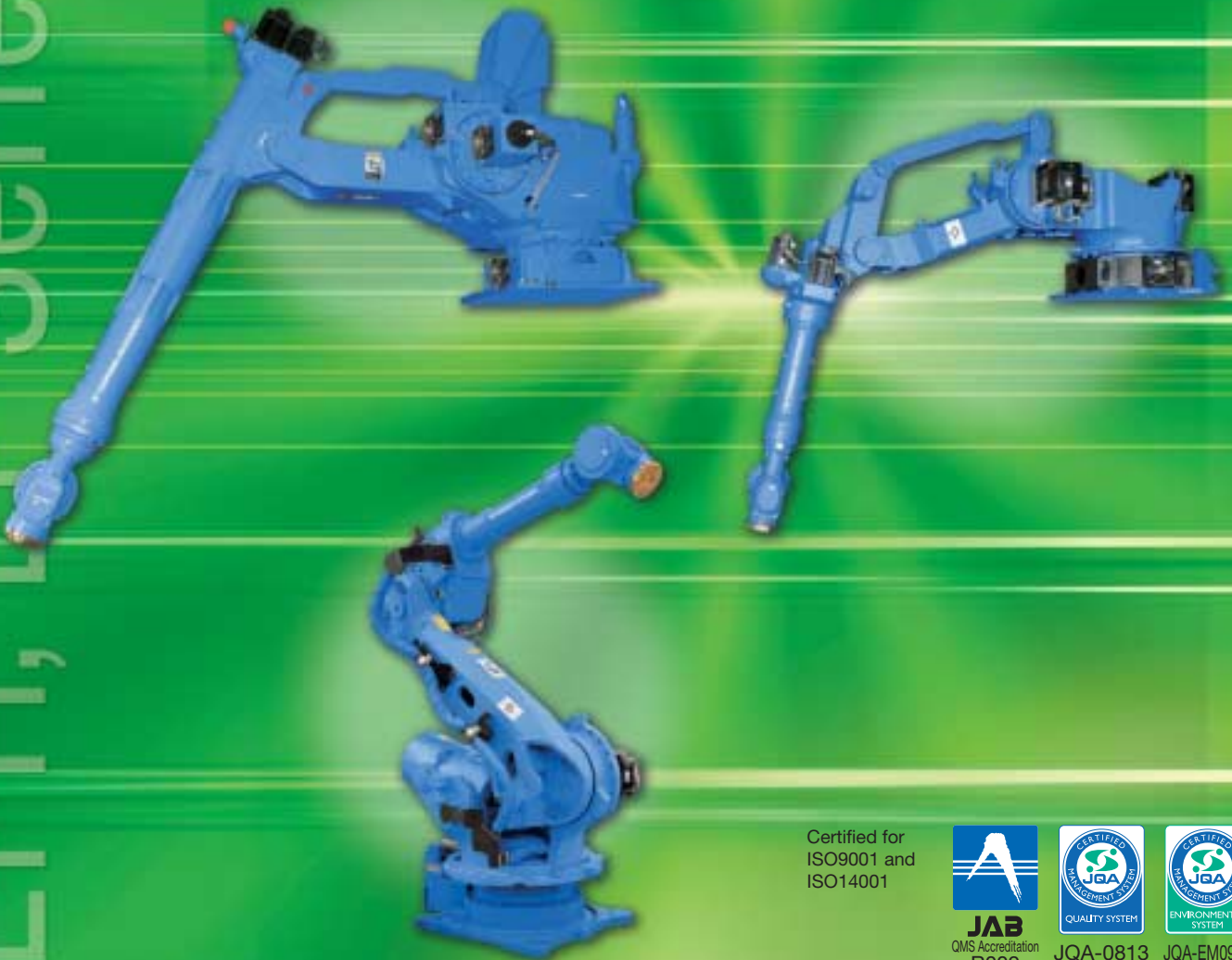




Robot Optimized for Press Handling MOTOMAN-EPH and EP Series

EPH, EP Series



Certified for
ISO9001 and
ISO14001



JAB
QMS Accreditation
R009



JQA
QUALITY SYSTEM
JQA-0813



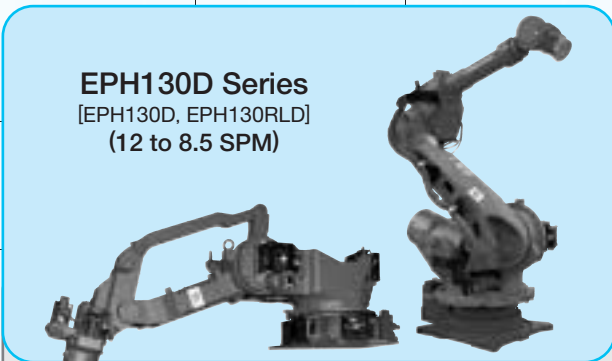

JQA
ENVIRONMENTAL SYSTEM
JQA-EM0924

Pursuing of High-Efficient Handling between Presses

Robot Optimized for Press Handling

MOTOMAN-EPH and EP Series

Manipulator Lineup in Accordance with Panel Size

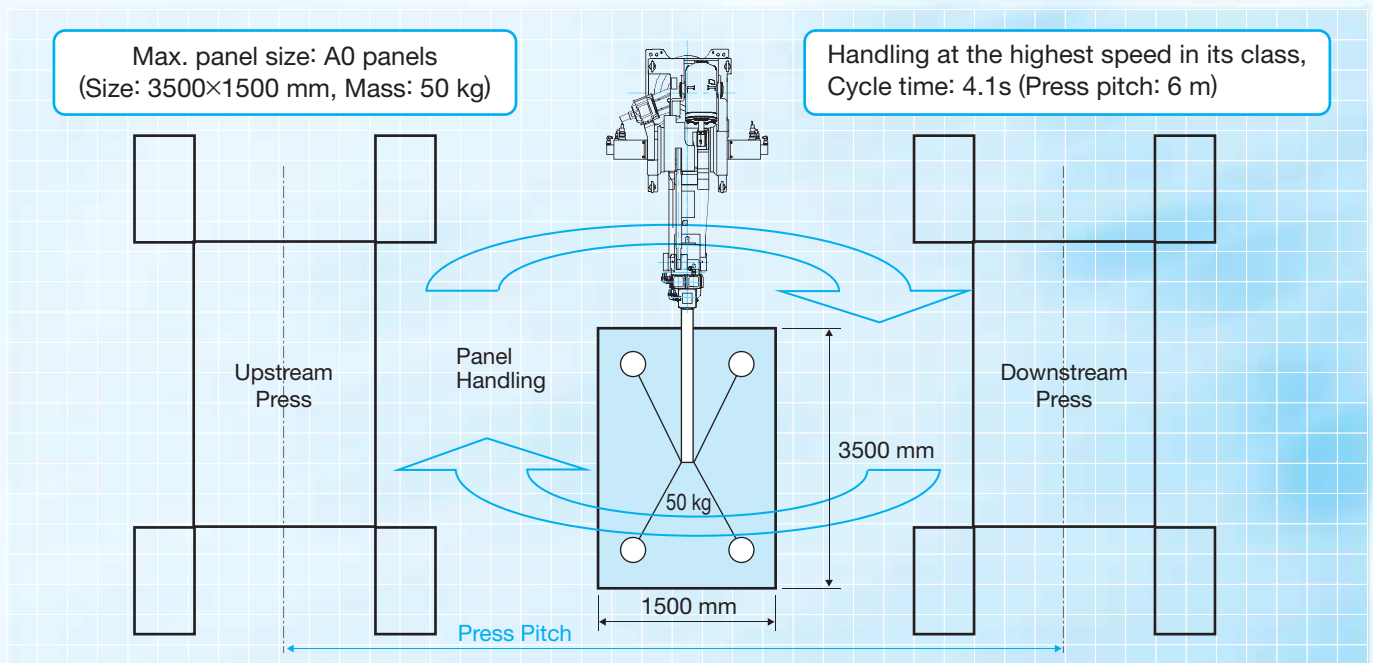
Press Pitch mm	Applicable Panel Size mm				
	1100×400	1600×1000	2200×1200	2500×1500	3500×1500 or more
