

# M-16i

## Basic Description

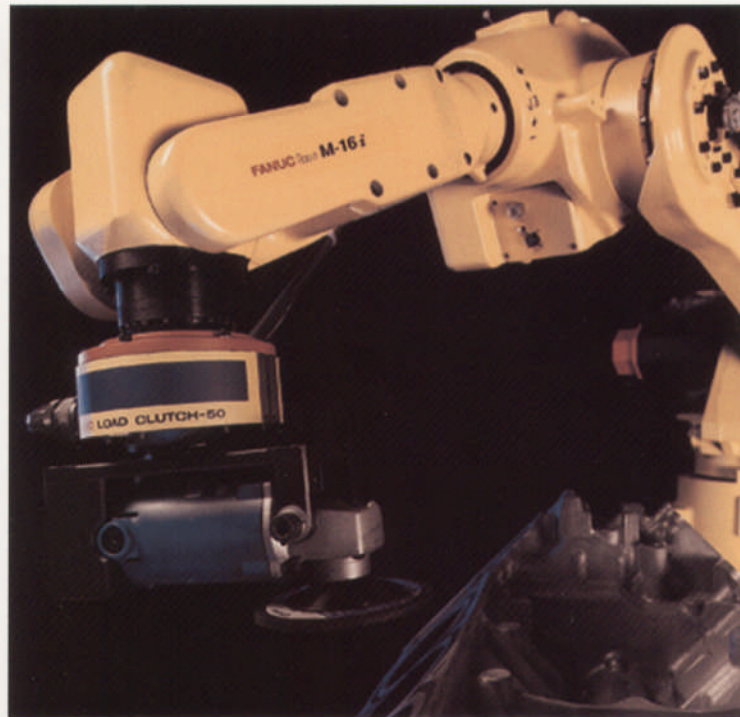
Six-axis, modular construction, electric servo-driven robots designed for a variety of manufacturing and system processes. The FANUC M-16i and long-arm M-16iL robots are engineered for precision, high-speed operation, user-friendly setup and maximum reliability supported by our extensive service and parts network.

## M-16i, the Solution for:

- Machine load/unload
- Material handling
- Material removal
- Waterjet cutting
- Dispensing
- Electromechanical assembly

## Benefits

- Large work envelope and load capacity allow robot operation in a wide range of high-speed, medium-payload manufacturing processes
- "Double-jointed" arm increases work envelope and positioning flexibility
- No robot modification required for upright, inverted, angle and wall mounting
- Absolute serial encoders eliminate the need for calibration at power-up
- 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
- Electrical and pneumatic services for tooling are internal to the arm to simplify integration
- Fail-safe brakes on all axes increase safety, functionality and control



## Features

- 6 axes of motion
- 16kg (35.2 lbs) payload capacity
- 0.08mm ( $\pm 0.003$ ) repeatability
- Axes speed up to 450° per second

## 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

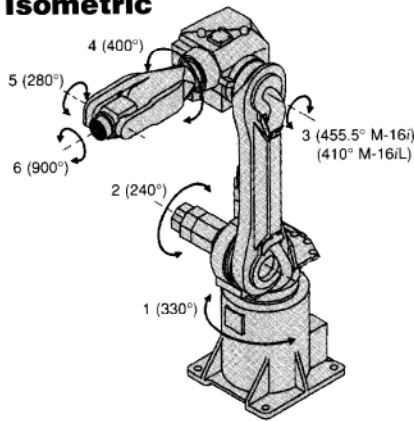
## Options

- 360° Axis 1 base rotation
- Axis 2 motor cover
- Severe dust and liquid protection package for die cast spray, waterjet cutting and other harsh environment applications (standard M-16i wrist is rated IP67 to withstand temporary immersion in liquids)

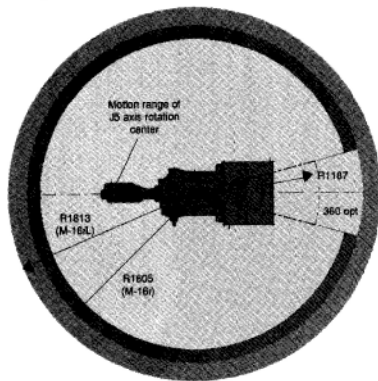
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## M-16i/iL Dimensions

