

## Genkotsu (Delta) - Compact High-Speed Assembly Robot

# FANUC Robot M-1iA

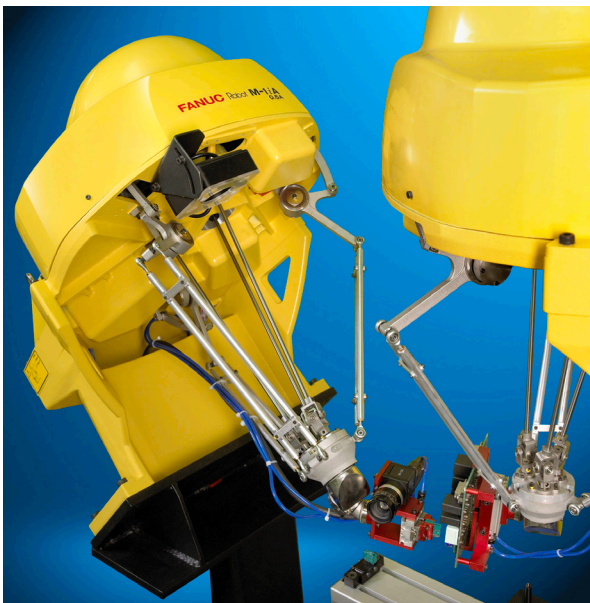
### Features

The M-1iA is a lightweight and compact high-speed assembly robot. This lightweight and compact mechanical unit can be installed into tight work spaces, with free angle installation options.

- Six axis variant
  - Three axes in wrist, providing flexible wrist motion suitable for assembly
- Four axis variant
  - Single axis wrist (robot total is four axes) type. High speed 3000 deg/s wrist is suitable for picking.
- Three axis variant
  - Three axis with a 1kg payload and no wrist rotation. Ultra high speed motion for line transfer or pick and place operations.
- Unique parallel-link mechanism enables quick motion.
- Multiple installation methods include desktop stand, no stand, and ceiling mount for easy machine integration.
- A camera for *iR*Vision (integrated vision) can be integrated in the mechanical unit.



### Application system



Circuit board insertion



LED lens assembling

# Compact, Flexibility, High speed and Intelligence

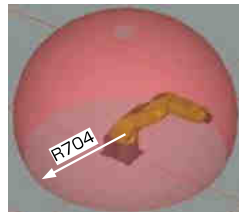
## Space saving

To minimize the total space required, the work envelope is closed around the operation. This allows for effective placement of the robot and worker.



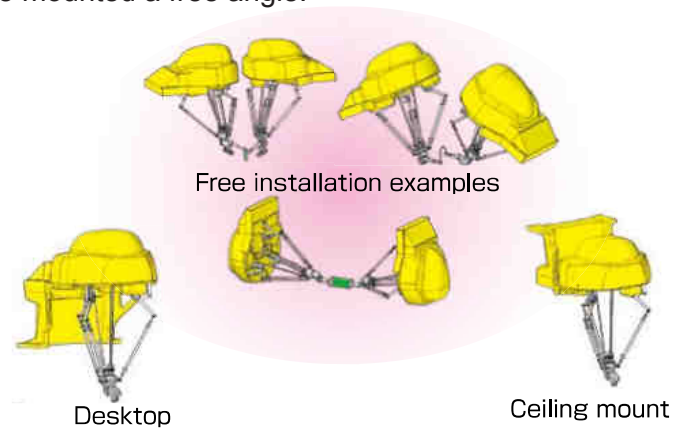
R140  
(R210 for long arm)

General articulated robot working space



## Installation (Mounting) options

Robot is available with desktop-mount (standard), ceiling-mount stand, or no stand configuration, and can be mounted a free angle.



Desktop

Ceiling mount

## Complex assembling

The six axes parallel link configuration makes complex assembly applications possible.



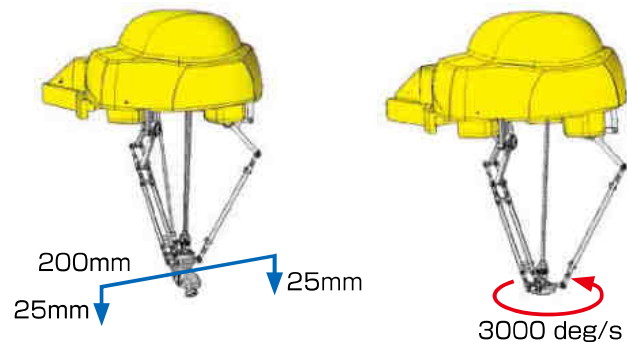
Circuit board insert



Telephone assembling

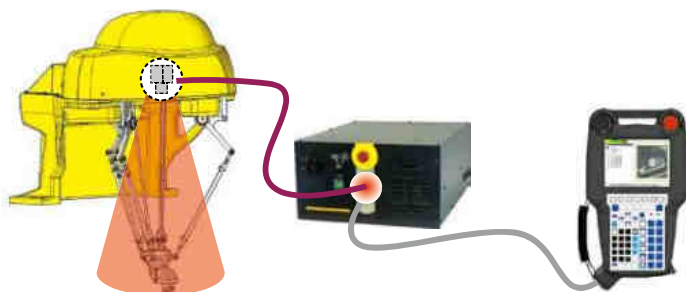
## High-speed motion

High speed motion increases productivity with a 25-200-25mm pick motion and a 0.3 sec place motion time. The rotation axis of the four axes type rotates at 3000deg/s. This motion allows for high-speed work-piece rotation.



