YAMAHA ROBOT LINE UP

History and approach

30 years of proven reliability.

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

Over the years YAMAHA has driven to develop and improve the market and this is a testament to YAMAHA's reliability.

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

‘Motor control technology’ absolutely necessary for precise and high-speed operation “Controller development technology” is based on the highest evaluation standards and Signal processing technology allowing stable operation even under extreme environmental conditions.

Rigidity, durability, and operability are features of YAMAHA's products based on “Core technologies.”

Evaluation system provides high reliability

YAMAHA continues to evaluate technology to assure product reliability.

In the product development phase, the evaluation test at anechoic chamber” (YAMAHA’s equipment) was developed to assure the high reliability and quality.

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

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YAMAHA quality ensuring safety

Manufacturing, sales, and technology integrated system is utilized at its maximum level to establish a system that consistently performs a series of processes: inspection - manufacture - assembly - inspection - shipping. This can provide the customers with high quality, low price, and short delivery time.

Key components are manufactured through in-house processing and machining. YAMAHA as a robot manufacturer builds the components to the highest quality level.

Furthermore, the quality control based on the severe standards achieves the craftsmanship with high quality.

Motor-less Single Axis Actuator

Quick selection table » P20

R ob o n i t y  S e r i e s

Motor-less Single Axis Actuator

Basic model

LBAS

Newly designed integrated guide rail/frame structure.

Improved moment load capacity in compact frame size.

Designed to accommodate motors from most leading manufacturers.

High Rigidity

Compact

Low Cost

Maximum payload 2 kg to 100 kg
Maximum speed 133 to 1,333 mm/sec
Stroke 50 to 1,100 mm

Advanced model

LGXS

Higher efficiency, accuracy, and reliability from ground ball screw.

Ideal for base axis of multi-axis configuration.

High Precision Accuracy Class C5

High Durability

Clean specification as a standard feature

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

High Rigidity

Moment rigidity is increased approximately three times from current models.

Motor orientation is changeable with Right Angle Attachment Kit.

Installation process is simple and easy

1. Mounting holes are accessible from top or bottom without disassembling actuator unit.
2. Standard surface on the side and dowel pin holes on the bottom.

High Precision

Straightness (running parallelism): <0.02/100 mm

Compact

Frame width is reduced by approximately 20% from current models

Easy Maintenance

Moving parts can be lubricated from outside without opening actuator

Cleanroom Ready Design

• Protective stainless dust shield
• Ports are ready for vacuum fittings

Motor orientation is changeable with optional conversion unit

Motor unit of standard straight type can be used for side-mount setup.
Compact & economical single-axis robot, TRANSERVO series, with cost of the stepping motor and function of servo motor.

Closed-loop control for position feedback
Stepping motors provide great features such as low cost, yet they have a drastic drop in torque at high speeds and heavy current consumption when stopped.

The TRANSERVO by YAMAHA eliminates all these problems by adopting an innovative vector control method. In effect, the TRANSERVO delivers the same functions of a servo motor while using a lower cost stepping motor.

SS type (Slide type) Features & Benefits
High-speed operation slashes production time
Optimizing vector control method, the TRANSERVO maintains a constant payload even in the high-speed range. This helps to drastically cut down on the tact time. By combining this feature with high-load ball screws, the TRANSERVO has achieved a maximum speed of 1 meter per second** which is as fast as single-axis servo motors in the same category.

SR type (Rod type) Features & Benefits
Long-term maintenance free
A lubricator used in the ball screw and a contact scraper provides long-life and maintenance-free operation.

BD type (Belt type) Features & Benefits
For long stroke applications
Maximum stroke 2200mm, Maximum speed 1000mm/sec. This type is applicable to a long stroke up to 2100 mm. The maximum transfer speed is 1000 mm/sec., ensuring high-speed operation. The roller conveyor is invariably installed without removing exterior parts, such as the cover. Additionally, the shutter is provided as standard accessory. It covers the guide and belt securing to prevent grease from scattering and to block entry to exterior large objects. This type is optimal for workpiece positioning or long-distance transfer.

The position detector is a resolver
The position detector is a resolver. The resolver has a simple yet strong structure using no electronic components or elements and so has great features such as being extremely tough in harsh environments as well as a low breakdown rate. The resolver structure is incorporated into the system to avoid problems where electronic components breakdown or suffer from moisture or oil that sticks to the disk.
Single-axis robot series include 6 types and 29 variations for a wide range of selections.

- **Compact model**
  - FL15/LX, FL17/LX, FL19/LX
  - Quick selection table: P22

- **Nut rotation model**
  - RY100, RY130

- **High rigidity model**
  - YAMAHA’s highly rigid ball screw or guide greatly contributes to reduction of the customer’s maintenance and control costs. The service life can be calculated based on the grounds at YAMAHA’s website.

- **Rotary axis model**
  - FL15, FL17, FL19
  - Resolvers with excellent environmental resistance capability
  - Resolver with high reliability is adopted to detect the motor position. This enables stable position detection even in a harsh environment where powdery particles or oil mist exist. Additionally, a high resolution of 20 400 pulses per revolution is provided.

- **Timing belt drive model**
  - Maximum stroke length of 3 050 mm. Allows long distance transport between job processes.

- ** Resolver**
  - Magnetic type
  - Simple structure with only the iron core and winding ensures less potential failure.
  - Highly resistant to impact and electric noise.

- **Double carriage**
  - Standard double carrier set-up for space saving and high efficiency.
  - Cost and space are reduced when compared to the use of two single-axis robots.
  - Additionally, the axis alignment is not needed and the tools can also be made common. This shortens the setup time. (When using the RCX series controller, the anti-collision control function can be used.)

