YASKAWA

Industrial Robots
MOTOMAN Series
Product Catalog

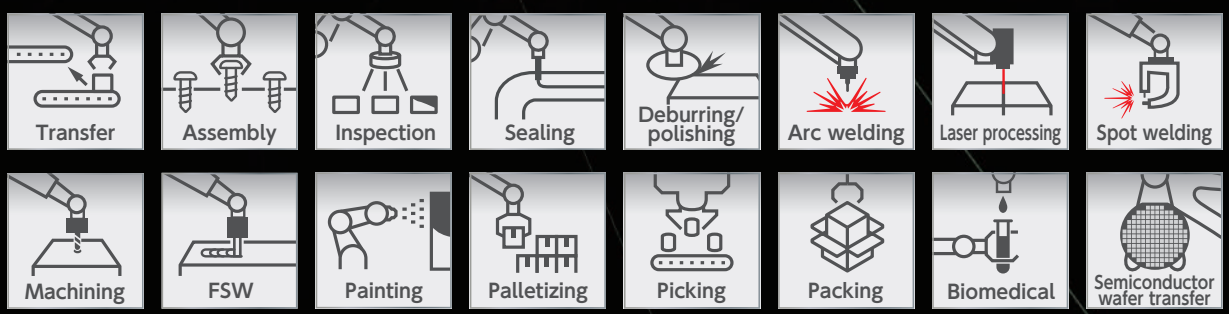
ROBOTICS × DIGITAL

Yaskawa creates the future of manufacturing with “Robotics × Digital”

Since starting sales of Japan’s first fully electric industrial robot in 1977, Yaskawa has sold more than 600,000 MOTOMAN industrial robots.
These robots are being used to automate processes such as transferring, assembly, welding and painting in various industrial fields across the globe.
Manufacturing sites have undergone drastic changes in recent years, with more companies utilizing digital data to enhance the efficiency and competitiveness of their manufacturing devices and equipment.
MOTOMAN is designed to achieve further enhancements in performance and quality by linking robots and controllers with peripheral technologies, while simultaneously providing DX* solutions that integrate customer devices and robots.

*DX: Abbreviation for “Digital Transformation.” This refers to the utilization of digital data to transform products, services, business models, and business processes in order to establish a competitive advantage.

Main applications



CONTENTS

What only Yaskawa Electric can deliver

1. The ultimate in technology provided by Yaskawa's history as a motor manufacturer

The main components of MOTOMAN are its servomotors, which are Yaskawa's core technology and are developed in-house. By enhancing the performance of our servomotors to meet the specific needs of robots, we are able to create robots optimized for each application.

2. Utilization of various data by linking robots and software

The YASKAWA Cockpit software tool enables real-time collection and visualization of operating data from various devices at production facilities, including robots.
Utilization of this data enhances both productivity and production quality, and assists in optimizing factories while making them more autonomous.

3. One of the highest global shares in the industry

Yaskawa's long history of providing customers with industrial robots enables it to boast one of the highest global shares in the industry.
We are proud that customers around the globe are using our products with confidence.

4. An expansive lineup to support any application

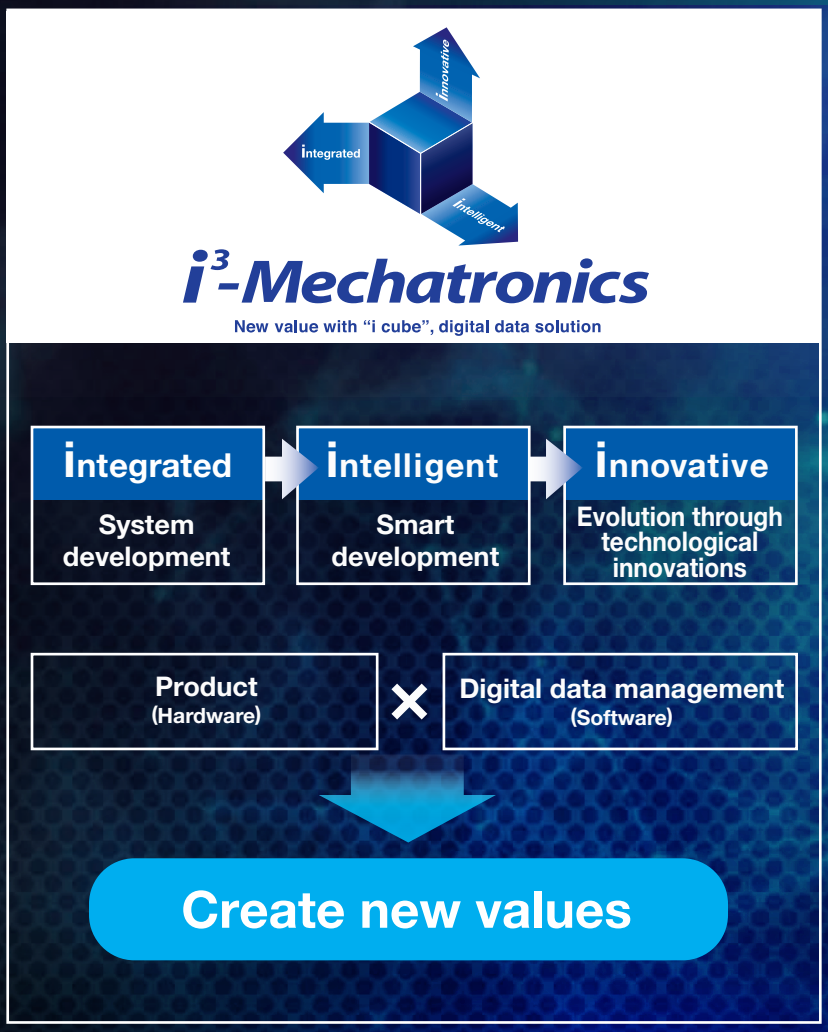
Yaskawa offers an extensive lineup of robots for various applications.
We are also the go-to source for highly compatible peripheral devices.

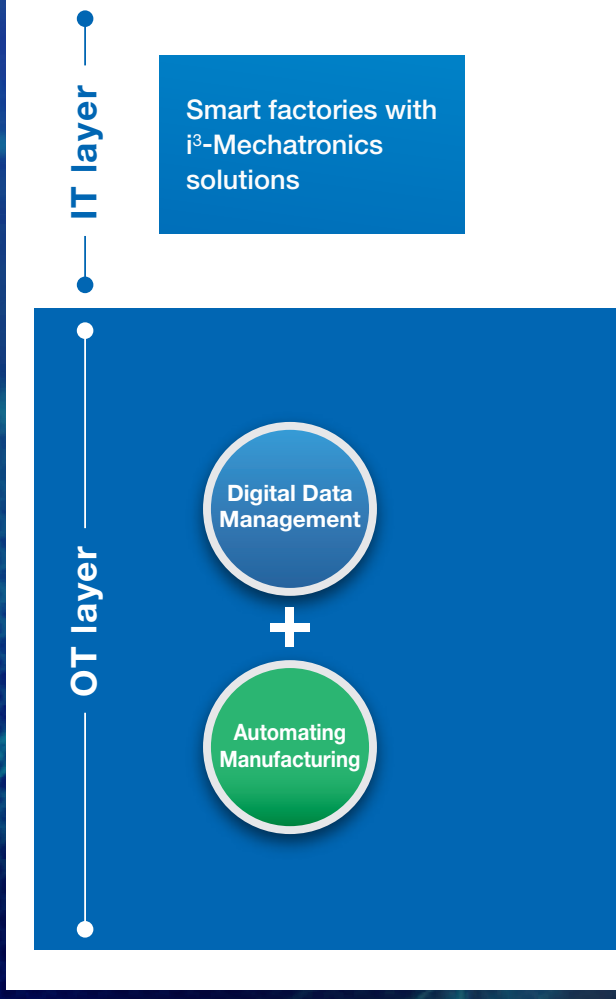
5. A fine-tuned service network

Yaskawa provides a reliable support system even after robots have been purchased, including a 24-hour toll-free call support center.
Yaskawa supports the stable operation of equipment used for various applications at customer production facilities.

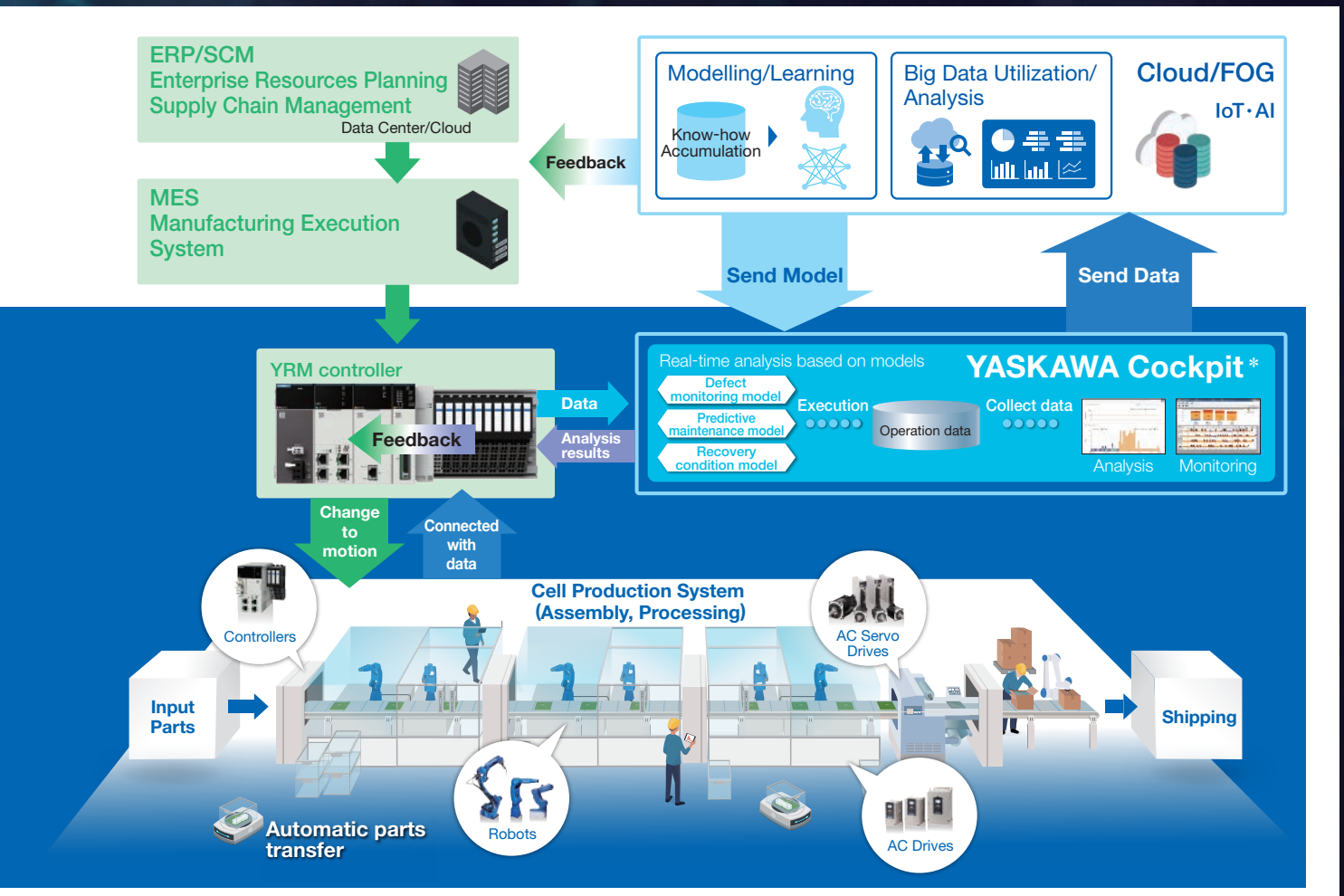
Smart Factories with i³-Mechatronics

i³-Mechatronics is a solution concept promoted by Yaskawa that incorporates digital data management as an advance in the evolution of mechatronics. Through solutions integrating competitive hardware and software, we pursue a new industrial automation revolution for our customers' production facilities.





i³-Mechatronics assists customers in creating new value while helping solve business issues at production sites.



Solutions to business issues at production sites

i³-Mechatronics helps customers solve business issues by making their factories more adaptable through the collection, analysis, and utilization of valuable factory data.

- Variable-type and variable-quantity production
- Manufacturing site visualization through the utilization of real-time/time-synchronized data —Cell DX—

*: Software to collect, store, and analyze real-time data from equipment at production sites

Work safely and securely together with humans

Collaborative robots

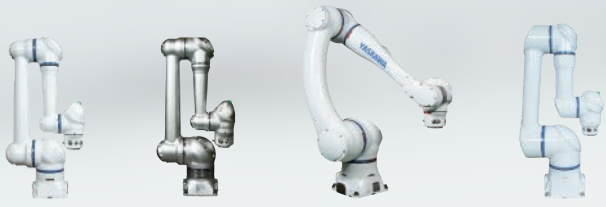
MOTOMAN-
HC Series

MOTOMAN-HC series collaborative robots can work in close proximity to humans without the need for a safety fence*. This series offers a high degree of safety and is easy to operate, even for first-time users. Eliminating the need for a safety fence increases the degree of freedom of equipment. That allows production sites to be automated with the introduction of robots in environments where they have not yet been used or in processes where installation has proven difficult.