4000 to 5000	 <p>EPH130D Series [EPH130D, EPH130RLD] (12 to 8.5 SPM)</p>				
5000 to 6000					
6000 to 7000	 <p>EP4000D Series [EPH4000D, EP4000D] (14.5 to 9 SPM)</p>				
7000 to 8000					
8000 to 9000					

SPM: Number of strokes per minute (including chuck 0.2s and release 0.1s)

Features

1 Large-size and heavy panels can be handled at the highest speed in its class.

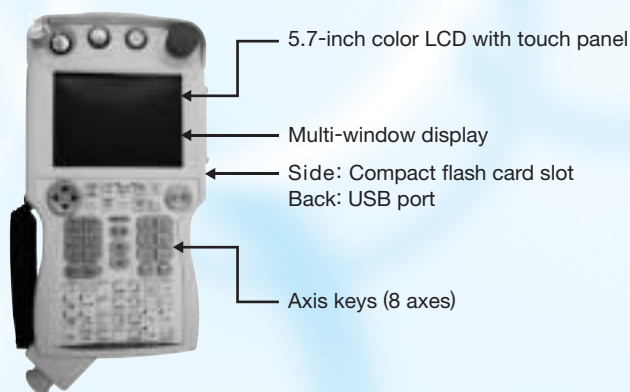
2 Realization of wide range of motions corresponds to the press line for large-size workpiece. (Handling between presses with a pitch: 6 to 8 m max.)



