221/RCX222 on a flat, level surface.
- Install the RCX221/RCX222 in a well ventilated location, with space on all sides of the RCX221/RCX222 (See fig. at right.).
- Do not block the heat-sink on the side panel.
- Do not block the fan on the bottom of the controller.
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



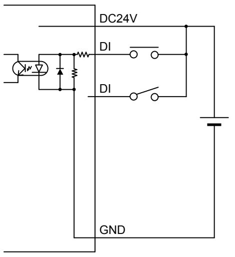
*Provide the same space dimensions for RCX222.

Example of input signal connection

NPN specification

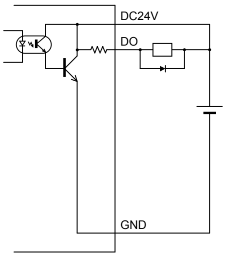


PNP specification

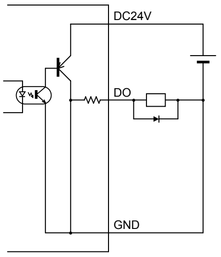


Example of output signal connection

NPN specification

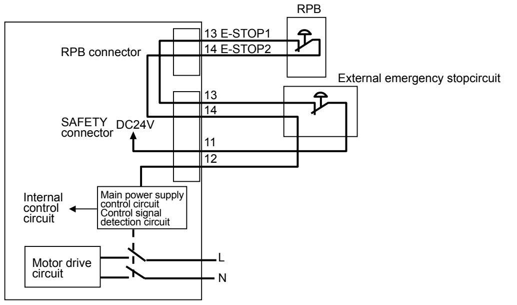


PNP specification

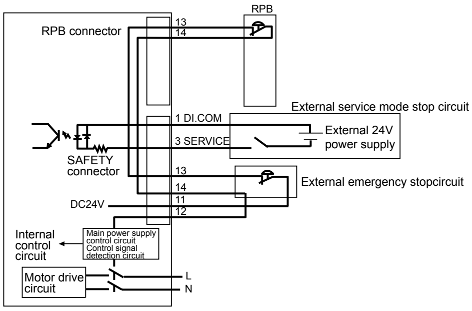


Emergency input signal connections

Connection when using the standard RPB with an external emergency stop circuit (1)



Connection when using the standard RPB with an external emergency stop circuit (2)


RPB
RPB connector
13
14
External service mode stop circuit
1 DI.COM
3 SERVICE
External 24V power supply
SAFETY connector
13
14
11
12
External emergency stopcircuit
DC24V
Internal control circuit
Main power supply control circuit Control signal detection circuit
Motor drive circuit
L
N

SAFETY connector signals

Terminal number	I/O No.	Name
1	DI.COM	Dedicated input common
2	INTERLOCK	Interlock signal
3	SERVICE	SERVICE mode input
4	DO.COM	Dedicated output common
5	MPRDY	Main power supply ready
6	SERVO OUT	Servo-on state output
7	NC	No connection
8	KEY1	RPB key switch contact
9	KEY2	RPB key switch contact
10	24VGND	EMG 24V, GND
11	EMG24V	Power supply for emergency stop input
12	EMGRDY	Emergency stop ready signal
13	EMGIN1	Emergency stop input 1
14	EMGIN2	Emergency stop input 2
15	EMGIN3	Emergency stop input 3
16	EMGIN4	Emergency stop input 4
17	LCKIN1	Enable switch input 1
18	LCKIN2	Enable switch input 2
19	LCKIN3	Enable switch input 3
20	LCKIN4	Enable switch input 4

RCX221/RCX222

Standard I/O [connector name: STD. DIO] signal table

Terminal number	Signal name	Name	
		RCX221	RCX222
1	DI01	Servo ON	
2	DI10	Sequence program control	
3	DI03	Step run	
4	CHK1	Check input 1	
5	DI05	I/O command run	
6	DI06	Spare Note 1	
7	DI07	Spare Note 1	
8	DI20	General input 20	
9	DI21	General input 21	
10	DI22	General input 22	
11	DI23	General input 23	
12	DI24	General input 24	
13	DI25	General input 25	
14	DI26	General input 26	
15	DI27	General input 27	
16	DO00	EMG monitor (emergency stop monitor)	
17	DO01	CPU OK	
18	DO10	AUTO mode	
19	DO11	Return-to-origin complete	
20	DO12	Sequence program in progress	
21	DO13	Auto operation in progress	
22	DO14	Program reset output	
23	DO15	Battery alarm output Note 2	
24	DO16	END	
25	DO17	BUSY	
26	DI12	Auto operation start	
27	DI13	AUTO mode switching	
28	DI14	ABS reset (Not in use normally)	Return-to-origin Note 3
29	DI15	Program reset	
30	DI16	MANUAL mode	
31	DI17	Return-to-origin (In use normally)	ABS reset Note 4
32	DI30	General input 30	
33	DI31	General input 31	
34	DI32	General input 32	
35	DI33	General input 33	
36	DI34	General input 34	
37	DI35	General input 35	
38	DI36	General input 36	
39	DI37	General input 37	
40	CHK2	Check input 2	
41	DO02	Servo-on state	
42	DO03	Alarm	
43	DO20	General output 20	
44	DO21	General output 21	
45	DO22	General output 22	
46	DO23	General output 23	
47	DO24	General output 24	
48	DO25	General output 25	
49	DO26	General output 26	
50	DO27	General output 27	

Note 1. Use of DI06, DI07 is prohibited.
Note 2. DO15 is a memory backup battery voltage drop alarm output.
Note 3. Set origin return for axes using incremental specifications and axes using semi-absolute specifications.
Note 4. Set origin return on axes using absolute specifications.

Area check output can be assigned to DO20 to DO157.
(Area check output assignment differs depending on the controller software version. See the user's manual for details.)

Option I/O [connector name: OP. DIO] signal table

Terminal number	Signal name	Name
1	–	Spare
2	DI40	General input
3	–	Spare
4	DI41	General input
5	–	Spare
6	–	Spare
7	–	Spare
8	DI50	General input
9	DI51	General input
10	DI52	General input
11	DI53	General input
12	DI54	General input
13	DI55	General input
14	DI56	General input
15	DI57	General input
16	–	Spare
17	–	Spare
18	DO30	General output
19	DO31	General output
20	DO32	General output
21	DO33	General output
22	DO34	General output
23	DO35	General output
24	DO36	General output
25	DO37	General output
26	DI42	General input
27	DI43	General input
28	DI44	General input
29	DI45	General input
30	DI46	General input
31	DI47	General input
32	DI60	General input
33	DI61	General input
34	DI62	General input
35	DI63	General input
36	DI64	General input
37	DI65	General input
38	DI66	General input
39	DI67	General input
40	–	Spare
41	–	Spare
42	–	Spare
43	DO40	General output
44	DO41	General output
45	DO42	General output
46	DO43	General output
47	DO44	General output
48	DO45	General output
49	DO46	General output
50	DO47	General output

Robot Language Table

General commands

Language	Function
DECLARE	Declares that a label or sub-procedure is in an external program.
DEF FN	Defines a function that is available to the user.
DIM	Declares the name of an array variable and the number of elements.
EXIT FOR	Terminates a FOR statement to NEXT statement loop.
FOR to NEXT	Controls repetitive operations
GOSUB to RETURN	Jumps to a subroutine with the label specified by a GOSUB statement and executes the subroutine.
GOTO	Unconditionally jumps to the line specified by a label.
HALT	Stops a program and resets it.
HOLD	Pauses a program.
IF	Allows control flow to branch according to conditions.
LET	Executes a specified assignment statement.
ON to GOSU	Jumps to a subroutine with each label specified by a GOSUB statement according to conditions and executes the subroutine.
ON to GOTO	Jumps to each line specified by a label according to conditions.
REM	All characters that follow REM or an apostrophe (') are viewed as comments.
SELECT CASE to END SELECT	Allows control flow to branch according to conditions.
SWI	Switches the currently executed program to a specified program, and executes from the first line after compiling.
WHILE to WEND	Controls repetitive operations.
Label statement	Defines “labels” in program lines.

Robot operation

Language	Function
ABSRST	Performs return-to-origin along robot absolute motor axes.
DRIVE	Performs an absolute movement of each axis in the main group.
DRIVEI	Performs a relative movement of each axis in the main group.
MOVE	Performs an absolute movement of the main robot axes.
MOVEI	Performs a relative movement of the main robot axes.
ORIGIN	Performs return-to-origin on an incremental mode axis or absolute search on a semi-absolute mode axis.
PMOVE	Performs a pallet movement of the main robot axes.
SERVO	Controls the servo ON/OFF of the specified axes in the main group or all axes (in main group and sub group).

I/O control

Language	Function
DELAY	Waits for the specified length of time (ms).
DO	Outputs the specified value to the DO ports.
LO	Outputs the specified value to the LO port to prohibit axis movement or permit axis movement.
MO	Outputs the specified value to the MO ports.
OUT	Turns ON the bits of the specified output ports and the command statement ends.
RESET	Turns OFF the bits of the specified output ports.
SET	Turns ON the bits of the specified output ports
SO	Outputs the specified value to the SO port.
TO	Outputs the specified value to the TO port.
WAIT	1. Waits until the condition in DI/DO conditional expression are met. 2. Waits until positioning on the robot axes is complete (within the tolerance range).

Coordinate control

Language	Function
CHANGE	Switches the hand of the main robot.
HAND	Defines the hand of the main robot.
RIGHTY / LEFTY	Selects whether the main robot will be “right-handed” or “left-handed” when moving to a point specified on a Cartesian coordinate system.
SHIFT	Sets the shift coordinates for the main robot by using the shift data specified by a shift variable.

Condition change

Language	Function
ACCEL	Changes the acceleration coefficient parameter of the main group.
ARCH	Changes the arch position parameter of the main group.
ASPEED	Changes the automatic movement speed of the main group.
AXWGHT	Changes the axis tip weight parameter of the main group.
DECEL	Changes the deceleration rate parameter of the main group.
ORGORD	Sets the axis sequence parameter to perform return-to-origin and absolute search in the main group.
OUTPOS	Changes the OUT position parameter of the main group.
PDEF	Defines the pallet used to execute a pallet movement command.
SPEED	Changes the program speed for the main group.
TOLE	Changes the tolerance parameter of the main group.
WEIGHT	Changes the tip weight parameter of the main robot.

Communication control

Language	Function
ONLINE / OFFLINE	Changes communication mode and initialize the communication port.
SEND	Sends the read file data into a write file.

Screen control

Language	Function
PRINT	Displays the value of specified variable on the MPB/RPB screen.

Key control

Language	Function
INPUT	Assigns a value to the variable specified from the MPB/RPB.

Procedure

Language	Function
CALL	Calls up sub-procedures defined by the SUB and END SUB statements.
EXIT SUB	Terminates the sub-procedure defined by the SUB and END SUB statements.
SHARED	Does not permit variables declared with a program written outside a subprocedure (SUB to END SUB) to be passed on as dummy arguments, but allows them to be referred to with a sub-procedure.
SUB to END SUB	Defines a sub-procedure.

Task control

Language	Function
CHGPRI	Changes the priority of the specified task.
CUT	Terminates a task currently being executed or temporarily stopped.
EXIT TASK	Terminates its own task currently being executed.
RESTART	Restarts a task that is temporarily stopped.
START	Sets the task number and priority of the specified task and starts that task.
SUSPEND	Temporarily stops another task being executed.

Error control

Language	Function
ON ERROR GOTO	If an error occurs during program execution, this command allows the program to jump to the error processing routine specified by the label without stopping the program, or stops the program and displays the error message.
RESUME	Resumes the program execution after recovery from an error. This command is used in the error processing routine.
ERL	Gives the line number where an error occurred.
ERR	Gives the error code number when an error occurred.

PATH control

Language	Function
PATH	Sets the PATH motion on the main robot axis.
PATH END	Terminates the path setting for PATH motion.
PATH SET	Starts the path setting for PATH motion.
PATH START	Starts the PATH motion.

Torque control

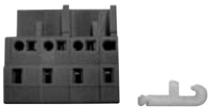
Language	Function
DRIVE (with torque limit option)	Executes an absolute movement command on each axis in the main group.
TORQUE	Changes the maximum torque instruction for the specified main group axis.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.

Accessories and part options

RCX221/RCX222

Standard accessories

Power connector + wiring connection lever



Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

Safety connector

Model	KAS-M5370-00

RCX221
RCX222

RPB terminator (dummy connector)

Attach this to the RPB connector during operation with the programming box RPB removed.

Model	KAS-M5163-30

RCX221
RCX222
RCX240/S

Standard I/O (STD.DIO) connector

Model	KAS-M533G-00

RCX221
RCX222

Option I/O (OP.DIO) connector

Model	KAS-M533G-10

RCX221
RCX222

L type stay (for installing front side, rear side.)

Use to install the controller.

Model	KAS-M410H-00

Note. Model No. is for a single bracket (L type stay).
(Two are required to install one controller.)

RCX221
RCX222

Absolute battery

Battery for absolute data back-up.
(Not included with the RCX221)

Basic specifications

Item	Absolute battery
Battery type	Lithium metallic battery
Battery capacity	3.6V/2,750mAh
Data holding time	About 1 year Note1 (in state with no power applied)
Dimensions	ϕ17 × L53mm
Weight Note2	22g

Model	KAS-M53G0-11

Note 1. When using 2 batteries.
Note 2. Weight of battery itself.
Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery.
The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

SR1-X
RCX222
RCX240/S

Important **Absolute battery installation conditions**

1 to 2 batteries are required for each 2 axes.
● 1 battery......Data storage time of approximately 6 months (with no power applied)
● 2 batteries…Data storage time of approximately 1 year (with no power applied)
Note. Absolute battery is not required for either of the 2 axes if using incremental or semi-absolute specifications.

Battery case

This is the absolute battery holder.

Model	KBG-M5395-00

SR1-X
RCX222
RCX240/S

Options

Programming box RPB/RPB-E

P.564

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.

RPB

RPB-E

	RPB	RPB-E
Model	KBK-M5110-10	KBK-M5110-00
Enable switch	–	3-position
CE marking	Not supported	Applicable

RCX221
RCX222
RCX240/S

Support software for PC VIP$^+$

P.558

VIP$^+$ is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

VIP$^+$ software model	KX0-M4966-00

RCX221
RCX222
RCX240/S

Environment

OS	Microsoft Windows 2000 / XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	40MB of available space required on installation drive.
Communication method	RS-232C, Ethernet Note. For Ethernet communication, Ethernet unit for RCX series controller is required.
Applicable robot controllers	RCX221 / RCX222 / RCX141 / RCX142 / RCX240 / RCX240S

Note. Microsoft and Windows are registered trademarks of Microsoft Corporation.
Note. ADOBE and ADOBE READER are registered trademarks of Adobe Systems Incorporated.
Note. Ethernet is a registered trademark of Xerox Corporation.

Data cables

Communication cable for VIP$^+$.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM$^+$, VIP$^+$, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140
ERCD
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

RCX240/RCX240S

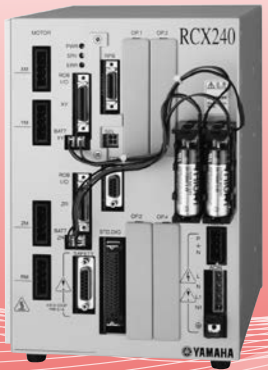
● Robot controller with advanced functions

An advanced multi-axial controller newly developed based on long years of actual results! Along with a full range of functions, great engineering also makes it extremely easy to use.

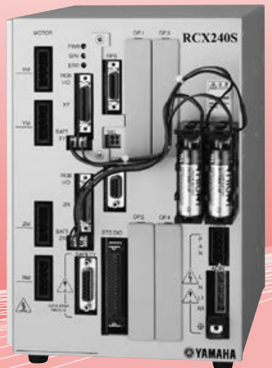
Main functions ▶ P.66

Programming box ▶ RPB/RPB-E P.564

Support software for PC ▶ VIP+ P.558



RCX240



RCX240S

■ Basic specifications

Item		Model	RCX240 / RCX240S
Basic specifications	Number of controllable axes		4 axes maximum (Control simultaneously: 4 axes)
	Controllable robots		Single-axis robot FLIP-X, Linear motor single-axis robot PHASER, Cartesian robot XY-X, SCARA robot YK-XG, Pick & place robot YP-X
	Maximum power consumption		2500VA (RCX240) / 1500VA (RCX240S)
	Capacity of the connected motor		1600W (RCX240) /800W (RCX240S)
	Dimensions		W180 × H250 × D235mm
	Weight		6.5kg
	Input power supply	Control power supply	Single phase AC200 to 230V +/-10% maximum (50/60Hz)
		Motor power supply	Single phase AC200 to 230V +/-10% maximum (50/60Hz)
Axis control	Drive method		AC full-digital software servo
	Position detection method		Multi-turn resolver with data backup function, Magnetic linear scale
	Operating method		PTP (Point to Point), Linear interpolation, Circular interpolation, ARCH
	Coordinate system		Joint coordinates, Cartesian coordinates
	Position indication units		Pulses, mm (millimeters), deg (degrees)
	Speed setting		1% to 100% (In units of 1%. However speed is in units of 0.01% during single-axis operation by DRIVE statement.)
	Acceleration setting		1. Automatic acceleration setting based on robot model type and end mass parameter 2. Setting based on acceleration and deceleration parameter (Setting by 1% unit)
	Origin search method		Incremental, Absolute, Semi-absolute
Program	Program language		YAMAHA BASIC (Conforming to JIS B8439 SLIM Language)
	Multitasks		8 tasks maximum
	Sequence program		1 program
	Point-data input method		Manual data input (coordinate value input), Direct teaching, Teaching playback
Memory	Memory capacity		364KB (total capacity of program and points) (available program capacity during use of maximum number of points is 84KB)
	Programs		100 program (Max.) 9,999: maximum lines per program 98KB: maximum capacity per program
	Points		10,000 points: maximum numbers of points
	Memory Backup battery		Lithium metallic battery (service life 4 years at 0°C to 40°C)
	Internal flash memory		512KB (ALL data only)

RCX240/RCX240S

Controllable robot	XY-X P.241	YK-X P.369	FLIP-X P.171	PHASER P.217	YP-X P.429

CE marking	○	Field networks	CC-Link DeviceNet EtherNet/IP Ethernet PROFIBUS

Model Overview

Name	RCX240/RCX240S
Controllable robot Note	Cartesian robot XY-X / SCARA robot YK-X / Single-axis robot FLIP-X / Linear motor single-axis robot PHASER / Pick & place robot YP-X
Input power	Single phase : AC200V to 230V +/-10% maximum (50/60Hz)
Operating method	Programming / Remote command / Operation using RS-232C communication
Maximum number of controllable axes	4 axes maximum
Origin search method	Incremental/Absolute

Note. For details, please refer to the controller model selection table on the next page.

Ordering method

RCX240
RCX240S

Controller Note1	Usable for CE	Regenerative unit Note2	Option I/O	Network Option	iVY System Option board	Light/Tracking	Gripper	Battery
RCX240: Standard model RCX240S: Low capacity model	No entry: Standard E: CE marking K: KCs	No entry: None R: RGU-2 R3: RGU-3 Note3	N, P: Standard I/O 16/8 N1, P1: 40/24 points N2, P2: 64/40 points N3, P3: 88/56 points N4, P4: 112/72 points	No entry: None CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet EP: EtherNet/IP™ YC: YC-Link Note5	No entry: None VY: iVY (VISION)	No entry: None TR: Light+Tracking LC: Light	No entry: None GR: Gripper	No entry: None Note6 B: 2pcs Note7 BB: 4pcs Note8

Note 1. The RCX240S controller is limited to use with robots that handles 200W or lower on each axis. Check the following controller selection table to find the matching model.
Note 2. The regenerative unit (option) is required when operating a model designated by YAMAHA or a load with a large inertia. Please refer to the following regenerative unit selection table.
Note 3. YK500XG to YK1000XG are for RGU-3.
Note 4. Use N to N4 when NPN is selected on the I/O board, and P to P4 when PNP is selected.
Note 5. Available only for the master. (The YC-Link system controls an SR1 series single-axis controller in accordance with communications received from an RCX series multi-axis controller. Using the YC-Link system allows control of up to 8 axes (or up to 6 axes with synchronous control)).
Note 6. Use battery-less model if connecting to all-axis linear motor, or to incremental models.
Note 7. If any or Single-axis among the XY axes are absolute specifications then 2 batteries are required.
Note 8. If any or Single-axis among the ZR axes are absolute specifications then 2 batteries are required.

☆ Please note that:

The current sensor on the RCX240S cannot be set to 20A.
As a controller stocked for maintenance, please order an RCX240 that can be set to any of 05A, 10A and 20A.

Item			Model	RCX240 / RCX240S
External input/output	STD.DIO	I/O input		Dedicated input 10 points, General input 16 points (NPN / PNP specifications selectable)
		I/O output		Dedicated output 11 points, General output 8 points
	SAFETY			Emergency stop input (Relay contact), Service mode input (NPN/PNP specification is set according to STD. DIO setting), Enabling switch input (Enabled only when the RPB-E is used.)
	Brake output			Relay contact
	Origin sensor input			Connectable to DC 24V normally-closed contact sensor
	External communications			RS-232C: 1CH D-SUB9 (female) RS-422: 1CH (Dedicated RPB)
	Regenerative unit connection			RGEN connector
	Options	Slots		4
		Type	Optional input/output (NPN/PNP)	General input 24 points, General output 16 points
			CC-Link	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points (4 nodes occupied)
			DeviceNet™	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points
			PROFIBUS	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points
			Ethernet	IEEE802.3 10Mbps (10BASE-T)
			EtherNet/IP™	Dedicated input 16 points, dedicated output 16 points, General-purpose input 96 points, general-purpose output 96 points Conforms to Ethernet (IEEE 802.3) 10Mbps/100Mbps.
			iVY	Camera input (2ch), camera trigger input, PC connection input
			Tracking	AB phase input, lighting trigger input, lighting power supply input/output
			Lighting control	Lighting trigger input, lighting power supply input/output
			Gripper control	No. of axes: 1 axis, Position detection method: Optical rotary encoder, Min. setting distance: 0.01mm
Options	Programming box			RPB, RPB-E (with enable switch)
	Support software for PC			VIP+
	Regenerative unit			RGU-2, RGU-3
General specifications	Operating temperature			0°C to 40°C
	Storage temperature			-10°C to 65°C
	Operating humidity			35% to 85%RH (non-condensing)
	Absolute backup battery			Lithium metallic battery 3.6V 5400mAH (2700mAH × 2)
	Absolute data backup period			1 year (in state with no power applied)
	Noise immunity			IEC61000-4-4 Level 3
	Protective structure			IP10

RCX240/RCX240S

Controller model selection table

The RCX240S controller is limited to use with robots that handles 200W or lower on each axis and is partly modified such as for optimizing the IPM, but it is fully compatible with RCX240 operation and functions, and peripheral equipment can be used by both models.

	XY-X								
	PXYX	FXYX	FXYBX	SXYX	SXYBX	NXY	MXYX	HXYX	HXYLX
RCX240						●	●	●	●
RCX240S	●	●	●	●	●				

	YK-X																																				
	YK500TW	YK120XG	YK150XG	YK180X/XG	YK220X	YK250XG	YK350XG	YK400XG	YK500XGL	YK500XG	YK600XGL	YK600XG	YK700XG	YK800XG	YK900XG	YK1000XG	YK1200X	YK300XGS	YK400XGS	YK500XGS	YK600XGS	YK700XGS	YK800XGS	YK900XGS	YK1000XGS	YK250XGP	YK350XGP	YK400XGP	YK500XGLP	YK500XGP	YK600XGLP	YK600XGP	YK600XGHP	YK700XGP	YK800XGP	YK900XGP	YK1000XGP
RCX240	●									●		●	●	●	●	●	●			●	●	●	●	●	●					●		●	●	●	●	●	●
RCX240S		●	●	●	●	●	●	●	●		●							●	●							●	●	●	●		●						

	CLEAN											
	YK180XGC	YK220XC	YK250XGC	YK350XGC	YK400XGC	YK500XGLC	YK500XC	YK600XGLC	YK600XC	YK700XC	YK800XC	YK1000XC
RCX240							●		●	●	●	●
RCX240S	●	●	●	●	●	●		●				

Multi-robot: Driver list for each model

For “multi-robots” that are used in combination with one or more single-axis robots, the RCX240S can be used unless the divers for the combined models include a 20A model.

		FLIP-X																				PHASER					
		T4LH	T5LH	T6L	T9	T9H	F8/F8L/F8LH	F10	F14	F14H	GF14XL	F17/F17L	GF17XL	F20/F20N	N15	N18	B10	B14/B14H	R5	R10	R20	MR12	MF7	MF15	MF20	MF30	MF75
Driver	05A	●	●	●	●		●	●	●								●	●	●	●		●					
	10A					●				●	●										●		●	●	●		
	20A											●	●	●	●	●										●	●

Regenerative unit selection table

	XY-X					
	FXYx 3 axes	SXYx 3,4 axes	NXY 3,4 axes	NXY 6 axes	MXYx 3,4 axes	HXYx 3,4 axes
No entry (None)	●	○				
R (RGU-2)		○	●	●	●	●
R3						

	YK-XG																																				
	YK120XG	YK150XG	YK180XG	YK180X	YK220X	YK250XG	YK350XG	YK400XG	YK500XGL	YK500XG	YK600XGL	YK600XG	YK600XGH	YK700XG	YK800XG	YK900XG	YK1000XG	YK1200X	YK300XGS	YK400XGS	YK500XGS	YK600XGS	YK700XGS	YK800XGS	YK900XGS	YK1000XGS	YK250XGP	YK350XGP	YK400XGP	YK500XGLP	YK500XGP	YK600XGLP	YK600XGP	YK600XGHP	YK700XGP	YK800XGP	YK900XGP	YK1000XGP
No entry (None)	●	●	●	●	●	●	●	●	●		●								●	●							●	●	●	●		●						
R (RGU-2)																		●																				
R3										●		●	●	●	●	●	●				●	●	●	●	●	●					●		●	●	●	●	●	●

	Clean											
	SXYxC 3 axes	SXYxC 4 axes	YK180XC	YK220XC	YK250XCH	YK350XCH	YK400XCH	YK500XC	YK600XC	YK700XC	YK800XC	YK1000XC
No entry (None)	●	●	●	●	●	●	●					
R (RGU-2)								●	●	●	●	●
R3												

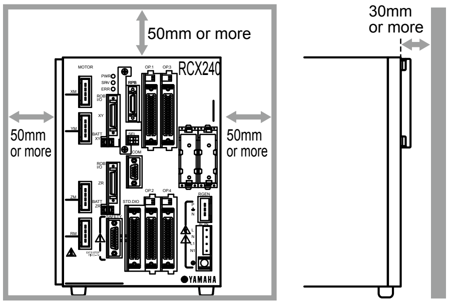
● : Required　○ : If Z axis is 200W specifications then regenerative unit RGU-2 is required.

Conditions where regenerative unit is needed on multi robots

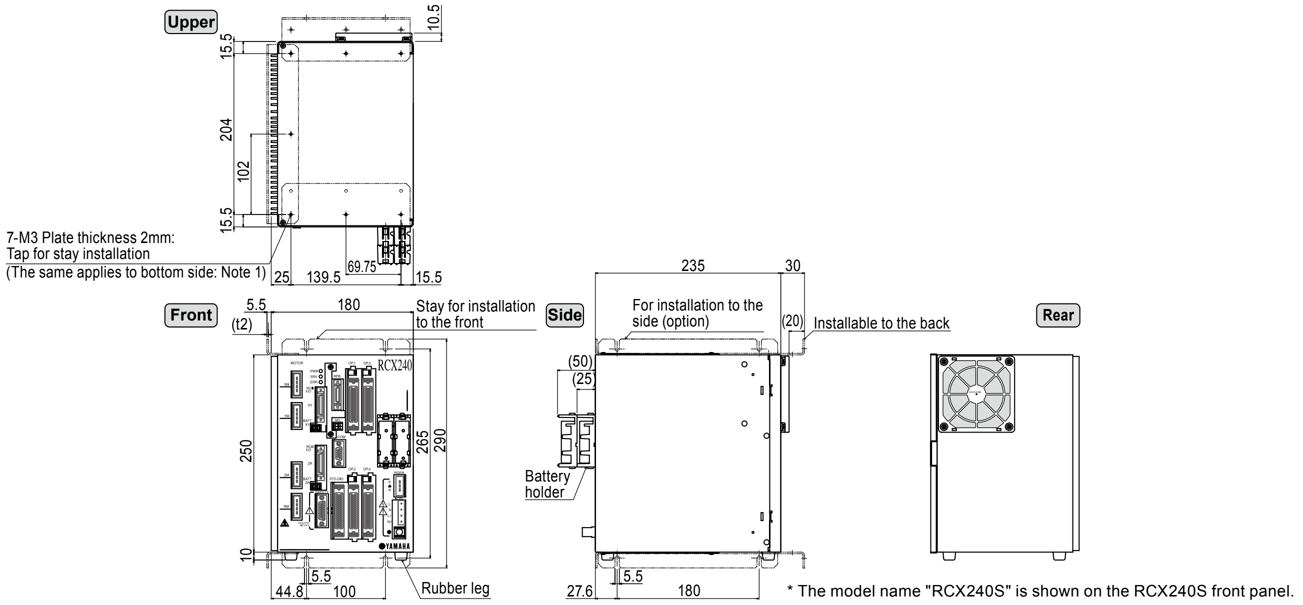
- Motor capacity exceeds a total of 450W.
- Motor capacity for perpendicular axis exceeds a total of 240W.
- B14H which maximum speed exceeds 1250mm per second.
- The following conditions apply when perpendicular axis capacity is 240W or less.
  - perpendicular axis is 200W.
  - perpendicular axis is 100W and stroke is 700mm or more.
  - there are 2 perpendicular axes at 100W, and includes leads of 5mm.

Installation conditions

- Install the RCX240/RCX240S inside the control panel.
- Install the RCX240/RCX240S on a flat, level surface.
- Install the RCX240/RCX240S in a well ventilated location, with space on all sides of the RCX240/RCX240S (See fig. at right.).
- Do not block the heat-sink on the side panel.
- Do not block the fan on the bottom of the controller.
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



Dimensions



* The model name "RCX240S" is shown on the RCX240S front panel.

Power supply capacity and heat emission

The required power supply capacity and heat emission will vary depending on the robot type and number of axes.
Using the following table as a general guide consider the required power supply preparation and control panel size, controller installation, and cooling method.

(1) When connected to SCARA robot

Robot type					Power capacity (VA)	Generated heat amount (W)
Standard type	Clean type	Dust-proof & drip-proof type	Wall-mount / Ceiling-mount / inverse type	Orbit type		
YK180X, 220X	–	–	–	–	500	63
YK250XG, 350XG, 400XG, 500XGL, 600XGL	YK250XGC, 350XGC, 400XGC, 500XGLC, 600XGLC	YK250XGP, 350XGP, 400XGP, 500XGLP, 600XGLP	YK300XGS, 400XGS	–	1000	75
–	YK500XC, 600XC	–	–	–	1500	88
YK550X, 500XG, 600XG	–	YK500XGP, 600XGP	YK500XGS, 600XGS	–	1700	93
–	YK700XC, 800XC, 1000XC	–	–	–	2000	100
YK600XGH, 700XG, 800XG, 900XG, 1000XG, 1200X	–	YK600XGHP, 700XGP, 800XGP, 900XGP, 1000XGP	YK700XGS, 800XGS, 900XGS, 1000XGS	YK350TW, YK500TW	2500	113

(2) When connected to 2 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note		Power capacity (VA)	Generated heat amount (W)
X axis	Y axis		
05	05	600	65
10	05	800	70
10	10	1000	75
20	05	1100	78
20	10	1300	83
20	20	1700	93

(3) When connected to 3 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note			Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis		
05	05	05	700	68
10	05	05	900	73
10	10	05	1000	75
10	10	10	1200	80
20	05	05	1200	80
20	10	05	1300	83
20	10	10	1500	88
20	20	05	1600	90
20	20	10	1800	95
20	20	20	2000	95

(4) When connected to 4 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note				Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis	R axis		
05	05	05	05	800	70
10	05	05	05	1000	75
10	10	05	05	1100	78
10	10	10	05	1300	83
10	10	10	10	1400	85
20	05	05	05	1200	80
20	10	05	05	1400	85
20	10	10	05	1500	88
20	10	10	10	1700	93
20	20	05	05	1600	90
20	20	10	05	1800	95
20	20	10	10	2000	100
20	20	20	05	2100	103
20	20	20	10	2200	105
20	20	20	20	2500	113

Note. Even if axial current sensor values for each axis are interchanged no problem will occur.

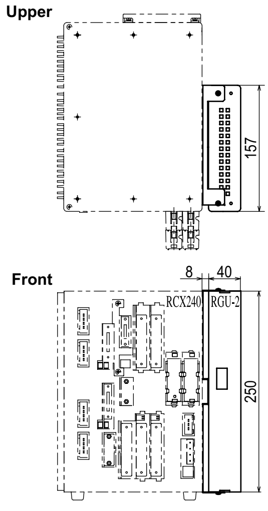
Note. Motor capacity vs. current sensor table

Connected motor capacity	Current sensor
100W or less	05
200W	10
400W or more	20

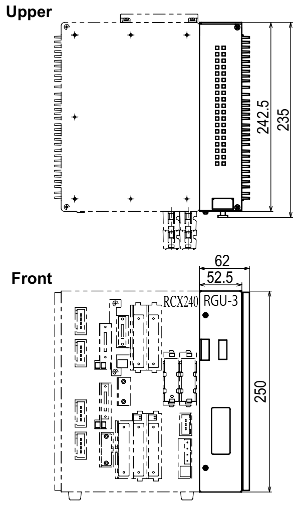
Note. Motor output of the B14H is 200W but the current sensor is 05.

RCX240/RCX240S

Regenerative unit



RGU-2



RGU-3

RGU-2 basic specifications

Item	RGU-2
Model	KX0-M4107-20 (including cable supplied with unit)
Dimensions	W40 × H250 × D157mm
Weight	0.9kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller. Also, always use the dedicated cable when connecting the controller.

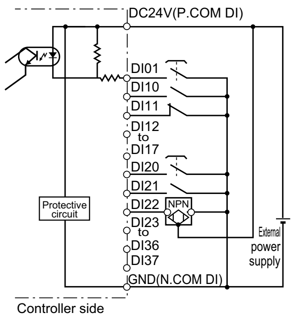
RGU-3 basic specifications

Item	RGU-3
Model	KX0-M4107-30 (including cable supplied with unit)
Dimensions	W62 × H250 × D242.5mm
Weight	3.7kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

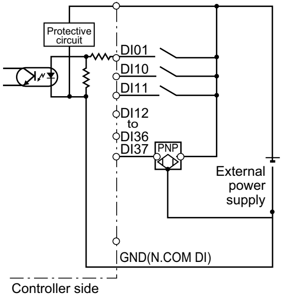
Note. Cannot be installed as a separate unit.

Example of input signal connection

NPN specification

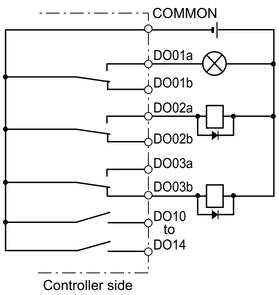


PNP specification

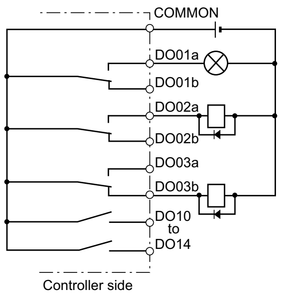


Example of output signal connection

NPN specification

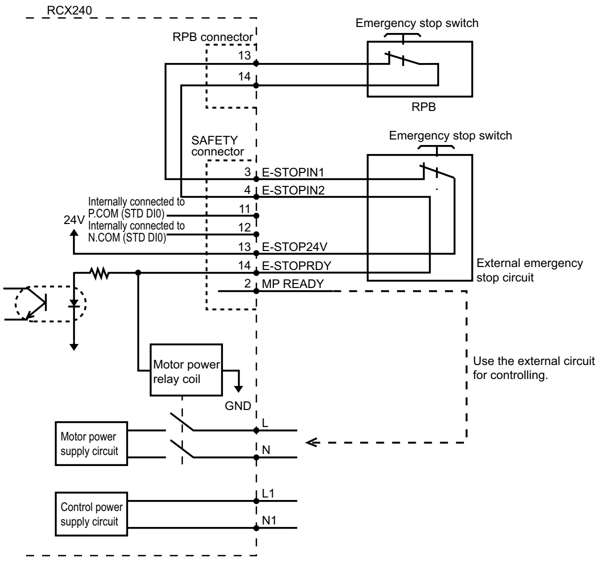


PNP specification

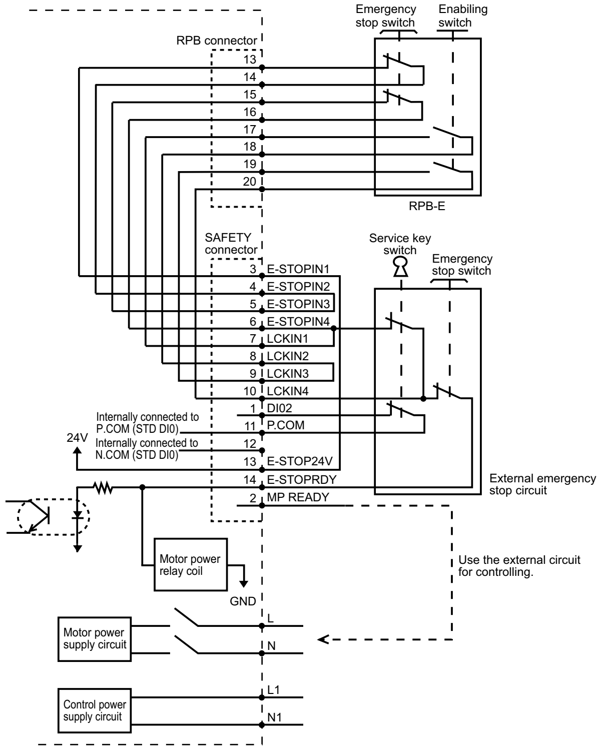


Emergency input signal connections

Connection when using the standard RPB with an external emergency stop circuit.


RCX240
RPB connector
13
14
Emergency stop switch
RPB
SAFETY connector
Emergency stop switch
3 E-STOPIN1
4 E-STOPIN2
11
12
13 E-STOP24V
14 E-STOPRDY
2 MP READY
24V
Internally connected to P.COM (STD DI0)
Internally connected to N.COM (STD DI0)
External emergency stop circuit
Use the external circuit for controlling.
Motor power relay coil
GND
Motor power supply circuit
L
N
Control power supply circuit
L1
N1

Connections using the RPB-E enabling switch compatible programming unit with external emergency stop circuit (PNP specification)



Installing an external safety circuit will satisfy safety category class 4 standards. See P.617 for more information.

Connector input / output signals

PIN	I/O No.	Name	Note
1	DI05	I/O command execution trigger input	Common terminal : P.COMDI N.COMDI ⟨Photo-coupler input⟩ NPN specification : Source type PNP specification : Sink type
2	DI01	Servo ON input	
3	DI10	Sequence control	
4	DI11	Interlock	
5	DI12	Program start	
6	DI13	AUTO mode input	
7	DI14	Return-to-origin	
8	DI15	Program reset	
9	DI16	MANUAL mode input	
10	DI17	Absolute reset / Return-to-origin	
11	DI20	General input 20	
12	DI21	General input 21	
13	DI22	General input 22	
14	DI23	General input 23	
15	DI24	General input 24	
16	DI25	General input 25	
17	DI26	General input 26	
18	DI27	General input 27	
19	DI30	General input 30	
20	DI31	General input 31	
21	DI32	General input 32	
22	DI33	General input 33	
23	DI34	General input 34	
24	DI35	General input 35	
25	DI36	General input 36	
26	DI37	General input 37	

PIN	I/O No.	Name	Note
27	COMMON	Relay common	⟨Relay output⟩ Maximum capacity of each terminal (resistance load) : DC 24V 0.5A Common terminal : COMMON
28	DO01b	CPU_OK (B contact)	
29	DO01a	CPU_OK (A contact)	
30	DO02b	Servo ON output (B contact)	
31	DO02a	Servo ON output (A contact)	
32	DO03b	Alarm (B contact)	
33	DO03a	Alarm (A contact)	
34	DO10	AUTO mode output	
35	DO11	Return-to-origin complete	
36	DO12	Sequence program in-progress	
37	DO13	Robot program in-progress	
38	DO14	Program reset	
39	DO20	General output 20	⟨Transistor output⟩ NPN specification or PNP specification Maximum capacity of each terminal (resistance load) : 0.1A +Common terminal : DC+24V - Common terminal : GND
40	DO21	General output 21	
41	DO22	General output 22	
42	DO23	General output 23	
43	DO24	General output 24	
44	DO25	General output 25	
45	DO26	General output 26	
46	DO27	General output 27	
47	DC24V	DC+24V (P.COMDI)	External power supply input
48			
49	GND	GND (N.COMDI)	
50			

Note. When using the CC-Link, DeviceNet^{TM}, EtherNet/IP^{TM}, or PROFIBUS, the dedicated inputs other than the interlock signal (DI11) of the STD.DIO that are provided on the RCX240 controller are disabled.
Additionally, when the external 24V monitor control of the system parameters is set disabled, the interlock signal (D11) becomes disabled.

SAFETY connector signals

Terminal number	RPB connected		RPB-E connected	
	I/O No.	Name	I/O No.	Name
1	DI02	SERVICE mode	DI02	SERVICE mode
2	MP READY	Motor power ready signal	MP READY	Motor power ready signal
3	E-STOPIN 1	Emergency stop input 1	E-STOPIN 1	Emergency stop input 1
4	E-STOPIN 2	Emergency stop input 2	E-STOPIN 2	Emergency stop input 2
5	NC	NC	E-STOPIN 3	Emergency stop input 3
6	NC	NC	E-STOPIN 4	Emergency stop input 4
7	NC	NC	LCKIN 1	Enabling switch input 1
8	NC	NC	LCKIN 2	Enabling switch input 2
9	NC	NC	LCKIN 3	Enabling switch input 3
10	NC	NC	LCKIN 4	Enabling switch input 4
11	P.COM	DC+24V (P.COM DI)	P.COM	DC+24V (P.COM DI)
12	N.COM	GND (N.COM DI)	N.COM	GND (N.COM DI)
13	E-STOP 24V	Emergency stop input supply	E-STOP 24V	Emergency stop input supply
14	E-STOPRDY	Emergency stop READY signal	E-STOPRDY	Emergency stop READY signal
15	NC	NC	NC	NC

Standard functions of the controller

Function	Description
Operation mode	Automatic mode (main task: execution of program, execution of step), Program mode (main task: creation of program), Manual mode (main task: jog movement, point teaching), System mode (main task: parameter editing, data initialization), Utility mode (main task: operation of motor power source)
Command	Array declarator command (DIM statement), Assignment command (numeric value assignment statement, character string assignment statement, point definition statement), Movement related command (MOVE statement, DRIVE statement, PMOVE statement), Condition branching command (IF statement, FOR statement, WHILE statement), External output command (DO statement, MO statement, LO statement, TO statement, SO statement), Parameter command (ACCEL statement, OUTPOS statement, TOLE statement), Task related command (START statement, SUSPEND statement, CUT statement), Condition wait command (WAIT statement), etc.
Function	Arithmetic function (SIN function, COS function, TAN function), Character string function (STR$ function, LEFT$ function, MID$ function, RIGHT$ function), Point function (WHERE function, JTOXY function, XYTOJ function), Parameter function (ACCEL statement, OUTPOS statement, TOLE statement), etc.
Variable	Simple variable (integer type variable, real number type variable, character string type variable), Array variable (integer type variable, real number type variable, character string type variable), Point variable, Shift variable, Element variable (point element variable, shift element variable), Input/output variable, etc.
Operator	Arithmetic operator (+, -, ∗, /, MOD), Logical operator (AND, OR, XOR), Comparison operator (=, <, >, <>, <=, >=)
Monitor	Monitor of input/output (200ms interval)
On-line command	Key operation command (AUTO, RUN, RESET, STEP), Data handling command (READ, WRITE, ?VER, ?CONFIG), Utility command (COPY, ERA, INIT), Robot language command (independently executable command)
Data file	Program, Point, Parameter, Shift, Hand, All, Error history, etc.
Internal timer	10ms interval
Program break point	4 points at maximum

RCX240/RCX240S

Robot Language Table

General commands

Language	Function
DECLARE	Declares that a label or sub-procedure is in an external program.
DEF FN	Defines a function that is available to the user.
DIM	Declares the name of an array variable and the number of elements.
EXIT FOR	Terminates a FOR statement to NEXT statement loop.
FOR to NEXT	Controls repetitive operations
GOSUB to RETURN	Jumps to a subroutine with the label specified by a GOSUB statement and executes the subroutine.
GOTO	Unconditionally jumps to the line specified by a label.
HALT	Stops a program and resets it.
HOLD	Pauses a program.
IF	Allows control flow to branch according to conditions.
LET	Executes a specified assignment statement.
ON to GOSU	Jumps to a subroutine with each label specified by a GOSUB statement according to conditions and executes the subroutine.
ON to GOTO	Jumps to each line specified by a label according to conditions.
REM	All characters that follow REM or an apostrophe (’) are viewed as comments.
SELECT CASE to END SELECT	Allows control flow to branch according to conditions.
SWI	Switches the currently executed program to a specified program, and executes from the first line after compiling.
WHILE to WEND	Controls repetitive operations.
Label statement	Defines “labels” in program lines.

Robot operation

Language	Function
ABSRST	Performs return-to-origin along robot absolute motor axes.
DRIVE	Performs an absolute movement of each axis in the main group.
DRIVEI	Performs a relative movement of each axis in the main group.
MOVE	Performs an absolute movement of the main robot axes.
MOVEI	Performs a relative movement of the main robot axes.
ORIGIN	Performs return-to-origin on an incremental mode axis or absolute search on a semi-absolute mode axis.
PMOVE	Performs a pallet movement of the main robot axes.
SERVO	Controls the servo ON/OFF of the specified axes in the main group or all axes (in main group and sub group).

I/O control

Language	Function
DELAY	Waits for the specified length of time (ms).
DO	Outputs the specified value to the DO ports.
LO	Outputs the specified value to the LO port to prohibit axis movement or permit axis movement.
MO	Outputs the specified value to the MO ports.
OUT	Turns ON the bits of the specified output ports and the command statement ends.
RESET	Turns OFF the bits of the specified output ports.
SET	Turns ON the bits of the specified output ports
SO	Outputs the specified value to the SO port.
TO	Outputs the specified value to the TO port.
WAIT	1. Waits until the condition in DI/DO conditional expression are met. 2. Waits until positioning on the robot axes is complete (within the tolerance range).

Coordinate control

Language	Function
CHANGE	Switches the hand of the main robot.
HAND	Defines the hand of the main robot.
RIGHTY / LEFTY	Selects whether the main robot will be “right-handed” or “left-handed” when moving to a point specified on a Cartesian coordinate system.
SHIFT	Sets the shift coordinates for the main robot by using the shift data specified by a shift variable.

Condition change

Language	Function
ACCEL	Changes the acceleration coefficient parameter of the main group.
ARCH	Changes the arch position parameter of the main group.
ASPEED	Changes the automatic movement speed of the main group.
AXWGHT	Changes the axis tip weight parameter of the main group.
DECEL	Changes the deceleration rate parameter of the main group.
ORGORD	Sets the axis sequence parameter to perform return-to-origin and absolute search in the main group.
OUTPOS	Changes the OUT position parameter of the main group.
PDEF	Defines the pallet used to execute a pallet movement command.
SPEED	Changes the program speed for the main group.
TOLE	Changes the tolerance parameter of the main group.
WEIGHT	Changes the tip weight parameter of the main robot.

Communication control

Language	Function
ONLINE / OFFLINE	Changes communication mode and initialize the communication port.
SEND	Sends the read file data into a write file.