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**Resolver with excellent environmental resistance capability**

- ** Resolver**
  - Magnetic type
  - Simple structure with only the iron core and winding ensures less potential failure.
  - Highly resistant to impact and electric noise.

- **Risk of detection failure**
  - Optical Encoder
  - Magnetic Encoder

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**4-row circular-groove 2-point contact guide to support large moment load.**

- 4-row circular-groove 2-point contact guide with less differential slip is adopted. According to its structure, the differential slip of the ball is small when compared to the 2-rowgroove arch-groove 4-point contact guide. This guide maintains excellent rolling motion even when a large moment load is applied or the installation surface accuracy is poor, and has characteristics that are difficult to produce a malfunction, such as unusual wear.

- **High reliability**
  - High rigidity aluminum frame is used, allowing load moment to range and resistance to the differential is provided. This model is available for the Cartesian robot that needs the rigidity for the unit and the housing part that moves the overall axis.

- **Low cost by YAMAHA’s in-house design components.**
  - YAMAHA originally developed the magnetic scale and still manufactures it. As YAMAHA also manufactures other major components, large cost reduction is achieved. Today is an era in which the linear is not a special mechanism and can be appropriately selected in comparison to the ball screw.

- **Lowest noise level and longer life**
  - Comparing with ball screw type robots, there are few sliding and rotating sections so the operation is amazingly quiet. Moreover, the coil and magnet do not make contact so there is no wear and the robot can be used for extended periods.

- **Long-service life greatly reduces the maintenance and control costs.**
  - YAMAHA’s highly rigid ball screw or guide greatly contributes to reduction of the customer’s maintenance and control costs. The service life can be calculated based on the grounds at YAMAHA’s website.

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**Move profile of linear single-axis PHASER and single-axis robot FLIP-X**

- **Long distance conveyance has been drastically improved.**
  - There is no reduction in the maximum speed even when traveling long distances. Moreover, the maximum stroke is a standard setting of up to 2 m on the MR type and to 4 m on the MF type. The cycle time in particular for long distance conveyance has been drastically improved.

- **No speed deration needed up to 4 m long stroke.**
  - Delivers superb performance in long distance transport.

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**Comparison of single-axis robot models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unit Cost</th>
<th>Maximum speed</th>
<th>Payload</th>
<th>Repeatability</th>
<th>Maximum stroke</th>
<th>Frame dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF17-1500</td>
<td>0.50</td>
<td>2500</td>
<td>1577mm</td>
<td>±5</td>
<td>4000</td>
<td>3500×1500</td>
</tr>
<tr>
<td>F17-500</td>
<td>0.75</td>
<td>2000</td>
<td>10</td>
<td>±10</td>
<td>1450</td>
<td>2500×1500</td>
</tr>
<tr>
<td>F10-1450</td>
<td>0.75</td>
<td>1850</td>
<td>10</td>
<td>±45</td>
<td>2550</td>
<td>W165×H100</td>
</tr>
<tr>
<td>B10-1450</td>
<td>1.00</td>
<td>1450</td>
<td>10</td>
<td>±45</td>
<td>2550</td>
<td>W165×H100</td>
</tr>
</tbody>
</table>

Note1: Comparisons when using the strokes shown above. Note2: No flexible cable guide is included. Note3: This value becomes 7 kg when the maximum speed is 2500 mm/s (2100 mm/s when transferring 10 kg).

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**High speed , Long Travel**

- The ultimate appeal of linear motor single-axis robots is that there is no critical speed limits such as with ball screws.

- No reduction in the maximum speed even when traveling long distances. Moreover, the maximum stroke is a standard setting of up to 2 m on the MR type and 4 m on the MF type. The cycle time in particular for long distance conveyance has been drastically improved.

---

**Standard double carrier set-up for space saving and high efficiency.**

- Cost and space are reduced when compared to the use of two single-axis robots.

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**160 kg maximum payload capacity of MF Series**

- The MF series robot adopts the flat type magnet. It can transfer a heavy object at a high speed with a high accuracy.
Wide variety of pre-configured multi-axis systems to choose from.

From compact economical light duty to Large heavy duty systems.

**YAMAHA ROBOT LINE UP**

**X Y - X Series**

**CARTESIAN ROBOTS**

**Wide variety of pre-configured multi-axis systems to choose from.**

**From compact economical light duty to Large heavy duty systems.**

**Durable and Reliable Position**

**Detection: Resolver**

The position detector is a resolver. The resolver has a simple yet strong structure using non-electronic components or elements and so has great features such as being extremely tough in harsh environments as well as a low breakown rate. The resolver structure has none of the detection problems that occur in other detectors such as optical encoders whose electronic components break down or suffer from moisture or oil that sticks to the disk. Moreover, mechanical specifications for both absolute and incremental are common to all controllers so one can switch to either absolute or incremental specifications just by setting a parameter. Also, even if the absolute battery is completely worn down, the XY-X can operate on incremental specifications just by setting a parameter so in the unlikely event of trouble one can feel secure knowing that there will be no need to stop the production line. The backup circuit has been completely renovated and now has a backup period extending to 1 year.

**Economy Solution**

We achieved an even lower price by cutting down the number of parts while boosting basic performance. Using a resolver in the structure helped to finally eliminate the “absolute units are expensive” idea. Moreover, the mechanical components are the same regardless of whether incremental or absolute unit specifications are used.

**Field Serviceable Structure**

Even though it uses a built-in structure, components such as the motor and ball screw can be replaced individually so maintenance tasks are smooth and simple.

