

YAMAHA  
**ROBOT**  
LINE UP CATALOG



# FULL LINEUP

## LINEAR CONVEYOR MODULE

### LCMR200


**LCMR200 (Linear Module)**



## SINGLE-AXIS ROBOTS

### GX Series

GX05/GX05L/GX07/GX10/  
GX12/GX16/GX20



## ROBOT CONTROLLER

### YHX Series

for LCMR200, GX  
YHX Controller











## CLOSED LOOP STEPPER MOTOR SINGLE-AXIS ROBOTS

### TRANSERVO Series

<b>SS type (slider type)</b> SS05H-S SS05H-R(L) SS05-S SS05-R(L) SS04-S SS04-R(L)	<b>SG type (slider type)</b> SG07	
		
<b>SR type (rod type)</b> SR05-S SR05-R (L) SR04-S SR04-R (L) SR03-S SR03-R (L)	<b>SR type (Rod type with support guide)</b> SRD05-S SRD05-U SRD04-S SRD04-U SRD03-S SRD03-U	
		
<b>STH type (slide table type)</b> STH04-S STH04-R(L) STH06-S STH06-R(L)	<b>RF type (rotary type)</b> RF02 RF03 RF04	<b>BD type (belt type)</b> BD04 BD05 BD07
		


## SCARA ROBOTS

### YK-XG Series / YK-XE Series / YK-XGS / YK-XGP

<b>Low cost high performance model [YK-XE]</b> Arm length: 400mm to 710mm Maximum payload: 4kg to 10kg  YK400XE-4 YK510XE-10 YK610XE-10 YK710XE-10	<b>Extra small type SCARA model [YK-XG]</b> Arm length: 120mm to 220mm Maximum payload: 1kg  YK120XG YK150XG YK180XG YK180X YK220X	
 <p>YK400XE-4</p>	 <p>YK180XG</p>	
<b>Small type [YK-XG]</b> Arm length: 250mm to 400mm Maximum payload: 5kg  YK250XG YK350XG YK400XG	<b>Medium type [YK-XG]</b> Arm length: 500mm to 600mm Maximum payload: 5kg to 20kg  YK500XGL/XG YK600XGL/XG/XGH	<b>Large type [YK-XG/YK-X]</b> Arm length: 700mm to 1200mm Maximum payload: 20kg to 50kg  YK700XG/XGL YK1000XG YK800XG YK1200X YK900XG YK1200XG
 <p>YK400XG</p>	 <p>YK500XGL</p>	 <p>YK1200XG</p>
<b>Wall mount/inverse type [YK-XGS]</b> Arm length: 300mm/1000mm Maximum payload: 20kg  YK300XGS YK700XGS YK400XGS YK800XGS YK500XGS YK900XGS YK600XGS YK1000XGS	<b>Dust-proof &amp; drip-proof model [YK-XGP]</b> Arm length: 250mm to 1000mm Maximum payload: 20kg  YK250XGP YK700XGP YK350XGP YK800XGP YK400XGP YK900XGP YK500XGLP/ YK1000XGP YK500XGP YK600XGLP/ YK600XGP/ YK600XGHP	<b>ORBIT TYPE [YK-TW]</b> Arm length: 350mm/500mm Maximum payload: 5kg  YK350TW YK500TW
 <p>YK500XGS</p>	 <p>YK250XGP</p>	 <p>YK500TW</p>

## SINGLE-AXIS ROBOTS / MOTOR-LESS SINGLE AXIS ACTUATOR

### Robonity Series


<b>Basic model slider type</b> ABAS04 ABAS05 ABAS08 LBAS12		<b>Basic model slider type</b> LBAS04 LBAS05 LBAS08 LBAS12	
<b>Advanced model slider type</b> AGXS05/AGXS05L AGXS07 AGXS10 AGXS12 AGXS16 AGXS20		<b>Advanced model slider type</b> LGXS05/LGXS05L LGXS07 LGXS10 LGXS12 LGXS16 LGXS20	
<b>Basic model rod type</b> ABAR04 ABAR05 ABAR08		<b>Basic model rod type</b> LBAR04 LBAR05 LBAR08	

## ROBOT VISION Robot with image processing functions

### RCXiVY2+ System

#### Integrated robot vision

RCX340 + RCXiVY2+



Tracking board RCXiVY2+Unit

## SINGLE-AXIS ROBOTS

### FLIP-X Series

#### T type Compact model

T4L/T4LH  
T5L/T5LH  
T6L  
T9/T9H



T4L

#### F type/GF type High rigidity model

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

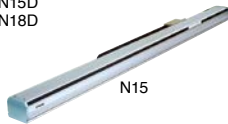


F8

GF14XL

#### N type Nut rotation model

N15/N15D  
N18/N18D



N15

#### R type Rotary axis model

R5  
R10  
R20



R5

#### B type Timing belt drive model

B10  
B14/B14H



B10

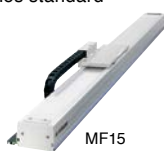
## LINEAR MOTOR SINGLE-AXIS ROBOTS

### PHASER Series

MF type Long stroke and high power using a flat motor with a core

■ Double carrier comes standard

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



MF15



MF75

## CARTESIAN ROBOTS

### XY-X Series

PXYx



FXYx



FXyBx



SXYx



SXYBx



MXYx



NXY



NXY-W



HXYx



HXYLx



## ELECTRIC GRIPPERS

### YRG Series



YRG-4225S



YRG-2810W



YRG-2840FS



YRG-2820T

## PICK & PLACE ROBOTS

### YP-X Series

2-axis type  
YP220X  
YP320X

3-axis type  
YP220BXR  
YP320XR  
YP330X



4-axis type  
YP340X

## CLEAN ROBOTS

### CLEAN Type

#### SINGLE-AXIS ROBOTS

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



C14

#### CARTESIAN ROBOTS

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



SXYxC

#### SCARA ROBOTS

YX180XC YK500XGLC YK700XC  
YK220XC YK500XC YK710XEC-10  
YK250XGC YK510XEC-10 YK800XC  
YK350XGC YK600XGLC YK1000XC  
YK400XGC YK600XC  
YK400XEC-4 YK610XEC-10



YK510XEC-10

YK250XGC

## ROBOT CONTROLLERS

### Controllers

#### 1 axis Robot positioners



EP-01

#### 1 axis Robot positioners



TS-S2  
TS-SH

TS-X  
TS-P

#### 1 axis

#### Robot drivers

<Pulse train input drivers>



TS-SD

RDV-X  
RDV-P

#### 1 axis

#### Robot controllers

<Small servos 24V·30W>



ERCD

#### 1 axis

#### Robot controllers



SR1-X  
SR1-P

#### 1 - 2 axis

#### Robot controllers



RCX320

#### 1 - 4 axis

#### Robot controllers



RCX340

#### Dedicated for RCX340

#### Speed Monitoring Unit



RCX3-SMU

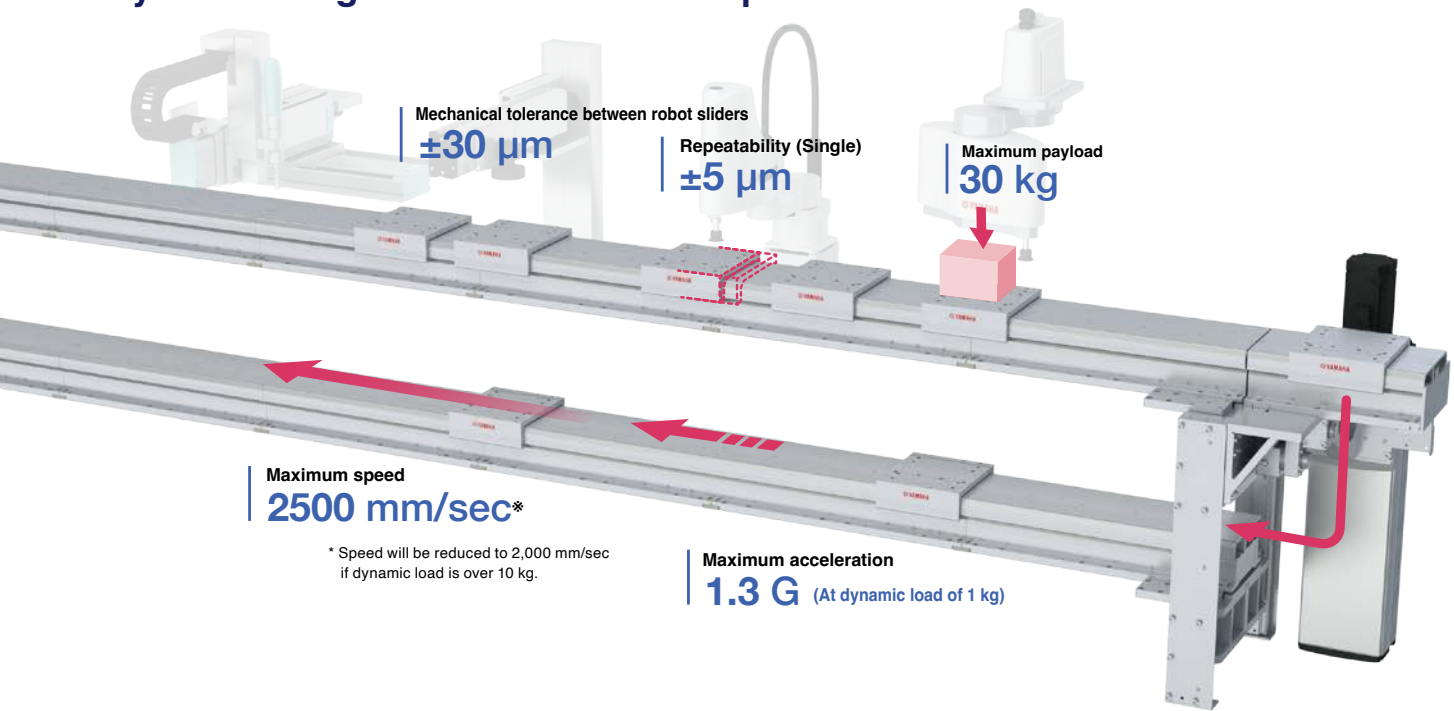
# LCMR200

## LINEAR CONVEYOR MODULE

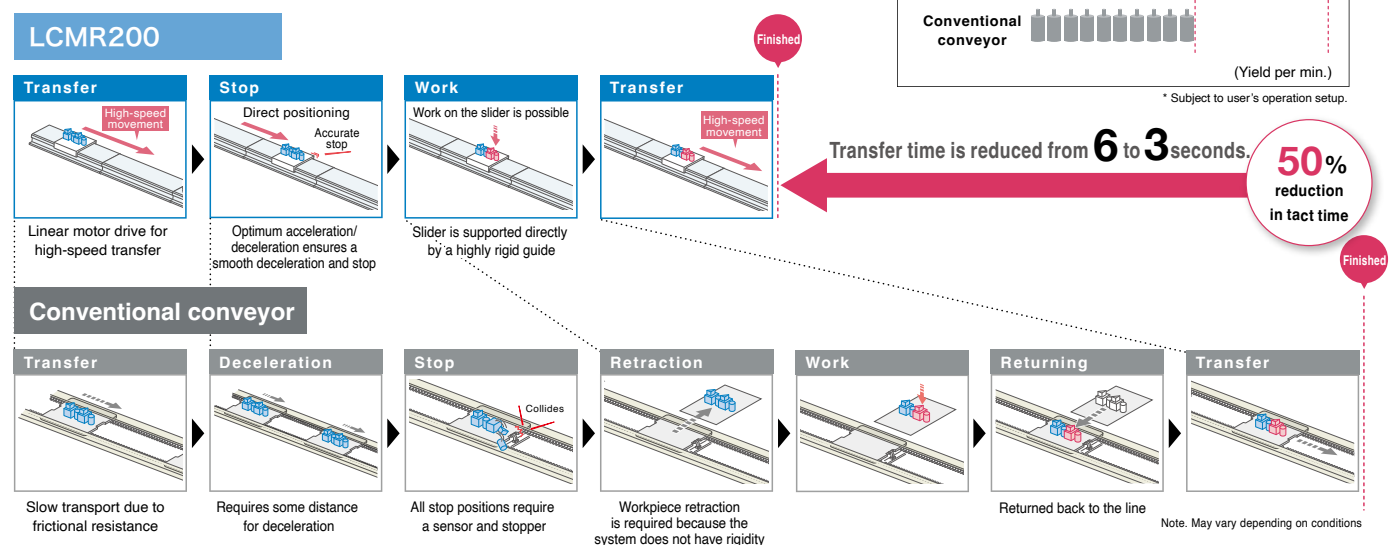
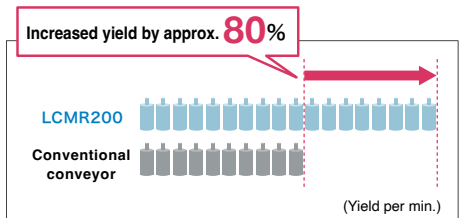
Web details page



From “flowing” workpiece to “moving” workpiece. Profitability is improved by eliminating waste in the transfer process.



### Comparison between LCMR200 and a conventional conveyor



### No origin process needed

Newly developed high-precision full-range absolute server eliminates the need for return-to-origin. The operation can be started and stopped easily, so there is no time loss even when starting or restarting.

### High acceleration rate

High speed motion between an extremely short distance is possible even in a high density process or pitch feed.

### Recognize slider's individual IDs

All sliders can be identified when the power is applied.



