

# M-16iB™ Series

## Basic Description

The M-16iB series is a six-axis, modular construction, electric servo-driven robot designed for a variety of industrial applications. Based on its simple and reliable construction, the M-16iB series provides sophisticated motion control and consistent performance with high productivity. The SYSTEM R-J3iB Controller and easy-to-use HandlingTool application software provide accurate and consistent path performance.

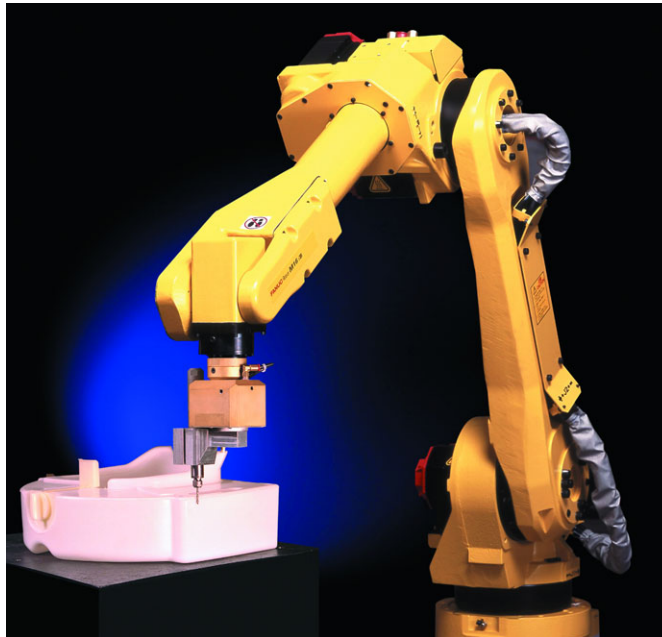
The M-16iB series, the latest generation material handling robot, has a compact design with improved motion range and speed. The compact yet flexible design simplifies installation, maximizes reach capability within confined areas and enables high-density installation of robots and peripherals.

## M-16iB Series, the Solution for:

- Assembly
- Dispensing
- Material handling
- Machine load/unload
- Material removal
- Waterjet cutting
- Laser cutting
- Packing

## Benefits

- Largest work envelope and load capacity in its class allows robot operation in a wide range of high-speed, medium-payload manufacturing processes.
- No robot modification required for upright, inverted, angle and wall mounting.
- Unique hollow RV speed reducers simplify cable routing.
- Small footprint facilitates placement in tight surroundings.
- Low arm mass and rigid design allow high-speed, precise positioning.



- Dedicated pneumatic and electrical (with eight digital inputs and eight digital outputs) connections on J3 axis to simplify user's end-of-arm tooling design, integration and communication.
- Material handling style teach pendant with large LCD screen and ergonomic design offers intuitive control over the process.
- Fail-safe brakes on all axes increase safety, functionality and control.

## Features

- Repeatability of +/- 0.08 mm at full speed and full payload within entire work envelope.
- 20 kg payload capacity.
- Axes speeds up to 520 degrees/sec. Best in its class.
- "Double-jointed" arm increases work envelope and positioning flexibility.
- Absolute serial encoders eliminate the need for calibration at power-up.

## Reliability Features

- Sealed bearings and drives, and brushless AC motors minimize maintenance.
- Grease fittings on all lubrication points for quick and easy maintenance.

- Uses directly-coupled drives, which are more reliable than belts, pulleys or chains.
- All motors, cables and tooling services are engineered to prevent snagging and damage from chips, sprays and other hazards.
- Dust and water resistant design maximizes durability.
- Quick disconnect robot connecting cables.
- In-line wrist design minimizes complexity and eliminates bevel gear adjustments.

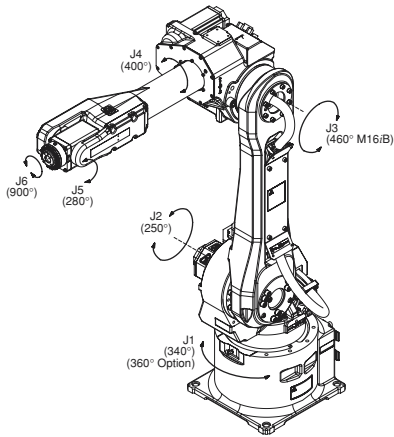
## Options

- 360° Axis 1 base rotation.
- Severe dust and liquid protection package for harsh environment applications (standard M-16iB wrist is rated IP67 to withstand temporary immersion in liquids).
- iPendant, a color, Internet-ready teach pendant for even easier programming and custom cell user interface design. iPendant is also available with touch screen support.
- Auxiliary axis packages for integration into part positioners.
- Various robot connection cable lengths for flexible cabinet placement and optional track rated cables.

