

# FANUC Robot M-10iD

# FANUC Robot M-20iD

### FEATURES

FANUC Robot M-10iD / M-20iD is a cable integrated small payload handling robot.

- The unique gear drive mechanism realizes the high inertia and the slim arm of the cable integrated robot.
- The cables and tubes backside the tool control box can be integrated in the enlarged J1 hollow tube.
- Various cables and tubes using for hand control can be integrated in the J3 arm due to the enlarged J4 and J6 hollow tubes. The tool control box can be compactly mounted backside of the J3 arm.
- Higher rigidity of the arm provides high speed and high accuracy of the robot motion. It can enhance the productivity of the system.
- Off-line teaching by ROBOGUIDE (Option) reduces touch-up cost.
- Various intelligent functions with *i*RVision (integrated vision) and the force sensor are available.

### Application Examples



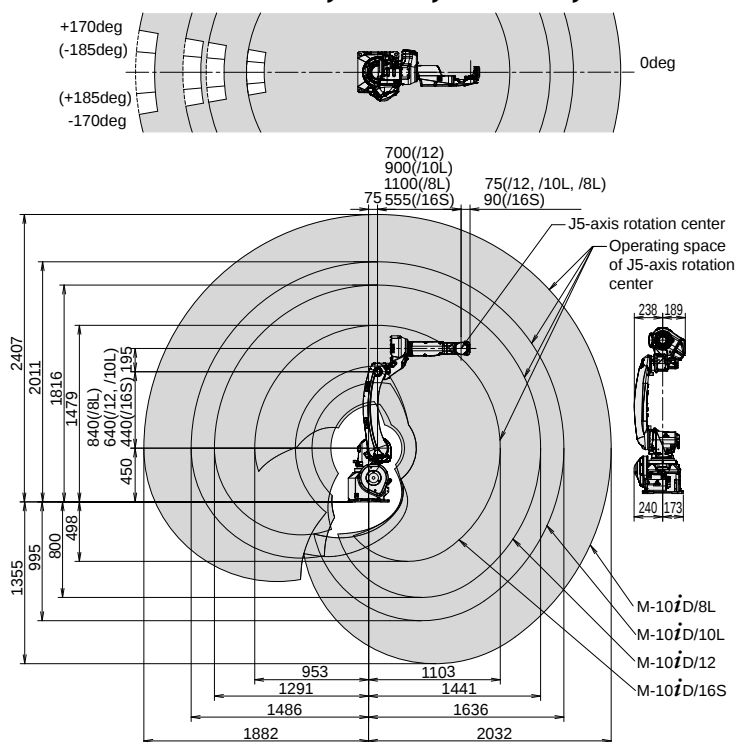
Handling of sheet metal parts



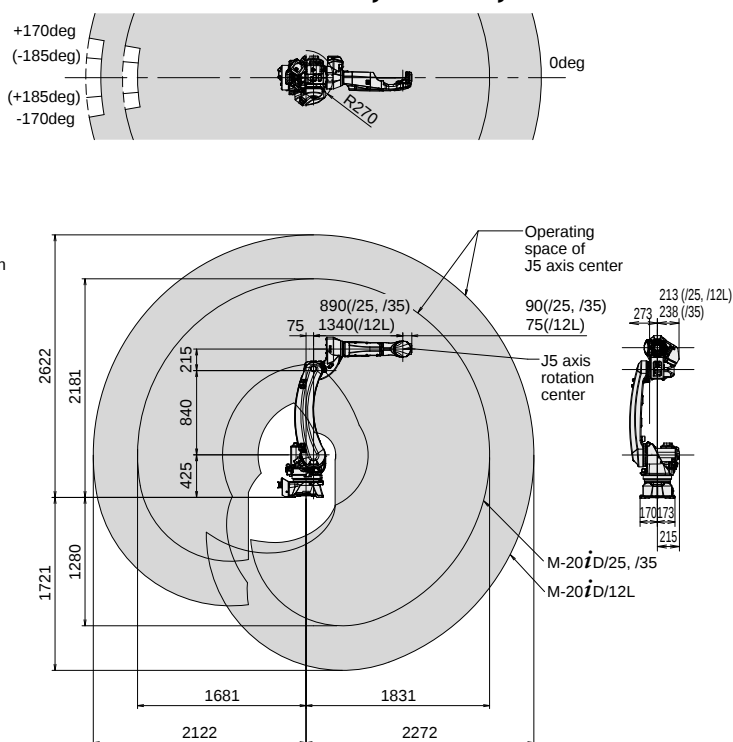
FIBER LASER welding

## Operating space

### M-10iD/16S, /12, /10L, /8L



### M-20iD/25, /35, /12L



## Specifications

| Model                                              |                            | M-10iD/16S                                                                                                                                                                                                          | M-10iD/12                                | M-10iD/10L             | M-10iD/8L                              | M-20iD/25                              | M-20iD/35                               | M-20iD/12L                               |                                        |
|----------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------|----------------------------------------|----------------------------------------|-----------------------------------------|------------------------------------------|----------------------------------------|
| Control axes                                       |                            | 6 axes (J1, J2, J3, J4, J5, J6)                                                                                                                                                                                     |                                          |                        |                                        |                                        |                                         |                                          |                                        |
| Reach                                              |                            | 1103 mm                                                                                                                                                                                                             | 1441 mm                                  | 1636 mm                | 2032 mm                                | 1831 mm                                |                                         | 2272 mm                                  |                                        |
| Installation Note 1)                               |                            | Floor, Upside-down, Angle mount                                                                                                                                                                                     |                                          |                        |                                        |                                        |                                         |                                          |                                        |
| Motion range<br>(Maximum speed)<br>Note 2), 3), 4) | J1 axis                    | 370° (290°/s)<br>6.46 rad (5.06 rad/s)                                                                                                                                                                              | 370° (260°/s)<br>6.46 rad (4.54 rad/s)   |                        | 370° (210°/s)<br>6.46 rad (3.67 rad/s) |                                        | 370° (180°/s)<br>6.46 rad (3.14 rad/s)  | 370° (210°/s)<br>6.46 rad (3.67 rad/s)   |                                        |