DX100 Controller

Robot controller's higher instruction processing speed, increased functions, and slim profile minimize the space required for production equipment and improve productivity.

The multi-window display function is added to the amazingly small and lightweight programming pendant to largely improve operability.



DX100 Controller Specifications

Items	Specifications
Configuration	Dust proof
Dimensions and Mass	MOTOMAN-EPH130D, EPH130RLD: 425 (W) × 450 (D) × 1400 (H) mm, 150 kg max. (Possible to control two external axes) MOTOMAN-EPH4000D, EP4000D : 1000 (W) × 650 (D) × 1591 (H) mm, 400 kg max. (Not possible to control the external axis)
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)
Power Supply	Three-phase 200/220 VAC (+10% to -15%) at 60 Hz (±2%) (Japan) Three-phase 200 VAC (+10% to -15%) at 50 Hz (±2%) (Japan)
Grounding	Grounding resistance: 100Ω or less
Digital I/Os	Specialized signals: 23 inputs and 5 outputs General signals: 40 inputs and 40 outputs Max.I/O (optional) : 2048 inputs and 2048 outputs
Positioning System	By serial encoder
Programming Capacity	JOB: 200,000 steps, 10,000 instructions CIO ladder: 20,000 steps max.
Expansion Slots	PCI: 2 slots for main CPUs, 1 slot for servo CPU and 1 additional slot for sensor board
LAN (Connection to Host)	1 (10BASE-T/100BASE-TX)
Interface	RS-232C: 1ch
Control Method	Software servo control
Drive Units	MOTOMAN-EPH130D, EPH130RLD: Standard 6 axes and 2 additional single-axis amplifiers can be mounted. MOTOMAN-EPH4000D, EP4000D: Standard 3 axes and 3 wrist-axis amplifiers can be mounted.
Painting Color	Munsell notation 5Y 7/1 (reference value)

Programming Pendant Specifications

Items	Specifications
Dimensions	169 (W) × 314.5 (H) × 50 (D) mm
Mass	0.990 kg
Material	Reinforced plastics
Operation Device	Select keys, axis keys (8 axes), 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, Others)
IEC Protection Class	IP65
Cable Length	Standard: 8 m, Max.: 36 m (optional)

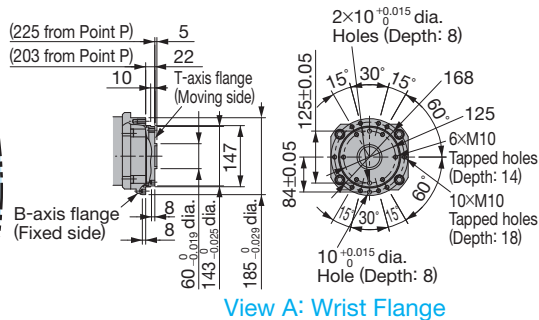
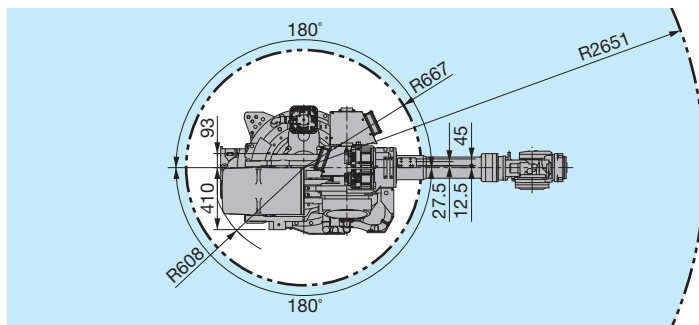
MOTOMAN-EPH130D

Floor-mounted Vertically Articulated Robot (130 kg Payload)

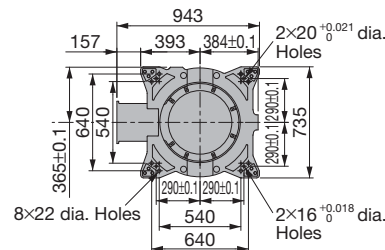
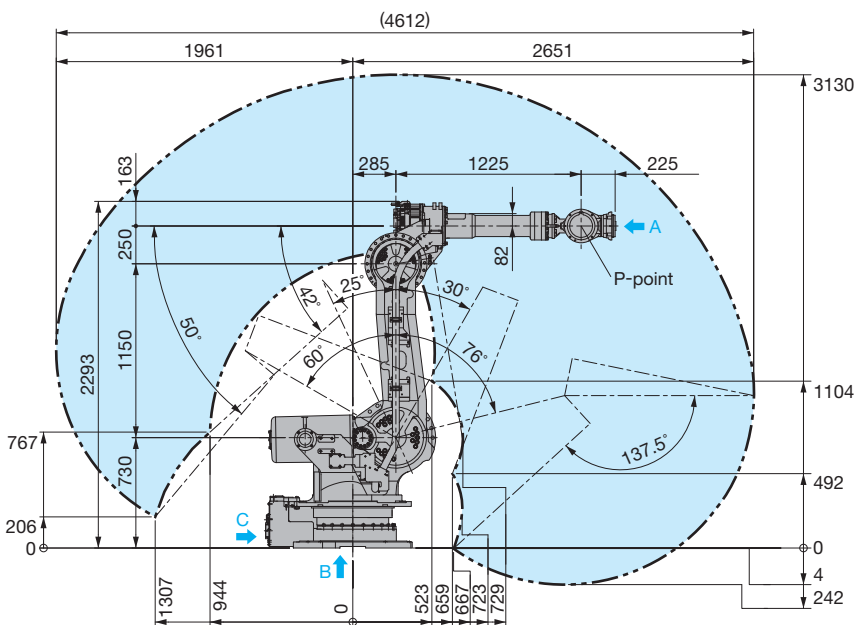


