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.

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.

YK-X Series

Product Lineup

- 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

NEW

Low cost high performance model
YK400XR
Comprehensive line of YAMAHA SCARA robots

**Orbit type**
P.338
- Arm length 500 mm
- Maximum payload 4 kg

**Extra small type**
P.342
- Arm length 120 mm to 220 mm
- Maximum payload 1 kg

**Small type**
P.347
- Arm length 250 mm to 400 mm
- Maximum payload 5 kg

Low cost high performance model
YK400XR

**Medium type**
P.354
- Arm length 500 mm to 600 mm
- Maximum payload 5 kg to 20 kg

**Large type**
P.361
- Arm length 700 mm to 1200 mm
- Maximum payload 20 kg to 50 kg

**Wall mount/inverse model**
P.367
- 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.377
- 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**

**Accessible to 360°-whole area under equipment**

360°-whole area under the equipment is covered by the hanging installation and wide arm turning angle. The plane working envelope is improved approx. 120% when compared to YAMAHA’s conventional model with an arm length of 500 mm. There is no dead space at the center of the working envelope. This ensures an operation range of φ1,000 mm x 130 mm. As the working envelope is cylindrical, the pallet or conveyor installation direction is not restricted and the flexibility of the system design is improved.

**YK-TW POINT 2**

**Low overall height makes the equipment compact.**

The overall height is as low as 392 mm. This can lower the center of gravity of the overall equipment. Therefore, the equipment can be downsized without needing any rigid frame. As the production equipment is made compact, this shortens a period of time necessary for the workpiece transfer.

**YK-TW POINT 3**

**Tact is shortened by high-speed movement.**

Use of a horizontal articulated structure, in which the Y-axis (2nd arm) can pass under the X-axis (1st arm) makes it possible to move between the points through the optimum route at a high speed. This greatly contributes to shortening of the tact time in the light load transfer process, such as electrical or food industry.

**Standard cycle time is 0.29 sec.**

When performing a reciprocation operation with a load of 1 kg, a horizontal movement of 300 mm, and a vertical movement of 25 mm, the standard cycle time is shortened about 36% when compared to YAMAHA’s conventional model.

**YK-TW POINT 4**

**High speed and highly accurate positioning by high mechanical rigidity**

*Repeated positioning accuracy ± /- 0.015 mm*

High accuracy and high load transferable by parallel link robot

The internal structure of the robot was reviewed strictly to optimize the weight balance. Additionally, a motor tuned optimally for the lightweight and highly rigid arm was incorporated to achieve the high speed and highly accurate positioning.

**YK-TW POINT 5**

**Resolver is used for position detector.**

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.
**YK-XG Completely beltless type**

Integral structure designed for optimal operation

Note: The following shows an example of YK500XG.

- **Highly rigid independent spline shaft**
- **Specially developed hollow motor**
- **Built-in user wiring/user tubing**
- **Ball screw directly connected structure passed on from the single axis robot**
- **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**

- Vertical axis motor
- Rotation axis motor
- Drive by pulley and timing belt

**YK-XG series**

- Vertical axis hollow motor
- Rotation axis hollow speed reducer
- Rotation axis ball screw

- 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.

**Conventional model**

- XY-axis: 4.9 m/s (45 %UP)
- Z-axis: 1.7 m/s (35 %UP)
- R-axis: 876 °/s (90 %UP)

**YK-XG series**

- XY-axis: 7.6 m/s
- Z-axis: 2.3 m/s
- R-axis: 1700 °/s

Note: The following shows an example of YK500XG.
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 start or 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 renewed now and 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.

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.

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.

<table>
<thead>
<tr>
<th>Offset (mm)</th>
<th>Inertia (kgfcm^2)</th>
<th>Operation</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0039</td>
<td>YK120XG</td>
</tr>
<tr>
<td>45</td>
<td>0.025</td>
<td>Company A</td>
</tr>
<tr>
<td>97</td>
<td>0.1</td>
<td>✗</td>
</tr>
</tbody>
</table>

- Operable
- ✗: Out of catalog value tolerance range

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

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.

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.

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

**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).

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$^2$).
- The injection speed is 12.5 liters/min. and the injection time is 3 min.
- No intrusion of particle dust

Class of protection against solid objects: 6

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).

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

Note. YK250XGP to 600XGLP (arm part) YK250XGP to 600XGLP (base part)
<table>
<thead>
<tr>
<th>Model/Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec.)</th>
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<td>Omni directional model</td>
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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 ( ).

Note 3: For the option specifications (tool flange mount type), the maximum payload becomes 4 kg (RCX340) or 3 kg (RCX240).
SCARA ROBOTS

YK-X SERIES

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<table>
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<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm) and XY axis resultant maximum speed (m/s)</th>
<th>Standard cycle time (sec)</th>
<th>Maximum payload (kg)</th>
<th>R-axis tolerable moment of inertia (kgm²)</th>
<th>Completely beltless structure</th>
<th>R-axis harmonic drive</th>
<th>Detailed info page</th>
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<tbody>
<tr>
<td><strong>Orbit type</strong></td>
<td></td>
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<td>P.393</td>
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</table>

**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

**YK250XG-150-F-S-3L-RCX240S**

Mechanical section  Controller section

To find detailed controller information see the controller page.  RCX240 [P.493], RCX340 [P.503]

**Robot ordering method terminology**

<table>
<thead>
<tr>
<th>Model</th>
<th>Z-axis stroke</th>
<th>Tool flange</th>
<th>Hollow shaft</th>
<th>Cable</th>
<th>Controller</th>
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<td>150mm</td>
<td>F</td>
<td>F</td>
<td>3L</td>
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<td>150mm</td>
<td>None</td>
<td>F</td>
<td>3L</td>
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<td>150mm</td>
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<td>None</td>
<td>3L</td>
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<tr>
<td>150</td>
<td>200mm</td>
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<td>3L</td>
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<td>300mm</td>
<td>With tool flange</td>
<td>F</td>
<td>3L</td>
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<td>With tool flange</td>
<td>F</td>
<td>3L</td>
<td>RCX340</td>
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</table>

Note 1. Available only for the master.
YK350TW

**Ordering method**

**YK350TW-130**

- Controller: RCX340, RCX240-R3
- Motor: YK350TW
- Transmission: Harmonic drive
- Deceleration: 100
- Motor to speed reducer: Harmonic drive
- Speed reducer to output: Harmonic drive
- Motor: AC servo
- Maximum speed: 5.6 m/sec
- Deceleration: 175 mm/sec
- Maximum payload: 5 kg
- Standard cycle time: 0.32 sec (RCX340; 0.35 sec (RCX240)
- R-axis tolerable moment of inertia: 0.005 kgm
- Maximum: 0.05 kgm
- User wiring: 0.15 sq × 8 wires
- User tubing (Outer diameter): ϕ 6 × 2
- User tubing (Inner diameter): ϕ 4 × 2
- Tube through hollow shaft: Does not rotate about 300mm from the spline tip.
- Tube (4) through hollow shaft protrudes about 300mm from the spline tip.
- Tube through hollow shaft does not rotate with spline during R-axis rotation.

**Specifications**

- **Arm length (mm)**: 350
- **Maximum payload (kg)**: 5
- **Robot cable length (m)**: Standard: 3.5 m, Option: 5 m, 10 m
- **Maximum speed (m/sec)**: 5.6
- **Deceleration (mm/sec²)**: 175

**Controller**

- **Power capacity (VA)**: 2500
- **Operation method**:
  - Programming / I/O point trace
  - Remote command / Programming / Communication using RS-232C

**Note**:

- 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.
**YK350TW Tool flange mount type**

- **User tubing 2 (ϕ6 Red)** Connects to arm
- **User tubing 1 (ϕ6 Black)** Connects to arm
- **D-sub connector for user wiring (No.1 to 8 usable)**

**Tube connection port (ϕ4 Blue)**: Connects to spline tip

**Tube through hollow shaft**: 
- **User tubing 2 (ϕ6 Red)** Connects to base
- **D-sub connector for user wiring (No.1 to 8 usable)**

** Tube through shaft**
- **ϕ4 Hole** through-hole

**Details of tool flange section**
- **ϕ4 Hole** through-hole

**Dimensions and Notes**:
- M4 ground terminal
- Ø1.2 Depth 1.2
- Ø1.2 Depth 1.2
- Ø1.2 Depth 1.2
- Ø1.2 Depth 1.2
- Ø1.2 Depth 1.2
- Ø1.2 Depth 1.2

**Installation surface**
- 22.6
- 22.6
- 22.6
- 22.6
- 22.6
- 22.6
- 22.6

**Hollow diameter**
- ϕ7 through-hole
- ϕ7 through-hole
- ϕ7 through-hole

**ϕ4 Hole**
- ϕ4 H7 through-hole
- ϕ4 H7 through-hole

**ϕ25 Hole**
- ϕ25 H7 through-hole
- ϕ25 H7 through-hole

**Working envelope**
- X-axis: during CW motion
- Y-axis overlap area
- Y-axis overlap area
- Y-axis overlap area
- Y-axis overlap area
- Y-axis overlap area
- Y-axis overlap area

**Controller**
- RCX340 508
- RCX240 495
YK500TW

### Ordering method

**Model**
- **YK500TW-130**

**Controller**
- RCX340
- RCX240

Specify various controller setting items. RCX340 ▶ 508

Specify various controller setting items. RCX240/RCX240S ▶ 495

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
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<tr>
<td>Arm length</td>
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<td>Rotation angle</td>
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<td>+/−225°</td>
<td>-</td>
<td>+/-720°</td>
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<td>750 W</td>
<td>400 W</td>
<td>200 W</td>
<td>105 W</td>
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**Deceleration mechanism**
- Speed reducer: Harmonic drive
- Transmission method: Direct-coupled
- Motor to speed reducer: Timing belt
- Speed reducer to output: Timing belt

<table>
<thead>
<tr>
<th>Repeatability</th>
<th>+/-0.015 mm</th>
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<td>Maximum</td>
<td>+/-0.01 mm</td>
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<td>Note 1</td>
<td>+/-0.01 °</td>
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**Standard cycle time: with 1kg payload**
- 0.29 sec

**R-axis moment of inertia (load inertia)**

**Rated**
- 0.005 kgm²

**Maximum**
- 0.05 kgm²

**User tubing (Outer diameter)**
- 6.8 m/sec
- 1.5 m/sec
- 3000 °/sec

**Robot cable length**
- 10L: 10m
- 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.536.

**Note 5**
This is the value at a constant ambient temperature.

**Note 6**
When moving a 1 kg load back and forth 300 mm horizontally and 25 mm vertically (rough positioning arch motion).

For the option specifications (tool flange mount type), the maximum payload becomes 4 kg (RCX340) or 3 kg (RCX240).

To set the standard coordinates with high accuracy, use a 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 Tool flange mount type

Note: Upper section requires a space of at least 250mm for detaching/attaching cover.
R27 (Min. cable bending radius)
Do not move the cable.

Z-axis upper end mechanical stopper position
(5mm rise during return-to-origin)
Z-axis lower end mechanical stopper position

Tube connection port (ϕ4 Blue)
Connects to spline tip
User tubing 2 (ϕ4 Red)
Connects to base
D-sub connector for user wiring
(No.1 to 8 usable)
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.

Details of tool flange section

4-ϕ4.5 through hole
Hollow diameter ϕ7
through hole

ϕ 4 H7 1/12

YK500 TW
YK120XG

Standard type: Tiny type

Arm length 120mm
Maximum payload 1kg

Ordering method

YK120XG - 50

RCX340-4

Specify various controller setting items. RCX340

RCX240S

Specify various controller setting items. RCX240/RCX240S

Specifications

Axis specifications

X-axis Y-axis Z-axis R-axis
Arm length 45 mm 75 mm 50 mm
Rotation angle +125° +145° – –
AC servo motor output 30 W 30 W 30 W 30 W
Deceleration mechanism Speed reducer Harmonic drive Harmonic drive Harmonic drive
Transmission method Motor to speed reducer Direct-coupled
Speed reducer to output Direct-coupled
Repeatability
Standard cycle time: with 0 kg payload Note 3
0.33 sec
R-axis tolerable moment of inertia Note 3
0.01 kgm²
User wiring
1.0 sq × 8 wires
1.0 sq × 8 wires
User tubing (Outer diameter)
Φ 4 × 2
Travel limit
1.0 Soft limit 2. Mechanical stopper (X, Y, Z axis)
Robot cable length
Standard: 2 m Option: 3.5 m, 5 m, 10 m
Robot 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, Z 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.536.
Note 4: The total robot weight is the sum of the robot body weight and the cable weight.