**MULTI-PHASER**

**MULTI-FLIP / MULTI-PHASER**

**MULTI-AXIS ROBOT**

**Ideal for high-speed pick & place tasks of small parts.**

Positioning by servo control to eliminate mechanical adjustment.

**One controller for multiple single-axis robots.**

**The advantage of multi-axis controller operation**

- Sequence control is simple. System upgrades are inexpensive.
- More compact and saves more space than when operating multiple single-axis controllers.
- Allows more sophisticated control.

**Robot set-up**

- 2-unit robot setting: Using a multi-task program along with this 2-unit setting allows asynchronous independent operation. Using this along with an auxiliary axis setting allows even more freedom in assigning axes to tasks.
- Synchronized double carrier: This setting allows adding 2 motors to 1 axis on robot types where the motor unit runs separately such as the linear motor single-axis PHASER series or the N-type (nut rotation type) FLIP-X series.
- Main auxiliary axis setting: Use this auxiliary axis setting when simultaneous movement with the MOVE command is impossible. An axis set for the main auxiliary axis moves only by the DRIVE command (axis separate movement command) and cannot operate from the MOVE command. Using this setting is recommended for operating an axis that is not synchronized with the main robot.
- Synchronized dual setting: Make this setting when operating dual-drive (2-axis simultaneous control). Use this dual-drive setting on gantry type Cartesian robots having a long Y axis stroke when stabilizing at high acceleration/deceleration or when high-thrust is needed with high loads.

**YP - X Series**

**PICK & PLACE ROBOTS**

**Quick selection table >> P23**

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**YAMAHA ROBOT LINE UP**

**YK-XG Series**

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

---

**Arm length of 120mm to 1200mm. Widest selection in industry. High-speed high-precision operation contributes to increased productivity.**

**Extra small type SCARA model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Arm length</th>
<th>Maximum payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK120XG</td>
<td>120mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK150XG</td>
<td>150mm</td>
<td>1kg</td>
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</tbody>
</table>

**Medium type**

<table>
<thead>
<tr>
<th>Model</th>
<th>Arm length</th>
<th>Maximum payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK350XG</td>
<td>350mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK500XG</td>
<td>500mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK600XG</td>
<td>600mm</td>
<td>1kg</td>
</tr>
</tbody>
</table>

**Large type**

<table>
<thead>
<tr>
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<th>Maximum payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK700XG</td>
<td>700mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK800XG</td>
<td>800mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK900XG</td>
<td>900mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK1000XG</td>
<td>1000mm</td>
<td>1kg</td>
</tr>
<tr>
<td>YK1200XG</td>
<td>1200mm</td>
<td>1kg</td>
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</table>

**Wall mount / inverse model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Arm length</th>
<th>Maximum payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK350XG</td>
<td>350mm</td>
<td>2kg</td>
</tr>
<tr>
<td>YK500XG</td>
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<td>2kg</td>
</tr>
</tbody>
</table>

**Dust-proof & drip-proof model**

<table>
<thead>
<tr>
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<th>Arm length</th>
<th>Maximum payload</th>
</tr>
</thead>
<tbody>
<tr>
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<td>350mm</td>
<td>2kg</td>
</tr>
<tr>
<td>YK500XGP</td>
<td>500mm</td>
<td>2kg</td>
</tr>
</tbody>
</table>

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**Environmentally rugged resolver provides closed loop control**

The position detector is a resolver. The resolver has a simple yet strong structure using oil components or elements so these features make the structure extremely tough in harsh environments with a low breakdown rate. This resolver structure has none of the detection problems that occur in other detectors such as optical sensors and electronic components breakdown or suffer from moisture or oil that sticks to the disk. Moreover, mechanical specifications for both absolute and incremental resolvers can so easily change from either absolute or incremental just by setting a parameter.

Also if the absolute battery is completely worn down, the SCARA can operate on emergency. In the unlikely event of trouble, one can feel secure knowing that there will be no need to stop the production line. The backup circuit has been completely renewed and now has a backup period extending to 1 year.

---

**SCARA robot innovations have been produced in 1979, some 30 years of market experience and amassed a hefty 30 Years of history.**

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**Superior superior rotary axis inertia moment capacity**

SCARA robot performance is not limited to just standard cycle time. Actual work situations include a diverse range of heavy work pieces as well as work with large offsets. Not only does the R axis inertia moment in these cases will help drastically cut the cycle time. All YAMAHA SCARA robots have a speed reducer directly coupled to the tip of the rotating axis. The R axis produces an extremely high allowable inertia moment which delivers high speed operation compared to structures where positioning is usually done by a belt after decelerating.

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**Features of wall-mount / inverse type**

- Completely beltless structure ensures high rigidity.
- Dust-proof and drip-proof structural design makes it easy to use in environments where water droplets or dust particles scatter.
- Belt deterioration is eliminated and the robot is highly resistant to harsh environments.
- Additionally, upholding a beltless structure makes it possible to improve the dust-proof and drip-proof performance.

---

**Improved maintenance features**

The covers on the YAMAHA SCARA robot YK-XG series can be removed from the front or upwards. The cover is separable from the cable so maintenance tasks are easy. On ordinary robots replacing the gears on the harmonic gear takes a great deal of time and trouble because the gear must be disassembled and position deviation occurs. However, with the YAMAHA SCARA robots however the harmonic gear is the grease-sealed type so no gear replacement is needed (YK-500XG to YK-1000XG).

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**Superior performance at low cost**

For improved efficiency and reliability in production at affordable price.

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**High speed**

The standard cycle time is fast enough but the YAMAHA design allows extra cycle time in the actual usage region.