Screen control

Language	Function
PRINT	Displays the value of specified variable on the MPB/RPB screen.

Key control

Language	Function
INPUT	Assigns a value to the variable specified from the MPB/RPB.

Procedure

Language	Function
CALL	Calls up sub-procedures defined by the SUB and END SUB statements.
EXIT SUB	Terminates the sub-procedure defined by the SUB and END SUB statements.
SHARED	Does not permit variables declared with a program written outside a subprocedure (SUB to END SUB) to be passed on as dummy arguments, but allows them to be referred to with a sub-procedure.
SUB to END SUB	Defines a sub-procedure.

Task control

Language	Function
CHGPRI	Changes the priority of the specified task.
CUT	Terminates a task currently being executed or temporarily stopped.
EXIT TASK	Terminates its own task currently being executed.
RESTART	Restarts a task that is temporarily stopped.
START	Sets the task number and priority of the specified task and starts that task.
SUSPEND	Temporarily stops another task being executed.

Error control

Language	Function
ON ERROR GOTO	If an error occurs during program execution, this command allows the program to jump to the error processing routine specified by the label without stopping the program, or stops the program and displays the error message.
RESUME	Resumes the program execution after recovery from an error. This command is used in the error processing routine.
ERL	Gives the line number where an error occurred.
ERR	Gives the error code number when an error occurred.

PATH control

Language	Function
PATH	Sets the PATH motion on the main robot axis.
PATH END	Terminates the path setting for PATH motion.
PATH SET	Starts the path setting for PATH motion.
PATH START	Starts the PATH motion.

Torque control

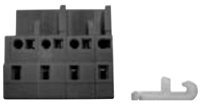
Language	Function
DRIVE (with torque limit option)	Executes an absolute movement command on each axis in the main group.
TORQUE	Changes the maximum torque instruction for the specified main group axis.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.

Accessories and part options

RCX240/RCX240S

Standard accessories

Power connector + wiring connection lever



Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

Safety connector

Model	KX0-M5163-00

RCX240/S

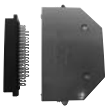
RPB terminator (dummy connector)

Attach this to the RPB connector during operation with the programming box RPB removed.

Model	KAS-M5163-30

RCX221
RCX222
RCX240/S

Standard I/O (STD.DIO) connector



Model	KX0-M533G-00

RCX240/S

L type stay (for installing front side, rear side.)

Use to install the controller.

Model	KX0-M410H-00

Note. Model No. is for a single bracket (L type stay).
(Two are required to install one controller.)

RCX240/S

Absolute battery

Battery for absolute data back-up.

Basic specifications

Item	Absolute battery
Battery type	Lithium metallic battery
Battery capacity	3.6V/2,750mAh
Data holding time	About 1 year Note1 (in state with no power applied)
Dimensions	ϕ17 × L53mm
Weight Note2	22g

Model	KAS-M53G0-11

Note 1. When using two batteries for each two axes.
Note 2. Weight of battery itself.
Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery.
The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

SR1-X
RCX222
RCX240/S

Important **Absolute battery installation conditions**

1 to 2 batteries are required for each 2 axes.
- 1 battery......Data storage time of approximately 6 months (with no power applied)
- 2 batteries…Data storage time of approximately 1 year (with no power applied)

Note. Absolute battery is not required for either of the 2 axes if using incremental or semi-absolute specifications.

Battery case

This is the absolute battery holder.

Model	KBG-M5395-00

SR1-X
RCX222
RCX240/S

See next page for optional parts

RCX240/RCX240S

Options

L type stay (for side surface installation)

Use to install the controller.

Model	KX0-M410H-10

Note. Model No. is for a single bracket (L type stay).

RCX240/S

Programming box RPB/RPB-E

P.564

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.

	RPB	RPB-E
Model	KBK-M5110-10	KBK-M5110-00
Enable switch	–	3-position
CE marking	Not supported	Applicable

RCX221
RCX222
RCX240/S

Support software for PC VIP+

P.558

VIP+ is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

VIP+ software model	KX0-M4966-00

RCX221
RCX222
RCX240/S

Environment

OS	Microsoft Windows 2000 / XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	40MB of available space required on installation drive.
Communication method	RS-232C, Ethernet Note. For Ethernet communication, Ethernet unit for RCX series controller is required.
Applicable robot controllers	RCX221 / RCX222 / RCX141 / RCX142 / RCX240 / RCX240S

Note. Microsoft and Windows are registered trademarks of Microsoft Corporation.
Note. ADOBE and ADOBE READER are registered trademarks of Adobe Systems Incorporated.
Note. Ethernet is a registered trademark of Xerox Corporation.

Data cables

Communication cable for VIP+.
Select from USB cable or D-sub cable.

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140
ERCD
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

YC-Link board

Model	KX0-M4400-A1

RCX240/S

MEMO

RCX340

● Robot controller with advanced functions

Next generation controller, all functions of which were reviewed to further improve the functions of conventional controllers.
This controller provides the features to achieve the high functionalities that can construct the equipment at high level.

RCX340

Main functions ▶ P.69

Programming box
▶ PBX/PBX-E
P.565

Support software for PC
▶ RCX-Studio Pro
P.561

Basic specifications

Item			RCX340
Basic specifications	Applicable robots		YAMAHA single-axis robots, linear single-axis robots, Cartesian robots, SCARA robots (except for YK120X and YK150X), P&P robots
	Connected motor capacity		1600W or less (in total for 4 axes)
	Power capacity		2500VA
	Dimensions		W355 × H195 × D130mm (main unit only)
	Weight		6.2kg (main unit only)
	Power supply voltage		Single-phase 200 to 230V AC +/-10% maximum, 50/60Hz
Axis control	No. of controllable axes		Max. 4 axes (simultaneous control: 6 axes) Expandable to a maximum of 16 axes (four robots) via controller link
	Drive method		AC full digital servo
	Position detection method		Resolver or magnetic linear scale
	Control method		PTP motion (point to point), ARCH motion, linear interpolation, circular interpolation
	Coordinate systems		Joint coordinates, Cartesian coordinates
	Position display units		Pulses, mm (1/1000 steps), degree (1/1000 steps)
	Speed setting		0.01 to 100% (below 1% can be changed by programming)
	Acceleration/deceleration setting		Optimized by robot model and tip weight parameter Setting by acceleration coefficient and deceleration rate parameters (1% steps) * Can be changed by programming. Zone control (For SCARA robots only, optimized according to arm posture)
Programming	Program language		YAMAHA BASIC II conforming to JIS B8439 (SLIM language)
	Multi-task		Max. 16 tasks
	Sequence program		1 program
	Memory capacity		2.1MB (Total of program and point data) (Available capacity for program when the maximum number of points is used: 300KB)
	Program		100 programs (maximum number of programs) 9999 lines (maximum number of lines per program)
	Point		30000 points (maximum number of points)
	Point teaching method		MDI (coordinate data input), direct teaching, teaching playback, offline teaching (data input from external unit)
	System backup (Internal memory backup)		Lithium battery (service life about 4 years at 0 to 40°C)
	Internal flash memory		512 KB
External I/O	SAFETY	Input	Emergency stop ready input, 2 systems Auto mode input, 2 systems (Enabled only when the global specifications are used.)
		Output	Emergency stop contact output, 2 systems Enable contact output, 2 systems (Enabled only when the PBX-E is used.) Motor power ready output, 2 systems
	Brake output		Transistor output (PNP open collector)
	Origin sensor input		Connectable to 24V DC B-contact (normally closed) sensor
	External communications		RS-232C: 1CH (D-SUB 9-pin (female)) Ethernet: 1CH (In conformity with IEEE802.3u/IEEE802.3) 100Mbps/10Mbps (100BASE-TX/10BASE-T) Applicable to Auto Negotiation RS-422: 1CH (Dedicated to PBX)

Controllable robot	XY-X P.241	YK-X P.369	FLIP-X P.171	PHASER P.217	YP-X P.429

CE marking	○	Field networks	CC-Link DeviceNet™ EtherNet/IP™ Ethernet PROFIBUS PROFINET

Ordering method

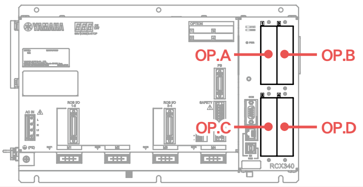
RCX340 - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Controller	No. of controllable axes	Safety standards	Controller option A (OP.A)	Controller option B (OP.B)	Controller option C (OP.C)	Controller option D (OP.D)	Controller option E (OP.E)	Absolute battery
	4: 4 axes	N: Normal	No entry: Non-selection	No entry: Non-selection	No entry: Non-selection	No entry: Non-selection	No entry: Non-selection	4: 4 pcs.
	3: 3 axes	E: CE	NS : STD.DIO(NPN) Note 1 Note 4	--- Note 3	--- Note 3	--- Note 3	VY: iVY2 without light	3: 3 pcs.
	2: 2 axes		NE : EXP.DIO(NPN) Note 2 Note 4	NE : EXP.DIO(NPN) Note 2 Note 4	NE : EXP.DIO(NPN) Note 2 Note 4	NE : EXP.DIO(NPN) Note 2 Note 4	VL: iVY2 with light	2: 2 pcs.
			PS : STD.DIO(PNP) Note 1 Note 4	--- Note 3	--- Note 3	--- Note 3		1: 1 pc.
			PE : EXP.DIO(PNP) Note 2 Note 4	PE : EXP.DIO(PNP) Note 2 Note 4	PE : EXP.DIO(PNP) Note 2 Note 4	PE : EXP.DIO(PNP) Note 2 Note 4		0: 0 pc.
			GR: Gripper	GR: Gripper	GR: Gripper	GR: Gripper		
			TR : Tracking Note 5	TR : Tracking Note 5	TR : Tracking Note 5	TR : Tracking Note 5		
			YM1 : YC-Link/E master Note 6	YM1 : YC-Link/E master Note 6	YM1 : YC-Link/E master Note 6	YM1 : YC-Link/E master Note 6		
			YS2 to 4: YC-Link/E slave Note 6	YS2 to 4: YC-Link/E slave Note 6	YS2 to 4: YC-Link/E slave Note 6	YS2 to 4: YC-Link/E slave Note 6		
			EP : EtherNet/IP™ Note 7	EP : EtherNet/IP™ Note 7	EP : EtherNet/IP™ Note 7	EP : EtherNet/IP™ Note 7		
			PB : PROFIBUS Note 7	PB : PROFIBUS Note 7	PB : PROFIBUS Note 7	PB : PROFIBUS Note 7		
			CC : CC-Link Note 7	CC : CC-Link Note 7	CC : CC-Link Note 7	CC : CC-Link Note 7		
			DN : DeviceNet™ Note 7	DN : DeviceNet™ Note 7	DN : DeviceNet™ Note 7	DN : DeviceNet™ Note 7		
			PT: PROFINET Note 7	PT: PROFINET Note 7	PT: PROFINET Note 7	PT: PROFINET Note 7		

Please select desired selection items from the upper portion of the controller option A in order.

Note 1. [STD.DIO] Parallel I/O board standard specifications
Dedicated input 8 points, dedicated output 9 points, general-purpose input 16 points, general-purpose output 8 points
Do not mix with field bus (CC/DN/PB/EP/PT).
Note 2. [EXP.DIO] Parallel I/O board expansion specifications
General-purpose input 24 points, general-purpose output 16 points
Note 3. Only one DIO STD specification board can be selected. Therefore, this board cannot be selected in OP.B to OP.D.
Note 4. Be careful not to mix NPN and PNP of DIO.
Note 5. Only one tracking board can be selected.
Note 6. Select only one master or slave board for YC-Link/E.
For details, refer to “YC-Link/E ordering explanation” below.
Additionally, when ordering YC-Link/E, please specify what robot is connected to what number controller.
Note 7. Be careful not to mix field networks (CC/DN/PB/EP/PT).

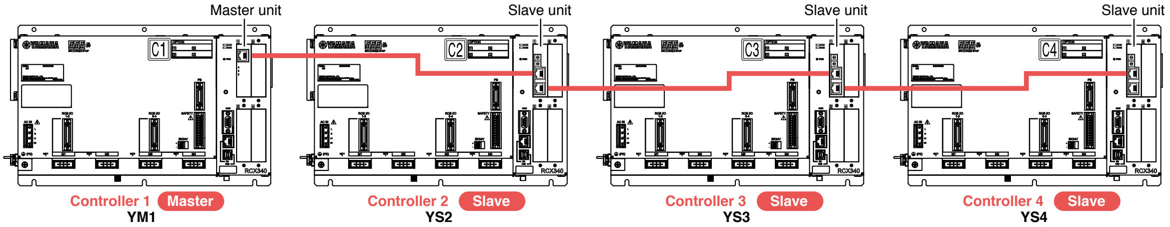
Controller option board position



Item				RCX340
General specifications	Operating temperature			0 to 40°C
	Storage temperature			-10 to 65°C
	Operating humidity			35 to 85% RH (no condensation)
	Noise immunity			Conforms to IEC61000-4-4 Level 3
	Protective structure			IP20
	Appliance classes			Class I
Options	Option board Note	Parallel I/O board	Standard specifications	Dedicated input 8 points, dedicated output 9 points General-purpose input 16 points, general-purpose output 8 points NPN/PNP specifications are selected. (maximum 1 board)
			Expansion specifications	General-purpose input 24 points, general-purpose output 16 points NPN/PNP specifications are selected. (maximum 4 boards)
		CC-Link board Ver1.1/2.0		Remote I/O Dedicated input/output: 16 points each General-purpose input/output: 96 points each Remote register Input/output: 16 words each
		DeviceNet™ board		
		EtherNet/IP™ board		
		PROFIBUS board		
		PROFINET board		
		YC-Link/E board (master/slave)		Communication cycle: 1 ms, control cycle: minimum 1 ms / maximum 8 ms, maximum number of robot units: four units Maximum number of control axes: total 16 axes (including four master controller axes), maximum 12 axes for slaves only
		YRG (gripper) board		Position detection method: optical rotary encoder, minimum setting distance: 0.01 mm Speed setting: 20 to 100% relative to the maximum parameter speed, number of connected gripper units: maximum four units Drive power: DC 24V +/-10%, 1.0A Max
		Tracking board		Number of connected encoders: maximum two units, supported encoders: 26LS31/26C31 equivalent line driver (RS422 compliant) Encoder power supply: DC5V (2 counter (ch) total 500 mA or less) (supplied from controller)
	iVY2 unit			Camera pixels: maximum 2 million pixels, number of registered models: 254 models, number of connected cameras: maximum two units Power supply: DC24V +/-10% 1.5A Max
	Programming box			PBX, PBX-E
	Absolute battery			3.6V 2750mAH / axis Backup retention time: About 1 year
	Support software for personal computer			RCX-Studio Pro

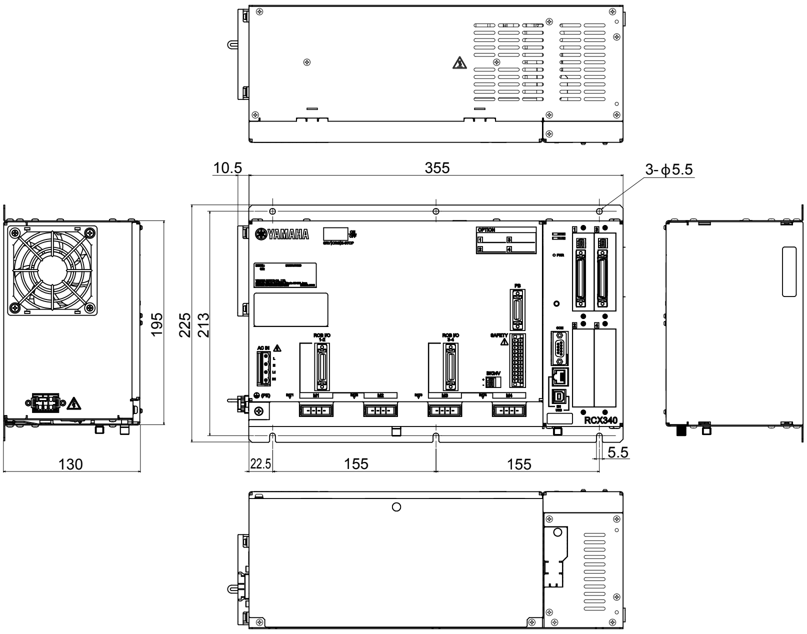
Note. There are four slots in which option boards can be installed.

YC-Link/E ordering explanation



RCX340

Dimensions



Power supply capacity and heat emission

The required power supply capacity and heat emission will vary depending on the robot type and number of axes.
Using the following table as a general guide consider the required power supply preparation and control panel size, controller installation, and cooling method.

(1) When connected to SCARA robot

Robot type					Power capacity (VA)	Generated heat amount (W)
Standard type	Clean type	Dust-proof & drip-proof type	Ceiling-mount	Wall-mount / Inverse type		
YK120XG, YK150XG	–	–	–	–	300	58
YK180XG, YK180X YK220X	YK180XC, YK220XC	–	–	–	500	63
YK250XG, YK350XG YK400XG, YK500XGL YK600XGL, YK400XR	YK250XCH, YK350XCH YK400XCH, YK250XGC YK350XGC, YK400XGC YK500XGLC, YK600XGLC	YK250XGP, YK350XGP YK400XGP, YK500XGLP YK600XGLP	–	YK300XGS, YK400XGS	1000	75
–	YK500XC, YK600XC	–	–	–	1500	88
YK500XG, YK600XG YK700XGL	–	YK500XGP, YK600XGP		YK500XGS, YK600XGS	1700	93
–	YK700XC, YK800XC YK1000XC	–	–	–	2000	100
YK600XGH, YK700XG YK800XG, YK900XG YK1000XG, YK1200X	–	YK600XGHP, YK700XGP YK800XGP, YK900XGP YK1000XGP	YK350TW YK500TW	YK700XGS, YK800XGS YK900XGS, YK1000XGS	2500	113

(2) When connected to 2 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note		Power capacity (VA)	Generated heat amount (W)
X axis	Y axis		
05	05	600	65
10	05	800	70
20	05	1100	78
10	10	1000	75
20	10	1300	83
20	20	1700	93

(3) When connected to 3 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note			Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis		
05	05	05	700	68
10	05	05	900	73
20	05	05	1200	80
10	10	05	1000	75
20	10	05	1300	83
20	20	05	1600	90
10	10	10	1200	80
20	10	10	1500	88
20	20	10	1800	95
20	20	20	2000	100

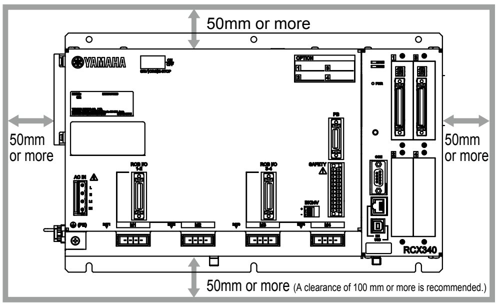
(4) When connected to 4 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note				Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis	R axis		
05	05	05	05	800	70
10	05	05	05	1000	75
20	05	05	05	1200	80
10	10	05	05	1100	78
20	10	05	05	1400	85
20	20	05	05	1600	90
10	10	10	05	1300	83
20	10	10	05	1500	88
20	20	10	05	1800	95
20	20	20	05	2100	103
10	10	10	10	1400	85
20	10	10	10	1700	93
20	20	10	10	2000	100
20	20	20	10	2200	105
20	20	20	20	2500	113

Note. Even if axial current sensor values for each axis are interchanged no problem will occur.

Installation conditions

- Use the screws to secure the controller to the installation plate inside the control panel so that it is in a horizontal position. Be sure to use the metallic installation plate.
- Install the RCX340 in a well ventilated location, with space on all sides of the RCX340 (See fig. at right.).
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)


50mm or more
50mm
or more
50mm
or more
YAMAHA
RCX340
50mm or more (A clearance of 100 mm or more is recommended.)

Standard specification I/O connector signal list

Pin	I/O No.	Signal name	Remarks
1	DI 01	Dedicated input: Servo ON input	
2	DI 10	Dedicated input: Sequence control	
3	DI 03	Spare	Do not use.
4	CHK 1	Check signal 1	Short-circuit with CHK2.
5	DI 05	Spare	Do not use.
6	DI 06	Dedicated input: Stop	
7	DI 07	Spare	Do not use.
8	DI 20	General-purpose input 20	
9	DI 21	General-purpose input 21	
10	DI 22	General-purpose input 22	
11	DI 23	General-purpose input 23	
12	DI 24	General-purpose input 24	
13	DI 25	General-purpose input 25	
14	DI 26	General-purpose input 26	
15	DI 27	General-purpose input 27	
16	DO 00	Spare	Do not use.
17	DO 01	Dedicated output CPU OK	
18	DO 10	Dedicated output AUTO mode output	
19	DO 11	Dedicated output Return-to-origin complete	
20	DO 12	Dedicated output Sequence program-in-progress	
21	DO 13	Dedicated output Robot program-in-progress	
22	DO 14	Dedicated output Program reset status output	
23	DO 15	Dedicated output Warning output	
24	DO 16	Spare	Do not use.
25	DO 17	Spare	Do not use.
26	DI 12	Dedicated input: Automatic operation start	
27	DI 13	Spare	Do not use.
28	DI 14	Dedicated input: Return-to-origin (for INC axis)	
29	DI 15	Dedicated input: Program reset input	
30	DI 16	Dedicated input: Alarm reset input	
31	DI 17	Dedicated input: Return-to-origin (for ABS axis)	
32	DI 30	General-purpose input 30	
33	DI 31	General-purpose input 31	
34	DI 32	General-purpose input 32	
35	DI 33	General-purpose input 33	
36	DI 34	General-purpose input 34	
37	DI 35	General-purpose input 35	
38	DI 36	General-purpose input 36	
39	DI 37	General-purpose input 37	
40	CHK 2	Check signal 2	Short-circuit with CHK1.
41	DO 02	Dedicated output: Servo ON output	
42	DO 03	Dedicated output: Alarm output	
43	DO 20	General-purpose output 20	
44	DO 21	General-purpose output 21	
45	DO 22	General-purpose output 22	
46	DO 23	General-purpose output 23	
47	DO 24	General-purpose output 24	
48	DO 25	General-purpose output 25	
49	DO 26	General-purpose output 26	
50	DO 27	General-purpose output 27	

Expanded specification I/O connector signal list

Pin	I/O No. (ID=1)	I/O No. (ID=2)	I/O No. (ID=3)	I/O No. (ID=4)	Signal name
1	---	---	---	---	Reserved
2	DI 10	DI 40	DI 70	DI 120	General-purpose input 10,40,70,120
3	---	---	---	---	Reserved
4	DI 11	DI 41	DI 71	DI 121	General-purpose input 11,41,71,121
5	---	---	---	---	Reserved
6	---	---	---	---	Reserved
7	---	---	---	---	Reserved
8	DI 20	DI 50	DI 100	DI 130	General-purpose input 20,50,100,130
9	DI 21	DI 51	DI 101	DI 131	General-purpose input 21,51,101,131
10	DI 22	DI 52	DI 102	DI 132	General-purpose input 22,52,102,132
11	DI 23	DI 53	DI 103	DI 133	General-purpose input 23,53,103,133
12	DI 24	DI 54	DI 104	DI 134	General-purpose input 24,54,104,134
13	DI 25	DI 55	DI 105	DI 135	General-purpose input 25,55,105,135
14	DI 26	DI 56	DI 106	DI 136	General-purpose input 26,56,106,136
15	DI 27	DI 57	DI 107	DI 137	General-purpose input 27,57,107,137
16	---	---	---	---	Reserved
17	---	---	---	---	Reserved
18	DO 10	DO 30	DO 50	DO 70	General-purpose output 10,30,50,70
19	DO 11	DO 31	DO 51	DO 71	General-purpose output 11,31,51,71
20	DO 12	DO 32	DO 52	DO 72	General-purpose output 12,32,52,72
21	DO 13	DO 33	DO 53	DO 73	General-purpose output 13,33,53,73
22	DO 14	DO 34	DO 54	DO 74	General-purpose output 14,34,54,74
23	DO 15	DO 35	DO 55	DO 75	General-purpose output 15,35,55,75
24	DO 16	DO 36	DO 56	DO 76	General-purpose output 16,36,56,76
25	DO 17	DO 37	DO 57	DO 77	General-purpose output 17,37,57,77
26	DI 12	DI 42	DI 72	DI 122	General-purpose input 12,42,72,122
27	DI 13	DI 43	DI 73	DI 123	General-purpose input 13,43,73,123
28	DI 14	DI 44	DI 74	DI 124	General-purpose input 14,44,74,124
29	DI 15	DI 45	DI 75	DI 125	General-purpose input 15,45,75,125
30	DI 16	DI 46	DI 76	DI 126	General-purpose input 16,46,76,126
31	DI 17	DI 47	DI 77	DI 127	General-purpose input 17,47,77,127
32	DI 30	DI 60	DI 110	DI 140	General-purpose input 30,60,110,140
33	DI 31	DI 61	DI 111	DI 141	General-purpose input 31,61,111,141
34	DI 32	DI 62	DI 112	DI 142	General-purpose input 32,62,112,142
35	DI 33	DI 63	DI 113	DI 143	General-purpose input 33,63,113,143
36	DI 34	DI 64	DI 114	DI 144	General-purpose input 34,64,114,144
37	DI 35	DI 65	DI 115	DI 145	General-purpose input 35,65,115,145
38	DI 36	DI 66	DI 116	DI 146	General-purpose input 36,66,116,146
39	DI 37	DI 67	DI 117	DI 147	General-purpose input 37,67,117,147
40	---	---	---	---	Reserved
41	---	---	---	---	Reserved
42	---	---	---	---	Reserved
43	DO 20	DO 40	DO 60	DO 100	General-purpose output 20,40,60,100
44	DO 21	DO 41	DO 61	DO 101	General-purpose output 21,41,61,101
45	DO 22	DO 42	DO 62	DO 102	General-purpose output 22,42,62,102
46	DO 23	DO 43	DO 63	DO 103	General-purpose output 23,43,63,103
47	DO 24	DO 44	DO 64	DO 104	General-purpose output 24,44,64,104
48	DO 25	DO 45	DO 65	DO 105	General-purpose output 25,45,65,105
49	DO 26	DO 46	DO 66	DO 106	General-purpose output 26,46,66,106
50	DO 27	DO 47	DO 67	DO 107	General-purpose output 27,47,67,107

Note. The IDs are set using the parameter.

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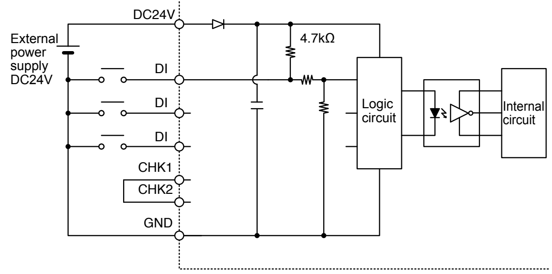
Standard specification I/O connector pin assignment lists

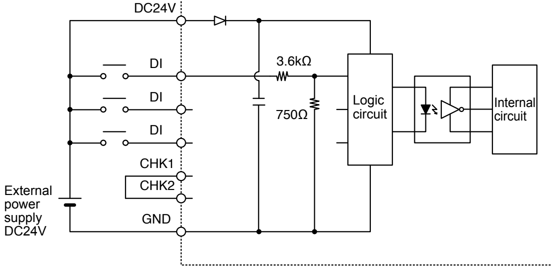
Pin	I/O No.	Name
1	DI01	Servo ON
2	DI10	SEQ enable
3	DI03	(Spare)
4	CHK1	Check input 1
5	DI05	(Spare)
6	DI06	STOP
7	DI07	(Spare)
8	DI20	General-purpose input
9	DI21	General-purpose input
10	DI22	General-purpose input
11	DI23	General-purpose input
12	DI24	General-purpose input
13	DI25	General-purpose input
14	DI26	General-purpose input
15	DI27	General-purpose input
16	DO00	(Spare)
17	DO01	CPUOK
18	DO10	AUTO
19	DO11	ORGOK
20	DO12	SEQRUN
21	DO13	RUN
22	DO14	RESET
23	DO15	WARNING
24	DO16	(Spare)
25	DO17	(Spare)
26	DI12	RUN
27	DI13	(Spare)
28	DI14	ORIGIN (for INC axis)
29	DI15	RESET
30	DI16	ALMRST
31	DI17	ORIGIN(for ABS axis)
32	DI30	General-purpose input
33	DI31	General-purpose input
34	DI32	General-purpose input
35	DI33	General-purpose input
36	DI34	General-purpose input
37	DI35	General-purpose input
38	DI36	General-purpose input
39	DI37	General-purpose input
40	CHK2	Check input 2
41	DO02	SERVO
42	DO03	ALARM
43	DO20	General-purpose output
44	DO21	General-purpose output
45	DO22	General-purpose output
46	DO23	General-purpose output
47	DO24	General-purpose output
48	DO25	General-purpose output
49	DO26	General-purpose output
50	DO27	General-purpose output

Typical input signal connection

● **NPN specifications**

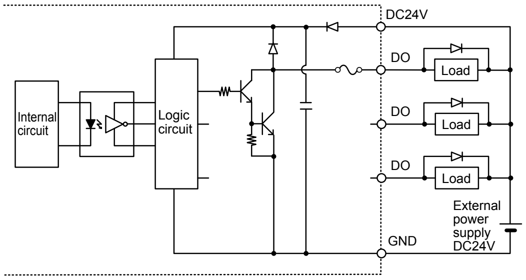


● **PNP specifications**

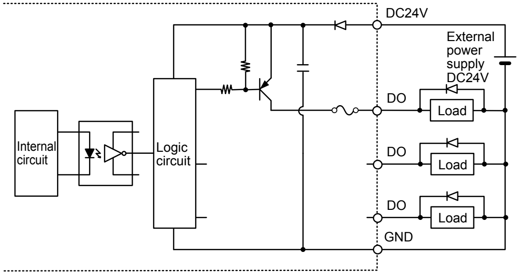


Typical output signal connection

● **NPN specifications**



● **PNP specifications**

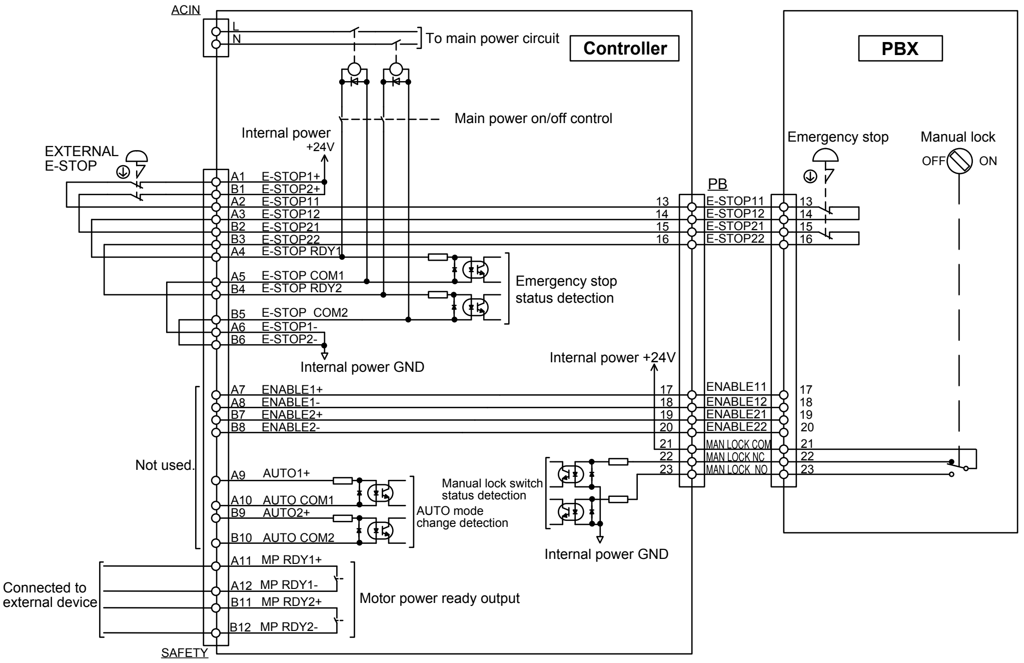


Basic functions

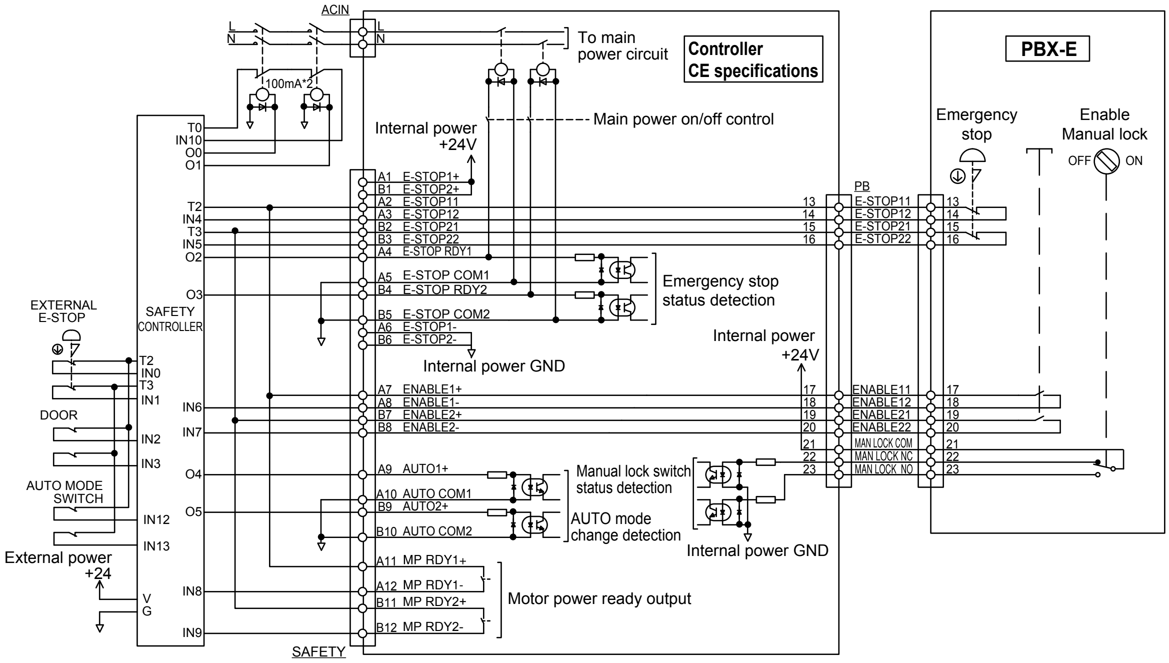
Function	Description
Operation modes	AUTO mode (Major functions: program creation, program execution, step execution, etc.) MANUAL mode (Major functions: jog movement, point data teaching, parameter editing, etc.)
Commands	Array declaration commands (DIM statement) Assignment commands (Numeric assignment, character string assignment, point definition statements, etc.) Movement commands (MOVE, DRIVE, PMOVE statements, etc.) Conditional branching commands (IF, FOR, WHILE statements, etc.) External output commands (DO, MO, LO, TO, SO statements) Parameter commands (ACCEL, OUTPOS, TOLE statements, etc.) Condition wait command (WAIT statement) Task related commands (START, SUSPEND, CUT statements, etc.) etc.
Functions	Arithmetic functions (SIN, COS, TAN functions, etc.) Character string functions (STR$, LEFT$, MID$, RIGHT$ functions, etc.) Point functions (WHERE, JTOXY, XYTOJ functions, etc.) Parameter functions (ACCEL, OUTPOS, TOLE statements, etc.) etc.
Variables	Simple variables (integer variables, real variables, character variables) Array variables (integer variables, real variables, character variables) Point variables Shift variables I/O variables etc.
Arithmetic operation	Arithmetic operators (+, -, *, /, MOD) Logic operators (AND, OR, XOR) Relational operators (=, <, >, <>, <=, >=)
Monitor	I/O status monitor (200 ms intervals)
Online commands	Program operation commands (RUN, STOP, RESET, STEP, etc.) Utility commands (COPY, ERA, INIT, etc.) Data handling commands (READ, WRITE, etc.) Robot language commands (independent-executable commands)
Data files	Program, point, parameter, shift, hand, all, error history etc.
Internal timer	Timer count variable (TCOUNTER), 1 ms interval
Program break points	Max. 32 points

Emergency input signal connections

Connection example of controller with normal specifications and PBX



Connection example of controller with CE specifications and PBX-E



Robot Language Table

General commands

Command	Description
DIM	Declares the array variable name and the number of elements.
LET	Executes a specified assignment statement.
REM	Expresses a comment statement.

Arithmetic commands

Command	Description
ABS	Acquires the absolute value of a specified value.
ATN	Acquires the arctangent of the specified value.
ATN2	Acquires the arctangent of the specified X-Y coordinates.
COS	Acquires the cosine value of a specified value.
DEGRAD	Converts a specified value to radians (↔RADDEG).
DIST	Acquires the distance between 2 specified points.
INT	Acquires an integer for a specified value by truncating all decimal fractions.
LSHIFT	Shifts a value to the left by the specified bit count. (↔RSHIFT)
RADDEG	Converts a specified value to degrees. (↔DEGRAD)
RSHIFT	Shifts a value to the right by the specified bit count. (↔LSHIFT)
SIN	Acquires the sine value for a specified value.
SQR	Acquires the square root of a specified value.
TAN	Acquires the tangent value for a specified value.

Date / time

Command	Description
DATE $	Acquires the date as a "yy/mm/dd" format character string.
TCOUNTER	Outputs count-up values at 1ms intervals starting from the point when the TCOUNTER variable is reset.
TIME $	Acquires the current time as an "hh:mm:ss" format character string.
TIMER	Acquires the current time in seconds, counting from midnight.

Character string operation

Command	Description
CHR $	Acquires a character with the specified character code.
LEFT $	Extracts a character string comprising a specified number of digits from the left end of a specified character string.
LEN	Acquires the length (byte count) of a specified character string.
MID $	Extracts a character string of a desired length from a specified character string.
ORD	Acquires the character code of the first character in a specified character string.
RIGHT $	Extracts a character string comprising a specified number of digits from the right end of a specified character string.
STR $	Converts a specified value to a character string (↔VAL).
VAL	Converts the numeric value of a specified character string to an actual numeric value. (↔STR$)

Point, coordinates, shift coordinates

Command	Description
CHANGE	Switches the hand of a specified robot.
HAND	Defines the hand of a specified robot.
JTOXY	Converts joint coordinate data to Cartesian coordinate data of a specified robot. (↔XYTOJ)
LEFTY	Sets the hand system of a specified robot to the left-handed system.
LOCx	Specifies/acquires point data for a specified axis or shift data for a specified element.
PATH	Sets the movement path.
Pn	Defines points within a program.
PPNT	Creates point data specified by a pallet definition number and pallet position number.
RIGHTY	Sets the hand system of a specified robot to the right- handed system.
Sn	Defines the shift coordinates within the program.
SHIFT	Sets the shift coordinate for a specified robot by using the shift data specified by a shift variable.
XYTOJ	Converts the point variable Cartesian coordinate data to the joint coordinate data of a specified robot. (↔JTOXY)

Branching commands

Command	Description
EXIT FOR	Terminates the FOR to NEXT statement loop.
FOR to NEXT	Executes the FOR to NEXT statement repeatedly until a specified value is exceeded.
GOSUB to RETURN	Jumps to a subroutine with the label specified by GOSUB statement, and executes that subroutine.
GOTO	Unconditionally jumps to the line specified by a label.
IF	Allows control flow to branch according to conditions.
ON to GOSUB	Jumps to a subroutine with labels specified by a GOSUB statement in accordance with the conditions, and executes that subroutine.
ON to GOTO	Jumps to label-specified lines in accordance with the conditions.
SELECT CASE to END SELECT	Allows control flow to branch according to conditions.
WHILE to WEND	Controls repeated operations.

Error control

Command	Description
ERR / ERL	Acquires the error code number of an error which has occurred / the line number where an error occurred.
ON ERROR GOTO	This command allows the program to jump to the error processing routine specified by the label without stopping the program, or it stops the program and displays the error message.
RESUME	Resumes program execution after error recovery processing.

Program control

Command	Description
CALL	Calls a sub-procedure.
HALT	Stops the program and performs a reset.
HALTALL	Stops and resets all programs.
HOLD	Temporarily stops the program.
HOLDALL	Temporarily stops all programs.
PGMTSK	Acquires the task number in which a specified program is registered.
PGN	Acquires the program number from a specified program name.
SGI	Assigns/acquires the value to a specified integer type static variable.
SGR	Assigns/acquires the value to a specified real type static variable.
SWI	Switches the program being executed, then begins execution from the first line.
TSKPGM	Acquires the program number which is registered in a specified task.

Task control

Command	Description
CHGPRI	Changes the priority ranking of a specified task.
CUT	Terminates another task currently being executed or temporarily stopped.
EXIT TASK	Terminates its own task which is in progress.
RESTART	Restarts another task during a temporary stop.
START	Specifies the task number and priority ranking of a specified program, and starts that program.
SUSPEND	Temporarily stops another task which is being executed.

Robot operations

Command	Description
DRIVE	Moves a specified axis of a specified robot to an absolute position.
DRIVEI	Moves a specified axis of a specified robot to a relative position.
MOTOR	Controls the motor power status.
MOVE	Performs absolute movement of all axes of a specified robot.
MOVEI	Performs relative movement of all axes of a specified robot.
MOVET	Performs relative movement of all axes of a specified robot when the tool coordinate is selected.
ORIGIN	Performs return-to-origin.
PMOVE	Executes the pallet movement command of a specified robot.
PUSH	Executes a pushing operation in the axis unit.
SERVO	Controls the servo ON/OFF of a specified axis or all axes of a specified robot.

Status acquisition

Command	Description
ABSRPOS	Acquires the machine reference value for specified robot axes. (Valid only for axes whose return-to-origin method is set as "mark".)
ARMCND	Acquires the current arm status of a specified robot.
ARMSEL	Specifies/acquires the current "hand system" setting of a specified robot.
ARMTYP	Specifies/acquires the "hand system" setting of a specified robot.
CURTQST	Acquires the current torque value ratio of a specified axis to the rated torque.
MCHREF	Acquires the return-to-origin or absolute-search machine reference value for specified robot axes. (Valid only for axes whose return-to-origin method is set as "sensor" or "stroke-end".)
MTRDUTY	Acquires the motor load factor of the specified axis.
PSHRSLT	Acquires the status at the end of the PUSH statement.
PSHSPD	Specifies/acquires the push speed parameter.
PSHTIME	Specifies/acquires the push time parameter.
WAIT ARM	Waits until the axis operation of a specified robot is completed.
WHERE	Reads out the current position of the arm of a specified robot in joint coordinates (pulse).
WHRXY	Reads out the current position of the arm of a specified robot as Cartesian coordinates (mm, degrees).

Status change

Command	Description
ACCEL	Specifies/acquires the acceleration coefficient parameter of a specified robot.
ARCHP1	Specifies/acquires the arch position 1 parameter of a specified robot.
ARCHP2	Specifies/acquires the arch position 2 parameter of a specified robot.
ASPEED	Specifies/acquires the AUTO movement speed of a specified robot.
AXWGHT	Specifies/acquires the axis tip weight parameter of a specified robot.
CHANGE	Switches the hand of a specified robot.
DECEL	Specifies/acquires the deceleration rate parameter of a specified robot.
HAND	Defines the hand of a specified robot.
LEFTY	Sets the hand system of a specified robot to the left-handed system.
ORGORD	Specifies/acquires the axis sequence parameter for performing return-to-origin and an absolute search operation in a specified robot.
OUTPOS	Specifies/acquires the "OUT position" parameter of a specified robot.
PDEF	Defines the pallet used to execute pallet movement commands.
PSHFRC	Specifies/acquires the "Push force" parameter.
PSHJGSP	Specifies/acquires the push judge speed threshold parameter.
PSHMTD	Specifies/acquires the push method parameter.
RIGHTY	Sets the hand system of a specified robot to the right- handed system.
SETGEP	Sets the General Ethernet Port.
SPEED	Changes the program movement speed of a specified robot.
TOLE	Specifies/acquires the tolerance parameter of a specified robot.
WEIGHT	Specifies/acquires the tip weight parameter of a specified robot.

PATH control

Command	Description
PATH	Specifies the PATH motion path.
PATH END	Ends the path setting for PATH motion.
PATH SET	Starts the path setting for PATH motion.
PATH START	Starts the PATH motion.

Torque control

Command	Description
CURTQST	Acquires the current torque value ratio of a specified axis to the rated torque.
CURTRQ	Acquires the current torque value of the specified axis of a specified robot.
PUSH	Executes a pushing operation in the axis unit.
TORQUE	Specifies/acquires the maximum torque command value which can be set for a specified axis of a specified robot.

Input/output control

Command	Description
DELAY	Waits for the specified period (units: ms).
DO	Outputs a specified value to the DO port or acquires the DO status.
LO	Outputs a specified value to the LO port to enable/disable axis movement or acquires the LO status.
MO	Outputs a specified value to the MO port or acquires the MO status.
OUT	Turns ON the bits of the specified output ports and terminates the command statement.
RESET	Turns the bit of a specified output port OFF.
SET	Turns the bit at the specified output port ON.
SI	Acquires a specified SI status.
SID	Acquires a specified serial input's double-word information status.
SIW	Acquires a specified serial input's word information status.
SO	Outputs a specified value to the SO port or acquires the SO status.
SOD	Outputs a specified serial output's double-word information or acquires the output status.
SOW	Outputs a specified serial output's word information or acquires the output status.
TO	Outputs a specified value to the TO port or acquires the TO status.
WAIT	Waits until the conditions of the DI/DO conditional expression are met (with time-out).

Communication control

Command	Description
CLOSE	Close the specified General Ethernet Port.
ETHSTS	Acquires the Ethernet port status.
GEPSTS	Acquires the General Ethernet Port status.
OFFLINE	Sets a specified communication port to the "offline" mode.
ONLINE	Sets the specified communication port to the "online" mode.
OPEN	Opens the specified General Ethernet Port.
SEND	Sends a file.

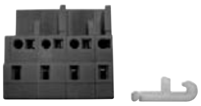
Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Robot positioner
Pulse string driver
Robot controller
iVY/iVY2 Electric gripper
Option

Accessories and part options

RCX340

Standard accessories

Power connector + wiring connection lever



Model	KAS-M5382-00

LCC140
TS-X
TS-P
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

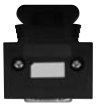
Safety connector

Model	KCX-M5370-00

RCX340

PBX terminator (dummy connector)

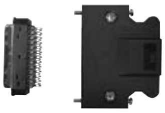
Attach this to the PBX connector during operation with the programming box PBX removed.



Model	KAS-M5163-30

RCX221
RCX222
RCX240/S
RCX340

NPN / PNP connector



Connector plug model	KBH-M4424-00
Connector cover model	KBH-M4425-00

SR1-X
SR1-P
RCX340

Absolute battery

Battery for absolute data back-up.

Basic specifications

Item	Absolute battery
Battery type	Lithium metallic battery
Battery capacity	3.6V/2,750mAh
Data holding time	About 1 year Note1 (in state with no power applied)
Dimensions	ϕ17 × L53mm
Weight Note2	22g

Model	KCA-M53G0-01

Note 1. When using two batteries for each two axes.
Note 2. Weight of battery itself.
Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery. The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

RCX340

Important **Absolute battery installation conditions**

1 to 2 batteries are required for each 2 axes.
- 1 battery......Data storage time of approximately 6 months (with no power applied)
- 2 batteries...Data storage time of approximately 1 year (with no power applied)

Note. Absolute battery is not required for either of the 2 axes if using incremental or semi-absolute specifications.

Dust cover for COM connector

Model	KR7-M5395-10

RCX340

Dust cover for LAN connector

Model	KCX-M658K-00

RCX340

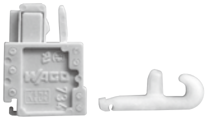
Dust cover for USB connector

Model	KCX-M658K-00

RCX340

■ Options

● External 24V power supply connector for brake + wiring lever



Model	KCX-M6500-10

RCX340

● Programming box PBX/PBX-E P.565

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.