*: Although safety functions allow systems to be constructed without safety fences, risk assessments and risk reduction measures must be implemented in all such cases.

Applications

→ Manipulator Specifications (p. 14)



Compatible with Smart Pendant

The MOTOMAN-HC series is compatible with the Smart Pendant, a tablet-type programming pendant. The Smart Pendant enables the robots to be intuitively controlled in a manner similar to using a smartphone, in turn facilitating the introduction of robot systems for customers using robots for the first time.

Small robots

Payload 4 to 25 kg

MOTOMAN-
GP Series

With their top-class operating speed and high level of accuracy, small models in the MOTOMAN-GP series are capable of enhancing productivity at various types of manufacturing sites. Food industry specifications and environmental resistance specifications are available, enabling customers to select the optimal model to suit their application.

Applications

→ Manipulator Specifications (p. 15)

MOTOMAN smart series

Target models

MotoMINI,
MOTOMAN-GP4, -GP7, -GP8

This MOTOMAN smart series package includes Yaskawa's Smart Pendant, a tablet-type programming pendant that can be used with four small robot models (MotoMINI, MOTOMAN-GP4, -GP7, and -GP8).
This series opens up opportunities for robot utilization at production sites where there may be a number of first-time or inexperienced users.

Ultra-small robot

Payload 0.5 kg*

MotoMINI

Weighing approximately 7 kg and being light enough for a human to carry, the MotoMINI makes it easy to reconstruct production lines or change layouts.
It is truly a robot with great potential in a small body.

*: Maximum payload is 1 kg when the T-axis faces downward.

Applications

→ Manipulator Specifications (p. 14)

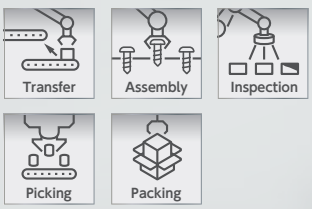
SCARA robots

Payload 3 kg, 6 kg

MOTOMAN-
SG Series

The MOTOMAN-SG series of SCARA robots is ideal for performing processes that require high cycle times, such as small part assembly, transferring, packaging, sorting, and inspection.

Applications



→ Manipulator Specifications (p. 14)

Medium- and large-sized robots

Payload **20 to 600 kg**

MOTOMAN-

GP Series

The MOTOMAN-GP series features a wide lineup of medium- and large-sized models with payloads ranging from 20 to 600 kg and maximum reaches from 2061 mm to 3518 mm. This enables customers to select a model that suits their needs.

Applications

→ Manipulator Specifications (p. 16-18)

Arc welding robots

MOTOMAN-AR Series

Models in the MOTOMAN-AR series feature slim bodies that allow torch cables to be built into the upper arm. They can improve productivity at a wide range of welding sites with their top-class payloads and operating speed.
MOTOPAC packages which include accessories such as welding power sources and torches are also available.

Application

→ Manipulator Specifications (p. 19)

High path accuracy robot

MOTOMAN-GA50

With its optimized motor and arm design with increased rigidity, the MOTOMAN-GA50 can perform high-speed, high-precision small circle cutting and linear cutting. This robot is ideal for both laser welding and laser cutting.

Application

→ Manipulator Specifications (p. 19)

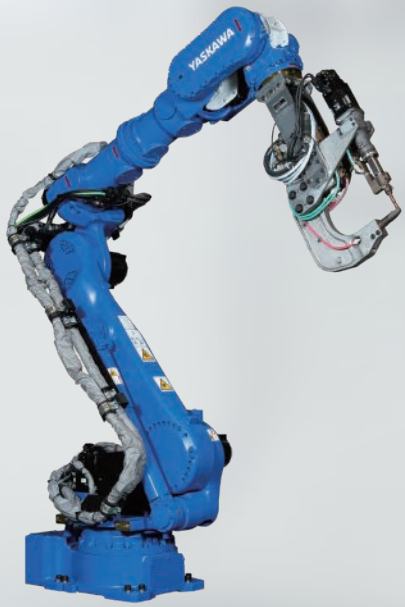
Spot welding robots

MOTOMAN-SP Series

The MOTOMAN-SP series features a broad lineup of models that allows customers to select the most optimal robots for their operating environments, including a 6-axis hollow arm model with built-in spot welding cables and a 7-axis model with an expanded effective operating range.

Application

→ Manipulator Specifications (p. 20-21)



High-rigidity robot

MOTOMAN-

GG250

With its reinforced arm and new control technology, the MOTOMAN-GG250 provides enhanced accuracy and a significant reduction in positional displacement caused by external forces.
It also features an absolute accuracy correction function that enables further improvements to absolute positional accuracy and path accuracy.
This enables it to be used in fields previously considered difficult for robot applications.

Application

Note: FSW (Friction Stir Welding)

→ Manipulator Specifications (p. 22)

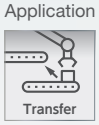
Heavy-payload SCARA robot

MOTOMAN-

ME1000

The MOTOMAN-ME1000 has been designed for transporting EV batteries, whose size has increased significantly in recent years.
Additionally, the MOTOMAN-ME1000 is space-saving, lightweight, and energy efficient.
This unrivaled heavy-payload SCARA robot is designed to assist users in constructing carbon-neutral production lines for various manufacturing and transport processes.

Application



→ Manipulator Specifications (p. 22)

Painting robots

MOTOMAN-
MPX Series

The MOTOMAN-MPX series features an extensive lineup of models for various painting applications, ranging from small items, such as smartphones and figurines, to automobile bodies.
Numerous peripheral devices for enhancing productivity are also available, such as intrinsically safe handling robots capable of use in painting booths.

Application

→ Manipulator Specifications (p. 22-23)

Picking and packing robots

MOTOMAN-
MPP, MPK Series

The MOTOMAN-MPP and MPK series is ideal for use in picking and packing processes for products such as foods, pharmaceuticals, or cosmetics. With their top-class operating speed, these robots perform high-speed transferring and packaging.

Applications

→ Manipulator Specifications (p. 24)

Palletizing robots

MOTOMAN-
PL Series

The MOTOMAN-PL series features models with payloads ranging from 80 to 800 kg, enabling them to be used for various types of workpieces. These robots are useful for distribution processes in a range of industries, including the food industry.

Application

→ Manipulator Specifications (p. 25)

Dual-arm/
7-axis robots

MOTOMAN-

SDA, SIA Series

The MOTOMAN-SDA series of dual-arm robots feature a human-like shape. With dual arms featuring a 7-axis structure that enables the robot to move in the same way as human arms, a single robot can be used to automate complex tasks that would normally be performed manually. The MOTOMAN-SIA series features robots with a single 7-axis arm. Featuring a slim arm with 7 joints, these robots are capable of performing work in narrow spaces with a high level of flexibility.

Applications

Pharmaceutical/
medical robots

Biomedical Robot Series

Models in the biomedical robot series are capable of performing manual work in place of humans in R&D settings, such as during pharmaceutical development and manufacturing or in clinical laboratories. These robots can be used to improve the quality of manufacturing and testing processes by automating operations in hygienic environments, such as isolators and safety cabinets.

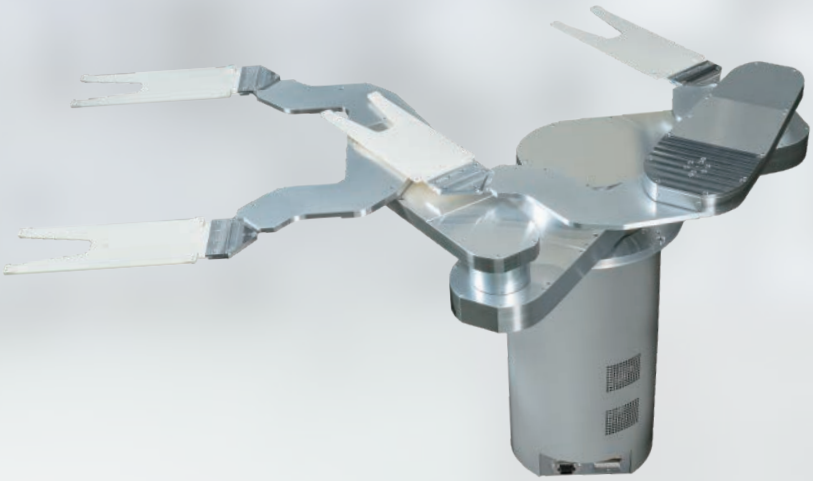
Application

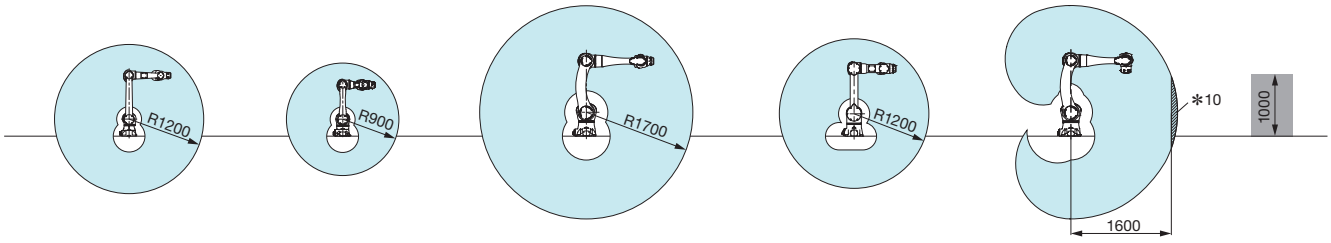
Clean robots for semiconductor wafer transfer

SEMISTAR Series

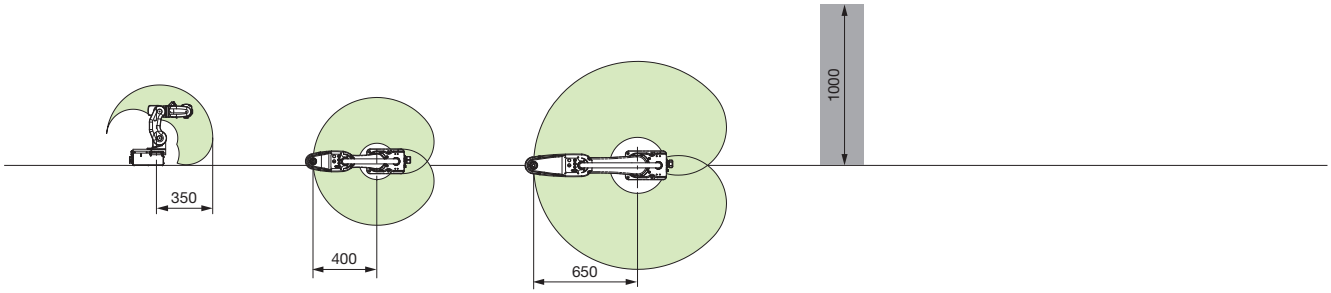
Semiconductor wafer transfer robots in the SEMISTAR series contribute to ever-evolving semiconductor technology, such as miniaturization and multi-layering. Designed using proprietary Yaskawa technology, these robots provide further added value such as by reducing wafer damage.

Application





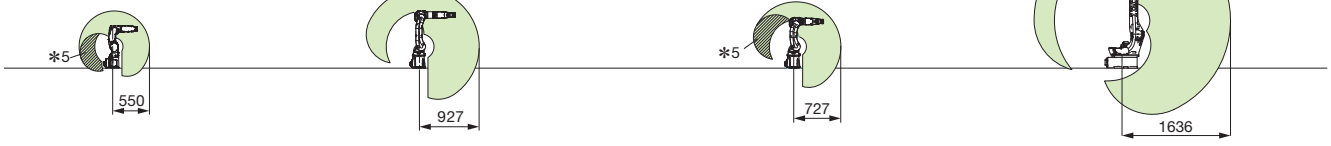
MOTOMAN-HC10DTP | MOTOMAN-HC10SDTP | MOTOMAN-HC20DTP | MOTOMAN-HC20SDTP | MOTOMAN-HC30PL*11



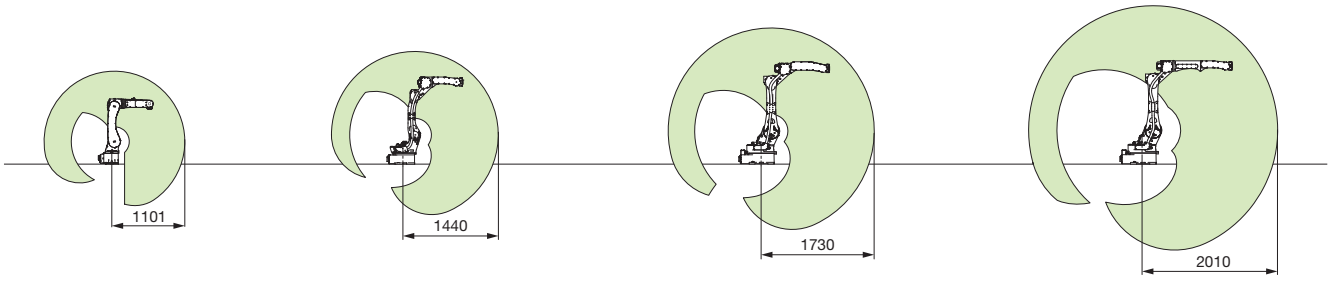
MotoMINI | MOTOMAN-SG400 | MOTOMAN-SG650