## Proposed by the pioneer of linear transport: Revolutionary transport platform for next generation manufacturing

Production line using LCMR200



Reduce transport time.



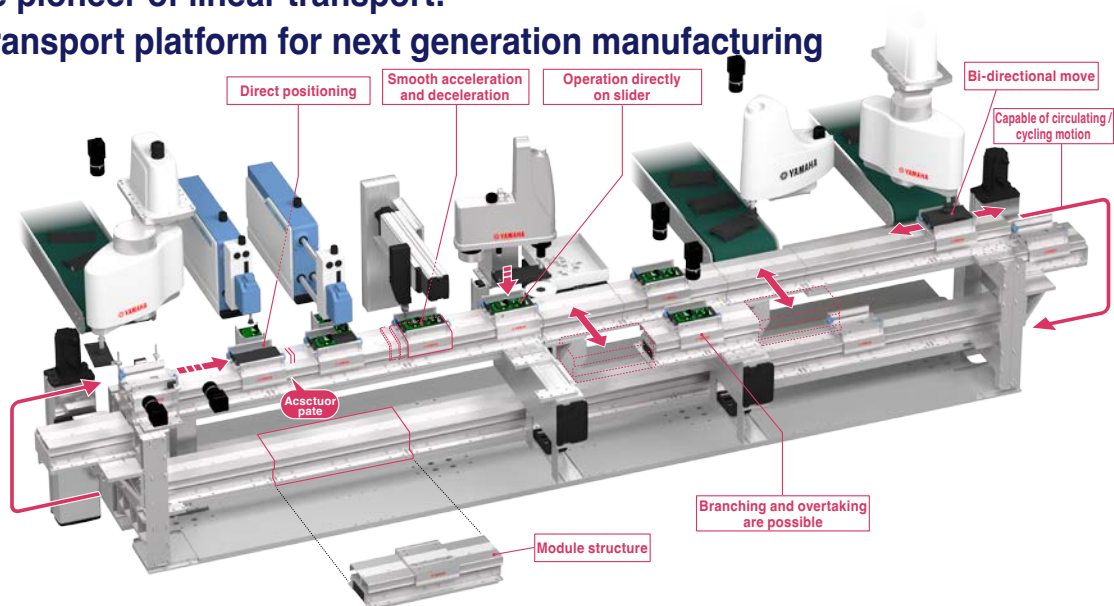
Improve productivity.



Cost reduction



Save space.

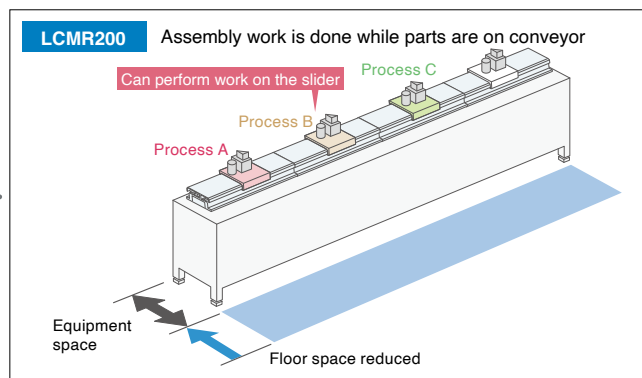
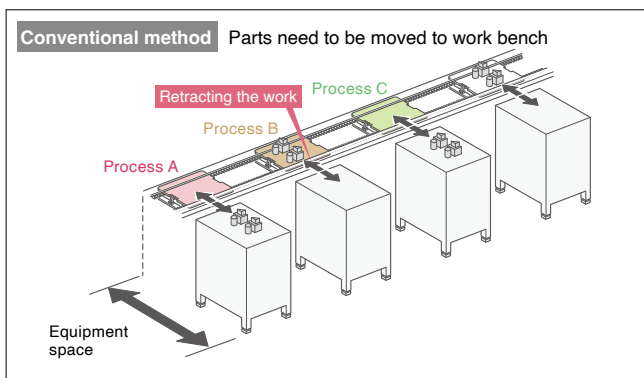


### Assembly can be done while parts are on conveyor

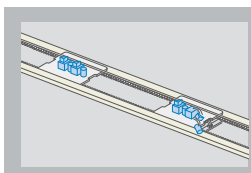
Highly rigid guide



- The highly rigid guide enables assembly and processing on the transport line.
- No need to reposition parts to/from conveyor. Floor line space is reduced substantially.

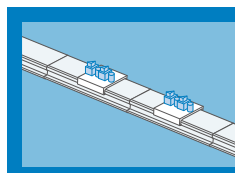


### Thorough comparison of LCMR200 and conventional conveyor



#### Conventional type conveyors

- Mechanical stoppers or sensors are required at each stop position
- Complicated control due to various conveyor components.
- Stopper adjustments are required each time the stop position is changed.
- Fixed productivity rate.
- Various adjustments required.



#### LCMR200

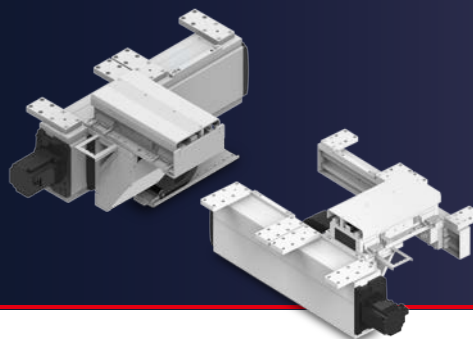
- Direct driving of the slider.
- Stop positions are controlled with position data in program.
- No mechanical stoppers or external sensors required.
- Maximum speed of 2.5 m/sec for better transfer time.
- Adjustable transfer speed for total line flow coordination.
- Actual task times can be easily monitored.

Speed control	△ Same speed required on entire conveyor
Operation control	× One (fixed) direction
Travel / Stops	× Physical impact at mechanical stop
Number of system components	× Stopper or sensor required at each stop position
Accuracy	△ Additional support is required to increase accuracy
Rigidity	△ Additional support is required to ensure rigidity
Line flow changes	× Requires stopper adjustments at each line flow change
Footprint	△ Certain space is required

○	Able to specify the speed and acceleration speed individually
○	Bi-directional and distance can be set individually for each carriage
○	Smooth servo-controlled acceleration, deceleration, and incremental move
○	No mechanical components required for stop position
○	Mechanical tolerance between sliders (between total sliders) +/- 30 μm
○	Assembly work can be performed directly on carriage supported by high-rigidity guides
○	Simple modification of line layout by modular design. Stop position can be changed in program
○	Space saving design

# LCMR200

## Circulation unit / Traversing unit



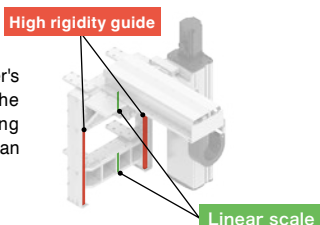
Web details page



### YAMAHA genuine circulation units achieve the stable operation of the production line.

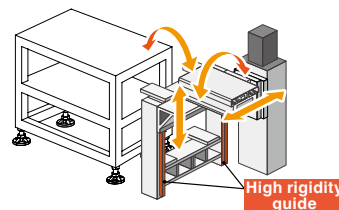
#### Circulation unit

Circulation units are available as standard. Because the circulation units are manufacturer's standard products, the stable operation of the production line is achieved without worrying about module "deviation". Furthermore, you can also save time and effort in design.



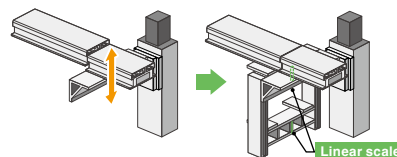
**POINT 1** Measures against "deviation" necessary to maintain the accuracy are taken thoroughly.

Restricted by two high rigidity guides. Torsion deviation and horizontal deviation are eliminated.



- Circulation module moves along the guide.
- Torsion deviation or horizontal deviation of the transfer section is restricted by two guides.

Corrected by the linear scale. Vertical deviation is eliminated.

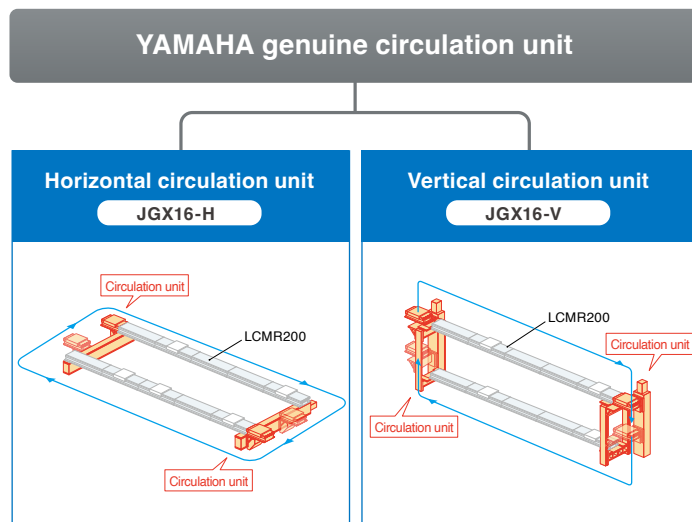
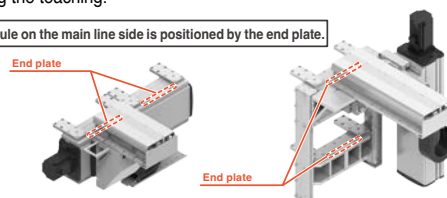


- Positioning is performed by the full closed loop system using the linear scale arranged near the transfer section to correct effects due to thermal elongation of the ball screw, etc.

**POINT 2** Easy adjustment

The adjustment has been performed before shipment from the factory. After the product has arrived, the adjustment is completed in a short time by simply attaching the module to the equipment based on the end plate and performing the teaching.

The module on the main line side is positioned by the end plate.



### Bottleneck process is resolved to improve the throughput. Sampling inspection and workpiece correction can be performed without stopping the line.

#### Traversing unit

This unit can branch the production line or pass the process. Improvement and high efficiency of the production line capacity can be achieved.

#### Branching specifications

■ Bottleneck is resolved./Multiple models are supported.  
"Improvement of specific process capacity" and "Distribution of line by model" are achieved by branching.

Process C is parallelized to resolve the bottleneck.

\* Circulation unit for 3-row line is a special order product.

#### Retracting specifications

■ Bottleneck is resolved.  
Passing the slider resolves the bottleneck.

Arranging multiple processes B and passing the working slider resolve the bottleneck.

# YHX CONTROLLER

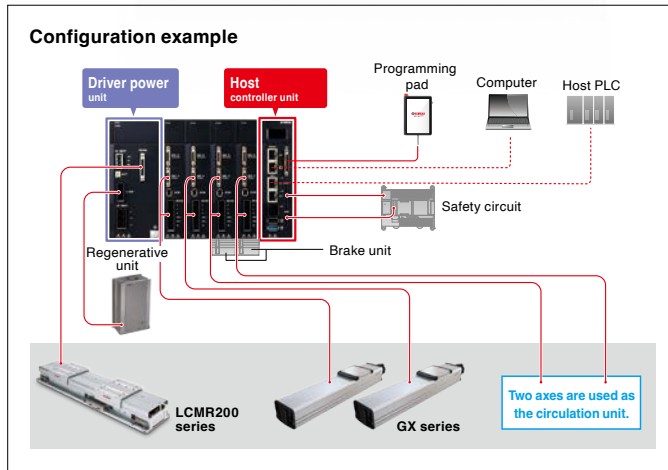
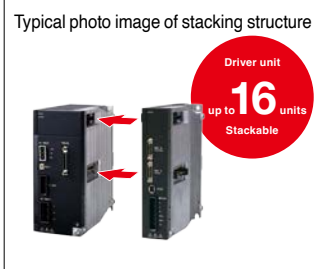
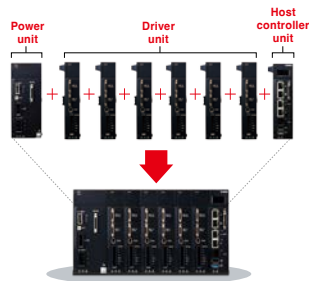
Controller dedicated for LCMR200 / GX

Web details page



**Controller for the linear conveyor module LCMR200 and single-axis robot GX series.**  
**Advanced production line can be constructed in a short period.**

**Stacking modular structure** -No wiring between modules needed.-  
 Incorporation a control power supply, motor drive power supply, high speed network communication, safety circuit into a stacking modular structure.  
 Eliminates wiring between units, reducing conventional wiring cost and wiring man-hour to 30% to 50%.  
 The stacking structure including host, power and driver is the very first in the industry.



## YHX Standard Profile

This standard profile is a project file for the LCMR200 that operates the single-axis robot or LCMR200 as a positioner from the host PLC via the field network.



Features of YHX standard profile

- > Eliminates writing ladder logic codes.
- > Adding operation through a pendant.
- > Perform simple direct value operation and specific point-to-point move.
- > Servo ON of any slider individually.
- > Obtain alarm information through the host PLC.



Significant reduction of launching man-hour.	Significant reduction of startup time and process.
Controlled by program creation of the host PLC.	Numbers of improvements in line design and operation.

**Implementing a task is simple and easy**

# GX Series

## SINGLE-AXIS ROBOTS



Web details page



**Highly efficient, highly accurate ground ball screws are now standard feature for all types and models. The high precision models with reliability and durability.**

\* The base structure of the robot is the same as the Robonity series. When you use a single-axis robot alone, consider Robonity series on P.14.  
 (GX series and Robonity series have different control methods and controllers.)

