

M-710*i*B Series

Basic Description

The M-710*i*B series is a six-axis, modular construction, electric servo-driven family of robots designed for a variety of manufacturing and system processes. The innovative design of the M-710*i*B series provides an extremely large work envelope without requiring significant floor space.

Engineered for high speed, application flexibility and reliability, the M-710*i*B series delivers repeatable precision and unparalleled performance.

M-710*i*B Series, the Solution for:

- Material handling
- Machine load/unload
- Parts transfer
- Assembly
- Waterjet cutting
- Die casting
- Dispensing
- Material removal
- Palletizing

Benefits

- Floor, invert, wall, shelf and angle mounting permits installation versatility when unusual work piece access is required.

The M-710*i*B/70 supports only floor and invert mounting.



- Shared components between M-710*i*B/45 and M-710*i*B/70 reduce complexity and costs associated with service, spare parts and training.
- Small footprint and slim profile facilitate placement in tight surroundings.
- AC servo motors with high power-to-weight ratios provide an extremely fast composite speed.
- Utilizes the new Alpha *i* servo motors making them more compact and energy efficient.
- Compact body castings provide the smallest Joint 2 interference zone in the industry.
- Wide axis ranges offer the largest horizontal strokes in this robot class.
- Increased flexibility in cell design is realized due to the ability of J3 to flip over and work behind itself.

Features

- 6 axes of motion
- 45 kg payload capacity for the M-710*i*B/45
- 70 kg payload capacity for the M-710*i*B/70
- ± 0.15 mm repeatability
- 360° standard J1 rotation
- Fail-safe brakes on all six axes increase safety, functionality and control.
- Extremely rigid design allows precise positioning.

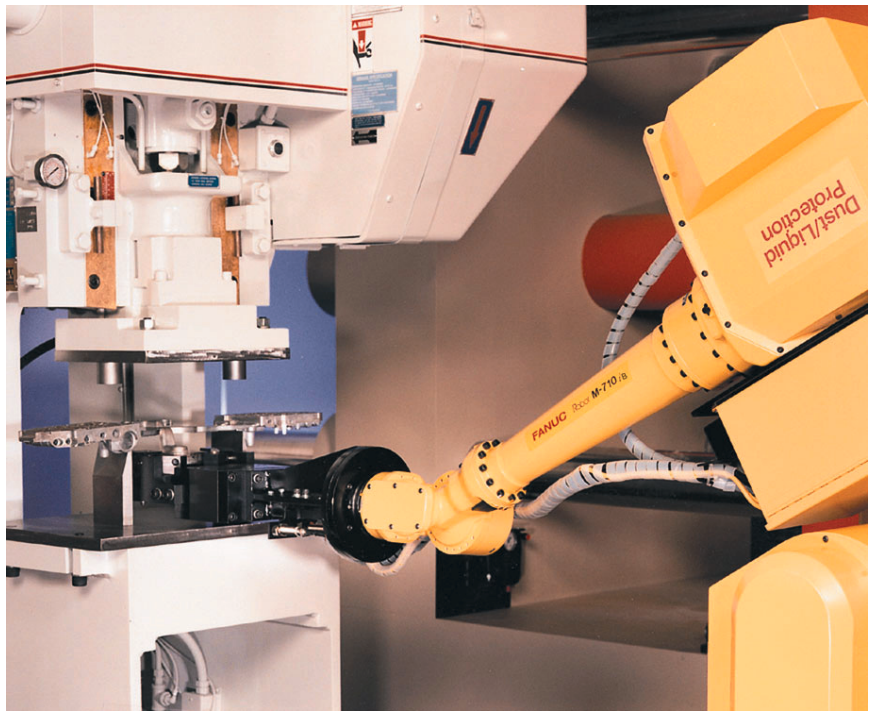
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Reliability Features

