

# R-2000iB™ Series

## Basic Description

The R-2000iB series is FANUC Robotics' latest-generation, six-axis, heavy-payload, high-performance family of industrial robots. The R-2000iB provides higher value through industry-leading performance, reliability and maintainability, and is supported by our extensive service and parts network.

## R-2000iB Series, the Solution for:

- Automotive spot welding and general assembly
- General industrial applications
- Material handling
- Part transfer
- Material removal
- Disensing
- Machine loading

## Benefits

- Slim arm and wrist assemblies minimize interference with system peripherals and allow operation in confined spaces.
- Large allowable wrist moments and inertias meet a variety of heavy handling challenges.
- Many process attachment points make integration easier.
- Non-rotating forearm simplifies hose and cable dressout to prolong service life.
- Proven, reliable FANUC servo drives provide highest uptime and productivity.
- Longer maintenance intervals equate to lower operating costs.
- Fewer mechanical components reduce down time, increase mean time between failure (MTBF) and minimize spare part requirements.
- High-performance motion yields fast cycle times and high throughput.
- Wrist flange and base mounting are identical to the R-2000iA, allowing for seamless backward compatibility.
- R-2000iB can reach all areas of R-2000iA work envelope for easy replacement.

Note: *iR*Vision® and FoundryPRO® are registered trademarks of FANUC LTD.



## Features

### Mechanical:

- Large work envelope with ability to reach overhead and behind.
- 6 axes of motion.
- Slim profile design.
- RV reducers on all axes.
- Lack of counterweight increases available workspace.
- Process/application cables routed through the arm.
- No motors at wrist.
- Standard J1 adjustable hard stop.
- IP67 rated wrist/forearm.

### Control:

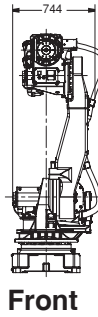
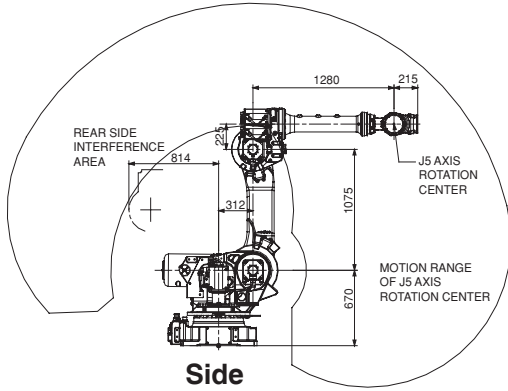
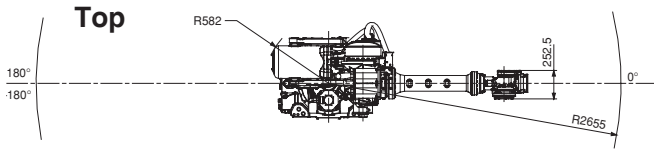
- 35% average faster TPP and KAREL® execution speed over previous generation.
- Up to 24 axes on main servo card plus 16 axes on mini-slot card for 40 axes maximum.
- Quick change amplifier <5 minutes.
- Fast boot time <30 seconds.
- Two Ethernet ports standard.
- USB interface on panel and PCMCIA slot internal.
- Easy connections to a variety of I/O, including a number of distributed I/O networks.
- *i*Pendant™, a color, Internet-ready teach pendant for even easier programming and custom cell user interface design.
- Built-in support for machine vision applications for error proofing and robot guidance, without the need for a PC.