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.

Working envelope

X, Y-axis origin is at ez5° with respect to front of robot base
When performing return-to-origin, move the axes counterclockwise in advance from the position shown above.

Controller

RCX340 RCX240S

300

Programming / Remote command / Operation using RS-232C communication

Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/
**Ordering method**

YK150XG - 50

- **Model:** YK150XG
- **Arm length:** 150mm
- **Maximum payload:** 1kg

**Specifications**

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<th>R-axis</th>
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<td>30 W</td>
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**Deceleration mechanism**

- Speed reducer: Harmonic drive
- Motor to speed reducer: Direct-coupled
- Speed reducer to output: Direct-coupled

**Maximum load**

- 1.0 kg

**Standard cycle time:** with 0.1kg payload

- 0.33 sec

**R-axis tolerable moment of inertia**

- 0.01 kgm²

**User tubing (Outer diameter)**

- Ø 4 × 2

**Travel limit**

- 1.0 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)**

- 0.9 kg (2 m)
- 1.5 kg (3.5 m)
- 2.1 kg (5 m)
- 4.2 kg (10 m)

**Robot cable weight**

- 0.5 kg (2 m)
- 1.5 kg (3.5 m)
- 2.1 kg (5 m)
- 4.2 kg (10 m)

**Controller**

- **Controller:** RCX340
- **Power capacity (VA):** 300

**Operation method**

- Programming / I/O point tracing
- Remote command / Operation using RS-232C communication

**Specifications**

- **Controller:** RCX340
- **Power capacity (VA):** 300

**Operation method**

- Programming / I/O point tracing
- Remote command / Operation using RS-232C communication

**YK150XG**

- **Controller for user wiring:** JST Mfg Co., Ltd. SM connector SMR-8V-B, pin SYM-001T-P0.6 (supplied)
- **Use the YC12 crimping tool.**

- **User tubing (including):** User tubing 1 (Ø 4), User tubing 2 (Ø 4)

- **M3 ground terminal:** (OP.A)

- **Cross section A-A:** (OP.D)

- **Controller for user wiring:** JST Mfg Co., Ltd. SM connector SYM-001T-P0.6 (supplied)

- **Use the YC12 crimping machine.**

**X-axis origin**

- X-axis origin is at ±5° with respect to front of robot base

**Working envelope**

- X: Y axes 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.

**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.

http://global.yamaha-motor.com/business/robot
YK180X

Standard type: Tiny type

Arm length 180mm  Maximum payload 1kg

### Ordering method

**YK180X - 100**

<table>
<thead>
<tr>
<th>Model</th>
<th>Axis stroke</th>
<th>Cable</th>
<th>Controller</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
<th>Option D</th>
<th>Option E</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340-4</td>
<td>X-axis</td>
<td>50 W</td>
<td>30 W</td>
<td>30 W</td>
<td>30 W</td>
<td>100 mm</td>
<td>100 mm</td>
<td>100 mm</td>
<td>71 mm</td>
</tr>
<tr>
<td>RCX240S</td>
<td>Y-axis</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Ball screw</td>
<td>Harmonic drive</td>
<td>50 W</td>
<td>30 W</td>
<td>30 W</td>
<td>50 W</td>
</tr>
<tr>
<td>RCX340S</td>
<td>Z-axis</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>50 W</td>
<td>30 W</td>
<td>30 W</td>
<td>50 W</td>
</tr>
<tr>
<td>RCX240S</td>
<td>R-axis</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>50 W</td>
<td>30 W</td>
<td>30 W</td>
<td>50 W</td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>180 mm</td>
<td>100 mm</td>
<td>100 mm</td>
<td>71 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-120°</td>
<td>+/-140°</td>
<td>+/-360°</td>
<td></td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>50 W</td>
<td>30 W</td>
<td>30 W</td>
<td>30 W</td>
</tr>
</tbody>
</table>

### Controller

- **Controller**
  - RCX340: 500
- **Power capacity (VA)**
  - 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

1. This is the value at a constant ambient temperature.
2. When reciprocating 100mm in horizontal and 25mm in vertical directions.
3. When attaching a new user wire or tube
4. 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.)

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
http://iglobal.yamaha-motor.com/business/robot

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**YK180X**

Connector for user wiring (No. 1 to 6 usable, socket contact)

- JST Mty Co., Ltd. SM connector SMR-6VB, pin SYM-001T-P0.6 (supplied)
- Use the YC12 crimping tool

- M3 ground terminal

- Connector for user wiring (No. 1 to 6 usable, socket contact)
  - JST Mty Co., Ltd. SM connector SMR-6VB, pin SYM-001T-P0.6 (supplied)
  - Use the YC12 crimping machine.

- No phase relation between flat spot and R-axis origin

- Hollow diameter: 4

- Steel / Large type

---

**Controller**

- RCX340: 508
- RCX240S: 495
**YK250XG**

**Standard type: Small type**

- Arm length 250mm
- Maximum payload 5kg

### Ordering method

**YK250XG - 150**

<table>
<thead>
<tr>
<th>Model</th>
<th>Z axis stroke</th>
<th>Cable</th>
<th>Option / Number of controllable axes</th>
<th>Safety standard</th>
<th>Option A (OP.A)</th>
<th>Option B (OP.B)</th>
<th>Option C (OP.C)</th>
<th>Option D (OP.D)</th>
<th>Option E (OP.E)</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340 ➔ P.508

**RCX240S**

Specify various controller setting items. RCX240/RCX240S ➔ P.495

### Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>100 mm</td>
<td>150 mm</td>
<td>150 mm</td>
<td>150 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>±140°</td>
<td>±144°</td>
<td>±144°</td>
<td>±1.360°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>200 W</td>
<td>150 W</td>
<td>50 W</td>
<td>100 W</td>
</tr>
</tbody>
</table>

**Deceleration mechanism**

- Speed reducer: Harmonic drive
- Transmission method: Motor to speed reducer
- Speed reducer to output: Direct-coupled
- Deceleration: 4.5 m/sec²
- Maximum speed: 1.1 m/sec
- Minimum speed: 1020 deg/sec

**Repeatability**

- X-axis: ±0.01 mm
- Y-axis: ±0.01 mm
- Z-axis: ±0.004 mm

**Maximum payload**

- Standard cycle time: with 2kg payload
- Standard: 3.5 m
- Option: 5 m, 10 m

**Controller**

- Controller: RCX340
- Power capacity (VA): 1000
- Operation method: Programming / i/O point trace / Remote command / Operation using RS-232C communication

Note. “Harmonics” 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.

---

**YK250XG**

- **Controller:** RCX340 ➔ P.508
- **RCX240S ➔ 495**

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 spline in the working envelope shown above.
- **X-axis mechanical stopper position:** 142°
- **Y-axis mechanical stopper position:** 144°
- **4-M3 x 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.

- **D-sub connector for user wiring** (No. 1 to 10 usable)
- **Option:** User tubing/tubing through spline type

---

Note 1. This is the value at a constant ambient temperature. (X,Y-axis)

Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.

Note 3. There are limits to acceleration coefficient settings. See P.537.

Note 4. Maximum payload of option specifications (with top flange attached or with user wiring and tubing routed through spline shaft) is 4kg.
YK250XG Tool flange mount type

Machine harness

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

M4 ground terminal

4-M3 through-hole (No phase relation to R-axis origin.)

Do not move the cable.

The arm may be in contact with the machine harness in an area inside from the inner limit of the 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°

Keep enough space for the maintenance work at the rear of the base.

The weight of the tool attached here should be added to the tip mass.

Tapped hole for user wiring 6-M3 x 0.5 Depth 9

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

D-sub connector for user wiring (No. 1 to 10 usable)

View of F

View of E

Detailed drawing D
YK350XG

**Standard type: Small type**

- Arm length: 350mm
- Maximum payload: 5kg

### Ordering method

**Model**

<table>
<thead>
<tr>
<th>YK350XG - 150</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>RCX340-4</td>
</tr>
<tr>
<td>RCX240S</td>
</tr>
</tbody>
</table>

### Specifications

- **X-axis Y-axis Z-axis R-axis**
- **Controller**
  - RCX340: 1000
  - RCX240S: 7495

### Controller

- **Controller**
  - RCX340: Power capacity (VA) 1000
  - RCX240S: Operation method

### Note

- "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.

- X and Y axis mechanical stoppers

- 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 details.

### YK350XG

- 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)

- Machine harness
- D-sub connector for user wiring (No. 1 to 10 usable)

- User tool installation range
- User tool installation range
- User tool installation range

- Z-axis upper end mechanical stopper position
- X-axis Y-axis Z-axis R-axis

- Note:
  - The weight of the tool attached here should be added to the tip mass.
YK350XG 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°

Detailed drawing D

- Tapped hole for user wiring (M3 x 0.5 Depth 6)
- Weight of the tool attached here should be added to the tip mass.
- Do not move the cable.

View of E

- 4-M3 through-hole (No phase relation to R-axis origin)
- As the hole is intended for the wiring/tubing clamp, do not attach a large load to it.

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)
YK400XG 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: 145°

Machine harness

4-M3 x 0.5 through-hole (No phase relation to R-axis origin.)

As the hole is intended for the wiring/tubing clamp, do not attach a large load to it.

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.

Keep enough space for the maintenance work at the rear of the base.

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

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.

M4 bolt for installation, 4 bolts used (1 BASE size)

- X-axis mechanical stopper position: 142°
- Y-axis mechanical stopper position: 145°

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: 145°

Keep enough space for the maintenance work at the rear of the base.

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.

User tubing 1 (ϕ4 black)
User tubing 2 (ϕ4 red)
User tubing 3 (ϕ4 blue)

D-sub connector for user wiring (Nos. 1 to 10 usable)

4-ϕ4.5 through-hole

M4 ground terminal

Tapped hole for user wiring 6-M3 x 0.5 Depth 6

The weight of the tool attached here should be added to the tip mass.

R27 (Min. cable bending radius) Do not move the cable.
### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>YK400XR</th>
<th>Return-to-origin mechanism</th>
<th>Hollow shaft</th>
<th>Cable</th>
<th>Controller / number of controllers</th>
<th>Safety standard</th>
<th>Option A (OPA)</th>
<th>Option B (OPB)</th>
<th>Option C (OPC)</th>
<th>Option D (OPD)</th>
<th>Option E (OPE)</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-axis stroke</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specifications

- **X-axis**
  - Arm length: 225 mm
  - Deceleration: +1.12°/sec
  - Speed reducer: Harmonic drive
  - Maximum speed: 6 m/sec
  - Maximum payload: 3 kg (Standard specification), 2 kg (Option specifications)
  - R-axis tolerable moment of inertia: 0.05 kgm² (0.5 kgfcm²)
  - Repeatability: ±0.01 mm
  - Maximum payload: 2 kg (Option specifications)
  - Standard cycle time: with 2kg payload: 0.45 sec

- **Y-axis**
  - Arm length: 175 mm
  - Deceleration: +1.10°/sec
  - Speed reducer: Harmonic drive
  - Maximum speed: 1.1 m/sec
  - Maximum payload: 100 W
  - R-axis tolerable moment of inertia: 0.05 kgm² (0.5 kgfcm²)
  - Repeatability: ±0.01 mm
  - Maximum payload: 2 kg (Option specifications)
  - Standard cycle time: with 2kg payload: 0.65 sec

- **Z-axis**
  - Arm length: 150 mm
  - Deceleration: +1.36°/sec
  - Speed reducer: Ball screw
  - Maximum speed: 6 m/sec
  - Maximum payload: 100 W
  - R-axis tolerable moment of inertia: 0.05 kgm² (0.5 kgfcm²)
  - Repeatability: ±0.01 mm
  - Maximum payload: 2 kg (Option specifications)
  - Standard cycle time: with 2kg payload: 0.70 sec

- **R-axis**
  - Arm length: 73 mm
  - Deceleration: +1.10°/sec
  - Speed reducer: Ball screw
  - Maximum speed: 100 W
  - Maximum payload: 100 W
  - R-axis tolerable moment of inertia: 0.05 kgm² (0.5 kgfcm²)
  - Repeatability: ±0.01 mm
  - Maximum payload: 2 kg (Option specifications)
  - Standard cycle time: with 2kg payload: 0.70 sec

**Note:**

1. This is the value at a constant ambient temperature (X,Y,Z axes)
2. When reciprocating 300mm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.
3. It is necessary to input the moment of inertia in the actual operating environment.
4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 2 kg.