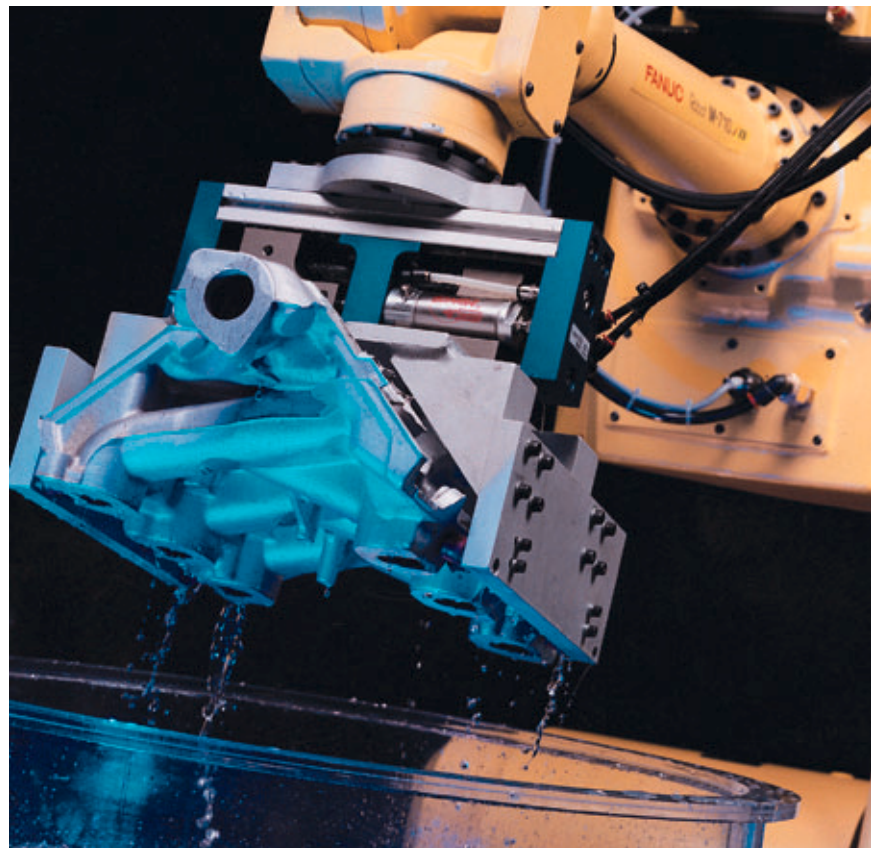
- Sealed drives and bearings minimize maintenance requirements.
- Grease fittings are available on all lubrication points for quick and easy maintenance.
- Cables are routed through hollow RV reducers to minimize flexing.
- All motors and associated cables can be enclosed to prevent snagging and damage from chips, sprays and other hazards.
- Minimal backlash and a long service life are assured by the use of directly coupled drives on all axes instead of pulleys, chains and belts, which can stretch or break.
- In-line wrist design minimizes complexity while increasing reliability.

Major Options

- Air blow and motor fan options for increased duty cycle capability.
- Severe dust and liquid protection package for die cast spray, waterjet cutting and other harsh environment applications.
- Joint 1 and 2 axes motor cover
- Adjustable hard stops for J1 every 15°

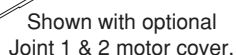


The M-710iB series flip-over capability maximizes reach and flexibility.



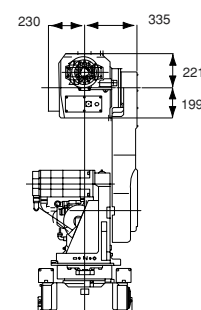
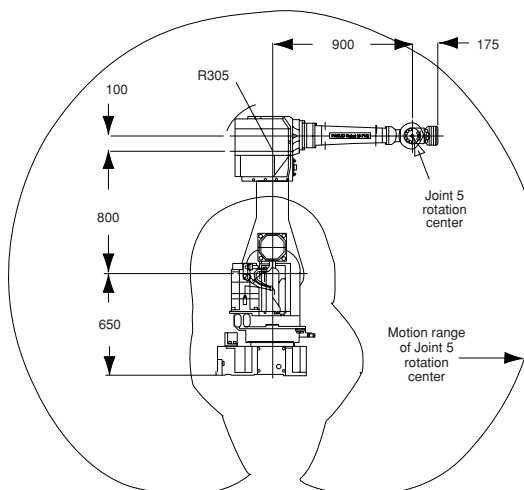
An optional severe dust and liquid protection package allows the M-710iB series to operate in a variety of harsh environments.