|                                                    | J2 axis                    | 235° (270°/s)<br>4.10 rad (4.71 rad/s)                                                                                                                                                                              | 235° (240°/s)<br>4.10 rad (4.19 rad/s)   |                        | 235° (210°/s)<br>4.10 rad (3.67 rad/s) |                                        | 260° (210°/s)<br>4.54 rad (3.14 rad/s)  | 260° (210°/s)<br>4.54 rad (3.67 rad/s)   |                                        |
|                                                    | J3 axis                    | 455° (270°/s)<br>7.94 rad (4.71 rad/s)                                                                                                                                                                              | 455° (260°/s)<br>7.94 rad (4.54 rad/s)   |                        | 455° (220°/s)<br>7.94 rad (3.84 rad/s) |                                        | 458° (265°/s)<br>8.00 rad (4.63 rad/s)  | 458° (265°/s)<br>8.00 rad (4.63 rad/s)   |                                        |
|                                                    | J4 axis                    | 380° (430°/s)<br>6.63 rad (7.50 rad/s)                                                                                                                                                                              |                                          |                        |                                        | 400° (420°/s)<br>6.98 rad (7.33 rad/s) |                                         | 400° (350°/s)<br>6.98 rad (6.11 rad/s)   | 400° (420°/s)<br>6.98 rad (7.33 rad/s) |
|                                                    | J5 axis                    | 360° (450°/s)<br>6.28 rad (7.85 rad/s)                                                                                                                                                                              |                                          |                        |                                        | 360° (420°/s)<br>6.28 rad (7.33 rad/s) |                                         | 360° (350°/s)<br>6.28 rad (6.11 rad/s)   | 360° (450°/s)<br>6.28 rad (7.85 rad/s) |
|                                                    | J6 axis                    | 900° (730°/s)<br>15.71 rad (12.74 rad/s)                                                                                                                                                                            | 900° (720°/s)<br>15.71 rad (12.57 rad/s) |                        |                                        |                                        | 900° (400°/s)<br>15.71 rad (6.98 rad/s) | 900° (720°/s)<br>15.71 rad (12.57 rad/s) |                                        |
|                                                    | Max load capacity at wrist |                                                                                                                                                                                                                     | 16 kg                                    | 12 kg                  | 10 kg                                  | 8 kg                                   | 25 kg                                   | 35 kg                                    | 12 kg                                  |
| Allowable load<br>moment at wrist                  | J4 axis                    | 26.0 N·m                                                                                                                                                                                                            |                                          | 22.0 N·m               | 16.1 N·m                               | 52.0 N·m                               | 110.0 N·m                               | 22.0 N·m                                 |                                        |
|                                                    | J5 axis                    | 26.0 N·m                                                                                                                                                                                                            |                                          | 22.0 N·m               | 16.1 N·m                               | 52.0 N·m                               | 110.0 N·m                               | 22.0 N·m                                 |                                        |