## Options

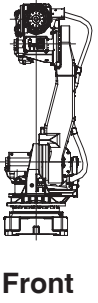
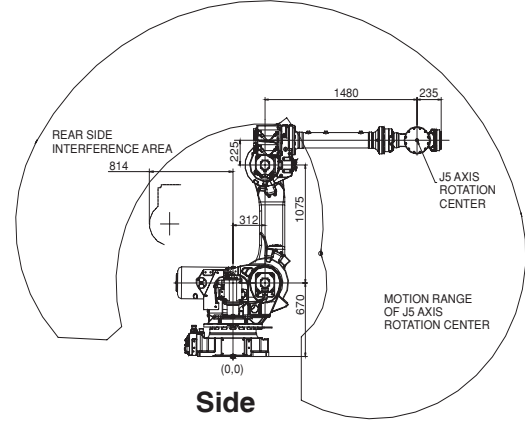
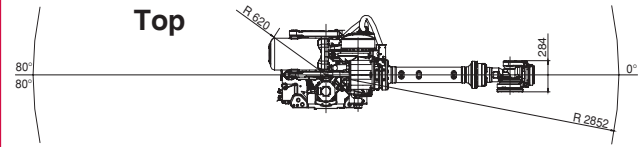
- Process specific software packages for various applications.
- Web-based software tools for remote connectivity, diagnostics and production monitoring.
- FANUC's *iR*Vision® (Integrated Robot Vision) system delivers high performance 2-D and 3-D machine vision capabilities with FANUC reliability. Additional option for Error Proofing can provide integrated vision based capabilities to check for product completeness before product is packaged or further operations are performed.
- FoundryPRO® protection package and two-part epoxy paint for foundry and harsh environments.
- Standard baseplate for quick robot installation.
- Auxiliary axes packages for integration of peripheral servo-controlled devices and robot track units.
- Adjustable hard stops for J1, J2 and J3.
- Various robot connection cable lengths for flexible cabinet placement and optional track rated cables.
- *i*Pendant with touch screen for custom HMI applications.
- Monochrome teach pendant.
- Integrated spot welding utilities.
- Electrically insulated faceplate.

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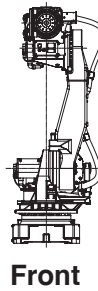
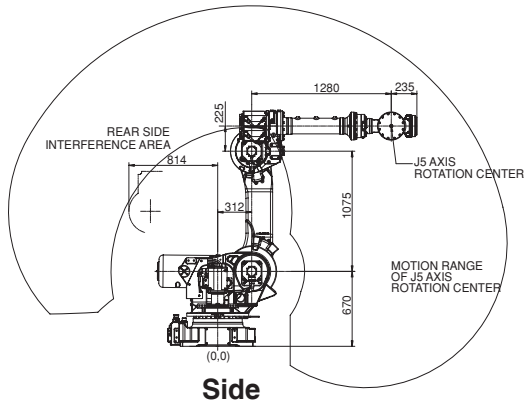
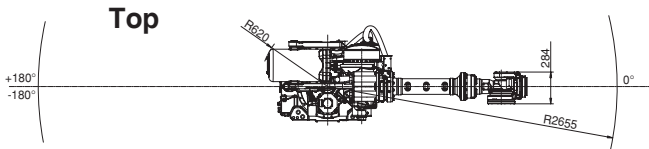
### R-2000iB/165F