PBX

Type	Language	Cable length	Model
PBX	Japanese	5m	KCX-M5110-1J
		12m	KCX-M5110-3J
	English	5m	KCX-M5110-1E
		12m	KCX-M5110-3E
	Chinese	5m	KCX-M5110-1C
		12m	KCX-M5110-3C
PBX-E (with enable switch)	Japanese	5m	KCX-M5110-0J
		12m	KCX-M5110-2J
	English	5m	KCX-M5110-0E
		12m	KCX-M5110-2E
	Chinese	5m	KCX-M5110-0C
		12m	KCX-M5110-2C

RCX340

	Model
Display language switching USB for PBX	KCX-M6498-00
USB cable	KCX-M657E-00

● Support software for PC P.561 RCX-Studio Pro

This is support software for operating the RCX340 controller.
A USB key is supplied to the RCX-Studio Pro to prevent robot operation mistakes.

USB key (Dongle)

Model	RCX-Studio Pro (USB key included)	KCX-M4990-10

RCX340

Note. Although it is possible to install this software on multiple PCs, the functionality is limited if there is no USB key (see table below).
Additional USB keys (additional licenses) are available at a special price. Please contact Yamaha for details.

■ Functional limitations depending on USB key presence

Function	USB key present	USB key absent
Connecting to the controller	○	×
Saving the file data	○	×
Emulator function	○	○
Real Time Trace	○	△ Emulator only
Cycletime Calculator	○	×
iVY2 editor	○	×
Data Difference	○	△ Except data saving

● Environment

OS	Microsoft Windows XP / Vista (32/64bit) / 7 (32/64bit) / 8 (32/64bit) / 8.1 (32/64bit)
CPU	Intel® Core™ 2 Duo 2 GHz or higher is recommended
Memory	1 GB or more is recommended
Hard disk	80MB or more free space in the RCX-Studio Pro installation destination
Communication port	Communication cable: serial communication port, Ethernet, or USB port USB key: USB port (one port)
Display	1024×768 or higher resolution, 256 colors or higher
Other	CD-ROM drive Dedicated communication cable (for D-Sub or for USB) Ethernet cable (category 5 or higher)
Applicable robot controllers	RCX340

Note. Microsoft, Windows, Windows XP, Windows Vista, Windows 7, Windows 8 and Windows 8.1 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
Other company names and product names listed in this manual may be the trademarks or registered trademarks of their respective companies.

● Data cables

Communication cable for RCX-Studio Pro.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

LCC140
ERCD
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

● YC-Link/E master board

Model	KCX-M4400-M0

RCX340

● YC-Link/E slave board

Model	KCX-M4400-S0

RCX340

● YC-Link/E cable (1m)

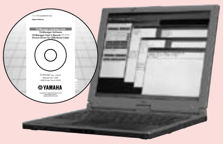
Model	KCX-M6479-10

RCX340

Support software for PC

TS-Manager

Besides basic functions, such as point data edit and backup, this support software TS-Manager incorporates various convenient functions to efficiently process the system debugging and analysis. The TS-Manager helps you in every scene from the system setup to the maintenance.



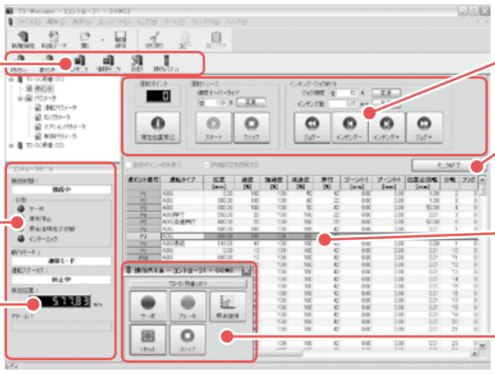
▼Applicable controllers

TS-S2 **TS-SH** **TS-X** **TS-P**	P.492
TS-SD	P.502

Features

1 Basic functions

Detailed settings by point, such as the position information, operation pattern, speed, acceleration, and deceleration settings, and robot parameter settings can be set, edited, and backed up. Additionally, the basic operation of the robot, such as JOG movement or inching operation can also be controlled through the TS-Manager.



Only clicking relevant icon will show the operation panel or I/O monitor.

Shows the servo or emergency stop status, and operation mode.

Shows the current position at real-time.

JOG movement, inching operation, and current position acquisition buttons.

Turns ON or OFF the operation point monitoring.

Shows the data in easy-to-read tabular format. Exchanging data with a spreadsheet application, such as Excel is also easy.

Operation panel for servo status, brake ON/OFF, and stop.

Note. Excel is a registered trademark of Microsoft Corporation in the United States and/or other countries.

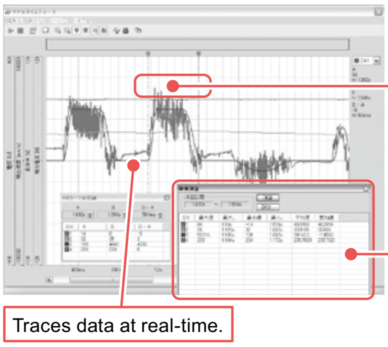
2 Real-time trace

This function traces the current position, speed, load factor, current value, and voltage value at real-time. Additionally, as trigger conditions are set, data can be automatically obtained when these conditions are satisfied. Furthermore, as a zone is specified from the monitor results, the maximum value, minimum value, and average value can be calculated. These values are useful for the analysis if a trouble occurs.

Real-time traceable items (up to four items)

• Voltage value	• Commanded position	• Current position
• Command speed	• Current speed	• Internal temperature
• Command current value	• Present current value	• Motor load factor
• Input/output I/O status	• Input pulse count [*1]	• Movement pulse count [*1]
• Word input/output status[*2]		

*1: Only on TS-SD *2: Only on TS controllers



Specify a zone for calculation.

Calculates the maximum value, minimum value, average value, and root mean square value in a specified zone.

Traces data at real-time.

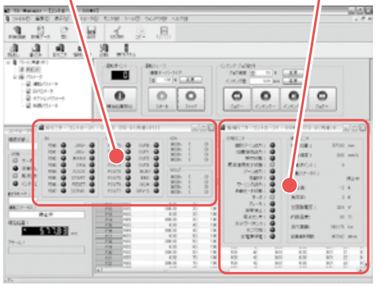
3 Various monitor functions and detailed error logs

The robot operation status (operation mode or servo status) and I/O status can be monitored.

Additionally, the Alarm Log screen also displays the input/output I/O status in addition to the carrier position, speed, operation status, current value, and voltage value in case of an alarm. This greatly contributes to the status analysis.

I/O status monitor panel

Detailed status monitor panel



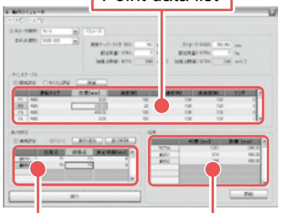
4 Operation simulation

As the operation condition data or point data is input, a period of time necessary for operation is simulated.

Use of this function makes it possible to select an optimal model before purchase and simulate the speed and acceleration/deceleration settings without use of actual machine.

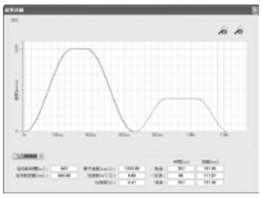
It is also possible to link this operation simulation function with the TS-Manager main software. This easily affects the point data you have edited in the actual machine.

Point data list



Operation setting list

Result display list



Displays the detailed simulation results graphically.

TS-Manager

Model	KCA-M4966-0J (Japanese) KCA-M4966-0E (English)

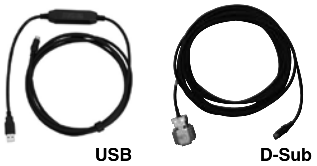
TS-Manager environment

OS	Microsoft Windows 2000/XP/Vista (32bit/64bit)/7 (32bit/64bit)
CPU	Exceeding the environment recommended by the OS being used
Memory	Exceeding the environment recommended by the OS being used
Hard disk	Vacant capacity of more than 20MB in the installation destination drive
Communication port	Serial (RS-232C), USB
Applicable controllers	TS-S2/TS-SH/TS-X/TS-P/TS-SD

Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables (5m)

Communication cable for TS-Manager.
Select from USB cable or D-sub cable.



TS-S2
TS-SH
TS-X
TS-P
TS-SD

Model	USB type (5m)	KCA-M538F-A0
	D-Sub type (5m)	KCA-M538F-01

Note. USB driver for communication cable can also be downloaded from our website.

Articulated robots YA
Linear conveyor modules LCM100
Compact single-axis robots TRANSERVO
Single-axis robots FLIP-X
Linear motor single-axis robots PHASER
Cartesian robots XY-X
SCARA robots YK-X
Pick & place robots YP-X
CLEAN
CONTROLLER
INFORMATION
Robot positioner
Pulse string driver
Robot controller
iVY/iVY2 Electric gripper
Option

Support software for PC

POPCOM+

POPCOM+ is an easy to operate application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

▼Applicable controllers

LCC140	P.486
ERCD	P.512
SR1-X SR1-P	P.518

Features

1 Easy to use

All items necessary for robot operation are displayed on single screen. There is no need to remember the menu structure so that it can be easily operated with mouse control by anybody.

2 Program editing

Edit amendment, cut, copy, paste, syntax check and program entry can be performed efficiently with function keys.

3 Point editing

Edit amendment, cut, copy, paste, syntax check, teach and trace functions are provided.

4 Help function

If you need some detailed information, robot language etc. during operation, operate [F1] key or [HELP] key to recall useful information on the screen.

5 Robot operation

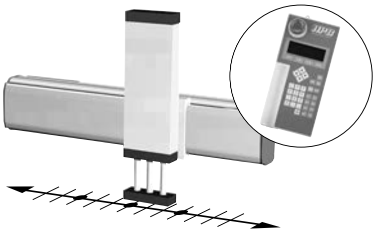
By connecting between a computer and the controller with a communication cable, the controller can control the robot in the same way as a HPB / HPB-D (programming box).

6 Creating point data

There are three methods available for creating the point data.

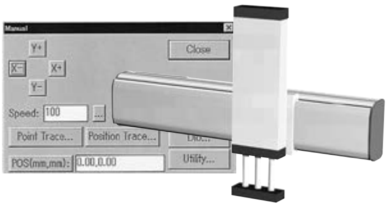
● MDI (Manual Data Input) teaching

The numeric keyboard is used to enter position coordinate data directly.



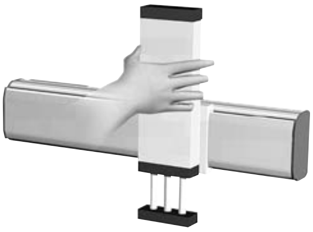
● Remote teaching

The robot arm is actually moved to the target position using the keys for point data registration.



● Direct teaching

The robot arm is manually moved to the target position with the servo motors off for point data registration.



PC supporting software POPCOM+

POPCOM+ software model	KBG-M4966-00

POPCOM+ environment

OS	Microsoft Windows XP / Vista (32bit/64bit) / 7 (32bit/64bit) / 8,8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/LCC140 Note 1

Note 1. LCC140 is applicable to Ver. 2.1.1 or later.
Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables (5m)

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

LCC140 **ERCD**
SR1-X **SR1-P**
RCX221 **RCX222**
RCX240/S **RCX340**

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

9Pin-25Pin converter adapter

This is an adapter for converting the female D-sub25Pin to a female D-sub9Pin.
This adapter is needed if using the ERCX and DRCX.

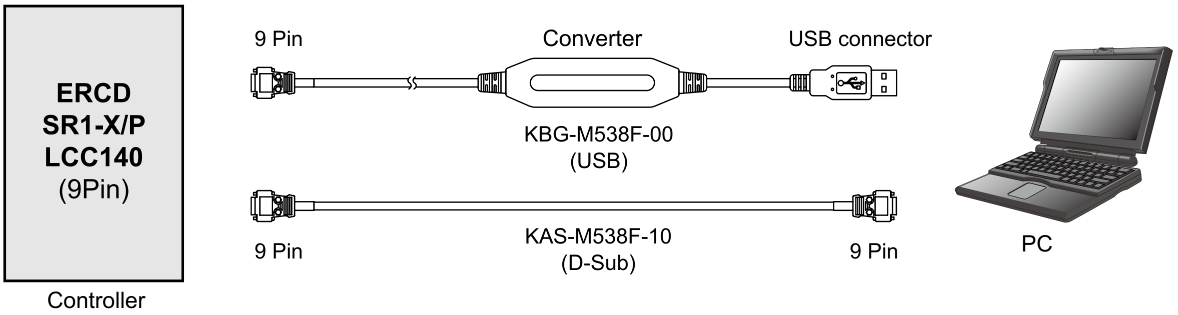
Model	KBB-M657E-01

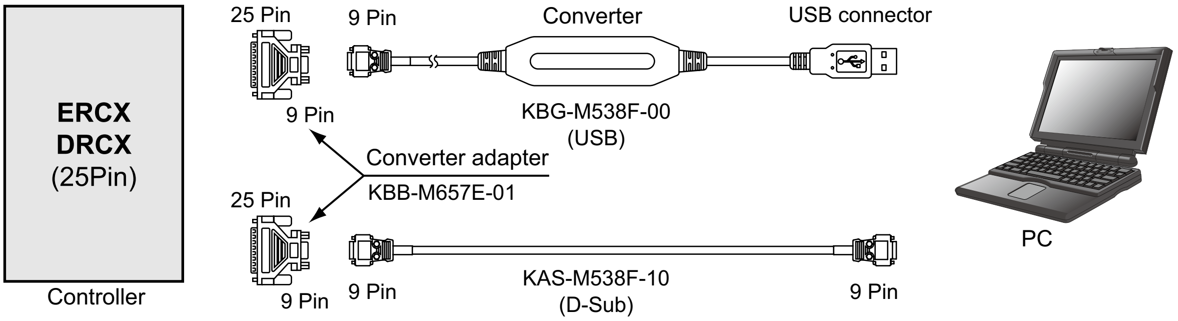
Note. It is unnecessary when using ERCD or SR1-X, SR1-P.

Controller & data cable / converter adapter matchup table

Controller Data cables	**ERCD** **SR1-X/SR1-P** **LCC140** (9Pin)	**ERCX** **DRCX** (25Pin)
[9Pin-9Pin cable] • KAS-M538F-10 (SSC-2-5L)	Needs no converter adapter	9Pin-25Pin converter adapter KBB-M657E-01

Controller and data cable connection diagrams





Support software for PC

VIP+ Windows
Visual Integrated Programming

VIP+ is an easy to operate application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.

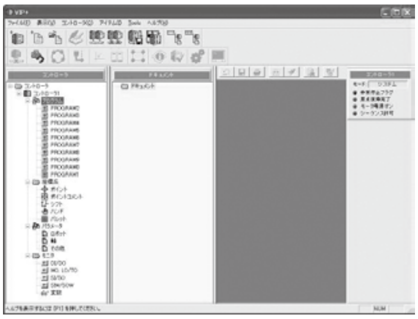
▼Applicable controllers

RCX221 RCX222	P.526
RCX240 RCX240S	P.534

Features

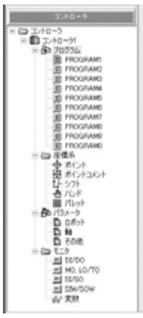
1 GUI updated for enhanced usability

The user interface has been improved with the VIP Windows function kept as it is so as to achieve more ease of use.



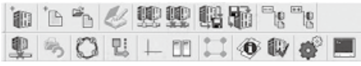
2 Data displayed in the tree view form

The data included in the controller is displayed legibly.



3 Fully equipped tool bar

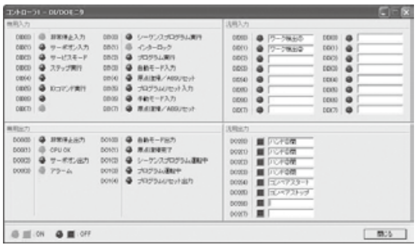
Each of various functions can be executed by simple one click on the tool bar.



4 Expanded monitor function

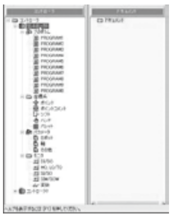
The I/O conditions and variables in the controller can be monitored at real time. In the advanced mode, it is also possible to attach any label (Note) to general purpose input/output and others.

Note. The label is stored in PC.

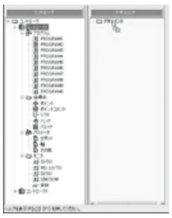


5 Data operation using the new drag & drop function

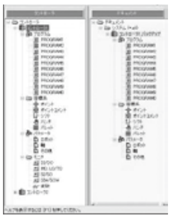
The data can be stored easily by using the drag & drop function. Likewise, the stored data can be restored to the controller by operating the mouse only.



Select the data to be stored.



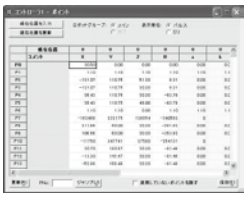
Drag the selected data to the document window and drop it there.

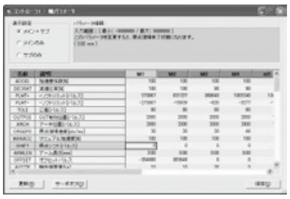


Specify the file name and this completes the storage procedure.

6 Input the data in the work sheet form (Parameter, Point data)

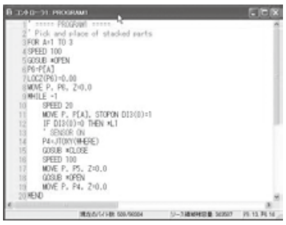
It is also possible to copy and paste the data from the other spread sheet (chart calculation software).





7 Syntax coloring when editing the program

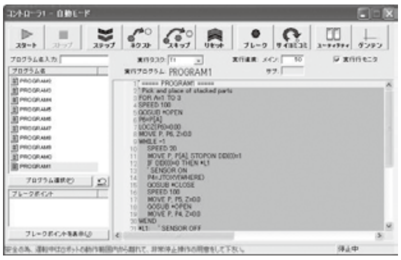
When reserved words (character string reserved as the robot language) are inputted, they are colored automatically, making them noted at one glance for easier program editing.



```
' ===== PROGRAM1 =====
' Pick and place of stacked parts
FOR A=1 TO 3
SPEED 100
GOSUB *OPEN
P6=P[A]
LOCZ(P6)=0.00
MOVE P, P6, Z=0.0
WHILE -1
    SPEED 20
    MOVE P, P[A], STOPON DI3(0)=1
    IF DI3(0)=0 THEN *L1
    ' SENSOR ON
    P4=JTOXY(WHERE)
    GOSUB *CLOSE
    SPEED 100
    MOVE P, P5, Z=0.0
    GOSUB *OPEN
    MOVE P, P4, Z=0.0
WEND
```

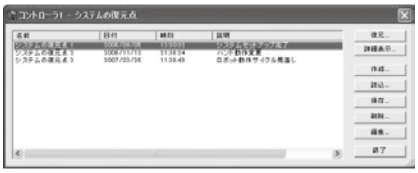
8 Program execution monitor

The step being performed during the program execution can be monitored. Thus, it is possible to check which step is performed without stopping the program, thereby debugging of the program is made much easier.



9 List appointing (point where the system is restored)

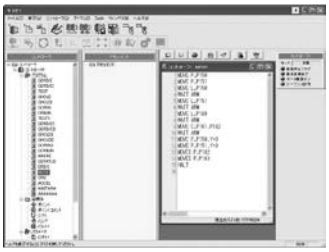
It is possible to create the system restoration point at any timing. By doing so at important points in the system constructing process when, for example, something faulty is found after the system was changed, the system can be returned to the state before such change easily.



VIP PLUS function

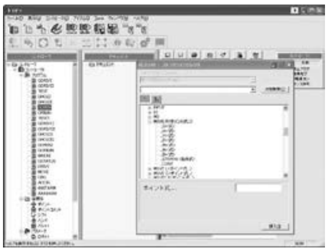
1 Easy to use

With a number of robot operation items provided on one screen, any operator can operate easily without memorizing the menu construction.



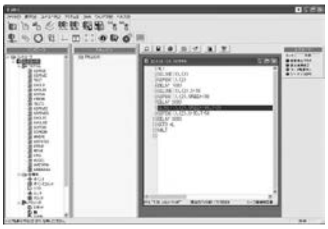
2 Programming editing

The program, point, parameter, shift, and hand can be edited on the PC alone. Equipped with the function selector having the command searching function which enables to input the robot language with ease.



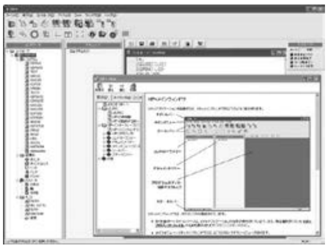
3 Data check function

Provided with the equivalent data check function to that of a robot controller, it is possible to correct data errors before operation.



4 Help function

When more information is needed during operation, press the [F1] or [HELP] key, and the help screen will appear.

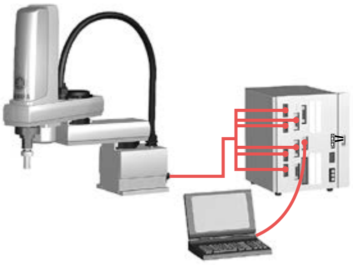


5 Robot operation

By connecting PC and controller with communication cable, robot operation will be available by the on-line command.

6 On-line editing

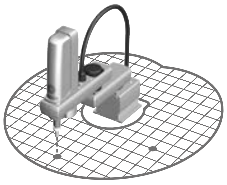
Connecting a PC and the controller with a communication cable enable to edit data from robot controllers just as with RPB / RPB-E.



7 Creating point data There are three methods available for creating the point data.

● MDI (Manual Data Input) teaching

The numeric keyboard is used to enter position coordinate data directly.



● Remote teaching

The robot arm is actually moved to the target position using the keys for point data registration.

● Direct teaching

The robot arm is manually moved to the target position with the servo motors off for point data registration.

Support software for PC VIP+

Model	KX0-M4966-00

Data cables (5m)

Communication cable for VIP+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

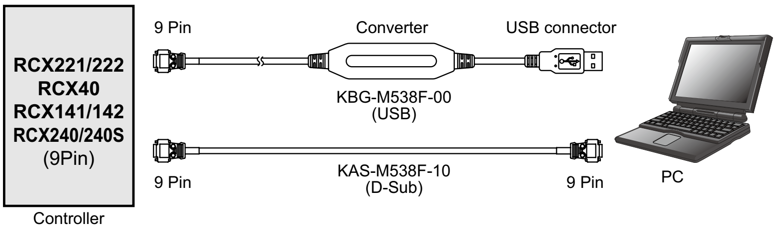
Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

Environment

OS	Microsoft Windows 2000 / XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	40MB of available space required on installation drive.
Communication method	RS-232C, Ethernet Note. For Ethernet communication, Ethernet unit for RCX series controller is required.
Applicable robot controllers	RCX221 / RCX222 / RCX141 / RCX142 / RCX240 / RCX240S

Note. Microsoft and Windows are registered trademarks of Microsoft Corporation.
Note. ADOBE and ADOBE READER are registered trademarks of Adobe Systems Incorporated.
Note. Ethernet is a registered trademark of Xerox Corporation.

Controller and data cable connection diagrams



Option details

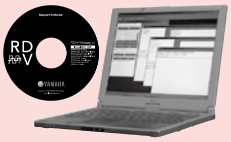
Support software for PC

RDV-Manager

Applicable controllers

RDV-X
RDV-P
P.506

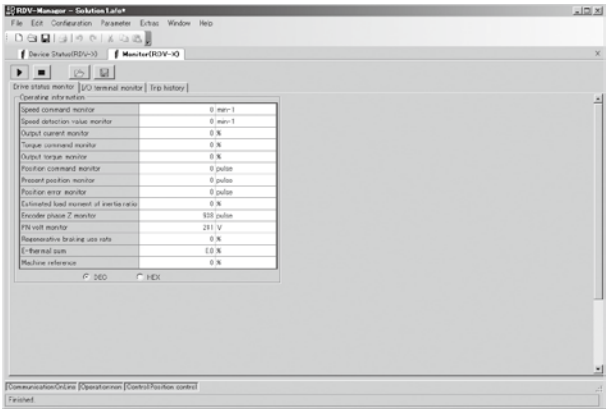
RDV-Manager is software for RDV-X/RDV-P. Using the Windows operating computer, it is possible to set parameters, to monitor the position, speed and torque and to have graphics displayed, assuring pleasant and easy operation in the Windows Vista, Windows 7 or Windows 8 / Windows 8.1 environment.



Features

1 Monitoring function

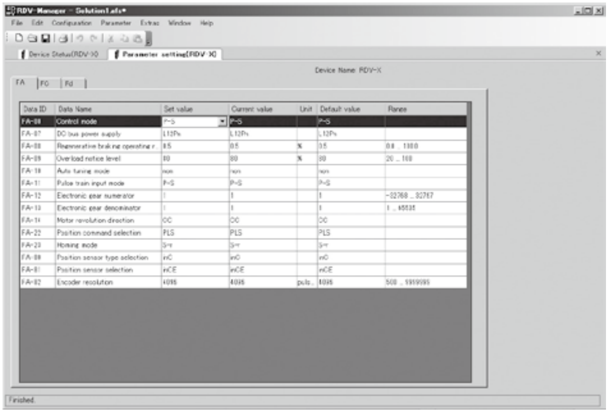
It is possible to monitor the operation condition and output state in real time. Additionally, the terminal can be operated forcibly to check the operation.



Speed command monitor	0	min-1
Speed detection value monitor	0	min-1
Output current monitor	0	%
Torque command monitor	0	%
Output torque monitor	0	%
Position command monitor	0	pulse
Present position monitor	0	pulse
Position error monitor	0	pulse
Estimated load moment of inertia ratio	0	%
Encoder phase Z monitor	938	pulse
PN volt monitor	281	V
Regenerative braking use rate	0	%
E-thermal sum	0.0	%
Machine reference	0	%

2 Setting parameters

It is possible to set, change, print and store the parameters.

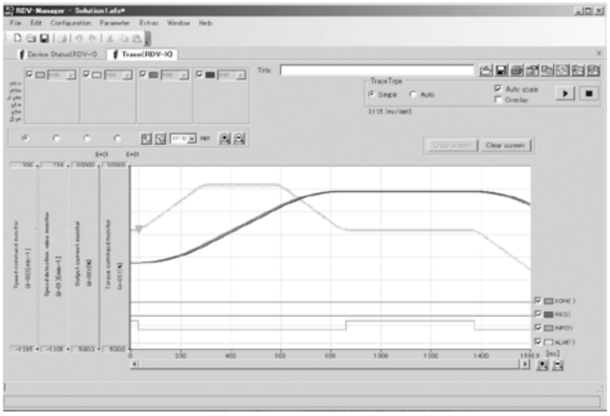

RDV-Manager – Solution1.afs*
File Edit Configuration Parameter Extras Window Help
Device Status(RDV-X)
Parameter setting(RDV-X)
FA
FG
Fd
Finished

Device Name: RDV-X

Data ID	Data Name	Set value	Current value	Unit	Default value	Range
FA-00	Control mode	P-S	P-S		P-S	
FA-07	DC bus power supply	L12Ps	L12Ps		L12Ps	
FA-08	Regenerative braking operating r...	0.5	0.5	%	0.5	0.0 ... 100.0
FA-09	Overload notice level	80	80	%	80	20 ... 100
FA-10	Auto tuning mode	non	non		non	
FA-11	Pulse train input mode	P-S	P-S		P-S	
FA-12	Electronic gear numerator	1	1		1	-32768 ... 32767
FA-13	Electronic gear denominator	1	1		1	1 ... 65535
FA-14	Motor revolution direction	CC	CC		CC	
FA-22	Position command selection	PLS	PLS		PLS	
FA-23	Homing mode	S-r	S-r		S-r	
FA-80	Position sensor type selection	inC	inC		inC	
FA-81	Position sensor selection	inCE	inCE		inCE	
FA-82	Encoder resolution	4096	4096	puls...	4096	500 ... 9999995

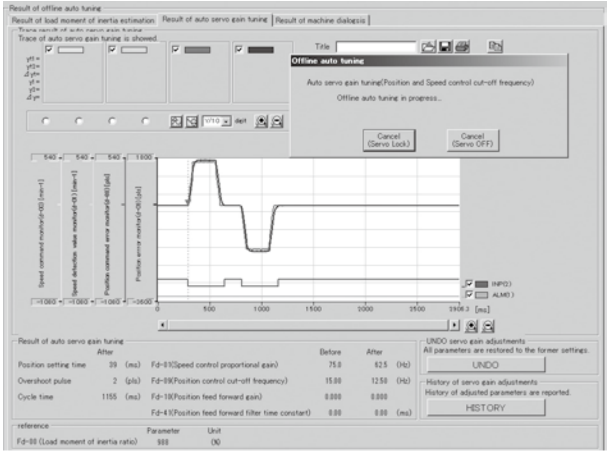
3 Operation tracing function

It is possible to have the servo motor speed and electric current displayed in the form of graphics.



4 Offline auto tuning function

The load moment of inertia can be estimated and the automatic servo gain can be adjusted.


Result of offline auto tuning
Result of load moment of inertia estimation
Result of auto servo gain tuning
Result of machine dialogsis
Trace of auto servo gain tuning is showed.
Title
Offline auto tuning
Auto servo gain tuning(Position and Speed control cut-off frequency)
Offline auto tuning in progress...
Cancel (Servo Lock)
Cancel (Servo OFF)
Speed command monitor
Speed detection value monitor
Position command error monitor
Position error monitor
INP(2)
ALM(0)
0
500
1000
1500
2000
2500
3906.3
[ms]
UNDO
HISTORY

Result of auto servo gain tuning

	After			Before	After	
Position setting time	39	(ms)	Fd-01(Speed control proportional gain)	75.0	62.5	(Hz)
Overshoot pulse	2	(pls)	Fd-09(Position control cut-off frequency)	15.00	12.50	(Hz)
Cycle time	1155	(ms)	Fd-10(Position feed forward gain)	0.000	0.000	
			Fd-41(Position feed forward filter time constant)	0.00	0.00	(ms)

UNDO servo gain adjustments
All parameters are restored to the former settings.

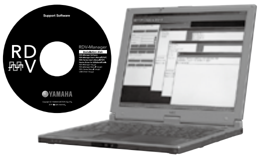
History of servo gain adjustments
History of adjusted parameters are reported.

reference

	Parameter	Unit
Fd-00 (Load moment of inertia ratio)	988	(%)

Support software RDV-Manager

RDV-Manager is RDV-X / RDV-P dedicated software.



Model	KEF-M4966-00

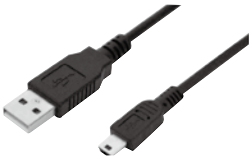
Environment

OS	Microsoft Windows Vista(32bit) Note 1 / 7(32bit/64bit) / 8, 8.1(32bit/64bit)
CPU	Pentium4 1.8GHz or more (Recommend)
Memory	1GB or more
Hard disk	1GB of available space required on installation drive.
Disk operation	USB
Applicable controllers	RDV-X / RDV-P

Note 1. SP1 (service pack 1) or higher.
Note. Windows Vista, Windows 7, and Windows 8 / Windows 8.1 are trademarks of Microsoft Corporation registered in U.S.A. and other countries.

Communication cable for PC supporting software RDV-Manager (3m)

Communication cable to connect PC and a controller.



Model	KEF-M538F-00

Support software for PC

RCX-Studio Pro

▼Applicable controllers

RCX340 **P.544**

**This is dedicated support software for the RCX340 controller.
It is a further advance in ease-of-use over the previous RCX-Studio.
Emulator functionality is also provided, contributing to full-scale system startup.**

Features

1 Evaluation

● Emulator function provided

By operating the controller on a PC, programs can be created and debugged even without a controller.
Cycle time can also be calculated, greatly reducing the time for software design.

● Cycle time calculator

Cycle time between two points can be easily calculated in two steps.
Choosing a model is easily done; simply select a model and enter the position.

2 Design

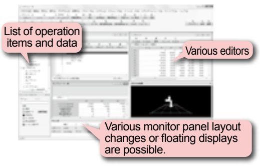
● Easy-to-use operation allows speedy setup

Program entry support functionality is provided.
Program editing and data editing.

● Inter-operation with other manufacturer's line simulators

Software made by other companies can be connected to the emulator of the RCX-Studio Pro, allowing checking for interference between robots in the facility.

Note. Software made by other companies is provided by the customer.


List of operation items and data
Various editors
Various monitor panel layout changes or floating displays are possible.

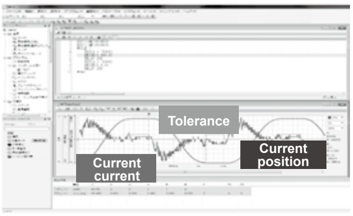
● iVY2 editor provided

Integration of iVY2 Studio makes it unnecessary to switch between software; this improves productivity.

3 After installation

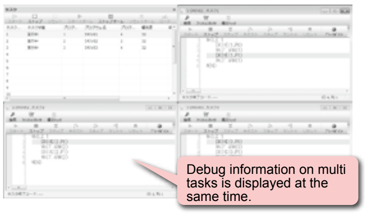
● Realtime trace

Continuous output of the controller's internal data allows the status to be checked at any time.
Even if no measuring device is present, the current waveform can be obtained for peace of mind.



● Application debugging function

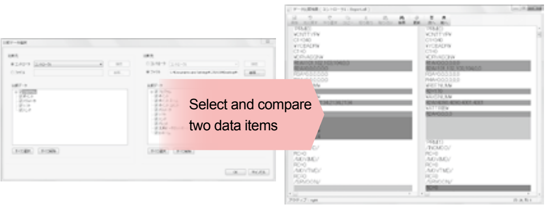
Debugging information for multiple tasks can be displayed simultaneously.


Debug information on multi tasks is displayed at the same time.

4 Maintenance

● Data comparison tool

Two specified data items can be compared, and the difference shown.
Comparison of entire ALL files and comparison of individual programs is also possible.
Direct comparison with online data is also possible, greatly shortening the time required for maintenance tasks.


Select and compare two data items

RCX-Studio Pro software

USB key (Dongle)

Model	RCX-Studio Pro (USB key included)	KCX-M4990-10

Note. Although it is possible to install this software on multiple PCs, the functionality is limited if there is no USB key (see P.553).
Additional USB keys (additional licenses) are available at a special price. Please contact Yamaha for details.

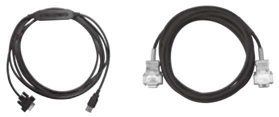
Environment

OS	Microsoft Windows XP / Vista (32/64bit) / 7 (32/64bit) / 8 (32/64bit) / 8.1 (32/64bit)
CPU	Intel® Core™ 2 Duo 2 GHz or higher is recommended
Memory	1 GB or more is recommended
Hard disk	80MB or more free space in the RCX-Studio Pro installation destination
Communication port	Communication cable: serial communication port, Ethernet, or USB port USB key: USB port (one port)
Display	1024×768 or higher resolution, 256 colors or higher
Other	CD-ROM drive Dedicated communication cable (for D-Sub or for USB) Ethernet cable (category 5 or higher)
Applicable robot controllers	RCX340

Note. Microsoft, Windows, Windows XP, Windows Vista, Windows 7, Windows 8 and Windows 8.1 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
Other company names and product names listed in this manual may be the trademarks or registered trademarks of their respective companies.

Data cables (5m)

Communication cable for RCX-Studio Pro.
Select from USB cable or D-sub cable.



Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

LCC140 **ERCD**
SR1-X **SR1-P**
RCX221 **RCX222**
RCX240/S **RCX340**

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

Handy terminal

HT1/HT1-D

This Handy Terminal is a device that can perform any operation such as robot manual operation, point data edit, teaching, and parameter setting, etc.
Has graphic LCD display with backlight for easy viewing.

▼Applicable controllers

TS-S2
TS-SH
TS-X
TS-P

P.492

HT1 / HT1-D basic specifications

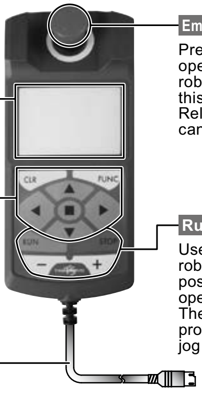
Name		HT1	HT1-D
External view			
Applicable controllers		TS-S2 / TS-SH / TS-X / TS-P	

Model	Japanese specifications	KCA-M5110-0J(3.5m)
		KCA-M5110-6J(10m)
			KCA-M5110-1J(3.5m)
			KCA-M5110-7J(10m)

	English specifications	KCA-M5110-0E(3.5m)
		KCA-M5110-6E(10m)
			KCA-M5110-1E(3.5m)
			KCA-M5110-7E(10m)

Display		Dot matrix monochrome display (with backlighting) 32 characters × 10 lines	
Operation keys		Mechanical switch	
Emergency stop button		Normally closed contact point (with lock function)	
Enable switch		-	3-position
Safety connector		-	15 pin D-sub connector (male)
CE marking		Not supported	Applicable
Operating temperature		0°C to 40°C	
Operating humidity		35% to 85%RH (non-condensing)	
Dimensions		W88 × H191 × D45mm (Emergency stop button not included.)	
Weight		260g (not including cable)	300g (not including cable)
Cable length		3.5m / 10m	

Part names and function



Strap holder
Attaching a short strap or necklace strap here prevents dropping the HT1 while operating it or installing it onto equipment.

LCD screen
This is a liquid crystal display (LCD) screen with 32 characters × 10 lines (pixel display), showing the operation menus and various types of information.

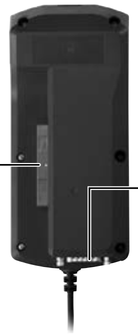
Data edit keys
Use these keys to select menus and edit various data.

Connector cable
This cable connects to the controller. One end of this cable is terminated with an 8-pin MD connector (male). Plug this cable into the COM1 connector on the controller front panel.

Emergency stop button
Pressing this button during operation immediately stops robot movement. To release this button, turn it clockwise. Releasing this button also cancels emergency stop.

Run/stop keys
Use these keys to operate the robot for teaching or positioning, or to stop operation.
The ⊖ and ⊕ keys are also provided to move the robot in jog mode.

HT1-D rear side



Enable switch (only on HT1-D)
This switch is effective for use with remote safety circuits. This switch cuts off the circuit when pressed or released but allows circuit operation when in the middle position.

Safety connector (only on HT1-D)
Use with remote safety circuits triggered by the emergency stop button or enable switch.

Programming box

HPB/HPB-D

All operations can be performed from this device including manual robot operation, programming entry and editing, teaching and setting parameters. The display works interactively with the operator so even an absolute beginner can easily learn how to use programming box.

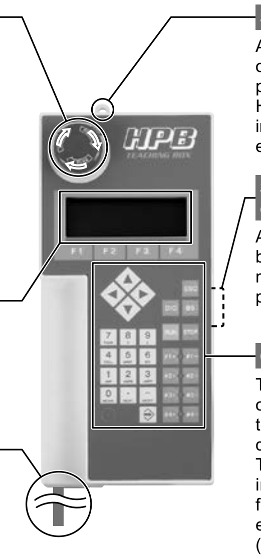
▼Applicable controllers

LCC140	P.486
ERCD	P.512
SR1-X SR1-P	P.518

HPB / HPB-D basic specifications

Name		HPB	HPB-D
External view			
Model	Using with ERCD, SR1-X, SR1-P	KBB-M5110-01 (without a conversion adaptor)	KBB-M5110-21 (without a conversion adaptor)
	Using with ERCX, SRCP30, DRCX	KBB-M5110-0A (with a conversion adaptor)	KBB-M5110-2A (with a conversion adaptor)
Display		LCD (20characters × 4 lines)	
Emergency stop button		Normally closed contact point (with lock function)	
Enable switch		–	3-position
CE marking		Not supported	Applicable
Memory back-up device		SD Memory card	
Operating temperature		0°C to 40°C	
Operating humidity		35% to 85%RH (non-condensing)	
Dimensions		W107 × H230 × D53mm (Strap holder, emergency stop button not included.)	
Weight		650g	
Cable length		3.5m	

Part names and function



Emergency stop button

Performs a robot emergency stop when pressed during robot operation. Release the button lock (locks when pressed) by turning the button in the CW direction. After releasing the button, a servo recovery must be performed from the HPB (or by I/O operation) in order to recover from the emergency stop status.

Liquid crystal display

This is a 20-character, 4-line LCD screen. The operation menu and other information are displayed here.

Connector cable

Connects the HPB to the controller. A D-Sub 9-pin connector (male) is provided at one end of the cable.

Strap hole

Attaching a short strap or necklace strap here prevents dropping the HPB while operating it or installing it onto equipment.

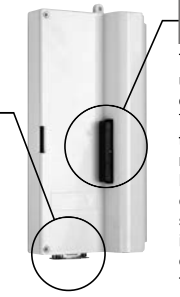
SD memory card connector

An SD memory card can be inserted here. SD memory cards are provided by the customer.

Operation keys

These keys are used to operate the robot and to enter programs and data, etc.
The keys are divided into 2 main groups: function keys and data entry/operation keys.
(For operation key details, see Chapter 3, “Basic operations”.)

HPB-D rear side



Safety connector (HPB-D only)

Use this connector with the emergency stop or enable switch to configure an external safety circuit.
Attaching the supplied 15-pin D-sub connector (KS9-M532E-00 female) directly to this safety connector enables the emergency stop button only.

3-position enable switch (HPB-D only)

This switch is effective for use with an external safety circuit.
This switch opens (cuts off) the circuit when pressed or released.
Pressing it to mid-position connects the circuit. Use this switch in Service mode, so that the external safety circuit triggers emergency stop on the robot when this switch is pressed or released.

A conversion adapter for HPB

The adapter converts from 25 pins to 9 pins. If the HPB was ordered along with a converter adapter then this adapter comes packed along with the unit.

Model	KBB-M657E-01

Note. It is unnecessary when using ERCD or SR1-X, SR1-P.

Programming box

RPB/RPB-E

All operations can be performed from this device including manual robot operation, programming entry and editing, teaching and setting parameters. The display works interactively with the operator so even an absolute beginner can easily learn how to use programming box.

▼Applicable controllers

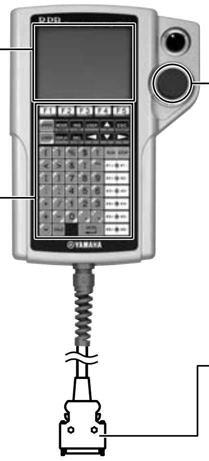
RCX221 **RCX222**	P.526
RCX240 **RCX240S**	P.534

Customers using the RCX141 / RCX142 controllers should use the connector converter cable (See P.605.)

RPB / RPB-E basic specifications

Name	RPB	RPB-E
External view		
Applicable controllers	RCX221 / RCX222 / RCX240 / RCX240S	
Model	KBK-M5110-10	KBK-M5110-00
Display	LCD (40characters 8 lines)	
Emergency stop button	Normally closed contact point (with lock function)	
Enable switch	–	3-position
CE marking	Not supported	Applicable
Operating temperature	0°C to 40°C	
Operating humidity	35% to 85%RH (non-condensing)	
Dimensions	W180 × H250 × D50mm (Strap holder, emergency stop button not included.)	
Weight	600g	
Cable length	5m (Standard), 12m (Options)	

Part names and function



Display (screen)

Liquid crystal display (LCD) shows different types of information with 8 lines × 40 characters. Contrast is adjustable.

Sheet keys

These are key switches for operating the robot or entering programs, etc. These are broadly grouped into 3 blocks consisting of function keys, control keys, and data keys.

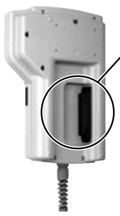
Emergency stop button

Pressing this button during robot operation sets the robot to emergency stop. These are B contact type switches.

RPB connector

This is a connector for connecting the RPB to the controller.

RPB-E rear side



3-position enable switch (only on RPB-E)

This switch is usable as part of an external (remote) safety circuit.
Pressing this switch inwards or releasing it cuts off the (RPB/robot) circuit. However that circuit is operable when this switch is in middle position.
This enable switch is usually operable in service mode. It functions as part of an external safety circuit so that releasing the enable switch or pressing it inwards set the robot to emergency stop.

Programming box

PBX/PBX-E

▼Applicable controllers

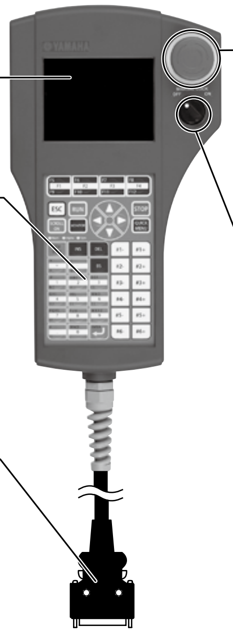
RCX340 P.544

This programming box is applicable to three languages, “Japanese”, “English”, and “Chinese”. Use of a color display makes it possible to improve the visibility. Work to add or edit functions becomes easy, allowing even personnel without programming skill to operate this programming box. A function to save the controller data into the USB memory is incorporated.

PBX/PBX-E basic specifications

Name		PBX	PBX-E
External view			
Applicable controllers		RCX340	
Model	Japanese language model	KCX-M5110-1J (5m) KCX-M5110-3J (12m)	KCX-M5110-0J (5m) KCX-M5110-2J (12m)
	English language model	KCX-M5110-1E (5m) KCX-M5110-3E (12m)	KCX-M5110-0E (5m) KCX-M5110-2E (12m)
	Chinese language model	KCX-M5110-1C (5m) KCX-M5110-3C (12m)	KCX-M5110-0C (5m) KCX-M5110-2C (12m)
Display screen		Color LCD (320 × 240 dot)	
Emergency stop button		Normally-closed contract (with lock function)	
Enable switch		Not provided	3-position type
Manual lock selector switch		90°, 2-notch	
Power		+12 V DC	
Operating environment		Ambient temperature for use: 0 to 40 °C, Ambient temperature for storage: -10 to 60 °C Humidity: 35 to 80% (no condensation)	
Dimensions (mm)		W141 × H245 × D45 (excluding projecting parts)	
Cable length		5 m or 12 m (Select either)	
Weight		440 g (excluding the cable)	460 g (excluding the cable)

Part names and function



Display (screen)
This is a liquid crystal display (LCD), showing various types of information.

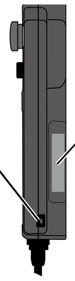
Operation keys
Use these keys to operate the robot or edit any data.

PB connector
Use this connector to connect the programming box to the robot controller.

Emergency stop button
This is a normally closed, self-lock switch.

Manual lock switch
Switches the controller operation mode between AUTO and MANUAL.

PBX-E rear side



USB connector
Connects the USB memory and programming box.

3-position enable switch (PBX-E only)
This switch is provided for safety. Pressing it to mid-position only allows robot operation.

Display language switching USB for PBX

	Model
Display language switching USB for PBX	KCX-M6498-00
USB cable	KCX-M657E-00

LCD Monitor option

TS-Monitor

▼Applicable controllers

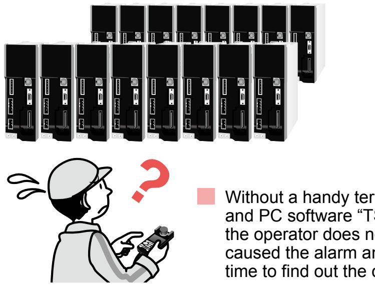
TS-X
TS-P P.492

Integrated into the controller unit, the TS-monitor needs no connections to the handy terminal or PC and checks operation status, current position, error information, etc. The TS-monitor even allows the operator on the scene or service personnel to easily check the controller status.
Total operating time is also displayed which is convenient to schedule maintenance periods.

Note. The TS-Monitor cannot be installed on the controller when using a daisy-chain connection or when using a gateway connection.

