Evaluation system provides high reliability

YAMAHA continues to evolve technology to assure product quality and reliability. The evaluation system, which covers the product development phase, is based on “Core technologies” (YAMAHA’s equipment) that are designed to ensure the high quality and reliability.

The evaluation system is composed of 6 phases:

1. Component evaluation
2. Unit evaluation
3. Function evaluation
4. System evaluation
5. System composite evaluation
6. Field test evaluation

In the product development phase, all processes, from the design stage to the final manufacturing stage, are carefully evaluated and measured to ensure the high quality and reliability.

YAMAHA’s learning process

YAMAHA’s learning process for the robots includes several stages:

1. Research and Development: The first stage involves researching and developing new technologies and improving existing ones.
2. Prototype Testing: Here, prototypes are built and tested in a controlled environment to ensure they meet the desired specifications.
3. Field Testing: The robots are tested in real-world conditions to ensure they perform as expected.
4. Production: Once the robots pass all tests, they are produced in large quantities.
5. Continuous Improvement: The company constantly seeks to improve the robots, incorporating feedback from users and testing new technologies.

YAMAHA ROBOT SYSTEMS

YAMAHA ROBOT SYSTEMS is dedicated to providing reliable and high-quality robots for a wide range of applications. Their commitment to innovation and excellence is evident in their extensive range of robots designed for various industries. Whether for manufacturing, education, or research, YAMAHA ROBOT SYSTEMS offers solutions that meet the specific needs of each sector.
No speed deration needed up to 4m long stroke. Delivers superb performance in long distance transport.

**Comparison of single-axis robot models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unit Cost</th>
<th>Maximum speed (mm/sec)</th>
<th>Payload (kg)</th>
<th>Repeatability (µm)</th>
<th>Maximum stroke (mm)</th>
<th>Frame dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF7-1653</td>
<td>¥5000</td>
<td>720</td>
<td>10</td>
<td>±5</td>
<td>1680</td>
<td>W100×H81</td>
</tr>
<tr>
<td>B10-1650</td>
<td>¥5000</td>
<td>720</td>
<td>10</td>
<td>±5</td>
<td>1680</td>
<td>W100×H81</td>
</tr>
</tbody>
</table>

**High speed, Long stroke**

The ultimate appeal of linear motor single-axis robots is that there is no critical speed limits such as with ball screws. There is no reduction in the maximum speed even when travelling long distances. Moreover, the maximum stroke is a standard setting of up to 2m on the MF type and 8m on the MR type. The cycle speed is calculated based on the ground at YAMAHA’s website.

**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 RCR series controller, the anti-collision control function can be used.)

**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.

**Lower 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.

### Resolver 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 powder particle or oil mist exist. Additionally, a high resolution of 2048 pulses per revolution is provided.

### Custom order specifications for each model are available.

We gladly accept special orders for all models such as for double sliders or wide sliders. Please consult with our sales office for more information.
**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.**

<table>
<thead>
<tr>
<th>Arm type</th>
<th>Gantry type</th>
<th>Moving arm type</th>
</tr>
</thead>
<tbody>
<tr>
<td>XZ type</td>
<td>Pole type</td>
<td>Dual-synchronous drive</td>
</tr>
</tbody>
</table>

**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 breakdown rate. The resolver structure has none of the detection problems that occur in other detectors such as optical encoders whose electronic components breakdown or suffer from moisture or oil that sticks to the disk. Moreover, mechanical specifications for both absolute and incremental units are the same regardless of whether incremental or absolute units are used. Furthermore, the resolver structure has none of the detection problems that occur in other detectors such as optical encoders whose electronic components breakdown or suffer from moisture or oil that sticks to the disk. Moreover, mechanical specifications for both absolute and incremental units are the same regardless of whether incremental or absolute units are used.

**Economy Solution**

We achieved an even lower price by cutting down the number of parts and simple.