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**Flexible bending**

Dust-proof and drip-proof type bellows improved dust/drip proofing capability.

---

**Environmentally friendly**

Completely beltless structure contributed to increased productivity. The position detector is a resolver. The resolver has a simple yet strong structure using oil components or elements so these features make the structure extremely tough in harsh environments with a low breakdown rate. This resolver structure has none of the detection problems that occur in other detectors such as optical sensors and electronic components breakdown or suffer from moisture or oil that sticks to the disk.

---

**Visual inspection**

Dust-proof and drip-proof type bellows improved dust/drip proofing capability.

---

**Production efficiency**

Completely beltless structure contributed to increased productivity. The position detector is a resolver. The resolver has a simple yet strong structure using oil components or elements so these features make the structure extremely tough in harsh environments with a low breakdown rate. This resolver structure has none of the detection problems that occur in other detectors such as optical sensors and electronic components breakdown or suffer from moisture or oil that sticks to the disk.
Y-K-TW Series

**ORBIT TYPE SCARA ROBOT**

**YK350TW**  
**YK500TW**

Quick selection table ➞ P24

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**Superior Positioning Accuracy and High Speed**

Enables a smaller equipment footprint by eliminating the dead space at the center of the movement range.

Y-K-TW can move anywhere through the full 1000 mm² work envelope. Featuring a ceiling-mount configuration with a wide arm rotation angle, the Y-K-TW can access any point within the full ±1000 mm downward range. This eliminates all motion-related restrictions with regard to pallet and conveyor placement operations, while dramatically reducing the equipment footprint.

Y-K-TW offers a repeated positioning accuracy of ±0.01 mm³ (XY axes).

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

Y-K-TW offers both a lower profile and a smaller footprint.

Y-K-TW height is only 392 mm. This compact size enables more freedom in the equipment layout design. The standard cycle time of 0.29 seconds permits quick traversal from one station to another.

Y-K-TW offers a total height of only 392 mm, and weighs only 27 kg².

Lower inertia = Lighter frame

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**CLEAN ROOM Type**

**CLEAN ROBOTS**

Quick selection table ➞ P24-25

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**Class 10 rating sealed structure reduces particle generation, and air-intake efficiency improvement to establish both high cleanliness and high performance.**

**YK-XGC/XC** Clean room SCARA robots

- Arm length: 1800 mm to 1300 mm
- Intake air: 30 to 600 m³/min
- Degree of cleanliness: CLASS ISO (ISO14644-1)
  - CLASS10 (FED-STD-209D)
  - CLASS10 (FED-STD-209D)
- Maximum payload: 250 kg

The 2-axis spline is covered with bellows made of materials with lower dust emission and other sliding parts are sealed completely. The harness is also completely built in and the ribbon inside the robot is performed from the rear of the base to prevent dust emission.

**Bellows on vertical axis improves reliability of the clean performance.**

**FLIP-XC** Clean room Single-axis robots

- Stroke: 50 to 2000 mm
- Intake air: 10 to 500 m³/min
- Cleanliness rating: CLASS 10

**Complete bellows structure improves rigidity.**

**SSC** Clean room Single-axis robots (TRANSEROVO)

- Stroke: 50 to 900 mm
- Intake air: 15 to 600 m³/min
- Cleanliness rating: CLASS 10
- Maximum payload: 12 kg (Horizontal installation)

**Improved maintenance features**

**XY-XC** Clean room cartesian robots

- Intake air: 40 to 340 m³/min
- Cleanliness rating: CLASS 10
- Maximum payload: 220 kg
- Maximum speed: 1000 m/sec

Clean room application type of “Cartesian robot”. Use of stainless steel sheets with excellent durability makes it possible to design the opening at its minimum level. The robot is applicable to CLEAN5 with less suction amount. Furthermore, as a super high speed unit of the SCARA robot is used for the ZR-axis of SXYxC, the cycle time is greatly shortened.

---

**Notes**

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

---

**Important**

For details, contact a YAMAHA sales representative.

---

**Specifications**

- **YK350TW**
  - Minimum installation width: 492 mm
  - Standard cycle time of 0.29 seconds
  - Y-K-TW offers a total height of only 392 mm, and weighs only 27 kg².
  - Lower inertia = Lighter frame

- **YK500TW**
  - Minimum installation width: 492 mm
  - Standard cycle time of 0.29 seconds
  - Y-K-TW offers a total height of only 392 mm, and weighs only 27 kg².
  - Lower inertia = Lighter frame

---

**Options**

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

- **Optimized rotation center of gravity (Hollow) motion**
  - Weight balance was optimized by placing the R-motor and 2 motors at the left and right sides respectively.
  - Reduced inertia enables high-speed motion.

---

**Additional Information**

- **YK-TW can access any point within the full 1000 mm³ work envelope.**
  - Underpass motion
  - The tip (R-axis) is able to pass right below the main unit.

- **Efficiency improvement to establish both high cleanliness and high performance.**
  - The 2-axis spline is covered with bellows made of materials with lower dust emission and other sliding parts are sealed completely. The harness is also completely built in and the ribbon inside the robot is performed from the rear of the base to prevent dust emission.

- **Bellows on vertical axis improves reliability of the clean performance.**
  - Clean room application type of “Cartesian robot”. Use of stainless steel sheets with excellent durability makes it possible to design the opening at its minimum level. The robot is applicable to CLEAN5 with less suction amount. Furthermore, as a super high speed unit of the SCARA robot is used for the ZR-axis of SXYxC, the cycle time is greatly shortened.