- Capable of high-frequency handling applications with longer service life of the speed reducer.
- Extended reach allows the EPH130D to service presses with press pitches from 4 m to 7 m.

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



View A: Wrist Flange



View B: Baseplate

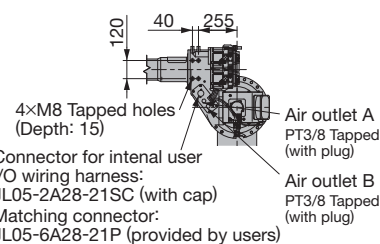
Air inlet A
PT3/8 Tapped
(with plug)

Air inlet B
PT3/8 Tapped
(with plug)

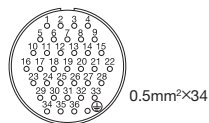


Connector for internal user
I/O wiring harness:
JL05-2A28-21PC (with cap)
Matching connector:
JL05-6A28-21S (provided by users)

View C: Connector Base



Connector



Cable Connector with Cap

Specifications

Model	MOTOMAN-EPH130D	
Type	YR-EPH130D-A01	
Payload	130 kg	
Repeatability*1	±0.2 mm	
Maximum Range of Motion	S-axis (turning)	-180° - +180°
	L-axis (lower arm)	-60° - +76°
	U-axis (upper arm)	-137.5° - +230°
	R-axis (wrist roll)	-360° - +360°
	B-axis (wrist pitch/yaw)	-130° - +130°
	T-axis (wrist twist)	-360° - +360°
Maximum Speed	S-axis (turning)	2.27rad/s, 130°/s
	L-axis (lower arm)	2.27rad/s, 130°/s
	U-axis (upper arm)	2.27rad/s, 130°/s
	R-axis (wrist roll)	3.75rad/s, 215°/s
	B-axis (wrist pitch/yaw)	3.14rad/s, 180°/s
	T-axis (wrist twist)	5.23rad/s, 300°/s

Model	MOTOMAN-EPH130D	
Allowable Moment	R-axis (wrist roll)	735 N·m
	B-axis (wrist pitch/yaw)	735 N·m
	T-axis (wrist twist)	421 N·m
Allowable Inertia (GD ² /4)	R-axis (wrist roll)	45 kg·m ²
	B-axis (wrist pitch/yaw)	45 kg·m ²
	T-axis (wrist twist)	15 kg·m ²
Approx. Mass	1495 kg	
Ambient Conditions	Temperature	0 to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	9.8 m/s ² or less
	Others	<ul style="list-style-type: none"> • Free from corrosive gasses or liquids, or explosive gasses • Clean and dry • Free from excessive electrical noise (plasma)
Mounting Method	Floor-mounted	
Power Requirements*2	7.5 kVA	

*1 : Conforms to JIS B8432.

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

Note : SI units are used for specifications.