# YK-X Series

## SCARA ROBOTS

- YK-XG (Direct drive beltless model)
- YK-XE (Low cost high performance model)
- YK-XGS (Wall mount/inverse model)
- YK-XGP (Dust-proof & drip-proof model)
- YK-TW (Orbit type)



An outstanding, diverse lineup featuring arm lengths ranging from 120 to 1200 mm. Delivers high-speed and high-precision operations for increased productivity.

### Extra small type SCARA model

YK120XG, YK150XG  
YK180XG, YK180X  
YK220X



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

### Low cost high performance model

YK400XE-4  
YK510XE-10  
YK610XE-10  
YK710XE-10



- Arm length: 400 mm to 710 mm
- Maximum payload: 4 kg to 10 kg

### Small type

YK250XG  
YK350XG  
YK400XG



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

### Medium type

YK500XGL/XG  
YK600XGL/XG/XGH



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

### Large type

YK700XGL  
YK700XG  
YK800XG  
YK900XG  
YK1000XG  
YK1200X  
YK1200XG



- Arm length: 700 mm to 1,200 mm
- Maximum payload: 10 kg to 50 kg

Note: YK700XGL is available for custom orders.  
Please inquire with a Yamaha representative for more details.

### Wall mount/inverse type

YK300XGS, YK400XGS  
YK500XGS, YK600XGS  
YK700XGS, YK800XGS  
YK900XGS  
YK1000XGS

- Arm length: 300 mm to 1,000 mm
- Maximum payload: 20 kg



#### Wall-mount type

This type is used when the robot body is installed on a wall.

#### Inverse type

This type is used in cases where the wall-mount type is mounted upside down.

### Dust-proof & drip-proof model

YK250XGP, YK350XGP  
YK400XGP, YK500XGP  
YK500XGLP, YK600XGP  
YK600XGLP, YK700XGP  
YK800XGP, YK900XGP  
YK1000XGP

- Arm length: 250 mm to 1,000 mm
- Maximum payload: 20 kg



This model is designed for work environments involving frequent water splashing and dust (with the protection class being equivalent to IP65).  
• If you need protection from moisture generated by anything other than water, please contact us.  
Note: YK700GP/YK800XGP/YK1000XGP are custom order models.  
Please inquire with a Yamaha representative for more details.

### Orbit type

YK350TW  
YK500TW

- Arm length: 350 mm/500 mm
- Maximum payload: 4 kg to 10 kg



### 45 years of history

SCARA was our first robot. Since producing our first SCARA robot called CAME, we have spent some forty-five years bringing SCARA robot innovations to market. SCARA robots have undergone countless modifications in an ever-changing marketplace. The extensive track record we have built with SCARA robots have made them an essential part of the Yamaha robot lineup.



1979  
(YK7000)



# YK-X Series

## SCARA ROBOTS

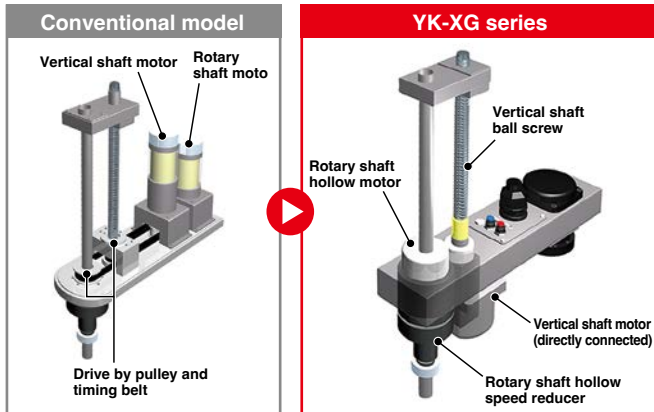
- YK-XG (Direct drive beltless model)
- YK-XE (Low cost high performance model)
- YK-XGS (Wall mount/inverse model)
- YK-XGP (Dust-proof & drip-proof model)



### Completely beltless structure

YK-XG

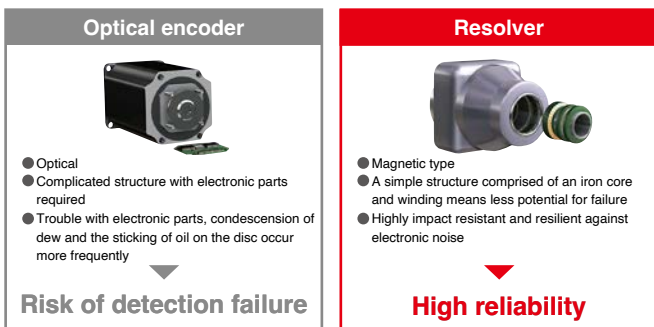
A ZR-axis direct coupling structure allows for a totally beltless structure. This direct drive structure means a dramatic reduction in wasted motion. It also serves to maintain high levels of accuracy over long periods of time and ensure maintenance free usage over extended periods of time, meaning there is no need to worry about breakage, stretching or deterioration of the belt with age. This feature applies to all XG series models and to YK180X/YK22X.



### Environmentally rugged resolver used for position detection

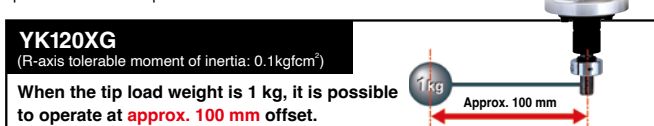
The position detector is a resolver featuring a simple yet robust structure which uses no electronic components or elements, making it extremely tough for usage in harsh conditions. It also seldom breaks down. The structure of the resolver presents non of the detection issues seen in other detectors, such as optical encoders with electronic components which experience breakdown or have moisture and oil sticking to the disc. **The mechanical specifications when it comes absolute specifications and incremental specifications are shared by all controllers,** meaning that you can switch to either absolute or incremental specifications with the mere setting of parameters. Even if the absolute battery gets completely worn down, the SCARA can operate based on incremental specifications, meaning that the production lines never need to be halted if trouble occurs. Backup circuits have been completely overhauled as well, meaning a backup period of one year.

Note: The resolver is comprised of a simple structure which forgoes the usage of any electronic components. It is highly resistant to both high and low temperatures, impacts, electronic noise, dust particles, oil and other elements. The resolver is used in automobiles, trains and airplanes.



### High-speed transfer is possible even with heavy workpieces and large offsets.

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.



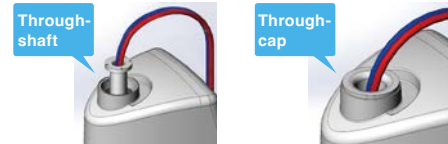
### LOW-PRICE

Both the high operation performance and low-price are provided. Production equipment with high cost performance can be constructed.



### Through-shaft and through-cap have been added.

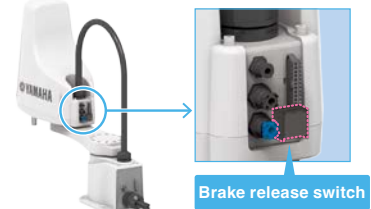
“Through-shaft” or “through-cap” option for wiring and tubing that is convenient to run the air tubing and wiring can be selected. The wiring and tubing routes can be investigated easily without designing and manufacturing a stay for installing the wiring and tubing. In addition, by passing the wiring and tubing through the inside of the main body, worries about wire breakage or disconnection are reduced during operation. (Some models do not support this feature.)



### Brake release switch is selectable.

YK-XE

In the emergency stop state, the Z-axis brake is released and the Z-axis can be moved up or down while the brake release switch is held down. Releasing the switch applies the brake to the Z-axis. This improves the convenience during installation adjustment.



### Features of the wall mount/inverse type

YK-XGS

#### A completely beltless structures ensures high rigidity

Flexibility in terms of system designed improved as a result of having the conventional ceiling mount type model changed to a wall mount type. This makes possible the downsizing of production equipment. With the addition of the inverse type to the lineup (which allows for upward operation), flexibility was also increased in terms of work directions. What's more, a completely beltless structure means that there is a maximum payload of 20 kg and an allowable inertia moment of the R axis of 1 kgm<sup>2</sup>. This is the highest level available in the same class. Large hands can also be installed, making this robot suitable for work entailing heavy loads.

\*YK700XGS to YK1000XGS

### Dust-proof and drip-proof type

YK-XGP

#### Bellows provide improved dust/drip-proofing

Previous robot models were completely overhauled to create a model type\* that is dust proof, drip proof and features an entirely beltless structure deployable in working environments were water droplets or dust particles are found scattering about. This model type eliminates the issue of belt deterioration and is perfect for usage in harsh environments. The use of an up/down bellows-based structure also allows for improvements in terms of dust proofing and drip proofing capabilities.



\*YK250XGP to YK600XGLP

- Equivalent to a protection grade of IP65 (IEC60529)
- Dust-proof and drip-proof connector for user wiring comes standard

# YK-TW Series

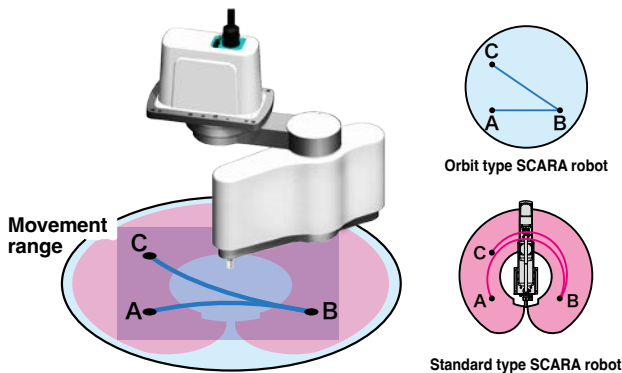
## ORBIT TYPE SCARA ROBOT



Equipped with high positioning accuracy and high speed.  
 Defeats the limitations of other SCARA and parallel-link robots, leaving smaller equipment footprint and no dead space at the center of the work envelope.

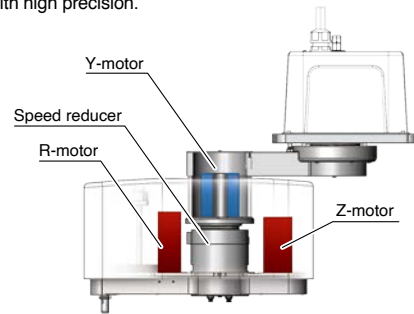
### Covers bases within a 1,000-millimeter<sup>2</sup> reach

The YK-TW series features SCARA robots with wide rotation angles and a ceiling-mount configuration, with the YK500TW model capable of a reach of up to 1,000 mm under the arm. This greatly reduces footprint and lets them be free of movement restrictions during palletizing and conveyor belt assembly operations.



### Repeated positioning accuracy: $\pm 0.01\text{mm}^1$ (XY axes)

YK-TW robots boast higher repeated positioning accuracy than that of parallel-link robots. This was achieved by striving optimal weight balance and re-designing the robots' internal construction. Furthermore, the robots are equipped with highly rigid but lightweight robotic arms that are fitted with finely tuned motors, allowing them to perform with high precision.



#### Hollow construction

Coupled Y-axis motor and speed reducer unit with hollow construction enables wire harness to be inside of moving arm housing.

Enabling 360-degree rotation

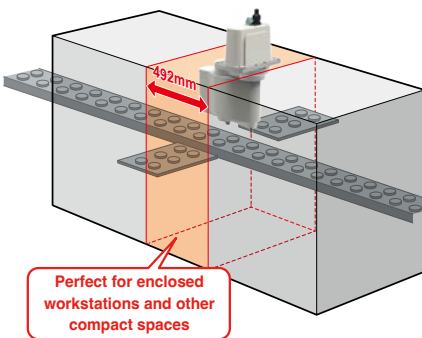
#### Optimized gravitational moment for rotation

Obtained weight balance by placing R-motor and Z-motor on the left and right.

High speed, reduced inertia

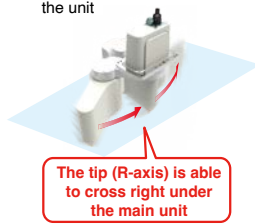
### Ideal for work in narrow spaces

Minimum installation width **492 mm**



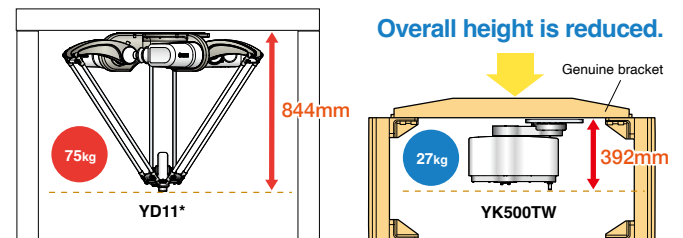
#### Freedom of movement

Full use of workspace underneath the unit



### Lower profile, small footprint

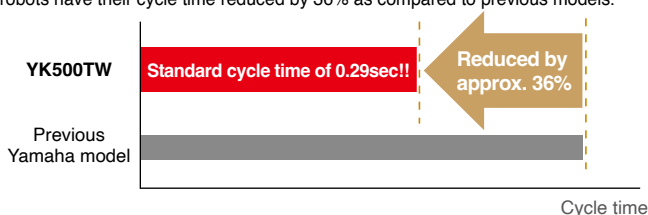
YK-TW height is only 392 mm. This compact size enables more freedom in the equipment layout design.



