Multi-purpose Intelligent Robot

FANUC Robot R-2000*i*B series

FEATURES

The FANUC robot R-2000*i*B is the intelligent robot for versatile applications with the up to date expertise at FANUC in last quarter century. The highly reliable robot with intelligence and network collaboration provides the best cost performance and prompts ease of use applications with integrated versatile process solutions such as spot welding, handling, assembling and so on.

Simple and Compact Mechanical Unit

R-2000*i*B provides the ultimate slim and compact body with the simplified vertical articulated arm, while maintaining the largest motion area and the heaviest payload in the class.

- Compact wrist unit
- Minimum interference at rear side
- Dense installation of multi robots

Intelligence and Networking

Newly developed robot controller R-30*i*A by enhanced CPU performance includes the latest software function, provides the most up to date intelligent and networking features.

- Higher motion performance
- Integrated vision
- Bin-picking function
- Diagnostics function

Application system

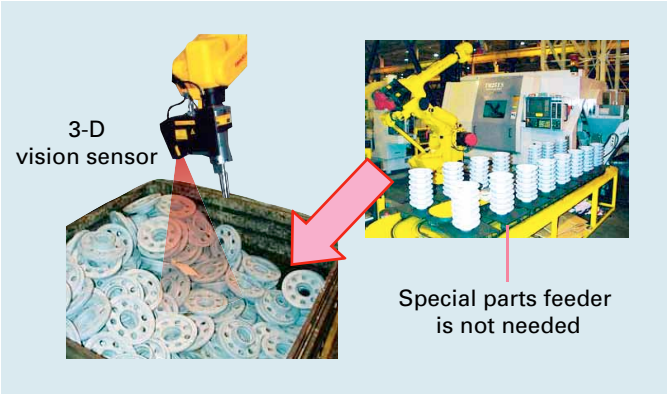
Handling of scattered workpieces

Spot welding by synchronized 2 robots

Intelligence

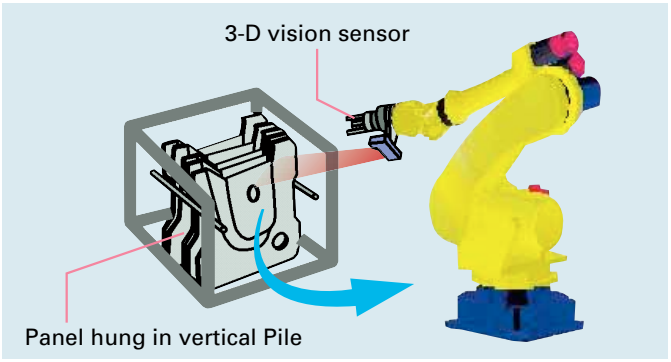
3-D Vision Sensor / Bin-Picking

Robot can handle workpieces randomly piled by using 3-D vision sensor. An automatic system can be constructed at low cost.



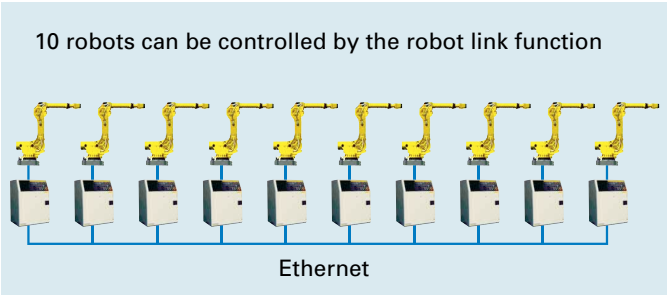
3-D Vision Sensor / Sheet Metal Picking

Sheet metal picking was only available by manual operation, but 3-D vision sensor becomes available to feed the panel by robot.



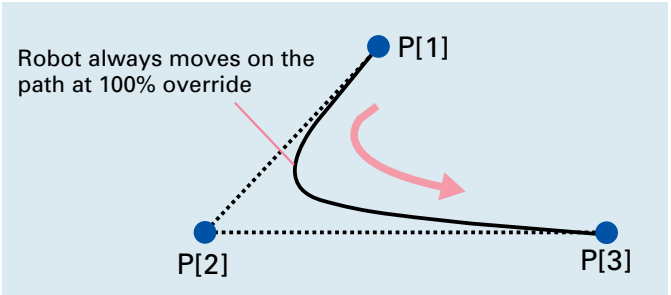
Multi-robot Control

R-30*i*A can control max 40 axes including 4 robots. Using Robot Link function, up to 10 robots can be controlled simultaneously.



Constant Path Functions

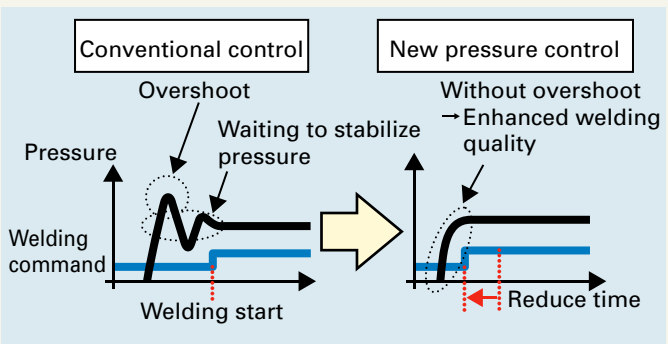
Constant path function keeps the robot path constant even when the override value is changed. Constant path function becomes teaching easy and safe and reduces the program teaching time greatly.