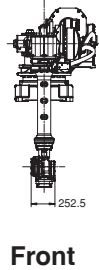
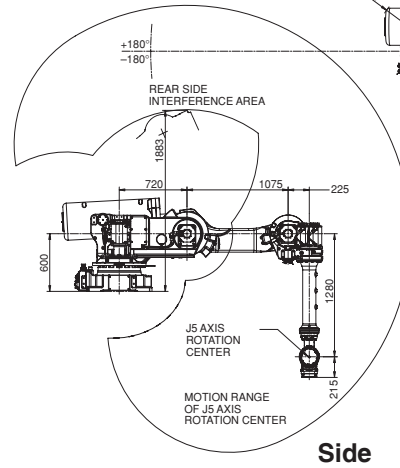
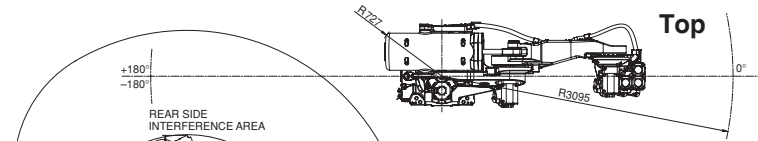
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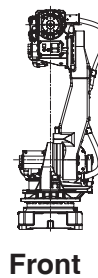
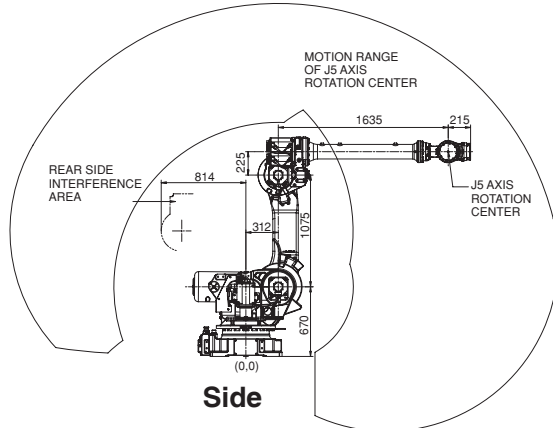
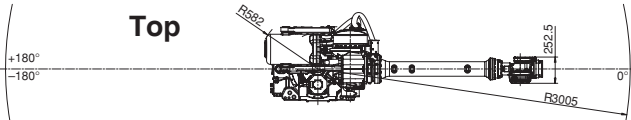
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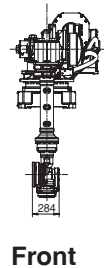
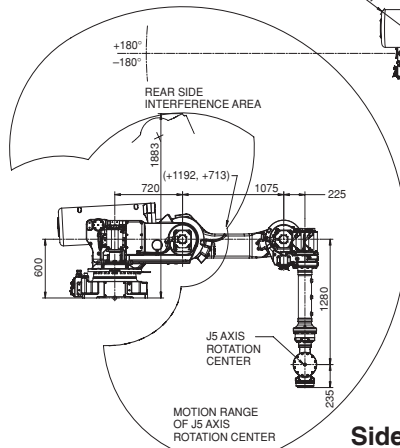
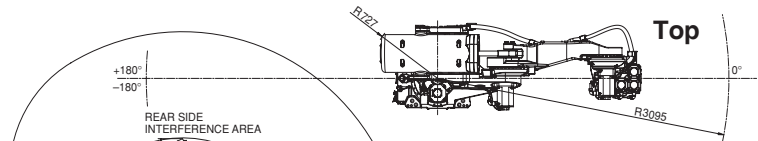
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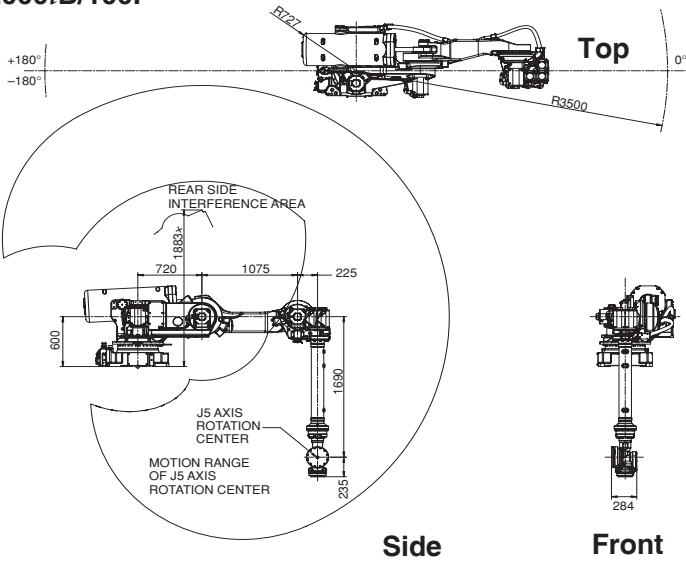