\*Discontinued models

### Standard cycle time down to 0.29sec<sup>\*2</sup>

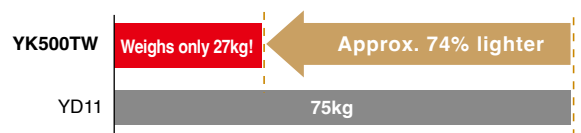
TK-TW robots are able to move with more flexibility in a horizontal plane. They are built with a second arm (Y-axis) that moves under the first (X-axis). Due to their multiple-joint structure, TK-TW robots can move more efficiently from point-to-point. Furthermore, with the weight balance of the internal components optimized, TK-TW robots have their cycle time reduced by 36% as compared to previous models.



The standard cycle time for moving a 1-kg load 300 mm horizontally and 25 mm vertically has been reduced by approximately 36% compared to older Yamaha models.

### YK-TW has a total height of only 392 mm, and weighs only 27 kg.\*<sup>2</sup>

#### Lower inertia = Lighter frame



The YK-TW series comes with an optional installation frame. For more details, please contact a Yamaha sales representative.

\*1. Applies to the YK350TW \*2. Applies to the YK500TW



# RCXiVY2+ System

FOR THE RCX320/340 ROBOT VISION

Web details page



## Yamaha's own unique solution for integrated robot vision Advanced RCXiVY2+ has been launched.

### RCXiVY2+ features:

- Adjusting parts orientation
- Searching randomly placed part
- on the fly
- Top/bottom judgement
- Conveyor follower
- OK/NG judgement

### Optimal for traceability management

#### ■ Code recognition function

Codes such as QR codes, data matrix codes, and barcodes can be recognized. This code recognition function is optimal for applications that change the operation corresponding to the code contents such as traceability management, workpiece sorting, and tracking change of sealing. It is not necessary to separately purchase a handy terminal or code reader. Troublesome communication control is also not needed.



- [Supported codes]**
- QR code
  - Data matrix code
  - Barcode (JAN/EAN-13 JAN/EAN-8 ITF NW7 CODE39 CODE128)
  - \* Up to 255 characters can be read. Only alphanumeric characters and symbols are supported. (2-byte characters such as HIRAGANA and KANJI characters cannot be read.)

### High speed positioning of irregular shaped parts (foods or clothes)

#### ■ Blob search function

Suitable for pick & place or detection of parts with wide tolerance in shape and size, or high speed counting. Detection speed is 2 to 10 times faster than edge detection.



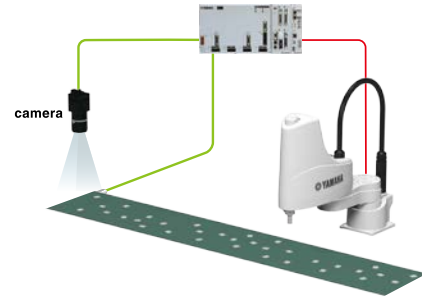
### Tracking is supported.

Picking can be made by following the movement of the workpiece moving on the conveyor.

Since the follow-up operation is performed based on the encoder input signal, the follow-up operation is possible even when the conveyor speed fluctuates.

Not only workpieces searched by the robot vision, but also tracking by the sensor signal input and circular arc tracking are supported.

#### ▶ Conveyor tracking



#### ▶ Circular arc tracking

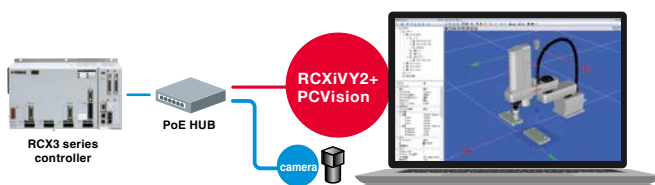


### RCXiVY2+ PCVision

Apps working as RCXiVY2+ on Windows.

By connecting the PC into which this software has been installed to the RCX controller, a PC vision system that is equivalent to the "RCXiVY2+ System" can be constructed.

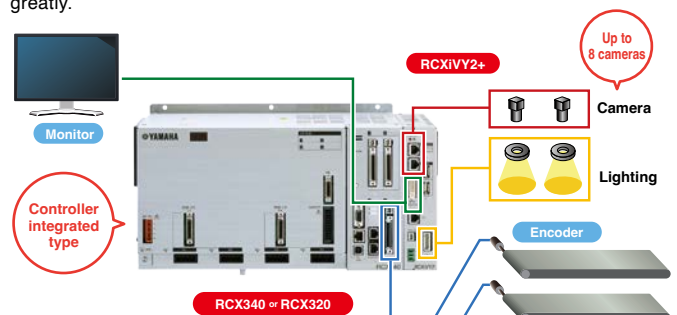
The PC vision can also be used alone without connecting it to a controller to perform pre-evaluation of the workpiece.



\* When the PC vision is used without connecting it to a controller, no license is needed.

### Robot controller integrated type

As the controller is integrated, all of the robot, vision, and lighting can be controlled by the robot program. The setup time can be reduced greatly.



# TRANSERVO Series

## CLOSED LOOP STEPPER MOTOR SINGLE-AXIS ROBOTS

Web details page



The TRANSERVO series brings to you compact and economical single-axis robots which feature a fusion of the low cost of a stepper motor and the functionality of a servo motor.

### SS type Slide type

Inline model



Foldback model (Slide type)



### SG type Slide type



### STH type Slide table type

Inline model



Foldback model



### RF type Rotary type

Standard model



High rigidity model



RF02  
RF03  
RF04

### SR type Rod type

Standard model



Model with support guide



Foldback model



### BD type Belt type

Inline model



BD04  
BD05  
BD07

### The position detector is a resolver

The resolver used features a simple yet sturdy structure employing no electronic components or optical elements. This makes it extremely tough and great for use in harsh environments. Breakdown rates are also kept low and the structure of the resolver experiences none of the detection-related problems seen in other detectors, such as optical encoders that experience breakdowns of electronic components or which see moisture or oil sticking to the disk.

### Closed-loop control for position feedback

While stepping motors can be deployed at a low cost, they experience drastic drops in torque at high speeds and offer no hunting oscillation (micro vibrations). Our TRANSERVO series eliminates these problems with the deployment of an innovative vector control method, which means that the series delivers the same functionality of a servo motor with the lower cost of a stepping motor.

#### Stepping Motors

- Simple design & low cost
- No vibration when stopped

- High-pitched operating noise
- Drop in torque at high speeds
- Heavy power consumption when stopped

#### Servo Motors

- Smooth movement
- Constant torque at all speeds
- Saves energy

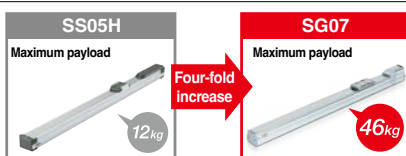
- Micro vibrations occur when stopped
- High cost

TRANSERVO brings together the best of both worlds

### Features and benefits of the SG type (slider type)

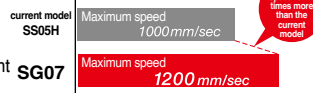
Dynamic payload—46 kg horizontally and 20 kg vertically

Payload capacities are increased a great deal thanks to the deployment of a rigid table slide and a 56 motor. The result is a maximum payload of 46 kg, with the limit being 20 kg when it comes to transport using vertical specifications.



### Maximum speed of 1200 mm/sec

The maximum speed provided is 1.2 times faster than that offered by the current model SS05H, making it possible for your equipment to reduce cycle time.

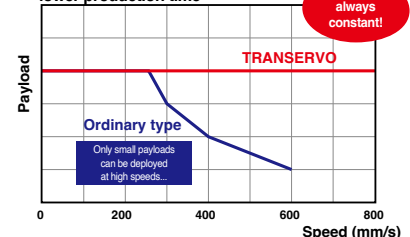


### Features and benefits of the SS type (slide type)

High-speed operation means lower production time

TRANSERVO leverages the vector control method to the greatest extent possible to maintain a constant payload even under high speed conditions. This means a drastic reduction in cycle time. This combined with the high-load ball screws means that the TRANSERVO series provides a maximum speed of one meter per second, which is as fast as single-axis servo motors found in the same category.

High-speed operation means lower production time



\*SS05/SS05H/SSC05/SSC05H (lead: 20 mm)

MEMO

# Robonity Series

SINGLE-AXIS ROBOTS / MOTOR-LESS SINGLE AXIS ACTUATOR

Web details page



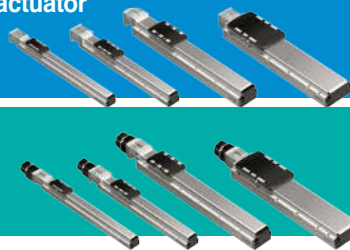
We design our products for long-term use so that you can use them safely for a long time. Both the single-axis robot and motor-less single-axis actuator can be selected.

## Slider type

### Basic model

Motor-less single axis actuator  
**LBAS**

Single-axis robots  
**ABAS**



Integrated guide rail and frame design.  
High moment rigidity in a compact design.

High Rigidity

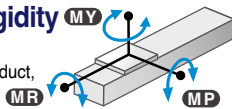
Compact

Low Cost

Maximum payload Up to 115g  
Maximum speed 300 to 1,800mm/sec  
Stroke 50 to 1,250mm

### Compact and high rigidity **MY**

Even though the product is more compact than the conventional product, it achieves a higher rigidity.



	Conventional product T6L	LBAS05
MY	35	59
MP	40	63
MR	50	103

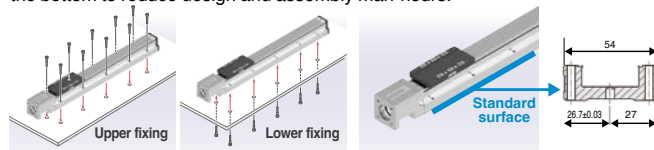
(N·m)

	Conventional product T9H	LBAS08
MY	86	221
MP	133	309
MR	117	343

(N·m)

### First-class usability even at a low cost.

Reference surfaces are provided on the sides of the main body and knock holes are provided on the bottom to reduce design and assembly man-hours.



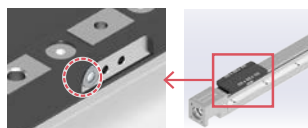
### Overall length can be shortened by motor bending specifications.

Motor bending specifications can also be selected, expanding the range of design.



### Easy Maintenance

Greasing work that tends to be troublesome, such as opening the covers, can be performed easily.

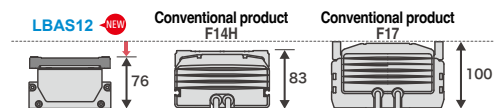


Grease nipple on the slider side surface

NEW

### Suitable for the X-axis of Cartesian robots! Slim type "LBAS12/ABAS12" is added to the lineup.

The slim type structure achieves a low center of gravity, making it suitable for the X-axis of Cartesian robots. The overall height can be suppressed, contributing to equipment downsizing.



### Easy selection ▶ Easy simulation of cycle time and service life of motorless single axis actuator.

Simulator on web site will provide cycle time and service life of ball screw or guide.  
Selection of most suitable model with confidence.

Just enter simple parameters ...

Robonity シミュレーション結果

項目	値
シラー式名	Robonity Series Basic Type
機種名	LBAS05-10
設置方向	水平
駆動ストローク	200 [mm]
速度	300 [mm/s]
減速度	2.10 [m/s <sup>2</sup> ]
加速時間	50 [ms]
減速時間	50 [ms]
停止時間	50 [ms]
駆動時間	0.67 [s]
総移動時間	1.14 [s]
平均速度	170 [mm/s]
平均加速度	1.05 [m/s <sup>2</sup> ]

計算結果

項目	値
加速時間	0.25 [s]
減速時間	0.25 [s]
停止時間	0.25 [s]
駆動時間	0.29 [s]
総移動時間	1.14 [s]

平均速度: 170 [mm/s]  
平均加速度: 1.05 [m/s<sup>2</sup>]

Easy Automatic calculation

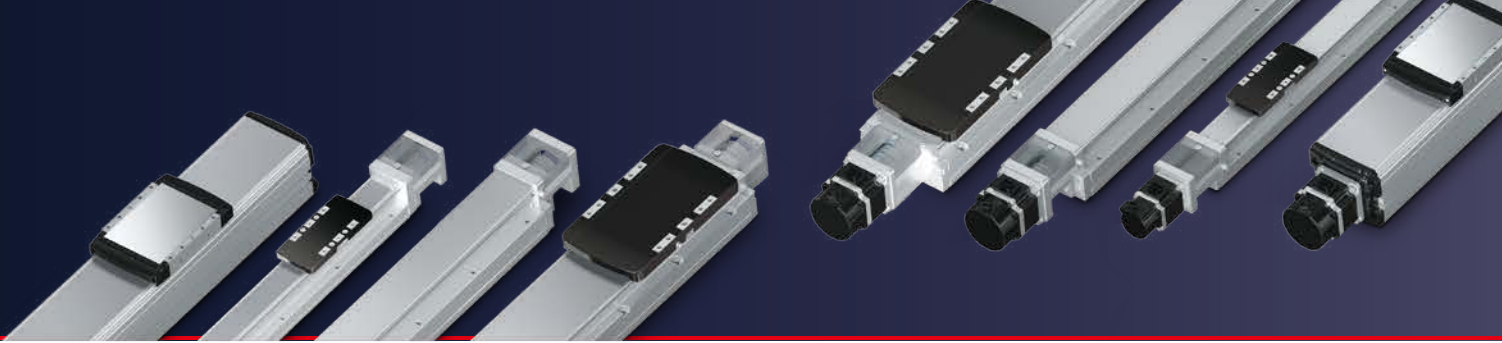
- Acceleration/deceleration time
- Uniform velocity time
- Total movement time
- Uniform velocity distance
- Life distance of guide
- Life distance of guide

Access the website below.