Optimal Solutions for Spot Welding

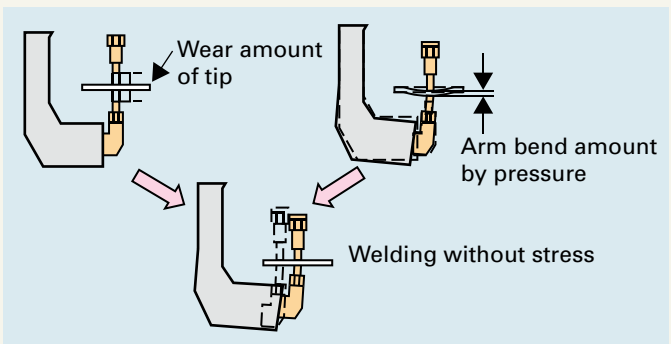
New Pressure Control

Stable pressure control with no overshoot enhances welding quality and reduce cycle time.



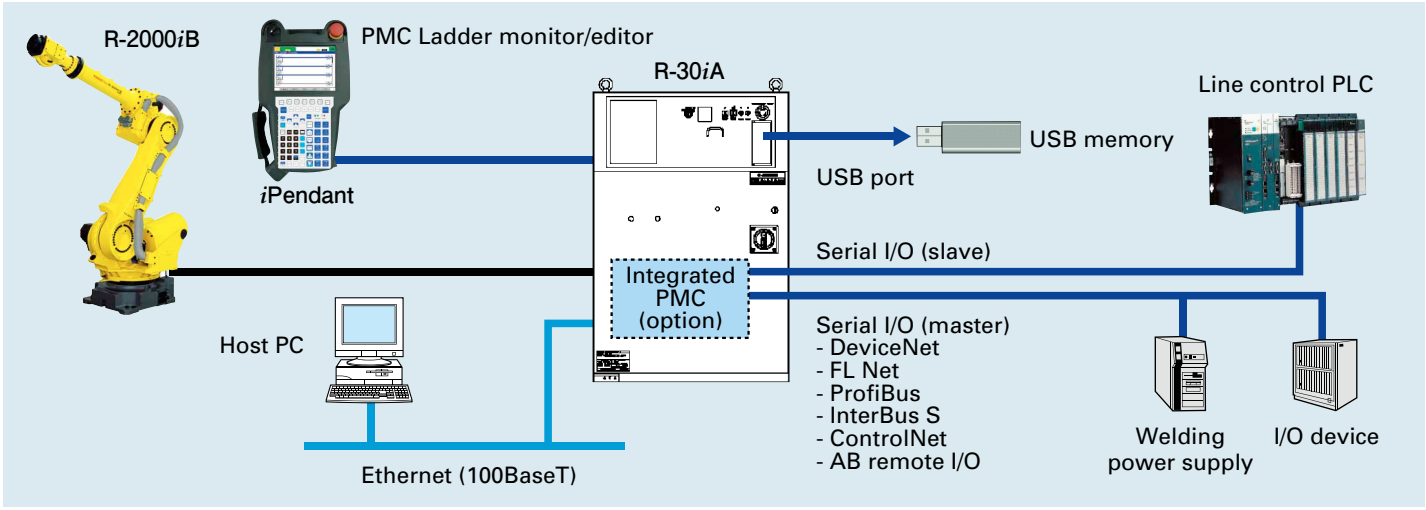
Compensation of Tip Wear / Gun Arm Bend

Automatic compensation of tip wear and arm bend provides stress free welding.



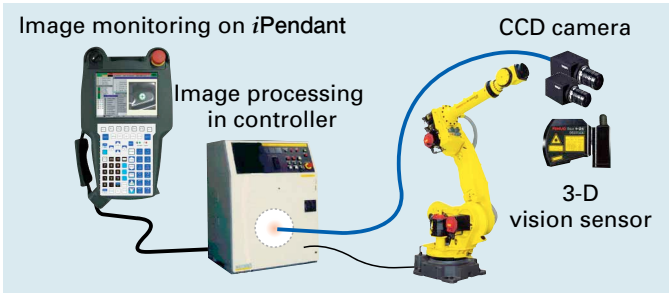
Networking

Versatile network and communication enable to supervise and control multi-robots and peripherals for production. PMC ladder monitor and editor is available on *i*Pendant.



Integrated Vision

Integrated hardware without PC provides high reliability. Tight integration between vision and robot functions is realized.

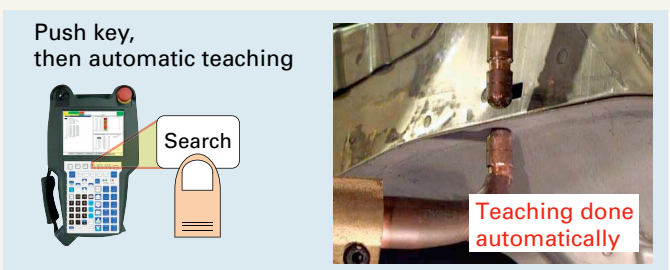


ROBOGUIDE

ROBOGUIDE provides offline programming / teaching / editing, verification of operation with animation, and accurate cycle time simulation promptly in virtual environment.