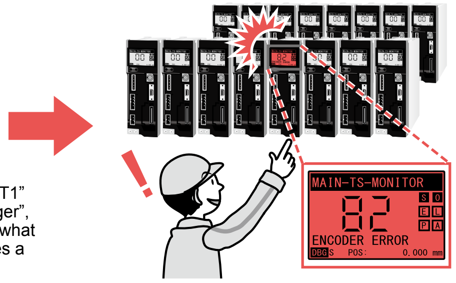
The TS Monitor Advantage

Before installing TS Monitor



- Without a handy terminal “HT1” and PC software “TS-Manager”, the operator does not know what caused the alarm and it takes a time to find out the cause.

After installing TS-Monitor

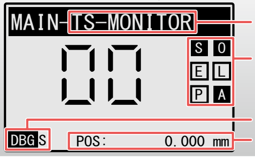


- Operator instantly knows various information without hooking to a handy terminal or PC.
- During errors the backlit display turns red and operator can see what error occurred on what controller at a glance.
- Display shows total operating time, so scheduling maintenance periods is easy.
- Backlit display is bright and easy to read even on dark panels.

Features

MAIN screen (in normal operation) Shows basic info

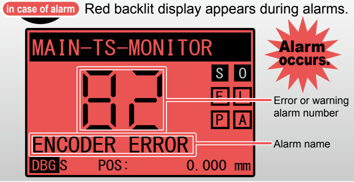
Displays optional name or character string.



Error

MAIN screen (in case of alarm) Easy to see error messages

Red backlit display appears during alarms.



Simple status display

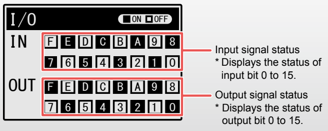
Display	Meaning
S	Servo status
E	Emergency stop
P	Main power failure
O	Return-to-origin completion status
L	Interlock status
A	Alarm

Run mode

Display	Meaning
NRM	Normal mode
MON	Monitor mode
DBG	Debug mode

I/O screen Shows I/O status

Displays input/output bit states.

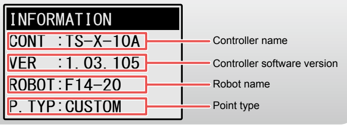


Bit signal correspondence table

IN	F	E	D	C	B	A	9	8
	SERVO	RESET	START	/LOCK	ORG	MANUAL	JOG-	JOG+
	7	6	5	4	3	2	1	0
	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1	PIN0
OUT	F	E	D	C	B	A	9	8
	SRV-S	/ALM	END	BUSY	OUT3	OUT2	OUT1	OUT0
	7	6	5	4	3	2	1	0
	POUT7	POUT6	POUT5	POUT4	POUT3	POUT2	POUT1	POUT0

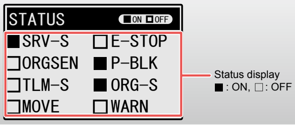
INFORMATION screen Shows machine info

Displays the connected robot and version.



STATUS screen Shows status info

Info such as error status or movement status is all at a glance.

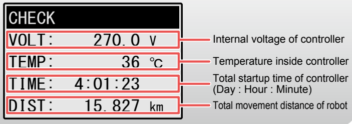


Status display

Display	Meaning
SRV-S	Servo status
ORGSEN	Origin sensor
TLM-S	Push status
MOVE	Move status
E-STOP	Emergency stop
P-BLK	Main power failure
ORG-S	Return-to-origin completion status
WARN	Warning output

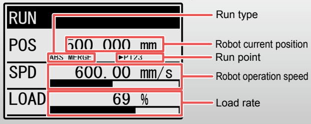
CHECK screen Shows operating status

Displays total drive distance (helpful for preventive maintenance).


CHECK
VOLT: 270.0 V
TEMP: 36 ℃
TIME: 4:01:23
DIST: 15.827 km
Internal voltage of controller
Temperature inside controller
Total startup time of controller (Day : Hour : Minute)
Total movement distance of robot

RUN screen Shows operation status and data

Info includes position, speed, load factors and run type.

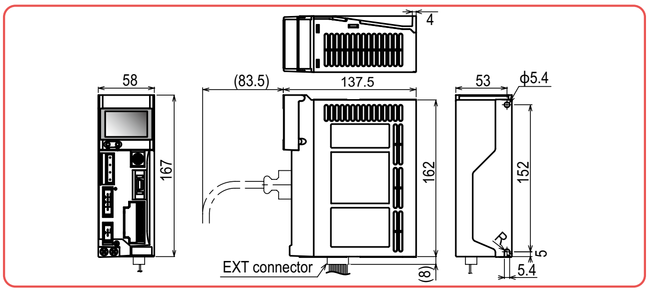


Run type

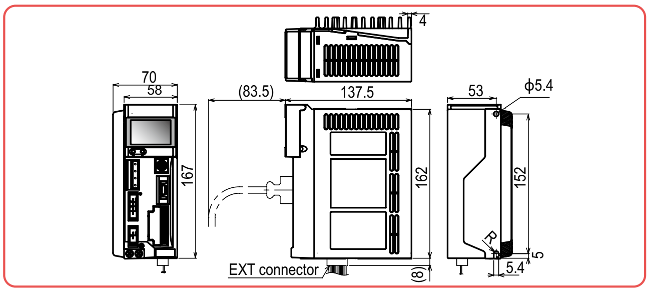
Display	Meaning
HOLD	Servo is off or robot is stopping.
ABS	ABS
INC	INC
ABS MERGE	ABS merge operation
INC MERGE	INC merge operation
ABS PUSH	ABS push operation
INC PUSH	INC push operation
ABS->PUSH	ABS deceleration push operation
INC->PUSH	INC deceleration push operation
ORG	Return-to-origin

TS-X/TS-P dimensions (with TS-Monitor)

TS-X/TS-P (105/110/205/210) with TS-Monitor



TS-X/TS-P (220) with TS-Monitor



TS-Monitor basic specifications

Model	TS-X	KCA-M5119-00
	TS-P	KCA-M5119-10
Effective display size		W40.546 × H25.63mm
Screen display		Graphic monochrome LCD

Backlight	Blue and red, 2-color LCD
Contrast adjustment	5 steps
Number of display dots	128 × 64 dots

Touch operator interface

Pro-face GP4000 series

▼Applicable controllers

TS-S2
TS-SH
TS-X
TS-P

P.492

Connecting GP4000 Series made by Pro-face to Robot Positioner, TS-S2, TS-SH, TS-X, TS-P enables you to use a lot of functions as well as basic operations on Touch Operator Interface.

Free download of the program file from the Pro-face home page
http://www.proface.com

Features

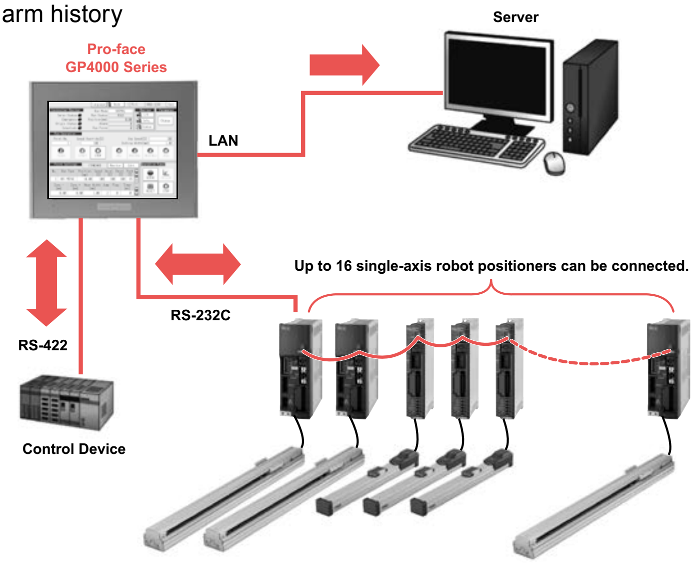
1 Can easily check a state and change settings.

- Check the status (the current position, speed etc)
- Basic operations such as Jog operation, inching operation, return to origin, error reset etc.
- Set, edit, or back up point data and parameters
- Check triggered alarms and detailed descriptions of alarm history

2 Supports 3 languages

- Supports Japanese, English, and Chinese (simplified, traditional)

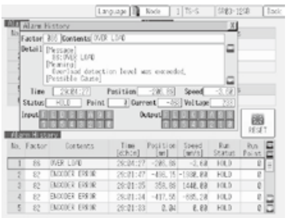
Without opening the control panel, you can check the status and change the settings on Touch Operator Interface alone.



Screen details

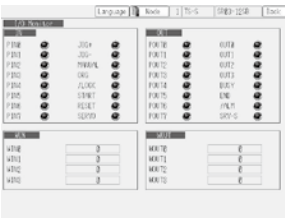
Diagnostic Screen

When a problem occurs, you can check the detailed descriptions of the alarm history, so you can understand easily what the cause is.



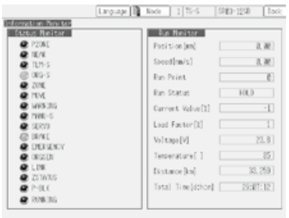
I/O Monitor Screen

Displays both general I/O and dedicated I/O together. You can quickly check the I/O status.



Information Monitor Screen

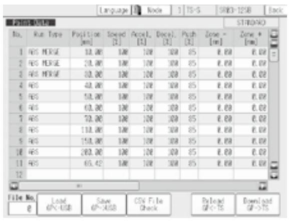
The screen can display the robot status and the operation status. You can check immediately the robot condition.



Position Data Editing Screen

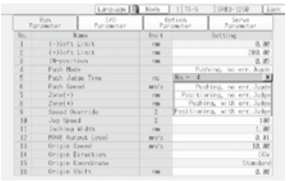
You can edit and back up point data (255 points).Note

Note. Settings for it and a USB storage required.



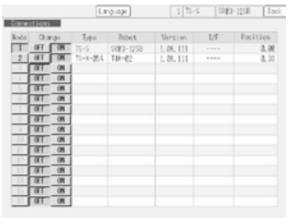
Parameter Editing Screen

While checking parameters of robot positioners in the list, you can set them with the pull-down menu.



Connecting Selection Screen

You can connect up to 16 robot positioners simultaneously with GP-Pro EX Ver.3.0 multi-axis feature.



Contact; Pro-face TEL:06-6613-1101 FAX:06-6613-5888

Option details

Field network system with minimal wiring

NETWORK

LCC140

P.486

CC-Link Basic specifications for network modules

Item	Network modules CC-Link
Applicable controllers	LCC140
CC-Link compatible version	Ver. 1.10
Remote station type	Remove device station
Number of occupied stations	Fixed to 2 stations
Station number	1 to 63 (Set from HPB)
Communication speed	10M/5M/2.5M/625K/156Kbps (Set using HPB or POPCOM+.)
Shortest length between stations	0.2 m or more
Total length	100m/10Mbps, 160m/5Mbps, 4000m/2.5Mbps, 900m/625Kbps, 1200m/156Kbps
Monitor LED	None
CC-Link I/O points	General-purpose input 32 points, General-purpose output 32 points Dedicated input 16 points, Dedicated output 16 points Input register 8 words Output register 8 words

DeviceNet Basic specifications for network modules

Item		Network modules DeviceNet™	
Applicable controllers		LCC140	
Applicable DeviceNet™ specifications		Volume 1 Release2.0 Volume 2 Release2.0	
DeviceNet™ Conformance test		Compliant with CT24	
Device profile / Device type number		Generic Device (keyable) / 2B Hex	
Vendor name/Vendor ID		YAMAHA MOTOR CO.,LTD. / 636	
Product code		21	
Product revision		1.0	
EDS file name		Yamaha_LCC1(DEV).eds	
MAC ID setting		0 to 63 (Set using HPB or POPCOM+.)	
Communication speed setting		500K/250K/125Kbps (Set using HPB or POPCOM+.)	
Communication data		Predefined Master/Slave Connection Set: Group 2 only server Dynamic connection support (UCMM): None Support for divided transmission of explicit message: Yes	
Network length	Total length	100m/500Kbps, 250m/250Kbps, 500m/125Kbps	
	Branch length/Total branch length	6m or less/39m or less, 6m or less/78m or less, 6m or less/156m or less	
Monitor LED		None	
Number of DeviceNet™ I/O points/ number of occupied channels		General-purpose input 32 points, General-purpose output 32 points Dedicated input 16 points, Dedicated output 16 points Input register 8 words Output register 8 words	Input: 24byte Output: 24byte

EtherNet/IP Basic specifications for network modules

Item	Network modules EtherNet/IP™	
Applicable controllers	LCC140	
Applicable software version	LCC140: Ver. 64.07 or higher HPB/HPB-D: Ver. 24.06 or higher POPCOM+: Ver. 2.1.0 or higher	
Applicable EtherNet/IP™ specifications	Volume 1: Common Industrial protocol(CIP™) Edition 3.14 Volume 2: EtherNet/IP™ Adaptation of CIP Edition 1.15	
EtherNet/IP™ Conformance test	Compliant with CT11	
Device profile/Device type number	Generic Device (keyable) / 2B Hex	
Vendor name/Vendor ID	YAMAHA MOTOR CO.,LTD. / 636	
Product code	23	
Product revision	1.1	
EDS file name	Yamaha_LCC1(EIP2).eds	
Communication speed	10Mbps / 100Mbps	
Connector specifications	RJ-45 connector (8-pole modular connector), 2 ports	
Applicable cable specifications	STP cable (double shield) with CAT 5e or higher	
Maximum cable length	100m	
Monitor LED	Module Status(MS), Network Status(NS), Link/Activity: Port1-2	
Number of EtherNet/IP™ I/O points/ number of occupied channels	General-purpose input 32 points, General-purpose output 32 points Dedicated input 16 points, Dedicated output 16 points Input register 8 words Output register 8 words	Input: 24byte Output: 24byte

Field network system with minimal wiring

NETWORK

TS-S2/TS-SH/TS-X/TS-P

P.492

CC-Link Basic specifications for network modules

Item	Network modules CC-Link
Applicable controllers	TS-S2 / TS-SH / TS-X / TS-P
Version supporting CC-Link	Ver. 1.10
Remote node type	Remote device node
Number of occupied nodes	1 node
Node number setting	1 to 64
Communication speed setting	10Mbps, 5Mbps, 2.5Mbps, 625Kbps, 156Kbps
No. of CC-Link inputs/outputs	Input 16 points , Output 16 points
Shortest distance between nodes[Note1]	0.2m or more
Overall extension distance[Note1]	100m/10Mbps, 160m/5Mbps, 400m/2.5Mbps, 900m/625Kbps, 1200m/156Kbps
Monitor LED	L RUN, L ERR, SD, RD

Note 1. These values apply when a cable that supports CC-Link Ver.1.10 is used.

DeviceNet Basic specifications for network modules

Item		Network modules DeviceNet™
Applicable controllers		TS-S2 / TS-SH / TS-X / TS-P
Applicable DeviceNet™ specifications		Volume 1 Release2.0/Volume 2 Release2.0
Device type		Generic Device (device number 0)
Number of occupied CH		Input 6ch, Output 6ch
MAC ID setting		0 to 63
Communication speed setting		500Kbps, 250Kbps, 125Kbps
DeviceNet™ inputs/outputs		Input 16 points, Output 16 points
Network length	Overall extension distance	100m/500Kbps, 250m/250Kbps, 500m/125Kbps
	Branch length	6m or less
	Overall branch length	39m or less/500Kbps, 78m or less/250Kbps, 156m or less/125Kbps
Monitor LED		Module, Network

EtherNet/IP Basic specifications for network modules

Item	Network modules EtherNet/IP™
Applicable controllers	TS-S2 / TS-SH /TS-SH/TS-X/TS-P[Note]
Applicable EtherNet/IP™ specifications	Volume1: Common Industrial Protocol (CIP™) Edition 3.8 Voluime2: EtherNet/IP™ Adaptation Edition 1.9
Device type	Generic Device (device number 43)
Number of occupied CH	Input 6ch, Output 6ch
Ethernet interface	10BASE-T/100BASE-TX
Network length	100m
Monitor LED	MS, NS, Activity, Link

Note. Supported by controller software version V1.10.121 or later. Necessary parameters can be set with the support tool, HT-1 (V1.13 or later) and TS-Manager (V1.3.3 or later).

PROFI NET Basic specifications for network modules

Item	Network modules PROFINET
Applicable controllers	TS-S2/TS-SH/TS-X/TS-P[Note]
Network specification conformance	PROFINET IO V2.2
Conformance class	Conformance Class B / IO Device
Input/output data size	Input 6 words, output 6 words
Transmission speed	100Mbps(Auto-negotiation)
Network length	100m
Monitor LED	MS, NS, Activity, Link

Note. Supported by controller software version V1.14.136 or later. Necessary parameters can be set with the support tool, HT-1 (V1.16 or later) and TS-Manager (V1.4.4 or later).

Field network system with minimal wiring

NETWORK

SR1-X/SR1-P

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CC-Link Basic specifications for network modules

Item	Network modules CC-Link
Applicable controllers	ERCX / SR1-P / SR1-X / SRCP30 / DRCX
Version supporting CC-Link	Ver. 1.10
Remote node type	Remote device node
Number of occupied nodes	Two nodes fixed
Node number setting	1 to 63
Communication speed setting	10Mbps, 5Mbps, 2.5Mbps, 625Kbps, 156Kbps
No. of CC-Link I/O [Note1]	General input 32 points, General output 32 points, Dedicated input 16 points, Dedicated Output 16 points
Parallel external I/O (ERCX, SRCP30, DRCX only)	All points usable as parallel external I/O for controller. Each point controllable from master station sequencer (PLC) by emulated serialization, regardless of robot program.
Shortest distance between nodes [Note2]	0.2m or more
Overall length [Note2]	100m/10Mbps, 160m/5Mbps, 400m/2.5Mbps, 900m/625Kbps, 1200m/156Kbps
Monitor LED	RUN, ERR, SD, RD

Note 1. Controller I/Os are updated every 10ms.
Note 2. These values apply when a cable that supports CC-Link Ver 1.10 is used.

DeviceNet Basic specifications for network modules

Item		Network modules DeviceNet™
Applicable controllers		ERCX / SR1-P / SR1-X / SRCP30 / DRCX
Applicable DeviceNet™ specifications		Volume 1 Release2.0/Volume 2 Release2.0
Device type		Generic Device (device number 0)
Number of occupied CH		Input 2ch [Note1], Output 2ch [Note1]
MAC ID setting		0 to 63
Communication speed setting		500Kbps, 250Kbps, 125Kbps
DeviceNet™ I/O [Note2]		General input 16 points [Note3], General output 16 points [Note3], Dedicated input 16 points, Dedicated Output 16 points
Parallel external I/O (ERCX, SRCP30, DRCX only)		All points usable as parallel external I/O for controller. Each point controllable from master station sequencer (PLC) by emulated serialization, regardless of robot program.
Network length	Overall length [Note4]	100m/500Kbps, 250m/250Kbps, 500m/125Kbps
	Branch length/Overall branch length	6m or less/39m or less, 6m or less/78m or less, 6m or less/156m or less
Monitor LED		Module, Network

Note 1. Inputs / Outputs are 12ch each when using SR1-P / SR1-X with extension model.
Note 2. Controller I/Os are updated every 10ms.
Note 3. General Inputs / Outputs are 32 each when using SR1-P / SR1-X with extension model.
Note 4. These values apply when a thick cable is used. The distance is less when a fine cable is used or when thick and fine cables are mixed in use.

PROFIBUS Basic specifications for network modules

Item	Network modules PROFIBUS
Applicable controllers	ERCX / SR1-P / S R1-X / SRCP30 / DRCX
Communication profile	PROFIBUS-DP slave
Number of occupied nodes	1 node
Setting of station address	0 to 126
Communication speed setting	9.6Kbps, 19.2Kbps, 93.75Kbps, 187.5Kbps, 500Kbps, 1.5Mbps, 3Mbps, 6Mbps, 12Mbps (automatic recognition)
PROFIBUS I/O [Note]	General input 32 points, General output 32 points, Dedicated input 16 points, Dedicated Output 16 points
Parallel external I/O (ERCX / DRCX only)	All points usable as parallel external I/O for controller. Each point controllable from master station sequencer (PLC) by emulated serialization, regardless of robot program.
Overall length	100m/12Mbps, 200m/1.5Mbps, 400m/500Kbps, 1000m/187.5Kbps, 1200m/9.6K · 19.2K · 93.75Kbps

Note. The shortest I/O update interval of the controller is 10ms but the actual I/O update time varies depending on the update time with the master station.

Ethernet Basic specifications for network modules

Item	Network modules Ethernet
Applicable controllers	ERCX / SRCP30 / DRCX
Network specification	As specified for Ethernet (IEEE802.3)
Connector specification	RJ-45 connector (8-pole modular connector) 1 port
Baud rate / Communication mode	10Mbps (10BASE-T) / Half Duplex (Half-duplex)
Network protocol	Application layer: TELNET / Transport layer: TCP / Network layer: IP, ICMP, ARP / Data link layer: CSMA/CD / Physical layer: 10BASE-T
Number of simultaneous log inputs	1
Setting of IP address, etc.	Set from HPB / HPB-D
Monitor LED	Run, Collision, Link, Transmit, Receive

Field network system with minimal wiring

NETWORK

RCX221/RCX222 P.526 RCX240/RCX240S P.534 RCX340 P.544

CC-Link Basic specifications for network modules

Item	Network modules CC-Link
Applicable controllers	RCX221 / RCX222 / RCX240 / RCX240S / RCX340
Version supporting CC-Link	Ver. 1.10
Remote station type	Remote device node
Number of occupied stations	Fixed to 4 stations
Station number setting	1 to 61 (set from the Rotary swich on board)
Communication speed setting	10Mbps, 5Mbps, 2.5Mbps, 625Kbps, 156Kbps (set from the Rotary swich on board)
No. of CC-Link I/O Note1	General input 96 points, General output 96 points, Dedicated input 16 points, Dedicated output16 points
Parallel external I/O Note2	A function that simulates serial communication enables individual control of the various points from a master sequencer, regardless of the robot program.
Shortest distance between nodes Note3	0.2 m or more
Overall length Note3	100m/10Mbps, 150m/5Mbps, 200m/2.5Mbps, 600m/625Kbps, 1200m/156Kbps
Monitor LED	RUN, ERR, SD, RD

Note 1. Controller I/Os are updated every 10ms.
Note 2. With RCX 141/142, the exclusive input of the parallel I/O cannot be used other than the interlock input.With RCX221 / 222, the exclusive input of the parallel I/O cannot be used. (The interlock input terminal is located on the SAFETY connector side.)
Note 3. These values apply when a cable that supports CC-Link Ver.1.10 is used.

DeviceNet™ Basic specifications for network modules

Item		Network modules DeviceNet™
Applicable controllers		RCX221 / RCX222 / RCX240 / RCX240S / RCX340
Applicable DeviceNet™ specifications		Volume 1 Release2.0 / Volume 2 Release2.0
Device Profile Name		Generic Device (device number 0)
Number of occupied CH Note1		Normal: Input/output 24ch each, Compact: Input/output 2ch each
MAC ID setting		0 to 63
Transmission speed setting		500Kbps, 250Kbps, 125Kbps (set using DIP switch on board)
DeviceNet™ I/O Note2	Normal	General input 96 points, General output 96 points, Dedicated input 16 points, Dedicated output 16 points
	Compact	General input 16 points, General output 16 points, Dedicated input 16 points, Dedicated output 16 points
Parallel external I/O Note3		The master module and up to four ports can be controlled regardless of the robot program by using the pseudoserialization function.
Network length	Overall length Note4	100m/500Kbps, 250m/250Kbps, 500m/125Kbps
	Branch length / Overall branch length	6m max./39m max., 6m max./78m max., 6m max./156m max.
Monitor LED		MS (Module Status), NS (Network Status)

Note 1. Use the robot parameter to select Normal or Compact. However, with the controllers earlier than Ver.9.08 of RCX221 / 222, this selection is not available and the setting remains the same as Normal.
Note 2. Controller I/Os are updated every 10ms.
Note 3. With RCX221 / 222, the exclusive input of the parallel I/O cannot be used. (The interlock input terminal is located on the SAFETY connector side.)
Note 4. These values apply when a thick cable is used. The distance is less when a fine cable is used or when thick and fine cables are mixed in use.

PROFIBUS Basic specifications for network modules

Item	Network modules PROFIBUS
Applicable controllers	RCX221 / RCX222 / RCX240 / RCX240S / RCX340
Communication profile	PROFIBUS-DP slave
Number of occupied nodes	1 node
Setting of station address	1 to 99 (set using Rotary switch on board)
Setting of communication speed	9.6Kbps, 19.2Kbps, 93.75Kbps, 187.5Kbps, 500Kbps, 1.5Mbps, 3Mbps, 6Mbps, 12Mbps (automatic recognition)
PROFIBUS I/O Note1	General input 96 points, General output 96 points, Dedicated intput 16 points, Dedicated output 16 points
Parallel external I/O Note2	The master module and up to four ports can be controlled regardless of the robot program by using the pseudoserialization function.
Overall length	100m/3M·6M·12Mbps, 200m/1.5Mbps, 400m/500Kbps, 1000m/187.5Kbps, 1200m/9.6K·19.2K·93.75Kbps
Monitor LED	RUN, ERR, SD, RD, DATA-EX

Note 1. The shortest I/O update interval of the controller is 10ms but the actual I/O update time varies depending on the update time with the master station.
Note 2. With RCX221 / 222, the exclusive input of the parallel I/O cannot be used. (The interlock input terminal is located on the SAFETY connector side.)

Ethernet Basic specifications for network modules

Item	Network modules Ethernet
Applicable controllers	RCX221 / RCX222 / RCX240 / RCX240S / RCX340
Network specification	As specified for Ethernet (IEEE802.3)
Connector specification	RJ-45 connector (8-pole modular connector) 1 port
Baud rate	10Mbps (10BASE-T)
Communication mode	Half Duplex (Half-duplex)
Network protocol	Application layer: TELNET / Transport layer: TCP / IP Network layer: IP, ICMP, ARP / Data link layer: CSMA/CD / Physical layer: 10BASE-T
Number of simultaneous log inputs	1
Setting of IP address, etc.	Set from RPB
Monitor LED	Run, Collision, Link, Transmit, Receive

Field network system with minimal wiring

NETWORK

RCX240/RCX240S P.534 RCX340 P.544

EtherNet/IP™ Basic specifications for network modules

Item	Network modules EtherNet/IP™		
Controller model	RCX240 / RCX240S / RCX340		
Software version	HOST : Ver.10.64 or higher VIP+ : Ver.2.5.0 or higher		
Network specifications	Conforms to Ethernet (IEEE 802.3).		
Applicable EtherNet/IP™ specifications	Volume 1 : Common Industrial protocol (CIP™) Edition 3.8 Volume 2 : EtherNet/IP™ Adaptation Edition 1.9		
Device type	Generic Device (Device No. 43)		
Data size	48 bytes each for input/output		
Transmission speed	10 Mbps/100 Mbps		
Connector specifications	RJ-45 connector (8-pole modular connector) 1 port		
Cable specifications	Refer to “4.1. LAN cable” in Chapter 2 of this user's manual.		
Max. cable length	100 m		
EtherNet/IP™ input/output points Note	Input (48 bytes in total)	byte 0-3 byte 4-31	Dedicated word input : 2 words General purpose word input : 14 words
		byte 32-33 byte 34-47	Dedicated bit input : 16 points General-purpose bit input : 96 points
	Output (48 bytes in total)	byte 0-3 byte 4-31	Dedicated word output : 2 words General-purpose word output : 14 words
		byte 32-33 byte 34-47	Dedicated bit output : 16 points General-purpose bit output : 96 points
Parallel external input	Regardless of the robot program, the master module and up to four ports can be controlled using the emulated serialization function.		
Settings, such as IP address	The settings are made with the programming box (RPB) or VIP+ (via a COM port or telnet).		
Monitor LEDs	Activity, Network Status, Link, Module Status		
CPU BOARD ASSY	KX0-M4210-2XX (Refer to “3. Installing into the robot controller” in Chapter 1 of this user's manual.)		

Note. Controller’s I/O update intervals are 10 ms at shortest, but actual I/O update intervals may vary depending on the update time for the master station.

NETWORK

RCX340

P.544

Basic specifications for network modules

Item	Network modules PROFINET	
Applicable controllers	RCX340	
Supported software versions	RCX340 : V1.21 or later PBX/PBX-E : V1.08 or later RCX-Studio : V1.0.1 or later	
Network specification conformance	PROFINET IO V2.2	
Conformance class	Conformance Class B / IO Device	
Vendor Name / Vendor_ID	YAMAHA MOTOR CO.,LTD. / 0x02D5	
Station Type / Device_ID	YAMAHA RCX3 PROFINET / 0x0001	
Product revision	1.00	
GSD file name	GSDML-V2.3-YMC-RCX3-20150203.xml	
Transmission speed	100Mbps (Auto-negotiation)	
Connector specifications	RJ-45 connector (8-pole modular connector) 2 ports	
Conforming cable specifications	CAT 5e or higher STP cable (double shield)	
Max. cable length	100m	
Monitor LEDs	Module Status(MS), Network Status(NS), Link/Activity:Port1-2	
Input/output data size	Input : 48bytes	Dedicated word input 2 words (4 bytes)
		General-purpose word input 14 words (28 bytes)
		Dedicated bit input 16 bits (2 bytes)
		General-purpose bit input 96 bits (12 bytes)
		Reserved area 2 bytes
	Output : 48bytes	Dedicated word output 2 words (4 bytes)
		General-purpose word output 14 words (28 bytes)
		Dedicated bit output 16 bits (2 bytes)
		General-purpose bit output 96 bits (12 bytes)
		Reserved area 2 bytes

iVY System

Applicable controllers ▶ RCX240/RCX240S

● Robot with image processing functions

"SEARCH and TAKE" "CHECK POSITION and ASSEMBLE"
YAMAHA offers a whole new production line concept that eliminates time-consuming teaching and positioning tasks with "iVY-system".

Main functions ▶ P.74

Ordering method

RCX240	–	–	–	–	–	–	–	–
Controller	Usable for CE	Regenerative unit	Option I/O	Network Option	iVY System Option board	Light/Tracking	Gripper	Battery
					No entry: None VY: iVY (VISION)	No entry: None TR: Light+Tracking LC: Light		

Note. For details on the various selection items, refer to P.535

Basic specifications

iVY board

Item		iVY board
Basic specifications	Applicable controllers	RCX240 / RCX240S
	Pixels	640 (H) × 480 (V) (300,000 pixels, VGA)
	Settable part types	40 part types
	Connectable cameras	Maximum 2 units Note. Note. If connecting 2 units, then must be the same model
	Camera types	Double speed compatible analog camera
	Memory	128MB SDRAM, 256MB miniSD card
	External I/F	Ethernet (100BASE-TX)
Search method		Edge search (Correlative edge filter, Sobel filter)
Image input	Trigger	S/W trigger, H/W trigger, Camera internal synch
	External trigger input	2 points
Functions	Search function	Position offset, Auto registry of point data
	ID recognition (usage planned)	QR-Code [Model2], DataMatrix
Setup support functions		Calibration, image save function, model registration[Note], fiducial mark registration[Note], monitor function[Note]

Note. Requires Windows PC.

Lighting control board (option)

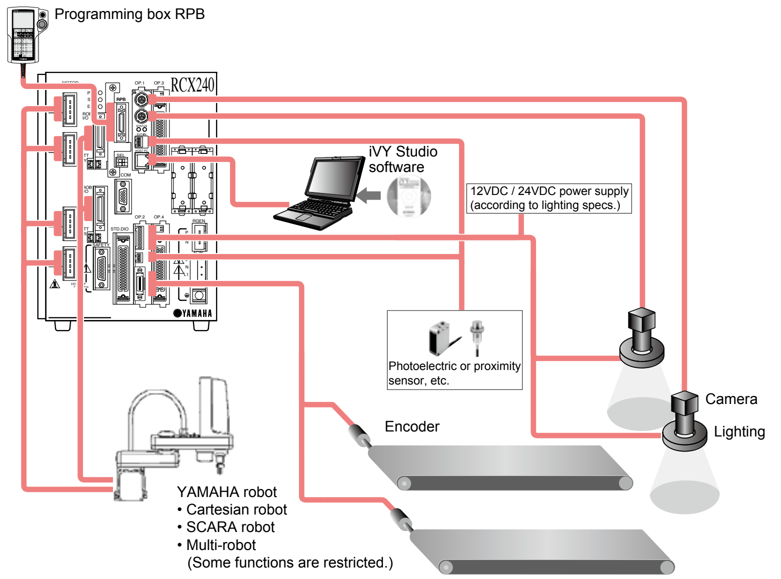
Item		Lighting control board (option)
Basic specifications	Applicable controllers	RCX240 / RCX240S
	Number of lighting connected units	Up to 2 units
	Light adjusting system	PWM control (0 to 100%) (Cycle 60kHz) Stroboscopic light (10 to 33000us)
	Trigger	S/W trigger, H/W trigger
	External trigger input	2 points
	Lighting power input	12VDC or 24VDC (Supplied from outside commonly to 2 channels)
	Lighting output	When DC12V is supplied: Less than 30W with 2 channels totaled When DC24V is supplied: Less than 60W with 2 channels totaled

Tracking board (Options)

Item			Tracking board (option)
Basic specifications	Applicable controllers		RCX240 / RCX240S
	Lighting control section	Light adjusting system	Up to 2 units
		Light adjusting system	PWM control (0 to 100%) (Cycle 60kHz) Stroboscopic light (10 to 33000us)
		Trigger	S/W trigger, H/W trigger
		External trigger input	2 points
		Lighting power input	12VDC or 24VDC (Supplied from outside commonly to 2 channels)
		Lighting output	When DC12V is supplied: Less than 30W with 2 channels totaled When DC24V is supplied: Less than 60W with 2 channels totaled
	Pulse input section	Number of encoder connected units	Up to 2 units
		Encoder power source	DC5V (Less than 500mA with 2 channels totaled) (Supplied from controller)
		Applicable encoder	Line driver equivalent to 26LS31 / 26C31 (Conforming to RS-422)
		Input phase	A, Ā, B, B̄, Z, Z̄
		Maximum response frequency	2MHz
		Counter / Step-up multiplication	0 to 65535 / Double, quadruple
		Other	Provided with broken wire detect function

Note. The tracking board is required when using the tracking function.

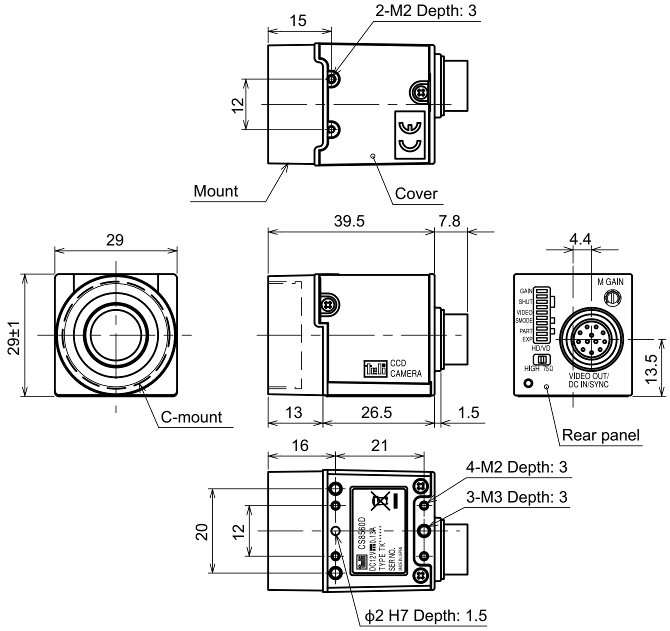
System configuration illustration


Programming box RPB
RCX240
YAMAHA
iVY Studio software
12VDC / 24VDC power supply (according to lighting specs.)
Photoelectric or proximity sensor, etc.
Camera
Lighting
Encoder
YAMAHA robot
• Cartesian robot
• SCARA robot
• Multi-robot
(Some functions are restricted.)

* The above configuration example shows a system where the iVY board and tracking board are used.
* Connections to the STD.DIO, ACIN, and SAFETY connectors is not shown in the above illustration.

Dimensional outlines CCD camera

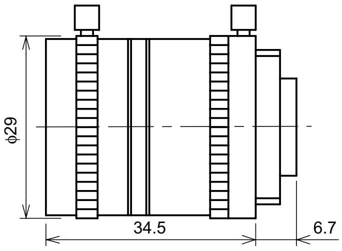
CCD camera dimensions
(Model No. : KX0-M7913-00)



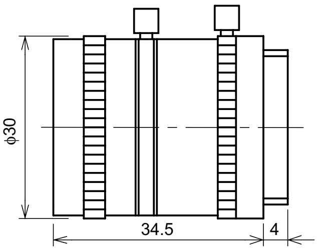
iVY System

Lenses

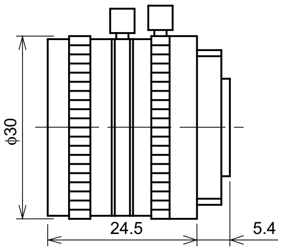
● **8mm lens [ML-0813]**
(Model No. : KM7-M7214-60)



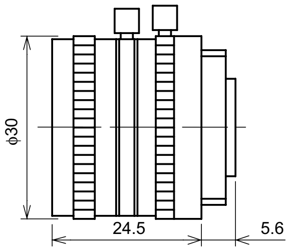
● **12mm lens [ML-1214]**
(Model No. : KM7-M7214-40)



● **16mm lens [ML-1614]**
(Model No. : KM7-M7214-30)



● **25mm lens [ML-2514]**
(Model No. : KM7-M7214-20)



Standard lens angle-of-view table

	Focal length (mm)	Aperture value (F No.)	Angle-of-view (degrees)		Closest approach distance (m)
			Vertical	Horizontal	
8mm lens [ML-0813]	8	F1.3-CLOSE	45.0	57.8	0.2
12mm lens [ML-1214]	12	F1.4-CLOSE	21.9	29.0	0.3
16mm lens [ML-1614]	16	F1.4-CLOSE	23.0	30.4	0.4
25mm lens [ML-2514]	25	F1.4-CLOSE	21.6	28.5	0.5

Note. Field-of-view table for our standard lenses. As the field-of-view widens, distortion on image edges may increase.

Viewing angle, WD, and magnification when using close-up ring

Close-up ring (mm)	8mm lens [ML-0813]				12mm lens [ML-1214]			
	Viewing angle (mm×mm)		WD (mm)	Magnifi-cation	Viewing angle (mm×mm)		WD (mm)	Magnifi-cation
	Vertical	Horizontal			Vertical	Horizontal		
None	72	96	148	0.05	77	103	248	0.05
0.5	32	43	59	0.11	41	55	125	0.09
	57	77	115	0.06	89	119	289	0.04
1	21	27	34	0.18	28	38	80	0.13
	29	38	52	0.13	45	59	136	0.08
1.5	26	34	22	0.24	21	29	57	0.17
	19	26	31	0.19	30	40	85	0.12
2	–	–	–	–	17	23	42	0.21
	–	–	–	–	22	30	59	0.16
5	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–

Close-up ring (mm)	16mm lens [ML-1614]				25mm lens [ML-2514]			
	Viewing angle (mm×mm)		WD (mm)	Magnifi-cation	Viewing angle (mm×mm)		WD (mm)	Magnifi-cation
	Vertical	Horizontal			Vertical	Horizontal		
None	82	109	358	0.04	65	87	458	0.06
0.5	48	64	206	0.07	48	64	338	0.08
	117	156	515	0.03	181	242	1270	0.02
1	34	45	143	0.11	38	50	269	0.10
	58	78	252	0.06	91	121	637	0.12
1.5	26	35	108	0.14	31	42	223	0.12
	39	52	164	0.09	60	81	425	0.06
2	22	29	86	0.17	27	36	191	0.13
	29	39	120	0.12	45	60	320	0.08
5	10	14	35	0.35	14	19	103	0.25
	12	16	42	0.31	18	24	130	0.20

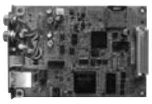
Notes
- This table shows viewing angles when using the standard lens and close-up ring. (If no close-up ring this is closest approach.)
- If not using a close-up ring, then a WD smaller than the value in this table cannot be used.
- If using a close-up ring, then only a WD close to this value can be used.
- The values in this table are at most only a reference and do not signify an absolute index.
- To find viewing angle and WD other than for our standard lens, visit our website at: http://www.moritex.co.jp/products/.

Accessories and part options

iVY System

Standard accessories

● iVY board



Model	Without power supply harness	KX0-M4402-10
	With power supply harness	KX0-M4402-00

Note. If newly adding an iVY, choose the model with harness.

● iVY board accessories

Name	Single unit model	Set Model
Camera trigger input cable connector	KX0-M657L-00	KX0-M657K-00
Custom tool	KX0-M657M-00	

● Support software for PC iVY Studio

iVY Studio is support software for the iVY system that allows registering part types and reference marks as well as monitoring the work search status during automatic robot operation by connecting to the robot controller.

● Environment

Software model	KX0-M4988-00
OS	Microsoft Windows 2000 / XP / Vista Note. The 64 bit version is not subject to the operation warranty.
CPU	Exceeding the environment recommended by the OS being used
Memory	64MB or more (Recommend)
Hard disk	Vacant capacity of more than 40MB in the installation destination drive Note. Besides the above, also requires memory space for storing images and data.
Display	800 × 600 dots or more, 32768 colors (16bit High Color) or more (recommended)
Network	TCP/IP Ethernet port × 1

Options

Lighting control board

Model	KX0-M4400-G0

Required options for the lighting control board

Name	Single unit model	Set Model
Lighting power cable connector	KX0-M657L-10	KX0-M657K-10
Wiring lever	KX0-M657M-10	
Lighting input trigger cable connector	KX0-M657L-00	KX0-M657K-00
Custom tool	KX0-M657M-00	

Tracking board

Model	KX0-M4400-E0

Required options for the tracking board

Name	Single unit model	Set Model
Lighting power cable connector	KX0-M657L-10	KX0-M657K-10
Wiring lever	KX0-M657M-10	
Lighting input trigger cable connector	KX0-M657L-00	KX0-M657K-00
Custom tool	KX0-M657M-00	
AB phase input cable connector	KX0-M657L-20	KX0-M657K-20
AB phase input cable connector case	KX0-M657M-20	

Camera cable

Cable for connecting the camera to the iVY board.

Model	3.5m	KX0-M66F3-00
	6m	KX0-M66F3-10
	9.5m (relay 3.5m+6m)	KX0-M66F0-20
	Relay cable 3.5m	KX0-M66F4-00
	7m (relay 1m+6m)	KX0-M66F0-30
	Relay cable 1m	KX0-M66F4-10

Note. When installing a camera cable in a moving section, use a relay cable so that it can be easily replaced if needed.

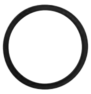
CCD camera

Model	KX0-M7913-00

Lens

Model	8mm	KM7-M7214-60 (ML-0813)
	12mm	KM7-M7214-40 (ML-1214)
	16mm	KM7-M7214-30 (ML-1614)
	25mm	KM7-M7214-20 (ML-2514)

Close-up ring



Model	0.5mm	KX0-M7215-00
	1.0mm	KX0-M7215-10
	2.0mm	KX0-M7215-20
	5.0mm	KX0-M7215-30

LAN cable with shield cloth (5m)

Model	KX0-M55G0-00

Tracking encoder cable (10m)

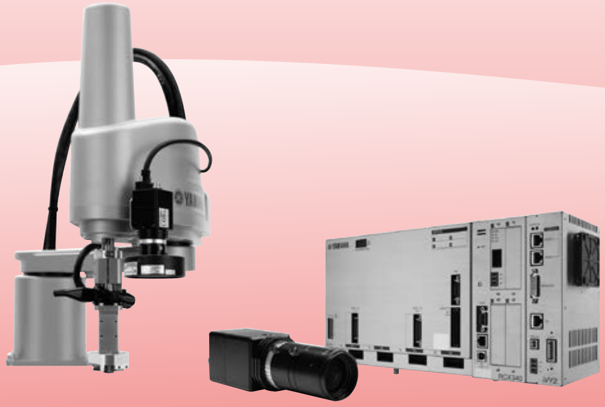
Model	KX0-M66AF-00

iVY2 System

Applicable controllers ▶ RCX340

● Robot with image processing functions

Integrated Robot Vision System with “plug-and-play” simplicity.
Basic specifications have been dramatically enhanced while retaining the current iVY system’s ease of use.



Main functions ▶ P.80

■ Ordering method

RCX340	-	-	-	-	-
Controller	No. of controllable axes	Safety standards	Controller option A to D (OP.A to D)	Controller option E (OP.E)	Absolute battery
			TR : Tracking	No entry: Non-selection VY: iVY2 without light VL: iVY2 with light	

Note. For details on the various selection items, refer to P.545

■ Basic specifications

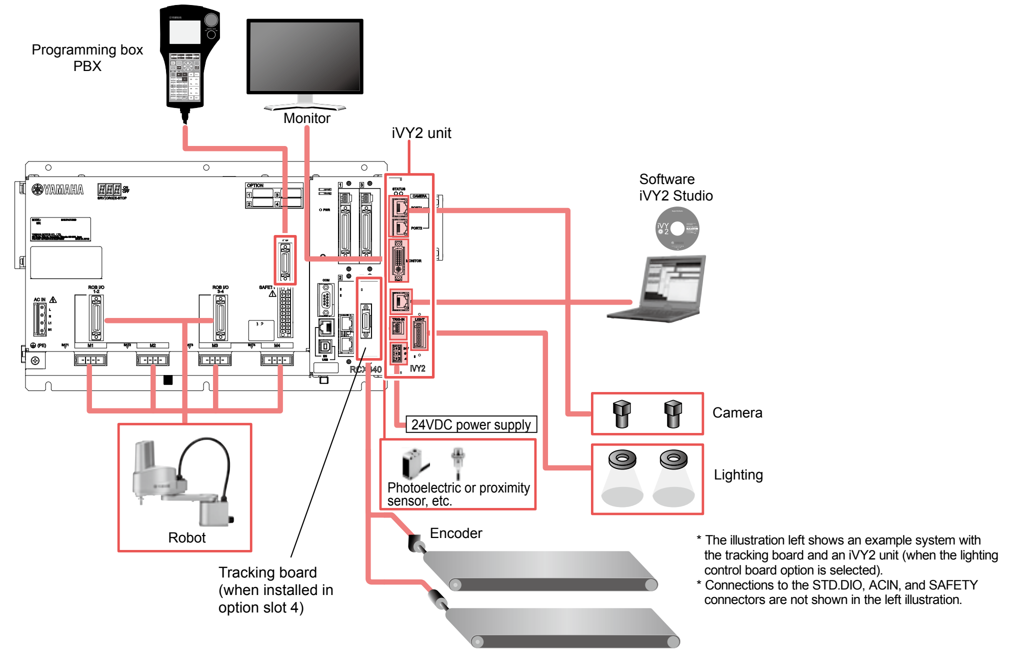
● Robot vision basic specifications

Item		iVY2 unit
Basic specifications	Applicable controllers	RCX340

	Number of screen pixels	648(H) × 494(V) (300,000 pixels, VGA)
		1280(H) × 966(V) (1,300,000 pixels, SXGA)
		1624(H) × 1236(V) (2,000,000 pixels, UXGA)
		2592(H) × 1944(V) (5,000,000 pixels, QSXGA)

	Model setting capacity	254 models
	Number of connectable cameras	Max. 2 cameras
	Connectable camera	GigE camera (VGA, SXGA, UXGA) PoE: IEEE802.3af 1 ch up to 7W
	External interface	Ethernet (1000BASE-T) Note. For setting and monitor operations
	External monitor output	DVI-I Note. Also usable with an analog monitor by using a conversion adaptor. Monitor resolution: 1024 × 768
	Power supply	DC24V +/-10% 1.5A Max.
	Dimensions	W45 × H195 × D130 (iVY2 unit only)
	Weight	0.8kg (iVY2 unit only, when the lighting control board option is selected)
Search method		Edge search (correlated edge filter, Sobel filter)
Image capturing	Trigger mode	S/W trigger, H/W trigger
	External trigger input	2 points
Function		Position detection, automatic point data generation
Camera installation position		Fixed to the fixed camera (up, down) or robot (Y-axis, Z-axis). Perpendicular to the workpiece to be captured.
Setting support function		Calibration, image save function, model registration[Note], fiducial mark registration[Note], monitor function[Note] Note. iVY2 Studio function (requires a Windows PC)
Lighting control options	Number of connectable lighting units	Max. 2 lighting units
	Modulated light format	PWM modulated light control (0 to 100%), PWM frequency switchable 62.5 kHz/125 kHz
		Continuous light, strobe light (follows camera exposure)
	Lighting power input	12VDC or 24VDC (external supply shared by both channels)
	Lighting output	For 12VDC supply: Total of less than 40W for both channels. For 24VDC supply: Total of less than 80W for both channels.