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1000</td>
<td>Programming / Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

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.

### Working envelope

- Y-axis mechanical stopper position: 134°
- Y-axis mechanical stopper position: 194°

Our robot manuals (installation manuals) can be downloaded from our website at the address below: http://global.yamaha-motor.com/business/robot/
YK500XGL

Standard type: Medium type

- Arm length 500mm
- Maximum payload 5kg

Ordering method

YK500XGL - 150

<table>
<thead>
<tr>
<th>Model</th>
<th>Controller / number of controllable axes</th>
<th>Safety standard</th>
<th>Option A (CP A)</th>
<th>Option B (CP B)</th>
<th>Option C (CP C)</th>
<th>Option D (CP D)</th>
<th>Option E (CP E)</th>
<th>Absolute battery</th>
</tr>
</thead>
</table>

Specifying various controller setting items. RCX340 - P.508

Specifying various controller setting items. RCX240S - P.495

Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>250 mm</td>
<td>250 mm</td>
<td>150 mm</td>
<td>-</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-145°</td>
<td>+/-144°</td>
<td>-</td>
<td>+/-360°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>200 W</td>
<td>150 W</td>
<td>50 W</td>
<td>100 W</td>
</tr>
</tbody>
</table>

Deceleration mechanism

- Speed reducer: Harmonic drive
- Transmission method: Motor to speed reducer
- Speed reducer to output: Direct-coupled

- Maximum speed: 5.1 m/sec
- Maximum payload: 5 kg (Standard specifications), 4 kg (Option specifications)

- Standard cycle time: 0.59 sec
- R-axis tolerable moment of inertia: 0.05 kgm²/0.5 kgf cm²

- User wiring: 0.2 kg x 10 wires
- User tubing (Outer diameter): 4 x 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 axis)
Note 2: When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3: There are limits to acceleration coefficient settings. See P.538.
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: RCX340
- Power capacity (VA): 1000
- Operation method: Programmable / I/O point trace / Remote command / Operation using RS-232C communication

- Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Inc.
- 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.
- To set the standard coordinates with high accuracy, use a standard coordinate setting jig. 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 1: (4 blue)
- User tubing 2: (4 red)
- User tubing 3: (4 black)
- D-sub connector for user wiring (No. 1 to 10 usable)
- 4-M3 M3 bolt for installation, 4 bolts used
- 4-6H M6 bolt for installation, 4 bolts used
- Machine harness 138 (Base size)
- Maximum 315 during arm rotation
- Specification various controller setting items. RCX340 - P.508
- Specification various controller setting items. RCX240S - P.495

- Note: 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°

- As this hole is intended for the wiring/tubing clamp, do not attach a large load to it.

- 4-M3 x 0.5 through-hole (No phase relation to R-axis origin.)

- 42° 44° 42° 44°

- 138 (Base size)

- Maximum 315 during arm rotation
- Note. "Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Inc.

- 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.
- 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 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 interference 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.

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)

Controller
RCX40  508  RCX240S  495

The weight of the tool attached here should be added to the tip mass.

Tapped hole for user wiring 5-M3 x 0.5 Depth 6

Keep enough space for the maintenance work at the rear of the base.

Detailed drawing D

View of F

View of E

Option: User wiring/tubing through spline type

Controller
RCX40  508  RCX240S  495

The weight of the tool attached here should be added to the tip mass.

Tapped hole for user wiring 5-M3 x 0.5 Depth 6

Keep enough space for the maintenance work at the rear of the base.

Detailed drawing D

View of F

View of E

Option: User wiring/tubing through spline type
# Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>350 mm</td>
<td>250 mm</td>
<td>150 mm</td>
<td></td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>200 W</td>
<td>150 W</td>
<td>50 W</td>
<td>100 W</td>
</tr>
<tr>
<td>Deceleration</td>
<td>Speed reducer: Harmonic drive; Harmonic drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission method</td>
<td>Motor to speed reducer: Harmonic drive; Harmonic drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>+/-0.01 mm</td>
<td>+/-0.01 mm</td>
<td>+/-0.004 °</td>
<td></td>
</tr>
<tr>
<td>Maximum speed</td>
<td>4.9 m/sec</td>
<td>1.1 m/sec</td>
<td>1000 °/sec</td>
<td></td>
</tr>
<tr>
<td>Maximum payload</td>
<td>5 kg (Standard specification)</td>
<td>4 kg (Option specifications)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard cycle time: with 2kg payload</td>
<td>0.63 sec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-axis tolerable moment of inertia</td>
<td>0.05 kgm (0.5 kgfcm*)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User tubing (Outer diameter)</td>
<td>ø 4 × 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel limit</td>
<td>1. Soft limit</td>
<td>2. Mechanical stopper (X,Y,Z axis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robot cable length</td>
<td>Standard: 3.5 m</td>
<td>Option: 5 m, 10 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>22 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1: This is the value at a constant ambient temperature. (X,Y axis)
Note 2: When reciprocating 300mm in horizontal and 25mm in vertical directions.
Note 3: There are limits to acceleration coefficient settings. See P.538.
Note 4: Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4 kg.

---

## Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>YK600XGL-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of controllable axes</td>
<td>4</td>
</tr>
<tr>
<td>Controller</td>
<td>RCX340</td>
</tr>
<tr>
<td>Maximum length of arm rotation</td>
<td>355 mm</td>
</tr>
<tr>
<td>Maximum length of arm rotation range</td>
<td>633 mm</td>
</tr>
<tr>
<td>User tubing</td>
<td>2628</td>
</tr>
<tr>
<td>User tubing</td>
<td>151.5 ±2</td>
</tr>
<tr>
<td>User tubing</td>
<td>1.5</td>
</tr>
<tr>
<td>User tubing</td>
<td>129</td>
</tr>
<tr>
<td>User tubing</td>
<td>61</td>
</tr>
<tr>
<td>User tubing</td>
<td>50</td>
</tr>
<tr>
<td>User tubing</td>
<td>20</td>
</tr>
<tr>
<td>User tubing</td>
<td>R27 (Min. cable bending radius) Do not move the cable</td>
</tr>
<tr>
<td>User tubing</td>
<td>R27 (Min. cable bending radius) Do not move the cable</td>
</tr>
<tr>
<td>User tubing</td>
<td>4-99</td>
</tr>
<tr>
<td>User tubing</td>
<td>50</td>
</tr>
<tr>
<td>User tubing</td>
<td>20</td>
</tr>
<tr>
<td>User tubing</td>
<td>Tapped hole for user wire 6-M3 × 0.5 Depth 6</td>
</tr>
</tbody>
</table>

- **Note**: 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.

## Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1000</td>
<td>Programming / I/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
<tr>
<td>RCX240S</td>
<td>450</td>
<td></td>
</tr>
</tbody>
</table>

---

## Controller Information

- **Note**: Harmonic” and “Harmonic drive” are the registered trademarks of Harmonic Drive Systems Inc.

---

**Our robot manuals (installation manuals) can be downloaded from our website at the address below:**

http://global.yamaha-motor.com/business/robot/
The weight of the tool attached here should be added to the tip mass.

Tapped hole for user wiring 4-M3 × 0.5 Depth 8

The length of the tool attached here should be added to the tip mass.

D-sub connector for user wiring (No. 1 to 10 usable)

Keep enough space for the maintenance work at the rear of the base.

Option:
User wiring/tubing through spline type

Detailed drawing D
View of E

Option: User wiring/tubing through spline type

View of F

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.

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.

R27 (Min. cable bending radius)
Do not move the cable.

Controller
RCX340 ▶ 508 RCX240S ▶ 495
### Ordering method

**Controller**

<table>
<thead>
<tr>
<th>Model</th>
<th>Cable</th>
<th>Controller / Safety standard</th>
<th>Option A (OPA)</th>
<th>Option B (OPB)</th>
<th>Option C (OPC)</th>
<th>Option D (OPD)</th>
<th>Option E (OP5)</th>
<th>Absolute encoder</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCX240</td>
<td>RC30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340 ▶ P.495

### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>300 mm</td>
<td>300 mm</td>
<td>200 mm</td>
<td>300 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-130°</td>
<td>+/-145°</td>
<td>+/-130°</td>
<td>+/-360°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>400 W</td>
<td>200 W</td>
<td>200 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

### Controller

- **Controller**
  - RCX340
  - RCX240
- **Power capacity (VA)**
  - RCX340: 1700
- **Operation method**
  - 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.

### Work envelope

- Working envelope of right-handed system:
  - X-axis mechanical stopper position: 132°
  - Y-axis mechanical stopper position: 147°

Note: If the robot rotates the radius of the inner side of dimensions 135 and 220, the arm may be in contact with the machine harness. So, do not perform such motion.

---

**YK600XG**

- **Standard type: Medium type**
- Arm length 600mm
- Maximum payload 10kg

### Notes:

1. This is the value at a constant ambient temperature. (X, Y axes)
2. When reciprocating 300mm in horizontal and 25mm in vertical directions.
3. There are limits to acceleration coefficient settings. See P.939.

---

**Diagram Details**

- Machine harness:
- U-bracket for user wiring (No.1 to 20 usable)
- 4-Φ11 M10 bolt for installation, 4 bolts used
- Cross section A-A:
  - Z-axis lower end and mechanical stopper position
  - Hollow diameter: Φ14
- Hollow grip:
  - M16 x 2 Depth 20 (Bottom of spine)
- Option: Tool flange mount type:
  - R27 (Min. cable bending radius)
  - Do not move the cable.

