

## ARC WELDING ROBOT **MOTOMAN-MA1400**

3 kg PAYLOAD, 6-AXIS VERTICALLY ARTICULATED

# Arc Welding Robot Increases Production Efficiency

Torch cables

bent gently.

#### Save space with high-density cell layout!

Torch cables are built into the robot arm to eliminate interference with the workpiece, jig, or other nearby robots. Also, the power cable and gas and air hoses can be accommodated to the base. Several robots can be installed in close proximity without interfering with each other, which will allow construction of a highly effective and space-saving welding cell.

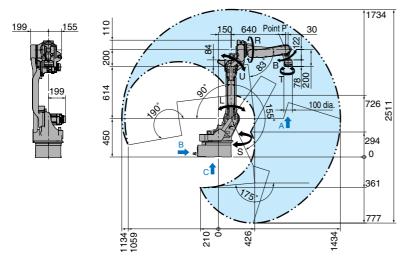
#### Improve welding quality with superior wire feed and integrated torch cable!

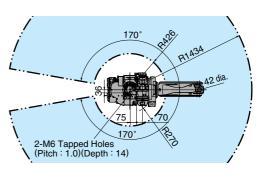
With the wire feeder in the optimum position and the torch cable built into the arm, the wire is straight when it is fed to the welding torch, and the cable is gently bents when the wrist moves upward. These achievements improve the welding quality.

#### Increase productivity with the world's fastest motion!

The world's fastest motion reduces the welding cycle time. The MA1400 increases productivity and especially proves its effectiveness when multiple or long-distance movements are required. It also can expand the welding range with a maximum reach of 1434 mm.

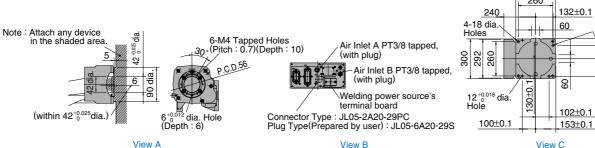






300

2-16 +0.018 dia. Holes



### **MOTOMAN-MA1400**

#### Manipulator Specifications

Model		MOTOMAN-MA1400
Туре		YR-MA01400-A00
Controlled Axis		6 (Vertically articulated)
Payload		3 kg
Repeatability*1		±0.08 mm
Range of Motion	S -axis (turning)	±170°
	L-axis (lower arm)	+155° to -90°
	U -axis (upper arm)	+190° to −175°
	R -axis (wrist roll)	±150°
	B -axis (wrist pitch/yaw)	+180° to -45°
	T -axis (wrist twist)	±200°
	S -axis (turning)	3.84 rad/s, 220°/s
	L-axis (lower arm)	3.49 rad/s, 200°/s
Maximum	U -axis (upper arm)	3.84 rad/s, 220°/s
Speed	R -axis (wrist roll)	7.16 rad/s, 410°/s
	B -axis (wrist pitch/yaw)	7.16 rad/s, 410°/s
	T -axis (wrist twist)	10.65 rad/s, 610°/s
Allowable Moment	R -axis (wrist roll)	8.8 N·m
	B -axis (wrist pitch/yaw)	8.8 N·m
	T -axis (wrist twist)	2.9 N·m
Allowable Inertia (GD <sup>2</sup> /4)	R -axis (wrist roll)	0.27 kg⋅m²
	B -axis (wrist pitch/yaw)	0.27 kg·m²
	T -axis (wrist twist)	0.03 kg·m²
Mass		130 kg
Ambient Conditions	Temperature	0°C to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	4.9 m/s <sup>2</sup> or less
		Free from corrosive gasses or
		liquids, or explosive gasses
	Others	Clean and dry
		Free from excessive electrical
		noise (plasma)
Power Requirements*2		1.5 kVA

\*1: Conforms to JIS B 8432

\*2: Varies in accordance with applications and motion patterns.

Note: SI units are used for specifications.

#### ■ DX100 Controller Specifications

DA 100 Controller Specifications		
Items	Specifications	
Configuration	Dust proof	
Dimensions	425(W)×450(D)×1200(H) mm	
Difficusions	(Possible to control 3 external axes.)	
Mass	100 kg max.	
Cooling System	Indirect cooling	
Ambient	During operation : 0°C to +45°C	
Temperature	During storage : -10°C to +60°C	
Relative Humidity	90% max. (non-condensing)	
Daway Cumply	Three-phase 200/220 VAC (+10% to -15%), 60 Hz (±2%)(Japan)	
Power Supply	Three-phase 200 VAC (+10% to −15%), 50 Hz (±2%)(Japan)	
Grounding	Grounding resistance : 100 Ω or less	
	Specialized signals : 23 inputs and 5 outputs	
Digital I/Os	General signals : 40 inputs and 40 outputs	
	Max. I/O (optional) : 2048 inputs and 2048 outputs	
Positioning System	By serial encoder	
Programming	JOB: 200,000 steps, 10,000 instructions	
0 0	CIO ladder Standard : 15,000 steps	
Capacity	Expanded: 20,000 steps	
Expansion Slots	PCI: 2 slots for main CPUs and 1 slot for servo CPU	
Expansion Siots	1 additional slot for sensor board	
LAN (Connection to Host)	1 (10BaseT/100BaseTX)	
Interface	RS-232C: 1ch	
Control Method	Software servo control	
	Standard 6 axes and 2 additional single-axis amplifiers	
Drive Units	can be mounted (8 axes max.)	
	Additional amplifiers for the external axis can also be used.	
Painting Color	Munsell notation 5Y 7/1 (reference value)	

#### ■ Programming Pendant Specifications

Items	Specifications	
Dimensions	169(W)×314.5(H)×50(D) mm	
Mass	0.986 kg	
Material	Reinforced plastics	
	Select keys, axes keys, numerical/application keys,	
Operation	mode keys (mode : teach, play, and remote),	
Device	emergency stop button, enable switch, compact	
	flash card interface device (compact flash is optional.)	
	5.7-inch color LCD, touch panel 640×480 pixels	
Display	(Alphanumeric characters, Chinese characters,	
	Japanese letters, Others)	
IEC Protection Class	IP65	
Cable Length	Standard: 8 m, Max.: 36 m (optional)	

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YASKAWA ELECTRIC CORPORATION

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.

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