

FANUC Robot R-2000



Features

The FANUC Robot R-2000 is a robot based on FANUC's years of experience and renowned technology. This high performance intelligent robot with outstanding reliability and cost performance will support your needs in various applications, such as spot welding, material handling and assembly.

- The R-50iA controller provides energy saving by improving control performance.
- For D series robots, off-line teaching can be performed without concerns about the interference with peripheral equipment, by mounting the wrist cables inside the hollow arm.
- Extensive options are available for various processes, including the spot welding solution arm.
- Various features are available such as Maintenance Reminder, Force Sensor and Vision Sensor.

Application Example



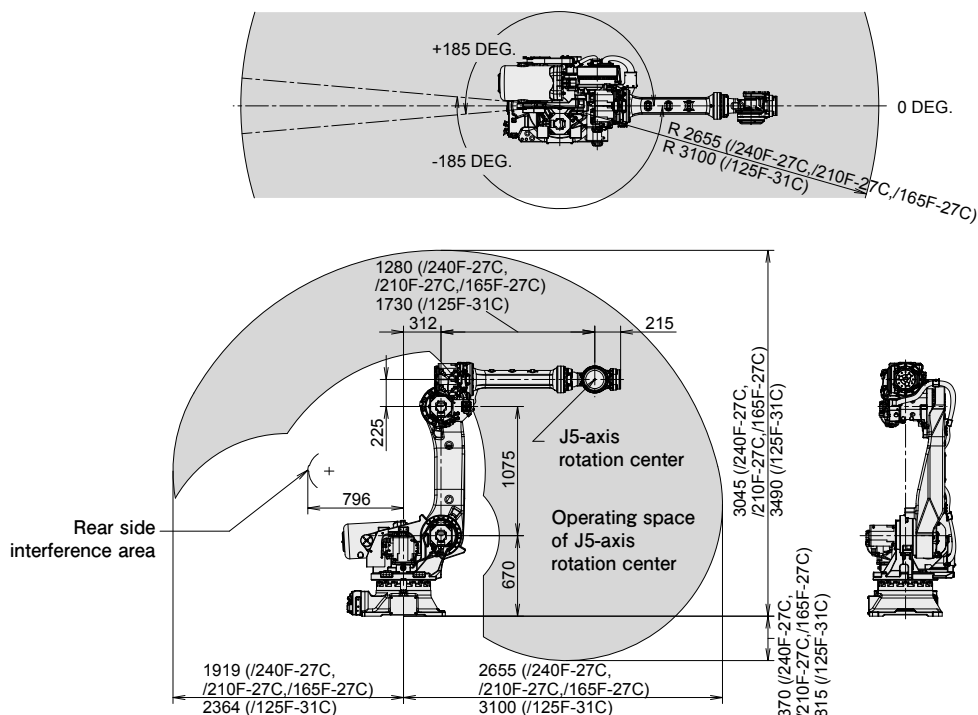
High Speed Spot Welding (Cable Integrated Arm)