		Collaborative					Small		
Model		HC10DTP	HC10SDTP	HC20DTP	HC20SDTP	HC30PL*11	MotoMINI	SG400	SG650
Controlled Axis		6	6	6	6	6	6	4	4
Payload		10 kg	10 kg	20 kg	20 kg	30 kg	0.5 kg (Max. 1 kg*8)	3 kg	6 kg
Maximum Reach	P-point	1200 mm	900 mm	1700 mm	1200 mm	1600 mm*6	350 mm	400 mm	650 mm
	End-flange	1379 mm	1082 mm	1900 mm	1412 mm	–	–	–	–
Repeatability*1		0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.02 mm	∗9	∗9
Range of Motion	S-axis	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-170° – +170°	-142° – +142°	-137° – +137°
	L-axis	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-154° – +180°	- 85° – + 90°	-147° – +147°	-150° – +150°
	U-axis	-290° – +290°	-290° – +290°	- 67° – +247°	-290° – +290°	- 67° – +247°	- 50° – + 90°	200 mm	210 mm
	R-axis	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	- 15° – + 15°	-140° – +140°	-360° – +360°	-360° – +360°
	B-axis	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-15° – +15°*7	- 30° – +210°	–	–
	T-axis	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-360° – +360°	–	–
Maximum Speed*2	S-axis	130°/s	130°/s	80°/s	105°/s	80°/s	315°/s	740°/s	450°/s
	L-axis	130°/s	130°/s	80°/s	90°/s	80°/s	315°/s	800°/s	730°/s
	U-axis	180°/s	180°/s	120°/s	135°/s	120°/s	420°/s	1200 mm/s	1300 mm/s
	R-axis	180°/s	180°/s	130°/s	130°/s	112°/s	600°/s	3000°/s	2500°/s
	B-axis	250°/s	250°/s	180°/s	180°/s	132°/s	600°/s	–	–
	T-axis	250°/s	250°/s	180°/s	180°/s	180°/s	600°/s	–	–
Allowable Moment	R-axis	27.4 N·m	27.4 N·m	58.8 N·m	58.8 N·m	–	0.42 N·m	–	–
	B-axis	27.4 N·m	27.4 N·m	58.8 N·m	58.8 N·m	–	0.42 N·m	–	–
	T-axis	9.8 N·m	9.8 N·m	29.4 N·m	29.4 N·m	–	0.37 N·m	–	–
Allowable Inertia ($GD^2/4$)	R-axis	0.78 kg·m²	0.78 kg·m²	4 kg·m²	4 kg·m²	–	0.00378 kg·m²	0.06 kg·m²	0.12 kg·m²
	B-axis	0.78 kg·m²	0.78 kg·m²	4 kg·m²	4 kg·m²	–	0.00378 kg·m²	–	–
	T-axis	0.1 kg·m²	0.1 kg·m²	2 kg·m²	2 kg·m²	2 kg·m²	0.00299 kg·m²	–	–
Approx. Mass		48 kg	56 kg	140 kg	97 kg	140 kg	7 kg	14 kg	19 kg
Clean Rating (ISO 14644-1)*3		–	Class 2	Class 2	Class 2	Class 2	–	–	–
Power Requirements*4		1.0 kVA	1.0 kVA	1.5 kVA	1.5 kVA	1.5 kVA	0.5 kVA	1.0 kVA	1.0 kVA
Mounting*5		F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F	F,C,W,T	F	F
Compatible Controller		YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000micro	YRC1000micro	YRC1000micro

∗1: Repeatability conforms to ISO 9283.
∗2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
∗3: Measurements are based on the sample model. Clean packaging and clean rating measurements are available as options.
∗4: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
∗5: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
∗6: The maximum reach is 1700 mm for payloads of 27 kg or less.
∗7: The range of motion of the B-axis is an angle in the downward vertical direction. In some postures, however, the motion of the B-axis may be restricted depending on the angle with respect to the upper arm.
∗8: Maximum payload is 1 kg when the T-axis faces downward.
∗9: Repeatability is as follows. S-axis + L-axis: 0.01mm, U-axis: 0.01mm, R-axis: 0.004°
∗10: The shaded area shows the possible range of motion for payloads of 27 kg or less.
∗11: The range of motion differs when the payload is 20 kg or less. Refer to separate dimension diagrams and product specification sheets for details on the specification for payloads of 20 kg or less.



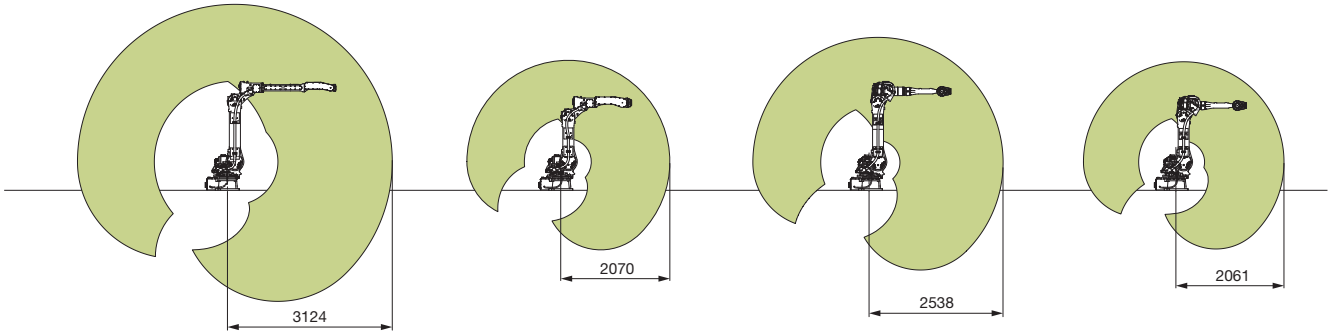
MOTOMAN-GP4 MOTOMAN-GP7 MOTOMAN-GP8 MOTOMAN-GP8L



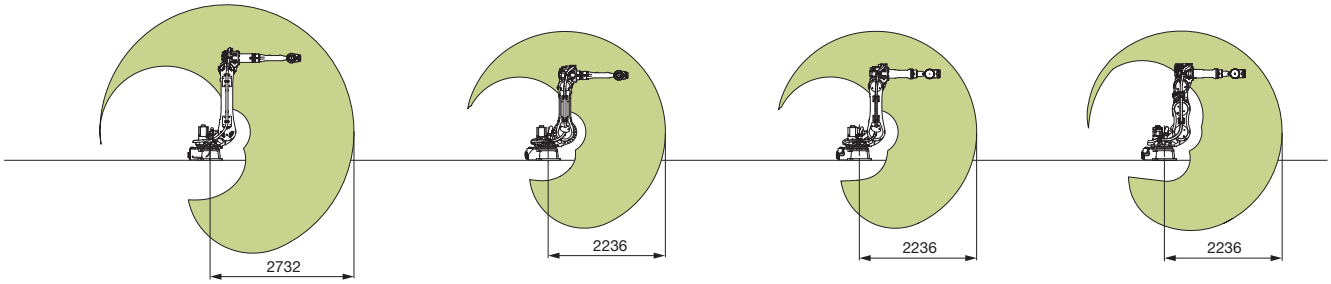
MOTOMAN-GP10 MOTOMAN-GP12 MOTOMAN-GP25 MOTOMAN-GP25-12

		Small							
Model		GP4	GP7	GP8	GP8L	GP10	GP12	GP25	GP25-12
Controlled Axis		6	6	6	6	6	6	6	6
Payload		4 kg	7 kg	8 kg	8 kg	10 kg	12 kg	25 kg	12 kg
Maximum Reach		550 mm	927 mm	727 mm	1636 mm	1101 mm	1440 mm	1730 mm	2010 mm
Repeatability*1		0.01 mm	0.01 mm	0.01 mm	0.02 mm	0.015 mm	0.02 mm	0.02 mm	0.03 mm
Range of Motion	S-axis	-170° – +170°	-170° – +170°	-170° – +170°	-170° – +170°	-180° – +180°	-170° – +170°	-180° – +180°	-180° – +180°
	L-axis	-110° – +130°	- 65° – +145°	- 65° – +145°	- 90° – +155°	-100° – +145°	- 90° – +155°	-105° – +155°	-105° – +155°
	U-axis	- 65° – +200°	- 70° – +190°	- 70° – +190°	- 85° – +150°	- 70° – +190°	- 85° – +150°	- 86° – +160°	- 86° – +160°
	R-axis	-200° – +200°	-190° – +190°	-190° – +190°	-200° – +200°	-190° – +190°	-200° – +200°	-200° – +200°	-200° – +200°
	B-axis	-123° – +123°	-135° – +135°	-135° – +135°	-135° – +135°	- 45° – +225°	-150° – +150°	-150° – +150°	-150° – +150°
	T-axis	-455° – +455°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-455° – +455°	-455° – +455°	-455° – +455°
Maximum Speed*2	S-axis	465°/s	375°/s	455°/s	260°/s	300°/s	260°/s	210°/s	210°/s
	L-axis	465°/s	315°/s	385°/s	230°/s	250°/s	230°/s	210°/s	210°/s
	U-axis	525°/s	410°/s	520°/s	260°/s	340°/s	260°/s	265°/s	220°/s
	R-axis	565°/s	550°/s	550°/s	470°/s	500°/s	470°/s	420°/s	435°/s
	B-axis	565°/s	550°/s	550°/s	550°/s	470°/s	470°/s	420°/s	435°/s
	T-axis	1000°/s	1000°/s	1000°/s	1000°/s	800°/s	700°/s	885°/s	700°/s
Allowable Moment	R-axis	8.86 N·m	17 N·m	17 N·m	17 N·m	22 N·m	22 N·m	52 N·m	22 N·m
	B-axis	8.86 N·m	17 N·m	17 N·m	17 N·m	22 N·m	22 N·m	52 N·m	22 N·m
	T-axis	4.9 N·m	10 N·m	10 N·m	10 N·m	11 N·m	9.8 N·m	32 N·m	9.8 N·m
Allowable Inertia ($GD^2/4$)	R-axis	0.2 kg·m²	0.5 kg·m²	0.5 kg·m²	0.5 kg·m²	0.9 kg·m²	0.65 kg·m²	2.3 kg·m²	0.65 kg·m²
	B-axis	0.2 kg·m²	0.5 kg·m²	0.5 kg·m²	0.5 kg·m²	0.9 kg·m²	0.65 kg·m²	2.3 kg·m²	0.65 kg·m²
	T-axis	0.07 kg·m²	0.2 kg·m²	0.2 kg·m²	0.2 kg·m²	0.3 kg·m²	0.17 kg·m²	1.2 kg·m²	0.17 kg·m²
Approx. Mass		28 kg	37 kg	35 kg	155 kg	59 kg	150 kg	250 kg	260 kg
Power Requirements*3		1.0 kVA	1.0 kVA	1.0 kVA	1.5 kVA	1.0 kVA	1.5 kVA	2.0 kVA	2.0 kVA
Mounting*4		F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T
Compatible Controller		YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000 YRC1000micro	YRC1000	YRC1000

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: When using air, an optional solenoid valve, or a mating connector, the arm cannot be moved in the shaded area because it interferes with the connector.