---

**Controller Information**

- Our robot manuals (installation manuals) can be downloaded from our website at the address below: http://global.yamahamotor.com/business/robot

---

**YP-X**

- Pick & place robots
- Cartesian
- Linear motor
- Single-axis robots
- FLIP-X
- XY-X
- SCARA robots
- YK-X
- Pick & place robots
- YP-XCLEAN

---

**YP-X CLEAN**

- Linear conveyor modules
- LCM100
**YK600XGH**

**Standard type: Medium type**

- Arm length 600mm
- Maximum payload 20kg

### Ordering method

**RCX340-4**

Specify various controller setting items. RCX340 ▶ 508

Specify various controller setting items. RCX240/RCX240R ▶ 495

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>200 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+130°</td>
<td>+150°</td>
<td>+130°</td>
<td>+150°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>400 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

- Deceleration mechanism
  - Speed reducer: Harmonic drive
  - Transmission method: Direct-coupled
  - Motor to speed reducer: Direct-coupled
  - Speed reducer to output: Direct-coupled

- Repeatability
  - +0.02 mm
  - +0.01 mm
  - +0.004 mm

- Maximum speed: 7.7 m/sec
- R-axis tolerable moment of inertia: 1.0 kgm²

- Maximum payload: 20 kg
- Stroke specification:
  - Z-axis: 200 mm
  - Z-axis: 400 mm

- User tubing (Outer diameter):
  - Ø 6 \* 3

- User tubing 1: (ϕ 6 Black)
- User tubing 2: (ϕ 6 Red)
- User tubing 3: (ϕ 6 Blue)

- Robotic cable length:
  - Standard: 3.5 m
  - Option: 5 m, 10 m

- Weight:
  - Z axis: 200 mm: 48 kg
  - Z axis: 400 mm: 50 kg

### Controller

- Controller: RCX340
- RCX240-R3
- Power capacity (VA): 2500
- Operation method: Remote command / Operation using RS-232C communication

Note 1. This is the value at a constant ambient temperature. (Y/Y axe)
Note 2. When reciprocating 300mm in horizontal and 250mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.539.
Note 4. This is the value at a constant ambient temperature. (X,Y axes)

---

**YK600XGH**

**Standard type: Medium type**

- Arm length 600mm
- Maximum payload 20kg

### Ordering method

**RCX340-4**

Specify various controller setting items. RCX340 ▶ 508

Specify various controller setting items. RCX240/RCX240R ▶ 495

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>200 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+130°</td>
<td>+150°</td>
<td>+130°</td>
<td>+150°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>400 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

- Deceleration mechanism
  - Speed reducer: Harmonic drive
  - Transmission method: Direct-coupled
  - Motor to speed reducer: Direct-coupled
  - Speed reducer to output: Direct-coupled

- Repeatability
  - +0.02 mm
  - +0.01 mm
  - +0.004 mm

- Maximum speed: 7.7 m/sec
- R-axis tolerable moment of inertia: 1.0 kgm²

- Maximum payload: 20 kg
- Stroke specification:
  - Z-axis: 200 mm
  - Z-axis: 400 mm

- User tubing (Outer diameter):
  - Ø 6 \* 3

- User tubing 1: (ϕ 6 Black)
- User tubing 2: (ϕ 6 Red)
- User tubing 3: (ϕ 6 Blue)

- Robotic cable length:
  - Standard: 3.5 m
  - Option: 5 m, 10 m

- Weight:
  - Z axis: 200 mm: 48 kg
  - Z axis: 400 mm: 50 kg

### Controller

- Controller: RCX340
- RCX240-R3
- Power capacity (VA): 2500
- Operation method: Remote command / Operation using RS-232C communication

Note 1. This is the value at a constant ambient temperature. (Y/Y axe)
Note 2. When reciprocating 300mm in horizontal and 250mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.539.
Note 4. This is the value at a constant ambient temperature. (X,Y axes)

---

**YK600XGH**

**Standard type: Medium type**

- Arm length 600mm
- Maximum payload 20kg

### Ordering method

**RCX340-4**

Specify various controller setting items. RCX340 ▶ 508

Specify various controller setting items. RCX240/RCX240R ▶ 495

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>200 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+130°</td>
<td>+150°</td>
<td>+130°</td>
<td>+150°</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>400 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

- Deceleration mechanism
  - Speed reducer: Harmonic drive
  - Transmission method: Direct-coupled
  - Motor to speed reducer: Direct-coupled
  - Speed reducer to output: Direct-coupled

- Repeatability
  - +0.02 mm
  - +0.01 mm
  - +0.004 mm

- Maximum speed: 7.7 m/sec
- R-axis tolerable moment of inertia: 1.0 kgm²

- Maximum payload: 20 kg
- Stroke specification:
  - Z-axis: 200 mm
  - Z-axis: 400 mm

- User tubing (Outer diameter):
  - Ø 6 \* 3

- User tubing 1: (ϕ 6 Black)
- User tubing 2: (ϕ 6 Red)
- User tubing 3: (ϕ 6 Blue)

- Robotic cable length:
  - Standard: 3.5 m
  - Option: 5 m, 10 m

- Weight:
  - Z axis: 200 mm: 48 kg
  - Z axis: 400 mm: 50 kg

### Controller

- Controller: RCX340
- RCX240-R3
- Power capacity (VA): 2500
- Operation method: Remote command / Operation using RS-232C communication

Note 1. This is the value at a constant ambient temperature. (Y/Y axe)
Note 2. When reciprocating 300mm in horizontal and 250mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.539.
Note 4. This is the value at a constant ambient temperature. (X,Y axes)
### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>Arm length (mm)</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis</td>
<td>400</td>
<td>300</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>Y-axis</td>
<td>220</td>
<td>200</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>Z-axis</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>R-axis</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

- **Rotation angle**
  - X: +130°, -114°
  - Y: +145°
  - Z: +360°

- **AC servo motor output**
  - 400 W

- **Deceleration**
  - Speed reducer
    - Harmonic drive
  - Motor to speed reducer
    - Direct-coupled
  - Speed reducer to output
    - Direct-coupled

- **Repeatability**
  - ±0.01 mm

- **Maximum speed**
  - X: 9.2 m/sec
  - Y: 2 m/sec
  - Z: 1.7 m/sec

- **Maximum payload**
  - Standard: 10 kg
  - Option: Tool flange mount type: 9 kg

- **Standard cycle time with 2kg payload**
  - 0.50 sec

- **Angular moment of inertia**
  - X: 0.97 kgm²
  - Y: 0.70 kgm²
  - Z: 0.34 kgm²

- **User tubing (Outer diameter)**
  - φ6 = 3

- **Travel limit**
  - Soft limit: 200 mm
  - Mechanical stopper (X, Y, Z axis)

- **Robot cable length**
  - Standard: 3.5 m
  - Option: 5, 10 m

- **Weight**
  - 32 kg

---

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1700</td>
<td>Programmable /</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remote command /</td>
</tr>
<tr>
<td></td>
<td></td>
<td>232C communication</td>
</tr>
</tbody>
</table>

---

Note: See our robot manuals (installation manuals) for detailed information.

Our manuals (installation manuals) can be downloaded from our website at the address below:
http://global.yamaha-motor.com/business/robot/
YK700XG

Standard type: Large type

Arm length 780mm
Maximum payload 20kg

Ordering method

RCX340-4
RCX240

Model

Specifying various controller setting items. RCX340

RCX240

Specifying various controller setting items. RCX240/RCX240S

Controller

RCX340
RCX240-R3

Power capacity (VA)

2500

Operation method

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 axes 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

Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>Arm length</th>
<th>Rotation angle</th>
<th>AC servo motor output</th>
<th>Deceleration mechanism</th>
<th>Speed reducer</th>
<th>Transmission method</th>
<th>Motor to speed reducer</th>
<th>Speed reducer to output</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis</td>
<td>300 mm</td>
<td>+/-130°</td>
<td>750 W</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
</tr>
<tr>
<td>Y-axis</td>
<td>400 mm</td>
<td>+/-150°</td>
<td>400 W</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
</tr>
<tr>
<td>Z-axis</td>
<td>200 mm</td>
<td>+/-360°</td>
<td>400 W</td>
<td>Ball screw</td>
<td>Harmonic drive</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
</tr>
<tr>
<td>R-axis</td>
<td>400 mm</td>
<td></td>
<td>200 W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum payload: 20 kg

Standard cycle time: with 2kg payload

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 2. There are limits to acceleration coefficient settings. See P.539.

Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Machine harness

Working envelope of left-handed system

Option: Tool flange mount type

Working envelope of right-handed system

Option: Tool flange mount type

Dimensions: 12mm rise during Z-axis return-to-origin

Four M4 x 10L binding screws are supplied. Do not screw the screws in deeper than 10mm from bottom surface of arm.

Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.
YK800XG

Standard type: Large type

Arm length 800mm  Maximum payload 20kg

Ordering method

YK800XG

Model

Z axis stroke

Tool flange

Cable

RCX340-4

Controller

Number of controlled axes

Safety standard

Option A (OPA)

Option B (OPB)

Option C (OPC)

Option D (OPD)

Option E (OPE)

Absolute battery

Specify various controller setting items. RCX340

Controller

RCX240

R3

Specify various controller setting items. RCX240/RCX240S

Controller

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.

Controller Power capacity (VA) Operation method

RCX340 2500 Programming / I/O point trace / Remote command / Operation using RS-232C communication

RCX240-R3

2500

Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. Our robot manuals (installation manuals) can be downloaded from our website at the address below: http://global.yamaha-motor.com/business/robot

Specifications

Axis specifications

Arm length

400 mm

400 mm

200 mm 400 mm

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

Speed reducer to output

Direct-coupled

Direct-coupled

Repeatability

+/-0.02 mm

+/-0.01 mm

+/-0.004°

Maximum speed

9.2 m/sec

3 m/sec

1 m/sec

7.2 m/sec

920°/sec

400 mm 400 mm 200 mm 400 mm

Robot cable length

Travel limit

1. Soft limit

2. Mechanical stopper (X,Y,Z axis)

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 axis)

Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.

Note 3. There are limits to acceleration coefficient settings. See P.539.

Note. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Controller

RCX340

RCX240-R3

2500

Programming / I/O point trace / Remote command / Operation using RS-232C communication

RCX340

RCX240-R3

2500

Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. Our robot manuals (installation manuals) can be downloaded from our website at the address below: http://global.yamaha-motor.com/business/robot

Controller Power capacity (VA) Operation method

RCX340 2500 Programming / I/O point trace / Remote command / Operation using RS-232C communication

RCX240-R3

2500

Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. Our robot manuals (installation manuals) can be downloaded from our website at the address below: http://global.yamaha-motor.com/business/robot
YK900XG

Standard type: Large type

Arm length 900mm

Maximum payload 20kg

Ordering method

RCX340-R3 2500

RCX240-R3

Specifications

Axis specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>YK900XG</th>
<th>YK900XG</th>
<th>YK900XG</th>
<th>YK900XG</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis</td>
<td>500 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Y-axis</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Z-axis</td>
<td>+130°</td>
<td>+130°</td>
<td>+150°</td>
<td>+150°</td>
</tr>
<tr>
<td>R-axis</td>
<td>+360°</td>
<td>+360°</td>
<td>200 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

Deceleration mechanism

| Speed reducer | Direct-connected |
| Motor to speed reducer | Harmonic drive |
| Speed reducer to output | Harmonic drive |
| Standard cycle time: with 2kg payload | 0.49 sec |
| R-axis tolerable moment of inertia | 1.0 kgm |

User tubing (Outer diameter) 6 x 3

Travel limit

<table>
<thead>
<tr>
<th>User tubing 1 (ϕ6 Black)</th>
<th>User tubing 2 (ϕ6 Red)</th>
<th>User tubing 3 (ϕ6 Blue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5m</td>
<td>1.5m</td>
<td>1.5m</td>
</tr>
</tbody>
</table>

Z-axis lower end position

4.4m x 0.7 through-hole for tool attachment

YK900XG Z200mm Stroke specification

YPX

Controller

RCX340-R3 2500

RCX240-R3

Controller Power capacity (VA) Operation method

RCX340 400 W

RCX240 400 W

Remote command / I/O point trace / I/O point trace / 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 axes 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.

http://global.yamaha-motor.com/business/robot/
YK1000XG

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>600 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-130°</td>
<td>+/-150°</td>
<td>+/-360°</td>
<td></td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>400 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>RCX340-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power capacity (VA)</td>
<td>2500</td>
</tr>
<tr>
<td>Operation method</td>
<td>Programming / i/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

### Notes

1. “Harmonic” and “Harmonic drive” are the registered trademarks of Harmonic Drive Systems Inc.
2. 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 alignment.) Refer to our robot manuals (installation manuals) for detailed information.
3. 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](http://global.yamaha-motor.com/business/robot)
YK1200X

Standard type: Large type

Arm length 1200mm  Maximum payload 50kg

### Ordering method

<table>
<thead>
<tr>
<th>YK1200X - 400</th>
<th>RCX340-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Number of controllers axis</td>
</tr>
<tr>
<td>YK1200X</td>
<td>2</td>
</tr>
<tr>
<td>RCX240</td>
<td>1</td>
</tr>
<tr>
<td>Cable</td>
<td>0</td>
</tr>
<tr>
<td>Remote command</td>
<td>I/O point trace</td>
</tr>
<tr>
<td>Kit</td>
<td>Option A (OFF)</td>
</tr>
<tr>
<td>Option B</td>
<td>OFF</td>
</tr>
<tr>
<td>Option C</td>
<td>OFF</td>
</tr>
<tr>
<td>Option D</td>
<td>OFF</td>
</tr>
<tr>
<td>Option E</td>
<td>OFF</td>
</tr>
<tr>
<td>Absolute battery</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340-R

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>600 mm</td>
<td>600 mm</td>
<td>400 mm</td>
<td>-</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-125 °</td>
<td>+/-150 °</td>
<td>-</td>
<td>+/-360 °</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>900 W</td>
<td>800 W</td>
<td>600 W</td>
<td>400 W</td>
</tr>
</tbody>
</table>

Deceleration mechanism

- Speed reducer: Planetary gear
- Transmission method: Planetary gear
- Motor to speed reducer: Direct-coupled
- Speed reducer to output: Direct-coupled

Repeatability:
- +/-0.05 mm (X, Y, Z axes)
- +/-0.02 mm (R axis)
- +/-0.005 ° (R axis)

Maximum speed:
- 7.4 m/sec (X, Y, Z axes)
- 0.75 m/sec (R axis)
- 600 °/sec

Maximum payload:
- 50 kg

Standard cycle time:
- 0.91 sec

R-axis tolerable moment of inertia:
- 2.45 kgm²

User tubing (Outer diameter)
- Ø 6 mm

Travel limit:
- 1. Soft limit
- 2. Mechanical stopper (X, Y, Z axes)

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.540.