|                                                    | J6 axis                    | 11.0 N·m                                                                                                                                                                                                            |                                          | 9.8 N·m                | 5.9 N·m                                | 32.0 N·m                               | 60.0 N·m                                | 9.8 N·m                                  |                                        |
| Allowable load<br>inertia at wrist                 | J4 axis                    | 0.90 kg·m <sup>2</sup>                                                                                                                                                                                              |                                          | 0.65 kg·m <sup>2</sup> | 0.63 kg·m <sup>2</sup>                 | 2.40 kg·m <sup>2</sup>                 | 4.00 kg·m <sup>2</sup>                  | 0.65 kg·m <sup>2</sup>                   |                                        |
|                                                    | J5 axis                    | 0.90 kg·m <sup>2</sup>                                                                                                                                                                                              |                                          | 0.65 kg·m <sup>2</sup> | 0.63 kg·m <sup>2</sup>                 | 2.40 kg·m <sup>2</sup>                 | 4.00 kg·m <sup>2</sup>                  | 0.65 kg·m <sup>2</sup>                   |                                        |
|                                                    | J6 axis                    | 0.30 kg·m <sup>2</sup>                                                                                                                                                                                              |                                          | 0.17 kg·m <sup>2</sup> | 0.061 kg·m <sup>2</sup>                | 1.20 kg·m <sup>2</sup>                 | 1.50 kg·m <sup>2</sup>                  | 0.17 kg·m <sup>2</sup>                   |                                        |
| Repeatability Note 5)                              |                            | ± 0.02 mm                                                                                                                                                                                                           |                                          | ± 0.03 mm              |                                        | ± 0.02 mm                              | ± 0.03 mm                               |                                          |                                        |
| Mass Note 6)                                       |                            | 145 kg                                                                                                                                                                                                              |                                          | 150 kg                 | 180 kg                                 | 250 kg                                 |                                         |                                          |                                        |
| Installation environment                           |                            | Ambient temperature : 0 to 45°C<br>Ambient humidity : Normally 75%RH or less (No dew nor frost allowed), Short term 95%RH or less (within one month)<br>Vibration acceleration : 4.9m/s <sup>2</sup> (0.5G) or less |                                          |                        |                                        |                                        |                                         |                                          |                                        |

Note 1) Angle mount is not supported for 4 brake type of M-10iD/12.

Note 2) In case of equipping mechanical stopper, motion range of J1 axis is restricted to 340° (5.93 rad).

Note 3) In case of angle mounting, J1 and J2 axis motion range are restricted.

Note 4) During short distance motions, the axis speed may not reach the maximum value stated.

Note 5) Compliant with ISO9283.

Note 6) Without controller.

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RM-10iD(E)-05a, 2022.4, Printed in Japan