**Field Serviceable Structure**

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

**MULTI-FLIP / MULTI-PHASER**

**MULTI-AXIS ROBOT**

One controller for multiple single-axis robots.

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

- Sequence control is simple. System upgrade is inexpensive.
- More compact and saves more space than when operating multiple single-axis controllers.
- Allows more sophisticated control.
- Multi-axis controllers RCK2211/RCK240 provide mixed control of the (linear single-axis) PHASER series and FLIP-X series.

**Robot set-up**

- 2-axis robot setting: Using a multi-task program along with this 2-axis setting allows asynchronous 2-axis operation. Using this setting with an auxiliary axis setting allows even more freedom in setting and operation. 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 R-type (nut rotation type) PHASER series.

**Main auxiliary axis setting:**

- Use the 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 on an axis that is not synchronized with the main robot.

**Synchronized double setting:**

- 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**

Ideal for high-speed pick & place tasks of small parts. Positioning by servo control to eliminate mechanical adjustment.

**YP220BX**

- **High speed:** High speed pick & place operation contributes largely to higher productivity. Both extremely high-speed performance and high repeatability of ±0.01mm (YP220X, YP320X) are assured.
- **Compact size:** Compact size with an overall length of 1.35m (YP220X) and mounting width of 645mm. A space saving production line with less interference with surrounding machines.

**YP330X**

- **High repeatability:** Both extremely high-speed performance and high repeatability of ±0.01mm (YP330X, YP340X) are assured.
- **Compact size:** Compact size with an overall length of 1.35m (YP330X) and mounting width of 645mm. A space saving production line with less interference with surrounding machines.

**YP215X**

- **Low backlash:** The resolver is detected with the low backlash of the PHASER series, which contributes to high accuracy.
- **Compact size:** Compact size with an overall length of 1.35m (YP215X) and mounting width of 645mm. A space saving production line with less interference with surrounding machines.
Arm length of 120mm to 1200mm. Widest selection in industry. High-speed high-precision operation contributes to increased productivity.

**Tiny type SCARA model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length (mm)</th>
<th>Max. payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK120XG</td>
<td>120</td>
<td>1kg</td>
</tr>
<tr>
<td>YK220XG</td>
<td>220</td>
<td>2kg</td>
</tr>
</tbody>
</table>

**Medium type**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length (mm)</th>
<th>Max. payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK400XR</td>
<td>400</td>
<td>3kg</td>
</tr>
<tr>
<td>YK500XG</td>
<td>500</td>
<td>5kg</td>
</tr>
</tbody>
</table>

**Large type**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length (mm)</th>
<th>Max. payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK600XGL</td>
<td>600</td>
<td>7kg</td>
</tr>
<tr>
<td>YK700XGL</td>
<td>700</td>
<td>10kg</td>
</tr>
</tbody>
</table>

**Wall-mount / inverse model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length (mm)</th>
<th>Max. payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK800XG</td>
<td>800</td>
<td>15kg</td>
</tr>
<tr>
<td>YK900XG</td>
<td>900</td>
<td>20kg</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length (mm)</th>
<th>Max. payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YK1000XG</td>
<td>1000</td>
<td>25kg</td>
</tr>
</tbody>
</table>

30 Years of history

The first robot YAMAHA released was called “CAME” (1979) and has had a very successful 40 years of history. Moreover, YAMAHA SCARA robots have undergone continuous modifications in an ever-changing technological environment and amassed a hefty record of successful products making them an essential part of the YAMAHA robot lineup.

**High speed**

The standard cycle time is less than 40ms. Of course but the YAMAHA design aims at maintaining cycle time in the actual usage region. A drastic improvement in maximum speed was made by changing the gear ratio and maximum motor rpm. This also resulted in a better cycle time during long distance movement.

**Hollow shaft and tool flange options are selectable**

Useful options include a hollow shaft for easy wiring to the tip tool and a tool flange for tool clamping.

