



ASSEMBLY



FS100 CONTROLLER



MH5LF ROBOT

## TOP REASONS TO BUY

- Compact design allows maximum performance using minimal floor space
- Yields extraordinary production results while requiring minimal capital investment
- Offers superior performance in packaging, material handling, machine tending and assembly applications
- Open architecture enables programming and control through a wide variety of platforms



# MH5F MH5LF

ASSEMBLY • HANDLING • MACHINE TENDING • PACKAGING

**Payload: 5 kg**

The MH5F and MH5LF models are compact and powerful robots designed for small parts assembly, material handling and packaging. The FS100 is a powerful controller with unmatched open software architecture.

The “slim arm” design reduces potential interference between the robot tooling and upper arm. This new design also improves the B-axis range of motion and shortens the distance between the B-axis and the T-axis mounting flange, providing increased carrying capacity.

### Compact, Powerful and Economical

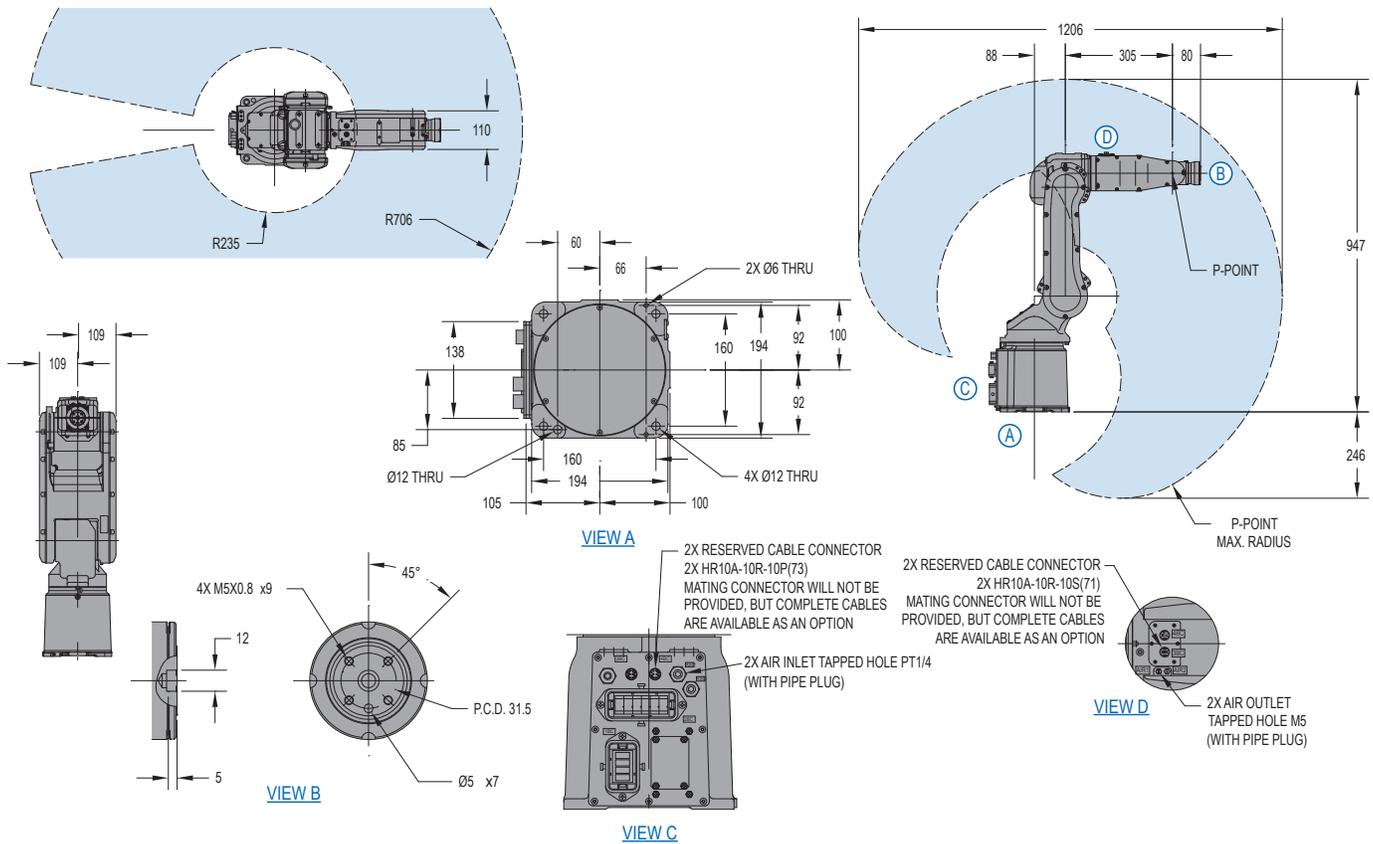
- MH5F model: 706 mm reach;  $\pm 0.02$  mm repeatability. Widest work envelope in its class.
- MH5LF extended-reach model: 895 mm reach;  $\pm 0.03$  mm repeatability. For applications requiring a larger work envelope.
- 5 kg payload. High moment ratings provide increased carrying capacity.
- Robot adjusts performance based on load. Effective for payloads less than 1 kg.
- Small footprint and minimal interference radius (179 mm) maximizes floorspace utilization.
- Floor-, wall- or ceiling-mounted options. Brakes on all axes.
- Internally routed cables and hoses maximize system reliability.
- User utility connections on top of the upper arm for better cable management.