---

**YAMAHA ROBOT LINE UP**
**Controllers**

Wide range of control systems to choose from. From single axis positioner to multi-axis comprehensive absolute controller covering DC Stepping Motor, AC Servo Motor, and Linear Motor.

---

**IVY2 System**

ROBOT VISION FOR THE RCX340

A robot-integrated vision system means simplicity, high functionality, and reliability. Ease of original IVY, with greatly improved performance.

**Supporting five-megapixel cameras** (Choose from 360-megapixel, 1.3 megapixel, 2 megapixel, and 5 megapixel)

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

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

**Approximately double the search speed** (compared to previous model)

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

**254 types can be registered**

Setup changes require only flat part numbers, change.

**With monitor output**

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

**Conveyor tracking capability up to 100 CPM**

The vision camera detects the position and orientation of parts on moving conveyor for pick & place application.

**Powerful support software**

The low-cost and high-performance TS-Manager was newly developed from the TS series. This single software performs all operations such as point data settings, editing, backup, and teaching tasks. It also comes loaded with real-time trace functions such as current values, speed, load factors, current values, and voltage values.

** 设置 changes require only that part numbers changed.**

**Diverse command methods**

Select an optional module from the different command methods including program operation, point issue, remote command, and in-line programming. This enables the use of the language suitable for the user, and new input. The driver can be easily built into the standard factory cell unit.

**TS-Manager VIP+**

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

**Continuous movement help to keep the conveyor moving**

To avoid the conveyor stopping during movement, a conveyor direction is output.

**Operating conditions**

- Field of vision: 254 types
- Minimum detectable object: 1 kg (field of view and workpiece: Horizontal movement 250 mm / Vertical movement 1 mm / Conveyor speed 100 mm/sec)

**Filtering**

- Field of view
- Workpiece pickup location
- Move-up command, track workpiece command, and move-down command

**System configuration illustration IVY2**

Up to four units can be connected to the RCX340 controller. Multiple robots for additional increase in productivity.

**Up to four RCX340 controllers**

Up to 16 controllable axes can be connected.
Electric gripper for high-precision gripping force, positioning, and speed control

YRG delivers gripping power control, speed and acceleration control, multi-point positioning, and measuring of workpieces, which have been difficult for air-driven devices. The YRG proves a flexible fit for a wide range of applications.

Gripping power control
- Adjustable in 1% increment from 30% to 100%.

Measuring
- Measures a workpiece by position detection.

Speed control
- Adjustable in 1% increment from 20% to 100% for acceleration.
- Adjustable in 1% increment from 20% to 100% for deceleration.
- Adjustable in 1% increment from 20% to 100% for acceleration and deceleration.

Multi-point Control
- Up to 10,000 points.

Workpiece check function
- Utilizes the HOLD output to check if the gripper is operating correctly or not.

Screw type
- Single cam type
  - Lightweight, compact, high-speed

YRG-2005S YRG-2015S YRG-2810S YRG-4020S

W type
- Double cam type
  - High gripping force


Electric gripper outputs the HOLD signal. The finger position can be set to a desired position corresponding to the workpiece size. This contributes to efficiency improvement of the line with workpiece size and material mixed or the line needing frequent setup.

Multi-point Control
- The finger position can be set to a desired position corresponding to the workpiece size. This contributes to efficiency improvement of the line with workpiece size and material mixed or the line needing frequent setup.

Workpiece presence check function
- The electric gripper outputs the HOLD signal. Missing workpiece gripping and workplace drop during transfer can be checked. No external sensor is needed.

Combination with a vision system supports a wide range of applications
- As the YRG series is combined with controller integrated vision “IVY2 System”, the operations from the positioning using the camera to workplace handling can be controlled in the batch mode using the RC2020 controller. Sophisticated systems can be easily configured.

Efficient move between tasks in line
- Narrow pitch movement is possible.
- Movement time can be reduced by combining the use of different movement modes, such as using pitch feed for the same processes instead of time processes while transferring free workpieces at the same time at a high speed in long-time processes.

High-speed movement and smooth deceleration stop using servo control prevent mechanical slider collision.

Smooth deceleration stop by servo control. Since workpiece deviation by stopper collision or damage is eliminated, the high-speed movement is possible.

Freedom in line configuration using flexible slider movement.

LCM100 can freely change the forward movement, backward movement, acceleration, and deceleration. As flexible operations, such as stopping at given positions and moving in high speed, can be performed back and forth. The line can be designed with a higher flexibility. Since the movement direction can be changed, the same processes are made common. Cost reduction and compact equipment are achieved.
Increase productivity. Ideal for constructing compact cells, moving and assembling small parts, or inspection processes.