**Improved maintenance features**

The covers on the YAMAHA SCARA robot YK-XG series can be removed from the front or upwards. The cover is separate from the cable so maintenance is easy.

**Hollow shaft option for easy routing of air- tubes and hoses**

A hollow shaft option for easy wiring of air-tubes and hoses is also available.

**Optical encoder**

An optical encoder is equipped as standard.

**Resistor**

A resistor is equipped as a standard.

**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. Using a low R axis inertia moment in those 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 allows high speed operation compared to structures where positioning is usually done by a belt after decelerating. A drastic improvement in moment capacity is realized.

**Dust-proof and Drip-proof type**

Bellows improved dust/drip proofing capability
**Y K - T W Series**

**ORBIT TYPE SCARA ROBOT**

**YK350TW**

**YK500TW**

Quick selection table >> P20

---

**Superior Positioning Accuracy and High Speed**

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

YK-TW can move anywhere through the full ø1000 mm² work envelope.

Featuring a ceiling-mount configuration with a wide arm rotation angle, the YK-TW can access any point within the full ø1000 mm downward range. This eliminates all motion-related restrictions with regard to pallet and conveyor placement operations, while dramatically reducing the equipment footprint.

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

Higher repeated point positioning accuracy than that of 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 rigid arm has also been fitted with optimally tuned motors to enable high accuracy positioning.

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

Reduced inertia enables high-speed motion.

For details, contact a YAMAHA sales representative.

---

**Ideal for narrow space applications**

Minimum installation width: 492mm

Standard cycle time of 0.29 secs.*2

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

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

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

YK-TW has a total height of only 392 mm, and weighs only 27 kg*2. Lower inertia = Lighter frame

---

**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: 1000mm to 1000mm
- Stroke: 30 to 3000mm
- Inlet air: 15 to 60 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec
- Motor: YD11

**YK-XGC**

**YK-XGC**

**YK-XGC**

**Clean room SCARA robots**

- Arm length: 1000mm to 1000mm
- Stroke: 38 to 3000mm
- Inlet air: 30 to 60 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec

**YK-XGC**

**YK-XGC**

**Clean room SCARA robots**

- Arm length: 1000mm to 1000mm
- Stroke: 30 to 3000mm
- Inlet air: 15 to 60 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec

**FLIP-XC**

**Clean room Single-axis robots**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 30 Nm³/min
- Maximum payload: 120 kg (Horizontal installation)
- Maximum speed: 1000mm/sec

**FLIP-XC**

**Clean room Single-axis robots**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 30 Nm³/min
- Maximum payload: 120 kg (Horizontal installation)
- Maximum speed: 1000mm/sec

**SSC**

**Clean room SCARA robots**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 30 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec

**SSC**

**Clean room SCARA robots**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 30 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec

**XY-XC**

**Clean room cartesian robots**

- Inlet air: 60 to 300 Nm³/min
- Inlet air: 60 to 300 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec
- Hole: User tube Ø 6.35 pin connector 24 conductors, 0.3 kg
- Hole: User tube Ø 6.35 pin connector 24 conductors, 0.3 kg

**XY-XC**

**Clean room cartesian robots**

- Inlet air: 60 to 300 Nm³/min
- Inlet air: 60 to 300 Nm³/min
- Maximum payload: 20 kg
- Maximum speed: 1000mm/sec
- Hole: User tube Ø 6.35 pin connector 24 conductors, 0.3 kg
- Hole: User tube Ø 6.35 pin connector 24 conductors, 0.3 kg

---

**Clean room specifications of “FLIP-X “series.” An appropriate model suitable for the application can be selected from 14 models ranging from lightweight and compact model to large model with a maximum payload of 120 kg. A suction port is available as a standard on most of the models.**

---

**Clean room Single-axis robots (TRANSERVO)**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 60 Nm³/min
- Maximum payload: 120 kg (Horizontal installation)
- Maximum speed: 1000mm/sec