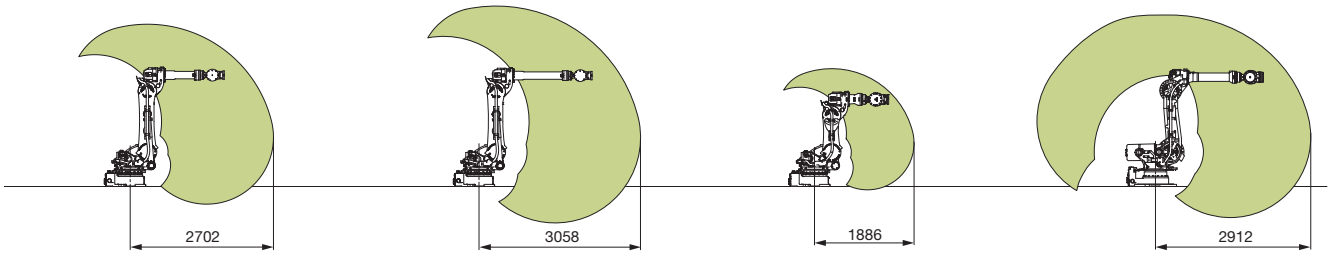
MOTOMAN-GP20HL | MOTOMAN-GP35H | MOTOMAN-GP35L | MOTOMAN-GP50



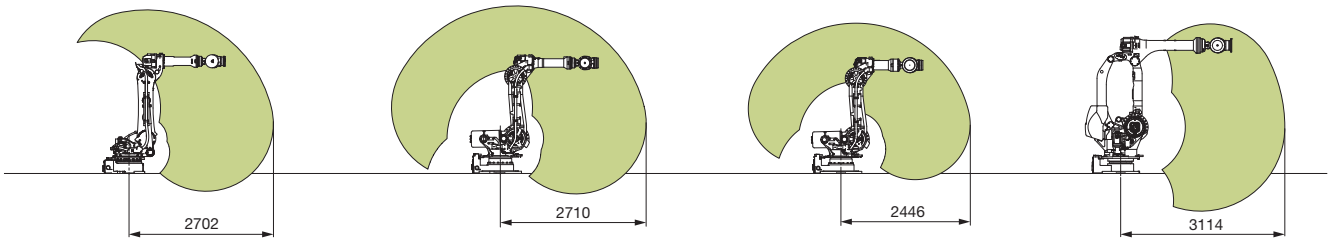
MOTOMAN-GP70L | MOTOMAN-GP88 | MOTOMAN-GP110 | MOTOMAN-GP110B

		Medium- and Large-sized							
Model		GP20HL	GP35H	GP35L	GP50	GP70L	GP88	GP110	GP110B (7-axis model)
Controlled Axis		6	6	6	6	6	6	6	7
Payload		20 kg	35 kg	35 kg	50 kg	70 kg	88 kg	110 kg	110 kg
Maximum Reach		3124 mm	2070 mm	2538 mm	2061 mm	2732 mm	2236 mm	2236 mm	2236 mm
Repeatability*1		0.07 mm	0.07 mm	0.07 mm	0.03 mm	0.05 mm	0.03 mm	0.03 mm	0.04 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180°~ +180°	-180° – +180°	-180° – +180°	-180° – +180°
	L-axis	- 90° – +135°	- 90° – +135°	- 90° – +135°	- 90° – +135°	- 90° – +155°	- 90° – +155°	- 90° – +155°	- 45° – +155°
	E-axis	–	–	–	–	–	–	–	- 45° – +120°
	U-axis	- 80° – +206°	- 80° – +206°	- 80° – +206°	- 80° – +206°	- 80° – + 90°	- 80° – + 90°	- 80° – + 90°	- 70° – + 90°
	R-axis	-200° – +200°	-200° – +200°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°
	B-axis	-150° – +150°	-125° – +125°	-125° – +125°	-125° – +125°	-125° – +125°	-125° – +125°	-125° – +125°	-125° – +125°
	T-axis	-455° – +455°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°
Maximum Speed*2	S-axis	180°/s	180°/s	180°/s	180°/s	180°/s	170°/s	140°/s	140°/s
	L-axis	180°/s	180°/s	140°/s	178°/s	123°/s	140°/s	110°/s	110°/s
	E-axis	–	–	–	–	–	–	–	110°/s
	U-axis	180°/s	200°/s	178°/s	178°/s	160°/s	160°/s	130°/s	130°/s
	R-axis	400°/s	350°/s	250°/s	250°/s	230°/s	230°/s	175°/s	175°/s
	B-axis	430°/s	350°/s	250°/s	250°/s	230°/s	230°/s	175°/s	175°/s
	T-axis	630°/s	400°/s	360°/s	360°/s	350°/s	350°/s	255°/s	255°/s
Allowable Moment	R-axis	39.2 N·m	150 N·m	147 N·m	216 N·m	392 N·m	408 N·m	721 N·m	721 N·m
	B-axis	39.2 N·m	150 N·m	147 N·m	216 N·m	392 N·m	408 N·m	721 N·m	721 N·m
	T-axis	19.6 N·m	120 N·m	78 N·m	147 N·m	196 N·m	206 N·m	294 N·m	294 N·m
Allowable Inertia ($GD^2/4$)	R-axis	1.05 kg·m²	20 kg·m²	10 kg·m²	28 kg·m²	28 kg·m²	30 kg·m²	60 kg·m²	60 kg·m²
	B-axis	1.05 kg·m²	20 kg·m²	10 kg·m²	28 kg·m²	28 kg·m²	30 kg·m²	60 kg·m²	60 kg·m²
	T-axis	0.75 kg·m²	10 kg·m²	4 kg·m²	11 kg·m²	11 kg·m²	11 kg·m²	33.7 kg·m²	33.7 kg·m²
Approx. Mass		560 kg	545 kg	600 kg	570 kg	650 kg	630 kg	660 kg	790 kg
Power Requirements*3		4.0 kVA	4.0 kVA	4.5 kVA	4.5 kVA	5.0 kVA	4.0 kVA	5.0 kVA	5.0 kVA
Mounting*4		F,C,W,T	F,C,W,T	F,C,W,T	F,C,W,T	F	F,C,W,T	F	F
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

✻1: Repeatability conforms to ISO 9283.
✻2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
✻3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
✻4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)



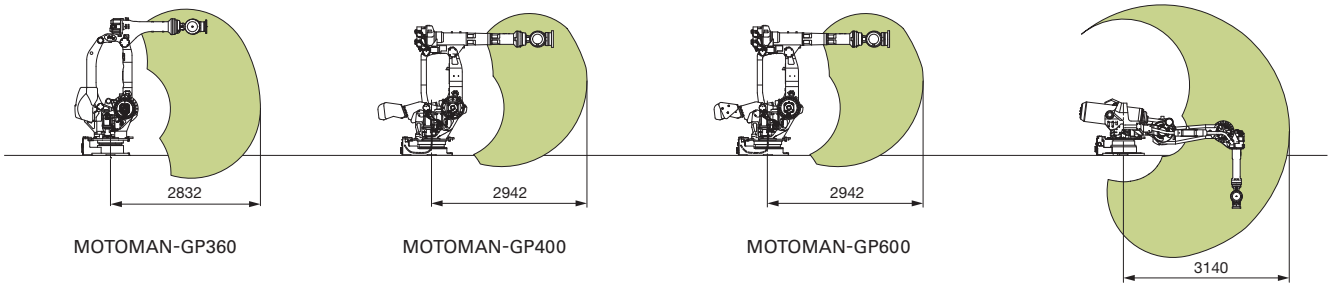
MOTOMAN-GP180　MOTOMAN-GP180-120　MOTOMAN-GP200S　MOTOMAN-GP215



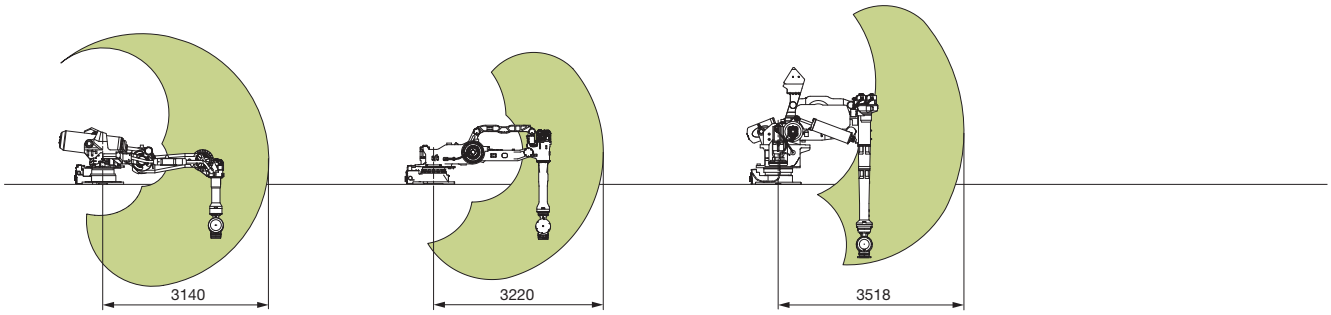
MOTOMAN-GP225　MOTOMAN-GP250　MOTOMAN-GP280　MOTOMAN-GP280L

		Medium- and Large-sized							
Model		GP180	GP180-120	GP200S	GP215	GP225	GP250	GP280	GP280L
Controlled Axis		6	6	6	6	6	6	6	6
Payload		180 kg	120 kg	200 kg	215 kg	225 kg	250 kg	280 kg	280 kg
Maximum Reach		2702 mm	3058 mm	1886 mm	2912 mm	2702 mm	2710 mm	2446 mm	3114 mm
Repeatability*1		0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.1 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-180° – +180°	- 180° – +180°	-180° – +180°	- 180° – +180°	- 180° – +180°	- 180° – +180°
	L-axis	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 45° – + 90°
	U-axis	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	-77.8° – +197°	- 86° – + 90°	-77.8° – +197°	-77.8° – +197°	- 120° – +15.5°
	R-axis	-360° – +360°	-360° – +360°	-360° – +360°	- 360° – +360°	-360° – +360°	- 360° – +360°	- 360° – +360°	- 360° – +360°
	B-axis	-130° – +130°	-130° – +130°	-125° – +125°	- 125° – +125°	-125° – +125°	- 125° – +125°	- 125° – +125°	- 125° – +125°
	T-axis	-360° – +360°	-360° – +360°	-360° – +360°	- 360° – +360°	-360° – +360°	- 360° – +360°	- 360° – +360°	- 360° – +360°
Maximum Speed*2	S-axis	125°/s	125°/s	120°/s	100°/s	120°/s	100°/s	90°/s	110°/s
	L-axis	115°/s	115°/s	97°/s	90°/s	97°/s	90°/s	80°/s	90°/s
	U-axis	125°/s	125°/s	115°/s	97°/s	115°/s	97°/s	90°/s	90°/s
	R-axis	182°/s	182°/s	145°/s	120°/s	145°/s	120°/s	115°/s	125°/s
	B-axis	175°/s	175°/s	145°/s	120°/s	145°/s	120°/s	110°/s	125°/s
	T-axis	265°/s	265°/s	220°/s	190°/s	220°/s	190°/s	190°/s	205°/s
Allowable Moment	R-axis	1000 N·m	883 N·m	1372 N·m	1176 N·m	1372 N·m	1385 N·m	1333 N·m	1960 N·m
	B-axis	1000 N·m	883 N·m	1372 N·m	1176 N·m	1372 N·m	1385 N·m	1333 N·m	1960 N·m
	T-axis	618 N·m	520 N·m	735 N·m	710 N·m	735 N·m	735 N·m	706 N·m	950 N·m
Allowable Inertia ($GD^2/4$)	R-axis	90 kg·m²	79 kg·m²	145 kg·m²	317 kg·m²	145 kg·m²	317 kg·m²	142 kg·m²	220 kg·m²
	B-axis	90 kg·m²	79 kg·m²	145 kg·m²	317 kg·m²	145 kg·m²	317 kg·m²	142 kg·m²	220 kg·m²
	T-axis	46.3 kg·m²	40 kg·m²	84 kg·m²	200 kg·m²	84 kg·m²	200 kg·m²	79 kg·m²	140 kg·m²
Approx. Mass		1020 kg	1090 kg	950 kg	1340 kg	1080 kg	1345 kg	1300 kg	2390 kg
Power Requirements*3		5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	7.5 kVA
Mounting*4		F	F	F	F	F	F	F	F
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

✻1: Repeatability conforms to ISO 9283.
✻2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
✻3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
✻4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)