Isometric



Technical drawing of the front view of a 100 mm diameter bearing housing. The drawing shows a circular flange with 12 mounting holes. Key features include:

- Central bore: 2-dia. $\begin{smallmatrix} 8 \\ 0 \end{smallmatrix}$ $\begin{smallmatrix} +0.015 \\ 0 \end{smallmatrix}$ depth 15 eq. sp. on dia. 100 bolt circle
- Mounting holes: 6-M8 depth 16 eq. sp. on dia. 100 bolt circle
- Fillet radius: R135
- Angle: 40°
- Note: Joint 5 housing swing radius as Joint 4 moves



Items		
Axes		6
Payload (kg)		45
Reach (mm)		1706
Repeatability (mm)		± 0.15
Interference radius (mm)		350
Motion range (degrees)	J1	320/360
	J2	260
	J3	420
	J4	540
	J5	250
	J6	720
Motion speed (degrees/sec.)	J1	160
	J2	120
	J3	150
	J4	240
	J5	240
	J6	340
Wrist moment (kgf·m)	J4	18
	J5	18
	J6	10
Wrist inertia (kgf·cm·s ²)	J4	110
	J5	110
	J6	34
Mechanical brakes		All axes
Mechanical weight (kg)		530
Mounting method		Floor, ceiling, without Controller (angle and wall) ⁽¹⁾
Installation environment		0 to 45
Ambient temperature °C		
Humidity		
		Normally: 75% or less Short term (within a month): 95% or less No condensation
Vibration (m/s ²) (G)		4.9 or less (0.5G or less)
IP Rating(s) ⁽²⁾		Body IP54 Std. (IP55 optional) Wrist and joint 3 arm IP67

Side

Technical drawing of a rectangular plate with the following dimensions and features:

- Overall width: 585
- Overall height: 600
- Top edge features:
 - Left corner: 15
 - Distance from left edge to center hole: 350
 - Right corner: R45 (Typ.)
- Internal vertical dimensions:
 - Distance from top edge to center hole: 480
 - Distance between center holes: 400 ± 0.1
 - Distance from center hole to bottom edge: 200 ± 0.1
 - Distance from bottom edge to center hole: 272
- Internal horizontal dimensions:
 - Distance from left edge to center hole: 190
 - Distance between center holes: 200 ± 0.1
 - Distance from center hole to right edge: 190
- Bottom edge features:
 - Left corner: B
 - Right corner: 2-dia. 10 ± 0.022 through ± 0.006
- Other features:
 - Feature A: A small hole located between the center holes.
 - Feature P: A small hole located at the bottom center.
- Orientation: Front view indicated by an arrow pointing right.

A: Joint 1 axis rotation center
B: 4-dia. 24 through dia. 38 facing depth 4 (for robot mounting bolt)

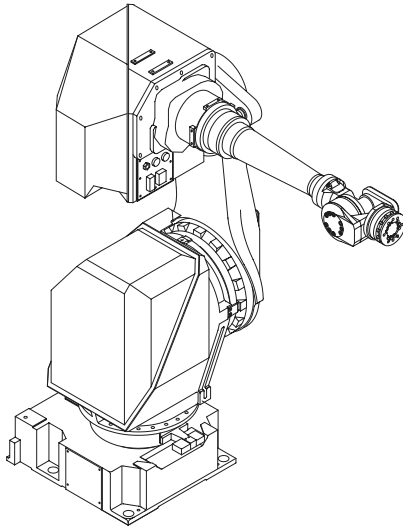
Drawings are not to scale.
Dimensions shown in millimeters.

Notes:

(1) J1 asiz motion range and speed will be derated.
(2) SDLP Body IP55 wrist and Joint and Arm IP67.