<https://robot.yamaha-motor.co.jp/robot/member/motorless/motorless.php>

\* These contents are not available on smartphones



## Advanced model

Motor-less single axis actuator  
**LGXS**

Single-axis robots  
**AGXS**

Ground ball screw is standard.  
High precision model with high reliability and durability.

High Precision Accuracy  
Class C5

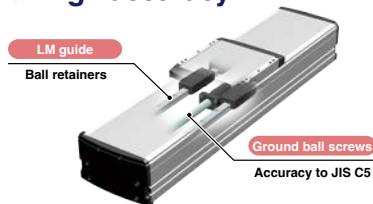
High Durability

Clean room specification as  
a standard feature

Maximum payload	Up to 160kg
Maximum speed	300 to 2,400mm/sec
Stroke	50 to 1,450mm

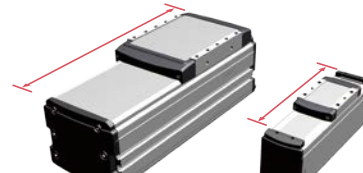
### High quality model with high accuracy.

- Adopted ground ball screws  
Ball screw : Accuracy class C5
- Positioning repeatability: +/-5  $\mu$ m



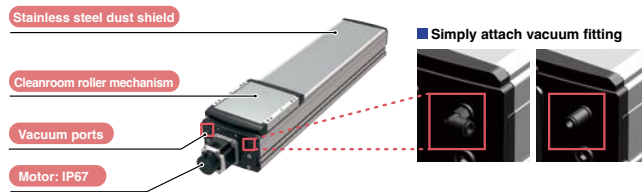
### Overall length for effective stroke is the shortest class in the industry.

Overall length for the effective stroke is the shortest in class for the industry.



### This product can be used in a wide range of situations.

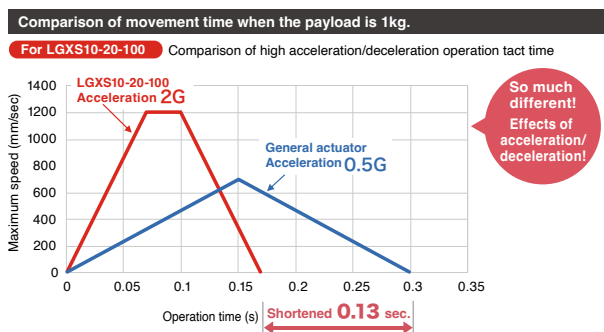
Dust-proof stainless steel sheet is used on the top surface of the main body.  
Products can be used in a clean environment by attaching a pipe joint and suctioning.  
Air purging can also be used as anti-contamination measures.  
Of course, the product can be used as it is without attaching any joint.



### High acceleration/deceleration model can be selected.

"We need a faster single-axis robot to further improve productivity! Of course, we want to use this robot for an extended period of time with confidence."  
To respond to such a request, "High agility mode" has been added to the Advanced model lineup of the Robonity series.

- 1 The robot operation time can be shortened.
- 2 Therefore, the product manufacturing time can be shortened.
- 3 That is, the daily production quantity can be increased and more production can be performed in the same time.



# Robonity Series

SINGLE-AXIS ROBOTS / MOTOR-LESS SINGLE AXIS ACTUATOR

Web details page



## Rod type

### Basic model

Motor-less single axis actuator

**LBAR**



Single-axis robots

**ABAR**



High rigidity structure that follows the slider type.  
Compatible with a long stroke of up to 800 mm.

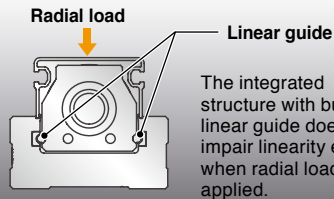
High Rigidity

Compact

Long stroke

Maximum payload	Up to 80Kg
Maximum speed	Up to 1200mm/sec
Stroke	50 to 1800mm

Linear guide built-in rod type  
compatible with radial load.  
**LBAR/ABAR**

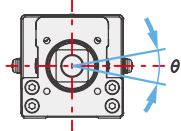


### Rod non-rotation accuracy $\pm 0^\circ$

The built-in linear guide suppresses rattling in the rotation direction.

The working accuracy of the tool attached to the tip of the rod is maintained.

Conventional product SRD05	LBAR05
$\pm 0.05^\circ$	$\pm 0^\circ$

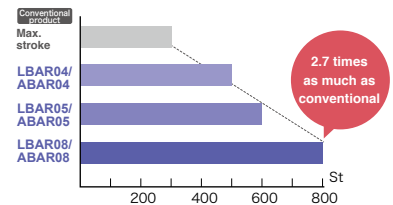


### Compatible with a long stroke.

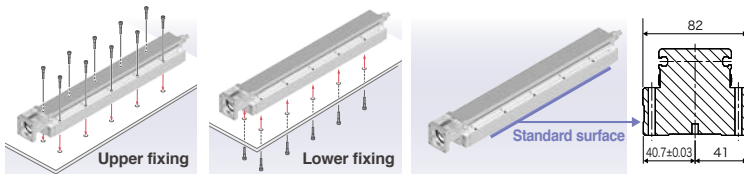
Compatible with a long stroke of up to 800 mm.

This product can be used in a wide range of situations.

Conventional product SRD05	LBAR04/ ABAR04	LBAR05/ ABAR05	LBAR08/ ABAR08
Max. 300St	Max. 500St	Max. 600St	Max. 800St

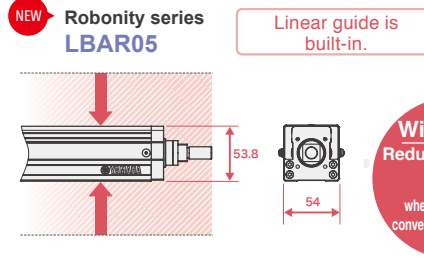
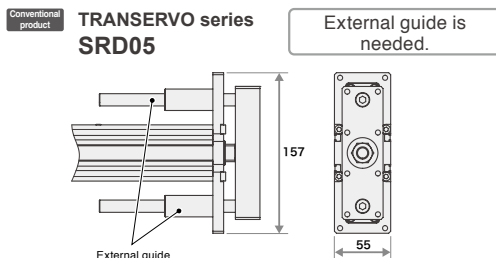


### Easy installation and specification change



### No external guide is needed.

External guide is not needed since the linear guide is built-in. \*An external guide may be recommended when a certain stroke is exceeded.





# EP-01 CONTROLLER

## CONTROLLER FOR SINGLE-AXIS ROBOTS



### Robot positioner EP-01series



EP-01-A10 EP-01-A30

- Same price as parallel I/O and industrial Ethernet
- Absolute battery function
- Support software is provided free of charge.
- Industry-leading compactness

[Supported field networks]

EtherNet/IP™

PROFINET®

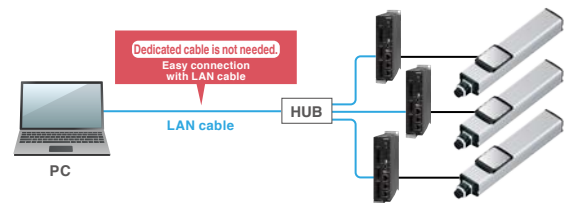
EtherCAT®

Robot positioner “EP-01” is a newly designed positioner for a better Ethernet platform and the cost performance. As a result the price of Ethernet is now offered at the same price level as parallel I/O (NPN).

While achieving a lower cost design, “EP-01” positioner has expanded features such as standard Ethernet, feedback pulse output, direct value control function, and real-time output.

#### ■ The hassle of startup is reduced.

Ethernet port is standard on a controller and dedicated PC programming cable is no longer required. Startup procedure is reduced and simplified.



### Build a system with motor/driver of your choice **LBAS** **LGXS**

In addition to the conventional servomotors, stepping motors are also newly supported and actuators can be used in accordance with customers' needs.

\*For the supported models and capacities, see the Robonity catalog.

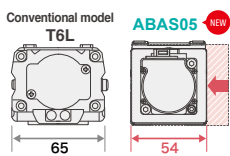
LBAS Compatible motor manufacturers and standards		
<b>[ Servo motor ]</b>		
Yasukawa Electric	Mitsubishi Electric	KEYENCE
OMRON	SANYO DENKI	TAMAGAWA SEIKI
DELTA ELECTRONICS	Panasonic	FANUC
Siemens AG	Rockwell Automation, Inc.	
Schneider Electric SA	KINGSERVO Hoof automation CO., LTD.	
Beckhoff Automation GmbH & Co. KG		
<b>[ Stepping motor ]</b>		
Oriental Motor		
<b>[ NEMA standards ]</b>		
NEMA17		
NEMA23		

LGXS Compatible motor manufacturers
<b>[ Servo motor ]</b>
Yasukawa Electric
Mitsubishi Electric
KEYENCE
OMRON
Panasonic

### Industry-leading compact design

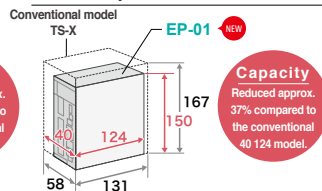
Compact design for machine size reduction.

#### ■ Basic model (ABAS)



**Width**  
Reduced approx. 17% compared to the conventional model.

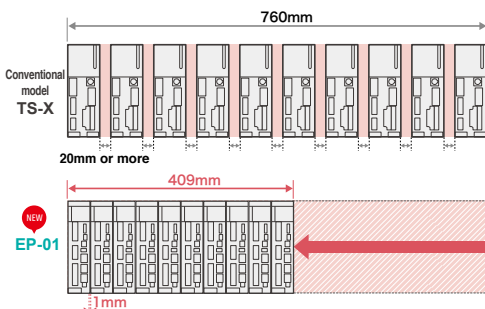
#### ■ Robot positioner EP-01



**Capacity**  
Reduced approx. 37% compared to the conventional 40 124 model.

#### ■ Installation space comparison

Saves spaces inside a control panel

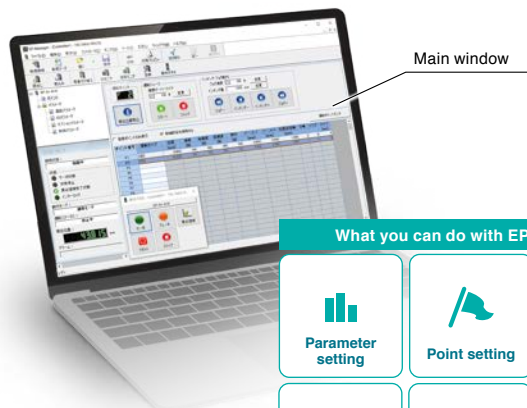


**Installation area**  
Reduced approx. 47% compared to the conventional model.

### PC Programming software “EP-Manager” **Free download**

Support software “EP-Manager” that allows you to perform “Setting” → “Pre-check” → “Debug” → “Maintenance” in a single step is provided free of charge.

Easy edit for robot operation, positioning, timing, or monitoring motor load.



Main window

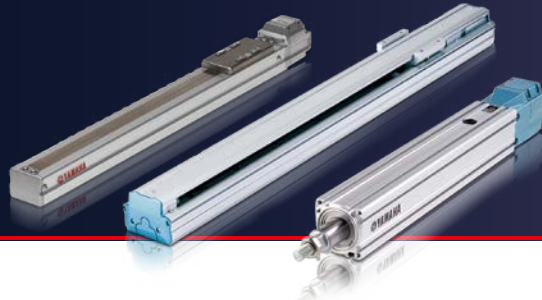
What you can do with EP-Manager.

Parameter setting	Point setting	Robot operation
Operation simulation	Debug (Real-time trace)	Maintenance (Alarm history check)

# FLIP-X Series

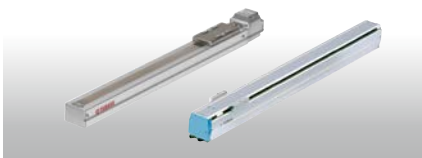
## SINGLE-AXIS ROBOTS

Web details page




Our single-axis robot series includes 6 types and 29 variations, meaning a broad range of options are available

**T** Compact model  
type T4L/T4LH, T5L/T5LH, T6L, T9/T9H



This model provides a compact body at an affordable price and is ideal for installation directly on a mount.

**N** Nut rotation model  
type N15/N15D, N18/N18D




This model allows for operation even under long stroke conditions, all while maintaining maximum speed and remaining unaffected by critical speed. Double carrier specifications also come standard.

**F** **GF** High rigidity model  
type F8/F8L/F8LH, F10/F10H, F14/F14H, F17/F17L, F20/F20N, GF14XL/GF17XL



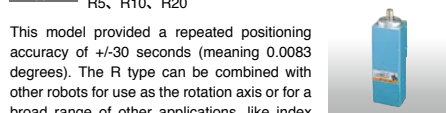
The model features a highly rigid aluminum frame, which provides high levels of load moment and offers strength against offset loads. The model is suitable for use in Cartesian robots requiring arm rigidity and for moving arms which move the overall axis.

**B** Timing belt drive model  
type B10, B14/B14H



With a maximum stroke length of 3050 mm, this model allows for long-distance transport between job processes.

**R** Rotary axis model  
type R5, R10, R20




This model provides a repeated positioning accuracy of +/-30 seconds (meaning 0.0083 degrees). The R type can be combined with other robots for use as the rotation axis or for a broad range of other applications, like index tables. The product's harmonic driver provides great strength and accuracy.