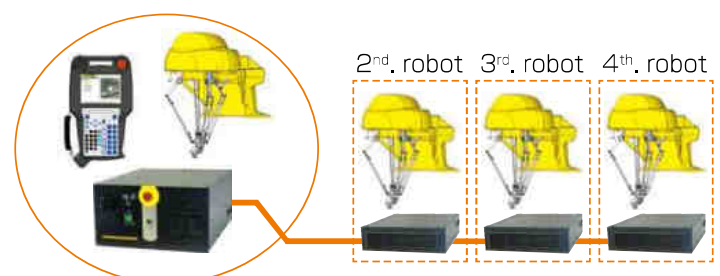
## Integrated Vision

Highly reliable image processing is available with an optional integrated vision camera (*iR*Vision). The tight integration between the vision system and the robot allows for precision part location and inspection.



## Multi-arm control

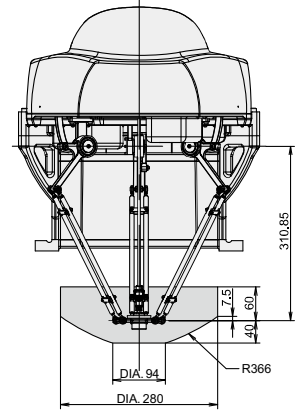
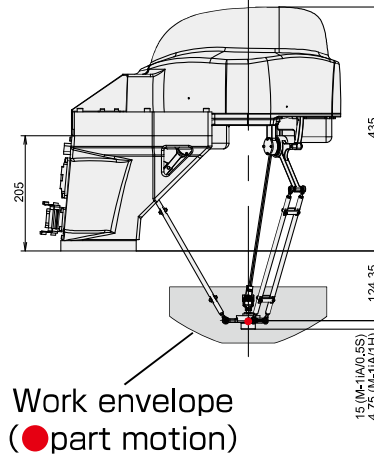
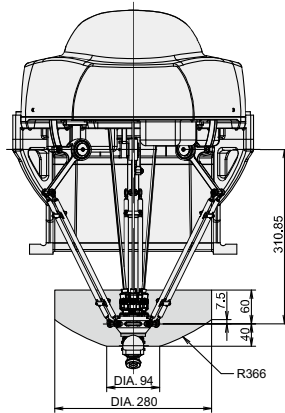
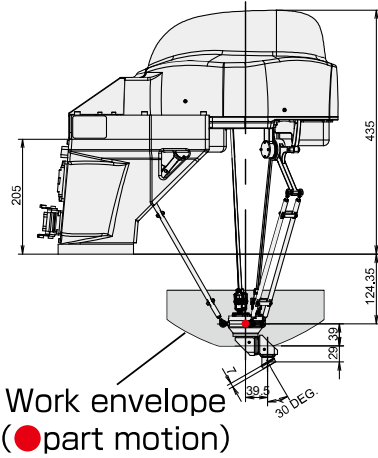
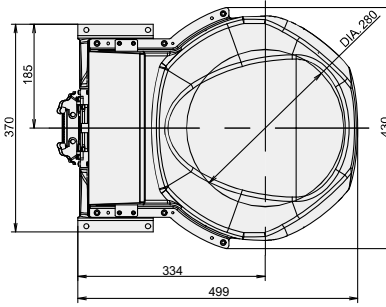
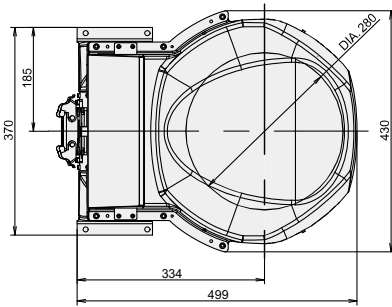
A single controller can control up to four robots. Adding additional robots to the same controller is very simple with the mechanical unit and amplifier box configuration.