---

**Clean room Single-axis robots (TRANSERVO)**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 60 Nm³/min
- Maximum payload: 120 kg (Horizontal installation)
- Maximum speed: 1000mm/sec

---

**Clean room cartesian robots (TRANSERVO)” Use of a newly developed vector control system with adoption of stepless motor makes it possible to achieve the functions and performances similar to the conventional at a low cost.**

---

**Improved maintenance features**

---

**Note**

- Applies to the YK350TW *2. Applies to the YK500TW

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**FLIP-XC**

**Clean room Single-axis robots**

- Stroke: 50 to 2050mm
- Inlet air: 15 to 60 Nm³/min
- Maximum payload: 120 kg (Horizontal installation)
- Maximum speed: 1000mm/sec

---

**YAMAHA ROBOT LINE UP | 11**
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.

**iVY System**

**ROBOT VISION FOR THE RCX240**

Simple "plug-and-play" set up with conveyor tracking features in one

**iVY system layout**

Gives you a ready-to-go robot controller equipped with an image processing function by just setting an iVY board in your 4-axis robot controller RCX240 or RCX242S. Putting "eyes" in your robot allows you to search and take actions, find deviations in workpiece position and make corrections even in the case of large errors, expanding the range of applications.

**Seamlessly integrated vision system in robot controller**

Other machine vision products on the market use different formats, so a coordinate conversion program had to be written into the controller. The iVY system has an integrated controller so robot point data is stored in one easy step. Camera control and lighting control are handled by an integrated operation within the robot controller with an easy to understand operation that reduces the man-hours needed for equipment setup.

**Super simple calibration**

*Coordinate matching alignment tasks*

Conventional equipment combining “image processing equipment + robot” requires a extreme amount of time and trouble due to the task of “calibration” that aligns the camera coordinates with the robot coordinates. On the iVY system however the operator only has to follow conversation-type instructions from the programming box so operation is simple and finishes in a short time.

**YAMAHA ROBOT LINE UP**

ROBOT VISION FOR THE RCX240

Connects to up to 2 encoders

Select an optional tracking board or lighting control board (tracking board comes with lighting control function)

Robotic controller

**Yamaha iVY System**

Simple operation only by specifying point number and coordinate.

The TS series is an all-in-one controller featuring PLC and lighting functions and can handle both single and multi-axis controllers. This allows for robot controllers to connect up to 16 single-axis controllers to a 4-axis controller. It also comes loaded with a powerful software package that supports camera control and conveyor tracking features. It is also equipped with an intuitive programming interface for easy setup and operation.

**iVY System Features**

- **Camera Control**
  - Integrated camera control
  - Easy to use camera setup and control

- **Conveyor Tracking**
  - Real-time conveyor tracking
  - Simple setup and operation

- **Powerful Software**
  - Easy-to-use programming interface
  - Comprehensive debugging tools

**Compatibility**

- **Operating System**
  - Windows Vista, Windows 7, and Windows 8

- **Programming**
  - C# and Visual Basic

- **Data Transfer**
  - Serial and Ethernet interfaces

**Additional Features**

- **Support Network**
  - Worldwide technical support

**Conclusion**

The Yamaha iVY System is a powerful and easy-to-use vision system that integrates seamlessly with robot controllers. With its intuitive programming interface and comprehensive software package, it is an ideal solution for a wide range of applications.
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 360,000 pixels, 1.3 megapixel, 2 megapixel and 5 megapixel).
Capabilities include edge detection that is possible even if workpieces are touching each other or have a complex shape.

Conveyor tracking capability up to 100 CPM.
The vision camera detects the position and orientation of parts on moving conveyor for pick & place application.

254 types can be registered
Setup changes require only part number changes. No need to change wiring harness.

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

System configuration illustration iVY2
A single search shows detection even for a large workpiece, improving tak.

The vision camera detects the position and orientation of 254 types can be changed.
Conveyor tracking capability up to 100 CPM.

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.