### A resolver built for harsh environments



A highly reliable resolver is used for the detection of motor positions, which ensures the steady detection of positions even under harsh conditions where powder particles or oil mist is found. When it comes to resolution performance, the resolver provides an amazing 20480 pulses per revolution.

**Optical encoder**



- Optical
- Complicated structure with electronic parts required
- Trouble with electronic parts, condensation of dew and the sticking of oil on the disc occur more frequently

**Risk of detection failure**

**Resolver**



- Magnetic type
- A simple structure comprised of an iron core and winding means less potential for failure
- Highly impact resistant and resilient against electronic noise

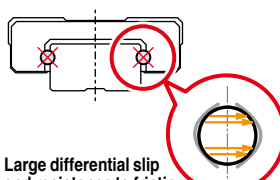
**High reliability**

### Two-point contact guides featuring four rows of circular grooves help in dealing with large moment loads



Two-point contact guides featuring four rows of circular grooves allow for less differential slip. Differential slip experienced by the ball is low when compared to four-point contact guides with two rows of Gothic arch grooves. This means that excellent rolling motions are provided even when dealing with large moment loads or poor installation surface accuracy. Malfunctions, such as that resulting from unusual wear, are also much less frequent.

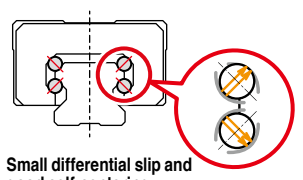
**Conventional**  
Four-point contact guides with two rows of Gothic arch grooves



**Large differential slip and resistance to friction**

- Highly impacted by poor installation precision, friction and elastic deformation
- May break down even during the calculated service life

**Yamaha**  
Two-point contact guides featuring four rows of circular grooves



**Small differential slip and good self-centering**

- Highly resistant to alignment fluctuations and moment loads
- Seldom breaks

### Customization for each model available

If you are looking to do special orders for any of our models (double sliders, wide sliders, etc.), please inquire with a sales representative.

### A long service life means you save on maintenance and management

Our highly rigid ball screws and guides are a huge help in letting you save on maintenance and management costs. Visit our website to find out what you can expect in terms of the service life of a given product under certain conditions.



# PHASER Series

## LINEAR MOTOR SINGLE-AXIS ROBOTS

Web details page

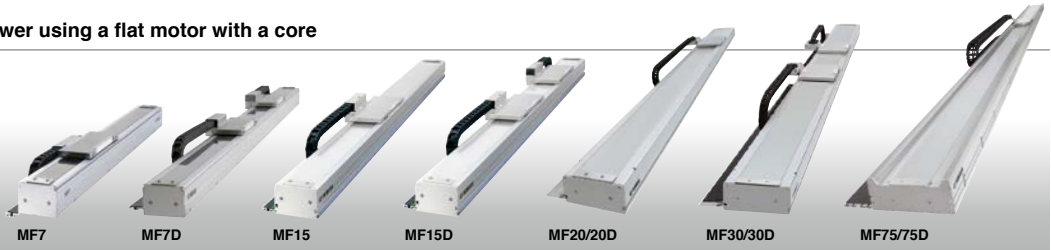


**No critical speed restrictions required up to long strokes of 4 meters**  
**Excellent performance during long-distance transport**

**MF** Long stroke and high power using a flat motor with a core

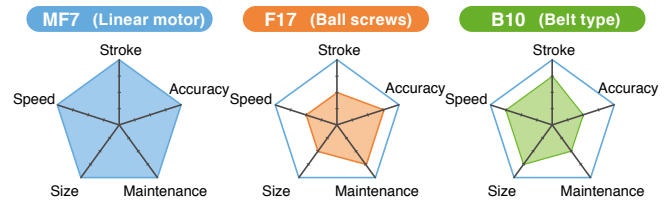
type **Double carrier comes standard**

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



### Yamaha in-house components means lower costs

Magnetic scales originally developed by Yamaha are still being produced by us today. We also manufacture other major components to ensure significant reductions in cost. Linear mechanisms are no longer something special as we are now in an era where they can stand shoulder to shoulder with ball screws as the right tool for the job. The linear motor type will particularly provide lower costs when it comes to transporting lightweight workpieces over long distances at high speeds.

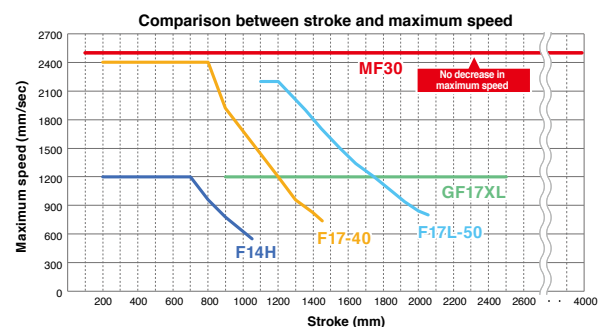


### Comparison of single-axis robot models

1. Comparisons using the strokes noted above. 2. Cable carrier not included. 3. Becomes 7 kg when the maximum speed is 2500 mm/s (meaning 2100 mm/s when transferring 10kg). 4. Value determined in consideration of critical speed when the stroke is 1,450 mm.

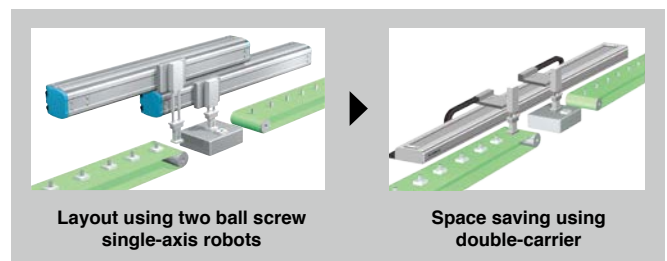
### No critical speed like ball screw!

The main attraction of the linear motor single-axis robot is that it has no critical speed like ball screw. The maximum speed does not decrease even during long distance transfer. In addition, the maximum stroke is 4 m. The cycle time is reduced significantly in the long-distance transfer process. Also, unlike the ball-screw single-axis robot, there are few sliding parts and rotating parts, ensuring excellent quietness. Furthermore, the coil and magnet are non-contact and are not worn out, ensuring long-term use.



### Standard double carrier setup saves spaces and ensures great efficiency

This product allows you to lower the costs involved and decrease spaced used in comparison to the usage of two single-axis robots. No axis alignment is needed and tools can be shared, which shortens setup time. Lastly, an anti-collision control function is provided when making use of the RCX series controller.



### Maximum payload capacity of the MF series: 160 kg

Flat magnets are deployed within the MF series, meaning that heavy objects can be transported at high speeds with a high level of accuracy.

### Lower noise levels and longer service lives

When compared with ball screw type robots, there are fewer sliding and rotating sections, meaning that operation is exceedingly quiet. Coils and magnets do not make contact, meaning no wear is experienced, making the the robot usable for extended periods of time.

# XY-X Series

## CARTESIAN ROBOTS



Web details page

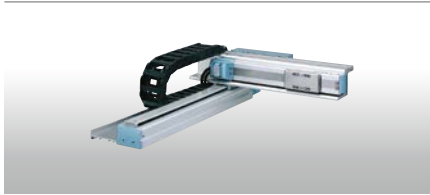


From compact, economical and light-duty systems to large, heavy-duty systems, a variety of pre-configured multi-axis systems are available

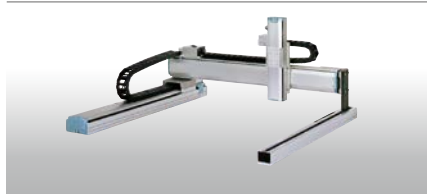
### Custom orders

Custom multi-axis systems are also available. Please inquire with a Yamaha representative near you.

#### Arm type



#### Gantry type



#### Moving arm type



#### XZ type

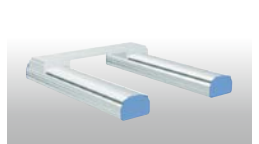


#### Pole type



#### Dual-synchronous drive

The dual-synchronous drive has two axes being controlled in synchronization with one another. This means that they are effective for the carrying of heavy items and for long stroke operation with a Cartesian robot.  
Note: Custom orders are required for dual drive functionality.



### Variations



For specifications involving 3 or more axes, please select from the following:  
● Z-axis clamped base and moving table type  
● Z-axis clamped table and moving base type

## Resolver provides durability and reliable position detection



The position detector is a resolver featuring a simple yet robust structure which uses no electronic components or optical elements, making it extremely tough for usage in harsh conditions. It also seldom breaks down. The structure of the resolver presents non of the detection issues seen in other detectors, such as optical encoders with electronic components which experience breakdown or have moisture and oil sticking to the disc.

The mechanical specifications when it comes absolute specifications and incremental specifications are shared by all controllers, meaning that you can switch to either absolute or incremental specifications with the mere setting of parameters.

Even if the absolute battery gets completely worn down, the XY-X can operate based on incremental specifications, meaning that the production lines never need to be halted if trouble occurs.

## Save money

Cutting down on the number of parts while boosting performance has allowed us to lower our prices. The inclusion of a resolver within the structure means that that we have eliminated the idea that absolute units have to be expensive. What's more, mechanical components remain unchanged regardless of whether incremental unit specifications or absolute unit specifications are being used.

## Maintenance is easy

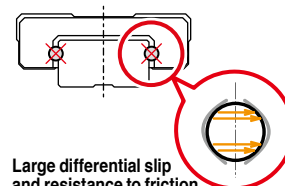
Though a built-in structure is employed, maintenance is made simple thanks to the ability to replace components like motors and ball screws on an individual basis.

## Two-point contact guides featuring four rows of circular grooves



Two-point contact guides featuring four rows of circular grooves allow for less differential slip. Differential slip experienced by the ball is low when compared to four-point contact guides with two rows of Gothic arch grooves. This means that excellent rolling motions are provided even when dealing with large moment loads or poor installation surface accuracy. Malfunctions, such as that resulting from unusual wear, are also much less frequent.

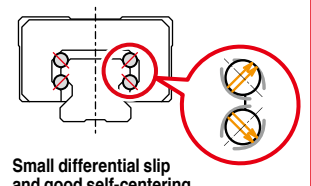
### Four-point contact guides with two rows of Gothic arch grooves



#### Large differential slip and resistance to friction

- Highly impacted by poor installation precision, friction and elastic deformation
- May break down even during the calculated service life

### Two-point contact guides featuring four rows of circular grooves



#### Small differential slip and good self-centering

- Highly resistant to alignment fluctuations and moment loads
- Seldom breaks

# MULTI-FLIP / MULTI-PHASER MULTI-AXIS ROBOT

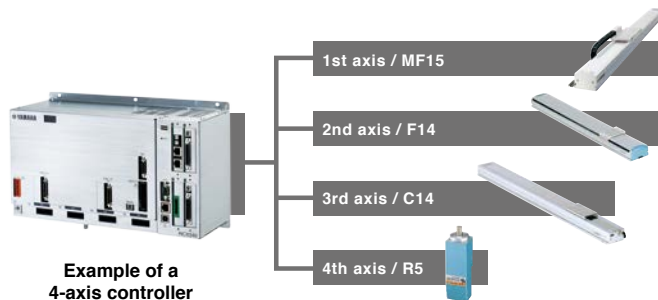
Web details page



## One controller for multiple single-axis robots

### Advantages of multi-axis controller operation

- Sequence control is simple and system upgrades are inexpensive
- More compact and saves more space than situations where multiple single-axis controllers are being operated
- Allows for a greater level of control
- RC320 and RCX340 (multi-axis controllers) provided mixed control involving the PHASER series (linear single-axis) and FLIP-X series



Use of YC-Link/E makes it possible to connect up to and 16 axes.  
For details, see the controller page (p. 24) of this catalog.

### Robot setup

#### 2-unit robot configuration

A multi-task program used with this configuration allows for asynchronous, independent operation. Using this alongside an auxiliary axis configuration means even more freedom when it comes to assigning an axis to a task.

#### Synchronized double configuration

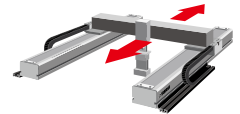
This configuration allows for the addition of two motors to one axis on types of robots where motor units run separately, such as the linear motor single-axis PHASER series or the N type (nut rotation type) FLIP X series.

#### Main auxiliary axis configuration

Use this auxiliary axis configuration when it's impossible to have simultaneous movement take place using the MOVE command. Axes configured as main auxiliary axes move only with the DRIVE command (meaning a separate movement command issued to a particular axis) and cannot be operate via the MOVE command. That means this configuration is recommended for operation on an axis not synchronized with the main robot.

#### Synchronized dual configuration

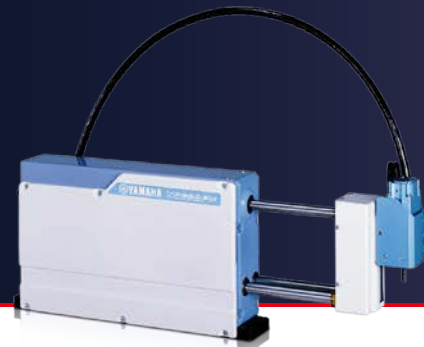
Set things up like this when conducting dual-drive operation (meaning simultaneous control of two axes). Use this dual-drive configuration on gantry-type Cartesian robots characterized by a long Y-axis stroke when going about stabilization during high levels of acceleration or deceleration, or in situations involving heavy loads and high levels of thrust.



