

M-16iB/T™ Series

Basic Description

FANUC Robotics' M-16iB/T series of overhead rail-mounted robots is part of the Toploader family of six-axis, modular construction, electric servo-driven articulated gantry robots designed for material handling and machine tending. The M-16iB/T robots also have the ability to perform value-added post-processing operations. The robots are engineered for precision, high-speed operation, user-friendly setup and maximum reliability, supported by our extensive service and parts network. The M-16iB/20T and M-16iB/10LT robots are ideal for light to medium material handling challenges.

M-16iB/T Series, the Solution for:

- Material handling
- Machine tool tending and post-process operations
- Injection mold machine extraction and post-process operations
- Die spray
- Dispensing
- Palletizing/Depalletizing
- Plasma cutting

Benefits

- Improves machine productivity by as much as 30 percent.
- Reduces capital and maintenance costs by allowing simple devices to replace complex material handling peripherals.
- Minimizes installation time and startup expense through easy installation alignment.
- Maximizes uptime through superior fault tolerance, quick error recovery and proven FANUC reliability.
- Services multiple vertical and/or horizontal machines.



- Balances asynchronous processes by maintaining in-process part buffers.
- Performs value-added processing operations such as gauging, deburring, deflashing and labeling, in addition to basic material handling tasks.
- Adapts easily to existing plant layouts.

Mechanical Features

- *i*Pendant, a color, Internet-ready teach pendant for even easier programming and custom cell user interface design.
- Modular rails can be attached to free-standing support legs with variable height attachment or to the fixed platen of an injection mold or die machine.
- Reduces floor space and ceiling height requirements (compared to linear/area gantry robots).
- Based on proven reliable, standard FANUC Robotics products (M-16iB & M-16iLB).
- Uses standard FANUC Controller and software.
- 6 axes of motion.
- 10 kg payload (M-16iB/10LT).
- 20 kg payload (M-16iB/20T).

- Two configurations available to maximize either vertical stroke (sideslung) or symmetrical work envelope (underslung).
- Standard rail travel lengths from 2.4 m to 32 m. Non-standard lengths also available.
- Seven families of standard support columns provide elevation options from 1.8 m to 4.6 m (measured from J2 centerline). Adjustable clamp collar provides on-site elevation adjustment.
- +/- 0.15 mm rail repeatability.
- +/- 0.10 mm robot repeatability.
- Fail-safe brakes on all 6 axes.
- Brushless AC servo motors minimize motor maintenance.
- Robust rack and pinion rail drive.

Options

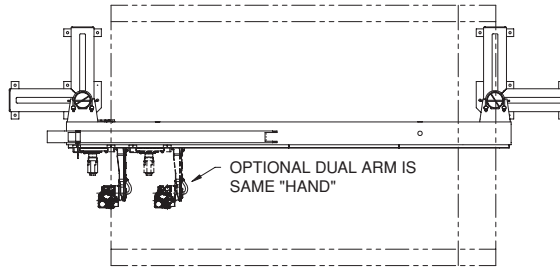
- *i*Pendant is also available with touch screen support.
- Severe Dust and Liquid Protection (SDLP) option for harsh industrial environments.
- Dual arms on a single rail.
- Dual arm software allows two identical robot arms to share a single CPU to handle large/heavy parts.
- Monochrome pendant available.

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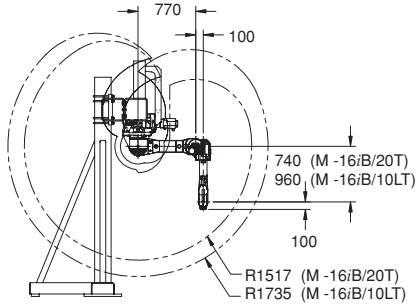
M-16iB/T

TABULATED DIMS. (mm)	
A	
SHN.	1800 - 2200
	2200 - 2600
	2600 - 3000
	3000 - 3400
	3400 - 3800
	3800 - 4200
	4200 - 4600

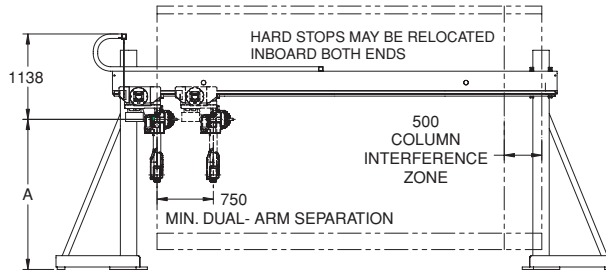
Top (Underslung)