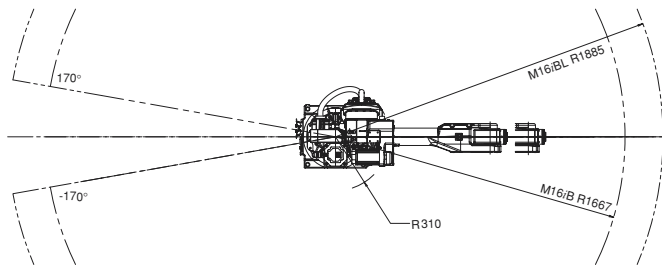
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# M-16i/B Series Dimensions

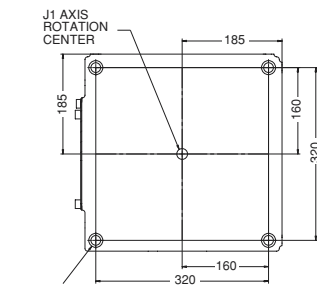
## Isometric



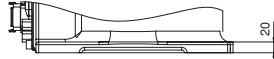
## Top



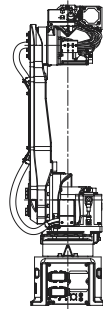
## Footprint



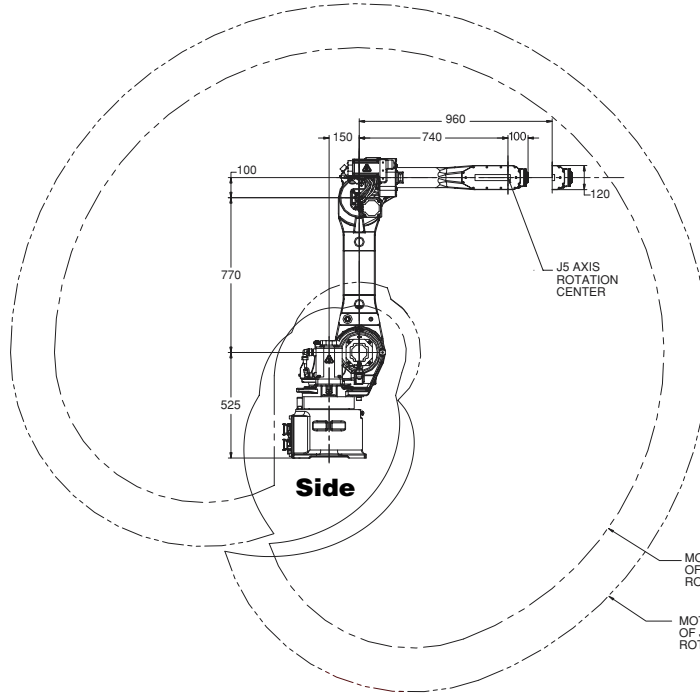
4ø18 THROUGH  
ø26 FACING DEPTH 5



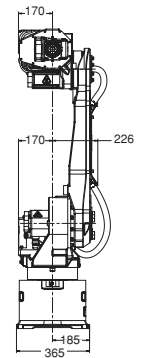
## Back



## Side



## Front

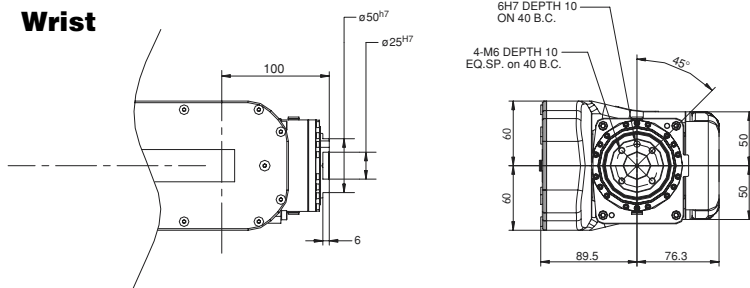


## M-16i/B Series Specifications

Items	M-16i/B/20	M-16i/B/10L
Axes	6	6
Payload (kg)	20	10
Reach (mm)	1667	1885
Repeatability (mm)	±0.08	±0.10
Interference radius (mm)	310	310
Motion range (degrees)	J1 340/360	340/360
	J2 250	250
	J3 460	455
	J4 400	400
	J5 280	280
	J6 900	900
Motion speed (degrees/sec.)	J1 165	165
	J2 165	165
	J3 175	175
	J4 350	350
	J5 340	340
	J6 520	520
Wrist moment (kgf·m)	J4 4.0	2.2
	J5 4.0	2.2
	J6 2.0	1.0
	J6 2.5	1.5
Wrist inertia (kgf·cm·s <sup>2</sup> )	J4 9.0	6.4
	J5 9.0	6.4
	J6 2.5	1.5
	J6 2.5	1.5
Mechanical brakes	All axes	All axes
Mechanical weight (kg)	220	230
Mounting method	Floor, ceiling (angle and wall - see Note 1)	
Installation environment		
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)	Body IP54 std. (IP55 optional) Wrist & J3 arm IP67	
Payload at axis 3 (kg)	12	12

Note 1 - J1 and J2 axis motion range will be derated.

## Wrist



Note: Dimensions shown in millimeters.

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