

M-20iA Series

FANUC
Robotics

Basic Description

The evolutionary design of the M-20iA solves two of the oldest problems for industrial robots. The first issue is the time it takes to engineer the robot dressout and the second is the down-time caused when the dressout is disrupted by contact with plant equipment. The innovative M-20iA solves these issues with a hollow upper arm and wrist. This unique design permits the utilities to be neatly contained within the arm, eliminating dress out issues like snagging, tearing and rubbing. A shelf with ample space on the back of the upper arm completes the package by allowing peripheral equipment to be easily mounted. The hollow arm and wrist together with the shelf greatly simplifies the integration engineers job.

To complement the built-in vision, the M-20iA has an integrated vision cable from the J1 base to J3 interface panel. This makes the addition of vision to the robot application much easier.

This design is also a great benefit for offline simulations because the dress out and control boxes can all be designed to fit with in the confined space of the robot arm and eliminates the guess work of dress out interference.

This exceptional design comes with out sacrificing any of the robot's performance specifications. In fact this robot is an industry leader in payload, reach and axes speed. Add this to the industry leader in reliability and this robot is the perfect solution for your robotic application.



M-20iA Series, the solution for:

- Assembly
- Dispensing
- Material handling
- Machine load/unload
- Material removal
- Waterjet cutting
- Laser cutting
- Machine tending
- Picking and packing
- Testing and sampling

Features & Benefits

- 6 degrees of freedom
- ± 0.10 mm repeatability
- 20 kg payload at wrist
- Large wrist moments and inertias for real-world EOATs and workpieces
- Supplementary payload mount on J3 casting
- Pneumatic and electrical (8 DI/8 DO) connections for EOAT on J3
- 2D vision cables from J1 to J3 as a standard option

- Compact size, slim wrist, and small footprint permit operation in tight work spaces
- Robot can be floor, angle, wall or ceiling mounted
- High joint speeds maximize throughput
- Absolute encoder positioning eliminates homing at power-up
- Intelligent color graphic teach pendant is network ready
- Built-in Solution Arm, 50 mm hollow wrist and upper arm

Reliability

- RV reducer and gear drive-trains provide rigidity and performance in a compact package
- Sealed bearings and brushless, maintenance-free AC motors provide protection and improve reliability

Note: iRVision® is a registered trademark of FANUC LTD.

- M-20iA/10L variant available for applications that require greater reach
- Up to 40 axes (robot + auxiliary) on same controller
- Extended communications capabilities: FTP, DeviceNet, Profibus, Genius, FANUC Model A I/O rack, CC-Link, etc
- 14 m or 21 m controller-to-robot cables
- Many unique robot and application-driven software options available
- iRVision® (Integrated Robot Vision) system delivers high performance 2-D and 3-D machine vision capabilities with FANUC reliability



Notes:

- (1) Payload on J3 casting is in addition to wrist payload capacity
- (2) Repeatability per JIS8432
- (3) Combined J2 & J3
- (4) J1 and J2 motion range de-rated when M-20iA & M-20iA/10L are angle or wall mounted
- (5) Organic solvents, acids, alkalis and chlorine/gasoline coolants or any chemicals which may harm NBR (nitrile rubber) must not be used

Diagram of a 6-axis industrial robot arm with joint labels and ranges of motion:

- J1 (370°)
- J2 (260°)
- J3 (458°)
- J4 (400°)
- J5 (280°)
- J6 (540°)

Technical drawing of a square mounting plate. The overall dimensions are 343 mm by 343 mm. The plate features four mounting holes arranged in a square pattern. The distance between the centers of the holes is 300 mm both horizontally and vertically. The distance from the center of each hole to the nearest edge is 150 mm. The hole specifications are: 4X $\phi 18.0$ THRU, $\phi 26.0$ FACING DEPTH 5.0 (FOR ROBOT MOUNTING BOLT).

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M-207A/TOL

Side View Dimensions:

- Total height: 100
- Base diameter: $\phi 50.0 \pm 0.08$ HOLLOW
- Internal hole diameter: $\phi 62.0 \pm 0.07$
- Base thickness: 8.5

End View Dimensions:

- Outer radius: R110
- Top chamfer angle: 22.5°
- Inner bore diameter: $\phi 4.000 \text{ H7 DWL} \times 6.0 \text{ DP ON } \phi 6.0 \text{ DIA. B.C.}$
- Outer diameter at base: $\phi 56.0 \pm 0.012 \pm 0.003$
- Flange thickness: 45.5
- Flange outer diameter: 108
- Flange inner diameter: 50
- Bottom hole: M4x6.0 DP TYP(8) AS SHOWN ON $\phi 6.0 \text{ DIA. B.C.}$

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