Large Panel Handling

Operating space

R-2000/240F-27C,/210F-27C,/165F-27C,/125F-31C



Specifications

Model		R-2000/240F-27C	R-2000/210F-27C	R-2000/165F-27C	R-2000/125F-31C	
Type		Articulated Type				
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)				
Reach		2655 mm			3100 mm	
Installation		Floor				
Motion range (Maximum speed) Note 1)	J1 axis rotation	370°(115°/s) 6.46 rad (2.01 rad/s)	370°(120°/s) 6.46 rad (2.09 rad/s)	370°(130°/s) 6.46 rad (2.27 rad/s)		
	J2 axis rotation	136°(90°/s) 2.37 rad (1.57 rad/s)	136°(105°/s) 2.37 rad (1.83 rad/s)	136°(115°/s) 2.37 rad (2.01 rad/s)		
	J3 axis rotation	312°(105°/s) 5.45 rad (1.83 rad/s)	312°(110°/s) 5.45 rad (1.92 rad/s)	312°(125°/s) 5.45 rad (2.18 rad/s)	301°(125°/s) 5.25 rad (2.18 rad/s)	
	J4 axis wrist rotation	720°(130°/s) 12.57 rad (2.27 rad/s)	720°(140°/s) 12.57 rad (2.44 rad/s)	720°(180°/s) 12.57 rad (3.14 rad/s)		
	J5 axis wrist swing	250°(130°/s) 4.36 rad (2.27 rad/s)	250°(140°/s) 4.36 rad (2.44 rad/s)	250°(180°/s) 4.36 rad (3.14 rad/s)		
	J6 axis wrist rotation	720°(210°/s) 12.57 rad (3.67 rad/s)	720°(220°/s) 12.57 rad (3.84 rad/s)	720°(260°/s) 12.57 rad (4.54 rad/s)		
Max. load capacity at wrist		240 kg	210 kg	165 kg	125 kg	
Max. load capacity at J2 base		550 kg	550 kg	550 kg	550 kg	
Max. load capacity on J3 arm		25 kg (A) 50 kg (B)	25 kg (A) 50 kg (B)	25 kg (A) 50 kg (B)	25 kg (A) 40 kg (B)	
Max. load capacity on J3 casing		(A) + (B) ≤ 50 kg	(A) + (B) ≤ 50 kg	(A) + (B) ≤ 50 kg	(A) + (B) ≤ 40 kg	
Allowable load moment at wrist	J4 axis	1400 N·m 143 kgf·m	1360 N·m 139 kgf·m	940 N·m 96 kgf·m	710 N·m 72 kgf·m	
	J5 axis	1400 N·m 143 kgf·m	1360 N·m 139 kgf·m	940 N·m 96 kgf·m	710 N·m 72 kgf·m	
	J6 axis	800 N·m 82 kgf·m	735 N·m 75 kgf·m	490 N·m 50 kgf·m	355 N·m 36 kgf·m	
Allowable load inertia at wrist	J4 axis	250 kg·m ² 2551 kgf·cm·s ²	147 kg·m ² 1500 kgf·cm·s ²	89 kg·m ² 908 kgf·cm·s ²	72 kg·m ² 735 kgf·cm·s ²	
	J5 axis	250 kg·m ² 2551 kgf·cm·s ²	147 kg·m ² 1500 kgf·cm·s ²	89 kg·m ² 908 kgf·cm·s ²	72 kg·m ² 735 kgf·cm·s ²	
	J6 axis	200 kg·m ² 2041 kgf·cm·s ²	82 kg·m ² 837 kgf·cm·s ²	46 kg·m ² 469 kgf·cm·s ²	40 kg·m ² 408 kgf·cm·s ²	
Drive method		Electric servo drive by servo motor				
Repeatability Note 2)		± 0.05 mm				
Mass Note 3)		1090 kg	1090 kg	1090 kg	1115 kg	
Installation environment		Ambient temperature : 0 to 45°C Ambient humidity : Normally 75%RH or less (No condensation allowed.) Short time (Within 1 month) 95%RH or less (No condensation allowed.) Vibration acceleration : 4.9 m/s ² (0.5G) or less				