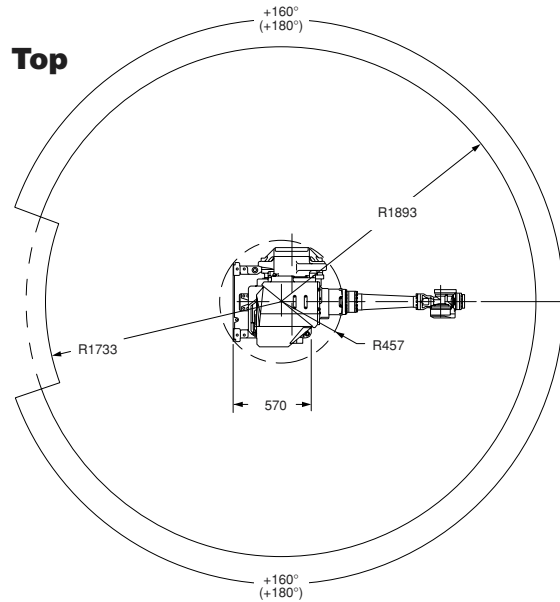
M-710iB/70 Dimensions

Isometric



Shown with optional
Joint 1 & 2 motor cover.

Top

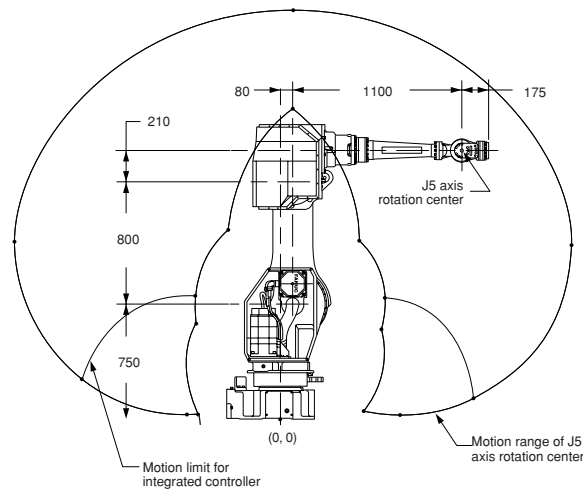


M-710iB/70 Specifications

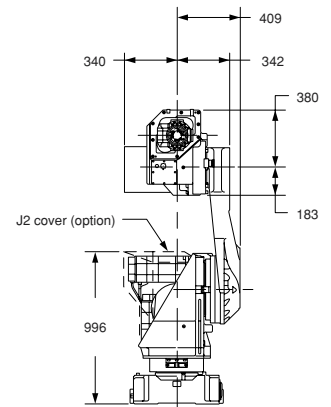
Items	
Axes ⁽¹⁾	6
Payload (kg)	70
Reach (mm)	1893
Repeatability (mm)	± 0.15
Interference radius (mm)	457
Motion range (degrees)	J1 320/360
	J2 120
	J3 376
	J4 540
	J5 250
	J6 720
Motion speed (degrees/sec.)	J1 160
	J2 120
	J3 120
	J4 225
	J5 225
	J6 225
Wrist moment (kgf·m)	J4 30
	J5 30
	J6 15
Wrist inertia (kgf·cm·s ²)	J4 131
	J5 131
	J6 33
Mechanical brakes	All axes
Mechanical weight (kg)	745
Mounting method	Floor, ceiling, (Remote Controller)
Installation environment	
Ambient temperature °C	0 to 45
Humidity	Normally: 75% or less Short term (within a month): 95% or less No condensation
Vibration (m/s ²) (G)	4.9 or less (0.5G or less)
IP Rating(s) ⁽²⁾	Body IP54 Std. (IP55 optional) Wrist and joint 3 arm IP67

Notes:

- Joint 6 Payload limited to 60kg if 10kg on Joint 3 casting.
- SDLP Body IP55 wrist and Joint and Arm IP67.



Side



Front

Notes:

M-710iB/70 faceplate and footprint identical to M-710iB/45.
M-710iB/70 shown with integrated controller.
Drawings are not to scale.
Dimensions shown in millimeters.



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