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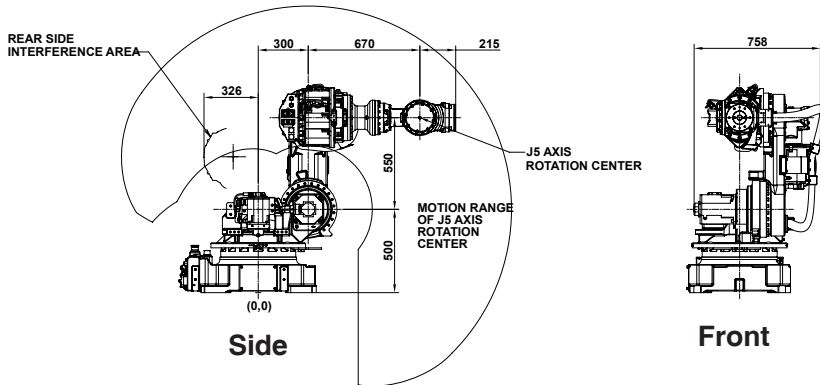
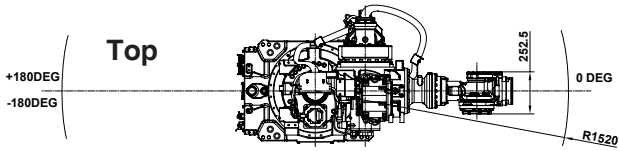
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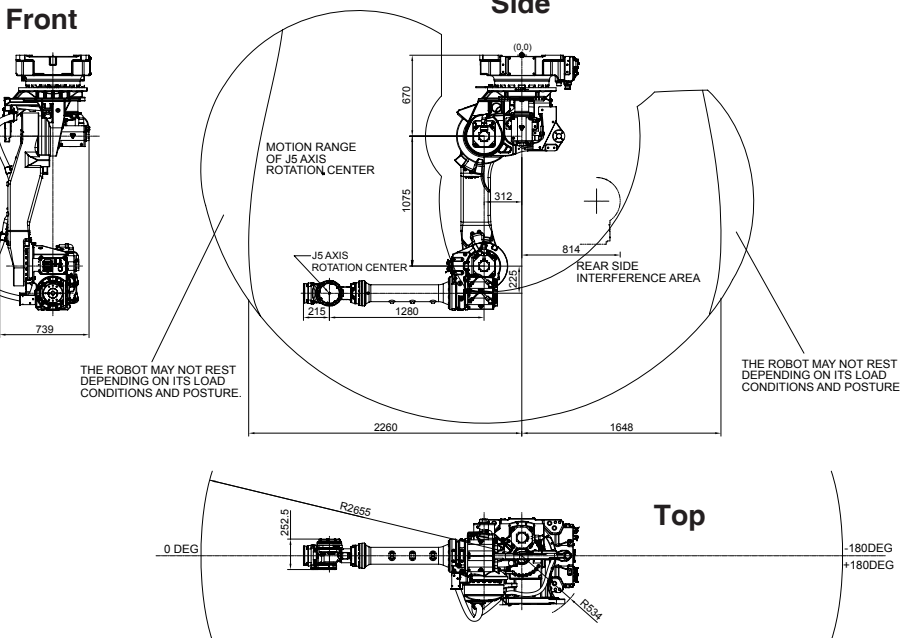
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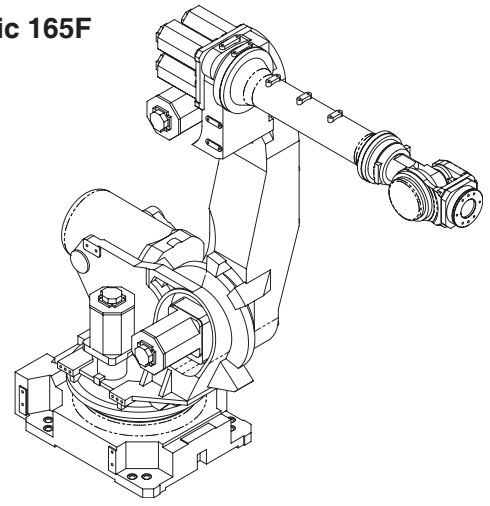
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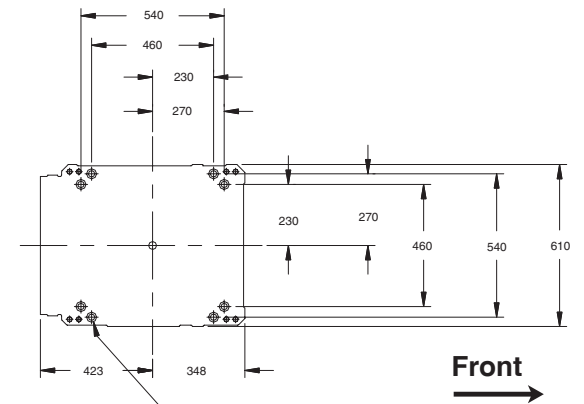
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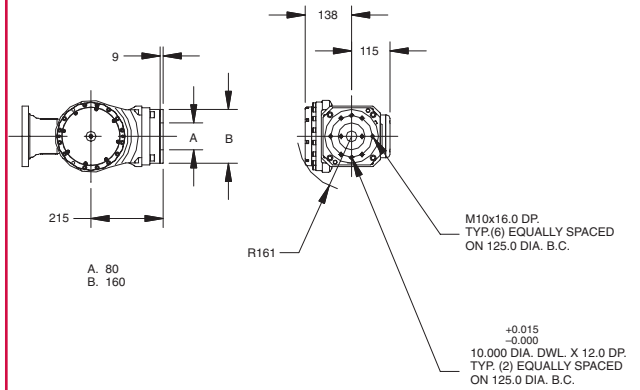
### Isometric 165F