## Operating space

### M-1*i*A/0.5A

### M-1*i*A/0.5S, M-1*i*A/1H



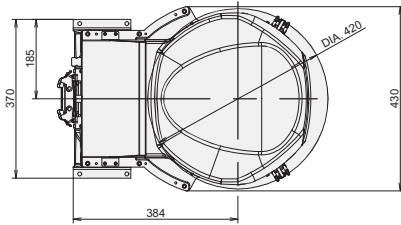
## Specifications

Item	Specifications			
	M-1 <i>i</i> A/0.5A	M-1 <i>i</i> A/0.5S	M-1 <i>i</i> A/1H	
Type	Parallel link mechanism			
Controlled axes	6 axes (J1,J2,J3,J4,J5,J6)	4 axes (J1,J2,J3,J4)	3 axes (J1,J2,J3)	
Installation	Floor, angle and ceiling mount	Floor and ceiling mount	Floor and ceiling mount	
Motion range (Maximum speed) (Note 1)	J1-J3	Diameter 280mm, height 100mm		
	J4	720° (1440°/s) 12.57 rad ( 25.13 rad/s)	720° (3000°/s) 12.57 rad ( 52.34 rad/s)	—
	J5	300° (1440°/s) 5.24 rad ( 25.13 rad/s)	—	—
	J6	720° (1440°/s) 12.57 rad ( 25.13 rad/s)	—	—
Max.payload at wrist	0.5 kg (1kg with an option)		1kg	
Repeatability	±0.02mm			
Drive method	Electric servo drive by AC servo motor			
Mass (Note2)	17kg	14kg	12kg	
Installation environment	Ambient temperature : 0~45°C Ambient humidity Normally : 75%RH or less (No dew, nor frost allowed) Short term : Max. 95%RH or less (within one month) Vibration : 4.9m/s <sup>2</sup> (0.5G) or less			

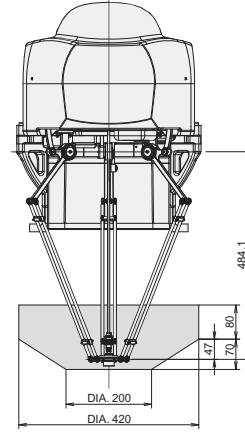
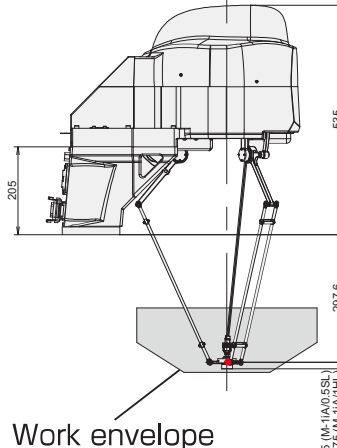
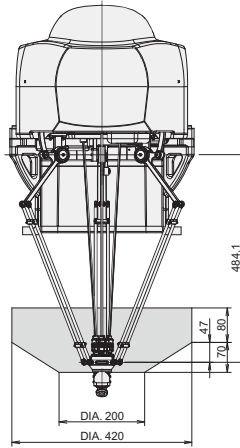
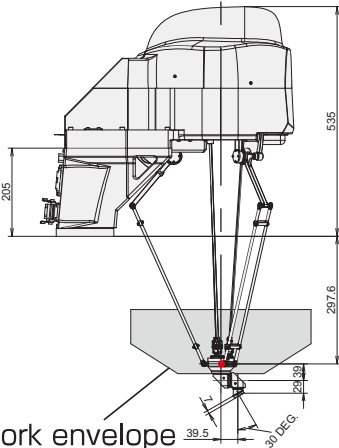
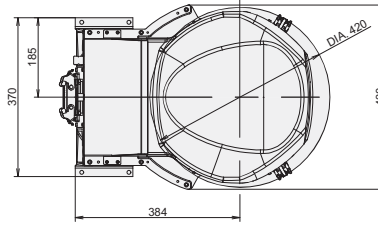
Note 1) In case of short distance motion, the axis speed may not reach the maximum value stated. Note 2) In case of "No stand"

## Operating space

### M-1*i*A/0.5AL



### M-1*i*A/0.5SL, M-1*i*A/1HL



Work envelope  
(●part motion)

Work envelope  
(●part motion)

## Specifications

Item	Specifications		
	M-1 <i>i</i> A/0.5AL	M-1 <i>i</i> A/0.5SL	M-1 <i>i</i> A/1HL
Type	Parallel link mechanism		
Controlled axes	6 axes (J1,J2,J3,J4,J5,J6)	4 axes (J1,J2,J3,J4)	3 axes (J1,J2,J3)
Installation	Floor, angle and ceiling mount	Floor and ceiling mount	Floor and ceiling mount
Motion range (Maximum speed) (Note 1)	J1-J3	Diameter 420mm, height 150mm	
	J4	720° (1440°/s) 12.57 rad ( 25.13 rad/s)	720° (3000°/s) 12.57 rad ( 52.34 rad/s)
	J5	300° (1440°/s) 5.24 rad ( 25.13 rad/s)	—
	J6	720° (1440°/s) 12.57 rad ( 25.13 rad/s)	—
Max.payload at wrist	0.5 kg (1kg with an option)		1kg
Repeatability	±0.03mm		
Drive method	Electric servo drive by AC servo motor		
Mass (Note2)	20kg	17kg	15kg
Installation environment	Ambient temperature : 0~45°C Ambient humidity Normally : 75%RH or less (No dew, nor frost allowed) Short term : Max. 95%RH or less (within one month) Vibration : 4.9m/s <sup>2</sup> (0.5G) or less		

Note 1) In case of short distance motion, the axis speed may not reach the maximum value stated.

Note 2) In case of "No stand"