### Isometric



### Top



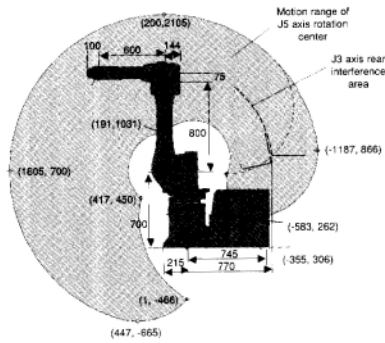
## M-16i/iL Specifications

| Items                                     |                                   | Range                   | Speed        |
|-------------------------------------------|-----------------------------------|-------------------------|--------------|
|                                           |                                   | M-16i/M-16iL            |              |
| Motion range and speed                    | Axis 1                            | 330°<br>(360° optional) | 140°/sec     |
|                                           | Axis 2                            | 240°                    | 140°/sec     |
|                                           | Axis 3                            | 455.5°/410°             | 140°/sec     |
|                                           | Axis 4                            | 400°                    | 330°/sec     |
|                                           | Axis 5                            | 280°                    | 330°/sec     |
|                                           | Axis 6                            | 900°                    | 450°/sec     |
| Moments<br>kgf • m (N • m)                | Axis 4                            | 3.6 (35.1)              | 2.2 (22.0)   |
|                                           | Axis 5                            | 3.2 (31.4)              | 2.0 (19.6)   |
|                                           | Axis 6                            | 1.6 (15.7)              | 1.0 (9.8)    |
| Load inertia<br>kgf • cm • s <sup>2</sup> | Axis 4                            | 8.7                     | 5.3          |
|                                           | Axis 5                            | 7.1                     | 4.3          |
|                                           | Axis 6                            | 2.0                     | 1.2          |
| Repeatability, mm (in)                    |                                   | ±0.08(±0.003)           | ±0.1(±0.004) |
| Maximum load capacity, kg (lbs)           | Wrist                             | 16 (35.2)               | 10 (22.0)    |
|                                           | Axis 3                            | 20 (44)                 | 12 (26.4)    |
| Max reach, mm (in)                        | Axis 2                            | 30 (66)                 | 30 (66.0)    |
|                                           |                                   | 1605 (63.2)             | 1813 (71.4)  |
| Hor stroke, mm (in)                       |                                   | 1073 (42.2)             | 1329 (52.3)  |
| Mounting method <sup>1</sup>              | Upright, inverted, angle and wall |                         |              |
| Mechanical brakes                         | All axes                          |                         |              |
| Mechanical weight                         | 270kg (594 lbs)                   |                         |              |
| Levels of protection <sup>2</sup>         | Wrist and joint                   | IP67                    |              |
|                                           | 3 arm                             |                         |              |
|                                           | Body                              | IP54(IP65 optional)     |              |
|                                           | Controller                        | IP54                    |              |

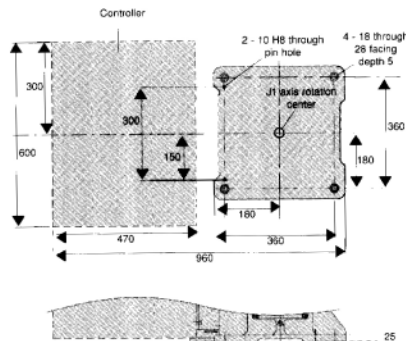
<sup>1</sup> Motion range is derated for angle and wall mount

<sup>2</sup> See Severe Dust/Liquid Protection data sheet for details

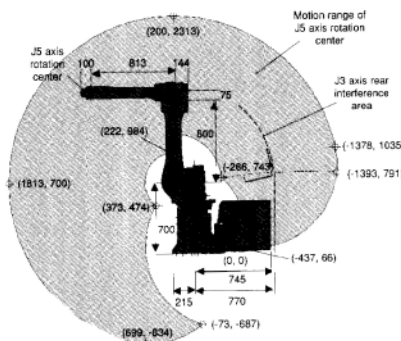
## Side (M-16i)



## Footprint (integrated)



## Side (M-16iL)



## R-J2 Controller and Teach Pendant Specifications

| Items                    |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| Input Power Source       | 5KVA: 440, 460, 480<br>(standard) 500, 550, 575 VAC                                         |
| Installation Environment | Ambient Temperature 0-45°C<br>(32-113°F)                                                    |
| Ambient Humidity         | Normal 75% RH or less (no dew or frost allowed) Up to 95% RH short term (less than 30 days) |

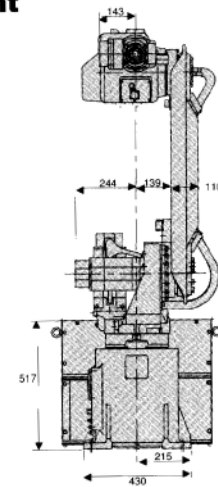
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Literature Request  
 1-800-47-ROBOT

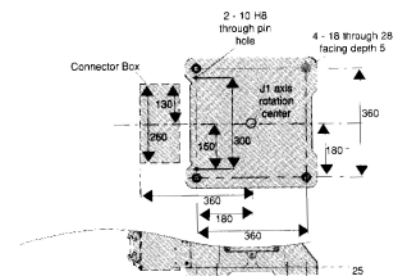
web page: <http://www.fanucrobotics.com>

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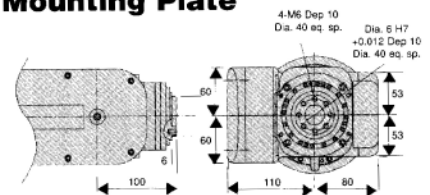
## Front



## Footprint (remote)



## Mounting Plate



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