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>2500</td>
<td>Programming / RS-232C communication</td>
</tr>
<tr>
<td>RCX240-R</td>
<td>152°</td>
<td>Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

Note:
- Harmonic" and "Harmonic drive" are the registered trademarks of Harmonic Drive Systems Inc.
- 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:

YK1200X

- D-sub connector for user wiring (No.1 to 20 usable)
- M16 x 2 Depth 25
- Working envelope
- X and Y axes mechanical stopper positions
- Z axis tip shape
- Aux. shaft fixing plate
- D-sub connector for user wiring (No.1 to 20 usable)
- M16 x 2 Depth 25
- D-sub connector for user tubing (ϕ 12)
- M16 bolt used for installation
- D-sub connector for user tubing (ϕ 12)
- R axis tolerable moment of inertia
- Hallow diameter

Keep enough space for the maintenance work at the rear of the base.
Note 1. When installing the robot, always follow the specifications. Incorrect installation can cause trouble or malfunction.

### Specifications

**Arm length** 300mm  
**Maximum payload** 5kg

#### Model

**Model**: YK300XGS  
**Installation method**: Wall-mount / inverse type

#### AXIS SPECIFICATIONS

- **X-axis**  
  - Arm length: 150 mm  
  - Rotation: +/- 120°  
  - AC servo motor output: 200 W  
  - Speed reducer: Harmonic drive  
  - Maximum speed: 4.4 m/sec  
  - Weight: 19.5 kg

- **Y-axis**  
  - Arm length: 150 mm  
  - Rotation: +/- 130°  
  - AC servo motor output: 150 W  
  - Speed reducer: Harmonic drive  
  - Maximum speed: 1.0 m/sec  
  - Weight: 15 kg

- **Z-axis**  
  - Arm length: 50 mm  
  - AC servo motor output: 50 W  
  - Speed reducer: Harmonic drive  
  - Maximum speed: 1020 °/sec  
  - Weight: 5 kg

- **R-axis**  
  - Arm length: 381 mm  
  - AC servo motor output: 100 W  
  - Speed reducer: Harmonic drive  
  - Maximum speed: 1020 °/sec  
  - Weight: 49.5 kg

#### Controller

- **YK300XGS**: RCX340
  - Power capacity (VA): 1000
  - Operation method: Programming / I/O point trace / Remote command / Operation using RS-232C communication

- **YK240S**: RCX240S
  - Power capacity (VA): 508
  - Operation method: Programming / I/O point trace / Remote command / Operation using RS-232C communication

#### Accessories

- **D-sub connector for user wiring** (No. 1 to 10 usable)
- **User tubing**  
  - 1 (ϕ 4 red)  
  - 1 (ϕ 4 black)

#### Additional Information

- **Note 1**: This is the value at a constant ambient temperature.
- **Note 2**: When reciprocating 25mm horizontally and 300mm vertically (with a 2kg payload in rough-positioning arm motion).
- **Note 3**: There are limits to acceleration coefficient settings. See P.537.
- **Note 4**: Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4kg.

---

**YK300XGS**

- **D-sub connector for user wiring**
  - (No. 1 to 10 usable)
- **User tubing**
  - 1 (ϕ 4 red)
  - 1 (ϕ 4 black)
  - 1 (ϕ 4 blue)

---

**Controller**

- **RCX340**: 1000 VA
  - Programming / I/O point trace / Remote command / Operation using RS-232C communication
- **RCX240S**: 508 VA
  - Programming / I/O point trace / Remote command / Operation using RS-232C communication

---

**YK300XGS**

- **D-sub connector for user wiring**
- **User tubing**
  - 2 (ϕ 4 red)
  - 1 (ϕ 4 black)
  - 1 (ϕ 4 blue)
- **User tubing**
  - 3 (ϕ 4 blue)
YK300XGS

Tool flange mount type

YK300XGS

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

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)

Working envelope
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.

Controller RCX340 \ 508 RCX240S \ 495
**Ordering method**

**YK400XGS Wall-mount / inverse type**

- **Model**: YK400XGS
- **Installation method**: Wall-mount / inverse type
- **Z-axis stroke**: 150 mm
- **Tool flange**: No entry
- **Hollow shaft**: No entry
- **Cable**: No entry
- **Controller**: RCX340, RCX240S
- **Controller specification**: RCX340
- **Power capacity (VA)**: 1000
- **Operation method**: Programming / I/O point trace / Remote command /
  Operation using RS-232C communication

**Specifications**

- **Axis specifications**:
  - X-axis: 250 mm
  - Y-axis: 150 mm
  - Z-axis: 150 mm
  - R-axis: –

- **Rotation angle**:
  - X-axis: +/-125°
  - Y-axis: +/-144°
  - Z-axis: +/-360°

- **AC servo motor output**:
  - 200 W
  - 150°
  - 50 W

- **Deceleration mechanism**:
  - Speed reducer: Harmonic drive
  - Harmonic drive: Harmonic drive
  - Ball screw: Harmonic drive
  - Transmission method: Direct-coupled
  - Speed reducer to output: Direct-coupled

- **Repeatability**:
  - X-axis: +/-0.01 mm
  - Y-axis: +/-0.01 mm
  - Z-axis: +/-0.004°

- **Minimum speed**:
  - X-axis: 1.1 m/sec
  - Y-axis: 0.6 m/sec
  - Z-axis: 0.4 m/sec

- **Maximum payload**:
  - Standard: 5 kg
  - Option: 4 kg

- **Standard cycle time**: with 2 kg payload

- **R-axis tolerable moment of inertia**:
  - X-axis: 0.05 kgm²
  - Y-axis: 0.05 kgm²
  - Z-axis: 0.05 kgm²

- **User wiring**:
  - Width across flat: 15 mm

- **Robot cable length**:
  - Standard: 3.5 m
  - Option: 10 m

- **Weight**:
  - 20 kg

**Note 1.** When installing the robot, always follow the specifications. Do not install the reverse type robot to a ceiling.

**Note 2.** When reciprocating 25 mm horizontally and 300 mm horizontally (with a 2 kg payload in rough-positioning arm motion).

**Note 3.** There are limits to acceleration coefficient settings. See P.538.

**Note 4.** Maximum payload of option specifications (with tool flange attached or with user wiring and tubing routed through spline shaft) is 4 kg.

**Controller**

- **Controller**: RCX340, RCX240S
- **Power capacity (VA)**: 1000
- **Operation method**: 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/

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![Diagram of YK400XGS robot](attachment:diagram.png)
**YK500XGS**

**Wall-mount / inverse type**

- **Arm length**: 500mm
- **Maximum payload**: 10kg

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Installation method</th>
<th>Tool Flange</th>
<th>Z-axis stroke (mm)</th>
<th>Tool Flange (mm)</th>
<th>Controller / Number of controls axes</th>
<th>Safety standard</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
<th>Option D</th>
<th>Option E</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK500XGS</td>
<td>Wall-mount</td>
<td>Harmonic drive</td>
<td>100</td>
<td>Harmonic drive</td>
<td>200 W</td>
<td>400 W</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340 ➔ P.508

Specify various controller setting items. RCX240/RCX240S ➔ P.495

#### Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arm length</strong></td>
<td>200 mm</td>
<td>300 mm</td>
<td>200 mm</td>
<td>200 mm</td>
</tr>
<tr>
<td><strong>Rotation angle</strong></td>
<td>+/-105°</td>
<td>+/-125°</td>
<td>-</td>
<td>+/-360°</td>
</tr>
<tr>
<td><strong>AC servo motor output</strong></td>
<td>400 W</td>
<td>200 W</td>
<td>200 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

**Deceleration mechanism**

- **Speed reducer**: Harmonic drive
- **Transmission method**: Motor to speed reducer
- **Speed reducer to output**: Direct-coupled
- **Repeatability**: +/-0.01 mm
- **Maximum speed**: 7.6 m/sec
- **Maximum payload**: 10 kg (Standard specifications), 9 kg (Option specifications)
- **Standard cycle time**: 0.45 s
- **R-axis tolerable moment of inertia**: 0.30 kgm²
- **User tubing (Outer diameter)**: φ 5 x 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

#### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1700</td>
<td>Programming / I/O point trace / Remote command</td>
</tr>
<tr>
<td>RCX240-R3</td>
<td>-</td>
<td>Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

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.)

Note: When installing the robot, always follow the specifications. Incorrect installation can cause trouble or malfunction.

Note: Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.
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.

Note 2. This is the value at a constant ambient temperature. (X,Y,Z axes)

Note 3. There are limits to acceleration coefficient settings. See P.539.

Controller

**YK600XGS**

**Model**

- Model: YK600XGS
- Arm length: 600mm
- Maximum payload: 10kg

**Specifications**

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>310mm</td>
<td>310mm</td>
<td>200mm</td>
<td>–</td>
</tr>
<tr>
<td>Deceleration</td>
<td>Speed reducer</td>
<td>Motor to speed reducer</td>
<td>Speed reducer to output</td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>+/-0.01mm</td>
<td>+/-0.01mm</td>
<td>+/-0.004</td>
<td></td>
</tr>
<tr>
<td>Maximum speed</td>
<td>8.4 m/s</td>
<td>8.4 m/s</td>
<td>8.4 m/s</td>
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</tr>
<tr>
<td>Maximum payload</td>
<td>10 kg (Standard specifications)</td>
<td>9 kg (Option specifications)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-axis tolerable moment of inertia</td>
<td>0.30 kgm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User wire</td>
<td>0.2 2c x 20 wires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User tubing (Outer diameter)</td>
<td>0.6 x 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel limit</td>
<td>1. Soft limit, 2. Mechanical stopper (X,Y,Z axis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robot cable length</td>
<td>Standard: 3.5 m, Option: 5 m, 10 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>31 kg</td>
<td></td>
<td></td>
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</table>

**Controller**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1700</td>
<td>Programming / I/O point trace / Remote command</td>
</tr>
<tr>
<td>RCX240-R3</td>
<td></td>
<td>Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

**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.

YK700XGS Wall-mount / inverse type

Arm length 700mm
Maximum payload 20kg

Ordering method

YK700XGS

<table>
<thead>
<tr>
<th>Installation method</th>
<th>Model</th>
<th>RCX340-4</th>
<th>Phases</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
<th>Option D</th>
<th>Option E</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Wall-mount same as per external view) + (Inverse type)</td>
<td>YK700XGS</td>
<td>RCX340-4</td>
<td>R3</td>
<td>RCX340S</td>
<td>RCX340-R3</td>
<td>RCX340-R4</td>
<td>RCX340-R5</td>
<td>RCX340-R6</td>
<td>RCX340-R7</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340 > P.508