System configuration illustration



* The illustration left shows an example system with the tracking board and an iVY2 unit (when the lighting control board option is selected).

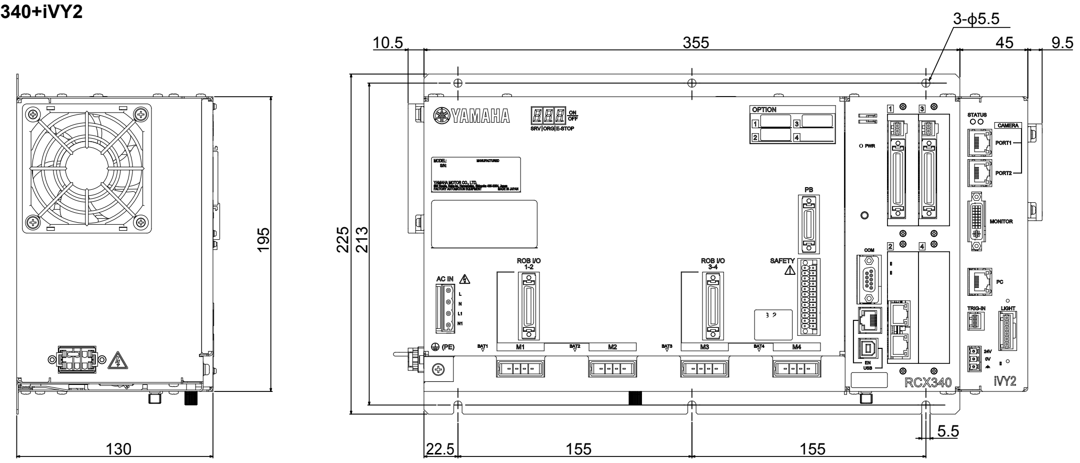
* Connections to the STD.DIO, ACIN, and SAFETY connectors are not shown in the left illustration.

Tracking board basic Specifications

Item		Tracking board
Basic specifications	Applicable controllers	RCX340
	Number of connected encoders	Up to 2 units.
	Encoder power supply	5VDC (2 counters total 500 mA or less) (Supplied from controller)
	Applicable encoder	26LS31/26C31 or equivalent line driver (RS-422 compliance).
	Input phase	A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$
	Max. response frequency	2MHz or less
	Counter	0 to 65535
	Multiplier	4x
	Other	With disconnection detection function

Dimensional outlines

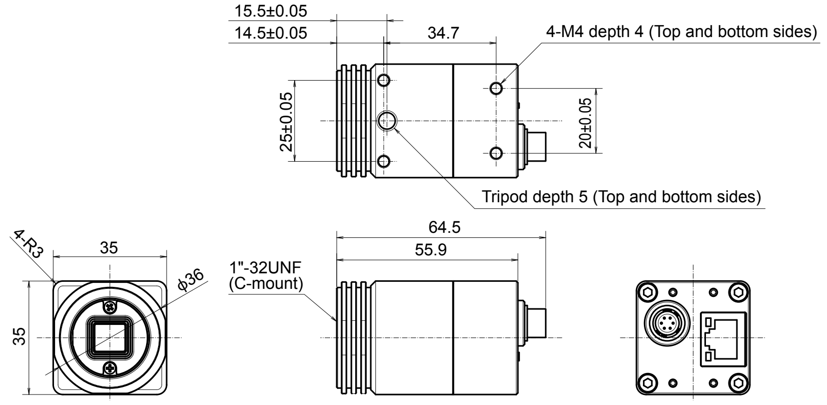
RCX340+iVY2



iVY2 System

Dimensional outlines

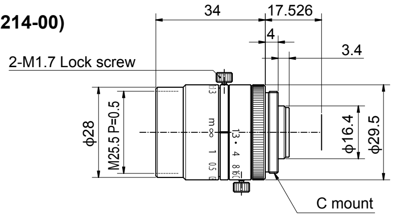
● CCD camera


15.5±0.05
14.5±0.05
34.7
4-M4 depth 4 (Top and bottom sides)
25±0.05
20±0.05
Tripod depth 5 (Top and bottom sides)
64.5
55.9
4-R3
35
ϕ36
35
1"-32UNF
(C-mount)

Lenses

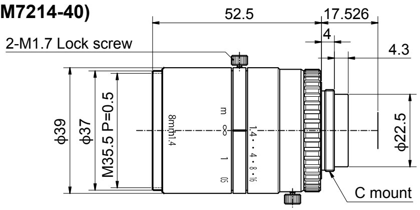
● 8mm lens

(Model No. : KCX-M7214-00)



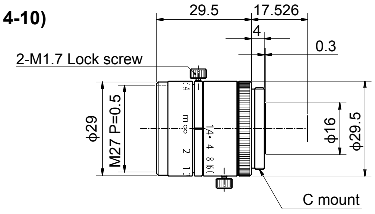
● 8mm lens (megapixel support)

(Model No. : KCX-M7214-40)



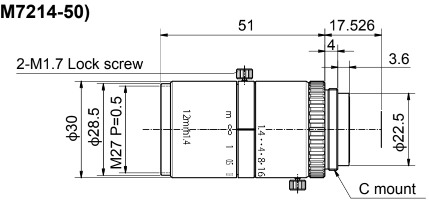
● 12mm lens

(Model No. : KCX-M7214-10)



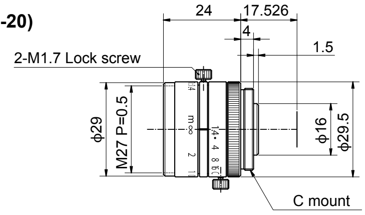
● 12mm lens (megapixel support)

(Model No. : KCX-M7214-50)



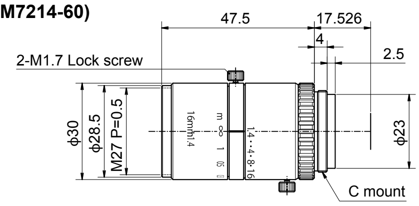
● 16mm lens

(Model No. : KCX-M7214-20)



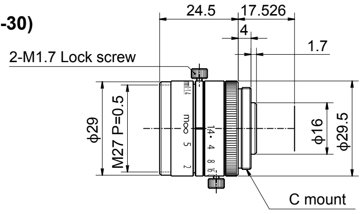
● 16mm lens (megapixel support)

(Model No. : KCX-M7214-60)



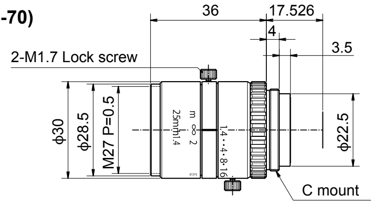
● 25mm lens

(Model No. : KCX-M7214-30)



● 25mm lens (megapixel support)

(Model No. : KCX-M7214-70)



Lens characteristics

Lens	Model	Focal length [mm]	Aperture value [F No.]	Angle-of-view (degrees)		Angle-of-view (degrees)		Closest approach distance [m]
				With 1/3 inch sensor KCX-M6541-00 (300,000 pixel camera) KCX-M6541-10 (1,300,000 pixel camera)		With 1/1.8 inch sensor KCX-M6541-20 (2,000,000 pixel camera)		
				Vertical	Horizontal	Vertical	Horizontal	
8mm	KCX-M7214-00	8	F1.3–CLOSE	25.21	33.2	37.08	47.59	0.2
12mm	KCX-M7214-10	12	F1.4–CLOSE	16.48	21.86	24.51	31.88	0.3
16mm	KCX-M7214-20	16	F1.4–CLOSE	12.57	16.71	18.77	24.51	0.4
25mm	KCX-M7214-30	25	F1.4–CLOSE	8.18	10.89	12.25	16.06	0.5
8mm (megapixel support)	KCX-M7214-40	8	F1.4–F16	25.36	33.4	37.3	47.86	0.1
12mm (megapixel support)	KCX-M7214-50	12	F1.4–F16	16.65	22.08	24.76	32.2	0.1
16mm (megapixel support)	KCX-M7214-60	16	F1.4–F16	12.68	16.85	18.92	24.72	0.1
25mm (megapixel support)	KCX-M7214-70	25	F1.4–F16	8.24	10.97	12.33	16.16	0.15

Note. This table shows the angle-of-view for Yamaha's standard lenses. If the angle-of-view is greater, there might be more distortion at the edge of the image.

Angle-of-view size, WD, and magnification when close-up ring is used

Close-up ring [mm]			Lens							
			8 mm KCX-M7214-00		12 mm KCX-M7214-10		16 mm KCX-M7214-20		25 mm KCX-M7214-30	
None	WD [mm]		200		300		400		500	
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)	96.2 × 126.2		91.4 × 119.9		91.4 × 119.9		71.7 × 94.1	
		KCX-M6541-10 (1,300,000 pixels)	95.4 × 126.4		90.6 × 120		90.6 × 120		71.1 × 94.2	
		KCX-M6541-20 (2,000,000 pixels)	143.2 × 188.1		136 × 178.7		136 × 178.7		106.7 × 140.1	
	Optical magnification		0.038		0.040		0.040		0.051	
0.5	WD [mm]		69.5	118.6	143	296.8	222	524.1	358.5	1269.4
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)	36.6 × 48	59 × 77.4	45.7 × 60	91.4 × 119.9	51.5 × 67.6	118 × 154.7	51.5 × 67.6	182.8 × 239.8
		KCX-M6541-10 (1,300,000 pixels)	36.3 × 48	58.5 × 77.5	45.3 × 60	90.6 × 120	51.1 × 67.7	116.9 × 154.9	51.1 × 67.7	181.1 × 240
		KCX-M6541-20 (2,000,000 pixels)	54.4 × 71.5	87.8 × 115.3	68 × 89.4	136 × 178.7	76.6 × 100.7	175.5 × 230.5	76.6 × 100.7	271.9 × 357.3
	Optical magnification		0.100	0.062	0.080	0.040	0.071	0.031	0.071	0.020
1.0	WD [mm]		38.7	53.8	91.3	142.3	152	257.1	280.8	635.9
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)	22.6 × 29.6	29.5 × 38.7	30.5 × 40	45.7 × 60	36.2 × 47.5	60 × 78.7	40.2 × 52.7	91.4 × 119.9
		KCX-M6541-10 (1,300,000 pixels)	22.4 × 29.7	29.3 × 38.8	30.2 × 40	45.3 × 60	35.9 × 47.6	59.4 × 78.7	39.9 × 52.8	90.6 × 120
		KCX-M6541-20 (2,000,000 pixels)	33.6 × 44.2	43.9 × 57.7	45.4 × 59.6	68 × 89.4	53.9 × 70.8	89.2 × 117.2	59.8 × 78.6	136 × 178.7
	Optical magnification		0.162	0.124	0.120	0.080	0.101	0.061	0.091	0.040
1.5	WD [mm]				65.4	90.8	114.5	168.1	230.9	424.7
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)			22.8 × 29.8	30.3 × 39.7	27.7 × 36.4	39.8 × 52.2	33 × 43.2	61 × 80
		KCX-M6541-10 (1,300,000 pixels)			22.5 × 29.9	30 × 39.7	27.5 × 36.4	39.4 × 52.2	32.7 × 43.3	60.4 × 80
		KCX-M6541-20 (2,000,000 pixels)			33.8 × 44.4	45 × 59.1	41.2 × 54.2	59.2 × 77.7	49 × 64.4	90.7 × 119.1
	Optical magnification				0.161	0.121	0.132	0.092	0.111	0.060
2.0	WD [mm]				50	65.1	91.2	123.6	196.3	319.1
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)			18.2 × 23.9	22.8 × 29.8	22.6 × 29.6	30 × 39.4	28.2 × 36.9	46.3 × 60.7
		KCX-M6541-10 (1,300,000 pixels)			18.1 × 23.9	22.5 × 29.9	22.4 × 29.7	29.7 × 39.4	27.9 × 37	45.9 × 60.8
		KCX-M6541-20 (2,000,000 pixels)			27.1 × 35.6	33.8 × 44.4	33.6 × 44.2	44.6 × 58.6	41.9 × 55	68.9 × 90.5
	Optical magnification				0.201	0.161	0.162	0.122	0.130	0.079
5.0	WD [mm]								104.2	129
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)							14.7 × 19.2	18.4 × 24.1
		KCX-M6541-10 (1,300,000 pixels)							14.5 × 19.2	18.3 × 24.2
		KCX-M6541-20 (2,000,000 pixels)							21.8 × 28.6	27.4 × 36
	Optical magnification								0.250	0.199

Note. WD is the lens tip reference.

Close-up ring [mm]			Lens							
			8 mm lens for megapixel KCX-M7214-40		12 mm lens for megapixel KCX-M7214-50		16 mm lens for megapixel KCX-M7214-60		25 mm lens for megapixel KCX-M7214-70	
None	WD [mm]		100		100		100		150	
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)	52.3 × 68.5		36.6 × 48		26.9 × 35.3		24.6 × 32.2	
		KCX-M6541-10 (1,300,000 pixels)	51.8 × 68.6		36.3 × 48		26.7 × 35.3		24.4 × 32.3	
		KCX-M6541-20 (2,000,000 pixels)	77.7 × 102.1		54.4 × 71.5		40 × 52.6		36.5 × 48	
	Optical magnification		0.070		0.100		0.136		0.149	
0.5	WD [mm]		46	113.6	66.1	283.2	77.8	505.4	130.3	1232.2
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)	27.7 × 36.4	58.1 × 76.2	25.4 × 33.3	89.2 × 117	22.1 × 28.9	118 × 154.7	21.7 × 28.4	182.8 × 239.8
		KCX-M6541-10 (1,300,000 pixels)	27.5 × 36.4	57.5 × 76.2	25.2 × 33.4	88.4 × 117.1	21.9 × 29	116.9 × 154.9	21.5 × 28.5	181.1 × 240
		KCX-M6541-20 (2,000,000 pixels)	41.2 × 54.2	86.4 × 113.5	37.8 × 49.7	132.7 × 174.3	32.8 × 43.1	175.5 × 230.5	32.2 × 42.3	271.9 × 357.3
	Optical magnification		0.132	0.063	0.144	0.041	0.166	0.031	0.169	0.020
1.0	WD [mm]				47.2	131.9	62.6	243	114.6	607.2
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)			19.8 × 26	45.2 × 59.2	18.6 × 24.4	59 × 77.4	19.4 × 25.4	91.4 × 119.9
		KCX-M6541-10 (1,300,000 pixels)			19.6 × 26	44.8 × 59.3	18.4 × 24.4	58.5 × 77.5	19.2 × 25.4	90.6 × 120
		KCX-M6541-20 (2,000,000 pixels)			29.4 × 38.7	67.2 × 88.3	27.7 × 36.3	87.8 × 115.3	28.8 × 37.9	136 × 178.7
	Optical magnification				0.185	0.081	0.197	0.062	0.189	0.040
1.5	WD [mm]				35.2	81.4	51.5	155.5	102	398.9
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)			16.3 × 21.4	32.7 × 42.9	16.1 × 21.1	39.4 × 51.6	17.5 × 23	61 × 80
		KCX-M6541-10 (1,300,000 pixels)			16.1 × 21.4	32.4 × 42.9	15.9 × 21.1	39 × 51.7	17.4 × 23	60.4 × 80
		KCX-M6541-20 (2,000,000 pixels)			24.2 × 31.8	48.6 × 63.8	23.9 × 31.4	58.5 × 76.9	26.1 × 34.2	90.7 × 119.1
	Optical magnification				0.225	0.112	0.228	0.093	0.209	0.060
2.0	WD [mm]				26.9	56.2	43	111.7	91.5	294.7
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)			13.8 × 18.1	22.5 × 29.5	14.2 × 18.6	29.8 × 39	16 × 21	45.7 × 60
		KCX-M6541-10 (1,300,000 pixels)			13.7 × 18.1	22.3 × 29.5	14 × 18.6	29.5 × 39.1	15.9 × 21	45.3 × 60
		KCX-M6541-20 (2,000,000 pixels)			20.5 × 26.9	33.4 × 43.9	21 × 27.6	44.3 × 58.1	23.8 × 31.3	68 × 89.4
	Optical magnification				0.266	0.163	0.259	0.123	0.229	0.080
5.0	WD [mm]								53.9	107.2
	Angle-of-view size X × Y [mm]	KCX-M6541-00 (300,000 pixels)							10.5 × 13.8	18.3 × 24
		KCX-M6541-10 (1,300,000 pixels)							10.4 × 13.8	18.2 × 24
		KCX-M6541-20 (2,000,000 pixels)							15.6 × 20.5	27.2 × 35.8
	Optical magnification								0.349	0.200

Note. The above table shows the field of view when the standard lens and close-up ring are used. (Closest distance value is shown in No Close-up Ring column).
Note. If a close-up ring is not used, a WD less than the value shown in this table cannot be used.
Note. If a close-up ring is used, only WD in the region of this value can be used.
Note. Values in this table are for reference only; Actual values may vary.

Accessories and part options

iVY2 System

Standard accessories

iVY2 unit

The iVY2 unit adds robot vision to the RCX340 robot controller.

Model		
Model	No lighting	KCX-M4400-V0
	With lighting	KCX-M4400-L0

iVY2 unit accessories

Name	Individual model
Camera trigger input cable connector	KX0-M657K-00
24V power supply connector	KCF-M5382-00

Support software for PC iVY2 Studio

iVY2 Studio is support software for the iVY2 system that allows registering part types and reference marks as well as monitoring the work search status during automatic robot operation by connecting to the robot controller.

Environment

Software model	KCX-M4988-00
OS	Microsoft Windows XP / Vista (32bit/64bit) / 7 (32bit/64bit) / 8, 8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk capacity	16MB of available space required on installation drive.
Display	800 x 600 dot, or higher, 32768 colors (16bit High Color) or higher (recommended)
Communication Port	Ethernet Port of TCP/IP

Note. Microsoft, Windows XP, Windows Vista, Windows 7, Windows 8, 8.1 are registered trademarks of the Microsoft Corporation, USA.

Tracking encoder cable (10m)

Model	KX0-M66AF-00

■ Options

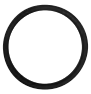
● Camera

CCD camera	300,000 pixel	648×494 (VGA)	KCX-M6541-00
	1,300,000 pixel	1280×966 (SXGA)	KCX-M6541-10
	2,000,000 pixel	1624×1236 (UXGA)	KCX-M6541-20
CMOS camera	5,000,000 pixel	2592×1944 (QSXGA)	KCX-M6541-30

● Lens

Model	8mm	KCX-M7214-00
	12mm	KCX-M7214-10
	16mm	KCX-M7214-20
	25mm	KCX-M7214-30
	8mm (megapixel support)	KCX-M7214-40
	12mm (megapixel support)	KCX-M7214-50
	16mm (megapixel support)	KCX-M7214-60
	25mm (megapixel support)	KCX-M7214-70

● Close-up ring



Model	0.5mm	KX0-M7215-00
	1.0mm	KX0-M7215-10
	2.0mm	KX0-M7215-20
	5.0mm	KX0-M7215-30

● Lighting control board

This board adds lighting control functionality to the iVY2 system. (Installed in the iVY2 unit when shipped)

Model	KCX-M4403-L0

● Lighting control board accessories

Name	Model
Lighting power cable connector	KX0-M657K-10

● Tracking board

This board adds conveyor tracking functionality to the RCX340 controller.

Model	KCX-M4400-T0

● Tracking board accessories

Name	Single unit model
AB phase input cable connector	KX0-M657K-20

● Recommended option cable Note

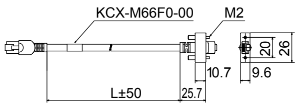
Name	Single unit model
AB phase input cable (10 m, only for counter 1)	KX0-M66AF-00

Note. Not included.
We can provide an option that is pre-wired to the AB phase input cable connector.

● Camera cable

Cable for connecting the camera to the iVY2 board.

External diagram of camera cable



Model	5m	KCX-M66F0-00
	10m	KCX-M66F0-10
	15m	KCX-M66F0-20

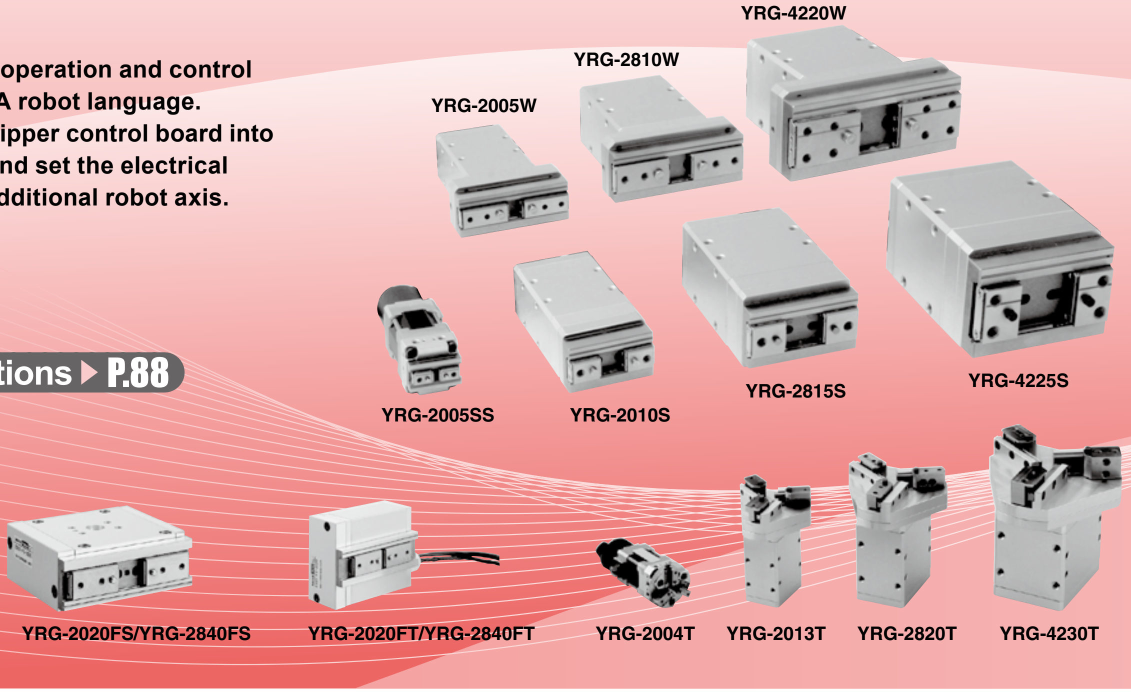
● LAN cable with shield cloth (5 m)

Model	KX0-M55G0-00

YRG Series

Simple gripper operation and control via the YAMAHA robot language. Just install a gripper control board into the controller and set the electrical gripper as an additional robot axis.

Main functions ▶ P.88

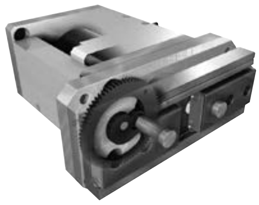


Structure

● Single cam structure

Unique cam structure is simple and compact. The fingers work due to external force since no self-locking is used.

● Double cam structure



Unique double cam structure with gear. Simple design gives high gripping power yet body is compact.

● Ball screw structure

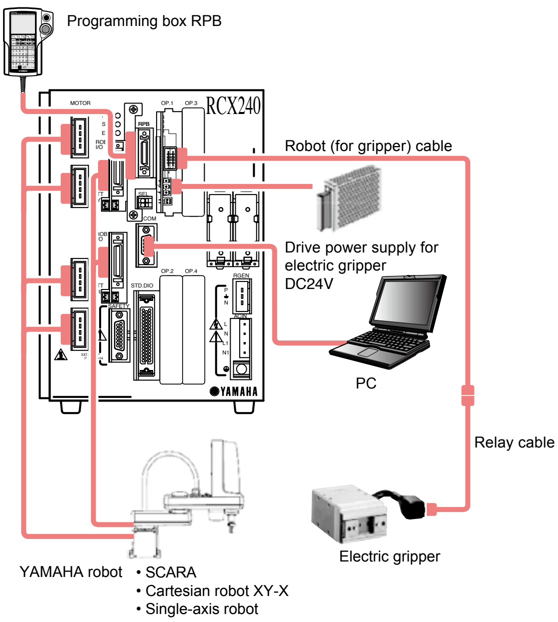
Belt-driven ground ball screw delivers a long stroke with high efficiency and high precision.

● Compact ball guide structure

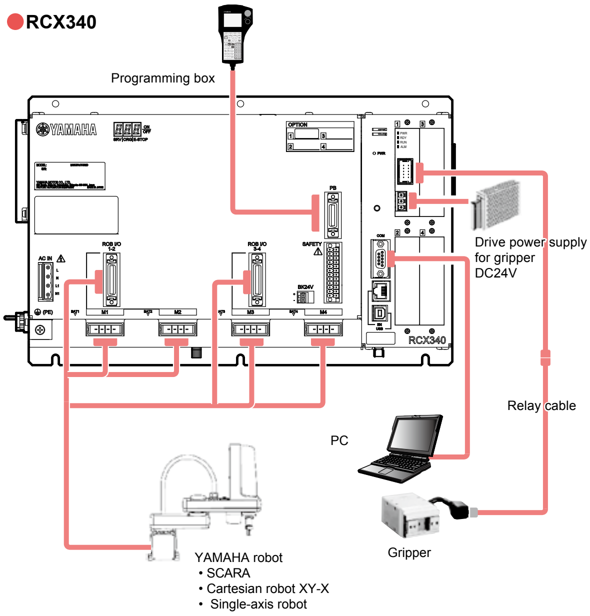
Use of special cams provides light weight and compactness. Ideal for grasping and moving a round workpiece made of glass or similar material.

System configuration illustration

●RCX240



●RCX340



Compact single cam type

YRG-2005SS

Basic specifications

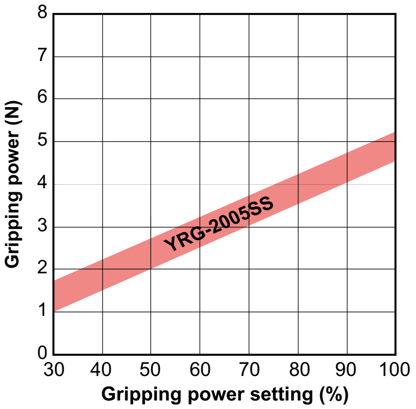
Model name		YRG-2005SS
Model number		KCF-M2010-A0
Holding power	Max. continuous rating (N)	5
	Min. setting (% (N))	30 (1.5)
	Resolution (% (N))	1 (0.05)
Open/close stroke (mm)		3.2
Speed	Max. rating (mm/sec)	100
	Min. setting (% (mm/sec))	20 (20)
	Resolution (% (mm/sec))	1 (1)
	Holding speed (Max.) (%)	50
Repetitive positioning accuracy (mm)		+/-0.02
Guide mechanism		Linear guide
Max. holding weight Note 1 (kg)		0.05
Weight (g)		90

- Hoding power control : 30 to 100% (1% steps) • Speed control : 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps) • Multipoint position control : 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

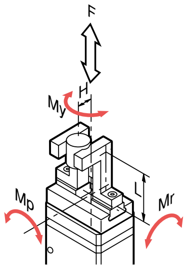
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

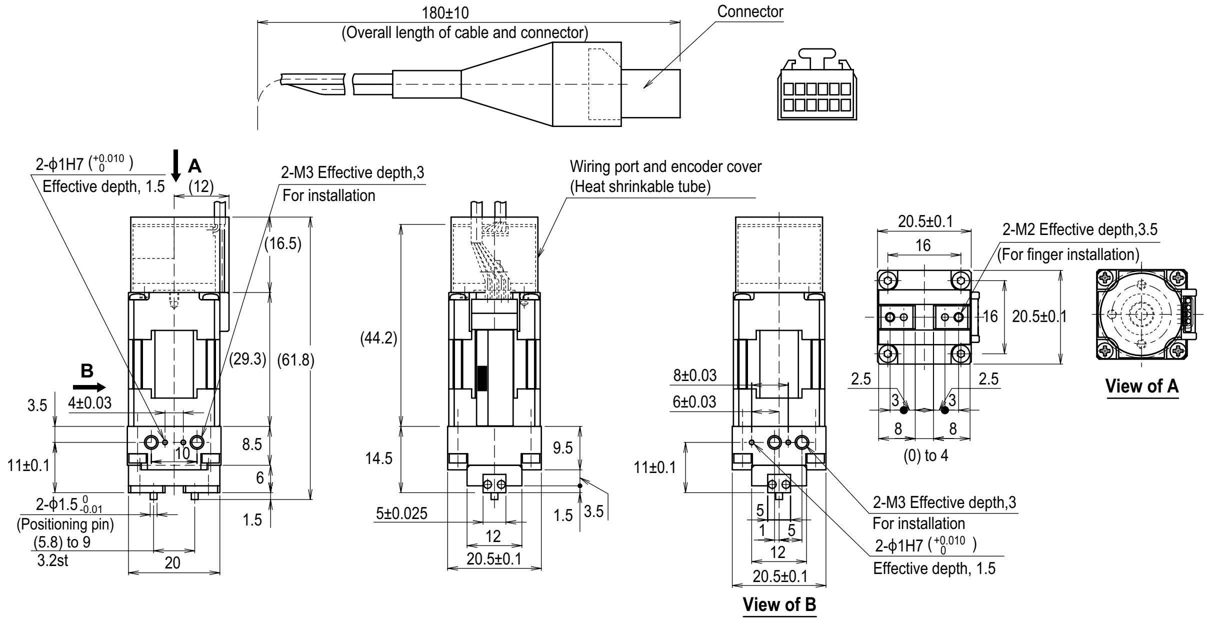
Allowable load and load moment

				YRG-2005SS
Guide	Allowable load	F	N	12
	Allowable pitching moment	Mp	N•m	0.04
	Allowable yawing moment	My	N•m	0.04
	Allowable rolling moment	Mr	N•m	0.08
Finger	Max. weight (1 pair)		g	10
	Max. holding position	L	mm	20
	Max. overhang	H	mm	20



- Mount the finger so that the allowable load and load moment of the guide do not exceed the values stated in the table above.
- Make the adjustment so that the finger weight, holding length (L) from the installation surface to the holding point, and overhang (H) do not exceed the values stated in the table above.
- Please contact your YAMAHA sales dealer for further information on combination of L and H.

YRG-2005SS



Note. Avoid extreme winding of the cable and fix the cable securely so that it does not move. Take appropriate measures so that any excessive force is not applied to the root of the cable.

YRG Series

Single cam type

YRG-2010S/2815S/4225S

Basic specifications

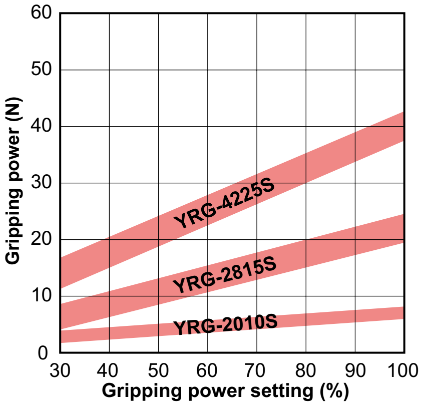
		YRG-2010S	YRG-2815S	YRG-4225S
Model name		YRG-2010S	YRG-2815S	YRG-4225S
Model number		KCF-M2011-A0	KCF-M2011-B0	KCF-M2011-C0
Holding power	Max. continuous rating (N)	6	22	40
	Min. setting (% (N))	30 (1.8)	30 (6.6)	30 (12)
	Resolution (% (N))	1 (0.06)	1 (0.22)	1 (0.4)
Open/close stroke (mm)		7.6	14.3	23.5
Speed	Max. rating (mm/sec)	100		
	Min. setting (% (mm/sec))	20 (20)		
	Resolution (% (mm/sec))	1 (1)		
	Holding speed (Max.) (%)	50		
Repetitive positioning accuracy (mm)		+/-0.02		
Guide mechanism		Linear guide		
Max. holding weight Note 1 (kg)		0.06	0.22	0.4
Weight (g)		160	300	580

- Hoding power control: 30 to 100% (1% steps) • Speed control: 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps) • Multipoint position control: 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

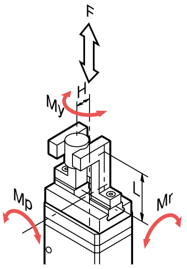
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

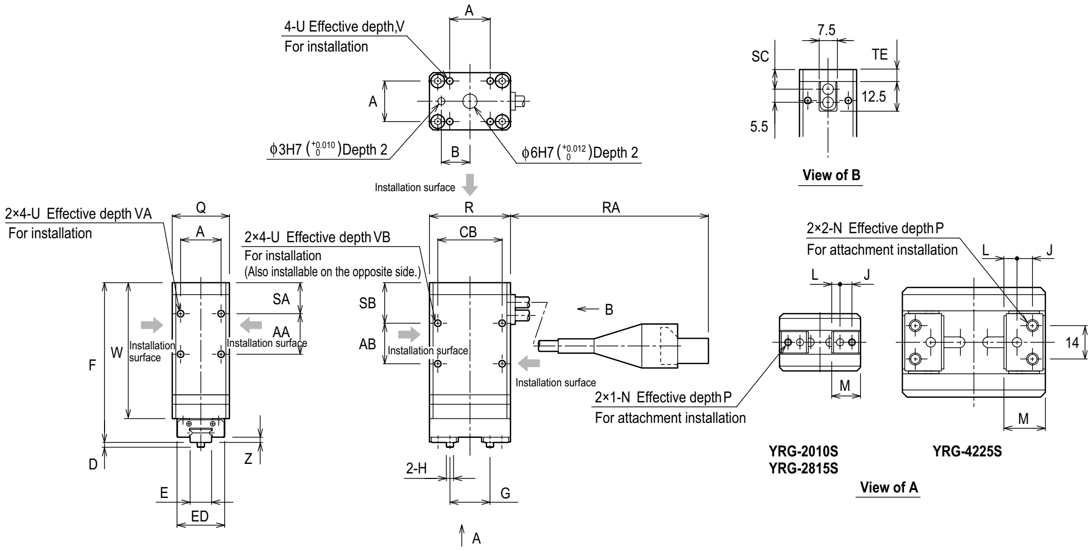
Allowable load and load moment

				YRG-2010S	YRG-2815S	YRG-4225S
Guide	Allowable load	F	N	450	350	600
	Allowable pitching moment	Mp	N•m	0.7	0.5	1.1
	Allowable yawing moment	My	N•m	0.8	0.6	1.3
	Allowable rolling moment	Mr	N•m	2.3	2.8	8.6
Finger	Max. weight (1 pair)		g	15	30	50
	Max. holding position	L	mm	20	20	25
	Max. overhang	H	mm	20	25	30



- Mount the finger so that the allowable load and load moment of the guide do not exceed the values stated in the table above.
- Make the adjustment so that the finger weight, holding length (L) from the installation surface to the holding point, and overhang (H) do not exceed the values stated in the table above.
- Please contact your YAMAHA sales dealer for further information on combination of L and H.

YRG-2010S/2815S/4225S

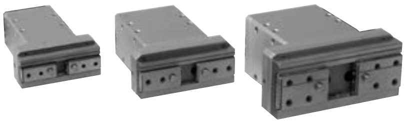


	A	AA	AB	B	CB	D	E	ED	F	G	H	J	L
YRG-2010S	17	17	17	12	27	2	$9^{0}_{-0.05}$	20	71	8.4 to 16	$\phi 3^{0}_{-0.01}$	5	3.5
YRG-2815S	24	24	14	15	38	2	$14^{0}_{-0.05}$	25	78	9.6 to 23.9	$\phi 3^{0}_{-0.01}$	6	4.3
YRG-4225S	36	25	13	20	50	3	$24^{0}_{-0.05}$	40	86	12 to 35.5	$\phi 4^{0}_{-0.012}$	6.5	5.5

	M	N	P	Q	R	RA	SA	SB	SC	TE	U	V	VA	VB	W	Z
YRG-2010S	12.1	M3	5	24	34	165+/-10	13	17	8.3	5	M3	5	6	6	61	2.2
YRG-2815S	15	M4	5	32	46	140+/-10	16	21	9.3	6	M4	6	8	8	69	2
YRG-4225S	17.4	M5	8	46	60	235+/-10	18	24	10.8	7.5	M5	7.5	8	10	72	3

Double cam type

YRG-2005W/2810W/4220W



Basic specifications

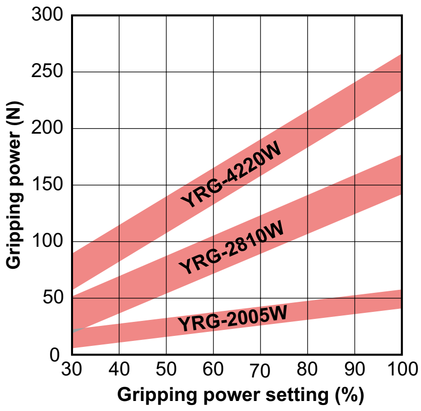
Model name		YRG-2005W	YRG-2810W	YRG-4220W
Model number		KCF-M2012-A0	KCF-M2012-B0	KCF-M2012-C0
Holding power	Max. continuous rating (N)	50	150	250
	Min. setting (% (N))	30 (15)	30 (45)	30 (75)
	Resolution (% (N))	1 (0.5)	1 (1.5)	1 (2.5)
Open/close stroke (mm)		5	10	19.3
Speed	Max. rating (mm/sec)	60	60	45
	Min. setting (% (mm/sec))	20 (12)	20 (12)	20 (9)
	Resolution (% (mm/sec))	1 (0.6)	1 (0.7)	1 (0.45)
	Holding speed (Max.) (%)	50		
Repetitive positioning accuracy (mm)		+/-0.03		
Guide mechanism		Linear guide		
Max. holding weight Note 1 (kg)		0.5	1.5	2.5
Weight (g)		200	350	800

- Hoding power control : 30 to 100% (1% steps)
- Speed control : 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps)
- Multipoint position control : 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

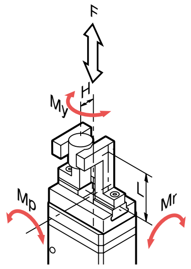
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

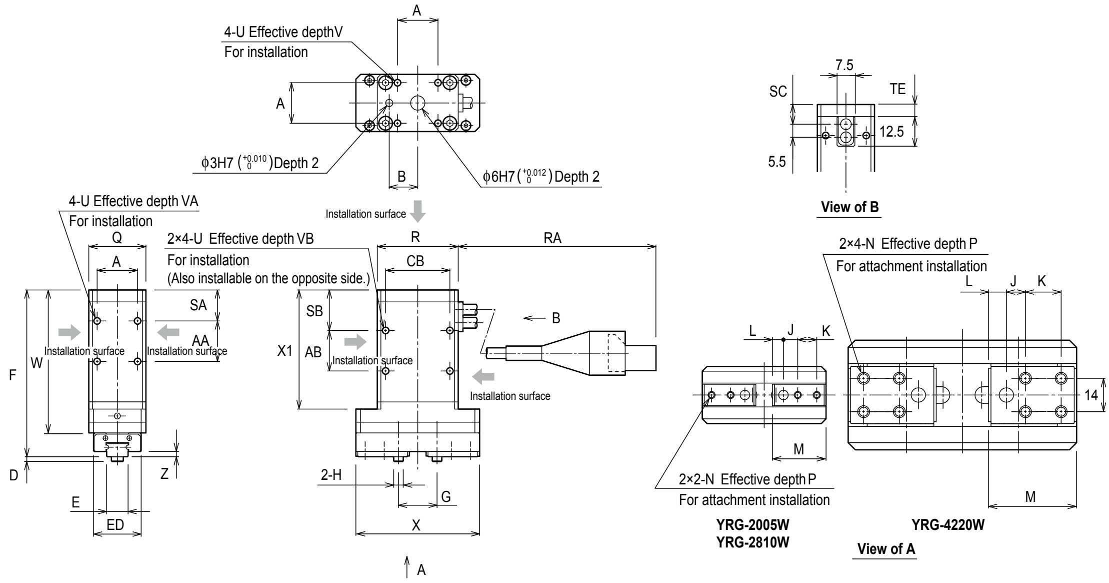
Allowable load and load moment

				YRG-2005W	YRG-2810W	YRG-4220W
Guide	Allowable load	F	N	1000	1000	2000
	Allowable pitching moment	Mp	N•m	6.7	8.1	20.1
	Allowable yawing moment	My	N•m	4	4.8	12
	Allowable rolling moment	Mr	N•m	5.1	7.8	25.9
Finger	Max. weight (1 pair)		g	40	80	200
	Max. holding position	L	mm	30	30	50
	Max. overhang	H	mm	20	20	30



- Mount the finger so that the allowable load and load moment of the guide do not exceed the values stated in the table above.
- Make the adjustment so that the finger weight, holding length (L) from the installation surface to the holding point, and overhang (H) do not exceed the values stated in the table above.
- Please contact your YAMAHA sales dealer for further information on combination of L and H.

YRG-2005W/2810W/4220W



	A	AA	AB	B	CB	D	E	ED	F	G	H	J	K	L
YRG-2005W	17	17	17	12	27	2	$9^{\ 0}_{-0.05}$	20	74	10.6 to 15.6	$\phi 4^{\ 0}_{-0.012}$	6	8	4.6
YRG-2810W	24	24	14	15	38	2	$14^{\ 0}_{-0.05}$	25	80	12.6 to 22.6	$\phi 5^{\ 0}_{-0.012}$	7	10	5.65
YRG-4220W	36	25	13	20	50	3	$24^{\ 0}_{-0.05}$	40	90	17.0 to 36.3	$\phi 6^{\ 0}_{-0.012}$	8	15	7.5

	M	N	P	Q	R	RA	SA	SB	SC	TE	U	V	VA	VB	W	X	X1	Z
YRG-2005W	22.5	M3	5	24	34	165+/-10	13	17	8.3	5	M3	5	6	6	64	52	54	2.2
YRG-2810W	27.5	M4	5	32	46	140+/-10	16	21	9.3	6	M4	6	8	8	71	67	61	2
YRG-4220W	37	M5	8	46	60	235+/-10	18	24	10.8	7.5	M5	7.5	8	10	76	96	63	3

YRG Series

Screw type strait style

YRG-2020FS/2840FS

Basic specifications

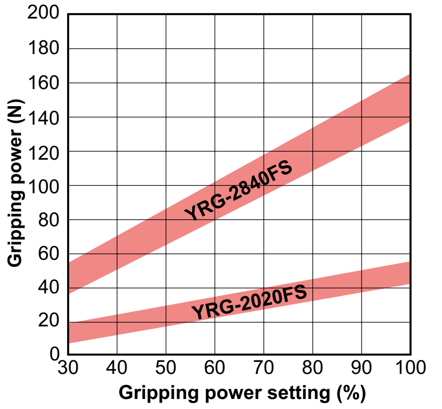
Model name		YRG-2020FS	YRG-2840FS
Model number		KCF-M2013-A0	KCF-M2013-B0
Holding power	Max. continuous rating (N)	50	150
	Min. setting (% (N))	30 (15)	30 (45)
	Resolution (% (N))	1 (0.5)	1 (1.5)
Open/close stroke (mm)		19	38
Speed	Max. rating (mm/sec)	50	50
	Min. setting (% (mm/sec))	20 (10)	20 (10)
	Resolution (% (mm/sec))	1 (0.5)	1 (0.5)
	Holding speed (Max.) (%)	50	50
Repetitive positioning accuracy (mm)		+/-0.01	+/-0.01
Guide mechanism		Linear guide	
Max. holding weight Note 1 (kg)		0.5	1.5
Weight (g)		420	880

- Hoding power control : 30 to 100% (1% steps)
- Speed control : 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps)
- Multipoint position control : 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

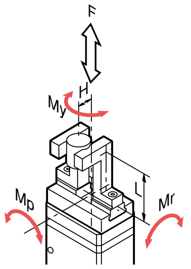
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

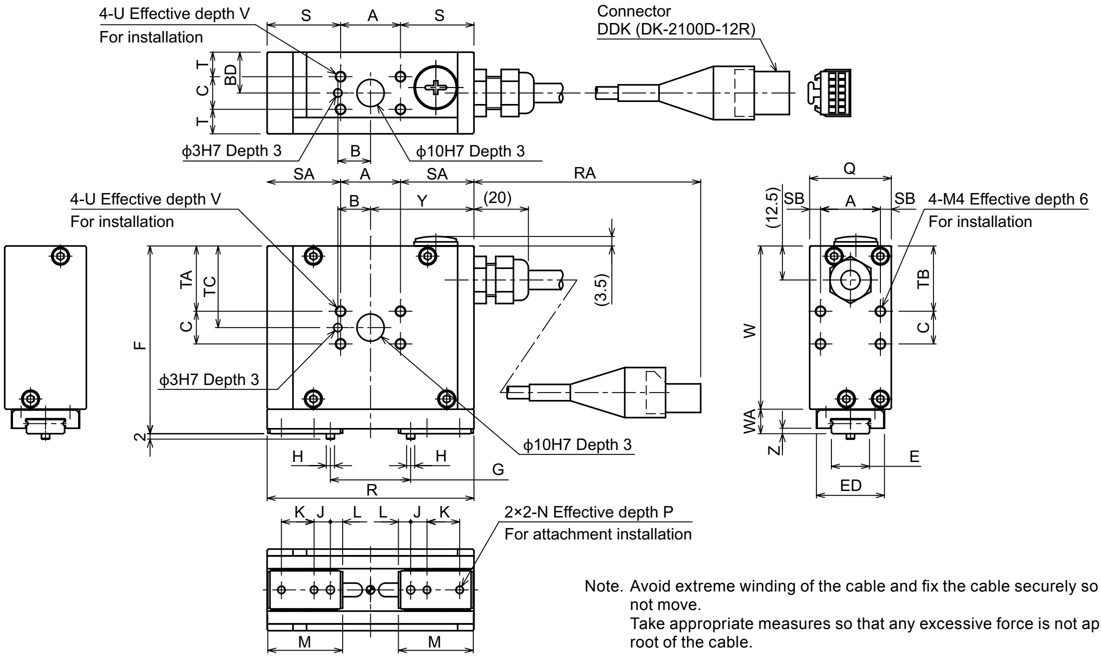
Allowable load and load moment

				YRG-2020FS	YRG-2840FS
Guide	Allowable load	F	N	1000	1300
	Allowable pitching moment	Mp	N•m	3.5	5
	Allowable yawing moment	My	N•m	4.2	6
	Allowable rolling moment	Mr	N•m	7.3	12.7
Finger	Max. weight (1 pair)		g	40	80
	Max. holding position	L	mm	30	30
	Max. overhang	H	mm	20	20



- Mount the finger so that the allowable load and load moment of the guide do not exceed the values stated in the table above.
- Make the adjustment so that the finger weight, holding length (L) from the installation surface to the holding point, and overhang (H) do not exceed the values stated in the table above.
- Please contact your YAMAHA sales dealer for further information on combination of L and H.

YRG-2020FS/2840FS



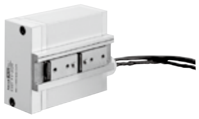
Note. Avoid extreme winding of the cable and fix the cable securely so that it does not move.
Take appropriate measures so that any excessive force is not applied to the root of the cable.