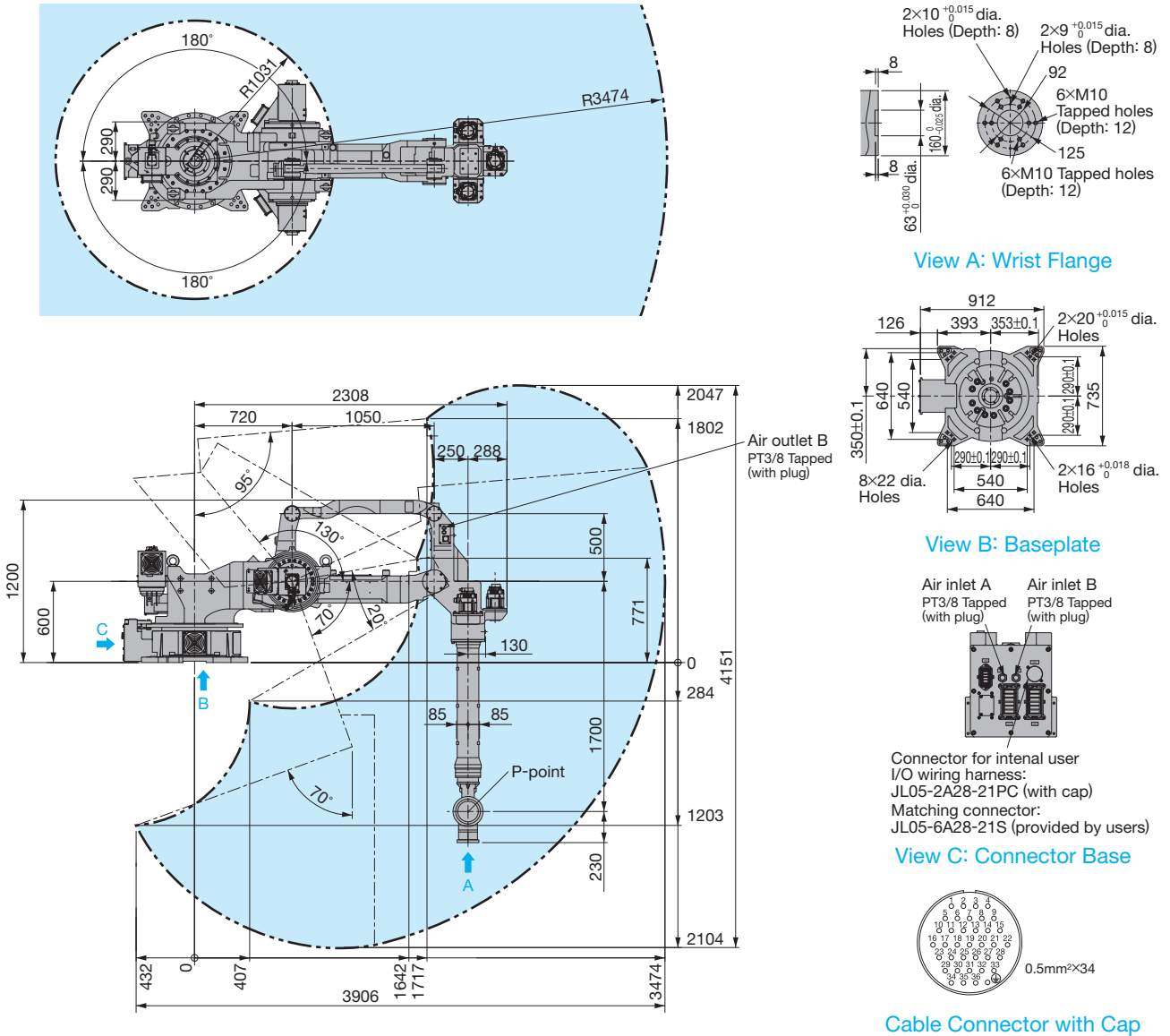
MOTOMAN-EPH130RLD

Shelf-mounted Vertically Articulated Robot (130 kg Payload)



- Capable of high-frequency handling applications with longer service life of the speed reducer.
- Extended reach allows the EPH130RLD to service presses with press pitches from 4 m to 7 m.
- Easy to replace a press die.

■ Dimensions Units: mm : P-point Maximum Envelope



■ Specifications

Model		MOTOMAN-EPH130RLD
Type		YR-PH13RLD-A00
Payload		130 kg
Repeatability*1		±0.3 mm
Maximum Range of Motion	S-axis (turning)	-180° - +180°
	L-axis (lower arm)	-130° - +70°
	U-axis (upper arm)	-70° - +95°
	R-axis (wrist roll)	-360° - +360°
	B-axis (wrist pitch/yaw)	-130° - +130°
	T-axis (wrist twist)	-360° - +360°
Maximum Speed	S-axis (turning)	1.92rad/s, 110°/s
	L-axis (lower arm)	1.92rad/s, 110°/s
	U-axis (upper arm)	1.92rad/s, 110°/s
	R-axis (wrist roll)	3.75rad/s, 215°/s
	B-axis (wrist pitch/yaw)	3.14rad/s, 180°/s
	T-axis (wrist twist)	5.23rad/s, 300°/s

Model		MOTOMAN-EPH130RLD
Allowable Moment	R-axis (wrist roll)	735 N·m
	B-axis (wrist pitch/yaw)	735 N·m
	T-axis (wrist twist)	421 N·m
Allowable Inertia (GD²/4)	R-axis (wrist roll)	45 kg·m²
	B-axis (wrist pitch/yaw)	45 kg·m²
	T-axis (wrist twist)	15 kg·m²
Approx. Mass		1445 kg
Ambient Conditions	Temperature	0 to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	9.8 m/s² or less
	Others	<ul style="list-style-type: none"> • Free from corrosive gasses or liquids, or explosive gasses • Clean and dry • Free from excessive electrical noise (plasma)
Mounting Method		Shelf-mounted
Power Requirements*2		7.5 kVA

*1 : Conforms to JIS B8432.

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

Note : SI units are used for specifications.