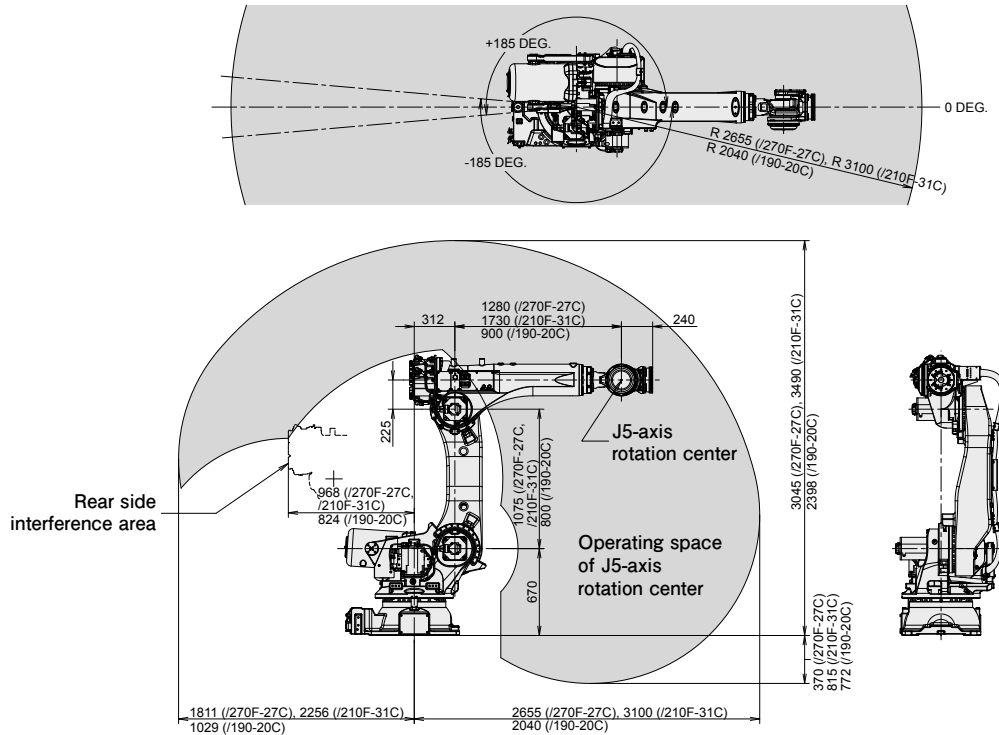
Note 1) During short distance motions, the axis speed may not reach the maximum value stated.

Note 2) Compliant with ISO 9283.

Note 3) Without controller.

Operating space

R-2000/270F-27C, /210F-31C, /190-20C



Specifications

Model		R-2000/270F-27C		R-2000/210F-31C		R-2000/190-20C	
Type		Articulated Type					
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)					
Reach		2655 mm		3100 mm		2040 mm	
Installation		Floor				Floor, Upside-down	
Motion range (Maximum speed) Note 1)	J1 axis rotation	370°(105°/s) 6.46 rad (1.83 rad/s)				210°(90°/s) 3.67 rad (1.57 rad/s)	
	J2 axis rotation	136°(90°/s) 2.37 rad (1.57 rad/s)				210°(90°/s) 3.67 rad (1.57 rad/s)	
	J3 axis rotation	312°(85°/s)	5.45 rad (1.48 rad/s)	301°(85°/s)	5.25 rad (1.48 rad/s)	340°(145°/s)	5.93 rad (2.53 rad/s)
	J4 axis wrist rotation	720°(120°/s) 12.57 rad (2.09 rad/s)				720°(120°/s) 12.57 rad (2.09 rad/s)	
	J5 axis wrist swing	250°(120°/s) 4.36 rad (2.09 rad/s)				250°(120°/s) 4.36 rad (2.09 rad/s)	
J6 axis wrist rotation	720°(200°/s) 12.57 rad (3.49 rad/s)				720°(200°/s) 12.57 rad (3.49 rad/s)		
Max. load capacity at wrist		270 kg		210 kg		190 kg	
Max. load capacity at J2 base		550 kg		550 kg		550 kg	
Max. load capacity on J3 arm		40 kg (A)	(A)×5/4+(B) ≤ 50 kg	20 kg (A)	(A)×5/2+(B) ≤ 50 kg	40 kg (A)	(A)×5/4+(B) ≤ 50 kg
Max. load capacity on J3 casing		50 kg (B)	(A)×5/4+(B) ≤ 50 kg	50 kg (B)	(A)×5/2+(B) ≤ 50 kg	50 kg (B)	(A)×5/4+(B) ≤ 50 kg
Allowable load moment at wrist	J4 axis	1730 N·m	177 kgf·m	1700 N·m	173 kgf·m	1200 N·m	122 kgf·m
	J5 axis	1730 N·m	177 kgf·m	1700 N·m	173 kgf·m	1200 N·m	122 kgf·m
	J6 axis	900 N·m	92 kgf·m	900 N·m	92 kgf·m	630 N·m	64 kgf·m
Allowable load inertia at wrist	J4 axis	320 kg·m ²	3265 kgf·cm·s ²	320 kg·m ²	3265 kgf·cm·s ²	200 kg·m ²	2041 kgf·cm·s ²
	J5 axis	320 kg·m ²	3265 kgf·cm·s ²	320 kg·m ²	3265 kgf·cm·s ²	200 kg·m ²	2041 kgf·cm·s ²
	J6 axis	230 kg·m ²	2347 kgf·cm·s ²	230 kg·m ²	2347 kgf·cm·s ²	180 kg·m ²	1837 kgf·cm·s ²
Drive method		Electric servo drive by servo motor					
Repeatability Note 2)		± 0.05 mm				± 0.03 mm	
Mass Note 3)		1320 kg		1350 kg		1120 kg	
Installation environment		Ambient temperature : 0 to 45°C Ambient humidity : Normally 75%RH or less (No condensation allowed.) Short time (Within 1 month) 95%RH or less (No condensation allowed.) Vibration acceleration : 4.9 m/s ² (0.5G) or less					