MOTOMAN-GP360 MOTOMAN-GP400 MOTOMAN-GP600 MOTOMAN-GP165R

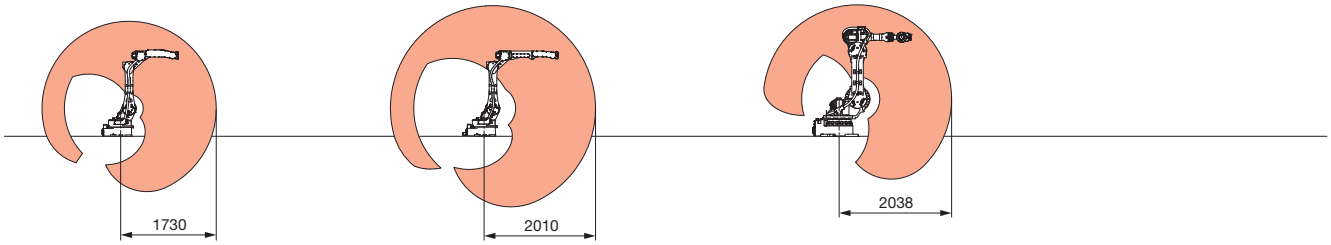


MOTOMAN-GP200R MOTOMAN-GP300R MOTOMAN-GP400R

		Medium- and Large-sized							
Model		GP360	GP400	GP600	GP165R	GP200R	GP300R	GP400R (Standard Specification)	GP400R (High Inertia Specification)
Controlled Axis		6	6	6	6	6	6	6	6
Payload		360 kg	400 kg	600 kg	165 kg	200 kg	300 kg	400 kg	400 kg
Maximum Reach		2832 mm	2942 mm	2942 mm	3140 mm	3140 mm	3220 mm	3518 mm	3518 mm
Repeatability*1		0.1 mm	0.1 mm	0.1 mm	0.05 mm	0.05 mm	0.05 mm	0.1 mm	0.1 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-180° – +180°	- 180° – +180°	- 180° – +180°	-180° – +180°	-150° – +150°	-150° – +150°
	L-axis	- 45° – + 90°	- 55° – + 61°	- 55° – + 61°	- 130° – + 80°	- 130° – + 80°	-140° – + 70°	-122° – + 20°	-122° – + 20°
	U-axis	-120° – +15.5°	-113° – + 18°	-113° – + 18°	-79.4° – + 78°	-78.4° – + 78°	- 70° – +115°	- 9° – +120°	- 9° – +120°
	R-axis	-360° – +360°	-360° – +360°	-360° – +360°	- 360° – +360°	- 360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°
	B-axis	-125° – +125°	-115° – +115°	-115° – +115°	- 130° – +130°	- 125° – +125°	-125° – +125°	-120° – +120°	-120° – +120°
	T-axis	-360° – +360°	-360° – +360°	-360° – +360°	- 360° – +360°	- 360° – +360°	-360° – +360°	-360° – +360°	-360° – +360°
Maximum Speed*2	S-axis	110°/s	102°/s	82°/s	105°/s	90°/s	110°/s	80°/s	80°/s
	L-axis	90°/s	97°/s	82°/s	105°/s	85°/s	95°/s	80°/s	60°/s
	U-axis	90°/s	97°/s	82°/s	105°/s	85°/s	95°/s	80°/s	50°/s
	R-axis	125°/s	80°/s	80°/s	175°/s	120°/s	120°/s	80°/s	80°/s
	B-axis	125°/s	80°/s	80°/s	150°/s	120°/s	120°/s	80°/s	80°/s
	T-axis	205°/s	172°/s	162°/s	240°/s	190°/s	190°/s	160°/s	105°/s
Allowable Moment	R-axis	1960 N·m	2989 N·m	3430 N·m	921 N·m	1344 N·m	1962 N·m	1960 N·m	1960 N·m
	B-axis	1960 N·m	2989 N·m	3430 N·m	921 N·m	1344 N·m	1962 N·m	1960 N·m	1960 N·m
	T-axis	950 N·m	1343 N·m	1764 N·m	490 N·m	715 N·m	834 N·m	833 N·m	833 N·m
Allowable Inertia ($GD^2/4$)	R-axis	260 kg·m²	500 kg·m²	520 kg·m²	85 kg·m²	143 kg·m²	320 kg·m²	150 kg·m²	280 kg·m²
	B-axis	260 kg·m²	500 kg·m²	520 kg·m²	85 kg·m²	143 kg·m²	320 kg·m²	150 kg·m²	280 kg·m²
	T-axis	180 kg·m²	315 kg·m²	350 kg·m²	45 kg·m²	80 kg·m²	200 kg·m²	50 kg·m²	230 kg·m²
Approx. Mass		2380 kg	2840 kg	3035 kg	1760 kg	1830 kg	1530 kg	3560 kg	3560 kg
Power Requirements*3		7.5 kVA	7.0 kVA	7.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	7.0 kVA	7.0 kVA
Mounting*4		F	F	F	S	S	S	S	S
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

✻1: Repeatability conforms to ISO 9283.
✻2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
✻3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
✻4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)

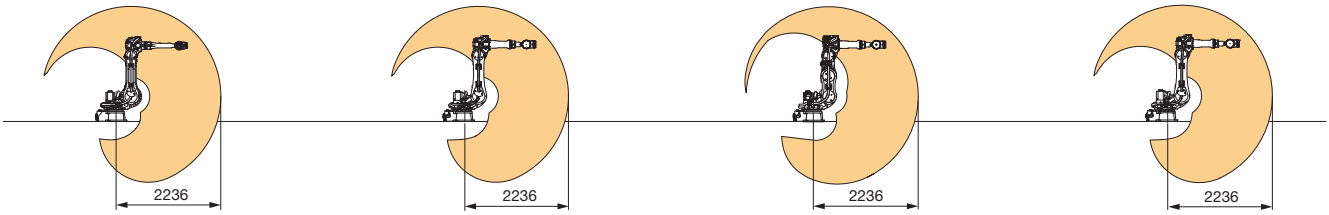
MOTOMAN-AR700 MOTOMAN-AR900 MOTOMAN-AR1440 MOTOMAN-AR1440E



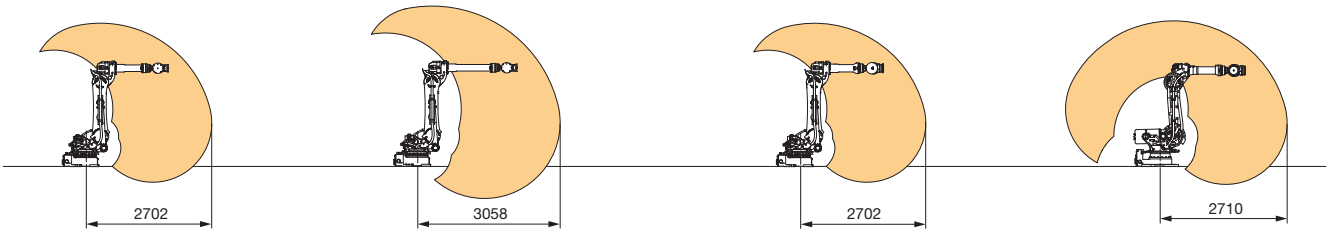
MOTOMAN-AR1730 MOTOMAN-AR2010 MOTOMAN-GA50

		Arc Welding						High Path Accuracy
Model		AR700	AR900	AR1440	AR1440E (7-axis model)	AR1730	AR2010	GA50
Controlled Axis		6	6	6	7	6	6	6
Payload		8 kg	7 kg	12 kg	6 kg	25 kg	12 kg	50 kg*6
Maximum Reach		727 mm	927 mm	1440 mm	1440 mm	1730 mm	2010 mm	2038 mm
Repeatability*1		0.01 mm	0.01 mm	0.02 mm	0.06 mm	0.02 mm	0.03 mm	0.015 mm
Range of Motion	S-axis	-170° – +170°	-170° – +170°	-170° – +170°	-170° – +170°	-180° – +180°	-180° – +180°	-180° – +180°
	L-axis	- 65° – +145°	- 65° – +145°	- 90° – +155°	- 70° – +148°	-105° – +155°	-105° – +155°	- 90° – +135°
	E-axis	–	–	–	- 90° – + 90°	–	–	–
	U-axis	- 70° – +190°	- 70° – +190°	- 85° – +150°*5	- 80° – + 80°	- 86° – +160°	- 86° – +160°	- 80° – +180°
	R-axis	-190° – +190°	-190° – +190°	-200° – +200°*5	-200° – +200°*5	-200° – +200°*5	-200° – +200°*5	-360° – +360°
	B-axis	-135° – +135°	-135° – +135°	-150° – +150°*5	-150° – +150°*5	-150° – +150°*5	-150° – +150°*5	-125° – +125°
	T-axis	-360° – +360°	-360° – +360°	-455° – +455°*5	-455° – +455°*5	-455° – +455°*5	-455° – +455°*5	-360° – +360°
Maximum Speed*2	S-axis	455°/s	375°/s	260°/s	260°/s	210°/s	210°/s	150°/s
	L-axis	385°/s	315°/s	230°/s	230°/s	210°/s	210°/s	150°/s
	E-axis	–	–	–	260°/s	–	–	–
	U-axis	520°/s	410°/s	260°/s	260°/s	265°/s	220°/s	150°/s
	R-axis	550°/s	550°/s	470°/s	470°/s	420°/s	435°/s	250°/s
	B-axis	550°/s	550°/s	470°/s	470°/s	420°/s	435°/s	250°/s
	T-axis	1000°/s	1000°/s	700°/s	700°/s	885°/s	700°/s	250°/s
Allowable Moment	R-axis	17 N·m	17 N·m	22 N·m	12.5 N·m	52 N·m	22 N·m	110 N·m
	B-axis	17 N·m	17 N·m	22 N·m	12.5 N·m	52 N·m	22 N·m	110 N·m
	T-axis	10 N·m	10 N·m	9.8 N·m	6 N·m	32 N·m	9.8 N·m	55 N·m
Allowable Inertia ($GD^2/4$)	R-axis	0.5 kg·m²	0.5 kg·m²	0.65 kg·m²	0.4 kg·m²	2.3 kg·m²	0.65 kg·m²	7 kg·m²
	B-axis	0.5 kg·m²	0.5 kg·m²	0.65 kg·m²	0.4 kg·m²	2.3 kg·m²	0.65 kg·m²	7 kg·m²
	T-axis	0.2 kg·m²	0.2 kg·m²	0.17 kg·m²	0.08 kg·m²	1.2 kg·m²	0.17 kg·m²	1 kg·m²
Approx. Mass		35 kg	37 kg	150 kg	190 kg	250 kg	260 kg	855 kg
Power Requirements*3		1.0 kVA	1.0 kVA	1.5 kVA	1.5 kVA	2.0 kVA	2.0 kVA	3.5 kVA
Mounting*4		F,C,W,T	F,C,W,T	F,C,W,T	F	F,C,W,T	F,C,W,T	F
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt
(When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: The range of motion will be limited when the robot is used together with MOTOPAC.
*6: A load of 30 kg or less is recommended for applications that require high accuracy.
*7: When using air, an optional solenoid valve, or a mating connector, the arm cannot be moved in the shaded area because it interferes with the connector.



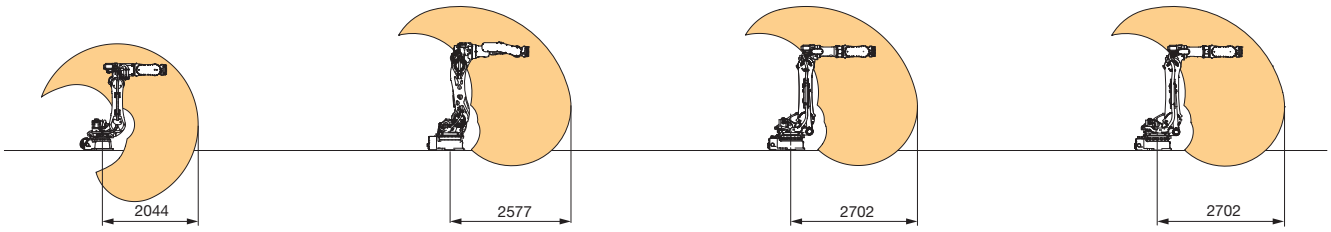
MOTOMAN-SP80 | MOTOMAN-SP100 | MOTOMAN-SP100B | MOTOMAN-SP130



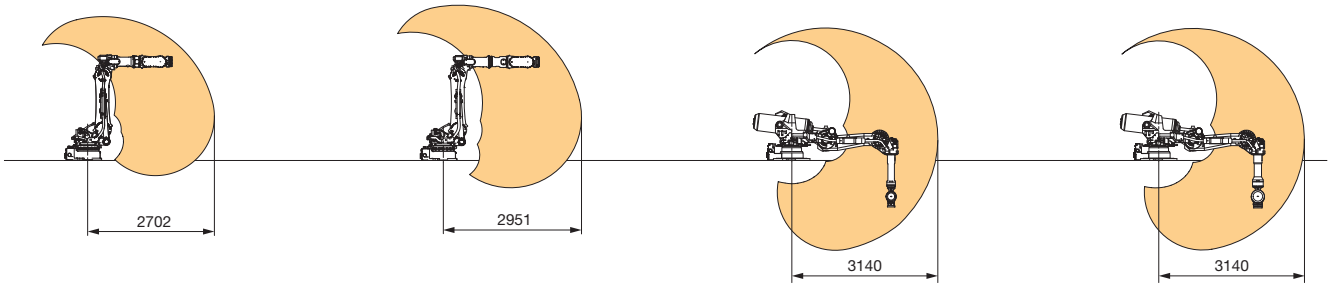
MOTOMAN-SP165 | MOTOMAN-SP165-105 | MOTOMAN-SP210 | MOTOMAN-SP235

		Spot Welding							
Model		SP80	SP100	SP100B (7-axis model)	SP130	SP165	SP165-105	SP210	SP235
Controlled Axis		6	6	7	6	6	6	6	6
Payload		80 kg*5	100 kg*5	100 kg*5	130 kg*5	165 kg*5	105 kg*5	210 kg*5	235 kg*5
Maximum Reach		2236 mm	2236 mm	2236 mm	2236 mm	2702 mm	3058 mm	2702 mm	2710 mm
Repeatability*1		0.03 mm	0.03 mm	0.04 mm	0.03 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°
	L-axis	- 90° – +155°	- 90° – +155°	- 45° – +155°	- 90° – +155°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°
	E-axis	–	–	- 45° – +120°	–	–	–	–	–
	U-axis	- 80° – + 90°	- 80° – + 90°	- 70° – + 90°	- 80° – + 90°	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	-77.8° – +197°
	R-axis	-205° – +205°*5	-205° – +205°*5	-205° – +205°*5	-205° – +205°*5	-210° – +210°*5	-210° – +210°*5	-210° – +210°*5	-205° – +205°*5
	B-axis	-120° – +120°*5	-120° – +120°*5	-120° – +120°*5	-120° – +120°*5	-125° – +125°*5	-125° – +125°*5	-125° – +125°	-120° – +120°*5
	T-axis	-180° – +180°*5	-205° – +205°*5	-205° – +205°*5	-205° – +205°*5	-210° – +210°*5	-210° – +210°*5	-210° – +210°*5	-180° – +180°*5
Maximum Speed*2	S-axis	170°/s	140°/s	140°/s	140°/s	125°/s	125°/s	120°/s	100°/s
	L-axis	140°/s	110°/s	110°/s	110°/s	115°/s	115°/s	97°/s	90°/s
	E-axis	–	–	110°/s	–	–	–	–	–
	U-axis	160°/s	130°/s	130°/s	130°/s	125°/s	125°/s	115°/s	97°/s
	R-axis	230°/s	175°/s	175°/s	175°/s	182°/s	182°/s	145°/s	120°/s
	B-axis	230°/s	175°/s	175°/s	175°/s	175°/s	175°/s	145°/s	120°/s
	T-axis	350°/s	255°/s	255°/s	255°/s	265°/s	265°/s	220°/s	190°/s
Allowable Moment	R-axis	389 N·m*5	696 N·m*5	696 N·m*5	820 N·m*5	951 N·m*5	834 N·m*5	1323 N·m*5	1333 N·m*5
	B-axis	389 N·m*5	696 N·m*5	696 N·m*5	820 N·m*5	951 N·m*5	834 N·m*5	1323 N·m*5	1333 N·m*5
	T-axis	206 N·m	294 N·m	294 N·m	360 N·m	618 N·m	520 N·m	735 N·m	735 N·m
Allowable Inertia ($GD^2/4$)	R-axis	28 kg·m²*5	58 kg·m²*5	58 kg·m²*5	71 kg·m²*5	88 kg·m²*5	77 kg·m²*5	143 kg·m²*5	315 kg·m²*5
	B-axis	28 kg·m²*5	58 kg·m²*5	58 kg·m²*5	71 kg·m²*5	88 kg·m²*5	77 kg·m²*5	143 kg·m²*5	315 kg·m²*5
	T-axis	10.3 kg·m²*5	33 kg·m²*5	33 kg·m²*5	38 kg·m²*5	46.3 kg·m²	40 kg·m²	84 kg·m²	200 kg·m²
Approx. Mass		630 kg	660 kg	790 kg	660 kg	1020 kg	1090 kg	1080 kg	1345 kg
Power Requirements*3		4.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA
Mounting*4		F,C,W,T	F	F	F	F	F	F	F
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: When a standard flange for cabling by Yaskawa is equipped to the tip of the wrist.