Spot Point Touchup Function / Spot Program Touchup Function

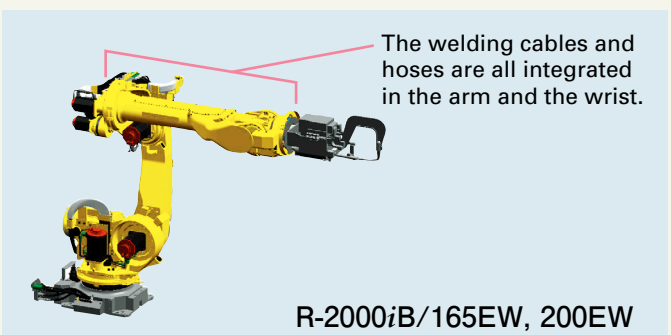
Automatic touchup in direction of gun axis for welding points. It reduces teaching time and provides consistence of accuracy regardless of operator's skill.



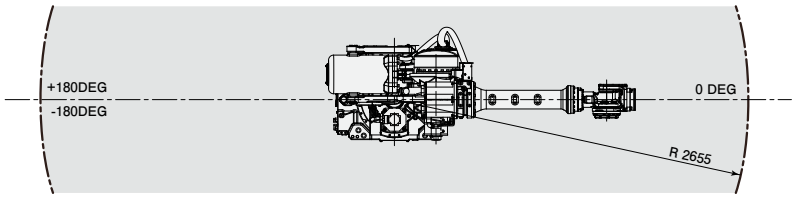
This function can be executed not only by teaching pendant but also by execution of welding program.

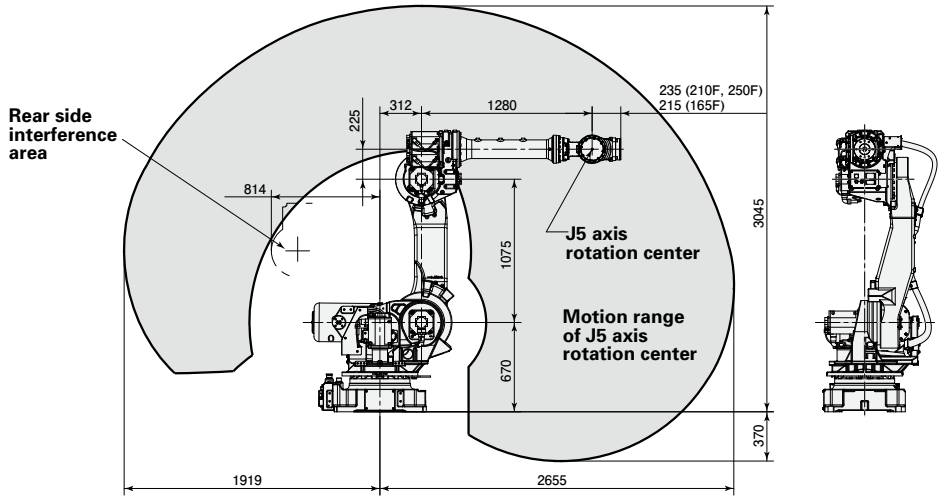
Cable Integrated Arm

As the cables and hoses are all routed in the arm, interference checking by offline simulation can be precisely done - reducing start-up and programming time.



Operation Space (R-2000*i*B/165F, 210F, 250F)