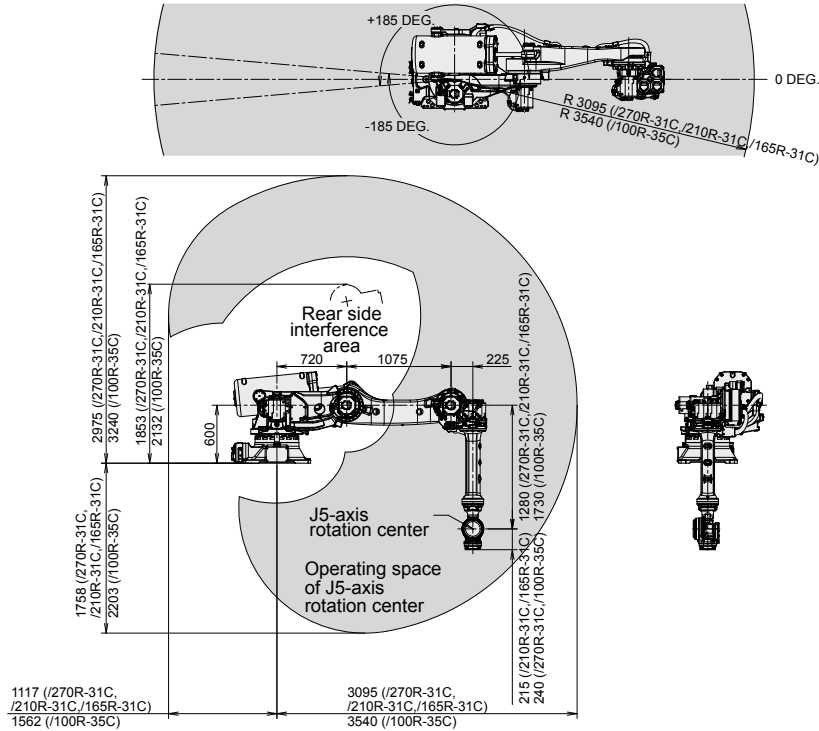
Note 1) During short distance motions, the axis speed may not reach the maximum value stated.

Note 2) Compliant with ISO 9283.

Note 3) Without controller.

