

# M-710iB™ Series

## Basic Description

The M-710iB 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-710iB series provides an extremely large work envelope without requiring significant floor space.

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

## M-710iB 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-710iB/70 supports only floor and invert mounting.
- Shared components between M-710iB/45 and M-710iB/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

- *i*Pendant, a color, Internet-ready teach pendant for even easier programming and custom cell user interface design.
- 6 axes of motion.
- 45 kg payload capacity for the M-710iB/45.
- 70 kg payload capacity for the M-710iB/70.
- $\pm 0.07$  mm repeatability.
- 360° standard J1 rotation.
- Fail-safe brakes on all six axes increase safety, functionality and control.
- Extremely rigid design allows precise positioning.

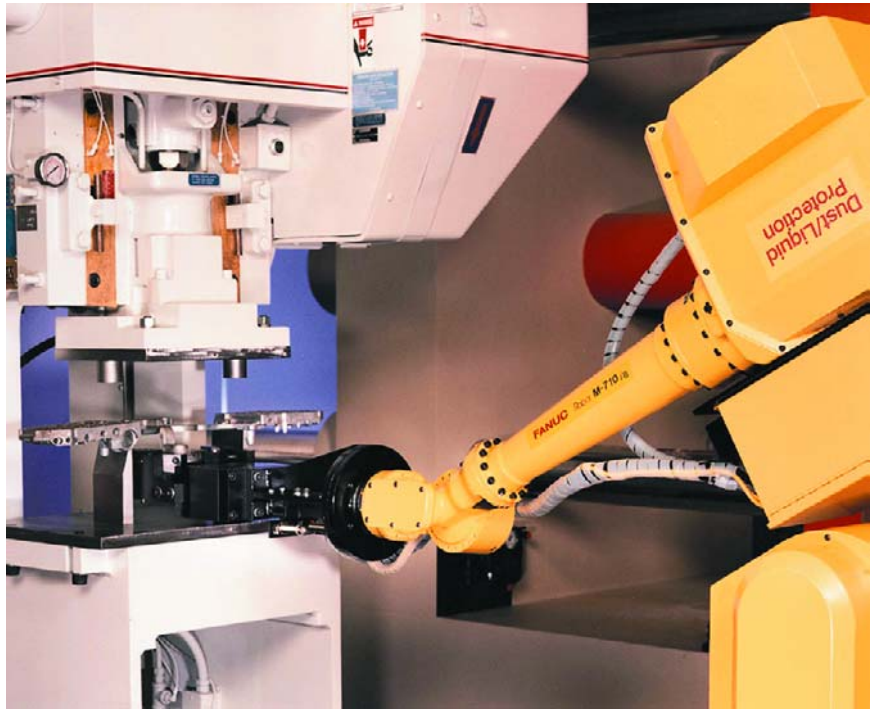
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## Reliability Features

