YASKAWA
MOTOMAN ROBOTICS

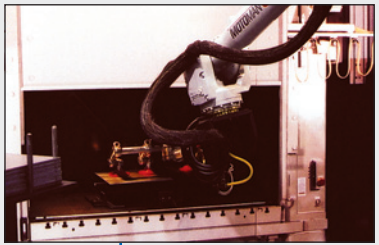
SOLUTIONS IN MOTION®

EP4000D
EPH4000D

PRESS TENDING

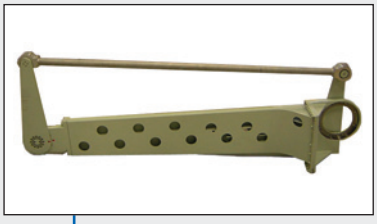
Payload: 200 kg

The six-axis, Motoman® EP4000D "Expert Press" robot and longer life EPH4000D "Expert Press Handling" robot have high vibration ratings and are designed for press room use.



PROCESS-SPECIFIC DESIGN

DX100 PROGRAMMING PENDANT



OPTIONAL PARALLEL LINK TOOL

TOP REASONS TO BUY

- Application-specific Expert Press Handling robots provide maximum performance and durability
- 34 conductor internal I/O cable provides maximum conductors in a high durability design
- Patented multiple robot control (up to 8 robots/72 axes) simplifies programming
- Energy saving design, reduces power consumption up to 25%
- Small lightweight programming pendant
- Shelf-mounted robots provide the floor space that is frequently needed for die change out

Fast, Streamlined and Powerful

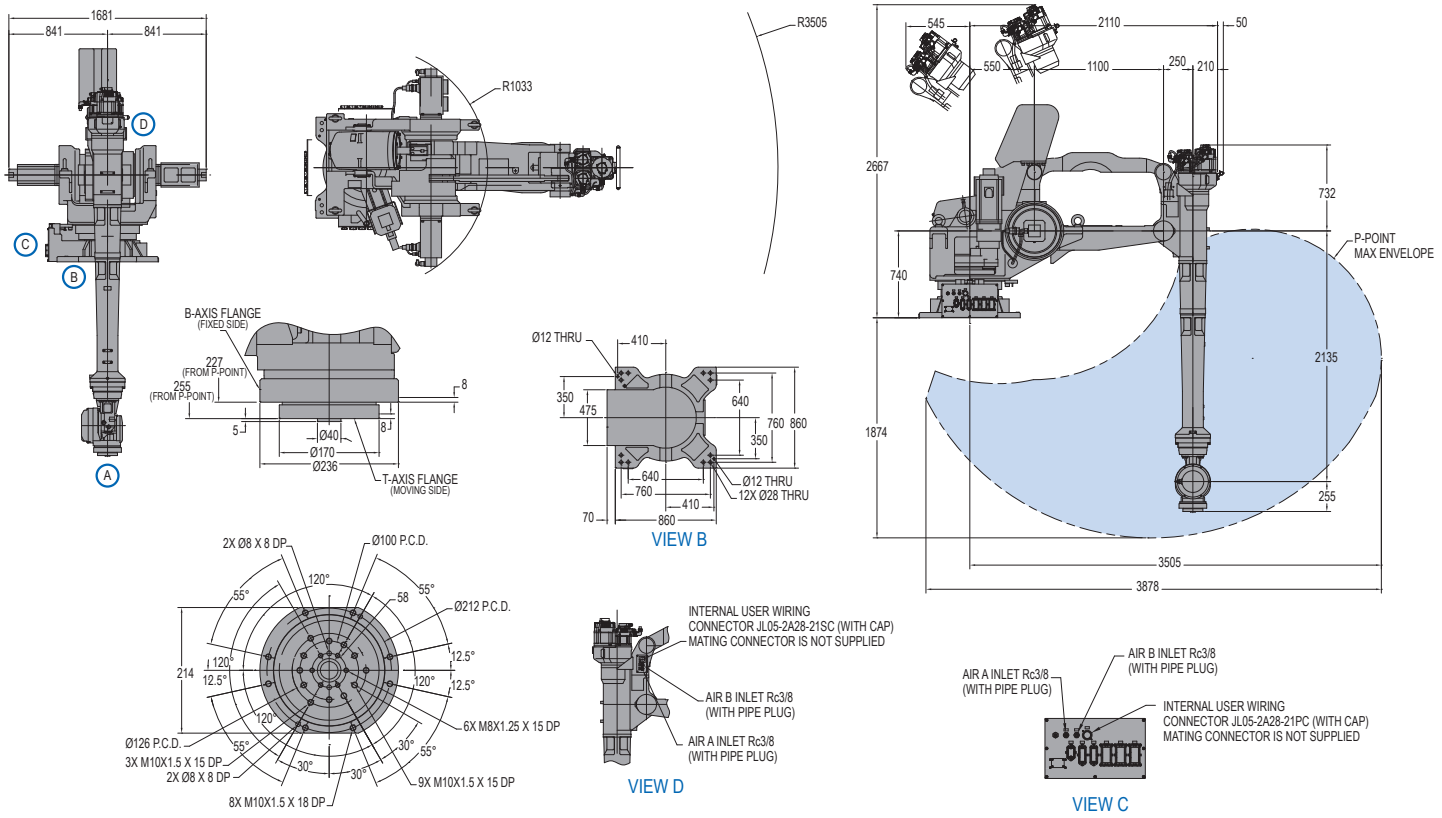
- EP4000D and EPH4000D robots feature a 200 kg payload, a 3,505 mm horizontal reach and 2,629 mm vertical reach.
- These robots can achieve 12 strokes per minute with a press pitch of 6.5 m. Extended reach allows these robots to service presses with press pitches of up to 9 m. Slender design of the robots allow work in tight spaces and service multiple presses.
- The EP4000D features cast iron castings, while the EPH4000D has aluminum castings in many places to reduce inertia of the moving robot arm. The EPH model also includes fans on more axes to dissipate heat generated in high duty cycle press tending applications.
- The optional Parallel Link Tool (PLT) extends the robot's reach by 1,650 mm with the robot wrist parallel to the floor. The parallel link tool reduces potential interference between the robot arm and the die. In addition, the PLT allows the dies to be loaded into the presses in the same orientation as for manual operation. Without the PLT, press line installations require that every other die be rotated 180 degrees because of the robot's S-axis rotation.