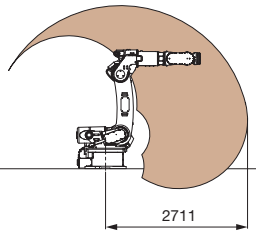
MOTOMAN-SP110H　MOTOMAN-SP110HL　MOTOMAN-SP180H　MOTOMAN-SP180H-110



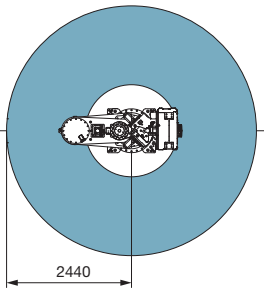
MOTOMAN-SP225H　MOTOMAN-SP225H-135　MOTOMAN-SP150R　MOTOMAN-SP185R

		Spot Welding							
Model		SP110H (Hollow-arm model)	SP110HL (Hollow-arm model)	SP180H (Hollow-arm model)	SP180H-110 (Hollow-arm model)	SP225H (Hollow-arm model)	SP225H-135 (Hollow-arm model)	SP150R	SP185R
Controlled Axis		6	6	6	6	6	6	6	6
Payload		110 kg	110 kg	180 kg	110 kg	225 kg	135 kg	150 kg*6	185 kg*6
Maximum Reach		2044 mm	2577 mm	2702 mm	2702 mm	2702 mm	2951 mm	3140 mm	3140 mm
Repeatability*1		0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°	-180° – +180°
	L-axis	- 90° – +155°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	- 60° – + 76°	-130° – + 80°	-130° – + 80°
	U-axis	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	- 86° – + 90°	-79.4° – + 78°	-78.4° – + 78°
	R-axis	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-210° – +210°	-205° – +205°*6	-205° – +205°*6
	B-axis	-130° – +130°	-130° – +130°	-130° – +130°	-130° – +130°	-130° – +130°	-130° – +130°	-120° – +120°*6	-120° – +120°*6
	T-axis	-360° – +360°*5	-360° – +360°*5	-360° – +360°*5	-360° – +360°*5	-360° – +360°*5	-360° – +360°*5	-180° – +180°*6	-180° – +180°*6
Maximum Speed*2	S-axis	140°/s	140° /s	120°/s	140°/s	120°/s	125°/s	105°/s	90°/s
	L-axis	115°/s	130° /s	97°/s	97°/s	97°/s	115°/s	105°/s	85°/s
	U-axis	161°/s	135° /s	115°/s	115°/s	115°/s	115°/s	105°/s	85°/s
	R-axis	225°/s	220° /s	150°/s	210°/s	150°/s	182°/s	175°/s	120°/s
	B-axis	200°/s	200° /s	150°/s	200°/s	150°/s	175°/s	150°/s	120°/s
	T-axis	315°/s	310° /s	230°/s	310°/s	230°/s	265°/s	240°/s	190°/s
Allowable Moment	R-axis	721 N·m	883 N·m	1000 N·m	883 N·m	1372 N·m	883 N·m	868 N·m*6	1291 N·m*6
	B-axis	721 N·m	883 N·m	1000 N·m	883 N·m	1372 N·m	883 N·m	868 N·m*6	1291 N·m*6
	T-axis	315 N·m	520 N·m	618 N·m	520 N·m	735 N·m	520 N·m	490 N·m	715 N·m
Allowable Inertia ($GD^2/4$)	R-axis	85 kg·m²	90 kg·m²	104 kg·m²	85 kg·m²	209.8 kg·m²	85 kg·m²	83 kg·m²*6	141 kg·m²*6
	B-axis	85 kg·m²	90 kg·m²	104 kg·m²	85 kg·m²	209.8 kg·m²	85 kg·m²	83 kg·m²*6	141 kg·m²*6
	T-axis	45 kg·m²	40 kg·m²	52 kg·m²	40 kg·m²	162.1 kg·m²	40 kg·m²	45 kg·m²	80 kg·m²
Approx. Mass		730 kg	985 kg	1090 kg	1090 kg	1090 kg	1110 kg	1760 kg	1830 kg
Power Requirements*3		5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA	5.0 kVA
Mounting*4		F	F	F	F	F	F	S	S
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

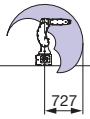
∗1: Repeatability conforms to ISO 9283.
∗2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
∗3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
∗4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
∗5: The range of motion will be limited when standard external cablings by Yaskawa is mounted to the manipulator.
∗6: When a standard flange for cabling by Yaskawa is equipped to the tip of the wrist.



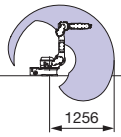
MOTOMAN-GG250



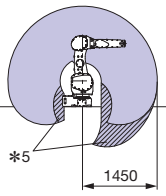
MOTOMAN-ME1000



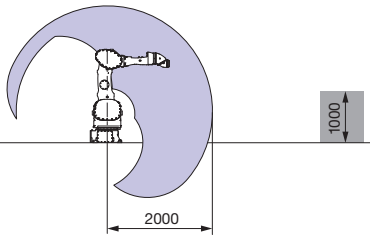
MOTOMAN-MPX1150



MOTOMAN-MPX1400



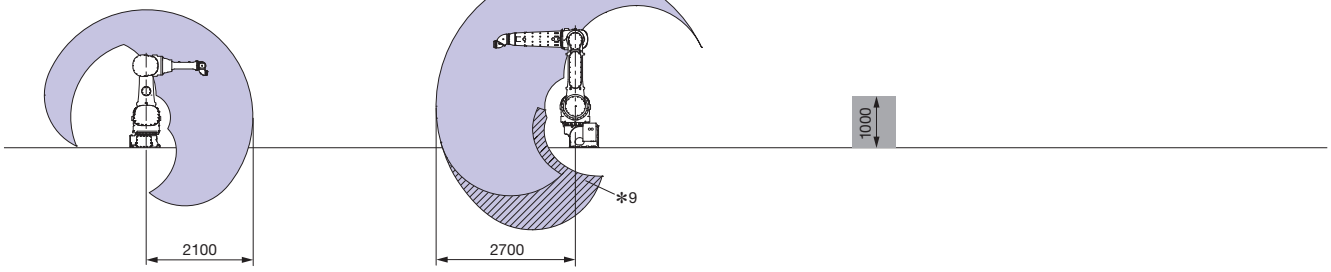
MOTOMAN-MPX1950



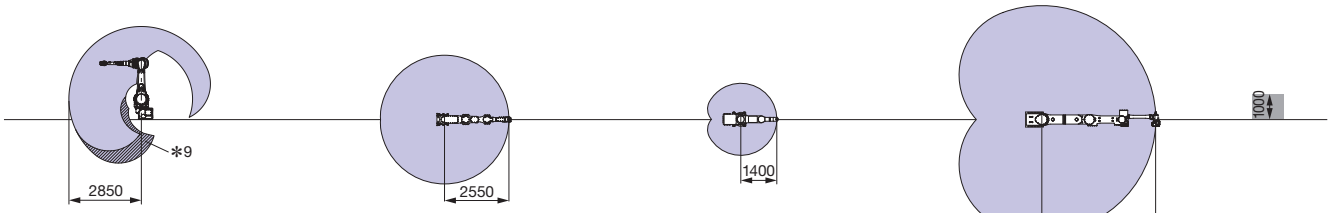
MOTOMAN-MPX2600

		High-rigidity	Heavy-payload SCARA	Painting			
Model		GG250	ME1000	MPX1150	MPX1400	MPX1950	MPX2600
Controlled Axis		6	6	6	6	6	6
Payload		250 kg	1000 kg	5 kg	5 kg	7 kg	15 kg
Maximum Reach		2711 mm	2440 mm	727 mm	1256 mm	1450 mm	2000 mm
Repeatability*1		0.025 mm	0.1 mm	0.02 mm	0.1 mm	0.15 mm	0.2 mm
Range of Motion	S-axis	-180° – +180°	-180° – +180°	-170° – +170°	-170° – +170°	-170° – +170°	-150° – +150°
	L-axis	- 60° – +76°	-170° – +170°	- 80° – +120°	- 65° – +120°	-100° – +140°	- 65° – +130°
	U-axis	- 78° – +90°	-1000 mm – +1000 mm	- 70° – + 90°	- 70° – +140°	- 62° – +235°	- 65° – +150°
	R-axis	-210° – +210°	- 5° – +5°	-190° – +190°	-190° – +190°	-200° – +200°	-720° – +720°
	B-axis	-130° – +130°	- 3° – +5°	-135° – +135°	-145° – +145°	-150° – +150°	-720° – +720°
	T-axis	-360° – +360°	- 90° – +90°	-360° – +360°	-360° – +360°	-400° – +400°	-720° – +720°
Maximum Speed*2	S-axis	80°/s	45°/s	350°/s	220°/s	180°/s	120°/s
	L-axis	75°/s	60°/s	350°/s	190°/s	180°/s	120°/s
	U-axis	80°/s	300 mm/s	400°/s	240°/s	180°/s	125°/s
	R-axis	150°/s	10°/s	450°/s	450°/s	360°/s	300°/s
	B-axis	150°/s	10°/s	450°/s	450°/s	400°/s	360°/s
	T-axis	190°/s	50°/s	720°/s	720°/s	500°/s	360°/s
Allowable Moment	R-axis	1372 N·m	End-flange center point reference (front to back) 9800 N·m	12 N·m	12 N·m	19.6 N·m	93.2 N·m
	B-axis	1372 N·m		12 N·m	12 N·m	19.6 N·m	58.8 N·m
	T-axis	735 N·m		7 N·m	7 N·m	9.8 N·m	19.6 N·m
Allowable Inertia ($GD^2/4$)	R-axis	209.8 kg·m²	–	0.3 kg·m²	0.3 kg·m²	0.6 kg·m²	3.75 kg·m²
	B-axis	209.8 kg·m²	–	0.3 kg·m²	0.3 kg·m²	0.6 kg·m²	2.225 kg·m²
	T-axis	162.1 kg·m²	3320 kg·m²	0.1 kg·m²	0.1 kg·m²	0.16 kg·m²	0.2 kg·m²
Approx. Mass		1640 kg	3250 kg	57 kg	120 kg	265 kg	485 kg
Power Requirements*3		5.0 kVA	5.0 kVA	1.0 kVA	1.5 kVA	2.5 kVA	3.0 kVA
Mounting*4		F	F	F,C,W	F,C,W	F,C,W	F,C,W
Compatible Controller		YRC1000	YRC1000	DX200	DX200	DX200	DX200

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt
(When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: The range of motion (indicated by the shaded area) may be limited depending on the operating conditions. Contact your Yaskawa representative for details.