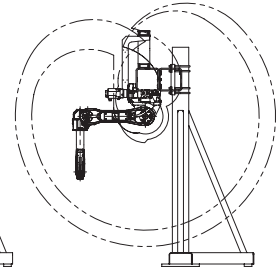
Right (Underslung)



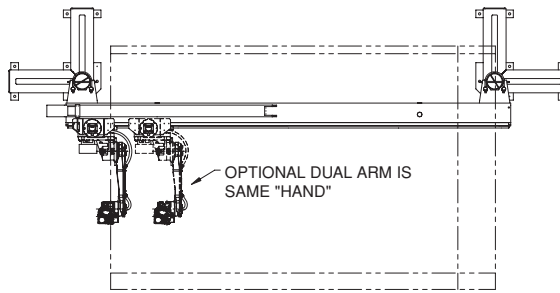
Front (Underslung)



Left (Underslung)

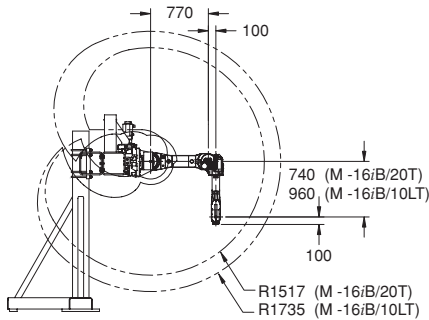


Top (Sideslung)

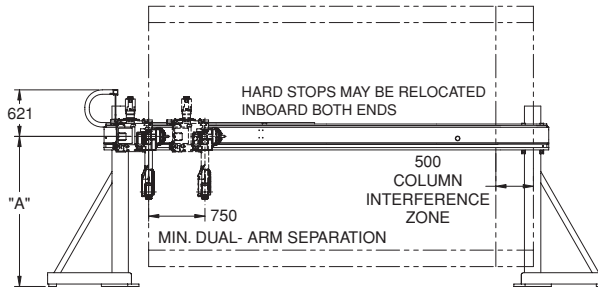


TABULATED DIM.	
A	
SHN.	1800 - 2200
	2200 - 2600
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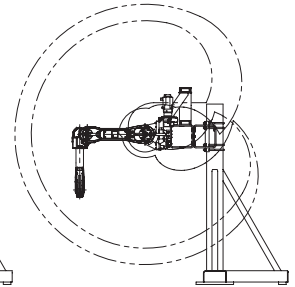
Right (Sideslung)



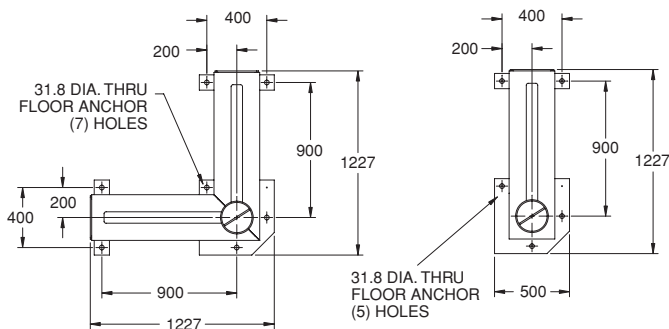
Front (Sideslung)



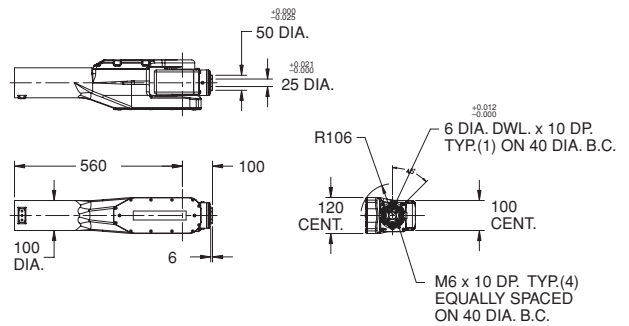
Left (Sideslung)



Footprint (M-16iB/10LT and 20T)



ISO Flange Wrist (M-16iB/10LT and 20T)