DX100 Controller

- Patented multiple robot control supports up to 8 robots/72 axes.
- Windows® CE programming pendant with color touch screen and USB interface.
- The DX100 controller provides faster processing speeds for smoother interpolation. Quicker I/O response. Accelerated Ethernet communication.
- Extensive I/O suite includes integral PLC and touch screen HMI, 2,048 I/O and graphical ladder editor.
- Supports all major fieldbus networks, including EtherNet/IP, DeviceNet, Profibus-DP and many others.
- Compliant to ANSI/RIA R15.06-1999 and other relevant ISO and CSA safety standards. Optional Category 3 functional safety unit.

EP4000D/EPH4000D ROBOT

EP4000D shown. EPH4000D is very similar, but reference the engineering drawing for complete information. All dimensions are metric (mm) and for reference only.



ROBOT SPECIFICATIONS

		EP4000D Standard Press Robot	EPH4000D Longer Operating Life
Structure		Vertical jointed-arm type	Vertical jointed-arm type
Controlled Axes		6	6
Payload		200 kg (441 lbs.)	200 kg (441 lbs.)
Vertical Reach		2,614 mm (103")	2,629 mm (103.5")
Horizontal Reach		3,505 mm (138")	3,505 mm (138")
Repeatability		±0.5 mm (0.02")	±0.5 mm (0.02")
Maximum Motion Range	S-Axis (Turning/Sweep) L-Axis (Lower Arm) U-Axis (Upper Arm) R-Axis (Wrist Roll) B-Axis (Bend/Pitch/Yaw) T-Axis (Wrist Twist)	±150° +25°/-122° +53°/-70° ±360° ±120° ±360°	±150° +25°/-122° +53°/-70° ±360° ±120° ±360°
Maximum Speed	S-Axis L-Axis U-Axis R-Axis B-Axis T-Axis	90°/s 90°/s 90°/s 80°/s 80°/s 160°/s	90°/s 90°/s 90°/s 80°/s 80°/s 160°/s
Approximate Mass		3,100 kg (6,835.5 lbs.)	3,050 kg (6,725.3 lbs.)
Brakes		All axes	All axes
Power Consumption		22 kVA	22 kVA
Allowable Moment	R-Axis B-Axis T-Axis	1,274 N • m 2,156 N • m 0 N • m	1,274 N • m 2,156 N • m 0 N • m
Allowable Moment of Inertia	R-Axis B-Axis T-Axis*	84.5 kg • m^2 330 kg • m^2 80 kg • m^2	84.5 kg • m^2 330 kg • m^2 80 kg • m^2
I/O Lines		34 wires (0.5 mm^2)	34 wires (0.5 mm^2)
Air Lines		2 – 3/8" air lines	2 – 3/8" air lines

*Rating with T-Axis parallel to the floor

DX100 CONTROLLER SPECIFICATIONS**

Dimensions (mm)	1,200 (w) x 1,000 (h) x 650 (d) 47.2" x 39.4" x 25.6")
Approximate Mass	250 kg max. (551.3 lbs)
Cooling System	Indirect cooling
Ambient Temperature	During operation: 0° to 45° C (32° to 113° F) During transit and storage: -10° to 60° C (14° to 140° F)
Relative Humidity	90% max. non-condensing
Primary Power Requirements	3-phase, 240/480/575 VAC at 50/60 Hz
Digital I/O NPN-Standard PNP-Optional	Standard I/O: 40 inputs/40 outputs consisting of 16 system inputs/ 16 system outputs, 24 user inputs/24 user outputs 32 Transistor Outputs; 8 Relay Outputs Max. I/O (optional): 2,048 inputs and 2,048 outputs
Position Feedback	By absolute encoder
Program Memory	JOB: 200,000 steps, 10,000 instructions CIO Ladder Standard: 15,000 steps Expanded: 20,000 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
Maintenance Functions	Displays troubleshooting for alarms, predicts reducer wear
Number of Robots/Axes	Up to 8 robots, 72 axes
Multi Tasking	Up to 16 concurrent jobs, 4 system jobs
Fieldbus	DeviceNet Master/Slave, AB RIO, Profibus, Interbus-S, M-Net, CC Link, EtherNet IP/Slave
Ethernet	10 Base T/100 Base TX
Safety	Dual-channel Emergency Stop Pushbuttons, 3-position Enable Switch, Manual Brake Release Meets ANSI/RIA R15.06-1999, ANSI/RIA/ISO 10218-1-2007 and CSA Z434-03

**See DX100 Controller data sheet (DS-399) for complete specifications

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YASKAWA

SOLUTIONS IN MOTION®

EPH130D
EPH130RLD

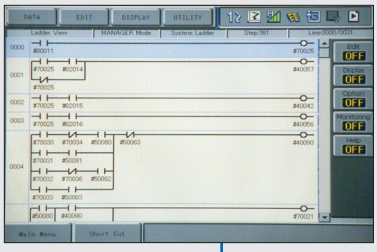
PRESS TENDING

Payload: 130 kg

Mounting option: Shelf (EPH130RLD)

PROCESS-SPECIFIC DESIGN

MULTIPLE WINDOW DISPLAY



LADDER EDITOR

The high-speed EPH130D and EPH130RLD "Expert Press Handling" robots are specifically designed for the rigors of press handing. Both feature a high vibration rating that is ideal for the press room. The EPH130D is used for floor-mounted applications. When a shelf-mounted robot is needed, the EPH130RLD allows improved clearance for die changes.