**6-axis**

**High-speed operation reduces cycle time**

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

**Dramatically reduce line setup time with a simulator**

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

**Reduced space allows sophisticated system layouts**

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

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

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

**7-axis**

**Workpieces with a high wrist load are also supported**

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

**Free arm movement further boosts productivity.**

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

Controller Specifications YAC100

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>Single-phase 200/230 VAC (±10% to -15%), 50/60 Hz</td>
</tr>
<tr>
<td>Dimensions</td>
<td>470 (W) × 420 (D) × 200 (H) mm (Protrusions are not included.)</td>
</tr>
<tr>
<td>Mass</td>
<td>20 kg</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Direct cooling</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>During operation: 0°C to +40°C, During storage: -10°C to +60°C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>90% max. (non-condensing)</td>
</tr>
<tr>
<td>Grounding Resistance</td>
<td>100 Ω or less</td>
</tr>
<tr>
<td>Digital I/Os</td>
<td>Specialized signals: 10 inputs and 1 output, General signals: 28 inputs and 28 outputs, Max. I/O (optional): 1,024 inputs and 1,024 outputs</td>
</tr>
<tr>
<td>Positioning System</td>
<td>By serial encoder</td>
</tr>
<tr>
<td>Programming Capacity</td>
<td>JOB: 10,000 steps, 1,000 instructions, CIO ladder: 1,500 steps</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>MP2000 bus × 5 slots</td>
</tr>
<tr>
<td>LAN (Connection to Host)</td>
<td>1 (10BASE-T / 100BASE-TX), RS-232C: 1ch</td>
</tr>
<tr>
<td>Interface</td>
<td>Software servo control</td>
</tr>
<tr>
<td>Drive Units</td>
<td>Six axes for robots, Two more axes can be added as external axes. (Can be installed in the controller.)</td>
</tr>
<tr>
<td>Painting Color</td>
<td>Munsell notation 5Y7/1 (reference value)</td>
</tr>
</tbody>
</table>

* Optional support

* YA-R6F: Three-phase only.
**Robovity**
MOTOR-LESS SINGLE AXIS ACTUATOR

### Basic Model LBS

<table>
<thead>
<tr>
<th>Model</th>
<th>LBS04</th>
<th>LBS06</th>
<th>LBS08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptable motor</td>
<td>50 W</td>
<td>75 W</td>
<td>100 W</td>
</tr>
<tr>
<td>Repeatability (±)</td>
<td>±0.01 mm</td>
<td>±0.01 mm</td>
<td>±0.01 mm</td>
</tr>
<tr>
<td>Deceleration mechanism</td>
<td>Sliding friction (pole &amp; bush) ±0.01 mm (77 class)</td>
<td>Sliding friction (pole &amp; bush) ±0.01 mm (77 class)</td>
<td>Sliding friction (pole &amp; bush) ±0.01 mm (77 class)</td>
</tr>
<tr>
<td>Stroke</td>
<td>50 mm to 800 mm (50 mm pitch)</td>
<td>50 mm to 800 mm (50 mm pitch)</td>
<td>50 mm to 800 mm (50 mm pitch)</td>
</tr>
<tr>
<td>Maximum speed (mm/sec) (or equivalent)</td>
<td>800 mm/sec</td>
<td>600 mm/sec</td>
<td>400 mm/sec</td>
</tr>
<tr>
<td>Ball screw load</td>
<td>12 N</td>
<td>12 N</td>
<td>15 N</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>60 kg</td>
<td>100 kg</td>
<td>200 kg</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 40 °C, 35 to 80 %RH (non-condensing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated thrust</strong> (Note 3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note 1</strong></td>
<td>Positioning repeatability in one direction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note 2</strong></td>
<td>When a moving distance is short and depending on an operation condition, it may not reach the maximum speed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note 3</strong></td>
<td>The rated thrust and maximum transmissible weight are values assuming the attached motor outputs the rated torque.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Advanced Model LGXS

<table>
<thead>
<tr>
<th>Model</th>
<th>LGXS05</th>
<th>LGXS05L</th>
<th>LGXS07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptable motor</td>
<td>50 W</td>
<td>150 W</td>
<td>200 W</td>
</tr>
<tr>
<td>Repeatability (±)</td>
<td>±0.005 mm</td>
<td>±0.005 mm</td>
<td>±0.005 mm</td>
</tr>
<tr>
<td>Deceleration mechanism</td>
<td>Ground ball screw Ø 8 (C5 class)</td>
<td>Ground ball screw Ø 8 (C5 class)</td>
<td>Ground ball screw Ø 8 (C5 class)</td>
</tr>
<tr>
<td>Stroke</td>
<td>50 mm to 800 mm (50 mm pitch)</td>
<td>50 mm to 1100 mm (50 mm pitch)</td>
<td>50 mm to 1450 mm (50 mm pitch)</td>
</tr>
<tr>
<td>Maximum speed (mm/sec) (or equivalent)</td>
<td>800 mm/sec</td>
<td>600 mm/sec</td>
<td>400 mm/sec</td>
</tr>
<tr>
<td>Ball screw load</td>
<td>12 N</td>
<td>20 N</td>
<td>30 N</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>100 kg</td>
<td>150 kg</td>
<td>250 kg</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 40 °C, 35 to 80 %RH (non-condensing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated thrust</strong> (Note 3)</td>
<td></td>
<td></td>
<td></td>
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</table>

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**Transervol**
CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Size (mm)</th>
<th>Model</th>
<th>Load (mm)</th>
<th>Maximum payload (kg) [Note 1]</th>
<th>Maximum speed (mm/sec) (or equivalent)</th>
<th>Stroke (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SR type</strong> (Rod type standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H00</td>
<td>W66 × H64</td>
<td>SG07</td>
<td>12</td>
<td>43</td>
<td>9</td>
<td>66</td>
</tr>
<tr>
<td>W105 × H56.5</td>
<td>SR05-S</td>
<td>12</td>
<td>43</td>
<td>9</td>
<td>66</td>
<td>50 to 300</td>
</tr>
<tr>
<td>W135 × H58</td>
<td>SR05-U</td>
<td>12</td>
<td>43</td>
<td>9</td>
<td>66</td>
<td>50 to 300</td>
</tr>
<tr>
<td><strong>SRD type</strong> (Rod type standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H00</td>
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</tbody>
</table>

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**Note 1**: Size is the approximate cross sectional size.
**Note 2**: Maximum speed varies with the payload. See the SR type page for more details.
**Note 3**: Maximum speed decreases due to ball screw critical speed when the stroke is long. See the SR type page for more details.
**Note 4**: SR03-R(L) with 50st brake is not available.