### FS100 Controller

- Small, compact controller.
- 470 mm wide, 200 mm high, 420 mm deep.
- Designed for packaging and small parts handling robots with payloads of 20 kg and under.
- Compatible with integrated MotoSight™ 2D vision (optional).
- High-speed I/O response and millisecond resolution timers.
- Open architecture enables software customization in widely accepted environments such as C, C++ and C#.Net.
- Uses same programming pendant hardware as DX100 controller, providing a consistent programming interface with current products.
- Built-in collision avoidance with multiple robots.

# MH5F/MH5LF ROBOTS

MH5F robot (YR-MH5F-A00) shown  
All dimensions are metric (mm) and for reference only. Please request detail drawings for all design/engineering requirements.



## ROBOT SPECIFICATIONS

Robots		MH5F	MH5LF
Structure		Vertical jointed-arm type	Vertical jointed-arm type
Controlled Axes		6	6
Payload		5 kg (11 lbs)	5 kg (11 lbs)
Vertical Reach		1,193 mm (47")	1,560 mm (61.4")
Horizontal Reach		706 mm (27.8")	895 mm (35.2")
Repeatability		±0.02 mm (±0.0008")	±0.03 mm (±0.001")
Maximum Motion Range	S-Axis (Turning/Sweep)	±170°	±170°
	L-Axis (Lower Arm)	+150°/-65°	+150°/-65°
	U-Axis (Upper Arm)	+255°/-136°	+255°/-136°
	R-Axis (Wrist Roll)	±190°	±190°
	B-Axis (Bend/Pitch/Yaw)	±135°	±135°
	T-Axis (Wrist Twist)	±360°	±360°
Maximum Speed	S-Axis	376°/s	270°/s
	L-Axis	350°/s	280°/s
	U-Axis	400°/s	300°/s
	R-Axis	450°/s	450°/s
	B-Axis	450°/s	450°/s
	T-Axis	720°/s	720°/s
Approximate Mass		27 kg (59.5 lbs)	29 kg (63.9 lbs)
Brakes		All axes	All axes
Power Rating		1 kVA	1 kVA
Allowable Moment	R-Axis	12 N · m	12 N · m
	B-Axis	12 N · m	12 N · m
	T-Axis	7 N · m	7 N · m
Allowable Moment of Inertia	R-Axis	0.3 kg · m <sup>2</sup>	0.3 kg · m <sup>2</sup>
	B-Axis	0.3 kg · m <sup>2</sup>	0.3 kg · m <sup>2</sup>
	T-Axis	0.1 kg · m <sup>2</sup>	0.1 kg · m <sup>2</sup>
Internal Electric Cable		3 BC 10 Conductors 4 BC 6 Conductors	3 BC 10 Conductors 4 BC 6 Conductors
Internal Air Hose		2 – 1/4" PT Connections	2 – 1/4" PT Connections
Protection Class	Standard	none	
	XP Version* (option)	IP65 manipulator; IP67 wrist	

\* XP Verison: Yaskawa Motoman's eXtra Protection package

## FS100 CONTROLLER SPECIFICATIONS\*\*

Dimensions (mm)	470 (w) x 200 (h) x 420 (d) (18.5" x 7.9" x 16.5")
Approximate Mass	20 kg (44.1 lbs)
Cooling System	Direct cooling
Ambient Temperature	During operation: 0° to 40° C (32° to 104° F) During transit and storage: -10° to 60° C (14° to 140° F)
Relative Humidity	90% max. non-condensing
Primary Power Requirements	Single-phase or 3-phase power, 200/230 VAC at 50/60 Hz (MPP3, MPK2, MH6F, HP20F require 3-phase)
External Transformer (optional)	For 480/575 VAC installations
Digital I/O	Standard I/O: 16 inputs/16 outputs PNP-Standard PNP-Optional
Position Feedback	Absolute encoder
Program Memory	JOB: 10,000 steps, 1,000 instructions CIO Ladder: 1,500 steps
Pendant Dim. (mm)	169 (w) x 314.5 (h) x 50 (d) (6.7" x 12.4" x 2")
Pendant Weight	.998 kg (2.2 lbs)
Interface	One Compact Flash slot; One USB port (1.1)
Pendant Playback Buttons	Teach/Play/Remote Keyswitch selector Servo On, Start, Hold, and Emergency Stop Buttons
Programming Language	INFORM III, menu-driven programming, MotoPlus SDK (C language) – optional
Maintenance Functions	Displays troubleshooting for alarms
Number of Robots/Axes	Up to 2 robots, 16 axes (requires 2 controllers)
Multi Tasking	Up to 6 concurrent jobs, 1 system job
Fieldbus	All common networks supported
Ethernet	10 Base T/100 Base TX
Safety	Dual-channel Emergency Stop Pushbuttons, 3-position Enable Switch, Manual Brake Release

Note: Use DX100 controller for arc welding applications.

\*\* See FS100 Controller data sheet (DS-509) for complete specifications

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