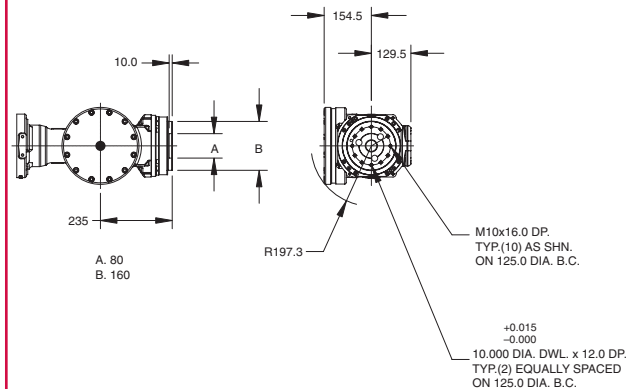
### Footprint (All models)



### ISO Flange Wrist 165F, 125L, 165R, 150U, 170CF



### ISO Flange Wrist 175L, 210F, 200R, 100P



Note: Dimensions are shown in millimeters. Detailed CAD data are available upon request.

## R-2000iB Specifications

Items	/165F	/210F	/125L	/175L	/165R	/200R	/100P	/170CF	/150U	
General purpose	Heavy payload floor mount	Heavier payload floor mount	Longer reach floor mount	Longer reach floor mount	Heavy payload rack mount	Heavier payload rack mount	Longer reach rack mount	Compact floor or ceiling mount	Heavy payload ceiling mount	
Controlled Axes	6	6	6	6	6	6	6	6	6	
Payload - Wrist (kg)	165	210	125	175	165	200	100	170	150	
Payload - J2 base (kg)	550	550	550	550	550	550	550	550	550	
Payload - J3 forearm (kg)	25	25	20	20	25	0	25	25	10	
Horizontal reach (mm)	2655	2655	3005	2852	3095	3095	3500	1520	2655	
Repeatability (mm) per JISB 8432	±0.2	±0.3	±0.2	±0.3	±0.3	±0.3	±0.3	±0.15	±0.2	
J2 interference radius (mm)	582	620	582	620	727	727	727	284	534	
Motion range (degrees)	J1	360	360	360	360	360	360	360	360	
	J2	136	136	136	136	185	185	190	136	
	J3	362	362	362	356	365	365	365	362	
	J4	720	720	720	720	720	720	720	720	
	J5	250	250	250	250	250	250	250	250	
	J6	720	720	720	720	720	720	720	720	
Motion speed (degrees/s)	J1	110	95	110	95	110	90	110	110	
	J2	110	90	110	90	100	85	90	85	
	J3	110	95	110	95	110	95	110	110	
	J4	150	120	170	120	150	120	120	150	
	J5	150	120	170	120	150	120	120	150	
	J6	220	190	260	190	220	190	190	220	
Wrist moments <sup>(1)</sup> N•m (kgf•m)	J4	921(94)	1333(136)	588(60)	1226(125)	921(94)	1333(136)	980(100)	921(94)	833(85)
	J5	921(94)	1333(136)	588(60)	1226(125)	921(94)	1333(136)	980(100)	921(94)	833(85)
	J6	461(47)	706(72)	343(35)	706(72)	461(47)	706(72)	706(72)	461(47)	421(43)
Wrist inertia <sup>(2)</sup> kg•m <sup>2</sup>	J4	78	141/225	59	141	78	141	225	78	78
	J5	78	141/225	59	141	78	141	225	78	78
	J6	40	78/196	22	78	40	78	196	40	40
AC electric servo drive	All joints	All joints	All joints	All joints	All joints	All joints	All joints	All joints	All joints	
Fail-safe brakes	All joints	All joints	All joints	All joints	All joints	All joints	All joints	All joints	All joints	
Robot mass (kg)	1170	1240	1190	1260	1480	1540	1570	800	1070	
Ambient temperature (°C)	0 to 45									
Vibration (G)	≤0.5									
Relative humidity	Normally ≤ 75%. Short term (≤ month) ≤ 95%. No condensation (dew or frost).									
Installation altitude	Up to 1000 m above sea level									
IP Ratings per BS EN 60529-1992 <sup>(3)</sup>	Standard: IP67 wrist and forearm, IP54 main body. Optional: FoundryPRO IP66 main body drivetrain, two-part epoxy paint.									

### Notes:

- (1) Higher allowable wrist moments are possible with wrist flange facing up or down.
- (2) Higher wrist inertias can be toggled from within application code; acc/dec slightly affected when on but all other specs unchanged.
- (3) Fluids which harm nitrile rubber (NBR) must not be used. FoundryPRO not available on R-2000iB/100P.

Contact FANUC Robotics for details.

## Intelligent Robot Solutions



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