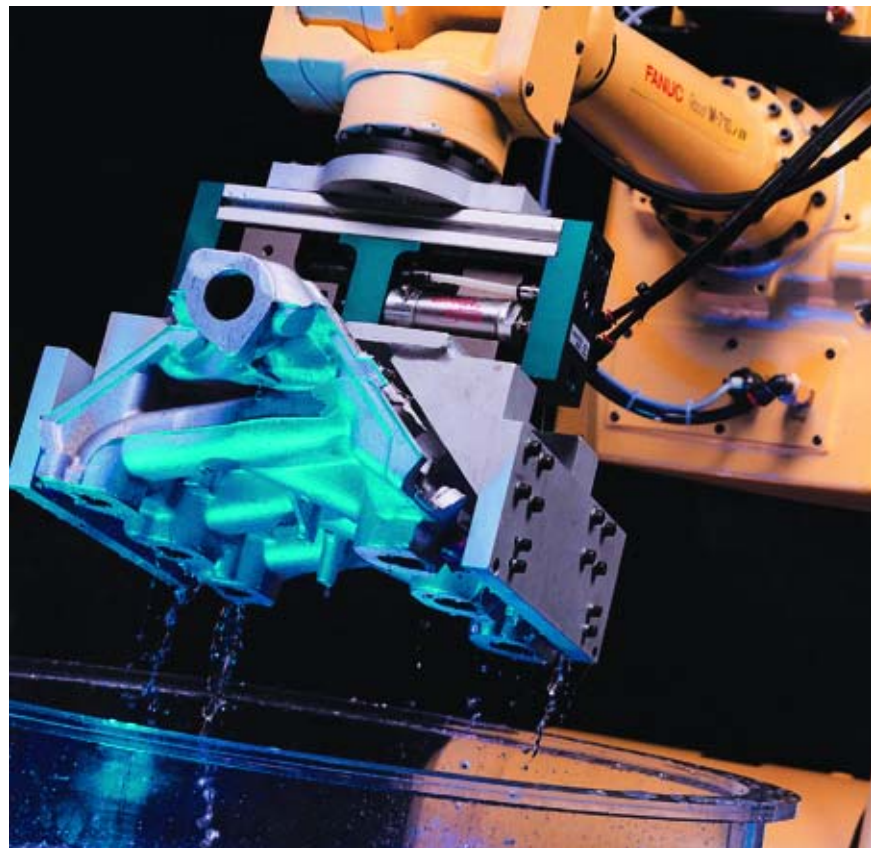
- Sealed drives and bearings minimize maintenance requirements.
- Grease fittings are available on all lubrication points for quick and easy maintenance.
- Cables are routed through hollow RV reducers to minimize flexing.
- All motors and associated cables can be enclosed to prevent snagging and damage 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

- *i*Pendant is also available with touch screen support.
- 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°.
- Monochrome pendant available.



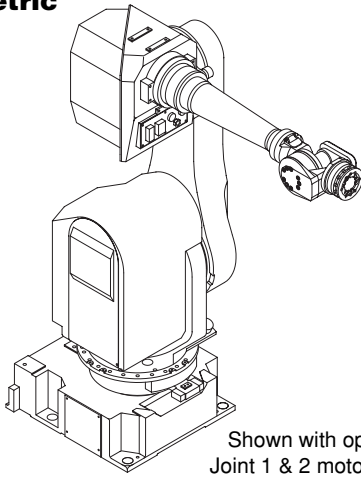
The M-710iB series flip-over capability maximizes reach and flexibility.



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

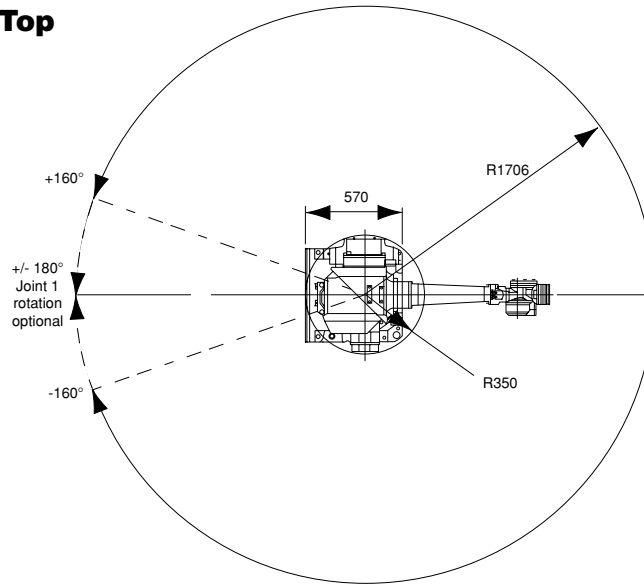
# M-710iB/45 Dimensions

## Isometric

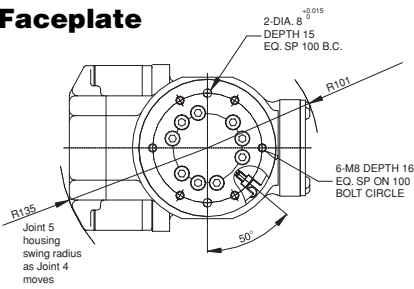


Shown with optional Joint 1 & 2 motor cover.