# YP-X Series

## PICK & PLACE ROBOTS

Web details page

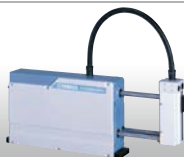


## Ideal for picking and placing small parts at high speeds

## Positioning via servo control means no mechanical adjustments required

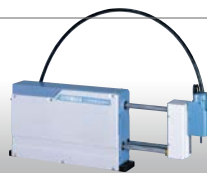
### 2-axis type

YP220BX  
YP320X



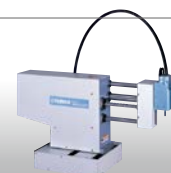
### 3-axis type

YP220BXR  
YP320XR  
YP330X



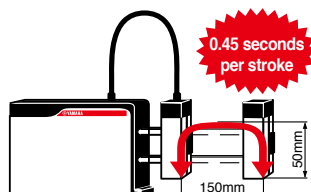
### 4-axis type

YP340X



### High speed

Ultra high-speed picking and placing means greater productivity. The YP220BX, when used under operating conditions involving 50 mm in the vertical direction, 50 mm in the longitudinal direction, 50 in terms of arch volume and a 1 kg load, provides a total cycle time of 0.45 seconds.



### High precision

The YP320X, YP320XR, YP330X and the YP340X provide both excellent high-speed performance and high repeated positioning accuracy (+/-0.02 mm).

### Compact size

The YP220BX unit has a compact size with an overall length of 109 mm. The moving arm mechanism allows for the building of a compact production line that interferes less with its surroundings.

# CLEAN Type

## CLEAN ROBOTS

Web details page



Designed for the electronics, food, and medical industries, and engineered for great suction and low particle emission.  
Delivers high cleanliness and excellent performance.

### YK-XGC/XC/XEC

type

Clean room SCARA robots

YK180XC	YK250XGC	YK400XEC-4
YK220XC	YK350XGC	YK510XEC-10
YK500XC	YK400XGC	YK610XEC-10
YK600XC	YK500XGC	YK710XEC-10
YK700XC	YK600XGC	
YK800XC		
YK1000XC		

- Arm length: 180 mm to 1,000 mm
- Suction rate: 30 to 60 Nℓ/min
- Cleanliness class: YK-XGC/XC: ISO CLASS 3 (ISO14644-1)  
YK-XEC: ISO CLASS 4 (ISO14644-1)
- Maximum payload: 20 kg



YK250XGC



YK400XGC



YK510XEC

The Z-axis spline shaft is protected with bellows made of low dust emitting material and other sliding mechanisms are sealed completely. The entire harness assembly is incorporated inside the housing, and dust emission is prevented by the air suction ports located on the back of the base housing.

### FLIP-XC

type

Single-axis clean room robots

- Stroke: 50 mm to 2,050 mm
- Suction rate: 15 to 90 Nℓ/min
- Cleanliness class: ISO 3 (ISO14644-1)  
Class 10 (FED-STD-209D)
- Maximum payload: 120 kg (horizontal installation)

\* C4L/C4LH, C5L/C5LH, and C6L conform to class ISO 3 (ISO14644-1).



C6L

C5L

C4L

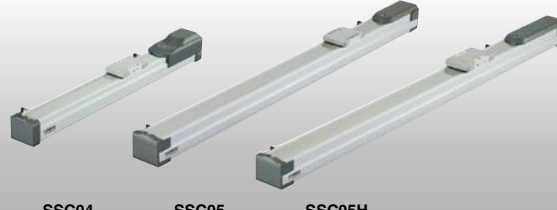
Specifications of the FLIP-X series. Whether it is a lightweight, compact model, or one with a maximum payload of 120 kg, choose one that suits your needs from the 14 available. To achieve high cleanliness, these robots have suction joints installed as standard features and use grease with low dust emission. Their slide tables are also mounted with stainless steel sheets of excellent durability.

### SSC

type

Single-axis clean room robots (TRANSERVO)

- Stroke: 50 mm to 800 mm
- Suction rate: 15 to 80 Nℓ/min
- Cleanliness class: ISO 3 (ISO14644-1)  
Class 10 (FED-STD-209D)
- Maximum payload: 12 kg (horizontal installation)



SSC04

SSC05

SSC05H

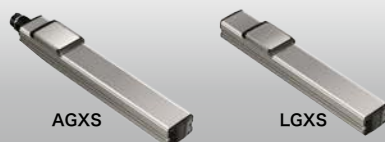
Specifications of the TRANSERVO series. TRANSERVO robots use stepper motors and a newly developed vector control system to keep performance costs low and achieve functionality similar to servomotors\*. To achieve high cleanliness, these robots have suction joints installed as standard features and use grease with low dust emission. Their slide tables are also mounted with stainless steel sheets of excellent durability.

### LGXS/AGXS

type

Single-axis robots / Motor-less single axis actuator (Robonity)

- Stroke: 50 mm to 1,450 mm
- Suction rate: 30 to 115 Nℓ/min
- Cleanliness class: ISO 3 (ISO14644-1)  
Class 10 (FED-STD-209)
- Maximum payload: 160 kg (horizontal installation)



AGXS

LGXS

Dust-proof stainless steel sheet is used on the top surface of the main body. Products can be used in a clean environment by attaching a pipe joint and suctioning. Air purging can also be used as anti-contamination measures.

### XY-XC

type

Clean Cartesian robots

- Suction rate: 60 to 90 Nℓ/min
- Cleanliness class: ISO 3 (ISO14644-1)  
Class 10 (FED-STD-209D)
- Maximum payload: 20 kg
- Maximum speed: 1000 mm/sec

User wiring: D-Sub 25-pin connector  
(#1-#24 terminated, #25 grounded)  
User piping: Three 6-mm diameter air tubes



SXYxC

Cartesian robots for clean rooms. Using stainless steel sheets of high durability allows openings to be designed to the smallest possible, and the robots are capable of supporting Class 10 environments with minimal suction. Furthermore, with SCARA robots' high-speed units used for SXYxC robots' ZR-axis, cycle time is reduced significantly.

# YRG Series

## ELECTRIC GRIPPERS

Web details page



### Easy operation enabled by Yamaha's robot language.

#### Gripping force control

Can be set in increments of 1% in the range of 30 to 100%

#### Measuring

Measures a workpiece by detecting its position

#### Speed control

Speed can be set in increments of 1% in the range of 30 to 100%, and the range of 1 to 100% for acceleration

#### Multi-point control

Up to 10,000 positioning points possible

#### Workpiece check function

The HOLD signal determines if workpieces have been picked up or dropped, even without the use of a sensor

#### S type Single cam type

Fast, compact, lightweight



#### W type Double cam type

High gripping force



#### Screw type

##### Straight style

High precision, long stroke



##### "T" style

#### 3-finger type

Compact, high rigidity, long stroke



### Electric grippers for positioning, speed control, and high-precision gripping performance

YRG grippers deliver what was challenging for the air-driven ones—gripping force control, speed and acceleration control, multi-point positioning, and the ability to measure workpieces, making them suitable for catering to a wide range of applications.

#### Gripping force control

YRG grippers' gripping force can be set in 1% increments. They are capable of gripping glass, spring, and other workpieces that are fragile or easily deformed. The gripper force remains constant even with finger position changes.

<p><b>Pneumatic control</b></p> <p>Difficult to make fine adjustments to the regulator.</p>	<p><b>Electric control</b></p> <p>Gripping force can be set in a range of 30% to 100% in 1% increments.</p>
---	---

#### Multi-point control

Gripper fingers can be configured to desired positions that correspond to workpiece sizes. This feature improves the efficiency of assembly lines, where changeovers are frequent and different workpiece sizes and materials are found.

<p><b>Pneumatic control</b></p> <p>Results in stroke loss.</p>	<p><b>Electric control</b></p> <p>High positioning accuracy prevents stroke loss.</p> <p><b>Achieves improvements to takt time</b></p>
--	--

#### Workpiece check function

The electric grippers output the HOLD signal, which checks for workpieces that were not gripped or dropped during transfer. No external sensor is needed.

<p><b>Pneumatic control</b></p> <p>Image processor or sensor detects workpieces that were dropped or missed out.</p>	<p><b>Electric control</b></p> <p>Detects fallen workpieces without an external sensor.</p>
--	---

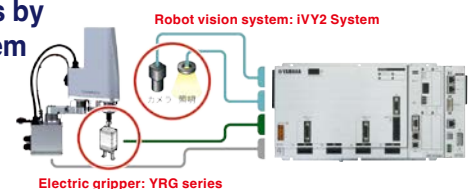
### Only a single controller needed for control

The grippers require just a single controller. Setup and startup are significantly simpler as there is no need for communication with PLCs or other host devices.

### Supports a variety of applications by being combined with vision system

With YRG grippers integrated into the robot vision system iVY2, RCX340 can be used to control the camera for positioning and workpiece handling. An advanced system, but easily constructed.

\*The RCX240 controller can be used too.



# CONTROLLERS

## Controllers

Web details page



Choose what fits your needs from a wide range of control systems. Controllers come pre-programmed with servo parameters and acceleration patterns so you can operate the robot straightaway.

	TRANSERVO	Robonity	FLIP-X	PHASER	
	Stepper motors	[ ABAS/ABAR/AGXS ] General purpose servos	[ T4L/T5L ] Small servos (24V, 30W)	General purpose servos (30–600W)	Linear motors
1 axis	<ul style="list-style-type: none"> <li>● I/O point trace</li> <li>● Remote command</li> <li>● Online command</li> </ul>				
	<ul style="list-style-type: none"> <li>● Pulse train</li> </ul>				
	<ul style="list-style-type: none"> <li>● Program (Yamaha SRC language)</li> <li>● I/O point trace</li> <li>● Remote command</li> <li>● Online command</li> </ul>				
2 axis	<ul style="list-style-type: none"> <li>● Program (Yamaha BASIC2 language)</li> <li>● I/O point trace</li> <li>● Remote command</li> <li>● Online command</li> </ul>				
3 or 4 axis	<ul style="list-style-type: none"> <li>● Program (Yamaha BASIC2 language)</li> <li>● Remote command</li> <li>● Online command</li> </ul>				
up to 16 axes	<p><b>RCX320 RCX340</b></p> <p><b>YC-Link/E</b></p> <p>Up to four RCX320, RCX340 controllers (up to 16 controllable axes) can be connected.</p> <p>The RCX340 controller and RCX320 controller can be connected.</p> <p>All programs and settings are managed using the master.</p> <p>Connectable using LAN cable. YC-Link/E</p> <p>Controllers without program settings</p>				

### P Robot positioners



**Simply specify a point number to operate**  
TS series robot positioners can be operated simply by assigning point numbers and inputting the start command. They can also perform point moves and push moves without the need for writing a program. Velocity can also be changed during motion.

### D Robot drivers



**Pulse train input drivers**  
These drivers have done away with operations that use robot languages and use the pulse train input method instead. Their compact design allows them to be built easily into control consoles.

### C Robot controllers



#### Diverse command methods

There are different methods to choose from: programs, point trace, remote command, online command, and more. Programs use a BASIC-like Yamaha language capable of executing various operations, be it simple tasks, or I/O output and conditional branching.

### Comprehensive software

The applications for the controllers are designed to let users operate the robots, teach points, create and edit programs, and perform other tasks simply and easily on the screen.



TS-Manager



VIP+



RCX-Studio 2020\*

\*Web download only.





## Multi-axis robot controller RCX3 series

### RCX320

2 axes



### RCX340

3 to 4 axes



## Real-Time output function for Preventive Maintenance.

### Industrial Ethernet option Real-Time output function

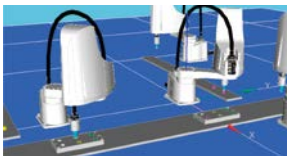
When the industrial Ethernet option (EtherNet/IP, EtherCAT, or Profinet) is selected, the information necessary for the predictive maintenance such as error status, current position, current value, motor load factor, operation hours, and others can be output in real-time to contribute to achievement of the "non-stop production line".

Real-time output function	Error status	Current value	Operation hours	Controller temperature
	Current position	Speed	Motor load factor	In-position
				IO

## RCX3 series programming software

### RCX-Studio 2020

#### 3D simulator



Layout can be verified beforehand without connecting robot.

Robots and peripheral devices are displayed in 3D, and the robot operation is simulated on PC. (This function supports SCARA and Cartesian robots.)

- ▶ Robot layout, teaching, and debugging can be performed.
- ▶ Physical interference between the robot and peripheral device can be checked before operation is started.

#### Program template (Program template automatic creation function)

#### Program creation time can be shortened greatly.

Program templates for 10 types of applications are incorporated. Just following the steps to perform the operation creates a program template automatically.



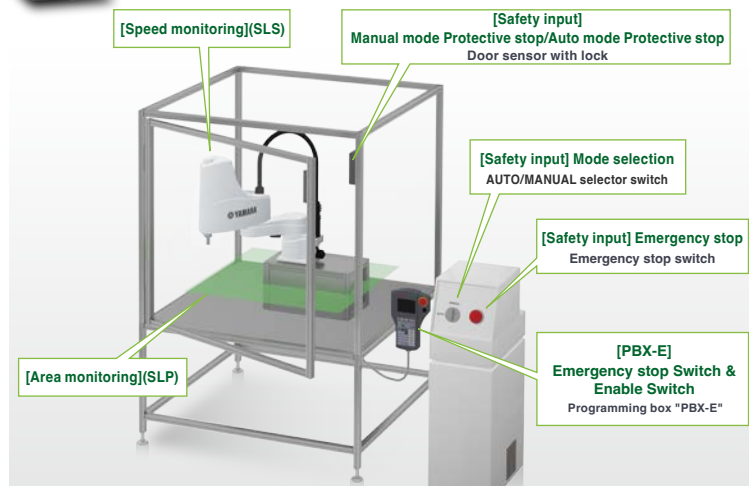
## Dedicated for RCX340 Speed Monitoring Unit

### RCX3-SMU



The RCX3-SMU is the first Yamaha robot-related product that has acquired the functional safety certification.