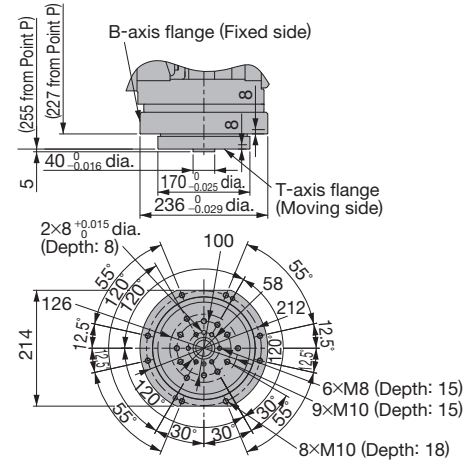
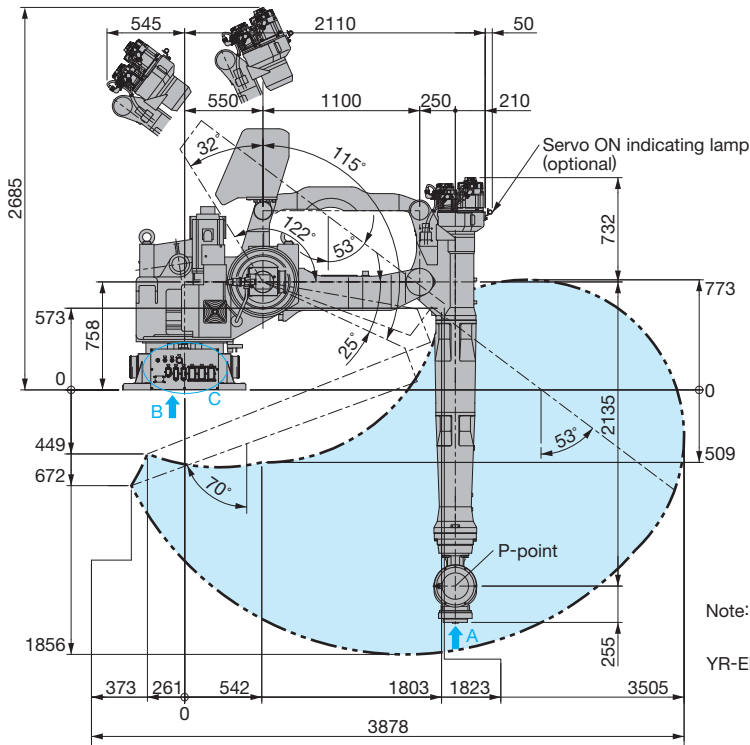
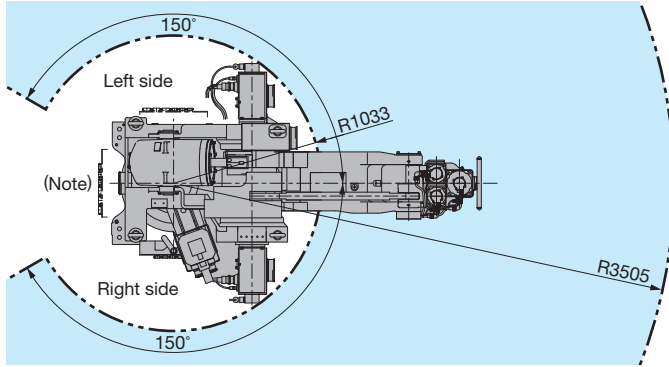
MOTOMAN-EPH4000D

Shelf-mounted Vertically Articulated Robot (200 kg Payload)

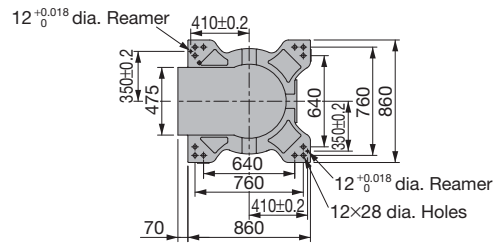
- Capable of high-frequency handling applications with longer service life of the speed reducer.
- Extended reach allows the EPH4000D to service presses with press pitches from 6 m to 8.5 m.
- Can handle A0 panels at the highest speed in its class.
- Easy to replace a press die.



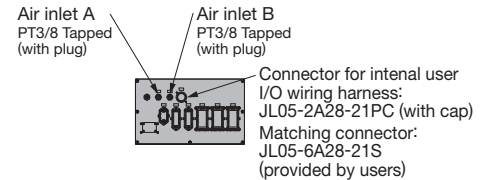
Dimensions Units: mm [Symbol]: P-point Maximum Envelope



View A: Wrist Flange



View B: Baseplate

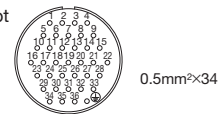


View C: Connector Base

Note: The direction of the power cable slot varies with the manipulator type.