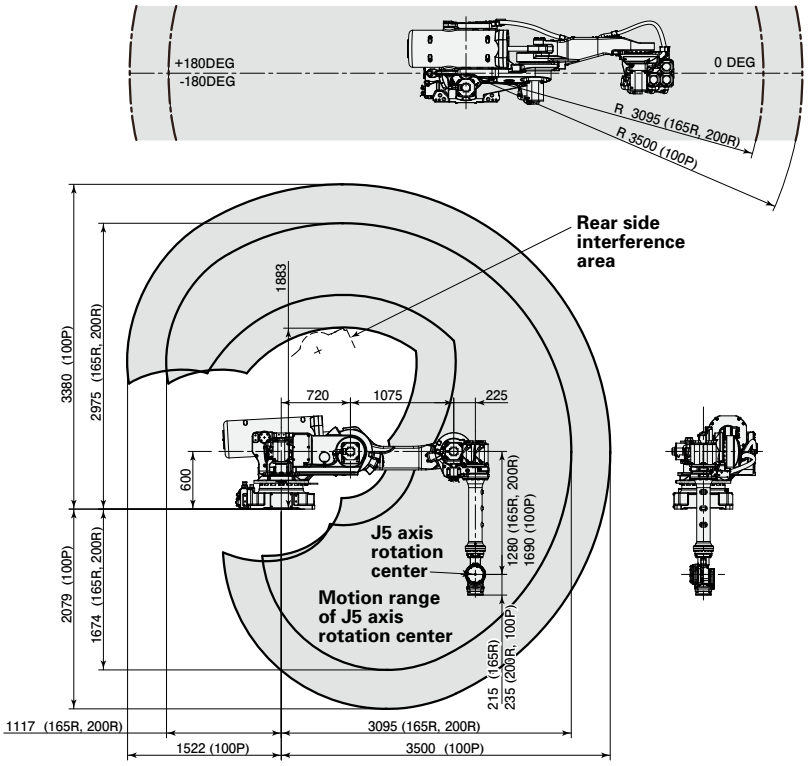


Specification

Item		Specifications		
		R-2000*i*B/165F	R-2000*i*B/210F	R-2000*i*B/250F
Type		Articulated type		
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)		
Reach		2.66 m	2.66 m	2.66 m
Installation		Floor mount		
Motion range (Maximum speed) Note1)	J1 axis rotation	360° (110°/sec) 6.28 rad (1.92 rad/sec)	360° (95°/sec) 6.28 rad (1.66 rad/sec)	360° (95°/sec) 6.28 rad (1.66 rad/sec)
	J2 axis rotation	136° (110°/sec) 2.37 rad (1.92 rad/sec)	136° (90°/sec) 2.37 rad (1.57 rad/sec)	136° (85°/sec) 2.37 rad (1.48 rad/sec)
	J3 axis rotation	362° (110°/sec) 6.32 rad (1.92 rad/sec)	362° (95°/sec) 6.32 rad (1.66 rad/sec)	357° (88°/sec) 6.23 rad (1.54 rad/sec)
	J4 axis wrist rotation	720° (150°/sec) 12.57 rad (2.62 rad/sec)	720° (120°/sec) 12.57 rad (2.09 rad/sec)	720° (120°/sec) 12.57 rad (2.09 rad/sec)
	J5 axis wrist swing	250° (150°/sec) 4.36 rad (2.62 rad/sec)	250° (120°/sec) 4.36 rad (2.09 rad/sec)	250° (120°/sec) 4.36 rad (2.09 rad/sec)
	J6 axis wrist rotation	720° (220°/sec) 12.57 rad (3.84 rad/sec)	720° (190°/sec) 12.57 rad (3.32 rad/sec)	720° (190°/sec) 12.57 rad (3.32 rad/sec)
Maximum load capacity at wrist		165 kg	210 kg	250 kg
Maximum load capacity at J2 base		550 kg	550 kg	550 kg
Maximum load capacity at J3 arm		25 kg	25 kg	25 kg
Allowable load moment at wrist	J4 axis	94 kgf·m 921 N·m	136 kgf·m 1333 N·m	141 kgf·m 1382 N·m
	J5 axis	94 kgf·m 921 N·m	136 kgf·m 1333 N·m	141 kgf·m 1382 N·m
	J6 axis	47 kgf·m 461 N·m	72 kgf·m 706 N·m	73 kgf·m 715 N·m
Allowable load inertia at wrist	J4 axis	800 kgf·cm·s² 78.4 kg·m²	1440 kgf·cm·s² 141.1 kg·m²	2300 kgf·cm·s² 225.4 kg·m²
	J5 axis	800 kgf·cm·s² 78.4 kg·m²	1440 kgf·cm·s² 141.1 kg·m²	2300 kgf·cm·s² 225.4 kg·m²
	J6 axis	410 kgf·cm·s² 40.2 kg·m²	800 kgf·cm·s² 78.4 kg·m²	2000 kgf·cm·s² 196 kg·m²
Drive method		Electric servo drive by AC servo motor		
Repeatability		± 0.2 mm	± 0.3 mm	± 0.3 mm
Mass Note2)		1,170 kg	1,240kg	1,270 kg
Installation environment		Ambient temperature：0～45℃ Ambient humidity： Normally75%Rh or less Short term(within one month)95%RH or less Note 3) Vibration：0.5G or less		

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Operation Space (R-2000*i*B/165R, 200R, 100P)