Specify various controller setting items. RCX240/RCX240S > P.495

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

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>300 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/- 130 °</td>
<td>+/- 130 °</td>
<td>+/- 130 °</td>
<td>+/- 360 °</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>400 W</td>
<td>200 W</td>
</tr>
<tr>
<td>Deceleration mechanism Speed reducer</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Ball screw</td>
<td>Harmonic drive</td>
</tr>
<tr>
<td>Transmission method Speed reducer to output</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>+/- 0.02 mm</td>
<td>+/- 0.01 mm</td>
<td>+/-0.004</td>
<td></td>
</tr>
<tr>
<td>Maximum speed (m/sec)</td>
<td>8.4</td>
<td>3.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>20 kg (Standard specifications), 19 kg (Option specifications)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard cycle time: with 2kg payload (sec)</td>
<td>0.42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-axis tolerable moment of inertia (kg/mm)</td>
<td>1.0 kg/mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User wiring (sq mm)</td>
<td>0.2 x 20 wires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User tubing (Outer diameter)</td>
<td>φ 6 x 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel limit</td>
<td>1. Soft limit</td>
<td>2. Mechanical stopper (X, Y, Z axis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robot cable length</td>
<td>Standard: 3.5 m</td>
<td>Option: 5 m, 10 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Z axis: 200 mm: 50 kg</td>
<td>Z axis: 400 mm: 52 kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.539.
Note 4. Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340-R3</td>
<td>2500</td>
<td>Programming / I/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

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/
### Ordering method

<table>
<thead>
<tr>
<th>YK800XGS</th>
<th>Installation method No.</th>
<th>Z-axis stroke</th>
<th>Tool-flange</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCX340-4</th>
<th>Controller / Number of controller axis</th>
<th>Safety standard</th>
<th>Option A (OPA)</th>
<th>Option B (OPB)</th>
<th>Option C (OPC)</th>
<th>Option D (OPD)</th>
<th>Option E (OPF)</th>
<th>Absolute battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX240</td>
<td>Controller</td>
<td>(BB)</td>
<td>Regenerative unit</td>
<td>Gripper</td>
<td>Z axis</td>
<td>Tool flange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB</td>
<td>Installation method</td>
<td>Regenerative unit</td>
<td>Gripper</td>
<td>Z axis</td>
<td>Tool flange</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>400 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-130°</td>
<td>+/-145°</td>
<td>+/-360°</td>
<td></td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>750 W</td>
<td>400 W</td>
<td>200 W</td>
<td></td>
</tr>
<tr>
<td>Deceleration speed reducer</td>
<td>Harmonic drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission method</td>
<td>Motor to speed reducer</td>
<td>Speed reducer to output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>+/-0.02 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum speed (m/sec)</td>
<td>9.2 m/sec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>20 kg (Standard specifications), 19 kg (Option specifications)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-axis tolerable moment of inertia</td>
<td>1.0 kgm^2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User wiring (Outer diameter)</td>
<td>0.2 sc × 20 wires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User tubing</td>
<td>1.5 Soft limit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Mechanical stopper (X, Y, Z axis)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robot cable length</td>
<td>Standard: 3.5 m Option: 5 m, 10 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Z axis 200 mm: 52 kg Z axis 400 mm: 54 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Controller

<table>
<thead>
<tr>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>2500</td>
<td>Programming / I/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

Note 1. This is the value at a constant ambient temperature. (XY axes)
Note 2. When reciprocating 200mm in horizontal and 20mm in vertical directions.
Note 3. There are limits to acceleration coefficient settings. See P.539.

---

**YK800XGS Wall-mount / inverse type**

<table>
<thead>
<tr>
<th>Arm length 800mm</th>
<th>Maximum payload 20kg</th>
</tr>
</thead>
</table>

**Note.** Please consult YAMAHA when connecting other tubes and cables to the self-supporting machine harness.

**Note 2.** This is the value at a constant ambient temperature. (XY axes)

**Note 3.** When reciprocating 200mm in horizontal and 20mm in vertical directions.

---

**YK800XGS**

[Diagram and specifications of YK800XGS]
Note 1. When installing the robot, always follow the specifications. Incorrect installation can cause trouble or malfunction.

Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.

Note 3. There are limits to acceleration coefficient settings. See P.539.

Note 1. This is the value at a constant ambient temperature: (X-Y axis)

Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions.

Note 3. There are limits to acceleration coefficient settings. See P.539.

Note. Inverse type is installed upside down.

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**

- **Arm length**: 1000mm
- **Maximum payload**: 20kg

### Ordering method

**YK1000XGS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Installation method</th>
<th>Z-axis stroke</th>
<th>Tool-flange diameter</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK1000XGS</td>
<td>Wall-mount</td>
<td>+/−130°</td>
<td>60 mm</td>
<td>A, B</td>
</tr>
<tr>
<td></td>
<td>Inverse</td>
<td>+/−150°</td>
<td>60 mm</td>
<td>A, B</td>
</tr>
<tr>
<td></td>
<td>Device</td>
<td>+/−360°</td>
<td>60 mm</td>
<td>A, B</td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>610 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>400 mm</td>
<td>400 mm</td>
<td>400 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

### Deceleration mechanism

- **Speed reducer**: Harmonic drive
- **Transmission method**: Direct-coupled
- **Motor to speed reducer**: Harmonic drive
- **Speed reducer to output**: Harmonic drive

### Controller

- **Controller**: RCX240
- **Power capacity (VA)**: 2500
- **Operation method**: Programming / I/O point trace / Remote command / Operation using RS-232C communication

---

**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.

**Note 2.** This is the value at a constant ambient temperature. (X,Y axes)

**Note 3.** There are limits to acceleration coefficient settings. See P.539. When reciprocating 300mm in horizontal and 25mm in vertical directions.

---

**YK1000XGS**

- **Arm length**: 1000mm
- **Maximum payload**: 20kg

---

**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.

**Note 2.** This is the value at a constant ambient temperature. (X,Y axes)

**Note 3.** There are limits to acceleration coefficient settings. See P.539. When reciprocating 300mm in horizontal and 25mm in vertical directions.

---

**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.

**Note 2.** This is the value at a constant ambient temperature. (X,Y axes)

**Note 3.** There are limits to acceleration coefficient settings. See P.539. When reciprocating 300mm in horizontal and 25mm in vertical directions.
### Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>100 mm</td>
<td>150 mm</td>
<td>150 mm</td>
<td></td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-129°</td>
<td>+/-134°</td>
<td></td>
<td>+/-360°</td>
</tr>
<tr>
<td>AC servo motor output (W)</td>
<td>200</td>
<td>150</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Deceleration mechanism

- **Speed reducer**: Harmonic drive, Harmonic drive, Ball screw, Harmonic drive
- **Transmission method**: Direct-coupled, Speed reducer to output
- **Repeatability**: +/-0.01 mm, +/-0.01 mm, +/-0.004 mm
- **Maximum speed**: 4.5 m/sec, 1.1 m/sec, 4020 °/sec
- **Maximum payload**: 4 kg
- **Standard cycle time**: 0.57 sec
- **R-axis tolerable moment of inertia**: 0.05 kgm²
- **Protection class**: Equivalent to IP65 (IEC 60529)

### Controller

- **Controller**: RCX340, RCX240S
- **Power capacity (VA)**: 1000
- **Operation method**: 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 alignment.) 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.

### YK250XGP

- **Arm length**: 250mm
- **Maximum payload**: 4kg

### Specifications

- **Machine Harness**: 0.2 sq × 10 wires
- **Standard coordinate setting jig**: M8 bolt for installation, 4 bolts used
- **Weight**: 21.5 kg

### Note

- **Note 1**: This is the value at a constant ambient temperature. (X, Y axis)
- **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.537.
- **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.

### Diagrams

- **Figure 1**: YK250XGP diagram showing the mechanical setup and connection points.
- **Figure 2**: Controller setup diagram with various connection options.

### Additional Information

- For more detailed specifications, refer to the user’s manual (installation manual) for more details.
- Download our manuals from our website at the address below:
  
http://global.yamaha-motor.com/business/robot/
### Specifications

<table>
<thead>
<tr>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 mm</td>
<td>150 mm</td>
<td>150 mm</td>
<td>+/−360°</td>
</tr>
</tbody>
</table>

- **Axis specifications**
  - Arm length: 350 mm
  - Maximum payload: 4 kg

- **AC servo motor output**
  - 200 W

- **Deceleration mechanism**
  - Speed reducer: Harmonic drive
  - Motor to speed reducer: Direct-coupled
  - Speed reducer to output: Direct-coupled

- **Repeatability**
  - +/−0.1 mm
  - +/−0.1 mm
  - +/−0.2 mm

- **Maximum speed**
  - 6 m/sec
  - 11 m/sec
  - 1020 7 sec

- **Maximum payload**
  - 4 kg

- **Standard cycle time**
  - With 2kg payload: 0.57 sec
  - Equivalent to IP65 (IEC 60529)

- **Protection class**
  - IP65

- **User wiring**
  - 0.2 sq x 10 wires

- **Robot tubing (Outer diameter)**
  - ø 4 x 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

---

### Ordering method

**Model**

- YK350XGP - 150

**Specifications**

- **Controller**
  - RCX340
  - RCX240S

- **Power capacity (VA)**
  - 1000

- **Operation method**
  - 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.
- 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.
- 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.

---

**Controller**

- RCX340
- RCX240S

**Power capacity (VA)**

- 1000

**Operation method**

- 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.
- 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.
- 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
### Specifications

<table>
<thead>
<tr>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 mm</td>
<td>150 mm</td>
<td>150 mm</td>
<td>131°</td>
</tr>
</tbody>
</table>

- **Axis specifications**
  - Arm length: 250 mm
  - Rotation angle: +/-129°
  - AC servo motor output: 200 W

- **Deceleration mechanism**
  - Speed reducer: Harmonic drive
  - Transmission method: Direct-coupled
  - Speed reducer to output: Harmonic drive

- **Maximum speed**
  - +/-0.01 mm/sec
  - +/-0.01 mm/sec
  - +/-0.004°

- **Maximum payload**
  - 4 kg

- **Standard cycle time**
  - 10 m

- **Robot cable length**
  - Standard: 3.5 m
  - Option: 5 m, 10 m

- **Weight**
  - 22.5 kg

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1000</td>
<td>Programming / I/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
<tr>
<td>RCX240S</td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

- **Controller specifications**
  - Equivalent to IP65 (IEC 60529)
  - Dust-proof & drip-proof type
  - RCX240S

Note 1: This is the value at a constant ambient temperature. (X, Y axis)  
Note 2: When reciprocating 23mm in vertical direction and 30mm in horizontal direction (rough-positioning arc motion).
Note 3: There are limits to acceleration coefficient settings. See P.538.
Note 4: Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof specifications.

### YK400XGP

- **Connector for user wiring**
  - (No. 1 to 10 usable, cable clamp size: φ13.1 to 15)
  - Cover with the caps provided when not used.

- **User tubing**
  - 1 (φ4 black)
    - Insert the plug provided when not used.
  - 2 (φ4 red)

- **Machine Harness**
  - φ24 / 300 mm

- **Z-axis tip shape**
  - Do not move the cable.

- **User tool installation range**
  - RCX240S

- **Controller**
  - RCX340
  - RCX240S

- **Cross section A-A**
  - Z-axis belows
  - Z-axis upper end mechanical stopper position
  - Z-axis lower end mechanical stopper position

- **Diagram**
  - View of F
  - Z-axis tip shape
  - φ16 holes

- **Note**
  - The robot cannot be used at a position where the base flange, robot cable, spline, 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

APPLICATION
Compact single-axis robots
TRANSERVO Single-axis robots
FLIP-X Linear motor single-axis robots
XY-X Cartesian robots
SCARA robots
YK-X Pick & place robots
YP-X CLEAN CONTROLLER INFORMATION
Linear conveyor modules
LCM100

Controller
RCX340 508 RCX240S 495

Ordering method
YK500XGLP -150 - S

Specifications

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>250 mm</td>
<td>250 mm</td>
<td>150 mm</td>
<td></td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-129°</td>
<td>+/-144°</td>
<td>+/-360°</td>
<td></td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>210 W</td>
<td>150 W</td>
<td>50 W</td>
<td>100 W</td>
</tr>
</tbody>
</table>

Deceleration

- Speed reducer: Harmonic drive
- Transmission method: Direct-coupled
- Motor to speed reducer: Speed reducer to output
- Repeatability: +/-0.01 mm
- Maximum speed: 5.1 m/sec
- Maximum payload: 4 kg
- Standard cycle time: 0.74 sec
- R-x tolerable moment of inertia: 0.05 kgm²
- Protection class: Equivalent to IP65 (IEC 60529)
- User wiring: 2 sq × 10 wires
- 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 arc motion).
Note 3: There are limits to acceleration coefficient settings. See P.538.
Note 4: Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof specifications.