Operating space

R-2000/270R-31C,/210R-31C,/165R-31C,/100R-35C



Specifications

Model		R-2000/270R-31C	R-2000/210R-31C	R-2000/165R-31C	R-2000/100R-35C	
Type		Articulated Type				
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)				
Reach		3095 mm			3540 mm	
Installation		Rack mount				
Motion range (Maximum speed) Note 1)	J1 axis rotation	370°(105°/s) 6.46 rad (1.83 rad/s)	370°(105°/s) 6.46 rad (1.83 rad/s)	370°(115°/s) 6.46 rad (2.01 rad/s)	370°(120°/s) 6.46 rad (2.09 rad/s)	
	J2 axis rotation	200°(85°/s) 3.49 rad (1.48 rad/s)	200°(100°/s) 3.49 rad (1.75 rad/s)	200°(110°/s) 3.49 rad (1.92 rad/s)	200°(100°/s) 3.49 rad (1.75 rad/s)	
	J3 axis rotation	375°(85°/s) 6.54 rad (1.48 rad/s)	375°(110°/s) 6.54 rad (1.92 rad/s)	375°(125°/s) 6.54 rad (2.18 rad/s)	375°(115°/s) 6.54 rad (2.01 rad/s)	
	J4 axis wrist rotation	720°(120°/s) 12.57 rad (2.09 rad/s)	720°(140°/s) 12.57 rad (2.44 rad/s)	720°(180°/s) 12.57 rad (3.14 rad/s)	720°(140°/s) 12.57 rad (2.44 rad/s)	
	J5 axis wrist swing	250°(120°/s) 4.36 rad (2.09 rad/s)	250°(140°/s) 4.36 rad (2.44 rad/s)	250°(180°/s) 4.36 rad (3.14 rad/s)	250°(140°/s) 4.36 rad (2.44 rad/s)	
	J6 axis wrist rotation	720°(200°/s) 12.57 rad (3.49 rad/s)	720°(220°/s) 12.57 rad (3.84 rad/s)	720°(260°/s) 12.57 rad (4.54 rad/s)	720°(210°/s) 12.57 rad (3.66 rad/s)	
	Max. load capacity at wrist	270 kg		210 kg	165 kg	100 kg
Max. load capacity at J2 base	550 kg		550 kg	550 kg	550 kg	
Max. load capacity on J3 arm	30 kg (A)	(A)×4/3+(B) ≤ 40 kg	30 kg (A)	(A)×4/3+(B) ≤ 40 kg	25 kg (A)	(A)×2+(B) ≤ 50 kg
Max. load capacity on J3 casing	40 kg (B)	40 kg	40 kg (B)	40 kg	50 kg (B)	50 kg
Allowable load moment at wrist	J4 axis	1730 N·m 177 kgf·m	1360 N·m 139 kgf·m	940 N·m 96 kgf·m	1000 N·m 102 kgf·m	
	J5 axis	1730 N·m 177 kgf·m	1360 N·m 139 kgf·m	940 N·m 96 kgf·m	1000 N·m 102 kgf·m	
	J6 axis	900 N·m 92 kgf·m	735 N·m 75 kgf·m	490 N·m 50 kgf·m	706 N·m 72 kgf·m	
Allowable load inertia at wrist	J4 axis	320 kg·m ² 3265 kgf·cm·s ²	147 kg·m ² 1500 kgf·cm·s ²	89 kg·m ² 908 kgf·cm·s ²	227 kg·m ² 2316 kgf·cm·s ²	
	J5 axis	320 kg·m ² 3265 kgf·cm·s ²	147 kg·m ² 1500 kgf·cm·s ²	89 kg·m ² 908 kgf·cm·s ²	227 kg·m ² 2316 kgf·cm·s ²	
	J6 axis	230 kg·m ² 2347 kgf·cm·s ²	82 kg·m ² 837 kgf·cm·s ²	46 kg·m ² 469 kgf·cm·s ²	196 kg·m ² 2000 kgf·cm·s ²	
Drive method	Electric servo drive by servo motor					
Repeatability Note 2)	± 0.05 mm					
Mass Note 3)	1590 kg	1370 kg	1370 kg	1495 kg		
Installation environment	Ambient temperature : 0 to 45°C Ambient humidity : Normally 75%RH or less (No condensation allowed.) Short time (Within 1 month) 95%RH or less (No condensation allowed.) Vibration acceleration : 4.9 m/s ² (0.5G) or less					

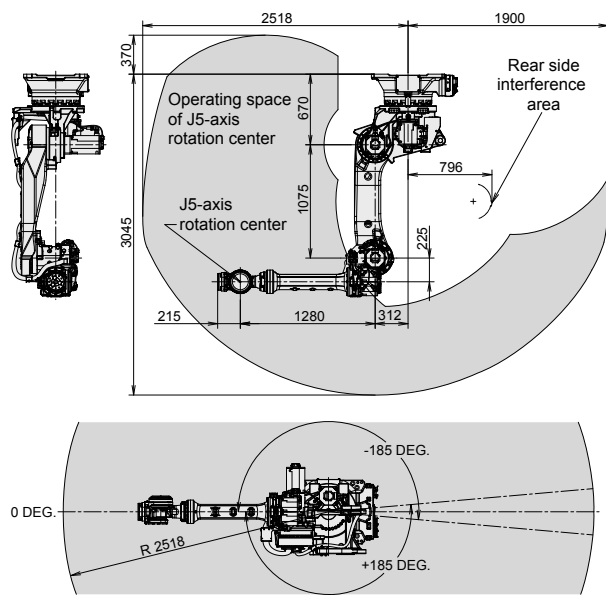
Note 1) During short distance motions, the axis speed may not reach the maximum value stated.