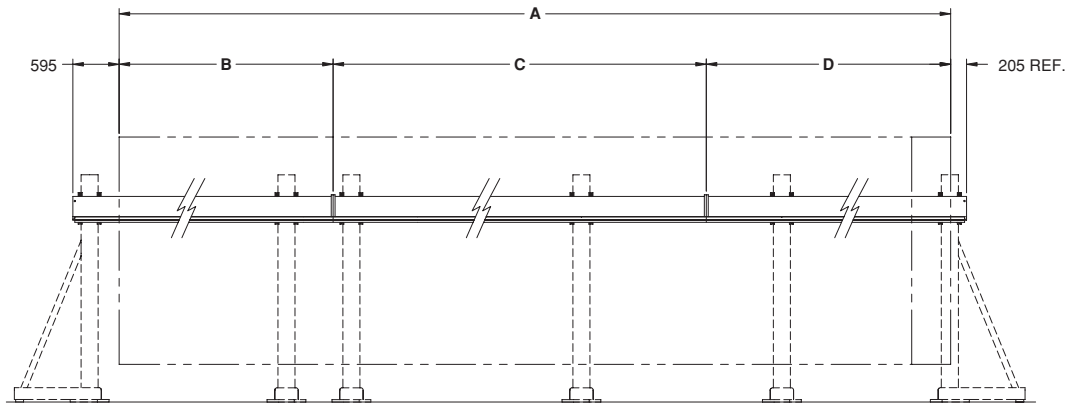
Rail Travel Options

SELECT ONE RAIL TRAVEL:

- 'A' (SINGLE-SECTION RAIL)
- 'B' + 'D' (TWO-SECTION RAIL)
- 'B' + 'C' + 'D' (THREE-SECTION RAIL)
- 'B' + 'C' + 'C' + 'D' (FOUR-SECTION RAIL)

RAIL TRAVEL DIMS. (mm)		
A	B or D	C
2400		
3660		
5130	5130	
6600	6600	
	7440	7560
8070	8070	
9540	9540	
	10380*	10080*
11010*	11010*	

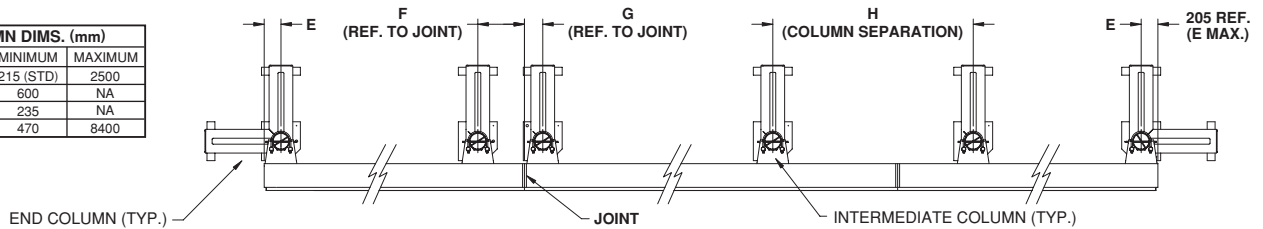
*CONTACT FANUC ROBOTICS



TO SUPPORT CABLE TRACK INSTALLATION ON 2- AND 3-SECTION RAILS, SECTION B MUST BE EQUAL TO OR LONGER THAN SECTION D

Column Positioning

COLUMN DIMS. (mm)		
DIM.	MINIMUM	MAXIMUM
E	215 (STD)	2500
F	600	NA
G	235	NA
H	470	8400



TWO (2) END COLUMNS STANDARD ON ALL RAIL TRAVELS (SHOWN AT STANDARD "END-OF-RAIL" LOCATIONS)