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 option. Refer to the user's manual (installation manual) for more details.

Controller

- Controller: RCX340
- Power capacity (VA): 1000
- Operation method: Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. Our robot manuals (installation manuals) can be downloaded from our website or the address below:
http://global.yamaha-motor.com/business/robot/

YK500XGLP

Connecter for user wiring
(R No.1 to 10 usable, cable clamp size: ø13.1 Should be provided when not used.

User tubing 3 (ø4 blue)
User tubing 4 (ø4 white)

Insert the plug provided when not used.

User tubing 1 (ø4 black)
User tubing 2 (ø4 red)

M8 bolt for installation, 4 bolts used

Z-axis upper end mechanical stopper position
Z-axis lower end mechanical stopper position

Cross section A-A

Tapped hole for user wiring ø6-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.

User tool installation range

4×8

Z axis tip shape

If the robot enters the envelope from the inner limit of the working envelope, the stopper mass 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 bellows, tool flange, etc., interfere with each other in the working envelope shown above.

X-axis mechanical stopper position: 131°
Y-axis mechanical stopper position: 146°

Option A
Option B
Option C
Option D
Option E

Option A
Option B
Option C
Option D
Option E

Our robot manuals (installation manuals) can be downloaded from our website or the address below:
http://global.yamaha-motor.com/business/robot/

RCX240S 495

RCX340 508

Remote command /
I/O point trace /
Operation using RS-232C communication
YK500XGLP 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 1 (φ4 black)
Insert the plug provided when not used.

User tubing 2 (φ4 red)
User tubing 3 (φ4 blue)
User tubing 4 (φ4 white)

4-M3 × 0.5 Depth 6
(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.

ASSEMBLY INFORMATION

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. 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°

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.

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.

Detailed drawing D

Hollow diameter: φ11

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. Do not perform such motion.

Controller RCX340  ▶  508  RCX240S ▶  495

Z-axis bellows
Machine Harness

Keep enough space for the maintenance work at the rear of the base.

Through hole

Detailed drawing D
View of E

View of F

4-M3 × 0.5 Depth 6
(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.

ASSEMBLY INFORMATION

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. 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°

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.

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.

384 Controller RCX340  ▶  508  RCX240S ▶  495

Z-axis bellows
Machine Harness

Keep enough space for the maintenance work at the rear of the base.

Through hole

Detailed drawing D
View of E

View of F

4-M3 × 0.5 Depth 6
(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.

ASSEMBLY INFORMATION

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. 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°

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.

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.
### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>204 mm</td>
<td>300 mm</td>
<td>200 mm</td>
<td>300 mm</td>
</tr>
<tr>
<td>Rotation angle</td>
<td>+/-30°</td>
<td>+/-15°</td>
<td>+/-360°</td>
<td>+/-0.01°</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AC servo motor output</th>
<th>400 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 W</td>
<td>200 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deceleration mechanism</th>
<th>Speed reducer</th>
<th>Transmission method</th>
<th>Motor to speed reducer</th>
<th>Speed reducer to output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harmonic drive</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Repeatability</th>
<th>+/-0.01 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum speed</td>
<td>7.6 m/sec</td>
</tr>
<tr>
<td>Maximum payload</td>
<td>8 kg</td>
</tr>
<tr>
<td>Standard cycle time: with 2kg payload</td>
<td>0.55 sec</td>
</tr>
<tr>
<td>R-axis tolerable moment of inertia</td>
<td>0.3 kgm²</td>
</tr>
</tbody>
</table>

| Protection class | Equivalent to IP65 (IEC 60529) |

<table>
<thead>
<tr>
<th>User wiring</th>
<th>0.2 sq x 20 wires</th>
</tr>
</thead>
</table>

| User tubing (Outer diameter) | ø6 × 3 |

| Travel limit | 1.90 ft 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**:  
**Note 4**: Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof type.  
**Note 5**: Insert the plug provided when not used.  
**Note 6**: “Harmonic” and “Harmonic drive” are the registered trademarks of Harmonic Drive Systems Inc.  
**Note 7**: 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 8**: To set the standard coordinates with high accuracy, use a standard coordinate setting (f) function. Refer to the user’s manual (installation manual) for more details.  
**Note 9**: Our robot manuals (installation manuals) can be downloaded from our website at the address below:  
http://global.yamaha-motor.com/business/robot

---

**Controller**  
**RCX340**  
**RCX240**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1700</td>
<td>Programming / i/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
<tr>
<td>RCX240-R3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**YPX CLEAN CONTROLLER INFORMATION**  
**XY-X**  
**FLIP-X**  
**TRANSERVO**  
**LCM100**  
**YP-X**  
**TRANSAFE**  
**YK-X**  
**YPX CLEAN INFORMATION**  
**CONTROLLER**  
**LINEAR CONVEYOR MODULES**  
**Gripper**  
**Cable**  
**Battery**  
**CE Marking**  
**Controller**  
**F**  
**Tool flange**  
**Network option**  
**iVY System**  
**YK500XGP**  
**YK500XGP**  
**Note 4**: Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof type.
**Ordering method**

<table>
<thead>
<tr>
<th>Model</th>
<th>YK600XGLP-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-axis stroke</td>
<td>350 mm</td>
</tr>
<tr>
<td>Tool flange</td>
<td>150 mm</td>
</tr>
<tr>
<td>Hollow shaft</td>
<td>250 mm</td>
</tr>
<tr>
<td>Cable</td>
<td>200 W</td>
</tr>
<tr>
<td>Motor controller</td>
<td>RCX340-4</td>
</tr>
</tbody>
</table>

**Specifications**

<table>
<thead>
<tr>
<th>Axis specifications</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length (mm)</td>
<td>350</td>
<td>250</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>200 W</td>
<td>150 W</td>
<td>50 W</td>
<td>100 W</td>
</tr>
</tbody>
</table>

**Deceleration mechanism**

<table>
<thead>
<tr>
<th>Speed reducer</th>
<th>Harmonic drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission method</td>
<td>Direct-coupled</td>
</tr>
</tbody>
</table>

**Travel limit**

- 1.5φ: 1.5 m
- 2.0φ: 1.5 m
- 2.5φ: 1.5 m
- 3.5φ: 1.5 m
- 4.0φ: 1.5 m

**Robot cable length**

- Standard: 3.5 m
- Option: 5 m, 10 m

**Weight**

- 26 kg

**Controller**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340</td>
<td>1000</td>
</tr>
<tr>
<td>RCX240S</td>
<td></td>
</tr>
</tbody>
</table>

**YK600XGLP**

- **Arm length**: 600 mm
- **Maximum payload**: 4 kg

**Ordering method**

- **Model**: YK600XGLP-150
- **Z-axis stroke**: 350 mm
- **Tool flange**: 150 mm
- **Hollow shaft**: 250 mm
- **Cable**: 200 W
- **Motor controller**: RCX340-4

**Specifications**

- **X-axis**: 350 mm
- **Y-axis**: 250 mm
- **Z-axis**: 150 mm
- **R-axis**: 250 mm

**Deceleration mechanism**

- **Speed reducer**: Harmonic drive
- **Transmission method**: Direct-coupled

**Travel limit**

- 1.5φ: 1.5 m
- 2.0φ: 1.5 m
- 2.5φ: 1.5 m
- 3.5φ: 1.5 m
- 4.0φ: 1.5 m

**Robot cable length**

- Standard: 3.5 m
- Option: 5 m, 10 m

**Weight**

- 26 kg

**Controller**

- **Controller**: RCX340
- **Power capacity**: 1000 VA

Note 1: This is the value at a constant ambient temperature. (X,Y axes)

Note 2: When reciprocating 25mm in vertical direction and 350mm in horizontal direction (rough positioning motion).

Note 3: There are limits to acceleration coefficients settings. See P.538.

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.

**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/
YK600XGLP  Tool flange mount type

Connector for user wiring
(No.1 to 10 usable, cable clamp size: φ13.1 to 15)
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)

User tubing 3 (φ4 blue)
User tubing 4 (φ4 white)

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.

X-axis mechanical stopper position: 131°
Y-axis mechanical stopper position: 146°

Keep enough space for the maintenance work at the rear of the base.

Detailed drawing D
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°

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 blue)
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 to 15)
Cover with the caps provided when not used.

Do not move the cable.
### Ordering method

#### YK600XGP

<table>
<thead>
<tr>
<th>Model</th>
<th>Z axis stroke</th>
<th>Tool flange</th>
<th>Cable</th>
<th>Controller / Number of controllable axes</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK600XGP</td>
<td>300 mm</td>
<td>100 mm</td>
<td>1 m</td>
<td>RCX340-4</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340×

#### YK600XGP

<table>
<thead>
<tr>
<th>Model</th>
<th>Z axis stroke</th>
<th>Tool flange</th>
<th>Cable</th>
<th>Controller / Number of controllable axes</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK600XGP</td>
<td>300 mm</td>
<td>100 mm</td>
<td>1 m</td>
<td>RCX240-3</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX240/RX240S ×

### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>300 mm</td>
<td>300 mm</td>
<td>200 mm</td>
<td>300 mm</td>
</tr>
<tr>
<td>AC servo motor output</td>
<td>400 W</td>
<td>200 W</td>
<td>200 W</td>
<td>200 W</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Deceleration mechanism</th>
<th>Speed reducer</th>
<th>Harmonic drive</th>
<th>Harmonic drive</th>
<th>Harmonic drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission method</td>
<td>Motor to speed reducer</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
</tr>
<tr>
<td>Speed reducer to output</td>
<td>Harmonic drive</td>
<td>Ball screw</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Repeatibility</th>
<th>+/-0.01 mm</th>
<th>+/-0.01 mm</th>
<th>+/-0.004 °</th>
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</thead>
<tbody>
<tr>
<td>Maximum speed</td>
<td>8.4 m/sec</td>
<td>3 m/sec</td>
<td>1700 °/sec</td>
</tr>
<tr>
<td>Deceleration</td>
<td>0.3 km/s²</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection class</th>
<th>Equivalent to IP65 (IEC 60529)</th>
</tr>
</thead>
</table>

#### User tubing

<table>
<thead>
<tr>
<th>Type</th>
<th>User tubing 1 (ϕ6)</th>
<th>User tubing 2 (ϕ6)</th>
<th>User tubing 3 (ϕ6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note 1</td>
<td>1/2NPT threaded</td>
<td>M10 (for installation)</td>
<td>M4 ground terminal</td>
</tr>
<tr>
<td>Note 2</td>
<td>4 bolts used</td>
<td>4 bolts used</td>
<td>4 bolts used</td>
</tr>
</tbody>
</table>

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340-4</td>
<td>1700</td>
<td>Remote command / Remote command</td>
</tr>
<tr>
<td>RCX240-3</td>
<td>508</td>
<td>Remote command / Remote command</td>
</tr>
<tr>
<td>RCX240-4S</td>
<td>495</td>
<td>Remote command / Remote command</td>
</tr>
</tbody>
</table>

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, Y, and R-axis mechanical stoppers. (The movement range is set at 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 (p. ref). Refer to the user’s manual (installation manual) for more details.

---

**Working envelope of left-handed system**

- If the robot enters the inside of the corner of dimensions 130 and 232, the Z-axis tip flange may be in contact with the machine flange. So, do not perform such motion.