	A	B	BD	C	D	E	ED	F	G	H	J	K	L	M	N
YRG-2020FS	22	12	15	12	2	$14^{\ 0}_{-0.05}$	25	69	10.5 to 29.5	$\phi 3^{\ 0}_{-0.01}$	6	12	4.5	27.5	M3
YRG-2840FS	30	15	20	16	2	$18^{\ 0}_{-0.05}$	30	84	13 to 51	$\phi 4^{\ 0}_{-0.012}$	8	14	5.5	34.5	M4

	P	Q	R	RA	S	SA	SB	T	TA	TB	TC	TD	U	V	W	WA	Y	Z
YRG-2020FS	5	30	76	175+/-10	27	27	4	9	24	24	30	12.5	M4	6	60	9	38	2
YRG-2840FS	7.5	40	110	135+/-10	40	40	5	12	28	28	36	14	M5	7.5	72	12	55	3

Screw type "T" style

YRG-2020FT/2840FT



Basic specifications

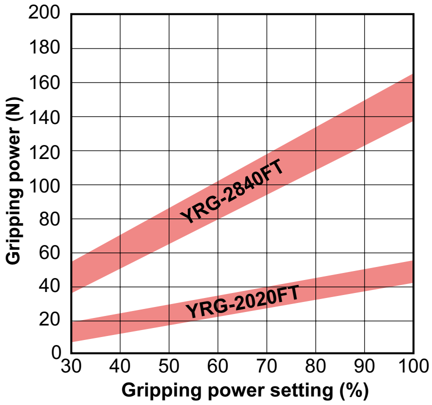
		YRG-2020FT	YRG-2840FT
Model name		YRG-2020FT	YRG-2840FT
Model number		KCF-M2014-A0	KCF-M2014-B0
Holding power	Max. continuous rating (N)	50	150
	Min. setting (% (N))	30 (15)	30 (45)
	Resolution (% (N))	1 (0.5)	1 (1.5)
Open/close stroke (mm)		19	38
Speed	Max. rating (mm/sec)	50	50
	Min. setting (% (mm/sec))	20 (10)	20 (10)
	Resolution (% (mm/sec))	1 (0.5)	1 (0.5)
	Holding speed (Max.) (%)	50	50
Repetitive positioning accuracy (mm)		+/-0.01	+/-0.01
Guide mechanism		Linear guide	
Max. holding weight Note 1 (kg)		0.5	1.5
Weight (g)		420	890

- Hoding power control : 30 to 100% (1% steps) • Speed control: 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps) • Multipoint position control: 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

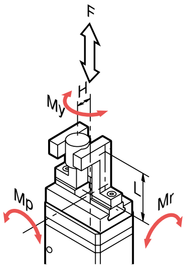
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

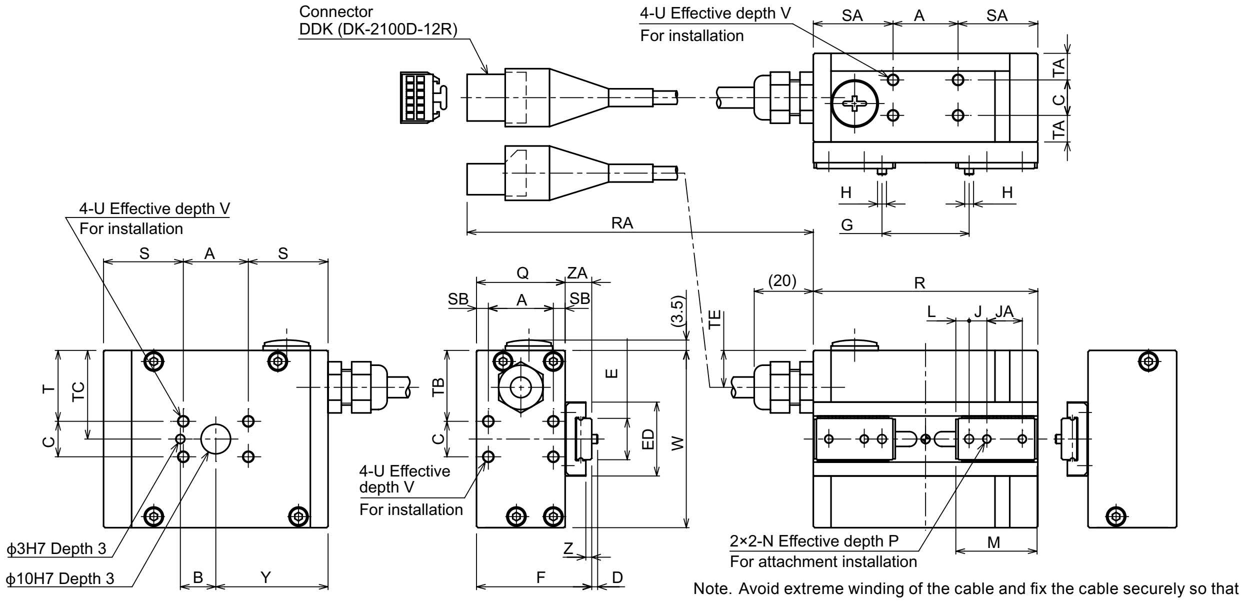
Allowable load and load moment

				YRG-2020FT	YRG-2840FT
Guide	Allowable load	F	N	1000	1300
	Allowable pitching moment	Mp	N•m	3.5	5
	Allowable yawing moment	My	N•m	4.2	6
	Allowable rolling moment	Mr	N•m	7.3	12.7
Finger	Max. weight (1 pair)		g	40	80
	Max. holding position	L	mm	30	30
	Max. overhang	H	mm	20	20



- Mount the finger so that the allowable load and load moment of the guide do not exceed the values stated in the table above.
- Make the adjustment so that the finger weight, holding length (L) from the installation surface to the holding point, and overhang (H) do not exceed the values stated in the table above.
- Please contact your YAMAHA sales dealer for further information on combination of L and H.

YRG-2020FT/2840FT



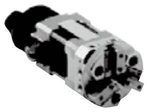
Note. Avoid extreme winding of the cable and fix the cable securely so that it does not move.
Take appropriate measures so that any excessive force is not applied to the root of the cable.

	A	B	C	D	E	ED	F	G	H	J	JA	K	L	M	N	P
YRG-2020FT	22	12	12	2	14 $^{0}_{-0.05}$	25	39	10.5 to 29.5	ϕ3 $^{0}_{-0.01}$	6	12	12	4.5	27.5	M3	5
YRG-2840FT	30	15	16	2	18 $^{0}_{-0.05}$	30	52	13 to 51	ϕ4 $^{0}_{-0.012}$	8	14	14	5.5	34.5	M4	7.5

	Q	R	RA	S	SA	SB	T	TA	TB	TC	TD	TE	U	V	W	Y	Z	ZA
YRG-2020FT	30	76	175+/-10	27	27	4	24	9	24	30	12.5	12.5	M4	6	60	38	2	9
YRG-2840FT	40	110	135+/-10	40	40	5	28	12	28	36	14	14	M5	7.5	72	55	3	12

Three fingers type

YRG-2004T



Basic specifications

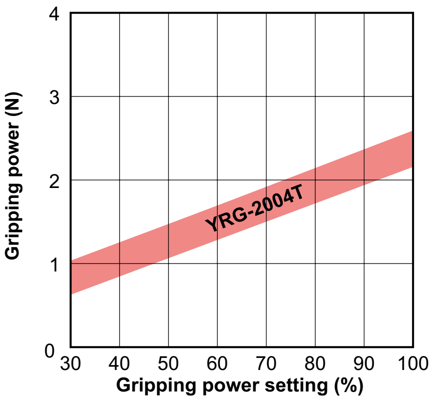
Model name		YRG-2004T
Model number		KCF-M2015-A0
Holding power	Max. continuous rating (N)	2.5
	Min. setting (% (N))	30 (0.75)
	Resolution (% (N))	1 (0.025)
Open/close stroke (mm)		3.5
Speed	Max. rating (mm/sec)	100
	Min. setting (% (mm/sec))	20 (20)
	Resolution (% (mm/sec))	1 (1)
	Holding speed (Max.) (%)	50
Repetitive positioning accuracy (mm)		+/-0.03
Guide mechanism		Linear guide
Max. holding weight Note 1 (kg)		0.02
Weight (g)		90

- Hoding power control: 30 to 100% (1% steps)
- Speed control: 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps)
- Multipoint position control: 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

Allowable load and load moment

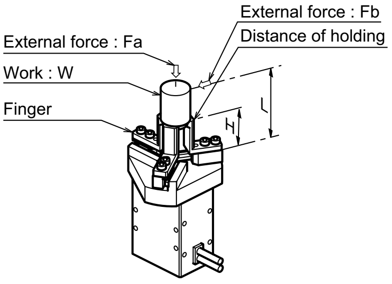
				YRG-2004T
Finger	Allowable load		N	6
	Allowable pitching moment		N•m	0.02
	Max. weight (1 pair)		g	10
	Max. holding position	L	mm	15

- When the external forces Fa and Fb are applied to a potion the distance (L) apart from the finger installation surface, the load (F) and moment (M) are calculated from the formulas shown below.

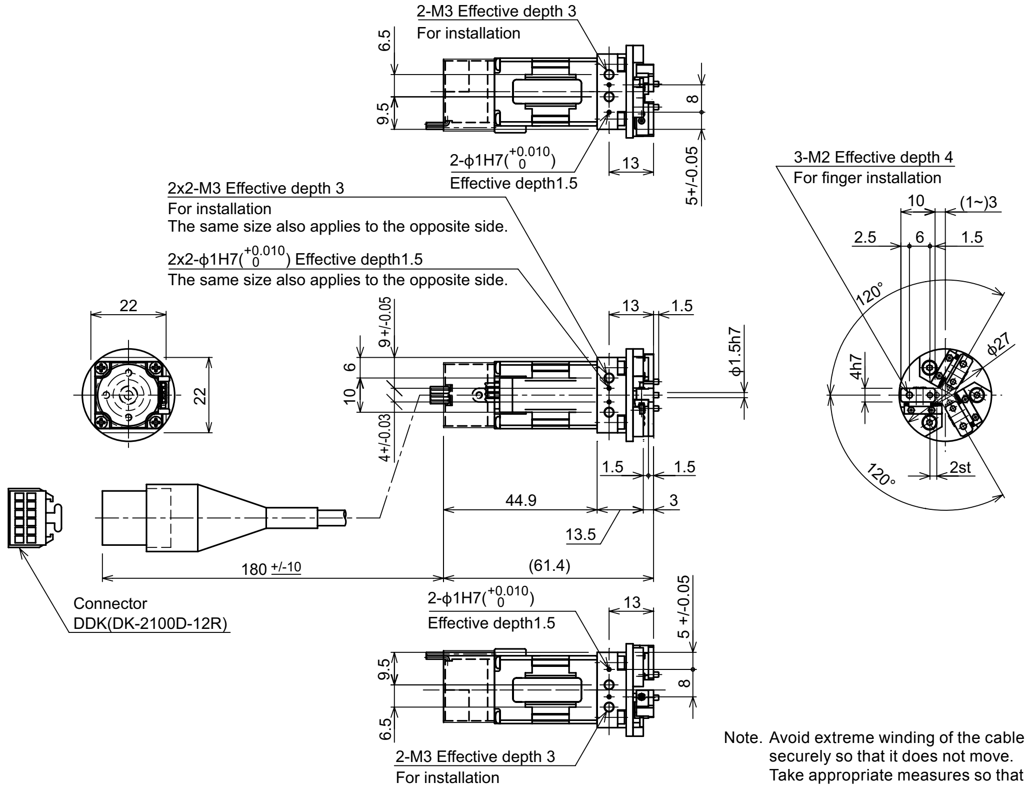
F = Fa + W × g
M = Fb × L

F : Load [N]
M : Moment [N•m]
L : Distance of point of external force application [m]

Fa :External force [N]
Fb :External force [N]
W : Workpiece weight [Kg]
g : Gravity acceleration [m/s^2]
H : Distance of holding point [m]



YRG-2004T



Note. Avoid extreme winding of the cable and fix the cable securely so that it does not move.
Take appropriate measures so that any excessive force is not applied to the root of the cable.

Three fingers type

YRG-2013T/2820T/4230T

Basic specifications

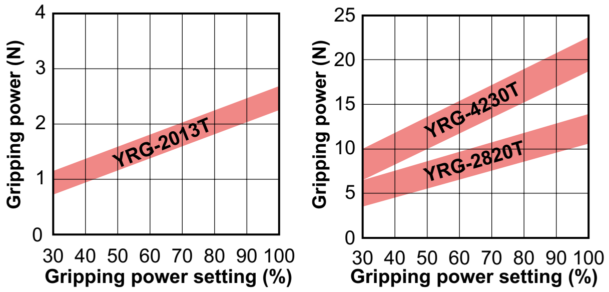
Model name		YRG-2013T	YRG-2820T	YRG-4230T
Model number		KCF-M2015-B0	KCF-M2015-C0	KCF-M2015-D0
Holding power	Max. continuous rating (N)	2	10	20
	Min. setting (% (N))	30 (0.6)	30 (3)	30 (6)
	Resolution (% (N))	1 (0.02)	1 (0.1)	1 (0.2)
Open/close stroke (mm)		13	20	30
Speed	Max. rating (mm/sec)	100		
	Min. setting (% (mm/sec))	20 (20)		
	Resolution (% (mm/sec))	1 (1)	1 (1)	1 (1)
	Holding speed (Max.) (%)	50	50	50
Repetitive positioning accuracy (mm)		+/-0.03		
Guide mechanism		Linear guide		
Max. holding weight Note 1 (kg)		0.02	0.1	0.2
Weight (g)		190	340	640

- Hoding power control : 30 to 100% (1% steps) • Speed control : 20 to 100% (1% steps)
- Acceleration control : 1 to 100% (1% steps) • Multipoint position control : 10,000 max.

Note. Design the finger as short and lightweight as possible.
Note. Set the parameters and holding power (%) of the holding movement command so that any excessive shock is not applied to the finger during operation.
Note. When installing or uninstalling the finger, tighten the bolts while the finger is being held securely so that any excessive force or shock is not applied to the guide block.
Note. Workpiece weight that is able to be held may greatly vary depending on the material, shape, and/or holding surface conditions of the finger.

Note 1. Design the weight of a workpiece to be held so that it is approximately 1/10 to 1/20 of the holding power. (Consider further allowance when moving and swinging the gripper that keeps holding a workpiece.)

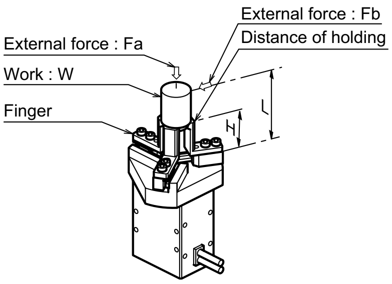
Gripping power vs. gripping power setting (%)



- Graph shows a general guide to gripping power versus gripping power setting (%). Variations will appear in the actual gripping power.

Allowable load and load moment

				YRG-2013T	YRG-2820T	YRG-4230T
Finger	Allowable load		N	20	30	50
	Allowable pitching moment		N•m	0.1	0.2	0.4
	Max. weight (1 pair)		g	20	30	50
	Max. holding position	L	mm	20	30	40



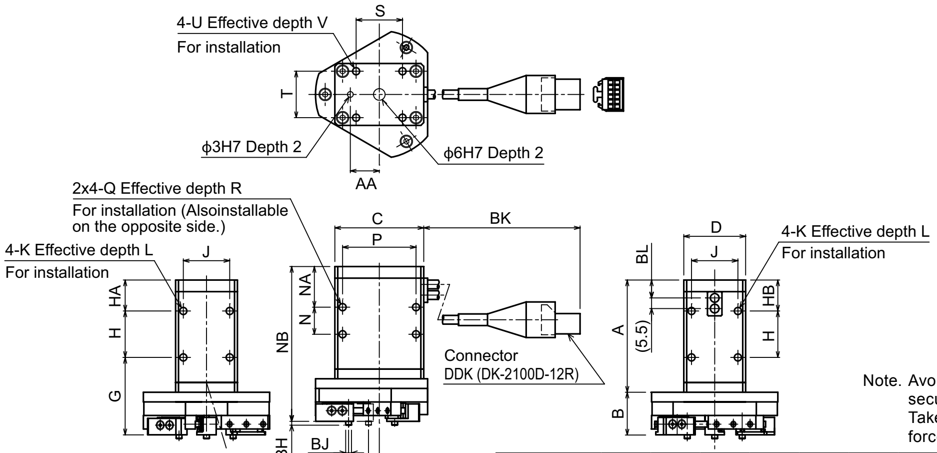
- When the external forces Fa and Fb are applied to a potion the distance (L) apart from the finger installation surface, the load (F) and moment (M) are calculated from the formulas shown below.

$F = Fa + W \times g$
$M = Fb \times L$

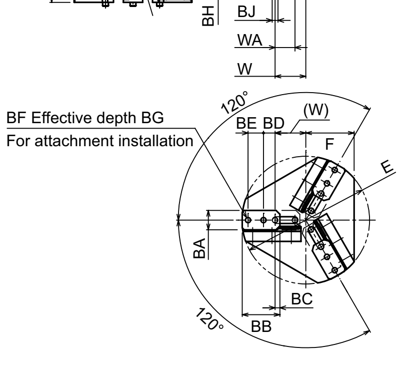
F : Load [N]
M : Moment [N•m]
L : Distance of point of external force application [m]

Fa :External force [N]
Fb :External force [N]
W : Workpiece weight [Kg]
g : Gravity acceleration [m/s^2]
H : Distance of holding point [m]

YRG-2013T/2820T/4230T



Note. Avoid extreme winding of the cable and fix the cable securely so that it does not move.
Take appropriate measures so that any excessive force is not applied to the root of the cable.



	A	B	C	D	E	F	G	H	HA	HB	J	K	L	N
YRG-2013T	50	19	34	24	50	19	42	17	13	13	17	M3	6	17
YRG-2820T	58	19	46	32	66	25	40	24	16	16	24	M4	8	14
YRG-4230T	59	25	60	46	86	34	45	25	18	18	36	M5	8	13

	NA	NB	P	Q	R	S	T	U	V	W	WA	AA	BA
YRG-2013T	17	72	27	M3	6	17	17	M3	5	11.4 to 4.6	6.8st	12	$10^{\ 0}_{-0.02}$
YRG-2820T	21	80	38	M4	8	24	24	M4	6	15.9 to 5.6	10.3st	15	$10^{\ 0}_{-0.02}$
YRG-4230T	24	88	50	M5	10	36	36	M5	7.5	21.9 to 6.6	15.3st	20	$14^{\ 0}_{-0.02}$

	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL
YRG-2013T	16	2.5	10	***	3x1-M3	8	2	$\phi 3^{\ 0}_{-0.01}$	165+/-10	8.3
YRG-2820T	19.5	2.5	6	8	3x2-M3	6	2	$\phi 3^{\ 0}_{-0.01}$	140+/-10	9.3
YRG-4230T	22.5	2.5	6	10	3x2-M4	8	3	$\phi 4^{\ 0}_{-0.012}$	235+/-10	10.8

YRG Series

Electric gripper basic specifications

Item		Specifications	
Basic specifications	Applicable controller	RCX240/RCX240S	RCX340
	Number of connection grippers	Max. 2 units (One unit per slot, max. 2 slots)	Max. 4 units
Axis control	Control method	PTP motion	
	Min. setting unit	0.01mm	
	Position indication unit	Pulses, mm (millimeters)	
	Speed setting	20 to 100% (in 1% steps, Changeable by the program.)	
	Acceleration setting	1 to 100% (in 1% steps, Setting by the acceleration parameter)	
Programming	Teaching	MDI (coordinate data input), direct teaching, teaching playback,offline teaching (data input from external unit)	

Gripper control board specifications

Item		Specifications
Axis control	No. of axes	1 axis
	Position detection method	Optical rotary encoder
	Min. setting distance	0.01mm
	Speed setting	Set in the range of 20 to 100% to the max. parameter speed.
Protective alarm		Overcurrent, overload, voltage failure, system failure, position deviation over, feedback error, etc.
LED status indication		POWER (Green), RUN (Green), READY (Yellow), ALARM (Red)
Power supply	Drive power	DC 24V +/-10% 1.0A Max.

Part names and functions

RCX240

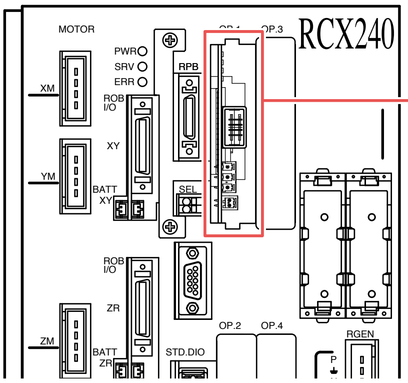
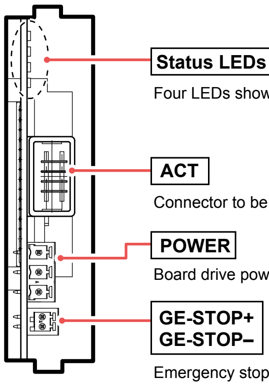


Figure when viewed from the front of the controller



Status LEDs

Four LEDs show the status of the gripper control board.

ACT

Connector to be connected to the gripper main body.

POWER

Board drive power input connector.

GE-STOP+
GE-STOP–

Emergency stop input terminal.

RCX340

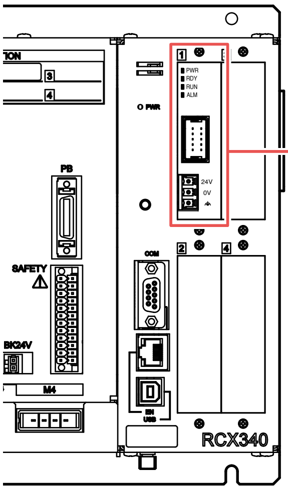
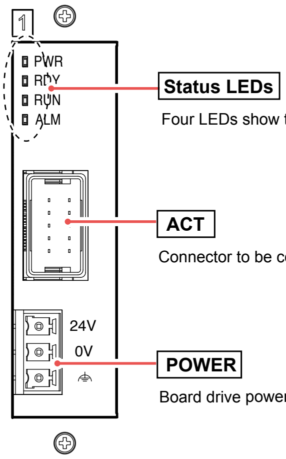


Figure when viewed from the front of the controller



Status LEDs

Four LEDs show the status of the gripper control board.

ACT

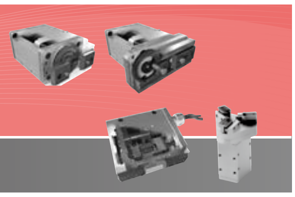
Connector to be connected to the gripper main body.

POWER

Board drive power input connector.

Accessories and part options

YRG Series



Standard accessories

Gripper control board

Model	For RCX240/RCX240S	KX0-M4400-F1
	For RCX340	KCX-M4400-G0

Note. This board includes a 24V supply connector.

RCX240/S
RCX340

Robot (for gripper) cable

Model	3.5m	KCF-M4751-31
	5m	KCF-M4751-51
	10m	KCF-M4751-A1

Note. Be sure to adjust the total length of the robot (for gripper) cable and relay cable to 14m or less.

RCX240/S
RCX340

Relay cable

Model	0.5m	KCF-M4811-11
	1m	KCF-M4811-21
	1.5m	KCF-M4811-31
	2m	KCF-M4811-41
	2.5m	KCF-M4811-51
	3m	KCF-M4811-61
	3.5m	KCF-M4811-71
	4m	KCF-M4811-81

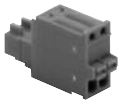
RCX240/S
RCX340

Connector for 24V power supply

Model	KCF-M5382-00

RCX240/S
RCX340

Connector for gripper emergency stop



Model	KCF-M5370-00

Note. Not included with the RCX340.

RCX240/S

MEMO

ALL TYPES OF INFORMATION

INFORMATION

CONTENTS

CABLE

TECHNICAL

INFORMATION

Robot cable table

The robot cable is a cable joining the robot to the controller.

Single-axis robot cable

TS-S/TS-S2/TS-SD cable

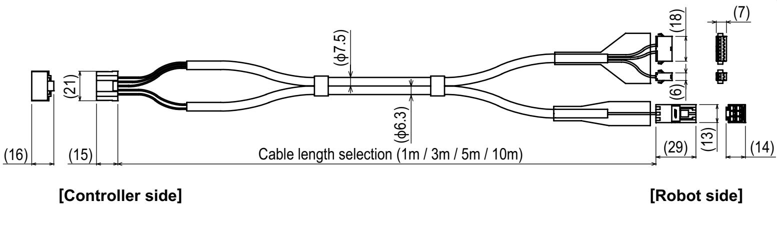
[Flexible cable]

Connected robot ▷ **TRANSERVO**

Set	Single item	
-	Composite wire	KCK-M4751-☐0

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
1	1m
3	3m
5	5m
A	10m



⟨Composite wire: KCK-M4751-☐0⟩

TS-S2S cable

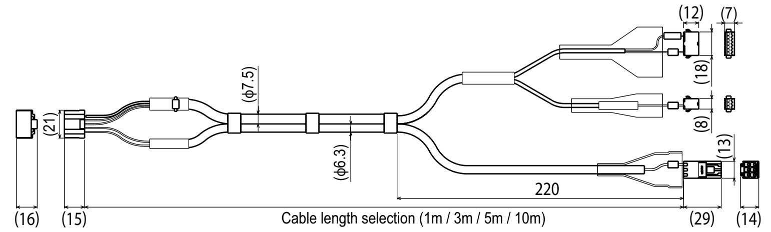
[Flexible cable]

Connected robot ▷ **TRANSERVO**
(RF Type Sensor specification)

Set	Single item	
-	Composite wire	KCK-M4752-☐0

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
1	1m
3	3m
5	5m
A	10m



⟨Composite wire: KCK-M4752-☐0⟩

TS-X cable

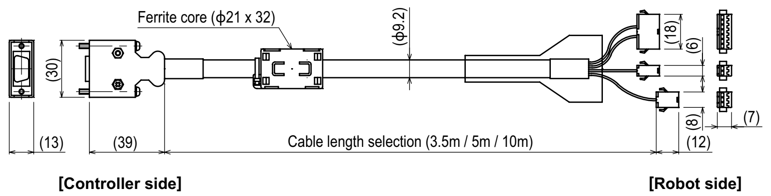
[Standard cable]

Connected robot ▷ **FLIP-X**

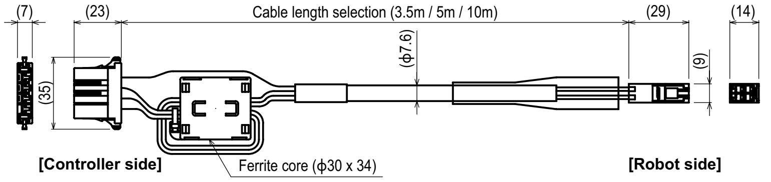
Set	Single item	
KBY-M4710-☐0	Signal wire	KBY-M4751-☐0
	Motor wire	KX7-M4752-☐0

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m



⟨Signal wire: KBY-M4751-☐0⟩



⟨Motor wire: KX7-M4752-☐0⟩

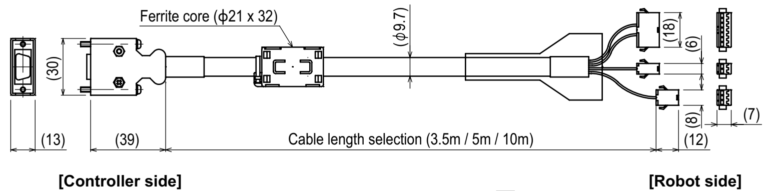
[Flexible cable]

Connected robot ▷ **FLIP-X**

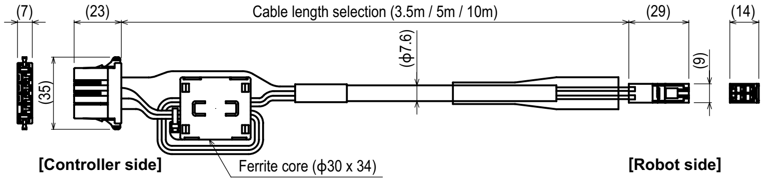
Set	Single item	
KBY-M4720-☐0	Signal wire	KBY-M4755-☐0
	Motor wire	KX7-M4752-☐0

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m



⟨Signal wire: KBY-M4755-☐0⟩



⟨Motor wire: KX7-M4752-☐0⟩

TS-P cable

[Standard cable]

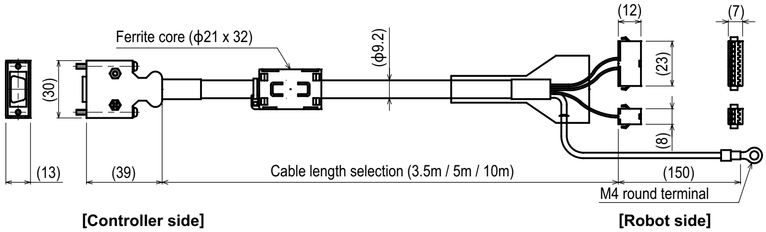
Connected robot ▷ **PHASER**

Set	Single item	
KBS-M4710-☐0	Signal wire	KBS-M4751-☐1
	Motor wire	KAU-M4752-☐1

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]



⟨Standard: KBS-M4751-☐1⟩

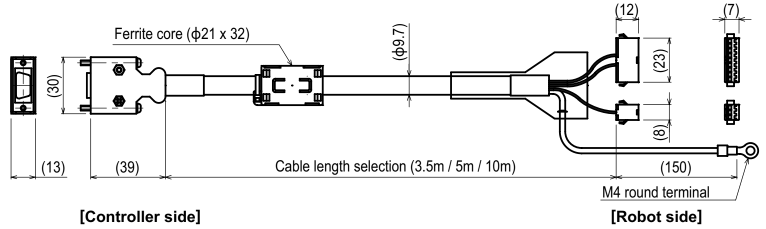
[Flexible cable]

Connected robot ▷ **PHASER**

Set	Single item	
KBS-M4720-☐0	Signal wire	KBS-M4755-☐1
	Motor wire	KAU-M4752-☐1

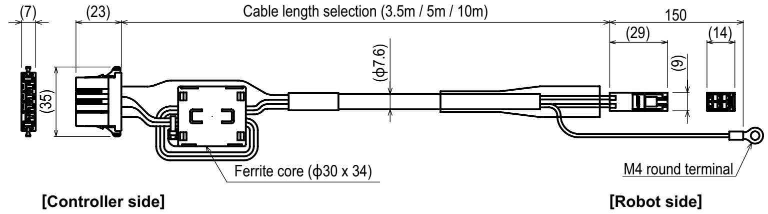
Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m



⟨Flexible: KBS-M4755-☐1⟩

[Motor wire]



⟨Motor wire: KAU-M4752-☐1⟩

RDV-X cable (No-brake specifications)

[Standard cable]

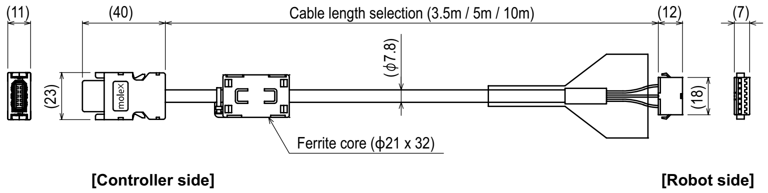
Connected robot ▷ **FLIP-X**

Set	Single item	
KEF-M4710-☐0	Signal wire	KBH-M4751-☐0
	Motor wire	KEF-M4752-☐0
	I/O connector	KBH-M4420-00

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]



⟨Standard: KBH-M4751-☐0⟩

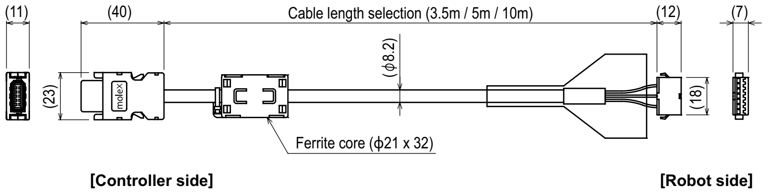
[Flexible cable]

Connected robot ▷ **FLIP-X**

Set	Single item	
KEF-M4730-☐0	Signal wire	KBH-M4756-☐0
	Motor wire	KEF-M4752-☐0
	I/O connector	KBH-M4420-00

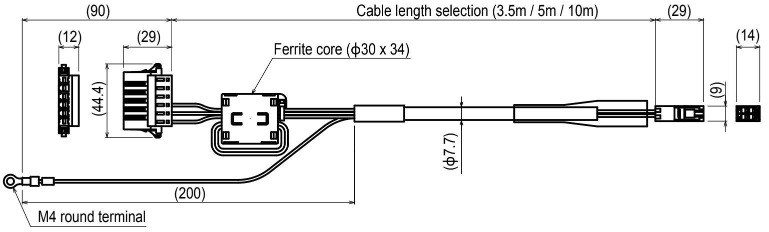
Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m



⟨Flexible: KBH-M4756-☐0⟩

[Motor wire]



⟨Standard: KEF-M4752-☐0⟩

Robot cable table

RDV-X cable (models with brake and sensor)

[Standard cable]

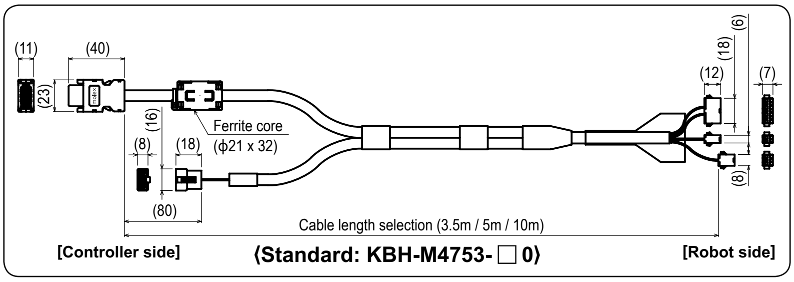
Connected robot ▷ **FLIP-X**

Set	Single item	
KEF-M4720-□0	Signal wire	KBH-M4753-□0
	Motor wire	KEF-M4752-□0
	ORG, BK wires	KBH-M4421-00

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]



⟨Standard: KBH-M4753-□0⟩

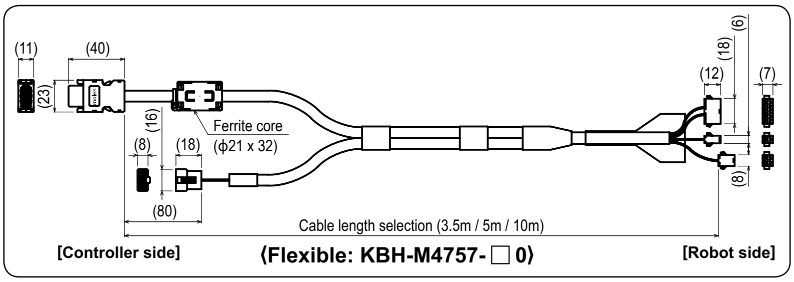
[Flexible cable]

Connected robot ▷ **FLIP-X**

Set	Single item	
KEF-M4740-□0	Signal wire	KBH-M4757-□0
	Motor wire	KEF-M4752-□0
	ORG, BK wires	KBH-M4421-00

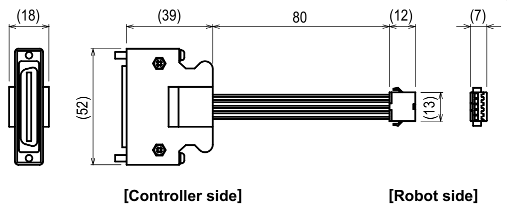
Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



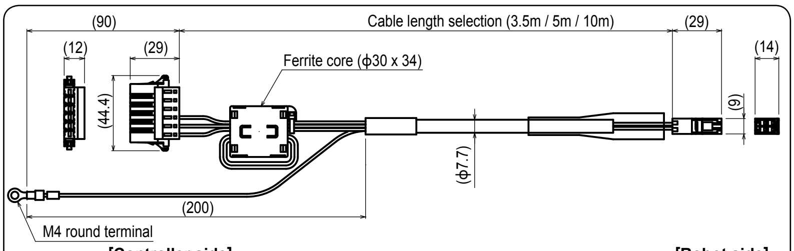
⟨Flexible: KBH-M4757-□0⟩

[ORG, BK wires]



⟨ORG, BK wires: KBH-M4421-00⟩

[Motor wire]



⟨Standard: KEF-M4752-□0⟩

RDV-P cable

[Standard cable]

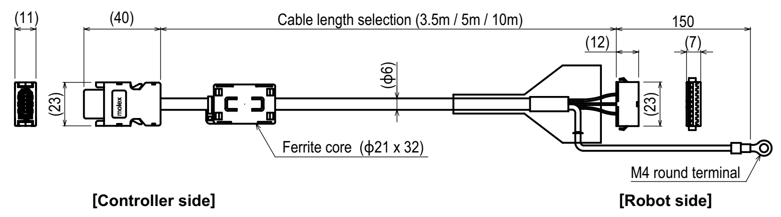
Connected robot ▷ **PHASER**

Set	Single item	
KEF-M4711-□0	Signal wire	KBH-M4754-□1
	Motor wire	KEF-M4755-□0
	I/O connector	KBH-M4420-00

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]



⟨Standard: KBH-M4754-□1⟩

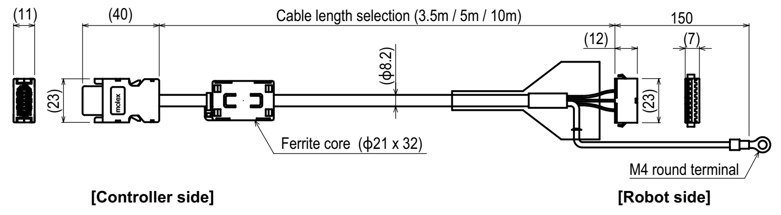
[Flexible cable]

Connected robot ▷ **PHASER**

Set	Single item	
KEF-M4712-□0	Signal wire	KBH-M4758-□0
	Motor wire	KEF-M4755-□0
	I/O connector	KBH-M4420-00

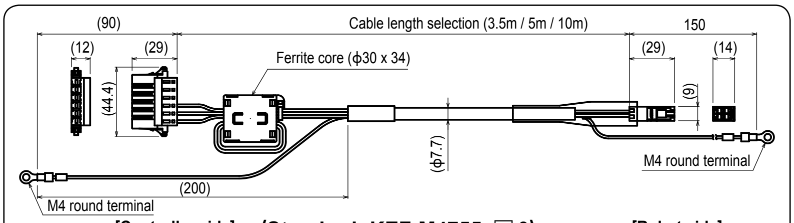
Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨Flexible: KBH-M4758-□0⟩

[Motor wire]



⟨Standard: KEF-M4755-□0⟩

SR1-X cable

[Standard cable]

Connected robot ▷ **FLIP-X**

Set	Single item	
KX7-M4710-□0	Signal wire	KX7-M4751-□1
	Motor wire	KX7-M4752-□0

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Flexible cable]

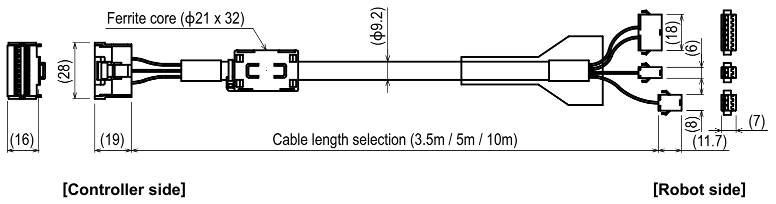
Connected robot ▷ **FLIP-X**

Set	Single item	
KX7-M4720-□0	Signal wire	KX7-M4755-□0
	Motor wire	KX7-M4752-□0

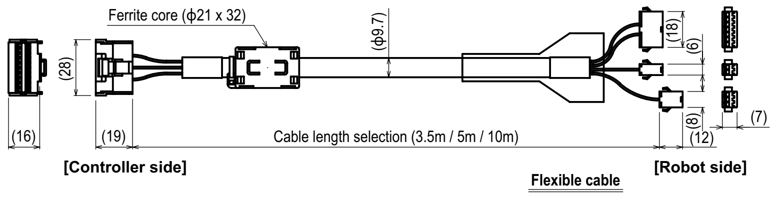
Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]

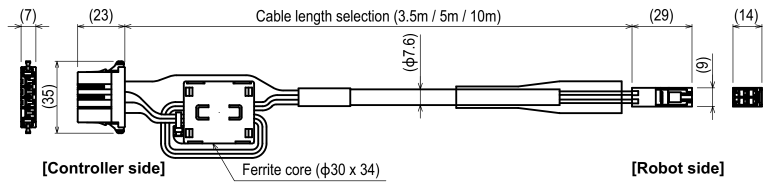


⟨Standard: KX7-M4751-□1⟩



⟨Flexible: KX7-M4755-□0⟩

[Motor wire]



⟨Motor wire: KX7-M4752-□0⟩

SR1-P cable

[Standard cable]

Connected robot ▷ **PHASER**

Set	Single item	
KAU-M4710-□0	Signal wire	KAU-M4751-□4
	Motor wire	KAU-M4752-□1

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Flexible cable]

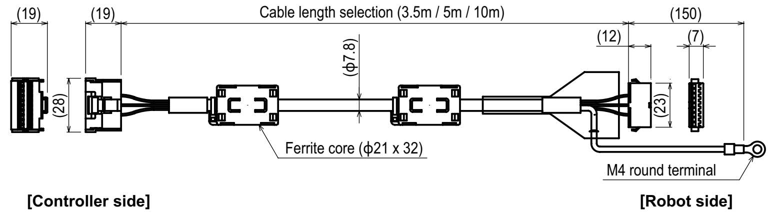
Connected robot ▷ **PHASER**

Set	Single item	
KAU-M4720-□0	Signal wire	KAU-M4755-□0
	Motor wire	KAU-M4752-□1

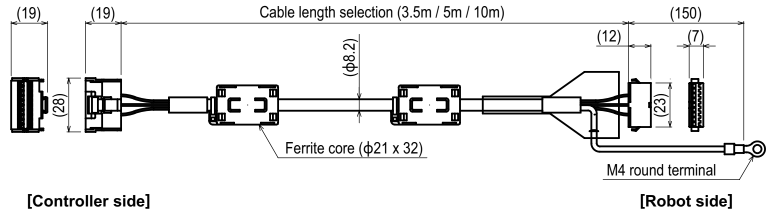
Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m

[Signal wire]

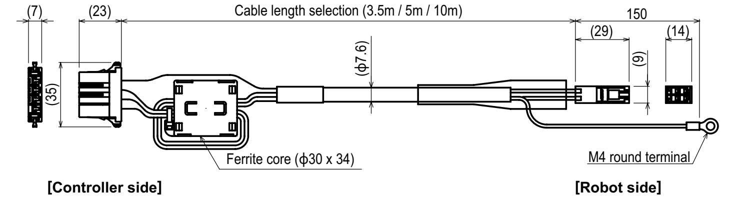


⟨Standard: KAU-M4751-□4⟩



⟨Flexible: KAU-M4755-□0⟩

[Motor wire]



⟨Motor wire: KAU-M4752-□1⟩

ERCD / ERCX cable

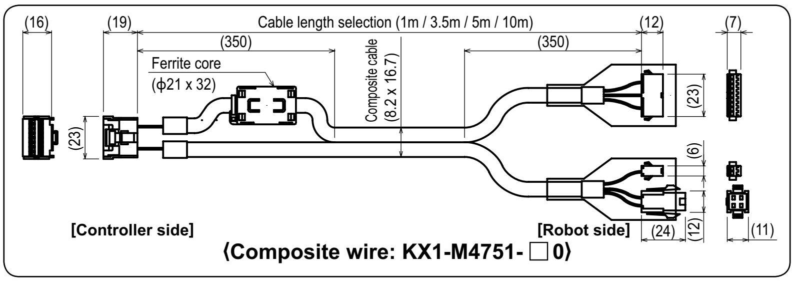
[Standard cable]

Connected robot ▷ **FLIP-X**

Set	Single item	
-	Composite wire	KX1-M4751-□0

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
1	1m
3	3.5m
5	5m
A	10m



⟨Composite wire: KX1-M4751-□0⟩

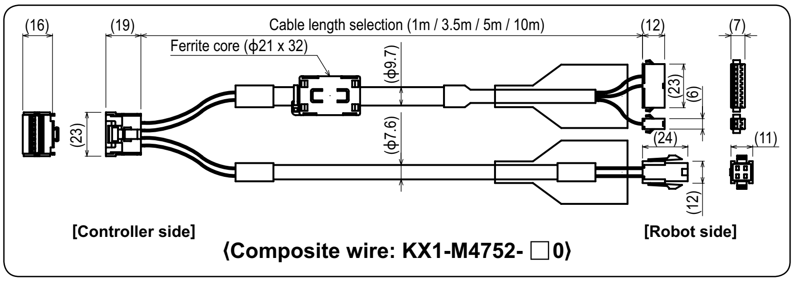
[Flexible cable]

Connected robot ▷ **FLIP-X**

Set	Single item	
-	Composite wire	KX1-M4752-□0

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
1	1m
3	3.5m
5	5m
A	10m



⟨Composite wire: KX1-M4752-□0⟩

Multi-robot cable

Single axis multi-robot cable

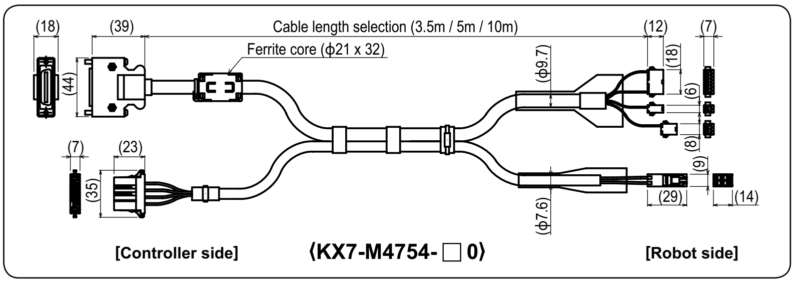
[Flexible cable]

Connected controller ▷ **RCX240**

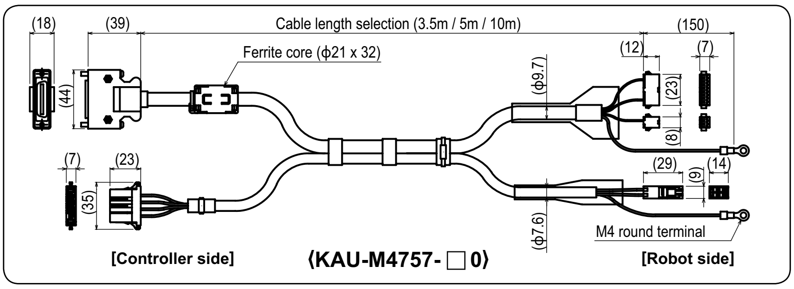
Robot	Cable type
FLIP-X	KX7-M4754-□0
PHASER	KAU-M4757-□0

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨KX7-M4754-□0⟩



⟨KAU-M4757-□0⟩

2-axes multi-robot cable

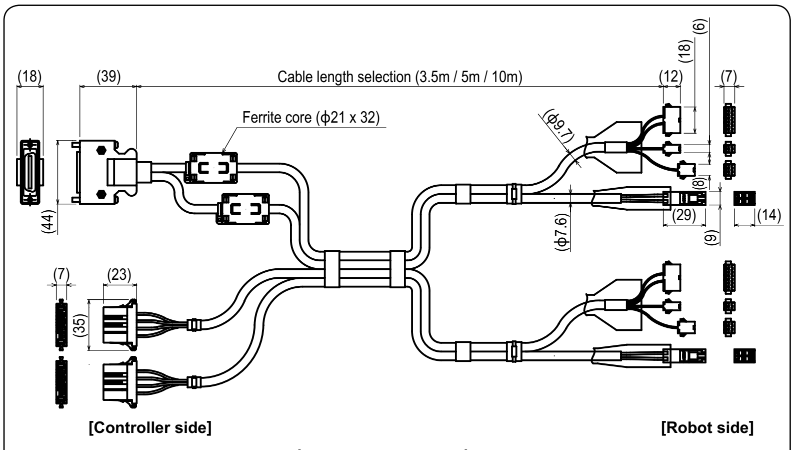
[Flexible cable]

Connected controller ▷ • **RCX221/RCX222**
• **RCX240/RCX340**
• **DRCX**

Robot combinations		Cable type
First axis	Second axis	
FLIP-X	FLIP-X	KX7-M4753-□1

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨KX7-M4753-□1⟩

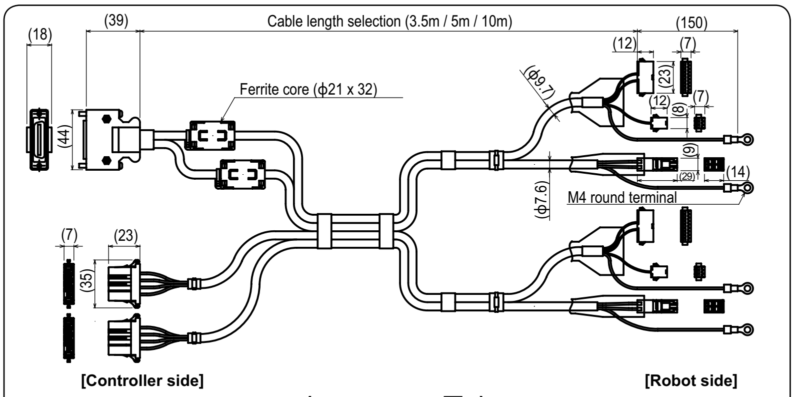
[Flexible cable]

Connected controller ▷ **RCX221 / RCX240**

Robot combinations		Cable type
First axis	Second axis	
PHASER	PHASER	KAU-M4753-□2

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨KAU-M4753-□2⟩

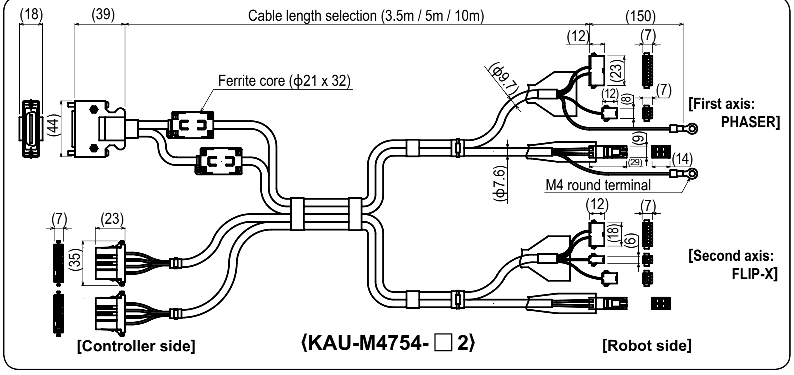
[Flexible cable]

Connected controller ▷ **RCX221 / RCX240**

Robot combinations		Cable type
First axis	Second axis	
PHASER	FLIP-X	KAU-M4754-□2

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨KAU-M4754-□2⟩

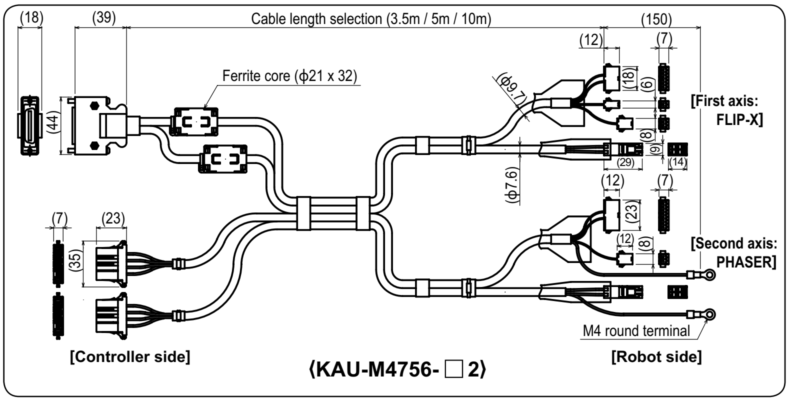
[Flexible cable]

Connected controller ▷ **RCX221 / RCX240**

Robot combinations		Cable type
First axis	Second axis	
FLIP-X	PHASER	KAU-M4756-□2

Note. Notation within slot in model types is as shown at right.