YR-EPH4000D [Symbol]

- J: Right side position
- K: Back side position
- L: Left side position



Cable Connector with Cap

Specifications

Model		MOTOMAN-EPH4000D
Type		YR-EPH4000D [Symbol]
Payload		200 kg *3
Repeatability*1		±0.5 mm
Maximum Range of Motion	S-axis (turning)	-150° - +150°
	L-axis (lower arm)	-122° - +25°
	U-axis (upper arm)	-70° - +53°
	R-axis (wrist roll)	-360° - +360°
	B-axis (wrist pitch/yaw)	-120° - +120° *3
	T-axis (wrist twist)	-360° - +360° *3
Maximum Speed	S-axis (turning)	1.57rad/s, 90°/s
	L-axis (lower arm)	1.57rad/s, 90°/s
	U-axis (upper arm)	1.57rad/s, 90°/s
	R-axis (wrist roll)	1.40rad/s, 80°/s *3
	B-axis (wrist pitch/yaw)	1.40rad/s, 80°/s
	T-axis (wrist twist)	2.79rad/s, 160°/s

*1 : Conforms to JIS B8432.

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

*3 : If a parallel-linked arm is mounted on the T-axis for the MOTOMAN-EPH4000D, contact your Yaskawa representative.

Model		MOTOMAN-EPH4000D
Allowable Moment	R-axis (wrist roll)	1274 N·m *4
	B-axis (wrist pitch/yaw)	2156 N·m *4
	T-axis (wrist twist)	0 N·m *4
Allowable Inertia (GD ² /4)	R-axis (wrist roll)	84.5 kg·m ² *4
	B-axis (wrist pitch/yaw)	330 kg·m ² *4
	T-axis (wrist twist)	80 kg·m ² *4
Approx. Mass		3050 kg
Ambient Conditions	Temperature	0 to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	9.8 m/s ² or less
	Others	<ul style="list-style-type: none"> • Free from corrosive gasses or liquids, or explosive gasses • Clean and dry • Free from excessive electrical noise (plasma)
Mounting Method		Shelf-mounted
Power Requirements*2		22 kVA

*4 : Shows the allowable inertia if a parallel-linked arm is mounted on the T-axis for the EPH4000D (including a parallel-linked arm and workpiece). The allowable inertia under a load for the T-axis is based on the condition that the EPH4000D handles a workpiece in a horizontal position (with the wrist flange pointing down).

Note : SI units are used for specifications.

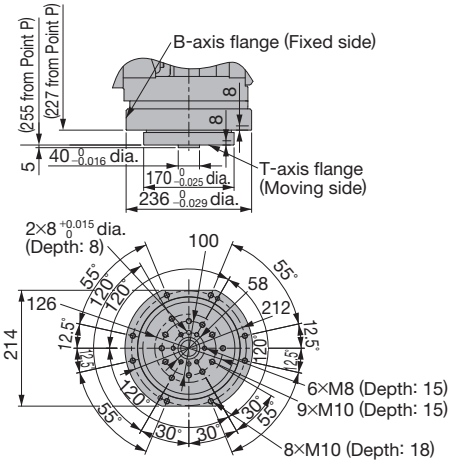
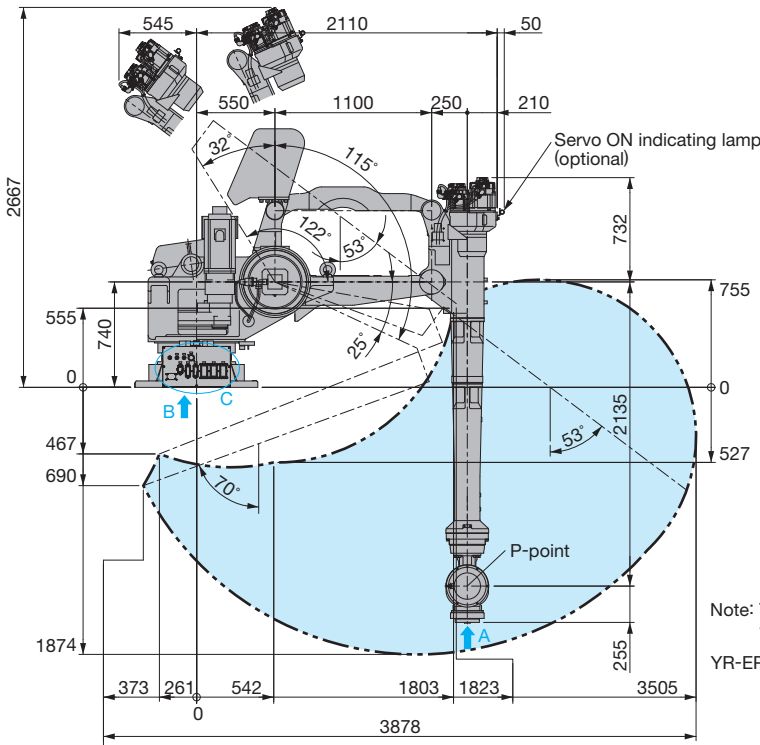
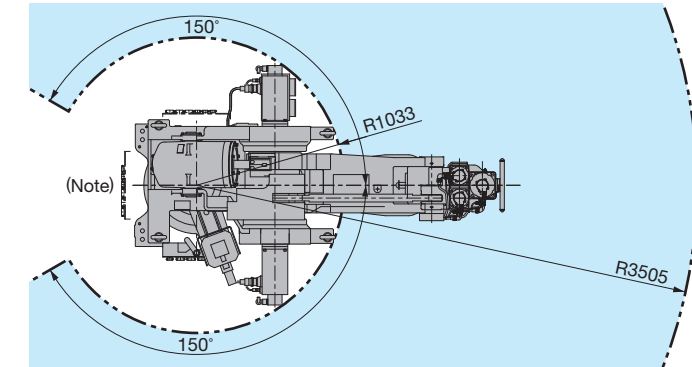
MOTOMAN-EP4000D