## Top



## Faceplate



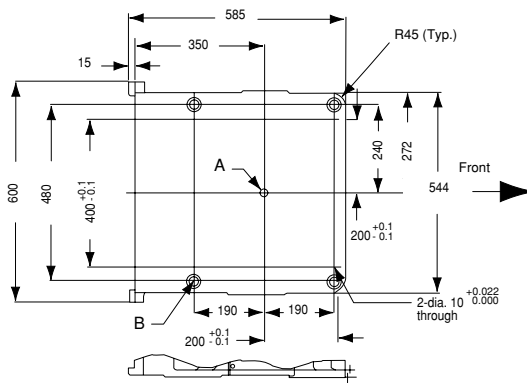
## M-710iB/45 Specifications

Items		
Axes <sup>(1)</sup>		6
Payload		45
Reach (mm)		1706
Repeatability (mm)		±0.07
Interference radius (mm)		350
Motion range (degrees)	J1	320/360
	J2	260
	J3	420
	J4	540
	J5	250
	J6	720
Motion speed (degrees/s)	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 <sup>2</sup> )	J4	110
	J5	110
	J6	34
Mechanical brakes	All axes	
Mechanical weight (kg)	530	
Mounting method	Floor, ceiling, without Controller (angle and wall) <sup>(1)</sup>	
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 <sup>2</sup> ) (G)	4.9 or less (0.5G or less)	
IP Rating(s) <sup>(2)</sup>	Body IP54 Std. (IP66 Drivetrain optional) Wrist and joint and arm IP67	

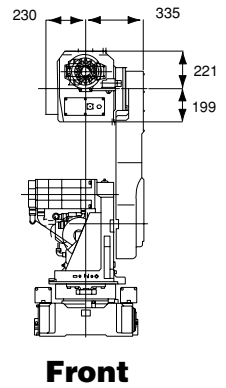
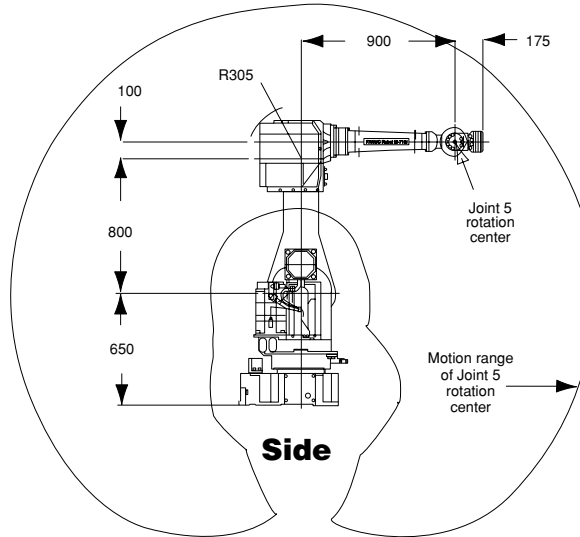
### Notes:

- (1) J1 axis motion range and speed will be derated.
- (2) SDLP: Drivetrain IP66, wrist and joint and arm IP67.

## Footprint

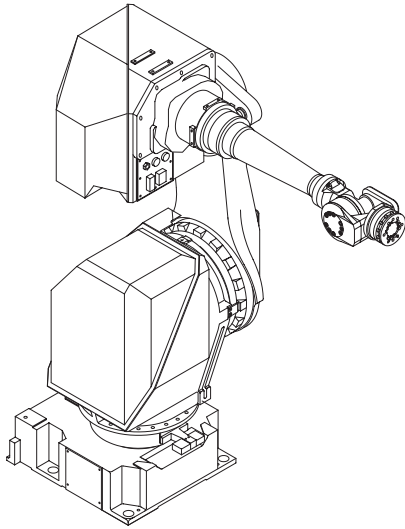


- A: Joint 1 axis rotation center
- B: 4-dia. 24 through dia. 38 facing depth 4 (for robot mounting bolt)
- C: Mounting Hardware: M20X45 (4pcs); Strength Class: 12.9; Tightening Torque: 529.2 Nm