TOP REASONS TO BUY

- Application-specific Expert Press Handling robots provide maximum performance and durability
- 34 conductor internal I/O cable provides maximum conductors in a high durability design
- Patented multiple robot control (up to 8 robots/72 axes) simplifies programming
- Energy saving design, reduces power consumption up to 25%
- Small lightweight programming pendant
- MotoSim® EG simulation software (optional)

Fast, Flexible and Powerful

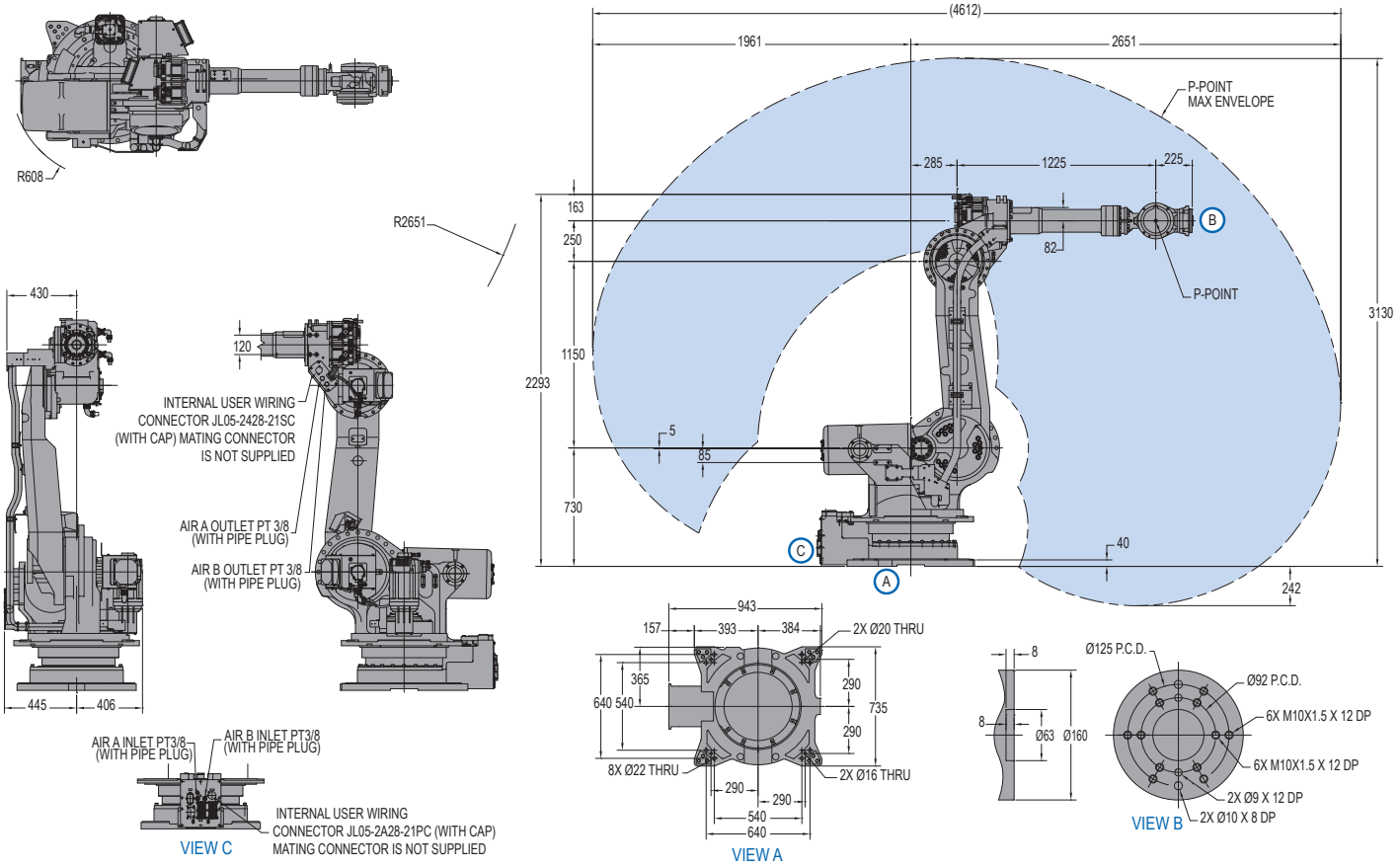
- Floor-mounted EPH130D model: 2,651 mm horizontal reach; 3,372 mm vertical; ±0.2 mm repeatability.
- Shelf-mounted EPH130RLD model: 3,474 mm horizontal reach; 4,151 mm vertical; ±0.3 mm repeatability allows improved clearance for die changes.
- These robots feature higher-performance drive systems on the S-, L- and U-axes (Axes 1, 2 and 3) for high duty cycle applications in the press room.
- The large work envelope allows the robot to be used to tend presses with spacing from 4-7 m.
- These robots can be used in a dual-robot, two-controller configuration with other DX100-controlled robots to provide maximum flexibility for a variety of processes.