Within □	Cable length
3	3.5m
5	5m
A	10m



⟨KAU-M4756-□2⟩

Cartesian robot cable

Cartesian 2-axes cable

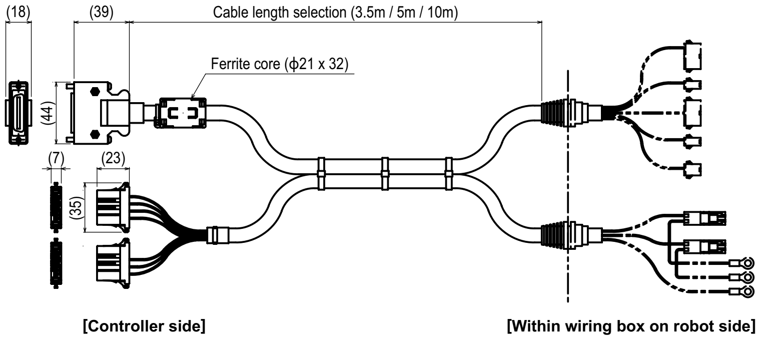
[Standard cable]

Connected controller ▷ **DRCX / RCX222 / RCX340**

Type	KT6-M4751-☐1

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m


(18)
(39)
Cable length selection (3.5m / 5m / 10m)
Ferrite core (ϕ21 x 32)
(44)
(7)
(23)
(35)
[Controller side]
[Within wiring box on robot side]

⟨KT6-M4751-☐1⟩

Cartesian 3-axes cable

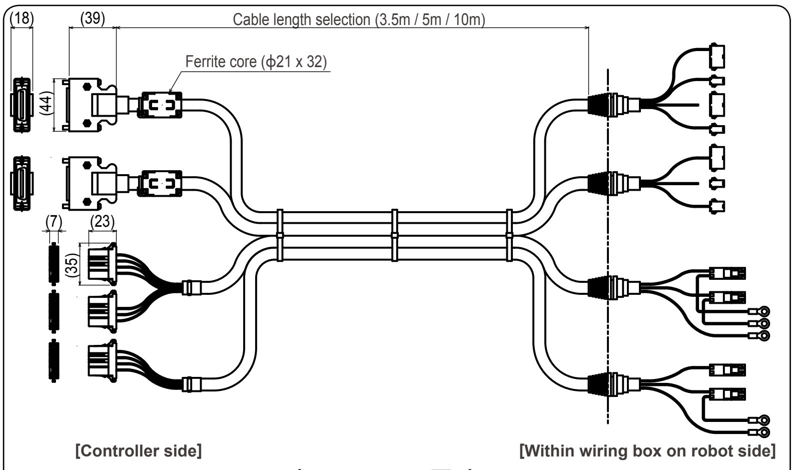
[Standard cable]

Connected controller ▷ **RCX142 / RCX240 / RCX340**

Type	KT6-M4755-☐0

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m


(18)
(39)
Cable length selection (3.5m / 5m / 10m)
Ferrite core (ϕ21 x 32)
(44)
(7)
(23)
(35)
[Controller side]
[Within wiring box on robot side]

⟨KT6-M4755-☐0⟩

Cartesian 4-axes cable

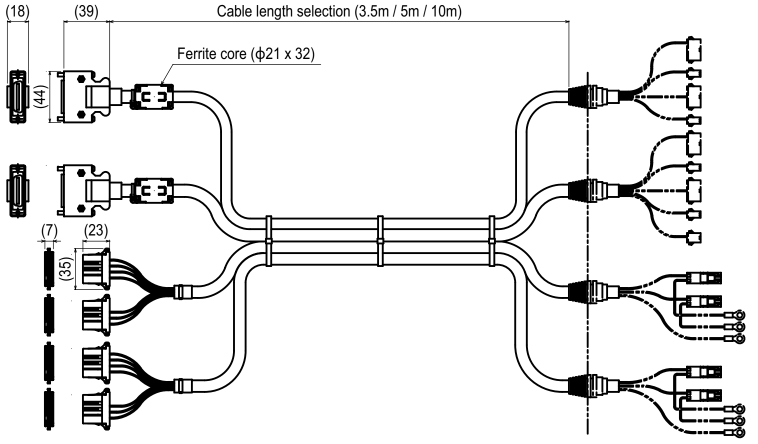
[Standard cable]

Connected controller ▷ **RCX142 / RCX240 / RCX340**

Type	KT6-M4752-☐1

Note. Notation within slot in model types is as shown at right.

Within ☐	Cable length
3	3.5m
5	5m
A	10m


(18)
(39)
Cable length selection (3.5m / 5m / 10m)
Ferrite core (ϕ21 x 32)
(44)
(7)
(23)
(35)
[Controller side]
[Within wiring box on robot side]

⟨KT6-M4752-☐1⟩

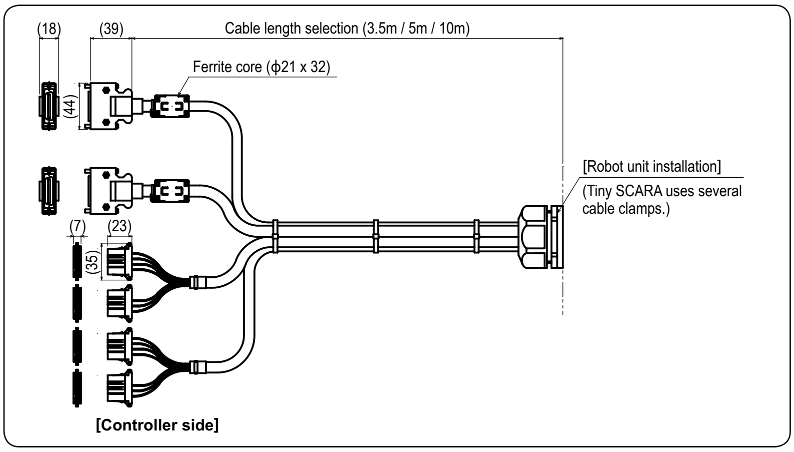
SCARA robot cable

Note. SCARA robot cables all use the same size connectors but different models use different cables.

[Standard cable]

Connected robot ▷ • **YK-XG (No including YK120XG / YK150XG / YK180XG)**
• **YK-XGS**
• **YK-TW**
• **YK400XR**

Cable length	Type
3.5m	KBF-M6211-00
5m	KBF-M6211-10
10m	KBF-M6211-20


(18)
(39)
Cable length selection (3.5m / 5m / 10m)
Ferrite core (ϕ21 x 32)
(44)
[Robot unit installation]
(Tiny SCARA uses several cable clamps.)
(7)
(23)
(35)
[Controller side]

Connected robot ▷ • **YK120XG**
• **YK150XG**
• **YK180XG**

Cable length	Type
2m	KCB-M6211-31
3.5m	KCB-M6211-01
5m	KCB-M6211-11
10m	KCB-M6211-21

Connected robot ▷ • **YK-XGP**
• **YK-XGC**

Cable length	Type
3.5m	KDP-M6211-00
5m	KDP-M6211-10
10m	KDP-M6211-20

Connected robot ▷ • **YK-XC (Large type)**
• **YK-XS**
• **YK-XP**

Cable length	Type
3.5m	KN3-M6211-00
5m	KN3-M6211-10
10m	KN3-M6211-20

Connected robot ▷ • **YK1200X**

Cable length	Type
3.5m	KN6-M6211-00
5m	KN6-M6211-10
10m	KN6-M6211-20

Connected robot ▷ • **YK180X**
• **YK220X**
• **YK180XC**
• **YK220XC**

Cable length	Type
3.5m	KBE-M6211-00
5m	KBE-M6211-10
10m	KBE-M6211-20

Gripper cable

Note. Be sure to adjust the total length of the robot (for gripper) cable and relay cable to 14m or less.

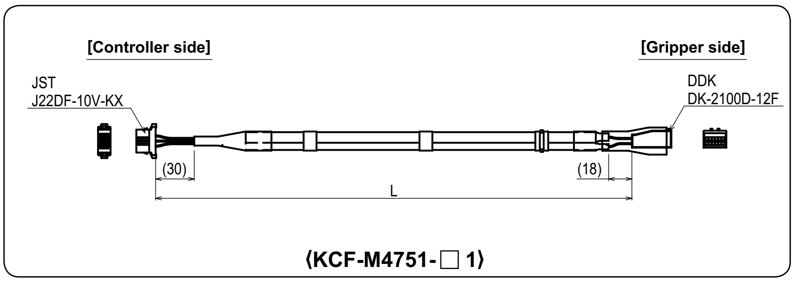
● Robot cable
[Flexible cable]

Cable length	Type
3.5m	KCF-M4751-31
5m	KCF-M4751-51
10m	KCF-M4751-A1

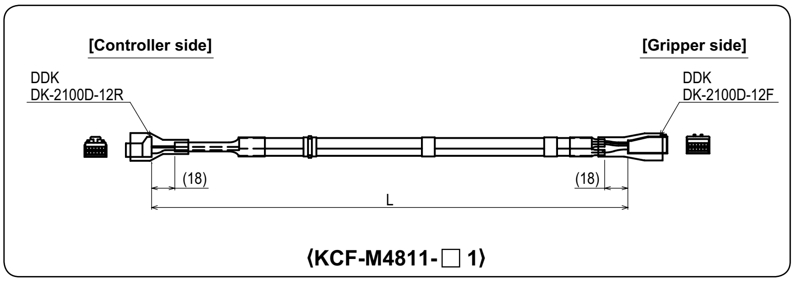
● Relay cable
[Flexible cable]

Type	KCF-M4811-□ 1

Within □	1	2	3	4	5	6	7	8
Length (mm)	0.5	1	1.5	2	2.5	3	3.5	4



⟨KCF-M4751-□ 1⟩



⟨KCF-M4811-□ 1⟩

Cable terminal table

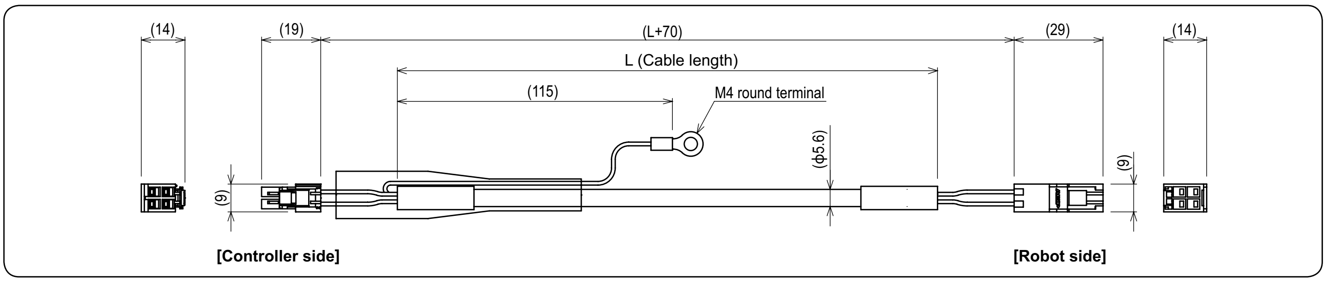
This is a relay cable used between the robot body and the robot cable such cable carrier wiring, etc.

PHASER relay cable

Motor wire (350mm to 1450mm) Note. Common to MR types and MF types

Type	KAU-M4813-☐0

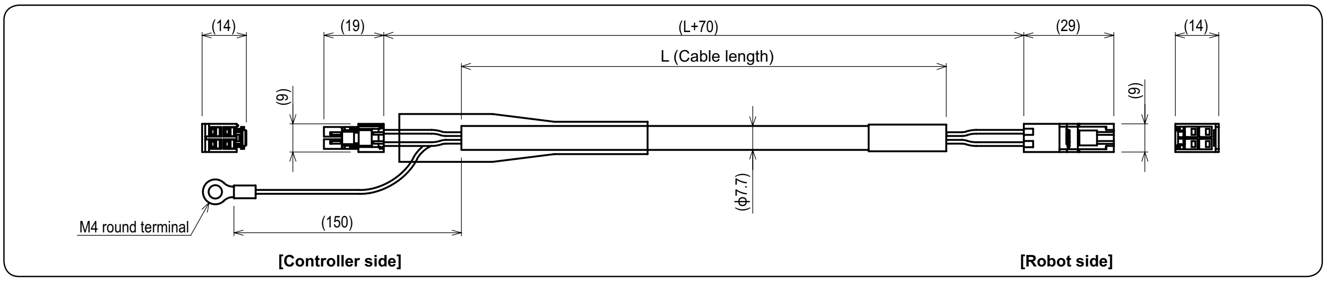
Within ☐	1	2	3	4	5	6	7	8	9	A	B	C
Length (mm)	350	450	550	650	750	850	950	1050	1150	1250	1350	1450



Motor wire (1500mm to 2600mm) Note. Not usable on MR type

Type	KBD-M4813-☐0

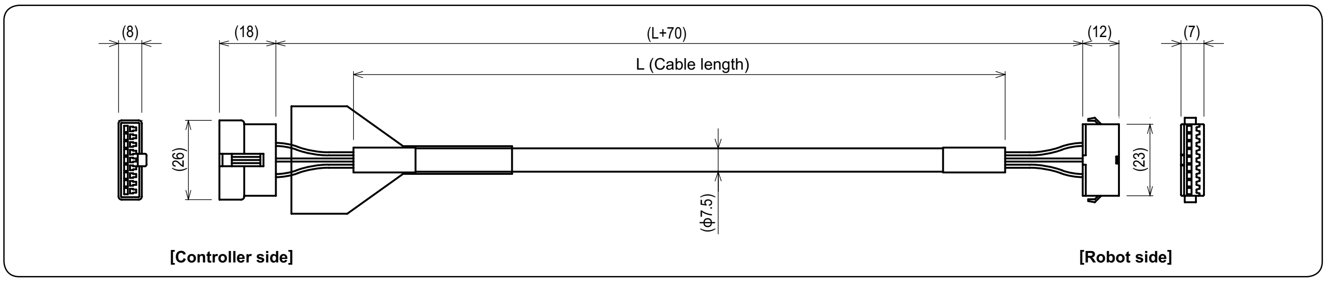
Within ☐	6	7	8	9	A	B	C	D	E	F	G	M
Length (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600



Signal cable (350mm to 1450mm) Note. Common to MR types and MF types

Type	KAU-M4812-☐1

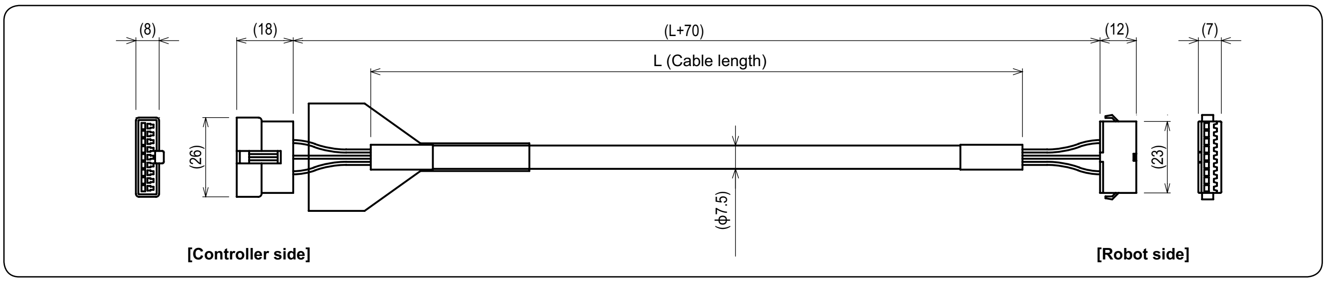
Within ☐	1	2	3	4	5	6	7	8	9	A	B	C
Length (mm)	350	450	550	650	750	850	950	1050	1150	1250	1350	1450



Signal cable (1500mm to 2600mm) Note. Common to MR types and MF types

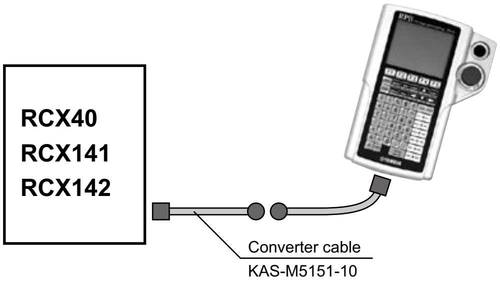
Type	KBD-M4812-☐1

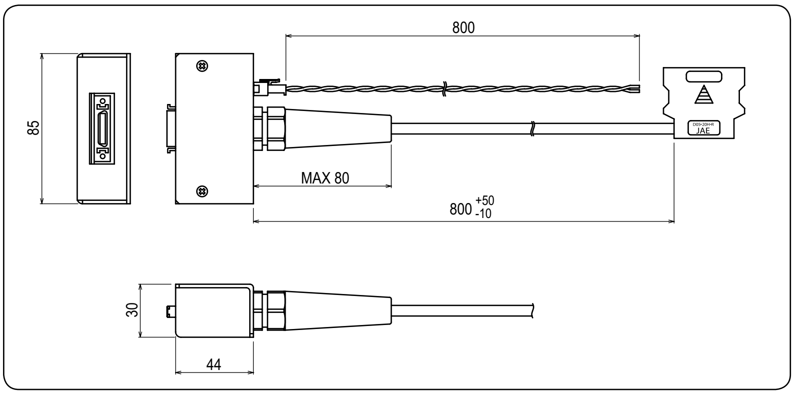
Within ☐	6	7	8	9	A	B	C	D	E	F	G	J
Length (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600



Connector converter cable

Programming box converter cable

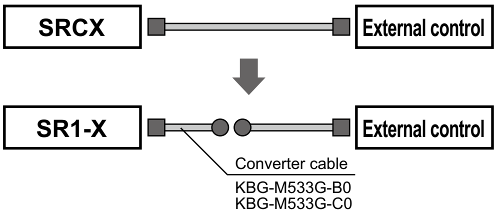




Converter cable for operating the RCX40, RCX141, RCX142 by RPB.

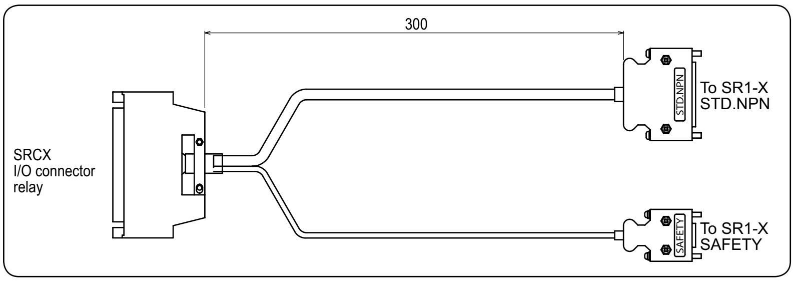
Type	KAS-M5151-10

I/O control converter cable



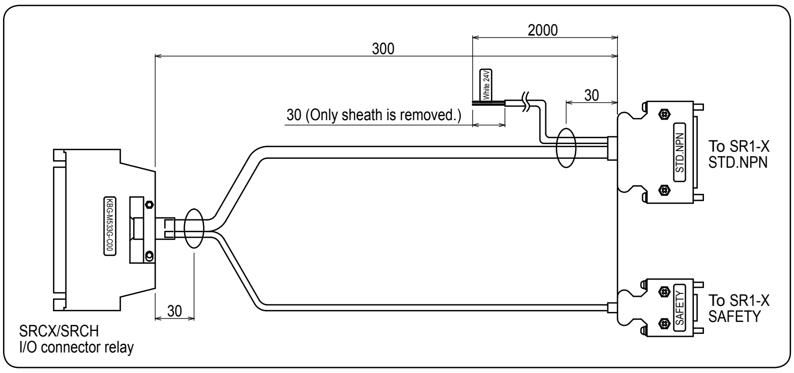
Converter cable allows connecting to the SRCX connector when system using the SRCX was changed to the SR1-X.

External power supply is used for the I/O power supply.



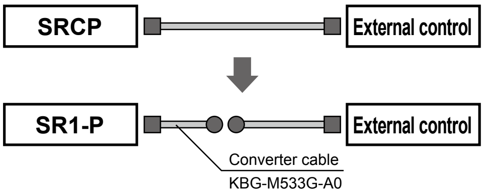
Type	KBG-M533G-B0

Internal power supply of the SRCX is used for the I/O power supply.

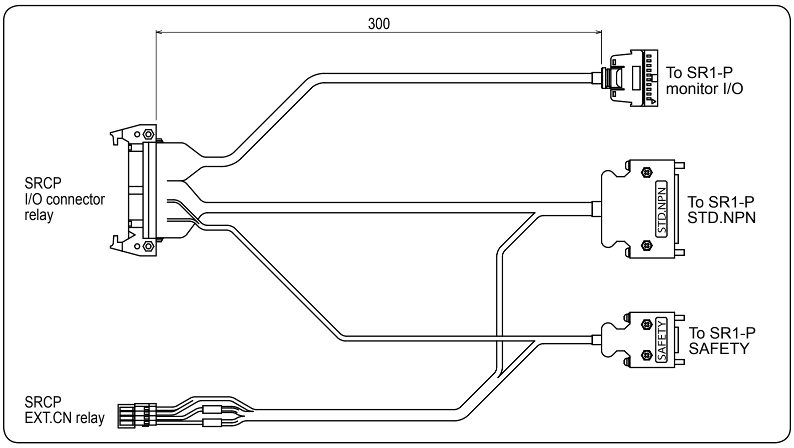


Note. It is necessary to input the 24V-power supply from the outside.

Type	KBG-M533G-C0



Converter cable allows connecting to the SRCP connector when system using the SRCP was changed to the SR1-P.

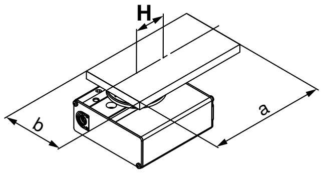


Type	KBG-M533G-A0

TRANSERVO RF type model selection

Selecting a model

Operating conditions



Rotary type: RF03
Installation posture: Horizontal
Kind of load: Inertial load Ta
Shape of load: 150 mm x 80 mm (rectangular plate)
Oscillating angle θ: 180°

Acceleration/deceleration $\dot{\omega}$: 1,000 °/sec^2
Speed ω: 420 °/sec
Load mass m: 2.0 kg
Distance between shaft and center of gravity H: 40 mm

Step 1 Moment of inertia Acceleration/deceleration

❶ Calculating the moment of inertia.

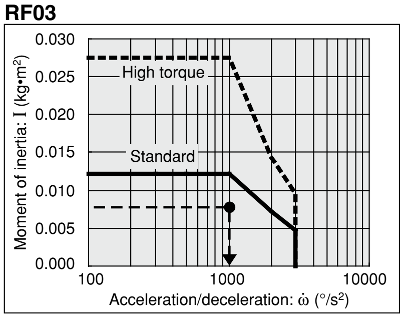
❷ Checking the moment of inertia vs. acceleration/deceleration.
Select an appropriate model from the moment of inertia vs. acceleration/deceleration while referring to the moment of inertia vs. acceleration/deceleration graph.

Calculation formula

$\mathrm{I} = m \times (a^2+b^2)/12 + m \times H^2$

Selection example

$\mathrm{I} = 2.0 \times (0.15^2+0.08^2)/12 + 2.0 \times 0.04^2$
$= 0.00802 \mathrm{kg \cdot m^2}$



Step 2 Selecting a torque

❶ Kinds of loads
- Static load: Ts
- Resistance load: Tf
- Inertial load: Ta

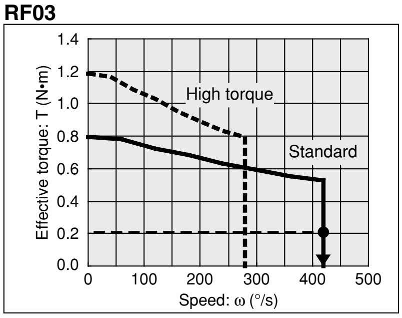
❷ Checking the effective torque
Check that the speed can be controlled by the effective torque by the speed while referring to the effective torque vs. speed graph.

Calculation formula

Effective torque≥Ts
Effective torque≥Tf x 1.5
Effective torque≥Ta x 1.5

Selection example

Inertial load: Ta
$\mathrm{Ta} \times 1.5 = \mathrm{I} \times \dot{\omega} \times 2\pi/360 \times 1.5$
$= 0.00802 \times 1{,}000 \times 0.0175 \times 1.5$
$= 0.21 \mathrm{N \cdot m}$



Step 3 Allowable load

❶ Checking the allowable load
- Radial load
- Thrust load
- Moment

Calculation formula

Allowable thrust load≥m×9.8
Allowable moment≥m×9.8×H

Selection example

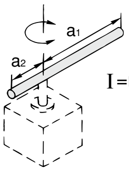
Thrust load
2.0×9.8=19.6N<Allowable load OK
Allowable moment
2.0×9.8×0.04
=0.784N•m<Allowable moment OK

List of moment of inertia calculation formulas (Calculation of moment of inertia I)

I: Moment of inertia m: Load mass

❶ Thin rod

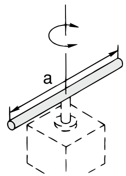
Position of rotation axis:
Passes through one end perpendicularly to the rod.



$$I = m_1 \bullet \frac{a_1^2}{3} + m_2 \bullet \frac{a_2^2}{3}$$

❷ Thin rod

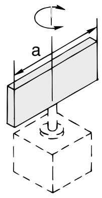
Position of rotation axis:
Passes through the center of gravity of the rod.



$$I = m \bullet \frac{a^2}{12}$$

❸ Thin rectangular plate (rectangular parallelepiped)

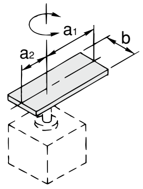
Position of rotation axis:
Passes through the center of gravity of the rod.



$$I = m \bullet \frac{a^2}{12}$$

❹ Thin rectangular plate (rectangular parallelepiped)

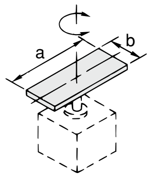
Position of rotation axis:
Passes through one end perpendicularly to the plate.
(Same position for the rectangular parallelepiped with the plate thickened.)



$$I = m_1 \bullet \frac{4a_1^2 + b^2}{12} + m_2 \bullet \frac{4a_2^2 + b^2}{12}$$

❺ Thin rectangular plate (rectangular parallelepiped)

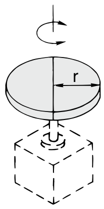
Position of rotation axis:
Passes through one end perpendicularly to the plate.
(Same position for the rectangular parallelepiped with the plate thickened.)



$$I = m \bullet \frac{a^2 + b^2}{12}$$

❻ Cylinder (including thin disc)

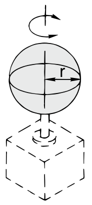
Position of rotation axis:
Central axis



$$I = m \bullet \frac{r^2}{2}$$

❼ Solid ball

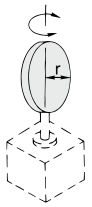
Position of rotation axis:
Diameter



$$I = m \bullet \frac{2r^2}{5}$$

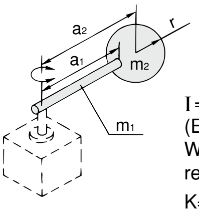
❽ Thin disc

Position of rotation axis:
Diameter



$$I = m \bullet \frac{r^2}{4}$$

❾ Load at lever tip

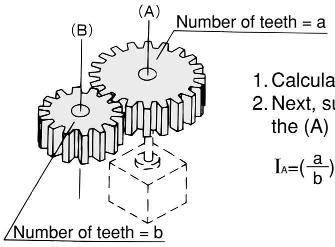


$$I = m_1 \bullet \frac{a_1^2}{3} + m_2 \bullet a_2^2 + K$$

(Example)
When the shape of m_2 is a ball, refer to [7] to obtain the following.

$$K = m_2 \bullet \frac{2r^2}{5}$$

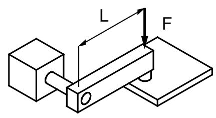
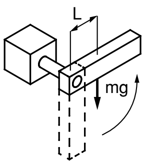
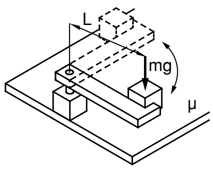
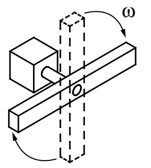
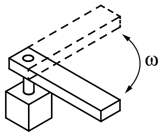
❿ Gear transmission



1. Calculate the moment of inertia I_B around the (B) axis.
2. Next, substitute I_B for the moment of inertia around the (A) axis to calculate I_A as follows.

$$I_A = \left(\frac{a}{b}\right)^2 \bullet I_B$$

Kinds of loads

Kinds of loads		
Static load: Ts	**Resistance load: Tf**	**Inertial load: Ta**
Only push force is needed (clamp, etc.).	Gravity or friction force applies in the rotation direction.	Load with inertia needs to be rotated.
	<Gravity applies.>  <Friction force applies.> 	<Rotation center matches to the gravity of the load.>  <Rotation axis is in the vertical direction.> 
Ts = F•L Ts : Static load (N•m) F : Clamp force (N) L : Distance from oscillating center to clamp position (m)	Gravity applies in the rotation direction. Tf = m•g•L Friction force applies in the rotation direction. Tf = μ•m•g•L Tf : Resistance load (N•m) m : Mass of load (kg) g : Gravity acceleration 9.8 (m/s²) L : Distance from oscillating center to gravity or friction force action point (m) μ : Friction coefficient	$Ta = I \bullet \dot{\omega} \bullet 2\pi / 360$ $(Ta = I \bullet \dot{\omega} \bullet 0.0175)$ Ta: Inertial load (N•m) I : Moment of inertia (kg•m²) $\dot{\omega}$: Acceleration/deceleration (°/sec²) ω : Speed (°/sec)
Required torque T = Ts	Required torque T = Tf × 1.5 Note 1)	Required torque T = Ta × 1.5 Note 1)

- **Load becomes the resistance load.**
  Gravity or friction force applies in the rotation direction.
  Example 1) The rotation center of the rotation axis does not match to the center of gravity of the load in the horizontal direction.
  Example 2) The load slips on the floor to move it.
  The required torque is the total of the resistance load and inertial load.
  T = (Tf + Ta) × 1.5

- **Load does not become the resistance load.**
  Gravity or friction force does not apply in the rotation direction.
  Example 1) The rotation axis is vertical.
  Example 2) The rotation center of the rotation axis does not match to the center of gravity of the load in the horizontal direction.
  The required torque is only the inertial load.
  T = Ta × 1.5

Note 1) An allowance is required for Tf and Ta to make the speed adjustment.

When using the RCX240

R-axis tolerable moment of inertia and acceleration coefficient

The RCX340 automatically specifies the acceleration coefficient according to the parameter settings.

The moment of inertia of a load (end effector and workpiece) that can be attached to the R-axis is limited by the strength of the robot drive unit and residual vibration during positioning. It is therefore necessary to reduce the acceleration coefficient in accordance with the moment of inertia.

[Example: YK500XG]

If there is a payload of 1.5kg installed on the R axis then the inertia moment in the R axis vicinity is 0.1kgm^2 (1.0kgfcmsec^2). The tip payload set at this time is 2kg. As shown on the graph, the robot can be operated with the X axis, Y axis and R axis acceleration coefficients reduced to 62%. Always select a tip payload and acceleration coefficient parameter that matches the payload and inertia moment before operating the robot. See your “YAMAHA Robot Controller Instruction Manual” when setting the tip payload and acceleration coefficient.

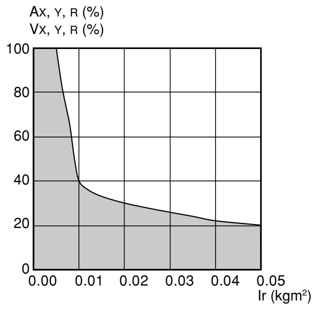
Note. The method for calculating the inertia moment load is shown on P.613. However, making an accurate calculation is difficult. If the actual inertia moment is larger than the calculated value and the robot is set for that calculated value then residual vibrations might occur.
If this happens, reduce the acceleration coefficient parameter more.

⚠CAUTION

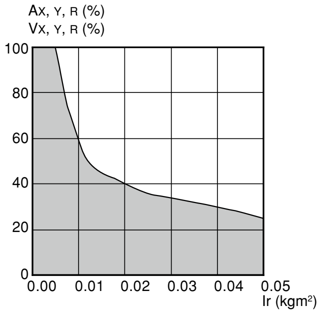
- The robot must be operated with correct tolerable moment of inertia and acceleration coefficients according to the manipulator tip mass and moment of inertia. If this is not observed, premature end to the life of the drive units, damage to the robot parts or residual vibration during positioning may result.
- Depending on the Z-axis position, vibration may occur when the X, Y or R-axis moves. If this happens, reduce the X, Y or R-axis acceleration to an appropriate level.
- If the moment of inertia is too large, vibration may occur on the Z-axis depending on its operation position. If this happens, reduce the Z-axis acceleration to an approriate level.

Acceleration coefficients for inertia moment in each SCARA robot YK-X series model

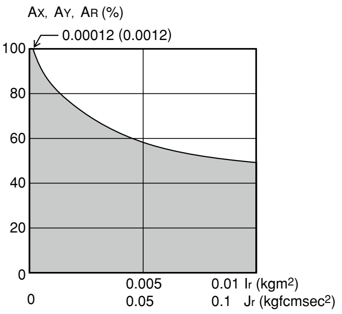
YK350TW



YK500TW

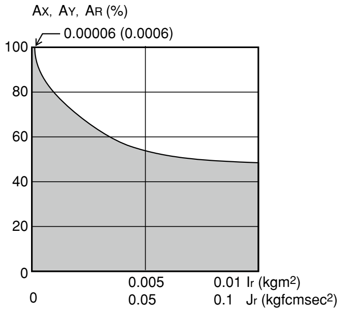


YK120XG

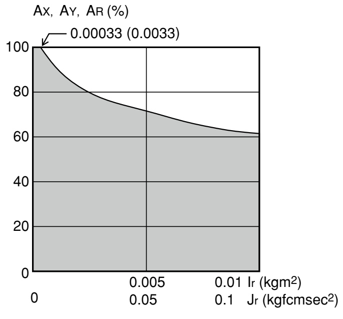


m=0.1~1.0kg

YK150XG

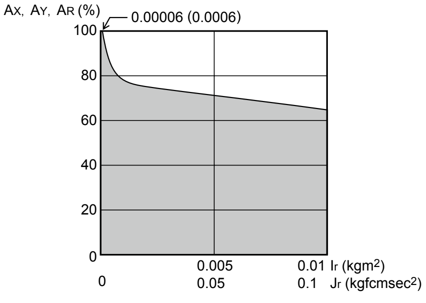


m=0.1~0.3kg

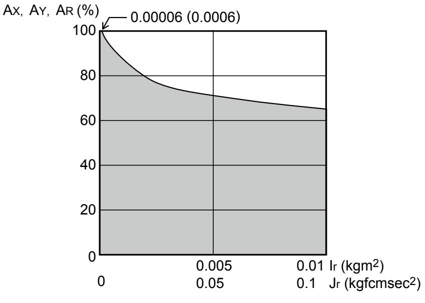


m=0.4~1.0kg

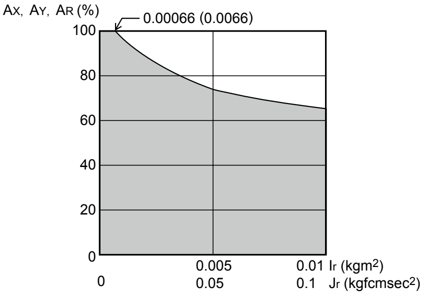
YK180XG



m=0.1 to 0.3kg



m=0.4 to 0.7kg

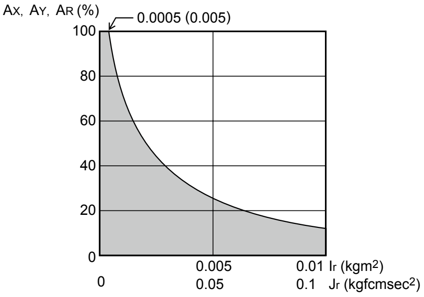


m=0.8 to 1.0kg

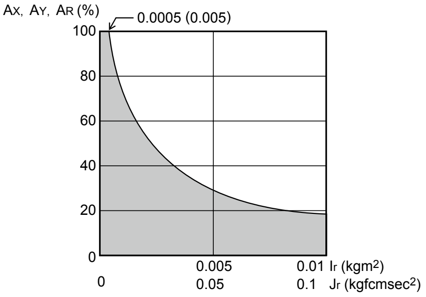
Graph notation description

A_X, A_Y, A_R ➡ Acceleration coefficient for X axis, Y axis, R axis
I_r, J_r ➡ Inertia moment in R axis load vicinity
m ➡ Tip payload

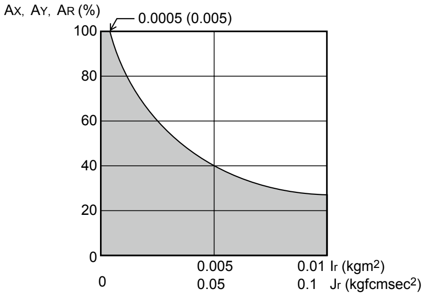
YK180X / YK220X



m=0.1 to 0.4kg

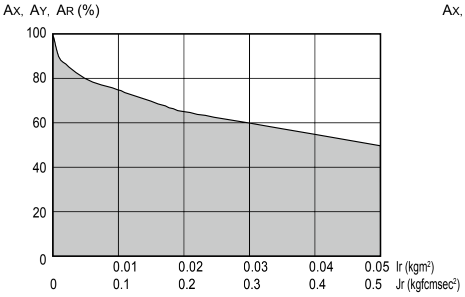


m=0.5 to 0.8kg

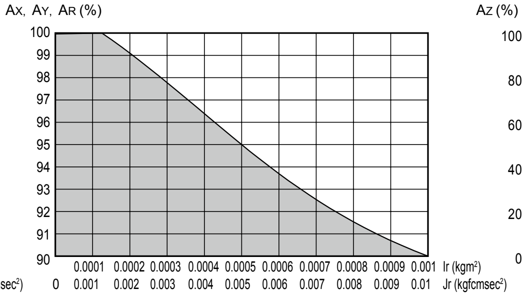


m=0.9, 1.0kg

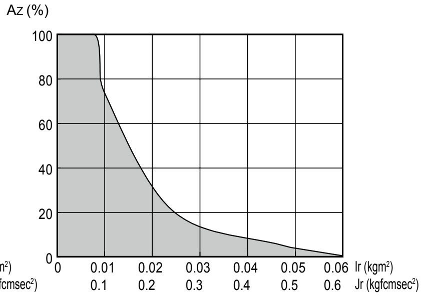
YK250XG/YK250XGP/YK250XGC



m=1 to 5kg

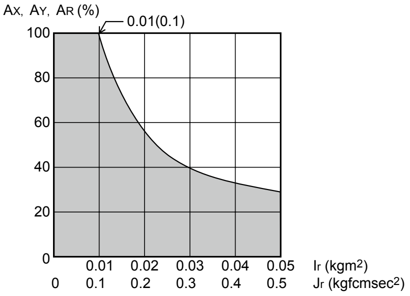


m=1 to 5kg

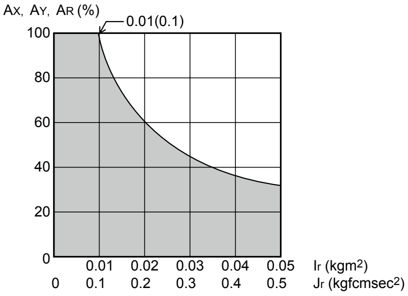


m=1 to 5kg

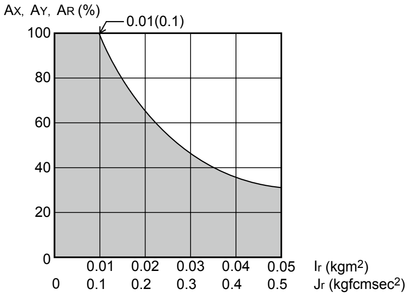
YK250XH



m=1kg

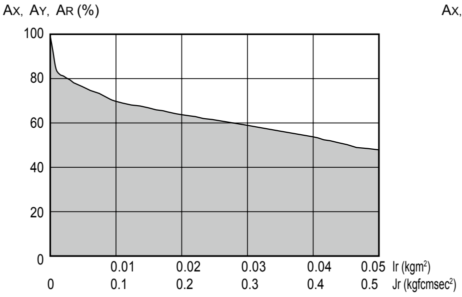


m=2kg

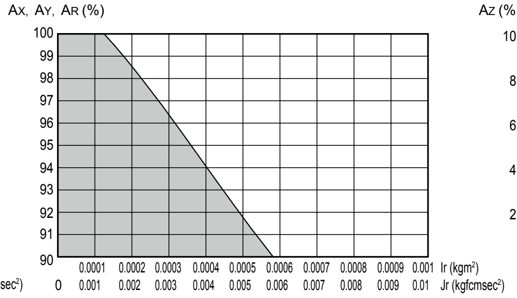


m=3kg

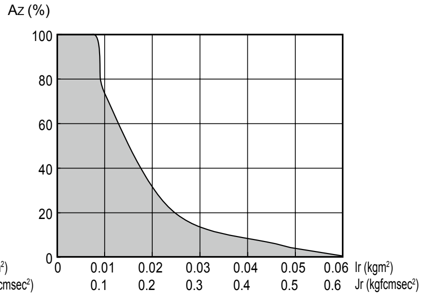
YK350XG/YK350XGP/YK350XGC/YK300XGS



m=1 to 5kg

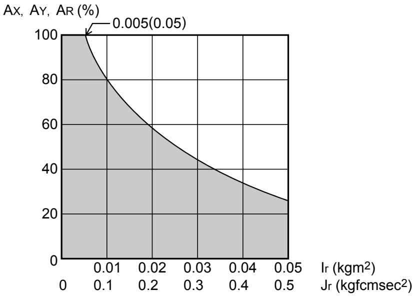


m=1 to 5kg

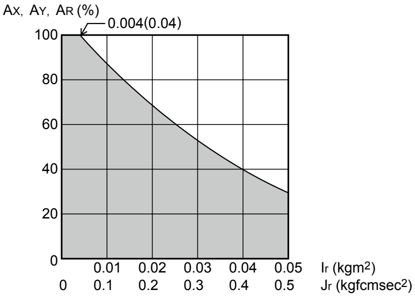


m=1 to 5kg

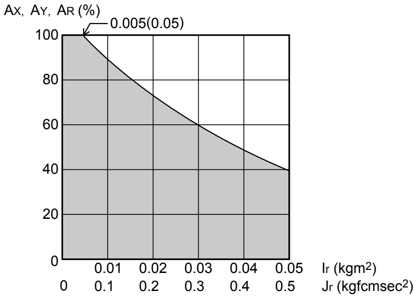
YK350XH



m=1kg



m=2kg



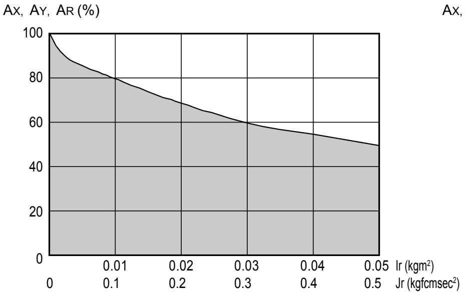
m=3kg

Graph notation description

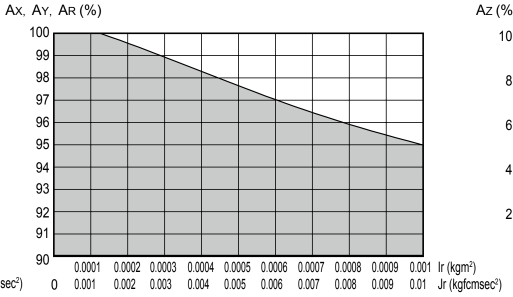
A_X, A_Y, A_R ➡ Acceleration coefficient for X axis, Y axis, R axis
I_r, J_r ➡ Inertia moment in R axis load vicinity
m ➡ Tip payload