---

**Strobos SR type (Foldback model) **

<table>
<thead>
<tr>
<th>Model</th>
<th>Size (mm)</th>
<th>Load (mm)</th>
<th>Maximum payload (kg) [Note 1]</th>
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<th>Stroke (mm)</th>
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<tr>
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<td>9</td>
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<td>66</td>
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**Strobos SRD type (Foldback model)**

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>H00</td>
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<td>9</td>
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<td>W105 × H56.5</td>
<td>SRD05-S</td>
<td>12</td>
<td>43</td>
<td>9</td>
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</tr>
</tbody>
</table>

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**Strobos SR type (Foldback model)**

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<tbody>
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<td>43</td>
<td>9</td>
</tr>
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<td>W105 × H56.5</td>
<td>SRD05-S</td>
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</tbody>
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**Strobos SRD type (Foldback model)**

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**Note 1**: Size is the approximate cross sectional size.
**Note 2**: Maximum speed varies with the payload. See the SR type page for more details.
**Note 3**: Maximum speed decreases due to ball screw critical speed when the stroke is long. See the SR type page for more details.
**Note 4**: SR03-R(L) with 50st brake is not available.
Note 1. Size is the approximate cross sectional size.

Note 2. If using a maximum speed then the payload will be as shown in the ( ).
**CLEAN ROOM SCARA ROBOTS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec)</th>
<th>Beltless structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra small type</td>
<td>YKX75</td>
<td>75</td>
<td>1.0</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Small type</td>
<td>YKX150</td>
<td>150</td>
<td>1.2</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Medium type</td>
<td>YKX200</td>
<td>200</td>
<td>1.3</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Large type</td>
<td>YKX220</td>
<td>220</td>
<td>1.6</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
</tbody>
</table>

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

**Transport model**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec)</th>
<th>Beltless structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra small type</td>
<td>YKX75</td>
<td>75</td>
<td>1.0</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Small type</td>
<td>YKX150</td>
<td>150</td>
<td>1.2</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Medium type</td>
<td>YKX200</td>
<td>200</td>
<td>1.3</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Large type</td>
<td>YKX220</td>
<td>220</td>
<td>1.6</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
</tbody>
</table>

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

**Wall mount/Inverse model**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec)</th>
<th>Beltless structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra small type</td>
<td>YKX75</td>
<td>75</td>
<td>1.0</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Small type</td>
<td>YKX150</td>
<td>150</td>
<td>1.2</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Medium type</td>
<td>YKX200</td>
<td>200</td>
<td>1.3</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Large type</td>
<td>YKX220</td>
<td>220</td>
<td>1.6</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
</tbody>
</table>

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

**Dustproof & drip-proof model**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec)</th>
<th>Beltless structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra small type</td>
<td>YKX75</td>
<td>75</td>
<td>1.0</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Small type</td>
<td>YKX150</td>
<td>150</td>
<td>1.2</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Medium type</td>
<td>YKX200</td>
<td>200</td>
<td>1.3</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Large type</td>
<td>YKX220</td>
<td>220</td>
<td>1.6</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
</tbody>
</table>

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

**Orbit model**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Arm length (mm)</th>
<th>Maximum payload (kg)</th>
<th>Standard cycle time (sec)</th>
<th>Beltless structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra small type</td>
<td>YKX75</td>
<td>75</td>
<td>1.0</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Small type</td>
<td>YKX150</td>
<td>150</td>
<td>1.2</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Medium type</td>
<td>YKX200</td>
<td>200</td>
<td>1.3</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
<tr>
<td>Large type</td>
<td>YKX220</td>
<td>220</td>
<td>1.6</td>
<td>&lt;0.5</td>
<td>50</td>
</tr>
</tbody>
</table>

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

**CLEAN ROOM SINGLE-AXIS ROBOTS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Size (mm)</th>
<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec)</th>
<th>Stroke (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLIP-XC</td>
<td>C4L</td>
<td>W64x65</td>
<td>12</td>
<td>0.4</td>
<td>7.5</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C4LH</td>
<td>W58x65</td>
<td>12</td>
<td>0.4</td>
<td>7.5</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C5L</td>
<td>W56x65</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C5LH</td>
<td>W55x65</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C8L</td>
<td>W64x475</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C8LH</td>
<td>W66x475</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>CBLH</td>
<td>W64x75</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C10H</td>
<td>W104x695</td>
<td>12</td>
<td>0.5</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C14H</td>
<td>W136x965</td>
<td>12</td>
<td>0.5</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C16H</td>
<td>W136x965</td>
<td>10</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C17H</td>
<td>W150x110H14</td>
<td>20</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C17L</td>
<td>W150x110H14</td>
<td>10</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>C20S</td>
<td>W200x110H17</td>
<td>10</td>
<td>1.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td>SSC type</td>
<td>SS30H</td>
<td>W94x69</td>
<td>12</td>
<td>2.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>SS30S</td>
<td>W58x66</td>
<td>12</td>
<td>2.0</td>
<td>8.0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>SS30SH</td>
<td>W58x66</td>
<td>12</td>
<td>2.0</td>
<td>8.0</td>
<td>800</td>
</tr>
</tbody>
</table>