DX100 Controller

- Patented multiple robot control supports up to 8 robots/72 axes.
- Faster processing speeds for smoother interpolation. Quicker I/O response. Accelerated Ethernet communication.
- Extensive I/O suite includes integral PLC and touch screen HMI, 2,048 I/O and graphical ladder editor.
- Supports all major fieldbus networks, including EtherNet/IP, DeviceNet, Profibus-DP and many others.
- Compliant to ANSI/RIA R15.06-1999 and other relevant ISO and CSA safety standards. Optional Category 3 functional safety unit.
- Advanced Robot Motion (ARM) control provides high performance. Best-in-class path planning dramatically reduces teaching time.
- Small, lightweight Windows® CE programming pendant features color touch screen with multiple window display capability. Unique cross-shaped navigation cursor reduces teaching time. All operator controls are located on pendant. Program file names can be up to 32 characters long.

EPH130D/EPH130LRD ROBOTS

EPH130D robot shown.
All dimensions are metric (mm) and for reference only. Please request detail drawings for all design/engineering requirements.



ROBOT SPECIFICATIONS

		EPH130D Floor-Mounted	EPH130RLD Shelf-Mounted
Structure		Vertical jointed-arm type	Vertical jointed-arm type
Controlled Axes		6	6
Payload		130 kg (286.7 lbs.)	130 kg (286.7 lbs.)
Vertical Reach		3,372 mm (132.8")	4,151 mm (163.4")
Horizontal Reach		2,651 mm (104.4")	3,474 mm (136.8")
Repeatability		±0.2 mm (0.008")	±0.3 mm (0.01")
Maximum Motion Range	S-Axis (Turning/Sweep) L-Axis (Lower Arm) U-Axis (Upper Arm) R-Axis (Wrist Roll) B-Axis (Wrist Pitch/Yaw) T-Axis (Wrist Twist)	±180° +76°/-60° +230°/-137.5° ±360° ±130° ±360°	±180° +70°/-130° +95°/-70° ±360° ±130° ±360°
Maximum Speed	S-Axis L-Axis U-Axis R-Axis B-Axis T-Axis	130°/s 130°/s 130°/s 215°/s 180°/s 300°/s	110°/s 110°/s 110°/s 215°/s 180°/s 300°/s
Approximate Mass		1,495 kg (3,296.5 lbs.)	1,445 kg (3,186.2 lbs.)
Brakes		All axes	All axes
Power Rating		7.5 kVA	7.5 kVA
Allowable Moment	R-Axis B-Axis T-Axis	735 N • m 735 N • m 421 N • m	735 N • m 735 N • m 421 N • m
Allowable Moment of Inertia	R-Axis B-Axis T-Axis*	45 kg • m^2 45 kg • m^2 15 kg • m^2	45 kg • m^2 45 kg • m^2 15 kg • m^2
Internal User Electrical Cable		34 conductors + ground	34 conductors + ground
Internal User Air Hose		2-PT 3/8 connector	2-PT 3/8 connector
Vibration Rating		9.8 m/s^2 (1.0 G)	9.8 m/s^2 (1.0 G)

* Inertia increases to 52 kg • m2 with no T-Axis moment.

DX100 CONTROLLER SPECIFICATIONS**

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