Electric gripper
YRG-2004T YRG-2013T YRG-2820T YRG-4230T
YRG-2020FT/YRG-2840FT
YRG-2020FS/YRG-2840FS

Gripping force can be set
in a range of 30% to 100% in 1% increments.

Speed control
Control the motor to attain the desired speed.

Acceleration control
Control the acceleration to obtain the desired speed.

Multi-point Control
Workplace check function
The gripper can be controlled with a single controller. Since there’s no need for interchange with an PLC or other host device, setup and startup operations from the positioning using the integrated robot vision “iVY2 System”, the gripper can be controlled in the batch mode using the RCX340 controller. Sophisticated systems can be easily configured.

Combination with a vision system supports a wide range of applications
As the YRG series is combined with controller integrated robot vision “iVY2 System”, the operations from the positioning using the camera to workpiece handling can be controlled in the batch mode using the RCX340 controller. Sophisticated systems can be easily configured.

* Can also be used with the RCX340 controller.
LINEAR CONVEYOR MODULES

From "simple flow" to "controlled move"
Construct a rapid-throughput line for increased profitability.

Module system for easy line layout change
A transfer line is configured by connecting the number of necessary modules as required. Of course, new line configuration and line change can be started up speedily. Additionally, operations, such as using pitch-feed for the same processes in short-time processes while transferring three workpieces at the same time is possible.

High-speed movement and smooth deceleration stop using servo control prevent mechanical stopper collision.
Smooth deceleration stop by servo control. Since workspace deviation by stopper collision or damage is eliminated, the high-speed movement is possible.

Efficient move between tasks in line
Narrow pitch movement is possible.

Performing tasks directly on the conveyor
Have to retract the work from the pallet to the work table.

Free movement 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 any point are possible, 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.

Efficient work with excess modules for the maintenance line can be performed.
Of excess modules for the maintenance, such as using pitch-feed for the same processes in short-time processes while transferring three workpieces at the same time is possible.

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

Workpieces with a high wrist load are also supported
With a wrist section that has the highest allowable moment of inertia in its class, these robots can support jobs involving a high degree of handling of multiple workpieces.

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. The robots can also be installed close to each other, allowing processing to be integrated and short-ened.

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

Increase productivity Ideal for constructing compact cells, moving and assembling small parts, or inspection processes.
<table>
<thead>
<tr>
<th>Type</th>
<th>Size (mm)</th>
<th>Note</th>
<th>Model</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>W35</td>
<td>100 x 60</td>
<td></td>
<td>W104</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W120</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>W150</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>W200</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W250</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W300</td>
<td>10 x 8</td>
<td>0.5</td>
<td>500</td>
<td>400</td>
</tr>
</tbody>
</table>

**Note:**
- Size is the approximate cross-sectional size.
- Maximum speed varies with the payload. See the SR type page for more details.
- Allowable ambient temperature for robot installation: SS/GSR type: 0°C to 40°C; ST/SMF BD type: 5°C to 45°C.
### YK-XG/YK-XR/YK-TW/YK-XGS/YK-XGP 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>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tiny type</strong></td>
<td>YK180G</td>
<td>180</td>
<td>1.0</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK250G</td>
<td>250</td>
<td>1.0</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK350G</td>
<td>350</td>
<td>1.0</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK400G</td>
<td>400</td>
<td>1.0</td>
<td>0.99</td>
<td></td>
</tr>
<tr>
<td><strong>Small type</strong></td>
<td>YK600G</td>
<td>600</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK650G</td>
<td>650</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
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<tr>
<td></td>
<td>YK700G</td>
<td>700</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK750G</td>
<td>750</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
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<tr>
<td><strong>Standard</strong></td>
<td>YK800G</td>
<td>800</td>
<td>1.0</td>
<td>1.30</td>
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<tr>
<td></td>
<td>YK850G</td>
<td>850</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK900G</td>
<td>900</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YK1000G</td>
<td>1000</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td><strong>Medium type</strong></td>
<td>YK1200G</td>
<td>1200</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td><strong>Large type</strong></td>
<td>YK1400G</td>
<td>1400</td>
<td>1.0</td>
<td>1.30</td>
<td></td>
</tr>
</tbody>
</table>