R-axis tolerable moment of inertia and acceleration coefficient

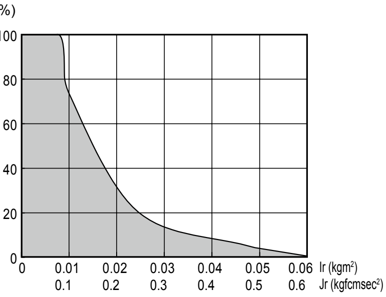
YK400XG/YK400XGP/YK400XGC/YK400XGS



m=1 to 5kg

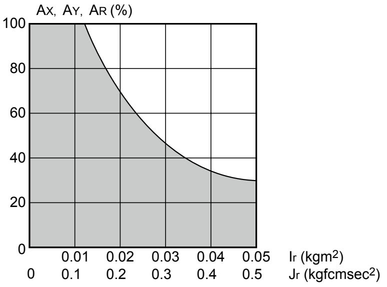


m=1 to 5kg

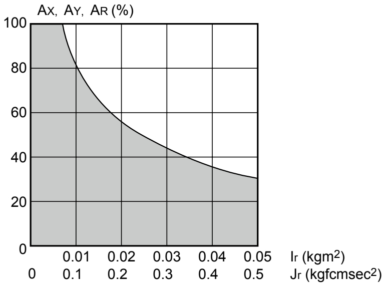


m=1 to 5kg

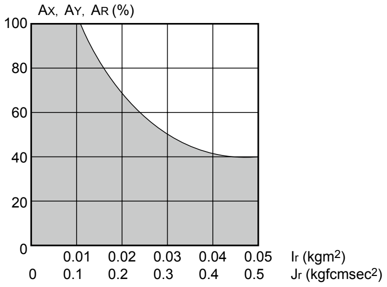
YK400XH



m=1kg

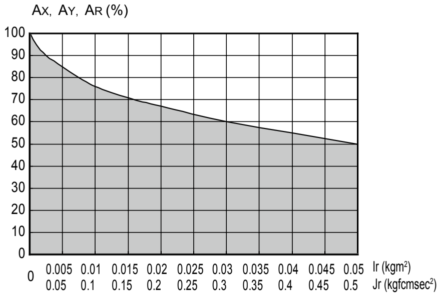


m=2kg

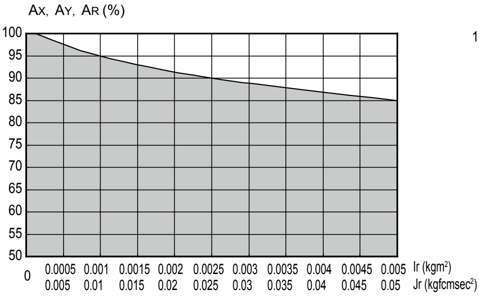


m=3kg

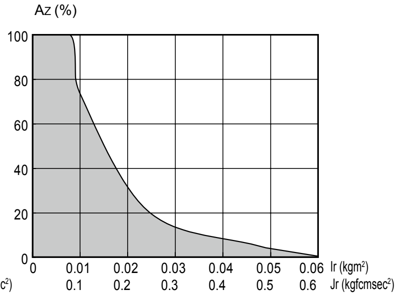
YK500XGL/YK500XGLP/YK500XGLC



m=1 to 5kg

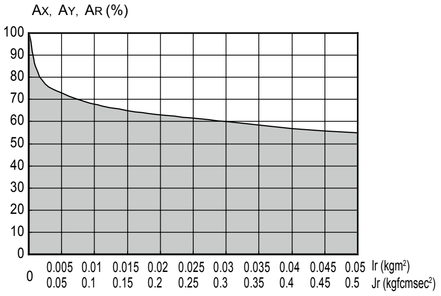


m=1 to 5kg

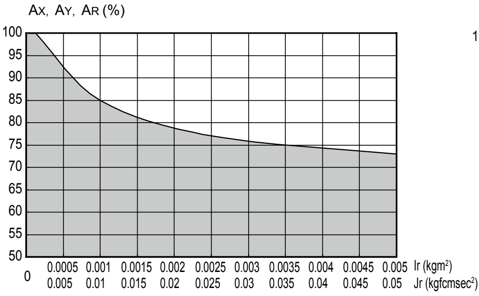


m=1 to 5kg

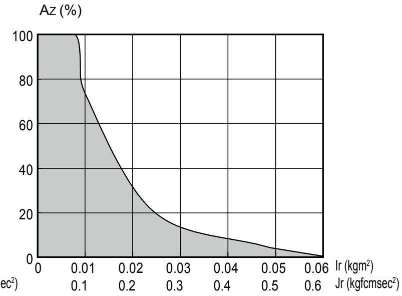
YK600XGL/YK600XGLP/YK600XGLC



m=1 to 5kg



m=1 to 5kg

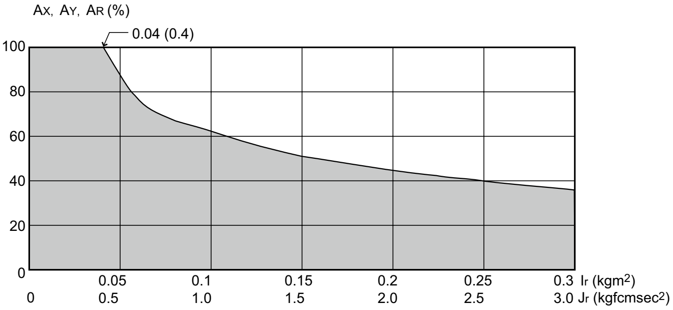


m=1 to 5kg

Graph notation description

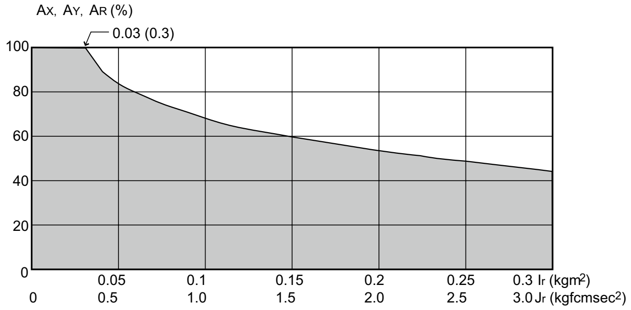
AX, AY, AR ➡ Acceleration coefficient for X axis, Y axis, R axis
Ir, Jr ➡ Inertia moment in R axis load vicinity
m ➡ Tip payload

YK500XG/YK500XGS/YK500XGP



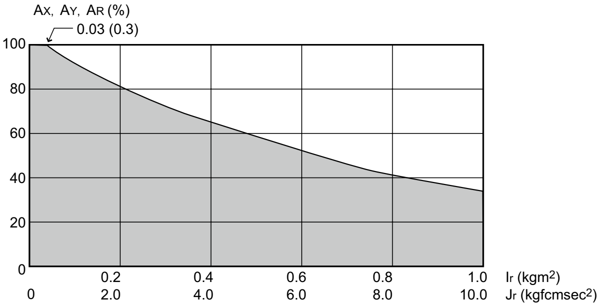
m=1 to 10kg

YK600XG/YK600XGS/YK600XGP



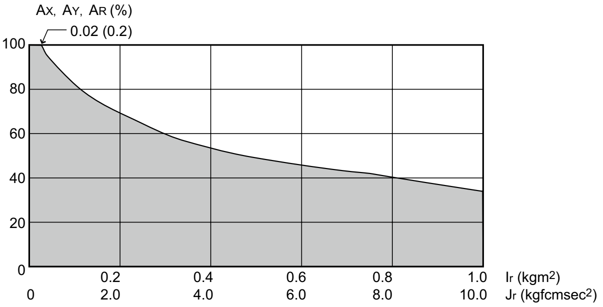
m=1 to 10kg

YK600XGH/YK600XGHP



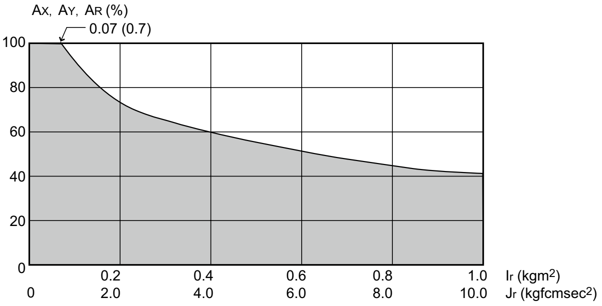
m=1 to 20kg

YK700XG/YK700XGS/YK700XGP/YK800XG/YK800XGS/YK800XGP



m=1 to 20kg

YK900XG/YK900XGS/YK900XGP/YK1000XG/YK1000XGS/YK1000XGP



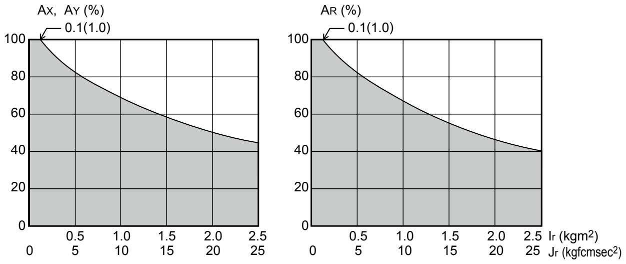
m=1 to 20kg

Graph notation description

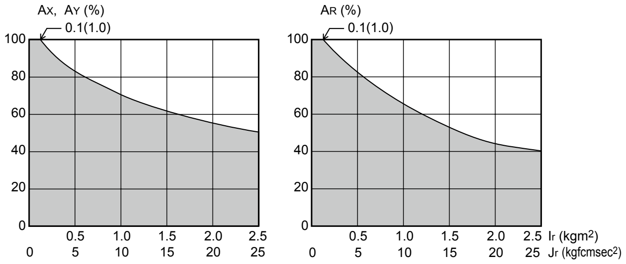
A_X, A_Y, A_R ➡ Acceleration coefficient for X axis, Y axis, R axis
I_r, J_r ➡ Inertia moment in R axis load vicinity
m ➡ Tip payload

R-axis tolerable moment of inertia and acceleration coefficient

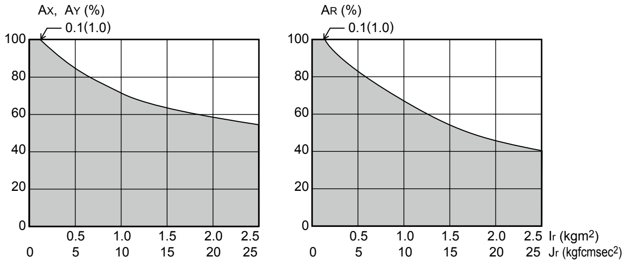
YK1200X



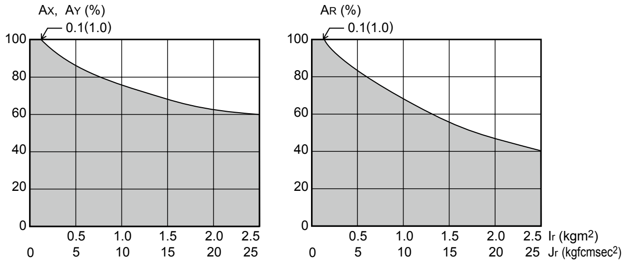
m=0 to 5kg



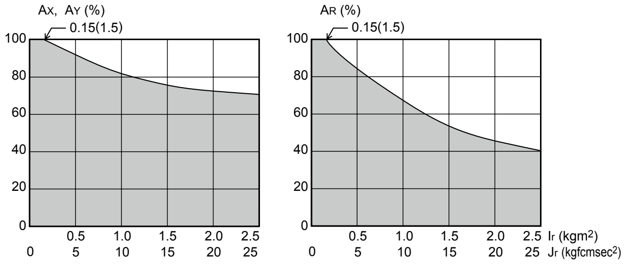
m=6 to 10kg



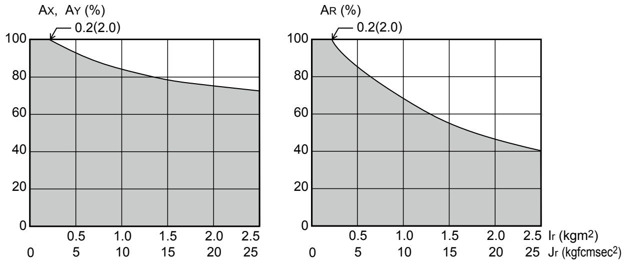
m=11 to 15kg



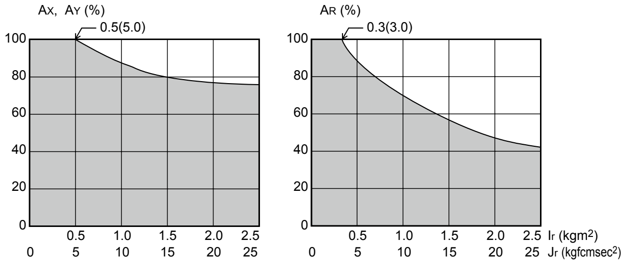
m=16 to 20kg



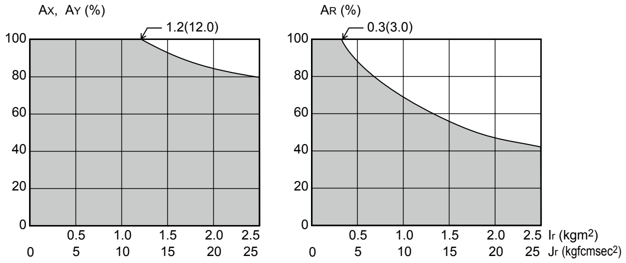
m=21 to 25kg



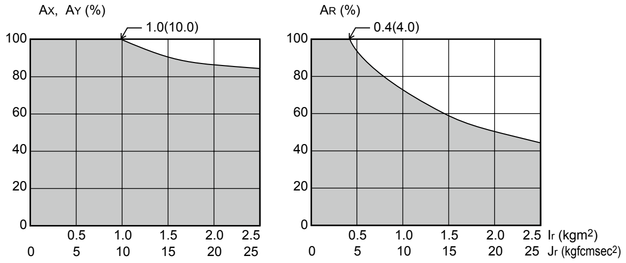
m=26 to 30kg



m=31 to 35kg



m=36 to 40kg



m=41 to 50kg

Graph notation description

AX, AY, AR ➡ Acceleration coefficient for X axis, Y axis, R axis
Ir, Jr ➡ Inertia moment in R axis load vicinity
m ➡ Tip payload

How to find the inertia moment

The tool and work are not usually a simple shape so calculating the inertia moment is not easy.
As a method, the load is replaced with several factors that resemble a simple form for which the moment of inertia can be calculated. The total of the moment of inertia for these factors is then obtained. The objects and equations often used for the calculation of the moment of inertia are shown below. Incidentally, there is the following relation: J (kgfcmsec^2) =I (kgm^2) x 10.2

[1] Moment of inertia for material particle

The equation for the moment of inertia for a material particle that has a rotation center such as shown in Fig. ① is as follows: This is used as an approximate equation when x is larger than the object size.

$$I= mx^2 \text{ (kgm}^2\text{)}$$

$$J= \frac{Wx^2}{g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.1)}$$

g : Gravitational acceleration (cm/sec^2)
m : Mass of material particle (kg)
W : Weight of material particle (kgf)

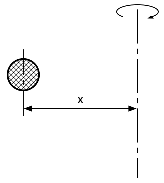


Fig.①

[2] Moment of inertia for cylinder (part 1)

The equation for the moment of inertia for a cylinder that has a rotation center such as shown in Fig. ② is given below.

$$I= \frac{\rho \pi D^4 h}{32} = \frac{mD^2}{8} \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho \pi D^4 h}{32g} = \frac{WD^2}{8g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.2)}$$

ρ: Density (kg/m^3, kg/cm^3)
g : Gravitational acceleration (cm/sec^2)
m : Mass of cylinder (kg)
W : Weight of cylinder (kgf)

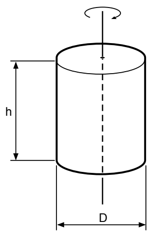


Fig.②

[3] Moment of inertia for cylinder (part 2)

The equation for the moment of inertia for a cylinder that has a rotation center such as shown in Fig. ③ is given below.

$$I= \frac{\rho \pi D^2 h}{16} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) = \frac{m}{4} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho \pi D^2 h}{16g} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) = \frac{W}{4g} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.3)}$$

ρ: Density (kg/m^3, kg/cm^3)
g : Gravitational acceleration (cm/sec2)
m : Mass of cylinder (kg)
W : Weight of cylinder (kgf)

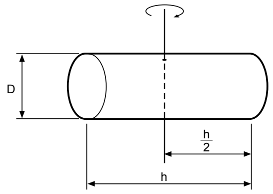


Fig.③

[4] Moment of inertia for prism

The equation for the moment of inertia for a prism that has a rotation center as shown in Fig. ④ is given as follows.

$$I= \frac{\rho abc\,(a^2 + b^2)}{12} = \frac{m\,(a^2 + b^2)}{12} \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho abc\,(a^2 + b^2)}{12g} = \frac{W\,(a^2 + b^2)}{12g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.4)}$$

ρ : Density (kg/m^3, kg/cm^3)
g : Gravitational acceleration (cm/sec^2)
m : Mass of prism (kg)
W : Weight of prism (kgf)

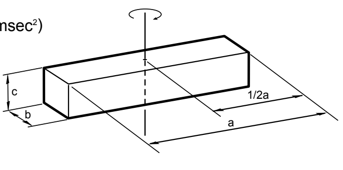


Fig.④

[5] When the object's center line is offset from the rotation center

The equation for the moment of inertia, when the center of the cylinder is offset by the distance "x" from the rotation center as shown in Fig.⑤, is given as follows.

$$I= \frac{\rho \pi D^4 h}{32} + \frac{\rho \pi D^2 h x^2}{4} = \frac{mD^2}{8} + mx^2 \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho \pi D^4 h}{32g} + \frac{\rho \pi D^2 h x^2}{4g}$$

$$= \frac{WD^2}{8g} + \frac{Wx^2}{g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.5)}$$

ρ: Density (kg/m^3, kg/cm^3)
g : Gravitational acceleration (cm/sec^2)
m : Mass of cylinder (kg)
W : Weight of cylinder (kgf)

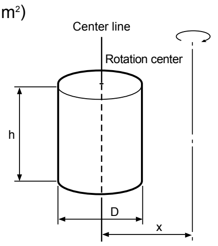


Fig.⑤

In the same manner, the moment of inertia of a cylinder as shown in Fig. ⑥ is given by

$$I= \frac{\rho \pi D^2 h}{16} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) + \frac{\rho \pi D^2 h x^2}{4} = \frac{m}{4} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) + mx^2 \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho \pi D^2 h}{16g} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) + \frac{\rho \pi D^2 h x^2}{4g}$$

$$= \frac{W}{4g} \left(\frac{D^2}{4} + \frac{h^2}{3}\right) + \frac{Wx^2}{g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.6)}$$

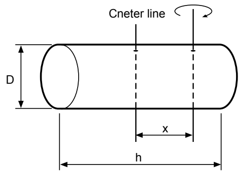


Fig.⑥

In the same manner, the moment of inertia of a prism as shown in Fig. ⑦ is given by

$$I= \frac{\rho abc\,(a^2 + b^2)}{12} + \rho abcx^2 = \frac{m\,(a^2 + b^2)}{12} + mx^2 \text{ (kgm}^2\text{)}$$

$$J= \frac{\rho abc\,(a^2 + b^2)}{12g} + \frac{\rho abcx^2}{g}$$

$$= \frac{W\,(a^2 + b^2)}{12g} + \frac{Wx^2}{g} \text{ (kgfcmsec}^2\text{)} \quad \text{... (3.7)}$$

m : Mass of prism (kg)
W : Weight of prism (kgf)

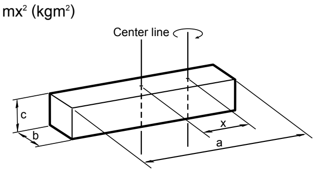


Fig.⑦

Example of moment of inertia calculation

Let's discuss an example in which the chuck and workpiece are at a position offset by 10cm from the R-axis by a stay, as shown in Fig. ⑧. The moment of inertia is calculated with the following three factors, assuming that the load material is steel and its density ρ is 0.0078kg/cm^3.

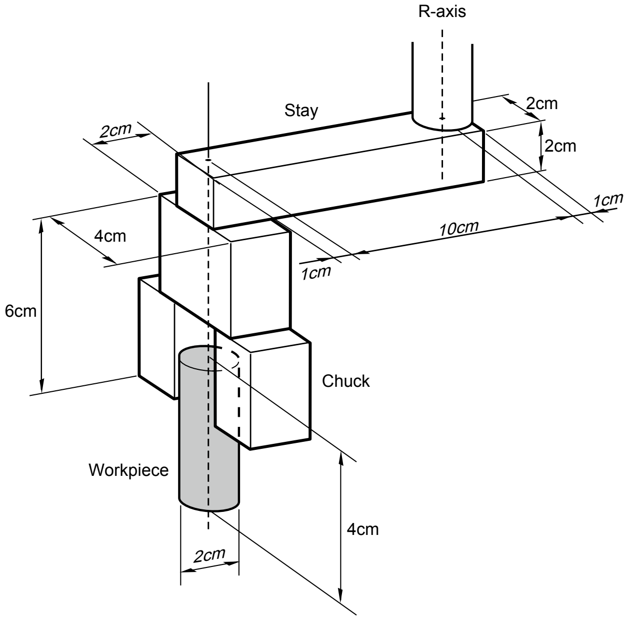


Fig. ⑧

[1] Moment of inertia of the stay

From Fig. ⑨, the weight of the stay (Ws) is given as follows :

Ws = ρabc=0.0078 x 12 x 2 x 2
= 0.37 (kgf)

The moment of inertia of the stay (Js) is then calculated from Eq. 3-7.

$$Js = \frac{0.37 \times (12^2 + 2^2)}{12 \times 980} + \frac{0.37 \times 5^2}{980} = 0.014 \text{ (kgfcmsec}^2\text{)}$$

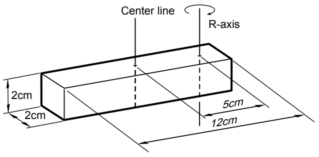


Fig. ⑨

[2] Moment of inertia of the chuck

When the chuck form resembles that shown in Fig. ⑩, the weight of the chuck (Wc) is

Wc =0.0078 x 2 x 4 x 6
=0.37 (kgf)

The moment of inertia of the chuck (Jc) is then calculated from Eq. 3-7.

$$Jc = \frac{0.37 \times (2^2 + 4^2)}{12 \times 980} + \frac{0.37 \times 10^2}{980} = 0.038 \text{ (kgfcmsec}^2\text{)}$$

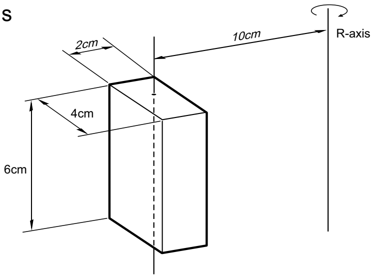


Fig. ⑩

[3] Moment of inertia of workpiece

When the workpiece form resembles that shown in Fig. ⑪, the weight of the workpiece (Ww) is

$$Ww = \frac{\rho \pi D^2 h}{4} = \frac{0.0078\pi \times 2^2 \times 4}{4} = 0.098 \text{ (kgf)}$$

The moment of inertia of the workpiece (Jw) is then calculated from Eq. 3-5.

$$Jw = \frac{0.097 \times 2^2}{8 \times 980} + \frac{0.097 \times 10^2}{980} = 0.010 \text{ (kgfcmsec}^2\text{)}$$

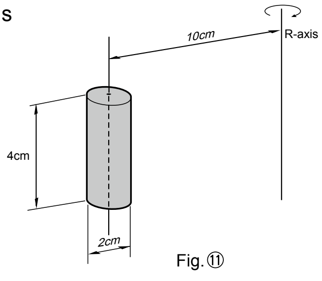


Fig. ⑪

[4] Total weight

W = Ws + Wc + Ww = 0.84 (kgf)

[5] Total moment of inertia

J = Js + Jc + Jw = 0.062 (kgfcmsec^2)

External safety circuit examples

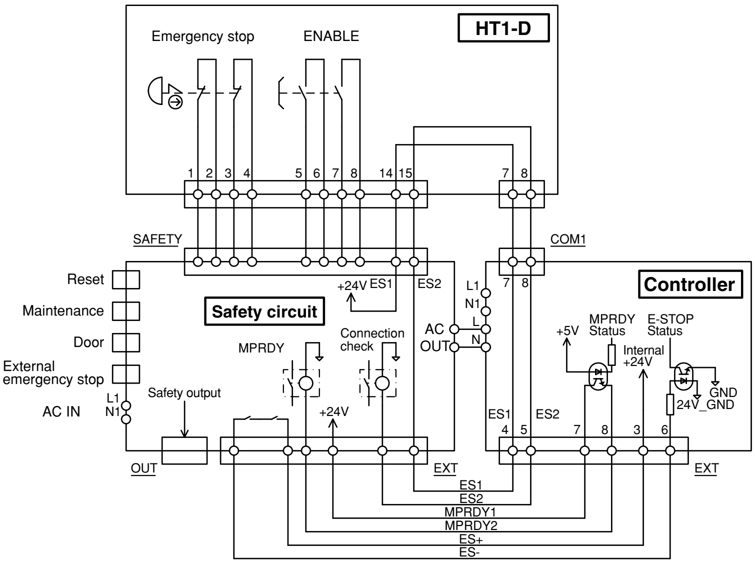
To ensure safe use of the robot, we request the customers make a risk assessment of their end equipment to decide what performance level is needed from safety circuits at the point. Customer should then install a safety circuit at the required performance level.

Here we show examples of category 4 circuits for the TS-X/TS-P, SR1 and RCX240 controllers using a programming box with an enable switch.

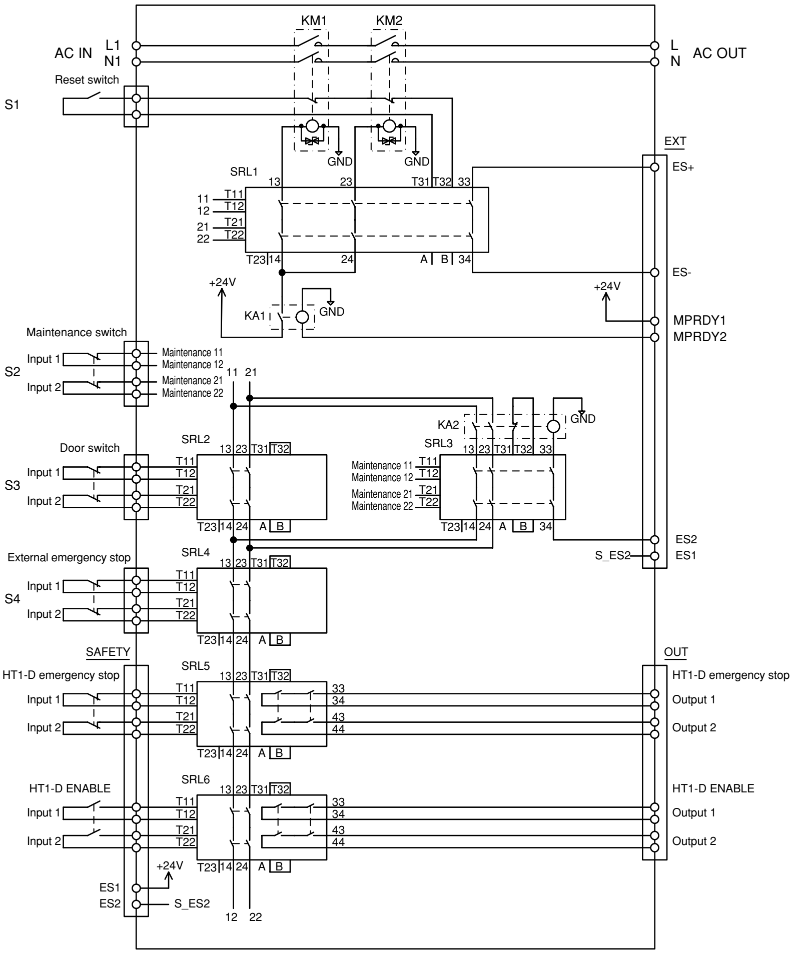
Safety circuits for other categories are described in the user’s manuals, so download them from our website if needed.

Circuit configuration examples (TS-X/TS-P)

General connection diagram

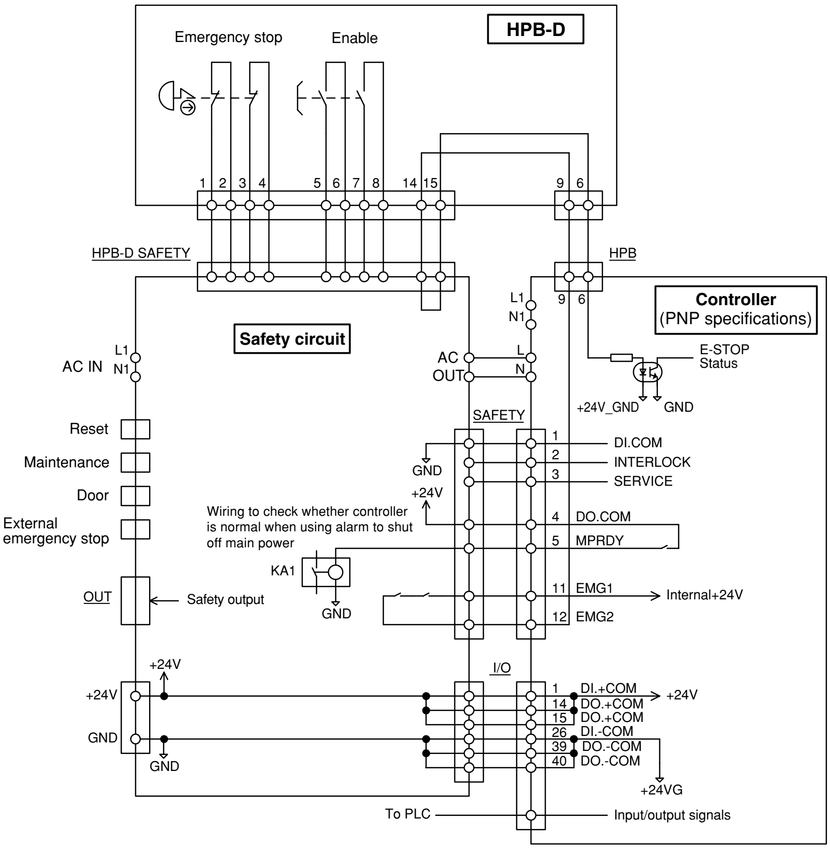


Category 4

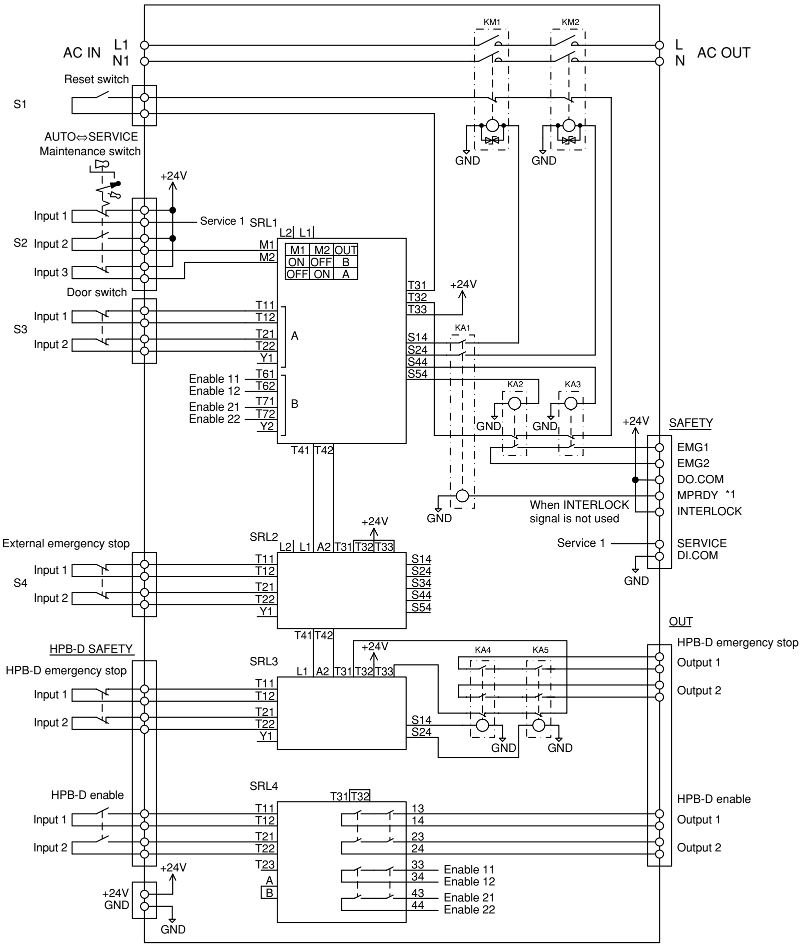


Circuit configuration examples (SR1)

General connection diagram



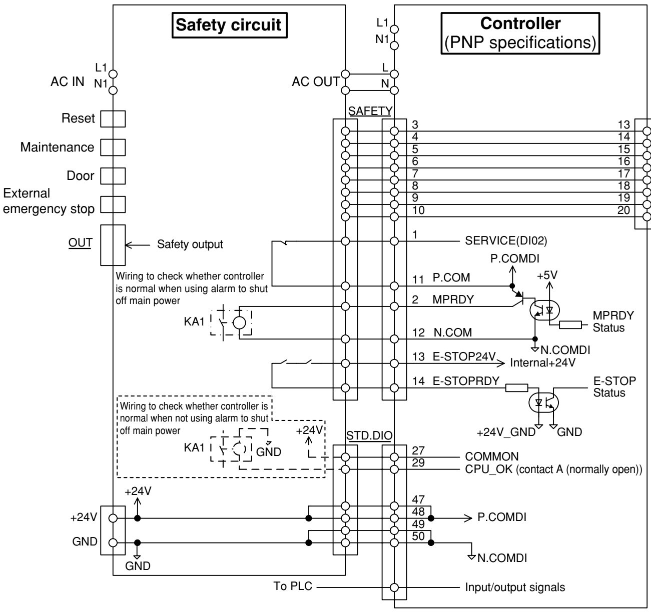
Category 4



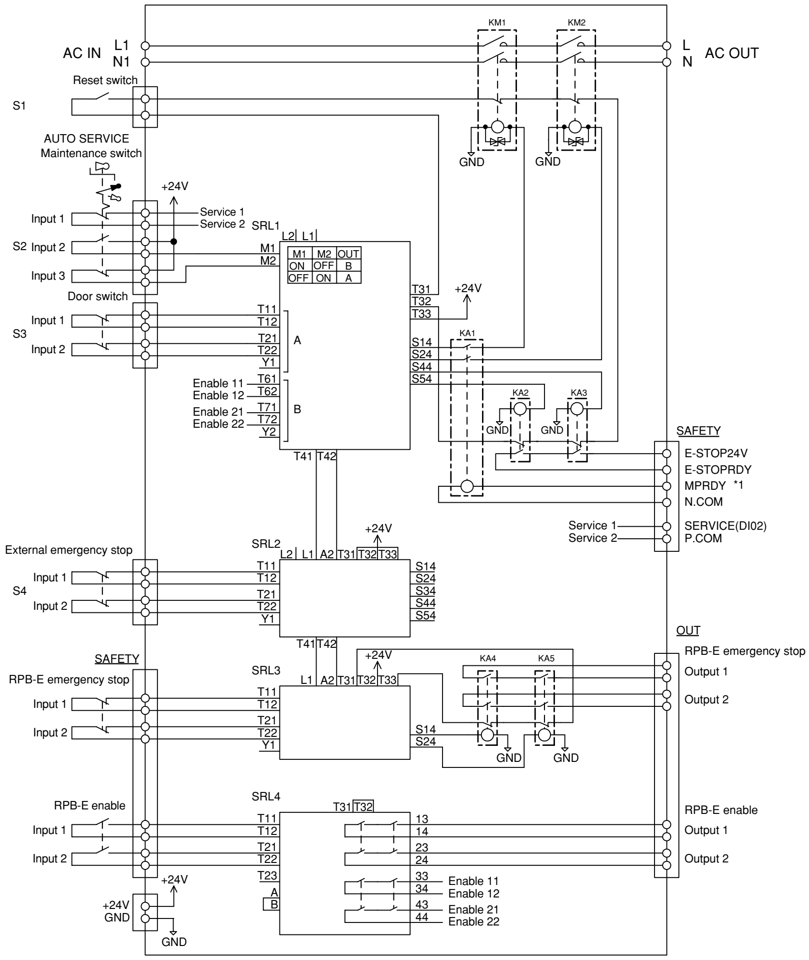
*1: Wiring to check whether the controller is normal when using an alarm to shut off the main power

Circuit configuration examples (RCX240)

General connection diagram



Category 4



*1: Wiring to check whether the controller is normal when using an alarm to shut off the main power

Parts Table

Circuit No.	Part Name	Circuit No.	Part Name
S1	Reset switch	KM1, 2	Contactor (mirror contact)
S2	Key-selector switch	KA1 to 5 [*1]	Safety relay
S3	Safety door switch	SRL1 to 4	Safety relay unit
S4	Emergency stop switch	SRL5, 6 [*2]	Safety relay unit

*1. TS-X and TS-P are KA1 to 2.
*2. Only TS-X and TS-P.

Cautions regarding CE specifications

CE marking

The YAMAHA robot (robot and controller) is one component that is incorporated into the customer's system (built-in equipment), and we declare that the YAMAHA robots conform to the EC Directives only within the scope of built-in equipment (semi-finished product). So, no CE marks are affixed to the YAMAHA robot products.

Cautions regarding compliance with EC Directives

The YAMAHA robot (robot and controller) is not, in itself, a robot system. The YAMAHA robot-series product is one component that is incorporated into the customer's system (built-in equipment), and we declare that the YAMAHA robots conform to the EC Directives only within the scope of built-in equipment. This does not therefore guarantee that the YAMAHA robot-series product conforms to the EC Directives if only the robot is used independently. The customer who incorporates YAMAHA robot products into the customer's final system, which will be shipped to or used in the European region, should verify that the overall system conforms to the EC Directives.

Applicable directives and their related standards

Directives applicable to YAMAHA robots and related standards are shown below.

TS-S2 / TS-X / TS-P / SR1-X / SR1-P / RCX221 / RCX222 / RDV-X / RDV-P

EC Directives	Related Standards
Machinery Directive 2006/42/EC	EN ISO12100 EN 60204-1
EMC Directive 2004/108/EC	EN 55011 EN 61000-6-2

RCX240 / RCX340

EC Directives	Related Standards
Machinery Directive 2006/42/EC	EN ISO12100 EN ISO10218-1 EN 60204-1
EMC Directive 2004/108/EC	EN 55011 EN 61000-6-2

Installation of external safety circuits

To comply with EC directives, customers using YAMAHA robots must always build and install their own external safety circuits after selecting product components (safety relays, etc.) according to performance levels and safety categories required by the customer equipment.

For details about examples of external safety circuits, the user's manual should be referred to.

Compliance with EMC Directives

In order to conform to the EMC Directives, the customer should evaluate the final system (overall system) and take necessary countermeasures. As examples of EMC countermeasures for single YAMAHA robot product are described in the user's manual, these descriptions should be referred to.

Cautions regarding official language of EU countries

Only English which is the official language of the EU is utilized in the manuals, warning labels, operating screens, and the Declaration of Incorporation for this product.

If warning text appears on the warning label, then Japanese may also sometimes be listed along with the English.

Cautions on KCs (Korean Certificate Safety) specifications

About KCs

KCs is a system that conforms to Korean Industrial Safety and Health Act and self-regulatory safety confirmation declaration of hazardous machines and devices. For machines specified in this system, the KCs mark needs to be indicated after conducting the forced certification or self-regulatory safety confirmation declaration. Industrial robots that have manipulators with 3 or more axes are specified as machines needing the self-regulatory safety confirmation declaration in South Korea's Ministry of Employment and Labor Notification No. 1201-46. Its safety standards are defined in separate table 2 of this notification.

About measures for KCs

For some YAMAHA robot models, this self-regulatory safety confirmation declaration is conducted to register these models. Additionally, the KCs mark is indicated on the robots that have been declared. When you investigate to purchase a robot to be used in South Korea, check whether or not this robot conforms to KCs and order it with the KCs specifications specified.

The YAMAHA robot is a unit that is incorporated into the customer's system. Therefore, when the customer incorporates the robot into the customer's system, additional safety measures need to be taken. For details, see "Safety standards application guide reference manual".

List of robots subject to KCs

Robot products may not be applicable to KCs depending on the customer's applications, operating conditions, or environments. Consult YAMAHA before purchasing a product.
Since a self-regulatory safety declaration has not been made for inapplicable models, these models cannot be used in Korea. Special-order robots are also unavailable. For details, please contact YAMAHA.

As of October, 2015
○ : subject to KCs
– : not subject to KCs

Product	Type	Model name	KCs registration	
			RCX240 (S)	RCX340
Cartesian robot	FXYx	3 axes	○	○
	SXYx	3 axes	○	○
		4 axes		
	SXYBx	3 axes	○	○
		4 axes		
	MXYx	3 axes	○	○
		4 axes		
	HXYx	3 axes	○	○
		4 axes		
	NXY	3 axes	–	–
		4 axes		
		6 axes		
	SXYxC	3 axes	–	–
		4 axes		
Pick & place robot	YP Series	3 axes	–	–
		4 axes		
SCARA robot	YK180X		–	–
	YK220X			
	YK120XG			
	YK150XG			
	YK180XG			
	YK250XG		○	–
	YK350XG			
	YK400XG			
	YK400XR		–	○
	YK500XGL		○	–
	YK600XGL			
	YK700XGL		–	–
	YK500XG		○	–
	YK600XG			
	YK600XGH			
	YK700XG			
	YK800XG			
	YK900XG			
	YK1000XG			
	YK1200X		–	–
	YK180XC		–	–
	YK220XC			

▶ Continues to the next page.

Cautions on KCs (Korean Certificate Safety) specifications

Product	Type	Model name	KCs registration	
			RCX240 (S)	RCX340
SCARA robot	YK250XGC		○	–
	YK350XGC			
	YK400XGC			
	YK500XGLC			
	YK600XGLC			
	YK300XGS		–	–
	YK400XGS			
	YK500XGS		○	–
	YK600XGS			
	YK700XGS			
	YK800XGS			
	YK900XGS			
	YK1000XGS			
	YK250XGP		○	–
	YK350XGP			
	YK400XGP			
	YK500XGLP			
	YK600XGLP			
	YK500XGP			
	YK600XGP			
	YK600XGHP			
	YK700XGP			
	YK800XGP			
	YK900XGP			
	YK1000XGP			
	YK350TW		–	–
	YK500TW		○	–

Cautions on Korean EMC specifications

About Korean KC

KC is a system based on the radio regulations of Korea. Devices specified by this system must certify compliance or register compliance, and indicate compliance. Applicable devices are defined by public announcement from the Korean National Radio Research Agency (NRRA).

About Korean KC compliance

Some models of YAMAHA robot (robots and controllers) are registered with the Korean National Radio Research Agency (NRRA) by self-test compliance registration. YAMAHA robots that have already been registered display the KC mark.
If you are considering the purchase of robots to be used in Korea, please check the table below for compliance before ordering the applicable product.

YAMAHA robots are devices for inclusion in a system; therefore, if you, the customer, build a complete system that includes robots, and ship that system as a final product to Korea or use it within Korea, you yourself must verify EMC compliance.
For TS series and TS-SD units, check "Examples of EMC countermeasures" within the user's manual; for other controllers, check this section within the "Safety standards application guide reference manual".

List of KC compliant robots

* Please consult with YAMAHA before purchase, since compliance might not be possible depending on your application, conditions of use, and environment.
* In the case of 3-axis or greater Cartesian robots and SCARA robots, the robot must be compliant with both KC and KCs.
In conjunction with this table, refer also to the list of KCs compliant robots.

As of January 2016

Product	Model name	Registration number
Controller	ERCD	MSIP-REM-Y3M-ERCD
	TS-S2	MSIP-REM-Y3M-TSS
	TS-SD	MSIP-REM-Y3M-TSSD
	TS-SH	MSIP-REM-Y3M-TSSH
	TS-X	MSIP-REM-Y3M-TSX
	TS-P	MSIP-REM-Y3M-TSP
	RDV-X	MSIP-REM-Y3M-RDVX
	RDV-P	MSIP-REM-Y3M-RDVP
	SR1-X	MSIP-REM-Y3M-SR1X
	SR1-P	MSIP-REM-Y3M-SR1P
	RCX221	MSIP-REM-Y3M-X221
	RCX222	MSIP-REM-Y3M-X222
	RCX240(S)	MSIP-REM-Y3M-X240
	RCX340	MSIP-REM-Y3M-X340
	LCC140	MSIP-REM-Y3M-C140
Robot	TRANSERVO series	MSIP-REM-Y3M-TR
	FLIP-X series	MSIP-REM-Y3M-FXL
		MSIP-REM-Y3M-FX
	PHASER series	MSIP-REM-Y3M-PH
	XY-X series	MSIP-REM-Y3M-XY
	YK series	MSIP-REM-Y3M-YK
Linear conveyor	Linear Conveyor Module	MSIP-REM-Y3M-M100

About non-compliant models

The following robots are subject to the KC system; however, since self-test compliance registration has not been done at the present time, they cannot be used in Korea. Additionally, special-order robots are also not compliant with the KC system.
Even for the various series listed in the table, some new models might not have been registered.
(Contact YAMAHA for details.)

Pick and place robots: YP-X series
General-purpose assembly base machines: YSC series

Warranty

For information on the warranty period and terms, please contact our distributor where you purchased the product.

This warranty does not cover any failure caused by:

1. Installation, wiring, connection to other control devices, operating methods, inspection or maintenance that does not comply with industry standards or instructions specified in the YAMAHA manual;
2. Usage that exceeded the specifications or standard performance shown in the YAMAHA manual;
3. Product usage other than intended by YAMAHA;
4. Storage, operating conditions and utilities that are outside the range specified in the manual;
5. Damage due to improper shipping or shipping methods;
6. Accident or collision damage;
7. Installation of other than genuine YAMAHA parts and/or accessories;
8. Modification to original parts or modifications not conforming to standard specifications designated by YAMAHA, including customizing performed by YAMAHA in compliance with distributor or customer requests;
9. Pollution, salt damage, condensation;
10. Fires or natural disasters such as earthquakes, tsunamis, lightning strikes, wind and flood damage, etc;
11. Breakdown due to causes other than the above that are not the fault or responsibility of YAMAHA;

The following cases are not covered under the warranty:

1. Products whose serial number or production date (month & year) cannot be verified.
2. Changes in software or internal data such as programs or points that were created or changed by the customer.
3. Products whose trouble cannot be reproduced or identified by YAMAHA.
4. Products utilized, for example, in radiological equipment, biological test equipment applications or for other purposes whose warranty repairs are judged as hazardous by YAMAHA.

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Ver.1.01_201209

Repeatability positioning accuracy

The “repeatability positioning accuracy” cannot be guaranteed for the accuracy conditions listed below.

(1) Factors involving absolute accuracy

- Under conditions requiring accuracy between the robot controller internal coordinate position (command position) and real space position (movement position).

(2) Operating pattern factors

- Under conditions including a motion approaching close to a teaching point (position) from different directions during repeating operation.
- Under conditions where power was turned off or operation was stopped, even when approaching a teaching position from same direction.
- Under conditions where movement to a teaching position uses a hand system (left-handed or right-handed system) different from that during teaching. (SCARA robots)

(3) Temperature factors

- Under conditions subject to drastic changes in ambient temperature.
- Under conditions where temperature of robot unit fluctuates.

(4) Fluctuating load factors

- Under conditions where load conditions fluctuate during operation (load fluctuates due to workpiece or no workpiece).

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