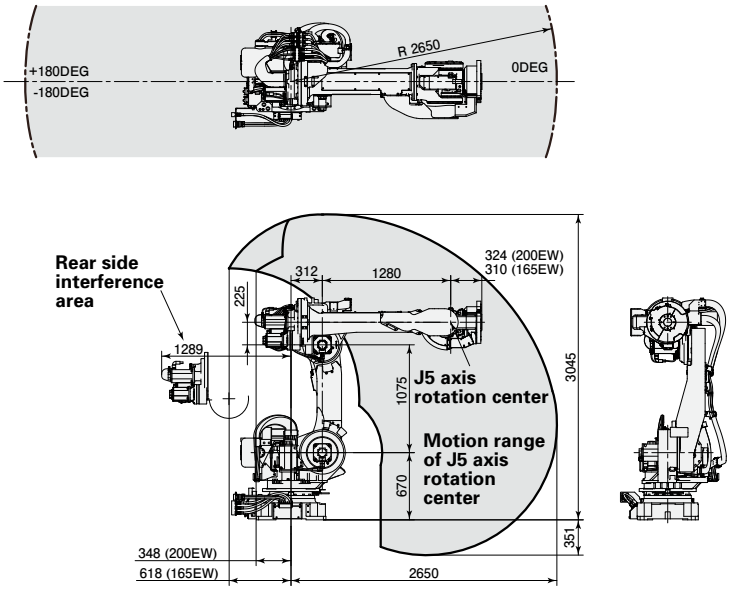


Specification

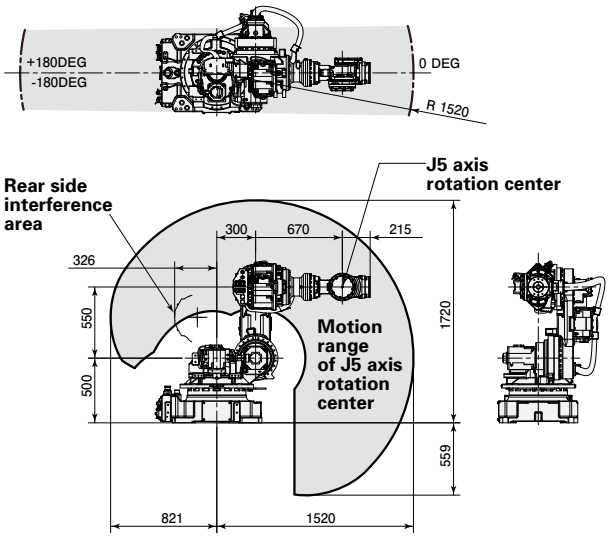
Item		Specifications					
		R-2000*i*B/165R		R-2000*i*B/200R		R-2000*i*B/100P	
Type		Articulated type					
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)					
Reach		3.10 m		3.10 m		3.50 m	
Installation		Rack mount					
Motion range (Maximum speed) Note1)	J1 axis rotation	360° 6.28 rad	(110°/sec) (1.92 rad/sec)	360° 6.28 rad	(90°/sec) (1.57 rad/sec)	360° 6.28 rad	(110°/sec) (1.92 rad/sec)
	J2 axis rotation	185° 3.23 rad	(100°/sec) (1.75 rad/sec)	185° 3.23 rad	(85°/sec) (1.48 rad/sec)	185° 3.23 rad	(90°/sec) (1.57 rad/sec)
	J3 axis rotation	365° 6.37 rad	(110°/sec) (1.92 rad/sec)	365° 6.37 rad	(95°/sec) (1.66 rad/sec)	365° 6.37 rad	(110°/sec) (1.92 rad/sec)
	J4 axis wrist rotation	720° 12.57 rad	(150°/sec) (2.62 rad/sec)	720° 12.57 rad	(120°/sec) (2.09 rad/sec)	720° 12.57 rad	(120°/sec) (2.09 rad/sec)
	J5 axis wrist swing	250° 4.36 rad	(150°/sec) (2.62 rad/sec)	250° 4.36 rad	(120°/sec) (2.09 rad/sec)	250° 4.36 rad	(120°/sec) (2.09 rad/sec)
	J6 axis wrist rotation	720° 12.57 rad	(220°/sec) (3.84 rad/sec)	720° 12.57 rad	(190°/sec) (3.32 rad/sec)	720° 12.57 rad	(190°/sec) (3.32 rad/sec)
Maximum load capacity at wrist		165 kg		200 kg		100 kg	
Maximum load capacity at J2 base		550 kg		550 kg		550 kg	
Maximum load capacity at J3 casing		25 kg		—		25 kg	
Allowable load moment at wrist	J4 axis	94 kgf·m 921 N·m		136 kgf·m 1333 N·m		100 kgf·m 980 N·m	
	J5 axis	94 kgf·m 921 N·m		136 kgf·m 1333 N·m		100 kgf·m 980 N·m	
	J6 axis	47 kgf·m 461 N·m		72 kgf·m 706 N·m		72 kgf·m 706 N·m	
Allowable load inertia at wrist	J4 axis	800 kgf·cm·s² 78.4 kg·m²		1440 kgf·cm·s² 141.1 kg·m²		2300 kgf·cm·s² 225.4 kg·m²	
	J5 axis	800 kgf·cm·s² 78.4 kg·m²		1440 kgf·cm·s² 141.1 kg·m²		2300 kgf·cm·s² 225.4 kg·m²	
	J6 axis	410 kgf·cm·s² 40.2 kg·m²		800 kgf·cm·s² 78.4 kg·m²		2000 kgf·cm·s² 196 kg·m²	
Drive method		Electric servo drive by AC servo motor					
Repeatability		± 0.3 mm					
Mass Note2)		1,480 kg		1,540 kg		1,560 kg	
Installation environment		Ambient temperature : 0～45℃ Ambient humidity : Normally75%Rh or less Short term(within one month)95%RH or less Note 3) Vibration : 0.5G or less					

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Operation Space (R-2000iB/165EW, 200EW)



Operation Space (R-2000iB/170CF)



