

YASKAWA

Robot for Biomedical Applications MOTOMAN-MH5BM

Application: Handling
Payload: 5 kg

Ideal for sterile or hygienic environments

By automating manual operations done in sterile or hygienic environments, such as isolators and safety cabinets, the quality of the manufacturing and the testing process can be improved.

Features

Optimal design for automation in medical environments

- Compact and light weight design, enabling the robot to fit in isolators and safety cabinets.
- The gripper cable is built into the upper end of the wrist axis, which solves various problems caused by externally-routed cables.
- Widest maximum reach in its class: 702 mm
- Widest motion range in its class: -190° to $+190^{\circ}$ (the S (turning)-axis)

Designed for sterile and hygienic environments

- Can be cleaned with hydrogen peroxide (wiping, gas, and mist).*
- Can be exposed to ultraviolet radiation.*
- Conforms to ISO clean class 5.
- Smooth body shape prevents adherence of dust.
- Elimination of all surface bolts allows for easy cleaning.
- Dust-proof and drip-proof structure: IP67 for the wrist axis and IP65 for the main axes.

*Contact your Yaskawa representative for more details on design conditions.



MOTOMAN-MH5BM



FS100



MOTOMAN-MH5BM

Specifications

Items		Specifications
Model		MOTOMAN-MH5BM
Type		YR-MH005BM-A00
Controlled Axis		6 (Vertically articulated)
Payload		5 kg
Repeatability*1		±0.03 mm
Range of Motion	S-axis (turning)	-190° - +190°
	L-axis (lower arm)	-85° - +90°
	U-axis (upper arm)	-105° - +260°
	R-axis (wrist roll)	-170° - +170°
	B-axis (wrist pitch/yaw)	-120° - +120°
Maximum Speed	S-axis (turning)	5.41 rad/s, 310°/s
	L-axis (lower arm)	2.62 rad/s, 150°/s
	U-axis (upper arm)	3.32 rad/s, 190°/s
	R-axis (wrist roll)	5.24 rad/s, 300°/s
	B-axis (wrist pitch/yaw)	5.24 rad/s, 300°/s
Allowable Moment	R-axis (wrist roll)	12 N·m
	B-axis (wrist pitch/yaw)	12 N·m
	T-axis (wrist twist)	7 N·m
Allowable Inertia (GD ² /4)	R-axis (wrist roll)	0.3 kg·m ²
	B-axis (wrist pitch/yaw)	0.3 kg·m ²
	T-axis (wrist twist)	0.1 kg·m ²
Approx. Mass		42 kg
Clean Class*2		ISO class 5
IEC Protection Class		Body: IP65, Wrist: IP67
Ambient Conditions	Temperature	During operation: 0°C to +40°C, During storage: -10°C to +60°C
	Humidity	20% to 80%RH (non-condensing)
	Vibration	4.9 m/s ² (0.5 G) or less
	Others	• Free from corrosive gas or liquid, or explosive gas or liquid • Free from excessive electrical noise (plasma)
Power Requirements*3		1.0 kVA
Mounting		Floor, ceiling, wall

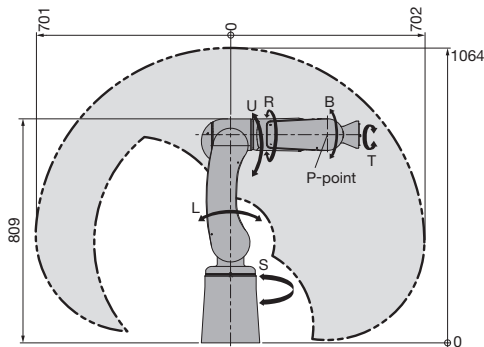
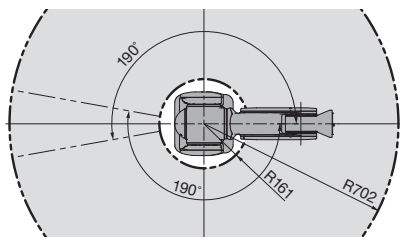
*1: Conforms to ISO 9283.
*2: Conforms to ISO 14644.
*3: Varies in accordance with applications and motion patterns.
Note: SI units are used for the specifications.

Items		Specifications
Configuration		Open structure IP20
Dimensions		470 (W)×420 (D)×200 (H) mm (Protrusions are not included)
Approx. Mass		20 kg (External axis amplifiers for up to two axes can be built in.)
Cooling System		Direct cooling
Ambient Temperature		During operation: 0°C to +40°C During storage: -10°C to +60°C
Relative Humidity		90% max. (non-condensing)
Power Supply		Single-phase 200/230 VAC (+10% to -15%), 50/60 Hz (±2%) Three-phase 200/220 VAC (+10% to -15%), 50/60 Hz (±2%)
Grounding		Grounding resistance: 100 Ω or less
Digital I/Os		Specialized signals: 10 inputs and 1 output General signals: 28 inputs and 28 outputs (28 transistor outputs)
Positioning System		Serial communications (absolute encoder)
Programming Capacity		JOB: 10,000 steps, 1,000 instructions CIO ladder: 1,500 steps max.
Expansion Slots		MP2000 bus × 5 slots
LAN (Connection to Host)		1 (10BASE-T/100BASE-TX)
Interface		RS-232C: 1ch
Control Method		Software servo control
Drive Units		SERVOPACK for AC servomotors
FS100 Controller	Dimensions	169 (W)×50 (D)×314.5 (H) mm (Protrusions are not included)
	Approx. Mass	0.990 kg
	Material	Reinforced plastics
	Operation Device	Select keys, axis keys, numerical/application keys, mode switch with key (mode: teach, play, and remote), emergency stop button, enable switch, compact flash card interface device (compact flash is optional.), USB port (1 port)
	Display	640×480 pixels color LCD, touch panel (alphanumeric characters, Chinese characters, Japanese letters, and others)
	IEC Protection Class	IP65
	Cable Length	Standard: 8 m, max.: 20 m (with optional extension cable)
Programming Pendant (optional)	Dimensions	169 (W)×50 (D)×314.5 (H) mm (Protrusions are not included)
	Approx. Mass	0.990 kg
	Material	Reinforced plastics
	Operation Device	Select keys, axis keys, numerical/application keys, mode switch with key (mode: teach, play, and remote), emergency stop button, enable switch, compact flash card interface device (compact flash is optional.), USB port (1 port)
Display	640×480 pixels color LCD, touch panel (alphanumeric characters, Chinese characters, Japanese letters, and others)	
IEC Protection Class	IP65	
Cable Length	Standard: 8 m, max.: 20 m (with optional extension cable)	

Note: A programming pendant or a dummy connector is required with this controller. (Sold separately.)

- **Programming pendant**
The programming pendant for this controller is required. Different types of programming pendants cannot be connected to this controller because of differences in their specifications.
- **Dummy connector**
The dummy connector must be inserted when the programming pendant is not connected or when a software pendant is used.

Dimensions Units: mm P-point Maximum Envelope



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In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply. Specifications are subject to change without notice for ongoing product modifications and improvements.

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