

M-6iB™ Series

Basic Description

The M-6iB series is FANUC Robotics' latest-generation family of small robots. The series is offered in two sizes designed to approximate the reach of an operator. Feature-rich standard capabilities and options provide dexterity, reliability and high speeds to make the M-6iB the perfect solution for countless applications and working environments.

M-6iB Series, the Solution for:

- Machine tending
- Material handling
- Assembly
- Picking and packing
- Material removal
- Cleanroom operations
- Testing and sampling
- Dispensing

Features and Benefits

- 6 degrees of freedom
- ± 0.08 mm repeatability
- Up to 10 kg payload at wrist
- Large wrist moments and inertias for real-world EOATs and workpieces
- Supplementary payload mount on J3 casting
- Yoked wrist structure for increased rigidity
- Pneumatic and electrical (8 DI/8 DO) connections for EOAT on J3



- Pneumatic lines routed from J1 inlet to J3 outlet
- Compact size, slim wrist, and small footprint permit operation in tight work spaces
- Upright, angle, wall, or invert mounting for increased installation flexibility
- Robot can flip over backwards for a larger work envelope
- High joint speeds maximize throughput
- Fail-safe brakes and adjustable J1 hardstops increase safety, functionality, and control
- Absolute encoder positioning eliminates homing at power-up
- Same footprint and wrist bolt pattern as previous generation for easy upgrades

- Color, graphical, network-ready teach iPendant™

Reliability

- Latest generation of a proven design
- RV reducer, gear and harmonic drivetrains eliminate unreliable belts, pulleys and chains while providing rigidity and performance in a compact package
- Grease fittings on all lubrication points for quick and easy maintenance
- Sealed bearings and brushless, maintenance-free AC motors provide protection and improve reliability

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Robot and Controller Options

- Larger variant for greater reach (M-6iB)
- Smaller variant for tight installations (M-6iB/6S)
- Class 100 variant for cleanroom use (M-6iB/6C; see *Cleanroom Robots* datasheet)
- Higher-speed variant for greater throughput (M-6iB/2HS)
- Solution arm variants minimize EOAT dress-out complexity and cost (for M-6iB/6S and M-6iB/2HS)
- Severe dust and liquid protection package for harsh environments
- J1/J2 motor cooling fans for sustained high-duty operation
- 360° J1 rotation eliminates rear dead zone
- Machine vision for guidance and inspection
- Up to 16 axes (robot + auxiliary) on same controller
- Extended communications capabilities: FTP, DeviceNet, A/B RIO, Profibus, Genius, FANUC Model A I/O rack, CC-Link, etc.
- Linear or circular conveyor tracking
- CE-Mark
- 14 m or 21 m controller-to-robot cables

Unique Software Options

- Singularity avoidance
- AccuDeflash™ for plastic deflashing
- Internet connectivity
- KAREL® programming language
- And over 40 other powerful software solutions



Solution Arm features a hollow wrist flange and pre-engineered EOAT cabling to reduce dress-out cost, snag interference, and to increase durability.



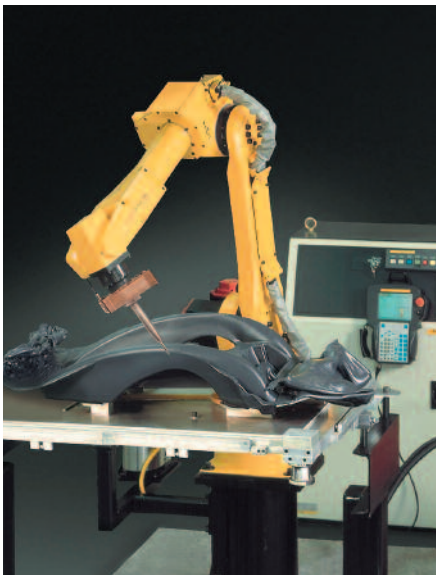
Class 100 option brings off-the-shelf FANUC reliability to electronics, pharmaceuticals and other cleanroom manufacturing operations. M-6iB/6C shown invert-mounted.

M-6iB Series Specifications

Items	M-6iB	M-6iB/6C Cleanroom	M-6iB/6S 6 kg Payload ⁷	M-6iB/6S 10 kg Payload ⁷	M-6iB/2HS	M-6iB/6S Solution Arm	M-6iB/2HS Solution Arm
Axes	6	6	6	6	6	6	6
Payload at Wrist (kg)	6	6	6	10	2	4	2
Supplementary Payload on J3 Casting ¹ (kg)	12	12	12	6	12	12	12
Reach (mm)	1,373	1,373	951	951	951	951	951
Repeatability ² (mm)	± 0.08	± 0.08	± 0.08	± 0.08	± 0.08	± 0.08	± 0.08
Interference Radius (mm)	273	350	273	273	273	273	273
Motion Range ³ (degrees)	J1	340	340	340	340	340	340
	J2	250	250	250	250	250	250
	J3	315	315	310	310	310	310
	J4	380	380	380	380	380	240
	J5	280	280	280	280	280	110
	J6	720	720	720	720	720	720
Motion Speed ⁴ (degrees/s)	J1	150	150	200	200	200	200
	J2	160	160	200	200	200	200
	J3	170	170	260	200	260	260
	J4	400	400	400	400	400	400
	J5	400	400	400	400	400	400
	J6	520	520	720	520	1,200	1,200
Wrist Moment (kgf*cm)	J4	160	160	160	160	140	140
	J5	100	100	100	160	80	80
	J6	60	60	60	70	20	12
Wrist Inertia (kgf*cm*s ²)	J4	6.4	6.4	6.4	6.4	6.2	6.2
	J5	2.2	2.2	2.2	3.7	2.0	2.0
	J6	0.62	0.62	0.62	0.65	0.37	0.20
Mass (kg)	138	145	135	135	135	140	140
Mounting Positions ⁵	Floor, angle, wall, inverted	Floor, inverted	Floor, angle, wall, inverted	Floor, angle, wall, inverted	Floor, angle, wall, inverted	Floor	Floor
Vibration (m/s ²)	≤4.9 (0.5G)	≤4.9 (0.5G)	≤4.9 (0.5G)	≤4.9 (0.5G)	≤4.9 (0.5G)	≤4.9 (0.5G)	≤4.9 (0.5G)
Special Application Environments ⁶	IP67 forearm and wrist / IP54 lower body	ISO Class 5 (Class 100 per U.S. Federal Standard 209E)	IP67 forearm and wrist / IP54 lower body	IP67 forearm and wrist / IP54 lower body	IP67 forearm and wrist / IP54 lower body	IP67 forearm and wrist / IP54 lower body (No IP rating for solenoid box)	IP67 forearm and wrist / IP54 lower body (No IP rating for solenoid box)

Notes:

- (1) Payload on J3 casting is in addition to wrist payload capacity.
- (2) Repeatability per JISB8432.
- (3) 360° J1 rotation optional.
- (4) Higher sustained motion speeds available with High Duty option on all variants except M-6iB and M-6iB/6C.
- (5) J1 and J2 motion range de-rated when angle or wall-mounted.
- (6) IP67 forearm and wrist / IP55 body optional. Organic solvents, acids, alkalis and chlorine/gasoline coolants or any chemicals which may harm NBR (nitrile rubber) must not be used. See *Cleanroom Robots* datasheet for more information regarding M-6iB/6C.
- (7) M-6iB/6S default wrist payload is 6 kg. Included software permits toggling between 6 kg and 10 kg with no mechanical alterations required to mechanical unit. No motion restrictions in either mode.



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