Specification

Item		Specifications	
		R-2000iB/165EW	R-2000iB/200EW
Type		Articulated type	
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)	
Reach		2.65 m	2.65 m
Installation		Floor mount	
Motion range (Maximum speed) Note1)	J1 axis rotation	360° (105°/sec) 6.28 rad (1.83 rad/sec)	360° (90°/sec) 6.28 rad (1.57 rad/sec)
	J2 axis rotation	135° (90°/sec) 2.36 rad (1.57 rad/sec)	135° (85°/sec) 2.36 rad (1.48 rad/sec)
	J3 axis rotation	208° (105°/sec) 3.63 rad (1.83 rad/sec)	208° (90°/sec) 3.63 rad (1.57 rad/sec)
	J4 axis wrist rotation	720° (130°/sec) 12.57 rad (2.27 rad/sec)	720° (110°/sec) 12.57 rad (1.92 rad/sec)
	J5 axis wrist swing	250° (130°/sec) 4.36 rad (2.27 rad/sec)	250° (110°/sec) 4.36 rad (1.92 rad/sec)
	J6 axis wrist rotation	440° (210°/sec) 7.68 rad (3.67 rad/sec)	440° (155°/sec) 7.68 rad (2.71 rad/sec)
Maximum load capacity at wrist		165 kg	200 kg
Maximum load capacity at J2 base		550 kg	550 kg
Maximum load capacity at J3 casing		25 kg	25 kg
Allowable load moment at wrist	J4 axis	110 kgf·m 1075 N·m	144 kgf·m 1411 N·m
	J5 axis	110 kgf·m 1075 N·m	144 kgf·m 1411 N·m
	J6 axis	47 kgf·m 461 N·m	70 kgf·m 686 N·m
Allowable load inertia at wrist	J4 axis	998 kgf·cm·s² 97.8 kg·m²	1396 kgf·cm·s² 136.8 kg·m²
	J5 axis	998 kgf·cm·s² 97.8 kg·m²	1396 kgf·cm·s² 136.8 kg·m²
	J6 axis	410 kgf·cm·s² 40.2 kg·m²	600 kgf·cm·s² 58.8 kg·m²
Drive method		Electric servo drive by AC servo motor	
Repeatability		± 0.3 mm	± 0.3 mm
Mass Note2)		1,400 kg	1,510 kg
Installation environment		Ambient temperature : 0~45℃ Ambient humidity : Normally75%Rh or less Short term (within one month) 95%RH or less Note 3) Vibration : 0.5G or less	

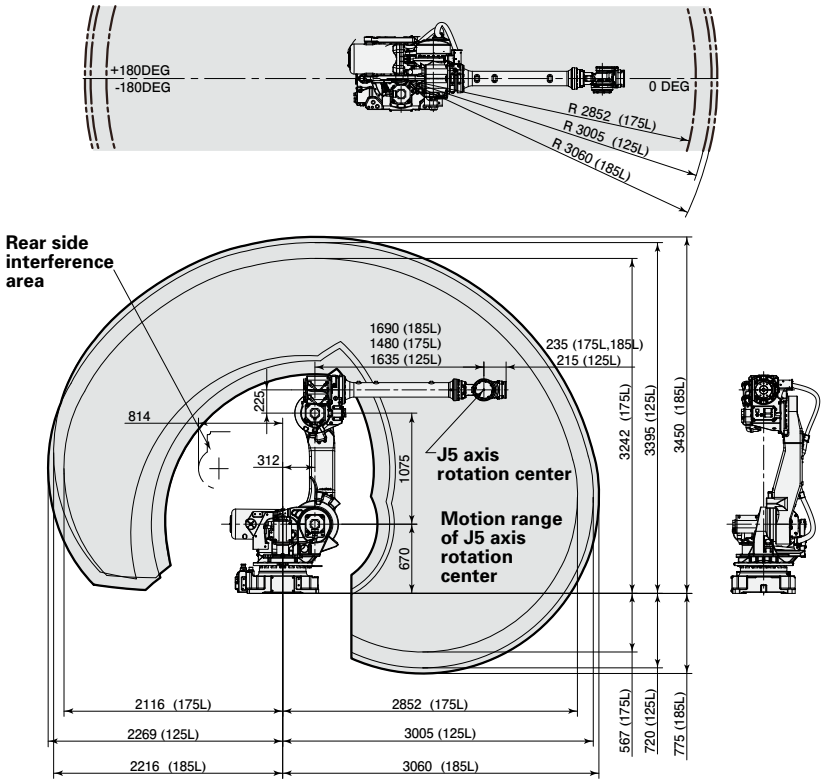
Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Specification