**Note**: Size is the approximate cross-sectional size.

**CLEAN ROOM CARTESIAN ROBOTS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Axes</th>
<th>Moving range (mm)</th>
<th>Maximum speed (mm/sec)</th>
<th>Maximum payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 axes</td>
<td>SKyV C</td>
<td>A</td>
<td>530 to 1650</td>
<td>500</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>530 to 1650</td>
<td>500</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>150 to 650</td>
<td>1000</td>
<td>20</td>
</tr>
<tr>
<td>3 axes</td>
<td>SKyV C (2SC1-1)</td>
<td>X</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td>4 axes</td>
<td>SKyV C (2SC1-1)</td>
<td>X</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z</td>
<td>153 to 1100</td>
<td>1000</td>
<td>5</td>
</tr>
</tbody>
</table>

**Note**: Size is the approximate cross-sectional size.
### LCM100 Linear conveyor module

<table>
<thead>
<tr>
<th>Basic specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>LCM100-4B/3B</td>
</tr>
<tr>
<td><strong>Drive method</strong></td>
<td>Belt back surface pressing force drive</td>
</tr>
<tr>
<td><strong>Bearing method</strong></td>
<td>1 guide rail / 2 blocks (with retainer)</td>
</tr>
<tr>
<td><strong>Max. speed</strong></td>
<td>560mm/sec</td>
</tr>
<tr>
<td><strong>Max. load</strong></td>
<td>14kg</td>
</tr>
<tr>
<td><strong>Module length</strong></td>
<td>640mm (4B) / 480mm (3B)</td>
</tr>
<tr>
<td><strong>Max. number of sliders</strong></td>
<td>1 slider / 1 module</td>
</tr>
<tr>
<td><strong>Controller</strong></td>
<td>LCC140</td>
</tr>
</tbody>
</table>

**Notes:**
1. Repeatability when positioning in the same direction (guiding).
2. Positioning accuracy in the pulsating when using the position correction function with the RFID.
3. Weight per single slider.
4. When used together with the belt module, the max. payload becomes 14 kg since the parts dedicated to the belt are attached to the slider.

### LCM100 Belt module

<table>
<thead>
<tr>
<th>Basic specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>LCM100-3B</td>
</tr>
<tr>
<td><strong>Drive method</strong></td>
<td>Belt back surface pressing force drive</td>
</tr>
<tr>
<td><strong>Bearing method</strong></td>
<td>1 guide rail / 2 blocks (with retainer)</td>
</tr>
<tr>
<td><strong>Max. speed</strong></td>
<td>560mm/sec</td>
</tr>
<tr>
<td><strong>Max. load</strong></td>
<td>14kg</td>
</tr>
<tr>
<td><strong>Module length</strong></td>
<td>640mm (3B) / 480mm (3B)</td>
</tr>
<tr>
<td><strong>Max. number of sliders</strong></td>
<td>1 slider / 1 module</td>
</tr>
</tbody>
</table>

**Controller:** LCC140

### LCC140 Controller

<table>
<thead>
<tr>
<th>Basic specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Controlable robot</strong></td>
<td>LCM100-4B/3B Linear conveyor module</td>
</tr>
<tr>
<td><strong>Outside dimensions</strong></td>
<td>560mm front225mm back</td>
</tr>
<tr>
<td><strong>Main body weight</strong></td>
<td>14kg</td>
</tr>
<tr>
<td><strong>Input power voltage</strong></td>
<td>Single-phase AC230V +/-10% or less (50/60Hz)</td>
</tr>
<tr>
<td><strong>Maximum power consumption</strong></td>
<td>350VA (LCM100-4B 1 slider is driven.)</td>
</tr>
<tr>
<td><strong>External input/output</strong></td>
<td>40-220V (dc) for HPB, doubles as POP/LCM**</td>
</tr>
<tr>
<td><strong>Network option</strong></td>
<td>CC-LINK Ver. 1.10 compatible, Remote device station (2 stations)</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>DeviceNet, EtherCAT(TM) Slave 1 node, EtherCAT(TM) adapter 2 ports</td>
</tr>
<tr>
<td><strong>Programing box</strong></td>
<td>HPB, HPB-D, Software version 24.11 or later</td>
</tr>
</tbody>
</table>

### YA Vertically articulated robots

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Application</th>
<th>Number of axes</th>
<th>Payload (kg)</th>
<th>Vertical reach (mm)</th>
<th>Horizontal reach (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-axis</td>
<td>YA-R6F</td>
<td>Handling (general)</td>
<td>6-axis</td>
<td>1 kg (max. 2 kg*)</td>
<td>959</td>
<td>545</td>
</tr>
<tr>
<td></td>
<td>YA-R6F</td>
<td>Handling (general)</td>
<td>6-axis</td>
<td>1 kg (max. 2 kg*)</td>
<td>804</td>
<td>530</td>
</tr>
<tr>
<td></td>
<td>YA-R7F</td>
<td>Handling (general)</td>
<td>7-axis</td>
<td>5 kg</td>
<td>1193</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>YA-R7F</td>
<td>Handling (general)</td>
<td>7-axis</td>
<td>5 kg</td>
<td>1193</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>YA-R8F</td>
<td>Handling (general)</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1300</td>
<td>850</td>
</tr>
<tr>
<td></td>
<td>YA-R8F</td>
<td>Handling (general)</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1207</td>
<td>590</td>
</tr>
<tr>
<td></td>
<td>YA-UF7</td>
<td>Assembly / Placement</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1200</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td>YA-UF7</td>
<td>Assembly / Placement</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1200</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td>YA-UF7</td>
<td>Assembly / Placement</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1200</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td>YA-UF7</td>
<td>Assembly / Placement</td>
<td>7-axis</td>
<td>10 kg</td>
<td>1200</td>
<td>720</td>
</tr>
</tbody>
</table>

* When a load is more than 1 kg, the motion range is reduced. Use the robot within the recommended motion range.