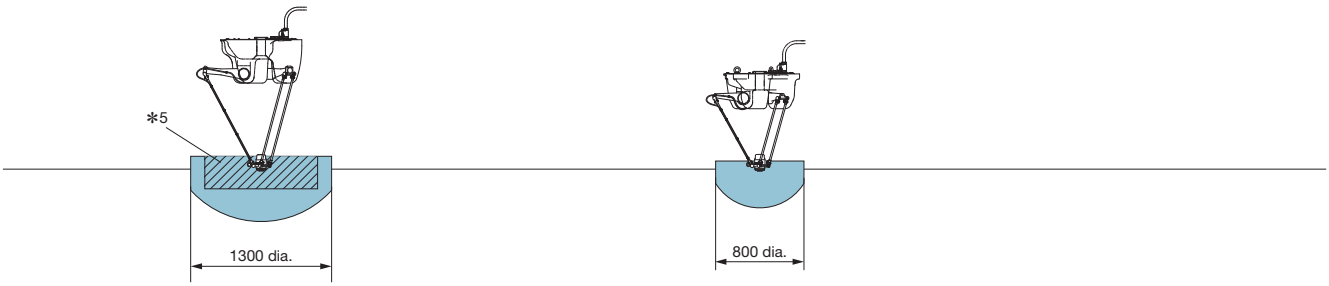
MOTOMAN-MPXL2600 MOTOMAN-MPX3500



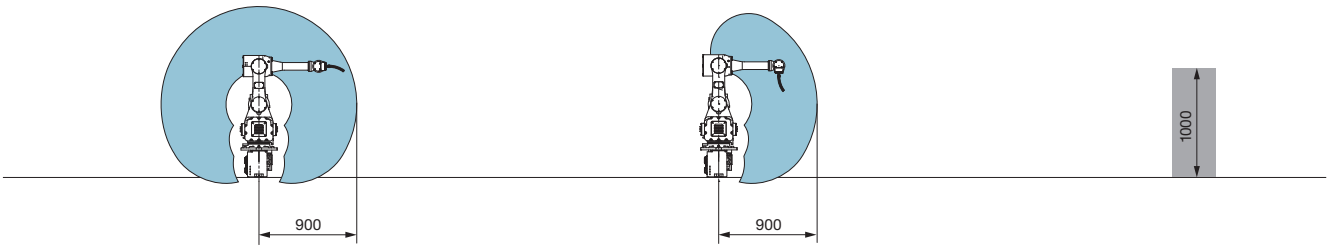
MOTOMAN-MHP45L MOTOMAN-MPO10L MOTOMAN-MPO10 MOTOMAN-MPO40

		Painting		Intrinsically Safe Handling	Intrinsically Safe Opener		
Model		MPXL2600	MPX3500	MHP45L	MPO10L	MPO10	MPO40
Controlled Axis		6	6	6	5	3	5
Payload		10 kg	15 kg	45 kg	10 kg	10 kg	40 kg
Maximum Reach		2100 mm	2700 mm	2850 mm	2550 mm	1400 mm	4550 mm
Repeatability*1		0.5 mm	0.15 mm	0.07 mm	0.15 mm	0.15 mm	1.0 mm
Range of Motion	B1-axis	–	–	–	-170° – +170°	–	–
	S-axis	-150° – +150°	-150° – +150°	-150° – +150°	-150° – +150°	-150° – +150°*8	-110° – +110°
	L-axis	- 65° – +130°	- 65° – +140°	- 65° – +140°	-145° – +145°	-165° – +165°	-144° – +144°
	U-axis	- 65° – +180°	- 65° – + 90°	- 65° – +180°	0 mm – 450 mm	0 mm – 350 mm	-120° – +120°
	R-axis	-260° – +260°	-720° – +720°	-360° – +360°	-200° – +200°	–	-150° – +150°
	B-axis	-270° – +270°*5	-720° – +720°	-125° – +125°	–	–	Always horizontal (moves together with U-axis by parallel link)
	T-axis	-260° – +260°	-720° – +720°	-360° – +360°	–	–	- 90° – + 90°
Maximum Speed*2	B1-axis	–	–	–	130°/s	–	–
	S-axis	120°/s	100°/s	100°/s	130°/s	130°/s	80°/s
	L-axis	120°/s	100°/s	100°/s	130°/s	130°/s	80°/s
	U-axis	125°/s	110°/s	110°/s	500 mm/s	500 mm/s	80°/s
	R-axis	360°/s	300°/s	110°/s	250°/s	–	80°/s
	B-axis	360°/s	360°/s	90°/s	–	–	80°/s
	T-axis	360°/s	360°/s	110°/s	–	–	80°/s
Allowable Moment	R-axis	30.4 N·m	93.2 N·m	252.8 N·m	27 N·m	27 N·m	–
	B-axis	19.6 N·m	58.8 N·m	252.8 N·m			352.8 N·m
	T-axis	9.8 N·m	19.6 N·m	117.6 N·m			235.2 N·m
Allowable Inertia ($GD^2/4$)	R-axis	0.97 kg·m²	3.75 kg·m²	13.9 kg·m²	1 kg·m²	1 kg·m²	–
	B-axis	0.4 kg·m²	2.225 kg·m²	13.9 kg·m²			32.4 kg·m²
	T-axis	0.1 kg·m²	0.2 kg·m²	3.2 kg·m²			14.4 kg·m²
Approx. Mass		520 kg	590 kg	650 kg	550 kg	350 kg	820 kg
Power Requirements*3		3.0 kVA	3.0 kVA	3.0 kVA	1.5 kVA	1.25 kVA	2.5 kVA
Mounting*4		F,C,W	F,C,W,S*6	F,C,W	F*7	F	W
Compatible Controller		DX200	DX200	DX200	DX200	DX200	DX200

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt
(When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: The range of motion may be limited depending on the operating conditions. Contact your Yaskawa representative for details.
*6: The shelf-mounted specification is a separate type of specification with a different payload, range of motion, maximum speed, and operating performance. Refer to separate dimension diagrams and product specification sheets for details on the shelf-mounted specification.
*7: Only a floor-mounted model is available, but both the bottom and back surfaces can be used to mount the robot.
*8: The motion range for the L type is -200° to +60° , and the motion range for the R type is -60° to +200°.
*9: The range of motion (indicated by the shaded area) may be limited depending on the operating conditions. Contact your Yaskawa representative for details.



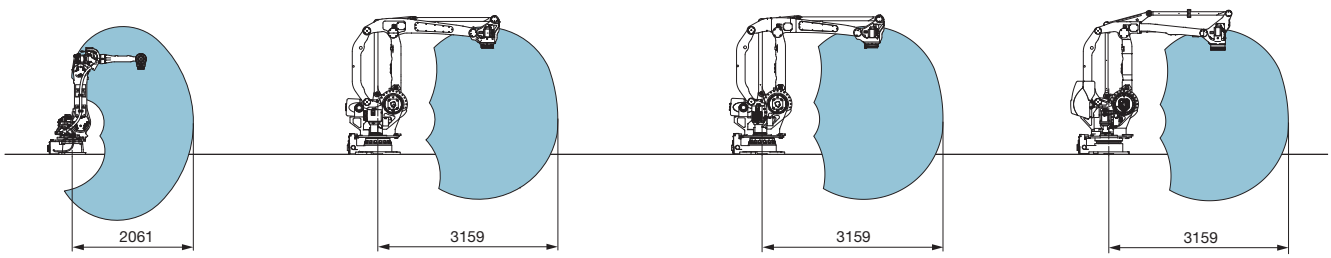
MOTOMAN-MPP3H　　MOTOMAN-MPP3S



MOTOMAN-MPK2F　　MOTOMAN-MPK2F-5

		Picking and Packing			
Model		MPP3H	MPP3S	MPK2F	MPK2F-5
Controlled Axis		4	4	5	5
Payload		3 kg	3 kg	2 kg	5 kg
Maximum Reach		1300-mm dia.*5	800-mm dia.	900 mm	900 mm
Repeatability*1		0.1 mm	0.1 mm	0.5 mm	0.5 mm
Range of Motion	S-axis	–	–	-170° – +170°	-170° – +170°
	L-axis	–	–	-120° – +120°	-120° – +120°
	U-axis	–	–	-102° – +282°	-102° – + 60°
	R-axis	–	–	–	–
	B-axis	–	–	-150° – +150°	- 15° – + 15°*8
	T-axis	-360° – +360°	-360° – +360°	-270° – +270°	-270° – +270°
Maximum Speed*2	S-axis	Cycle time for 25×305×25 mm motion pattern 1 kg: 230 cpm*6 3 kg: 150 cpm	Cycle time for 25×305×25 mm motion pattern 1 kg: 230 cpm*6 3 kg: 150 cpm	320°/s	320°/s
	L-axis			330°/s	330°/s
	U-axis			330°/s	330°/s
	R-axis			–	–
	B-axis			380°/s	380°/s
	T-axis			2000°/s	2000°/s
Allowable Moment	R-axis	–	–	–	–
	B-axis	–	–	3.5 N·m	2.26 N·m
	T-axis	–	–	1.5 N·m	0 N·m
Allowable Inertia ($GD^2/4$)	R-axis	–	–	–	–
	B-axis	–	–	0.065 kg·m²	0.065 kg·m²
	T-axis	*7	*7	0.012 kg·m²	0.012 kg·m²
Approx. Mass		115 kg	95 kg	72 kg	72 kg
Power Requirements*3		1.5 kVA	1.5 kVA	2.0 kVA	2.0 kVA
Mounting*4		C	C	F,C,W	F,C
Compatible Controller		FS100	FS100	FS100	FS100

*1: Repeatability conforms to ISO 9283.
*2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
*3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
*4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
*5: The recommended range of motion (indicated by the shaded area) is 1040 mm (dia.) × 300 mm (H).
T-axis unit may vibrate when it moves outside the recommended range of motion.
*6: With a limit in continuous operations (No continuous operation limit: 185 cpm or less)
*7: Allowable Inertia of T-axis is as follows.
1 kg: 0.0013 kg/m² or less, 2 kg: 0.009 kg/m² or less, 3 kg: 0.017 kg/m² or less
*8: The range of motion of the B-axis is an angle in the downward vertical direction. In some postures, however, the motion of the B-axis may be restricted depending on the angle with respect to the upper arm.



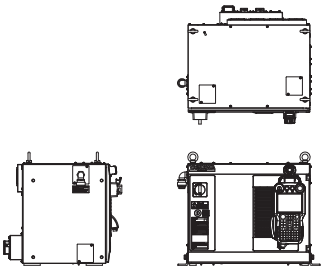
MOTOMAN-PL80 MOTOMAN-PL190 MOTOMAN-PL320 MOTOMAN-PL500

MOTOMAN-PL800

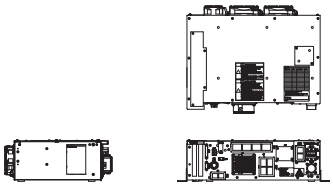
		Palletizing				
Model		PL80	PL190	PL320	PL500	PL800
Controlled Axis		5	4	4	4	4
Payload		80 kg	190 kg	320 kg	500 kg	800 kg
Maximum Reach		2061 mm	3159 mm	3159 mm	3159 mm	3159 mm
Repeatability*1		0.03 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Range of Motion	S-axis	-180˚ – +180˚	-180˚ – +180˚	-180˚ – +180˚	-180˚ – +180˚	-180˚ – +180˚
	L-axis	- 90˚ – +135˚	- 45˚ – + 90˚	- 45˚ – + 90˚	- 45˚ – + 90˚	- 45˚ – + 90˚
	U-axis	-160˚ – + 35˚	-120˚ – +15.5˚	-120˚ – +15.5˚	-120˚ – +15.5˚	-120˚ – +15.5˚
	R-axis	–	–	–	–	–
	B-axis	- 15˚ – + 15˚*5	–	–	–	–
	T-axis	-360˚ – +360˚	-360˚ – +360˚	-360˚ – +360˚	-360˚ – +360˚	-360˚ – +360˚
Maximum Speed*2	S-axis	180˚/s	140˚/s	120˚/s	85˚/s	65˚/s
	L-axis	180˚/s	145˚/s	110˚/s	85˚/s	65˚/s
	U-axis	180˚/s	145˚/s	110˚/s	85˚/s	65˚/s
	R-axis	–	–	–	–	–
	B-axis	180˚/s	–	–	–	–
	T-axis	500˚/s	420˚/s	300˚/s	195˚/s	125˚/s
Allowable Moment	R-axis	–	–	–	–	–
	B-axis	78.4 N·m	–	–	–	–
	T-axis	20.5 N·m	–	–	–	–
Allowable Inertia ($GD^2/4$)	R-axis	–	–	–	–	–
	B-axis	48 kg·m²	–	–	–	–
	T-axis	25 kg·m²	90 kg·m²	160 kg·m²	200 kg·m²	550 kg·m²
Approx. Mass		565 kg	1680 kg	1680 kg	2390 kg	2560 kg
Power Requirements*3		4.5 kVA	9.5 kVA	9.5 kVA	8.0 kVA	8.0 kVA
Mounting*4		F	F	F	F	F
Compatible Controller		YRC1000	YRC1000	YRC1000	YRC1000	YRC1000

✻1: Repeatability conforms to ISO 9283.
✻2: The maximum speed in this table is the available maximum value and will vary depending on the load, posture, or range of motion.
✻3: The power requirement value is obtained using Yaskawa's in-house measurement conditions and will vary depending on the load, motion pattern, or cycle time.
✻4: F=Floor, C=Ceiling, W=Wall, S=Shelf, T=Tilt (When wall- or tilt-mounted, the S-axis motion range may be limited.)
✻5: The range of motion of the B-axis is an angle in the downward vertical direction. In some postures, however, the motion of the B-axis may be restricted depending on the angle with respect to the upper arm.