*Note 1: Maximum payload (kg): 0.5kg (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning). Other type: Maximum payload (kg): 0.3kg (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning). Note 2: Maximum payload (kg): 0.3kg (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning).*

### YR ELECTRIC GRIPPER

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Holding power (N)</th>
<th>Open/close stroke (mm)</th>
<th>Maximum speed (mm/sec)</th>
<th>Repeatability (mm)</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compact single cam</strong></td>
<td>YRM225-E3S</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Single cam</strong></td>
<td>YRM225-E4F</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>YRM225-E5S</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Double cam</strong></td>
<td>YRM225-E7F</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Screw type Straight style</strong></td>
<td>YRM225-E7F</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Screw type &quot;T&quot; style</strong></td>
<td>YRM225-E7F</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Three fingers</strong></td>
<td>YRM225-E7F</td>
<td>200</td>
<td>49</td>
<td>500</td>
<td>±0.01</td>
<td>2000</td>
</tr>
</tbody>
</table>

*Note 1: Holding power (N): 200N (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning).*

### 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>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tiny type</strong></td>
<td>YK180G</td>
<td>180</td>
<td>1.0</td>
<td>0.43</td>
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</tr>
<tr>
<td></td>
<td>YK250G</td>
<td>250</td>
<td>1.0</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td><strong>Small type</strong></td>
<td>YK350G</td>
<td>350</td>
<td>1.0</td>
<td>0.57</td>
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</tr>
<tr>
<td></td>
<td>YK400G</td>
<td>400</td>
<td>1.0</td>
<td>0.57</td>
<td></td>
</tr>
<tr>
<td><strong>Medium type</strong></td>
<td>YK600G</td>
<td>600</td>
<td>1.0</td>
<td>0.57</td>
<td></td>
</tr>
</tbody>
</table>

*Note 1: Ultra-small type: Maximum payload: 0.5kg (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning). Other type: Maximum payload: 0.3kg (100mm in the horizontal direction, 25mm reciprocating in the vertical direction, coarse positioning).*

### 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><strong>2 axes</strong></td>
<td>SKYVc</td>
<td>4</td>
<td>150 to 1550</td>
<td>1000</td>
<td>20</td>
</tr>
<tr>
<td><strong>3 axes</strong></td>
<td>SKYVc (Z55c)</td>
<td>3</td>
<td>150 to 1050</td>
<td>1000</td>
<td>3</td>
</tr>
<tr>
<td><strong>4 axes</strong></td>
<td>SKYVc (Z55c)</td>
<td>4</td>
<td>150 to 1050</td>
<td>1000</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note 1: YK-XG/YK-XR/YK-TW/YK-XGS/YK-XGP 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><strong>2 axes</strong></td>
<td>SKYVc</td>
<td>4</td>
<td>150 to 1550</td>
<td>1000</td>
<td>20</td>
</tr>
<tr>
<td><strong>3 axes</strong></td>
<td>SKYVc (Z55c)</td>
<td>3</td>
<td>150 to 1050</td>
<td>1000</td>
<td>3</td>
</tr>
<tr>
<td><strong>4 axes</strong></td>
<td>SKYVc (Z55c)</td>
<td>4</td>
<td>150 to 1050</td>
<td>1000</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note 1: YK-XG/YK-XR/YK-TW/YK-XGS/YK-XGP ROBOTS*
## Y P - X PICK & PLACE ROBOTS