Yamaha Robot Controller "RCX340" can be connected to the dedicated optional unit "RCX3-SMU" to support functional safety.



# YAMAHA ROBOT

## Who we are and what we do

### Over forty five decades of proven reliability

At Yamaha, development in the field of robotics began with the implementation of robotic technologies on our motorcycle production line over forty five years ago.

Since then, our industrial robot technologies have served as a backbone for manufacturing equipment in a wide variety of industries, including in the assembly of electronic products, the transport of in-vehicle components, and the manufacture of large LCD panels.

Over the years, we at Yamaha have done our utmost to always continue improving upon what we've put to market. Those efforts serve as a testament to our reliability when it comes to producing what businesses need.



### A legacy of unique technologies and a keen sense for market

Motor Control Technology is absolutely necessary for precise, high speed operation. Controller Development Technology is based on the highest standards of evaluation. And Signal Processing Technology allows for stable operation even under extreme environmental conditions. Our products are characterized by highly-praised rigidity, durability and operability, and our Core Technologies\* allow us to provide just what the market needs.

\*Core Technologies refers to control boards, linear motors, linear scales (position detectors) and other such technologies.



### Testing environments that guarantee greater reliability

At Yamaha, we continue evaluating our technologies to ensure that our products are reliable. During product development, we conduct assessments and tests in our own anechoic chambers\* to ensure the kind of reliability and quality that businesses count on.

\* Our anechoic chambers have been set up to help us in the overall development of EMC (Electro-Magnetic Compatibility) technologies deployed in products produced by Yamaha Group companies. This allows us to ensure compliance with international regulations and conformity with international standards.



### Yamaha quality means safety

We have a system in place which integrates the areas of manufacturing, sales and technology into one well-oiled machine. We leverage this system to the utmost to produce consistency when it comes to inspection, manufacturing, assembly, inspection and shipping processes. This allows us to provide high levels of quality, afford able prices, and quick deliveries. Processing and machining for key components is all done in house. As a robot manufacturer, we provide the kind of quality that you will find nowhere else. And when it comes to quality control, our customers can expect only high-quality craftsmanship achieved by rigid adherence to strict standards.



# Global service and safe support system

In addition to Japan, China, and Southeast Asia, we also have sales and service offices in the United States, Europe, and Australia. These offices and our worldwide network of distributors enable us to provide close service to our customers. We will continue to strive to further improve our services and support for our customers with a customer-oriented attitude.



## YAMAHA MOTOR CO., LTD.

**Robotics Business Unit  
Sales & Marketing Section  
FA Sales & Marketing Division**

127 Toyooka, Chuo-Ku, Hamamatsu, Shizuoka 433-8103, Japan  
Telephone +81-53-525-8350 / Facsimile +81-53-525-8378



ited States and Europe.  
 r customers in every region of the world.  
 omplete system.



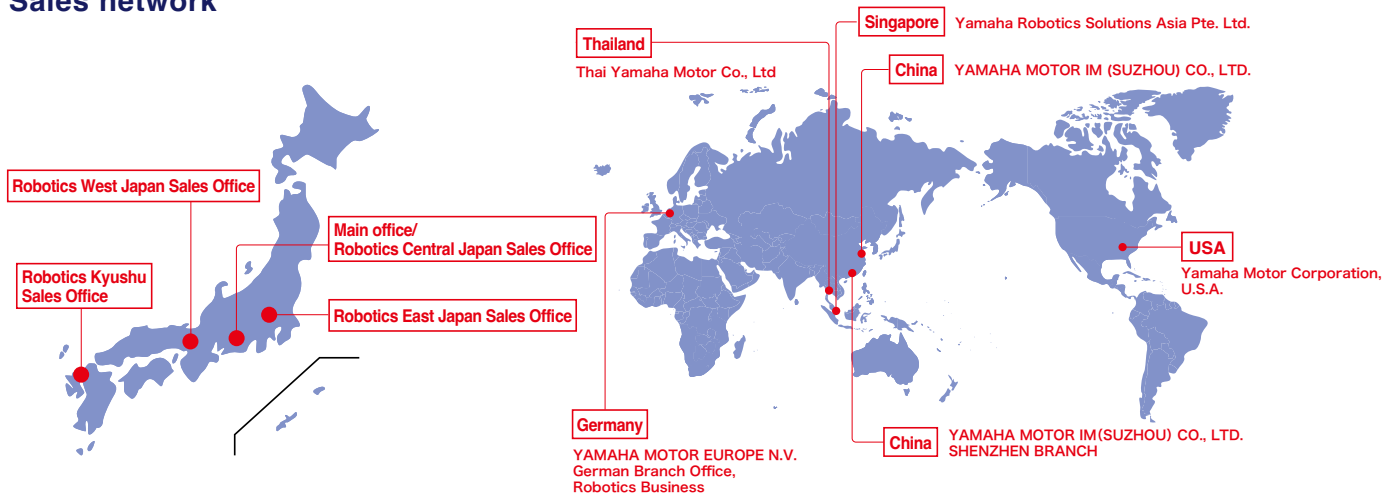
## Japan: Sales and service offices

- **Robotics East Japan Sales Office**  
 Totsu Bldg 1F, 1-11-7 Sakuragi, Omiya-ku, Saitama City,  
 Saitama 330-0854, Japan  
 TEL +81-48-657-3281
- **Robotics Central Japan Sales Office**  
 127 Toyooka, Chuo-Ku, Hamamatsu, Shizuoka 433-8103, Japan  
 TEL +81-53-525-8325
- **Robotics West Japan Sales Office**  
 #1 MT Bldg 5F, 5-13-9 Nishinakajima, Yodogawa-ku, Osaka City,  
 Osaka 532-0011, Japan  
 TEL +81-6-6305-0830
- **Robotics Kyushu Sales Office**  
 3-6-11 Hakataekihigashi, Hakata-ku, Fukuoka City, Fukuoka  
 812-0013, Japan  
 TEL +81-92-432-8106

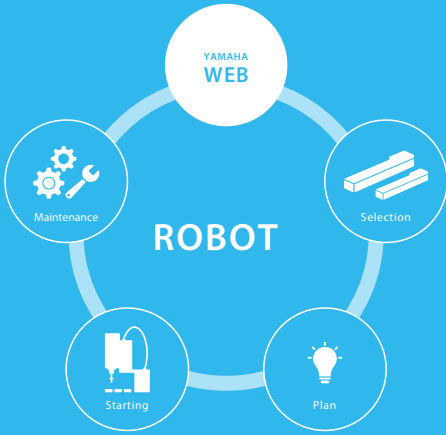
## Overseas: Sales and service offices

- **YAMAHA MOTOR IM (SUZHOU) CO., LTD.**  
 #8 Building No.17 East Suhong Road, Suzhou Industrial Park,  
 China 215026  
 TEL +86-512-6831-7091
- **YAMAHA MOTOR IM (SUZHOU) CO., LTD.  
 SHENZHEN BRANCH**  
 1/F, Bd. 1, Yesun Intelligent Community I,Guangang Rd.  
 1301-70,Guanlan St,Longhua District Shenzhen ,Guangdong,P.R.C.  
 TEL +86-755-2393-9910
- **Yamaha Motor Corporation, U.S.A.**  
 3065 Chastain Meadows Pkwy NW #100, Marietta, GA 30066  
 TEL +1-750-420-5825
- **YAMAHA MOTOR EUROPE N.V. German Branch Office,  
 Robotics Business**  
 Hansemannstrasse 12, 41468 Neuss, Germany  
 TEL +49-(0)2131-2013 (Ext520)
- **Thai Yamaha Motor Co., Ltd**  
 64 Moo 1, Debaratna Road, Tambol Srira Jorrake Yai, Amphur  
 Bangsaothong, Samutprakarn 10570, Thailand  
 TEL +66-96-779-7680
- **Yamaha Robotics Solutions Asia Pte. Ltd.**  
 Address: 3 Ang Mo Kio Street 62 #01-40, Singapore 569139  
 TEL +65-6028-3540

## Sales network



# 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



## Plan

Before

### Cycle time simulation calculation

Use this when selecting models or calculating cycle time.

**Input simple parameters**

**Automatic calculation**

- Total movement time
- Acceleration/deceleration time
- Acceleration/deceleration distance
- 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

### 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

### Connection with other companies' units is also supported.

Plug-in information is also available.

- Asycube plug-in (including the instruction manual)
- RCX3 Suzuno Seisakusho's vision picking feeder operation manual
- RCX3 high-speed pick and place function setup program (including the instruction manual)
- KEYENCE's image sensor connection plug-in (including the instruction manual)
- Cognex's image sensor connection plug-in (including the instruction manual)

# Accepting registrations from website

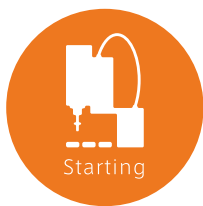
Useful contents from model selections to design, start-up, and maintenance work are provided.

To register as a new member

Go to New Registration screen from the top page  
<https://www.yamaha-motor.co.jp/robot/>



Go to New Registration screen from here



## After



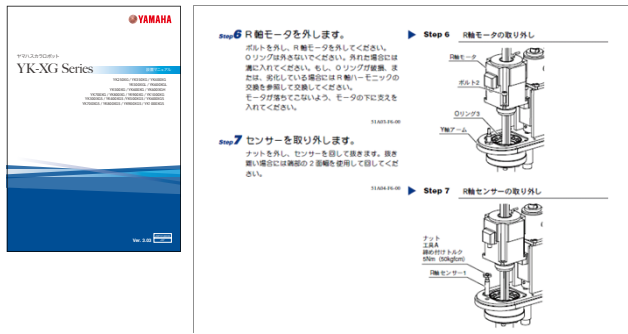
### Starting

### 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.



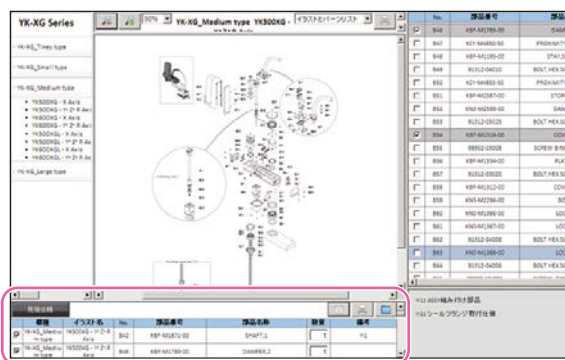
#### Parts List and Exploded View

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.

#### Various software download

- TS-Manager
- EP-Manager
- RCX-Studio 2020
- RCXiVY2+ Studio / RCXiVY2+ PCVison
- iVY2+Studio
- YHXController related
  - YHX Studio for Standard Profile
  - YHX Driver Firmware
  - YHX Project Project Standard Profile
  - YHX Device file
- Data for PBX updating
- Communication cable USB driver
- VIP+

Videos from application videos to operation and setup instructions are now available.

**More than 100 robot videos are available!**

**YouTube**  
Yamaha Motor Robot



**Proposals to make productions lines efficient and improve them.**



[Promotion video]  
Introduction of YAMAHA products and merits of introducing LCMR200

**Linear conveyor modules LCMR200**



[Development secrets]  
THE GAME CHANGER



[Horizontal circulation unit]  
High-speed transfer/compact equipment is achieved.



[Vertical circulation unit]  
Workpiece misalignment during high-speed transfer is resolved and identification of defect causes is made easier.



[Traversing unit]  
Bottleneck is resolved, and multiple models and defective products are supported.



[Application]  
Bottleneck process is resolved by process parallelization.

## SCARA × ROBOT VISION



[Automation of bulk parts]

Integrated control of robot × Asycube × vision



[Application]

Machine Vision“RCXiVY2+”× SCARA Robot

## Series to learn with videos



[LCMR200]

Easy assembly and installation procedures



[LCMR200]

Software setup



[LCMR200]

Transfer adjustment of horizontal circulation unit



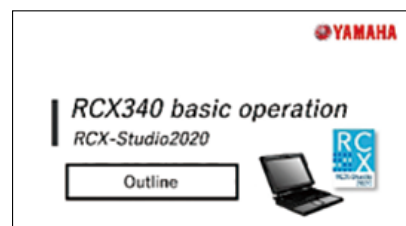
[RCXiVY2+]

Calibration of downward fixed camera



[RCXiVY2+]

“Model registration” edge data



[RCX340]

Basic operation of support software RCX-Studio2020



**YAMAHA MOTOR CO., LTD.**

**Robotics Operations  
Sales & Marketing Section  
FA Sales & Marketing Division**

127 Toyooka, Chuo-Ku, Hamamatsu, Shizuoka 433-8103, Japan  
Tel. +81-53-525-8350 Fax. +81-53-525-8378

**URL** <https://global.yamaha-motor.com/business/robot/>

● Specifications and appearance are subject to change without prior notice.

202502-PE