Item		Specifications
		R-2000iB/170CF
Type		Articulated type
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)
Reach		1.52 m
Installation		Floor mount, Upside-down
Motion range (Maximum speed) Note1)	J1 axis rotation	360° (110°/sec) 6.28 rad (1.92 rad/sec)
	J2 axis rotation	190° (110°/sec) 3.32 rad (1.92 rad/sec)
	J3 axis rotation	332° (110°/sec) 5.79 rad (1.92 rad/sec)
	J4 axis wrist rotation	720° (150°/sec) 12.57 rad (2.62 rad/sec)
	J5 axis wrist swing	250° (150°/sec) 4.36 rad (2.62 rad/sec)
	J6 axis wrist rotation	720° (220°/sec) 12.57 rad (3.84 rad/sec)
Maximum load capacity at wrist		170 kg
Maximum load capacity at J2 base		550 kg
Maximum load capacity at J3 casing		25 kg
Allowable load moment at wrist	J4 axis	94 kgf·m 921 N·m
	J5 axis	94 kgf·m 921 N·m
	J6 axis	47 kgf·m 461 N·m
Allowable load inertia at wrist	J4 axis	800 kgf·cm·s² 78.4 kg·m²
	J5 axis	800 kgf·cm·s² 78.4 kg·m²
	J6 axis	410 kgf·cm·s² 40.2 kg·m²
Drive method		Electric servo drive by AC servo motor
Repeatability		± 0.15 mm
Mass Note2)		800 kg
Installation environment		Ambient temperature : 0~45℃ Ambient humidity : Normally75%Rh or less Short term (within one month) 95%RH or less Note 3) Vibration : 0.5G or less

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Operation Space (R-2000*i*B/125L, 175L, 185L)

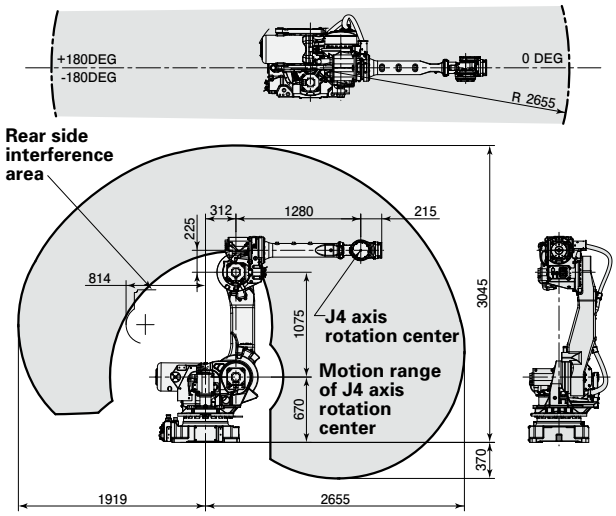


Specification

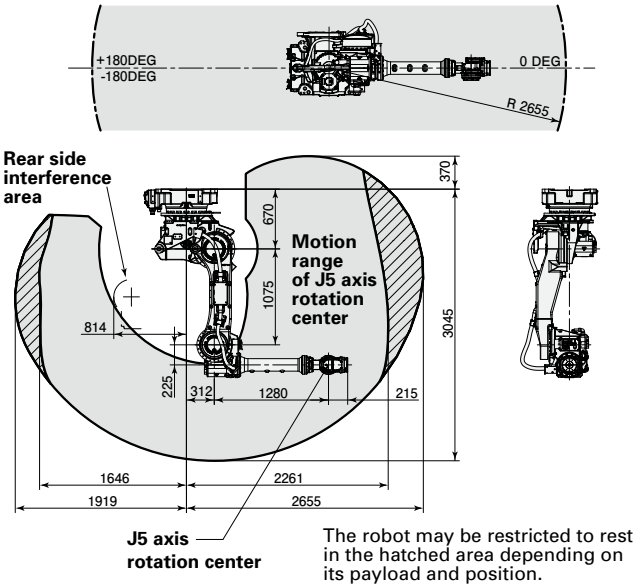
Item		Specifications					
		R-2000*i*B/125L		R-2000*i*B/175L		R-2000*i*B/185L	
Type		Articulated type					
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)					
Reach		3.01 m		2.85 m		3.06 m	
Installation		Floor mount					
Motion range (Maximum speed) Note1)	J1 axis rotation	360° 6.28 rad	(110°/sec) (1.92 rad/sec)	360° 6.28 rad	(95°/sec) (1.66 rad/sec)	360° 6.28 rad	(95°/sec) (1.66 rad/sec)
	J2 axis rotation	136° 2.37 rad	(110°/sec) (1.92 rad/sec)	136° 2.37 rad	(90°/sec) (1.57 rad/sec)	136° 2.37 rad	(85°/sec) (1.48 rad/sec)
	J3 axis rotation	352.6° 6.15 rad	(110°/sec) (1.92 rad/sec)	356.1° 6.21 rad	(95°/sec) (1.66 rad/sec)	346° 6.04 rad	(88°/sec) (1.54 rad/sec)
	J4 axis wrist rotation	720° 12.57 rad	(170°/sec) (2.97 rad/sec)	720° 12.57 rad	(120°/sec) (2.09 rad/sec)	720° 12.57 rad	(120°/sec) (2.09 rad/sec)
	J5 axis wrist swing	250° 4.36 rad	(170°/sec) (2.97 rad/sec)	250° 4.36 rad	(120°/sec) (2.09 rad/sec)	250° 4.36 rad	(120°/sec) (2.09 rad/sec)
	J6 axis wrist rotation	720° 12.57 rad	(260°/sec) (4.54 rad/sec)	720° 12.57 rad	(190°/sec) (3.32 rad/sec)	720° 12.57 rad	(190°/sec) (3.32 rad/sec)
Maximum load capacity at wrist		125 kg		175 kg		185 kg	
Maximum load capacity at J2 base		550 kg		550 kg		550 kg	
Maximum load capacity at J3 arm		20 kg		20 kg		—	
Allowable load moment at wrist	J4 axis	60 kgf·m 588 N·m		125 kgf·m 1225 N·m		125 kgf·m 1225 N·m	
	J5 axis	60 kgf·m 588 N·m		125 kgf·m 1225 N·m		125 kgf·m 1225 N·m	
	J6 axis	35 kgf·m 343 N·m		72 kgf·m 706 N·m		72 kgf·m 706 N·m	
Allowable load inertia at wrist	J4 axis	600 kgf·cm·s² 58.8 kg·m²		2300 kgf·cm·s² 225.4 kg·m²		2300 kgf·cm·s² 225.4 kg·m²	
	J5 axis	600 kgf·cm·s² 58.8 kg·m²		2300 kgf·cm·s² 225.4 kg·m²		2300 kgf·cm·s² 225.4 kg·m²	
	J6 axis	230 kgf·cm·s² 22.5 kg·m²		2000 kgf·cm·s² 196 kg·m²		2000 kgf·cm·s² 196 kg·m²	
Drive method		Electric servo drive by AC servo motor					
Repeatability		± 0.2 mm		± 0.3 mm		± 0.3 mm	
Mass Note2)		1,190 kg		1,260 kg		1,290 kg	
Installation environment		Ambient temperature : 0～45℃ Ambient humidity : Normally75%Rh or less Short term(within one month)95%RH or less Note 3) Vibration : 0.5G or less					