Shelf-mounted Vertically Articulated Robot (200 kg Payload)

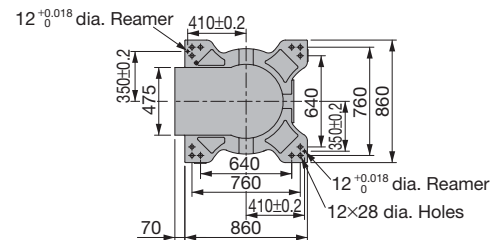


- Extended reach allows the EP4000D to service presses with press pitches from 6 m to 8.5 m.
- Can handle A0 panels at the highest speed in its class.
- Easy to replace a press die.

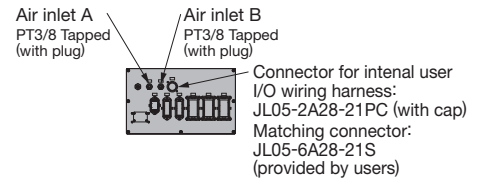
■ Dimensions Units: mm : P-point Maximum Envelope



View A: Wrist Flange



View B: Baseplate

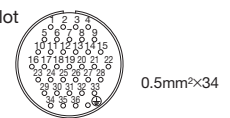


View C: Connector Base

Note: The direction of the power cable slot varies with the manipulator type.

YR-EP4000D

- J: Right side position
- K: Back side position
- L: Left side position



Cable Connector with Cap

■ Specifications

Model		MOTOMAN-EP4000D
Type		YR-EP4000D-
Payload		200 kg *3
Repeatability*1		±0.5 mm
Maximum Range of Motion	S-axis (turning)	-150° - +150°
	L-axis (lower arm)	-122° - +25°
	U-axis (upper arm)	-70° - +53°
	R-axis (wrist roll)	-360° - +360°
	B-axis (wrist pitch/yaw)	-120° - +120° *3
	T-axis (wrist twist)	-360° - +360° *3
Maximum Speed	S-axis (turning)	1.57rad/s, 90°/s
	L-axis (lower arm)	1.57rad/s, 90°/s
	U-axis (upper arm)	1.57rad/s, 90°/s
	R-axis (wrist roll)	1.40rad/s, 80°/s *3
	B-axis (wrist pitch/yaw)	1.40rad/s, 80°/s
	T-axis (wrist twist)	2.79rad/s, 160°/s

Model		MOTOMAN-EP4000D
Allowable Moment	R-axis (wrist roll)	1274 N·m *4
	B-axis (wrist pitch/yaw)	2156 N·m *4
	T-axis (wrist twist)	0 N·m *4
Allowable Inertia	R-axis (wrist roll)	84.5 kg·m ² *4
	B-axis (wrist pitch/yaw)	330 kg·m ² *4
	T-axis (wrist twist)	80 kg·m ² *4
Approx. Mass		3100 kg
Ambient Conditions	Temperature	0 to +45°C
	Humidity	20 to 80%RH (non-condensing)
	Vibration	9.8 m/s ² or less
	Others	<ul style="list-style-type: none"> • Free from corrosive gasses or liquids, or explosive gasses • Clean and dry • Free from excessive electrical noise (plasma)
Mounting Method		Shelf-mounted
Power Requirements*2		22 kVA

*1 : Conforms to JIS B8432.

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

*3 : If a parallel-linked arm is mounted on the T axis for the MOTOMAN-EP4000D, contact your Yaskawa representative.

*4 : Shows the allowable inertia if a parallel-linked arm is mounted on the T-axis for the EP4000D (including a parallel-linked arm and workpiece). The allowable inertia under a load for the T-axis is based on the condition that the EP4000D handles a workpiece in a horizontal position (with the wrist flange pointing down).

Note : SI units are used for specifications.

MOTOMAN-EPH and EP Series

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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.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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