<table>
<thead>
<tr>
<th>Model</th>
<th>Axis</th>
<th>Structure</th>
<th>Maximum payload (kg)</th>
<th>Cycle time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP220B</td>
<td>2 axes</td>
<td>Belt</td>
<td>3</td>
<td>0.45</td>
</tr>
<tr>
<td>YP220B</td>
<td>Belt</td>
<td>Belt</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>YP220B</td>
<td>Belt</td>
<td>Belt</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>YP230B</td>
<td>3 axes</td>
<td>Belt</td>
<td>4</td>
<td>0.67</td>
</tr>
<tr>
<td>YP220B</td>
<td>Belt</td>
<td>Belt</td>
<td>4</td>
<td>0.67</td>
</tr>
<tr>
<td>YP230B</td>
<td>Belt</td>
<td>Belt</td>
<td>4</td>
<td>0.67</td>
</tr>
<tr>
<td>YP240F</td>
<td>4 axes</td>
<td>Belt</td>
<td>5</td>
<td>0.67</td>
</tr>
<tr>
<td>YP240F</td>
<td>Belt</td>
<td>Belt</td>
<td>5</td>
<td>0.67</td>
</tr>
<tr>
<td>YP240F</td>
<td>Belt</td>
<td>Belt</td>
<td>5</td>
<td>0.67</td>
</tr>
<tr>
<td>YP240F</td>
<td>Belt</td>
<td>Belt</td>
<td>5</td>
<td>0.67</td>
</tr>
</tbody>
</table>

## LCM100 Linear conveyor module

### Basic specifications
- **Model**: LCM100-4M/3B/2M
- **Drive method**: Belt back surface pressing force drive
- **Max. speed**: 561mm/sec
- **Max. payload**: 14kg
- **Module length**: 640mm (4M), 480mm (3B), 400mm (2M)
- **Max. number of modules**: 16 (4M), 16 (3B), 16 (2M)
- **Main unit maximum cross-section outside dimensions**: W173.8mm × H155mm (including slider)
- **Controller**: Dedicated drive (Included)
- **Power supply**: DC24V 5A
- **Communication I/F**: Dedicated input/output 16 points

## LCC140 Controller

### Basic specifications
- **Controller robot**: Linear conveyor module LCM series
- **Optical dimensions**: Linear conveyor module LCM series
- **Max. body weight**: 4kg
- **Input power voltage**: Single-phase AC200 to 230V (+/-10% or less, 50/60Hz)

## LCM100 Belt module

### Basic specifications
- **Model**: LCM100-4M/3B/2M
- **Drive method**: Belt back surface pressing force drive
- **Max. speed**: 561mm/sec
- **Max. payload**: 14kg
- **Module length**: 640mm (4M), 480mm (3B), 400mm (2M)
- **Max. number of modules**: 16 (4M), 16 (3B), 16 (2M)
- **Main unit maximum cross-section outside dimensions**: W173.8mm × H155mm (including slider)
- **Controller**: Dedicated drive (Included)
- **Power supply**: DC24V 5A
- **Communication I/F**: Dedicated input/output 16 points
- **Module weight**: 11.2kg (4M), 8.8kg (3B)

## YA Vertically articulated robots

### Type | Model | Application | Number of axes | Payload (kg) | Vertical reach (mm) | Horizontal reach (mm) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6-axis</td>
<td>YA-R6F</td>
<td>Handling (general)</td>
<td>6 axes</td>
<td>3</td>
<td>864</td>
<td>530</td>
</tr>
<tr>
<td>7-axis</td>
<td>YA-R6</td>
<td>Assembly / Placement</td>
<td>7 axes</td>
<td>5</td>
<td>766</td>
<td>810</td>
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<tr>
<td></td>
<td>YA-R6F</td>
<td></td>
<td></td>
<td>5</td>
<td>1566</td>
<td>865</td>
</tr>
<tr>
<td></td>
<td>YA-R6F</td>
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<td>6</td>
<td>2488</td>
<td>1430</td>
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<tr>
<td></td>
<td>YA-R6F</td>
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<td>10</td>
<td>1020</td>
<td>700</td>
</tr>
</tbody>
</table>

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