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Operation Space (R-2000*i*B/100H)



Operation Space (R-2000*i*B/150U)



The robot may be restricted to rest in the hatched area depending on its payload and position.

Specification

Item		Specifications R-2000*i*B/100H
Type		Articulated type
Controlled axes		5 axes (J1, J2, J3, J4, J5)
Reach		2.66m
Installation		Floor mount
Motion range (Maximum speed) Note1)	J1 axis rotation	360° (130°/sec) 6.28 rad (2.27 rad/sec)
	J2 axis rotation	136° (130°/sec) 2.37 rad (2.27 rad/sec)
	J3 axis rotation	362° (130°/sec) 6.32 rad (2.27 rad/sec)
	J4 axis wrist swing	250° (170°/sec) 4.36 rad (2.97 rad/sec)
	J5 axis wrist rotation	720° (360°/sec) 12.57 rad (6.28 rad/sec)
Maximum load capacity at wrist		100 kg
Maximum load capacity at J2 base		550 kg
Maximum load capacity at J3 arm		—
Allowable load moment at wrist	J4 axis	45 kgf·m 441 N·m
	J5 axis	25 kgf·m 245 N·m
Allowable load inertia at wrist	J4 axis	400 kgf·cm·s² 39.2 kg·m²
	J5 axis	160 kgf·cm·s² 15.7 kg·m²
Drive method		Electric servo drive by AC servo motor
Repeatability		± 0.2 mm
Mass Note2)		1,150 kg
Installation environment		Ambient temperature : 0~45℃ Ambient humidity : Normally75%Rh or less Short term (within one month) 95%RH or less Note 3) Vibration : 0.5G or less

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

Specification

Item		Specifications R-2000*i*B/150U
Type		Articulated type
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)
Reach		2.66m
Installation		Upside-down
Motion range (Maximum speed) Note1)	J1 axis rotation	360° (110°/sec) 6.28 rad (1.92 rad/sec)
	J2 axis rotation	136° (85°/sec) 2.37 rad (1.48rad/sec)
	J3 axis rotation	362° (110°/sec) 6.32 rad (1.92 rad/sec)
	J4 axis wrist rotation	720° (150°/sec) 12.57 rad (2.62 rad/sec)
	J5 axis wrist swing	250° (150°/sec) 4.36 rad (2.62 rad/sec)
	J6 axis wrist rotation	720° (220°/sec) 12.57 rad (3.84 rad/sec)
Maximum load capacity at wrist		150 kg
Maximum load capacity at J2 base		550 kg
Maximum load capacity at J3 arm		10 kg
Allowable load moment at wrist	J4 axis	85 kgf·m 833 N·m
	J5 axis	85 kgf·m 833 N·m
	J6 axis	43 kgf·m 421 N·m
Allowable load inertia at wrist	J4 axis	800 kgf·cm·s² 78.4 kg·m²
	J5 axis	800 kgf·cm·s² 78.4 kg·m²
	J6 axis	410 kgf·cm·s² 40.2 kg·m²
Drive method		Electric servo drive by AC servo motor
Repeatability		± 0.2 mm
Mass Note2)		1,070 kg
Installation environment		Ambient temperature : 0~45℃ Ambient humidity : Normally75%Rh or less Short term (within one month) 95%RH or less Note 3) Vibration : 0.5G or less

Note 1) In case of short distance motion, the axis speed doesn't reach maximum one.
Note 2) Without controller.
Note 3) No dew allowed.

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RR-2000*i*B(E)-04, 2009.11, Printed in Japan