- Z-axis mechanical stopper position: 132°

**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: 147°

- There is no phase relation between each position of M5 tapped holes and R-axis origin position.
YK600XGHP - Dust-proof & drip-proof type

Arm length 600mm
Maximum payload 18kg

Ordering method

YK600XGHP

Model

Z-axis stroke

D等特点

Tool flange

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 encoder

RCX340-4

F

Specify various controller setting items. RCX340 > P.508

RCX240-R3

Specify various controller setting items. RCX240/RCX240S > P.495

Controller

Power capacity (VA) Operation method

RCX340

RCX340-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 (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/

Specifications

Axis

X-axis

Y-axis

Z-axis

R-axis

Arm length

202 mm

400 mm

200 mm

400 mm

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

+/−0.02 mm

+/−0.01 mm

+/−0.004 °

Maximum speed

7.7 m/sec

3 m/sec

1.7 m/sec

920 °/sec

Maximum payload

18 kg

20 kg

18 kg

18 kg

R-axis tolerable moment of inertia

1.0 kgm²

Protection class

Equivalent to IP65 (IEC 60529)

User tubing (Outer diameter)

ϕ 6 × 18

User tubing (Inner diameter)

ϕ 6 × 18

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 23mm in vertical direction and 30mm in horizontal direction (rough-positioning air motion).

Note 3.

There are limits to acceleration coefficient settings. See P.539.

Note 4.

Do not use robots where the bellows section is directly exposed to water jet. Contact our distributor for information on drip-proof and other suitable materials.

YK600XGHP

Connector for user wiring (No.1 to 20 usable, cable clamp size: ϕ 16 to 18)

Cover with the caps provided when not used.

If the robot enters the inside of R265 and corner of envelope shown above.

- X-axis mechanical stopper position

- Y-axis mechanical stopper position

- Z-axis lower end mechanical stopper position

- Z-axis tip shape

- User tubing 1 (ϕ 6 red)

- User tubing 2 (ϕ 6 red)

- User tubing 3 (ϕ 6 blue)

- User tubing 4 (ϕ 6 blue)

- M12 bolt for installation, 4 bolts used

- 3M-0.8 Depth 11

- 10M5-0.8 Depth 11

There is no phase relation between each position of M5 tapped holes and R-axis origin position.

Keep enough space for the maintenance work at the rear of the base.

Do not move the cable.
### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>RCX340-4</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z axis stroke</td>
<td>300 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Tool flange</td>
<td>100 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>Cable</td>
<td>6-M5</td>
<td>6-M5</td>
</tr>
<tr>
<td>Connector</td>
<td>6-M5</td>
<td>6-M5</td>
</tr>
<tr>
<td>Number of controller axes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Safety standard</td>
<td>OP</td>
<td>OP</td>
</tr>
<tr>
<td>Option A</td>
<td>(OPA)</td>
<td>(OPA)</td>
</tr>
<tr>
<td>Option B</td>
<td>(OPB)</td>
<td>(OPB)</td>
</tr>
<tr>
<td>Option C</td>
<td>(OPC)</td>
<td>(OPC)</td>
</tr>
<tr>
<td>Option D</td>
<td>(OPD)</td>
<td>(OPD)</td>
</tr>
<tr>
<td>Option E</td>
<td>(OPE)</td>
<td>(OPE)</td>
</tr>
<tr>
<td>Absolute battery</td>
<td>BB</td>
<td>BB</td>
</tr>
</tbody>
</table>

Specify various controller setting items. RCX340

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power capacity (VA)</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX340-4</td>
<td>2500</td>
<td>Programming / I/O point trace / Remote command / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

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.

### Specifications

- **Axis**: X-axis, Y-axis, Z-axis, R-axis
- **Arm length specifications**: 300 mm, 400 mm, 200 mm, 400 mm
- **Rotation angle**: +/130°, +/150°, +/390°
- **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**: Direct-coupled, Direct-coupled
- **Repeatability**: ±0.002 mm, ±0.01 mm, ±0.004°
- **Maximum speed**: 8.4 m/sec, 5.3 m/sec, 2.3 m/sec, 920°/sec
- **Maximum payload**: 18 kg, 10 kg, 8 kg, 4 kg
- **Travel limit**: 1.0 soft limit, 2.0 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: There are limits to acceleration coefficient settings. See P.539.

Note 2: This is the value at a constant ambient temperature. (X, Y axes)

Note 3: This is the value in a horizontal direction (rough-positioning arm motion).

Note 4: There are limits to acceleration coefficient settings. See P.539.

Note 5: This is the value at a constant ambient temperature. (X, Y axes)

Note 6: There are limits to acceleration coefficient settings. See P.539.

### YK700XGP

- **Arm length**: 780 mm
- **Maximum payload**: 18 kg

#### Specifications

<table>
<thead>
<tr>
<th>Axis</th>
<th>X-axis</th>
<th>Y-axis</th>
<th>Z-axis</th>
<th>R-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>300 mm</td>
<td>400 mm</td>
<td>200 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Motor to speed reducer</td>
<td>Harmonic drive</td>
<td>Harmonic drive</td>
<td>Ball screw</td>
<td>Harmonic drive</td>
</tr>
<tr>
<td>Speed reducer to output</td>
<td>Direct-coupled</td>
<td>Direct-coupled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.002 mm</td>
<td>±0.01 mm</td>
<td>±0.004°</td>
<td></td>
</tr>
<tr>
<td>Maximum speed</td>
<td>8.4 m/sec</td>
<td>5.3 m/sec</td>
<td>2.3 m/sec</td>
<td>920°/sec</td>
</tr>
<tr>
<td>Maximum payload</td>
<td>18 kg</td>
<td>10 kg</td>
<td>8 kg</td>
<td>4 kg</td>
</tr>
<tr>
<td>Travel limit</td>
<td>1.0 soft limit</td>
<td>2.0 mechanical stopper (X, Y, Z-axis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robot cable length</td>
<td>Standard: 3.5 m, Option: 5 m, 10 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Z axis 200 mm: 54 kg, Z axis 400 mm: 56 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Controller

- **Controller**: RCX340
- **Power capacity**: 2500 VA
- **Operation method**: Programming / I/O point trace / Remote command / Operation using RS-232C communication

#### Working envelope

- **Left-handed system**: Working envelope of left-handed system
- **Right-handed system**: Working envelope of right-handed system

- **X-axis mechanical stopper position**: 132°
- **Y-axis mechanical stopper position**: 150°

#### Other

- **P.C.D.**: 3, 6, 70, 90
- **Bellows**: Interfere with each other in the working envelope shown above.
- **Moving range**: Limited by changing the positions of X and Y axis mechanical stoppers.
- **Robot cable**: Do not move the cable, R3 (Min. cable bending radius) 4-111

#### Manual

- **User tubing**: (User tubing 1 (ϕ6 black), User tubing 2 (ϕ6 blue), User tubing 3 (ϕ6 blue))
- **User wiring**: User tubing (Outer diameter) 0.2 sq × 20 wires
- **Weight**: 12863 kg
- **Dimensions**: 130 240 300 400 800 1000 1200 1600 (Maximum 920 during arm rotation)
- **Base size**: 508 × 339.5 × 476, 608 × 400 × 568
- **Connection for user wiring**: (No. 1 to 20 usable, cable clamp size: 0.8 Depth 11)
- **Controller**: RCX340 (OP. A), RCX240 (OP. B), RCX240S (OP. C), RCX340-4 (OP. D)
- **Remote command**: Remote command / I/O point trace / Option A / Option B / Option C / Option D / Option E
- **Battery**: 7A" battery
- **Relay**: 4-pin relay
- **Protection class**: Equivalent to IP65 (IEC 60529)
- **Note**: Insert the plug provided when not used.

### Notes

- **Note 1**: This is the value at a constant ambient temperature. (X, Y axes)
- **Note 2**: This is the value in a horizontal direction (rough-positioning arm motion).
- **Note 3**: There are limits to acceleration coefficient settings. See P.539.
- **Note 4**: This is the value at a constant ambient temperature. (X, Y axes)
- **Note 5**: There are limits to acceleration coefficient settings. See P.539.
- **Note 6**: There are limits to acceleration coefficient settings. See P.539.

### Manual Download

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/

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**Controller**: RCX340 ➔ 508, RCX240 ➔ 495
YK800XGP Dust-proof & drip-proof type

■ Ordering method

YK800XGP

<table>
<thead>
<tr>
<th>Model</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z axis stroke</td>
<td>400–500mm</td>
</tr>
<tr>
<td>Test flange</td>
<td>Width 258mm</td>
</tr>
<tr>
<td>Cable</td>
<td>6-M5×10-M5</td>
</tr>
</tbody>
</table>

Specify various controller setting items.
RCX340-R3

RCX240R

RCX240S

Controller

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RCX340

Power capacity (VA) Operation method
2500 Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note 1. “Harmonic” and “Harmonic drive” are the registered trademarks of Harmonic Drive Systems Inc.

Note 2. 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 alignment.) See our robot manuals (installation manuals) for detailed information.

Note 3. 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.

http://global.yamaha-motor.com/business/robot/

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.

YK800XGP

Controller

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RCX340

Power capacity (VA) Operation method
2500 Programming / I/O point trace / Remote command / Operation using RS-232C communication

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YK800XGP

Controller

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RCX340

Power capacity (VA) Operation method
2500 Programming / I/O point trace / Remote command / Operation using RS-232C communication

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http://global.yamaha-motor.com/business/robot/

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.
### YK900XGP Specifications

**Axis**
- **X-axis**
  - Arm length: 500 mm
  - Motor power: 200 W
  - Servo motor output: 750 W
  - Maximum payload: 18 kg
  - Deceleration: 0.0 mm/s²
  - Motor to speed reducer: Harmonic drive
  - Speed reducer to output: Harmonic drive
- **Y-axis**
  - Arm length: 400 mm
  - Motor power: 200 W
  - Servo motor output: 400 W
  - Maximum payload: 18 kg
  - Deceleration: 0.0 mm/s²
  - Motor to speed reducer: Harmonic drive
  - Speed reducer to output: Harmonic drive
- **Z-axis**
  - Arm length: 400 mm
  - Motor power: 200 W
  - Servo motor output: 400 W
  - Maximum payload: 18 kg
  - Deceleration: 0.0 mm/s²
  - Motor to speed reducer: Harmonic drive
  - Speed reducer to output: Harmonic drive
- **R-axis**
  - Arm length: 18 kg
  - Motor power: 200 W
  - Servo motor output: 200 W
  - Maximum payload: 18 kg
  - Deceleration: 0.0 mm/s²
  - Motor to speed reducer: Harmonic drive
  - Speed reducer to output: Harmonic drive

**Controller**
- **RCX340**
  - Power capacity: 2500 VA
  - Operation method: Remote command / Operation using RS-232C communication

### Controller

- **RCX340**
  - Number of controllable axes: 4
  - Number of input/output points: 14
  - Controller size: 129 x 98 x 119 mm
  - Weight: 1.0 kg

### Ordering method

**Model**
- **F**
  - Z axis stroke: 495 mm
  - Tool flange: 6 x 50 mm
  - Cable: 16-20 sq x 4

**Option**
- **A**
  - Control / Engine: F 36° 60°
  - Option B (OP.A)
  - Option C (OP.C)
  - Option D (OP.D)
  - Option E (OP.E)
  - Absolute encoder

**Applications**
- **Compact single-axis robots**
  - TRANSERVO
  - Linear motor
  - FLIP-X
  - XY-X
  - SCARA robots
  - YK-X
  - Pick & place robots

**Remote command / Operation using RS-232C communication**

**Gripper**
- **BB**
  - Expansion I/O
  - Tool flange

**Outline**
- **Z400 mm**
- **RCX240**
  - RCX240-3
  - RCX240-4
  - Controller
  - RCX340
  - RCX340-4

**Arm length**
- **900 mm**

**Maximum payload**
- **18 kg**

**Note**
- 1. This is the value at a constant ambient temperature (X, Y axes)
- 2. 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.)
- 3. There are limits to acceleration coefficient settings. See P.539.
- 4. 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.)

**FTP**
- http://global.yamaha-motor.com/business/robot/download from our website at the address below:

**Maintenance**
- Insert the plug provided when not used.
- Cover with the caps provided when not used.
- Cable clamp size: 10-M5 0.8 Depth 11

**Robot Entry**
- Insert the plug provided when not used.
- Cover with the caps provided when not used.
- M4 ground terminal 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.

**Remote command / Operation using RS-232C communication**

**Harmsonic**
- (Registered trademark of Harmonic Drive Systems Inc.)
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

Linear conveyor modules
LCM100