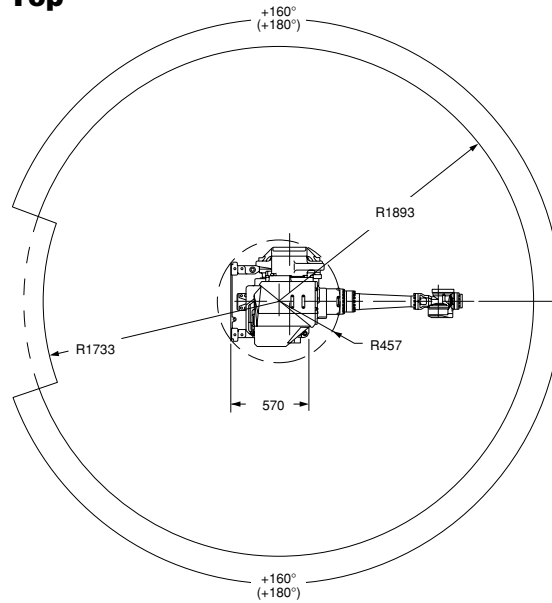
# M-710iB/70 Dimensions

## Isometric



Shown with optional Joint 1 & 2 motor cover.

## Top

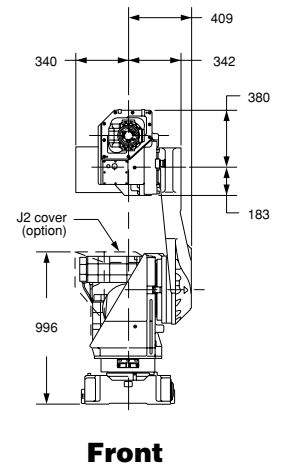
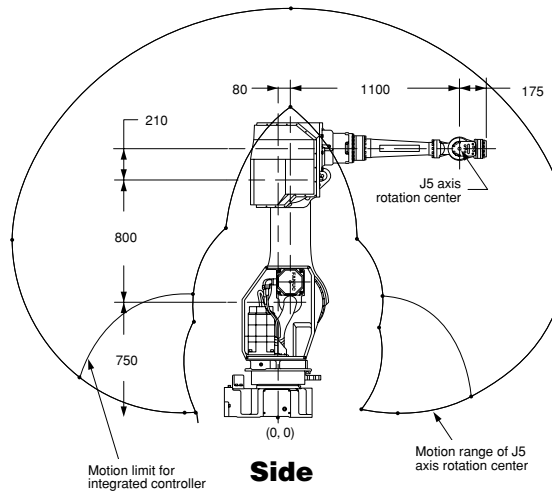


## M-710iB/70 Specifications

Items		
Axes <sup>(1)</sup>		6
Payload		70
Reach (mm)		1893
Repeatability (mm)		±0.07
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 <sup>2</sup> )	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 <sup>2</sup> ) (G)	4.9 or less (0.5G or less)	
IP Rating(s) <sup>(2)</sup>	Body IP54 Std. (IP66 Drivetrain optional) Wrist and joint and arm IP67	

### Notes:

- (1) Joint 6 Payload limited to 60kg if 10kg on Joint 3 casting.
- (2) SDLP: Drivetrain IP66, wrist and joint and arm IP67.



### 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.
- Detailed CAD data are available upon request.



**FANUC Robotics America, Inc.**  
**3900 W. Hamlin Road**  
**Rochester Hills, MI 48309-3253**  
**(248) 377-7000**  
**Fax (248) 276-4133**

Charlotte, NC  
 (704) 596-5121

Chicago, IL  
 (847) 898-6000

Cincinnati, OH  
 (513) 754-2400

Los Angeles, CA  
 (949) 595-2700

Toledo, OH  
 (419) 866-0788

Toronto, Canada  
 (905) 812-2300

Montréal, Canada  
 (450) 492-9001

Aguaascalientes, Mexico  
 52 (449) 922-8000

Sao Paulo, Brazil  
 (55) (11) 3619-0599

**For sales or technical information, call:**  
**1-800-47-ROBOT**

**marketing@fanucrobotics.com**  
**www.fanucrobotics.com**