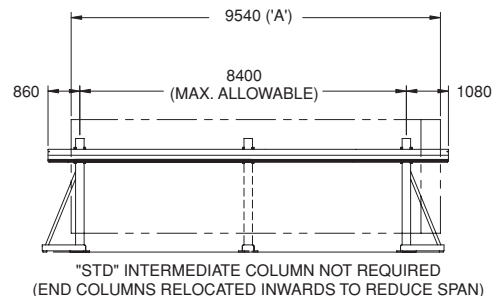
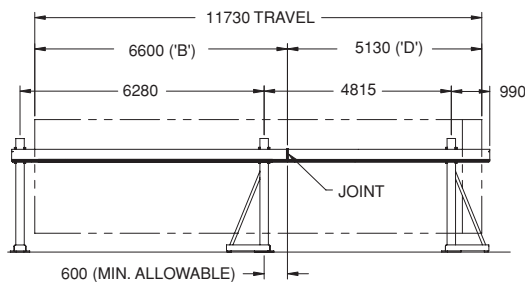
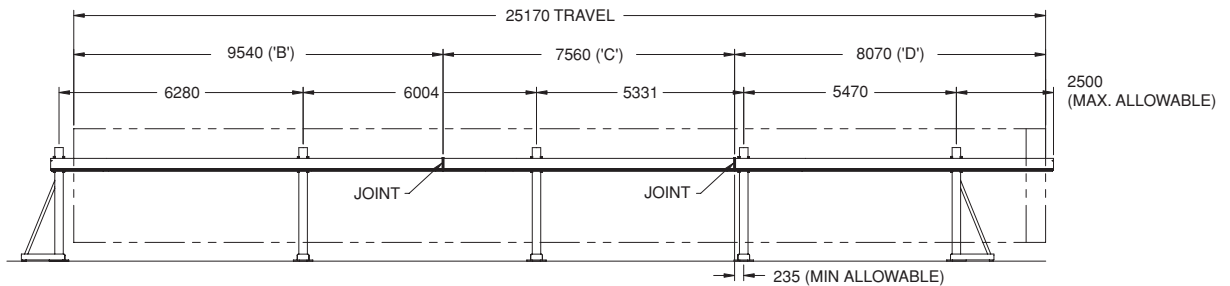
ONE (1) INTERMEDIATE COLUMN STANDARD WHEN RAIL TRAVEL EXCEEDS 8000 mm

TWO (2) INTERMEDIATE COLUMNS STANDARD WHEN RAIL TRAVEL EXCEEDS 16000 mm (TWO-PIECE RAILS ONLY)

ALL COLUMN LOCATIONS CAN BE SPECIFIED BY CUSTOMER

FANUC ROBOTICS RECOMMENDS TWO COLUMNS PER INDIVIDUAL RAIL SECTION TO ENSURE ADEQUATE SUPPORT AND TO ALLOW THE RAIL TO BE EASILY RE-ASSEMBLED IN THE FIELD.

Sample Rail and Column Configurations



Note: Dimensions are shown in millimeters.
Detailed CAD data are available upon request.

M-16iB/10LT Specifications

Items		
Axes	6	
Payload - wrist (kg)	10	
- J3 arm (kg)	12	
Reach (mm)	1735	
Repeatability (mm)	± 0.10	
Interference radius (mm)	308	
Motion range (degrees)	J1	2.4 m - 32 m
	J2	300
	J3	455
	J4	400
	J5	280
	J6	900
Motion speed (degrees/s)	J1	2750 mm/sec.
	J2	165
	J3	175
	J4	350
	J5	340
	J6	520
Wrist moment N-m (kgf-m)	J4	22 (2.2)
	J5	22 (2.2)
	J6	9.8 (1.0)
Wrist inertia (kg-m ²)	J4	0.6
	J5	0.6
	J6	0.1
Mechanical brakes	All axes	
Mechanical weight (kg)	149 (Robot arm only)	
Mounting method	Sideslung or underslung	
Installation environment		
Ambient temperature °C	0 to 45	
Humidity	Normally: 75% or less Short term (within a month): 95% or less No condensation (No dew or frost allowed)	
Vibration (m/s ²)	4.9 or less (0.5g or less)	
IP Rating(s)	Rail IP50, Body IP54, Wrist & J3 arm IP67	
Purpose	Overhead rail mount	

M-16iB/20T Specifications

Items		
Axes	6	
Payload - wrist (kg)	20	
- J3 arm (kg)	12	
Reach (mm)	1517	
Repeatability (mm)	± 0.10	
Interference radius (mm)	234	
Motion range (degrees)	J1	2.4 m - 32 m
	J2	300
	J3	460
	J4	400
	J5	280
	J6	900
Motion speed (degrees/s)	J1	2750 mm/sec.
	J2	165
	J3	175
	J4	350
	J5	340
	J6	520
Wrist moment N-m (kgf-m)	J4	39 (4.0)
	J5	39 (4.0)
	J6	19.6 (2.0)
Wrist inertia (kg-m ²)	J4	0.9
	J5	0.9
	J6	0.2
Mechanical brakes	All axes	
Mechanical weight (kg)	147 (Robot arm only)	
Mounting method	Sideslung or underslung	
Installation environment		
Ambient temperature °C	0 to 45	
Humidity	Normally: 75% or less Short term (within a month): 95% or less No condensation (No dew or frost allowed)	
Vibration (m/s ²)	4.9 or less (0.5g or less)	
IP Rating(s)	Rail IP50, Body IP54, Wrist & J3 arm IP67	
Purpose	Overhead rail mount	



Intelligent Robot Solutions

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