YRC1000



YRC1000 micro



■ Controller Specifications*1

		YRC1000	YRC1000 micro	
IEC Protection Class		IP54	IP20*2	
Dimensions (W×D×H)		598×427×490 mm	425×280×125 mm	
Approx. Mass		85 kg max.	10.5 kg	
Power Supply		Japan: three-phase 200 VAC to 240 VAC (+10% to -15%), 50/60 Hz (±2%) Asia and Europe: three-phase 380 VAC to 440 VAC (+10% to -15%), 50/60 Hz (±2%) (neutral grounding) North America: three-phase 380 VAC to 480 VAC (+10% to -15%), 50/60 Hz (±2%) (neutral grounding)	Single-phase 200/230 VAC (+10% to -15%), 50/60 Hz (±2%) Three-phase 200/220 VAC (+10% to -15%), 50/60 Hz (±2%)	
Digital I/Os		Specialized signals: 19 inputs and 6 outputs General signals: 40 inputs and 40 outputs (32 transistor outputs, 8 relay outputs)	Specialized signals: 7 inputs and 1 output General signals: 8 inputs and 8 outputs (8 transistor outputs)	
Expansion Slots		PCI express: 2 slots	PCI express: 2 slots	
Inter-face	Ethernet (Connection to Host)	2 ch (10BASE-T/100BASE-TX)	1 ch (10BASE-T/100BASE-TX)	
	RS-232C	1 port	–	
Safety Performance	Emergency Stop Function	PL e, Cat.3, SIL3	PL e, Cat.3, SIL3	
	Robot Range Limit Function, Position/Speed Monitoring Function	PL d, Cat.3, SIL2	PL d, Cat.3, SIL2	
Number of Controlled Manipulators/Axes (max.)		8 manipulators / 72 axes	1 manipulator / 8 axes	

*1: These specifications and dimensions are for standard specifications and they are subject to change due to the optional installation. Contact your Yaskawa representative for details.
*2: The YRC1000micro and FS100 have an open structure (IP20) and must be used in a clean environment (free from electrically-conductive dirt and dust) that meets the standard of pollution degree 2 specified in IEC 60664-1.

For YRC1000/YRC1000micro/DX200

Programming pendant

For YRC1000/YRC1000micro

Smart Pendant

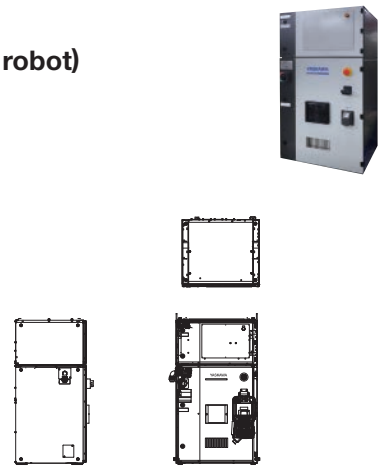
Target models

- Collaborative robots MOTOMAN-HC series
- MOTOMAN Smart series

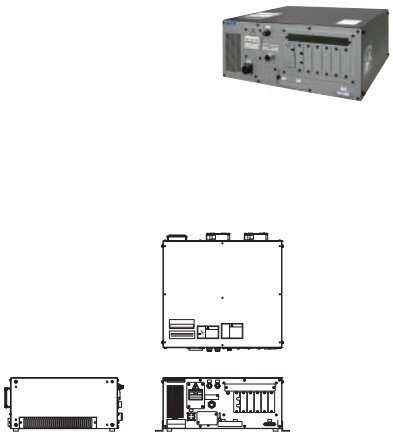
■ Programming Pendant Specifications

	Programming pendant	Smart Pendant	
Dimensions (W×D×H)	152×49.5×300 mm	215×69×284 mm	
Approx. Mass	730 g	1120 g	
IEC Protection Class	IP54	IP54	
Display	5.7-inch TFT color LCD, VGA 640×480 pixels, touch panel	10.1-inch TFT color LCD, WXGA 1280×800 pixels, LED backlight, touch panel	
External Interface	SD slot (1 slot), USB port (USB2.0, 1 port)	USB port (USB2.0, 1 port)	

DX200
(For painting robot)



FS100



	IP54	IP20*2
	600×520×1060 mm	470×420×200 mm
	150 kg	20 kg
	Three-phase 200 VAC (+10% to -15%), 50/60 Hz (±2%) Three-phase 220 VAC (+10% to -15%), 60 Hz (±2%)	Single-phase 200/230 VAC (+10% to -15%), 50/60 Hz (±2%) Three-phase 200/220 VAC (+10% to -15%), 50/60 Hz (±2%)
	Specialized signals: 28 inputs and 7 outputs General signals: 40 inputs and 40 outputs (32 transistor outputs, 8 relay outputs)	Specialized signals: 10 inputs and 1 output General signals: 28 inputs and 28 outputs (8 transistor outputs)
	PCI: 2 slots	MP2000 bus: 5 slots
	1 ch (10BASE-T/100BASE-TX)	1 ch (10BASE-T/100BASE-TX)
	1 port	1 port
	PL d, Cat.3, SIL2	PL d, Cat.3
	PL d, Cat.3, SIL2	–
	8 manipulators / 72 axes	2 manipulators / 16 axes

For DX200

Intrinsically safe programming pendant

Target models

· Painting robots

For FS100

Programming pendant

	235×78×203 mm	169×50×314.5 mm
	1300 g	990 g
	IP54	IP65
	5.7-inch monochrome LCD, 320×240 pixels, touch panel	5.7-inch color LCD, 640×480 pixels, touch panel
	–	CF slot (1 slot), USB port (USB1.1, 1 port)

Introduction to robot controller functions

Communications

Fieldbus communications

Optional

Options for major types of fieldbus communications are available.

- DeviceNet
- CC-Link
- EtherNet/IP
- EtherCAT
- PROFIBUS
- PROFINET

Safe fieldbus communications

Optional

Options for major types of safe fieldbus communications are available.

- DeviceNet Safety
- EtherNet/IP Safety
- PROFIsafe

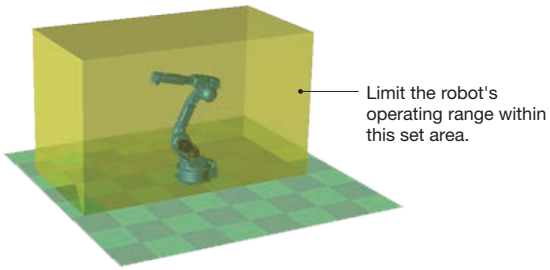
Safety

Functional safety

Optional

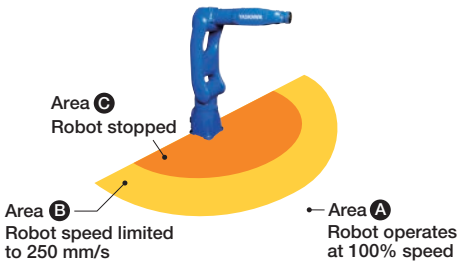
· Robot range limit function

This function monitors the positions of robots and end effectors while limiting robot movements within a set area. The fact that a safety fence can be installed in an area narrower than the robot's operating range means that production equipment can be downsized.



· Speed limit function

Used in combination with a presence detection sensor, this function features multiple speeds that can be used to limit robot speed, depending on surrounding conditions. This ensures safety and improves work efficiency.



Maintenance

Preventive maintenance function for the speed reducer

Standard

This function detects speed reducer deterioration based on torque waveforms from the speed reducer and provides notifications regarding that deterioration. It can also estimate replacement times for the speed reducer by measuring the torque applied to each axis of the robot.

Logging function

Standard

This function records and displays the operation history of the programming pendant, such as when it is used to edit programs or execute jobs. This ensures data traceability and facilitates troubleshooting when problems occur.

Pendant oscilloscope function

Optional

This function monitors speed references, torque references, encoder temperatures, and concurrent I/O signals for each robot axis on the programming pendant. Requiring no special external devices, the pendant can be used by itself to confirm the transitions of signals and values.

Password protection function

Optional

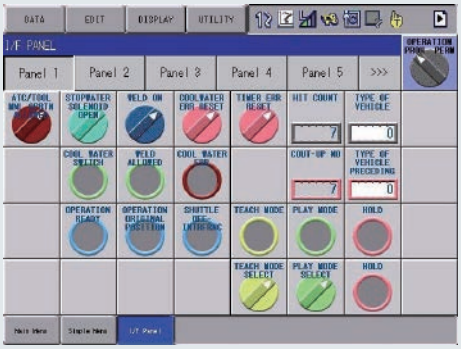
This function registers user accounts (usernames and passwords) and sets controller access rights for each user. This is useful for strengthening security when program editing and robot operation are performed by multiple users.

Enhanced operability

Interface panel function

Optional

This function constructs a screen that serves as an operation panel and interlock panel on the pendant screen. Intuitive operation can be performed from the operation panel on the pendant without the need of system configuration using external devices.



Signal output timing control function

Optional

This function enables the output timing of general signals for controlled peripheral devices to be precisely adjusted by specifying the time or distance.

Yaskawa also offers a lineup of functions and peripheral devices for each application. For details, see the catalogs for each series.

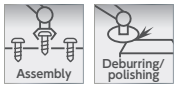
Extensive range of automation and labor-saving applications that utilize robots and sensors

Applications that utilize force sensors

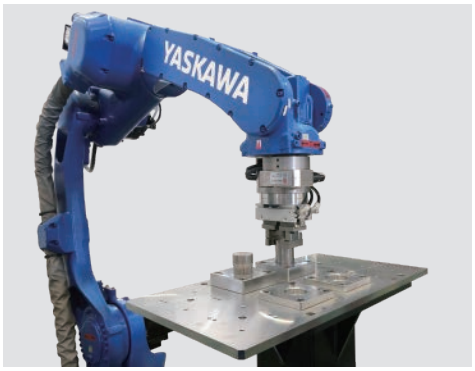
Optional

6-axis force sensing control function - MotoFit

Precision assembly and deburring/polishing



Force is controlled by a 6-axis force sensor attached to the robot hand, enabling precision fitting during assembly processes, as well as deburring and polishing processes that require force adjustments.



MotoFit

Demo teach package - MOTOMAN-Craft

Automated skilled polishing

Using a dedicated teaching device equipped with a force sensor, the robot can be taught how to replicate polishing work performed by a skilled worker. Even a delicate skills can be easily automated by teaching via demonstration.

MOTOMAN-Craft

Hand guiding function

Semi-automated transfer of heavy objects

This function allows the labor-intensive task of transferring heavy objects to be performed together with the robot. With workers providing detailed guidance, the robot automatically transfers heavy objects, which eliminates the physical strain on workers associated with manual labor.

Hand guiding function

Applications that utilize vision sensors

Optional

3D vision package - MotoSight3D

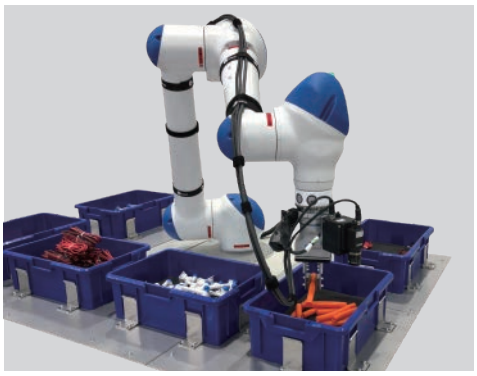
Bin picking

A 3D vision sensor is utilized to automate the bin picking of workpieces. The sensor can identify parts with complex shapes or metallic parts which oil is adhered to. The dedicated software facilitates setup.

AI picking package - MotoSight AI Picking

Bin picking of various workpieces

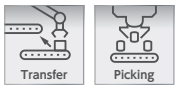
This picking package is capable of handling various workpieces within the same process, including soft objects such as cables, as well as those with regular or irregular shapes or those made of metal/nonmetal materials. With only a small amount of data, AI can be used to help the robot learn about workpieces, allowing bin picking to be performed in a single day, which makes it ideal for high-mix, low-volume production sites.



MotoSight AI Picking

2D vision package - MotoSight2D

Workpiece picking, position correction



A vision sensor detects the position of the workpiece, which is then picked or has its position corrected. This simple system, built with only a robot and vision sensor, can be used as an alternative to complex mechanisms for positioning.

Picking and packing software - MotoPick

Synchronized picking and packing with conveyors

MotoPick facilitates the construction of systems where picking and packing are performed in synchronization with conveyor movement. Things such as workpiece alignment patterns and robot operation patterns can be easily configured and managed using the configuration PC software.

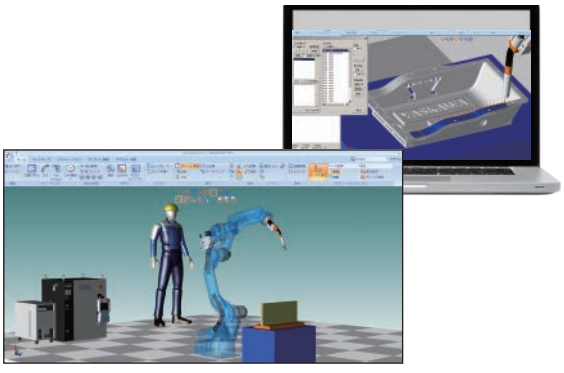
Software for robot application studies and off-line programming

Simulation software

Optional

MotoSim EG-VRC

MotoSim EG-VRC is a simulation software for use in the construction and operation of robot systems. It provides a smarter engineering environment with a rich range of functions, such as layout planning, programming, and various simulations.



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