

High Path Accuracy Robot MOTOMAN-GA50

Application: Laser cutting and welding
30 kg (50 kg max.) payload, 6-axis vertically articulated

Robot Controller YRC1000

**Achieves high path accuracy through higher rigidity.
Yaskawa's optimal robot for laser cutting and welding**

High performance

- With optimal motors and a highly-rigid arm design, MOTOMAN-GA50 achieves small circle and linear cutting and welding with high speed and high accuracy.
- With the high payload, the robot can easily handle a variety of laser heads.
- With the maximum reach of 2038 mm, the robot can cut and weld various automobile parts.

Reduced wiring time

- Power cable is reduced to one cable, which reduces wiring time.

Smaller, energy-saving controller

- Smallest size in the world reduces installation space
- Global standardization (Universal size)
- Lighter programming pendant with better operability
- Energy savings with the power regeneration function [Electric power consumption reduced by a maximum of 30%* (compared with the former model)]

*: Depends on applications and motion patterns.



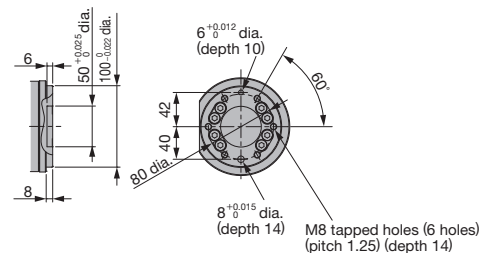
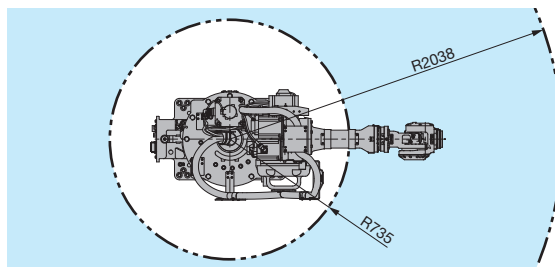
MOTOMAN-GA50



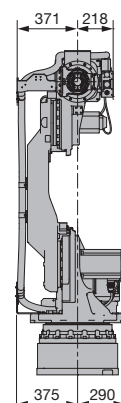
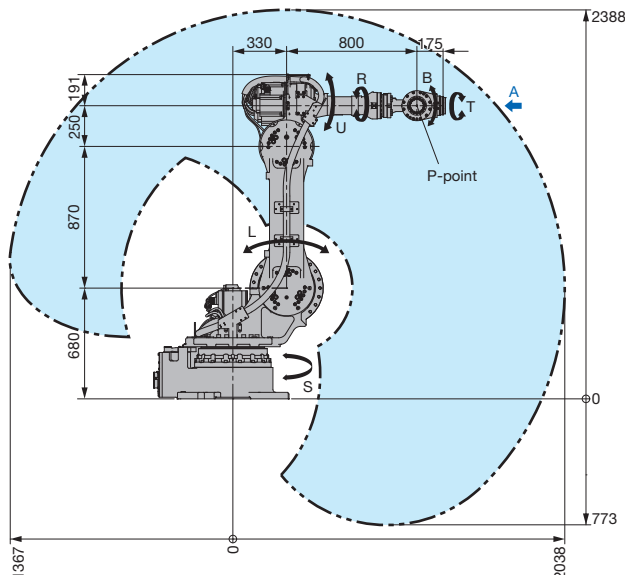
YRC1000

■ Dimensions Units: mm []: P-point Maximum Envelope

Note: Refer to the dimension diagram for detailed dimensions and specifications.



View A



MOTOMAN-GA50

Manipulator Specifications

Model		MOTOMAN-GA50
Type		YR-1-06VXA50-A00
Controlled Axis		6 (vertically articulated)
Payload	Wrist	50 kg**
	U-arm	10 kg
Maximum Reach		2038 mm
Repeatability*1		0.015 mm
Range of Motion	S-axis (turning)	-180° – +180°
	L-axis (lower arm)	-90° – +135°
	U-axis (upper arm)	-80° – +180°
	R-axis (wrist roll)	-360° – +360°
	B-axis (wrist pitch/yaw)	-125° – +125°
	T-axis (wrist twist)	-360° – +360°
Maximum Speed*2	S-axis (turning)	2.62 rad/s, 150°/s
	L-axis (lower arm)	2.62 rad/s, 150°/s
	U-axis (upper arm)	2.62 rad/s, 150°/s
	R-axis (wrist roll)	4.36 rad/s, 250°/s
	B-axis (wrist pitch/yaw)	4.36 rad/s, 250°/s
	T-axis (wrist twist)	4.36 rad/s, 250°/s
Allowable Moment	R-axis (wrist roll)	110 N·m
	B-axis (wrist pitch/yaw)	110 N·m
	T-axis (wrist twist)	55 N·m
Allowable Inertia (GD ² /4)	R-axis (wrist roll)	7 kg·m ²
	B-axis (wrist pitch/yaw)	7 kg·m ²
	T-axis (wrist twist)	1 kg·m ²
Approx. Mass		855 kg
IEC Protection Class		Body: IP54, Wrist: IP67
Ambient Conditions	Temperature	0 °C to +45 °C
	Humidity	20% to 80%RH (non-condensing)
	Vibration	4.9 m/s ² (0.5 G) or less
	Altitude	1000 m or less
Power Requirements*3		3.5 kVA
Mounting		Floor

*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: A load of 30 kg or less is recommended for applications that require high accuracy.

YRC1000 Robot Controller Specifications

Items	Specifications
Configuration	Dust proof structure IP54 (area of backside duct fan: IP2X)
Dimensions	598 (W)×427 (D)×490 (H) mm, 125 L
Approx. Mass	85 kg max. (External axis amplifiers for up to three axes can be built in.)
Cooling System	Indirect cooling
Ambient Temperature	During operation: 0°C to +45°C, During storage: -10°C to +60°C
Relative Humidity	90% max. (non-condensing)
Altitude	2000 m (with temperature derating) Derating condition of over 1000 m: max. ambient temperature decreases 1% per 100 m.
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)
Grounding	Grounding resistance: 100 Ω or less for 200-V class, 10 Ω or less for 400-V class
Digital I/Os	Specialized signals: 19 inputs and 6 outputs General signals: 40 inputs and 40 outputs (32 transistor outputs, 8 relay outputs)
Positioning System	Serial communications (absolute encoder)
Programming Capacity	JOB: 200,000 steps, 10,000 instructions CIO ladder: 20,000 steps max.
Expansion Slots	PCI express: 2 slots
LAN (Connection to Host)	2 (10BASE-T/100BASE-TX)
Interface	RS-232C: 1ch
Drive Units	SERVOPACK for AC servomotors

Programming Pendant Specifications

Items	Specifications
Dimensions	152 (W)×49.5 (D)×300 (H) mm
Approx. Mass	0.730 kg
Material	Reinforced plastics
Operation Device	Select keys, axis keys, numerical/application keys, mode selector switch with keys (mode: teach, play, and remote), emergency stop button, enable switch, compact flash card interface device (compact flash is optional.), USB port (USB 2.0, 1 port)
Display	5.7-inch TFT color LCD, touch panel VGA 640 × 480 pixels (alphanumeric characters, Chinese characters, Japanese letters, and others)
IEC Protection Class	IP54
Cable Length	Standard: 8 m, max.: 36 m (with optional extension cable)

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