Note 2) Compliant with ISO 9283.

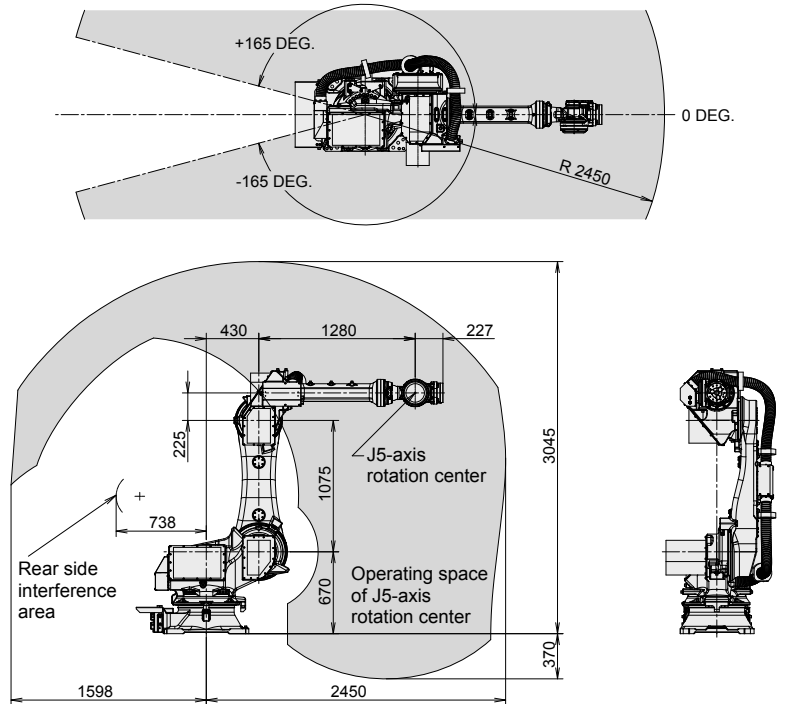
Note 3) Without controller.

Operating space

R-2000/220U-25C



R-2000/210F-25C Wash



Specifications

Model		R-2000/220U-25C		R-2000/210F-25C Wash	
Type		Articulated Type			
Controlled axes		6 axes (J1, J2, J3, J4, J5, J6)			
Reach		2518 mm		2450 mm	
Installation		Upside-down		Floor	
Motion range (Maximum speed) Note 1)	J1 axis rotation	370°(120°/s)	6.46 rad (2.09 rad/s)	330°(95°/s)	5.76 rad (1.66 rad/s)
	J2 axis rotation	136°(85°/s)	2.37 rad (1.48 rad/s)	141°(85°/s)	2.46 rad (1.48 rad/s)
	J3 axis rotation	312°(110°/s)	5.45 rad (1.92 rad/s)	318°(95°/s)	5.55 rad (1.66 rad/s)
	J4 axis wrist rotation	720°(140°/s)	12.57 rad (2.44 rad/s)	720°(120°/s)	12.57 rad (2.09 rad/s)
	J5 axis wrist swing	250°(140°/s)	4.36 rad (2.44 rad/s)	250°(120°/s)	4.36 rad (2.09 rad/s)
	J6 axis wrist rotation	720°(220°/s)	12.57 rad (3.84 rad/s)	720°(190°/s)	12.57 rad (3.32 rad/s)
Max. load capacity at wrist		220 kg		210 kg	
Max. load capacity at J2 base		-		550 kg	
Max. load capacity on J3 arm		25 kg (A)	(A)×6/5 + (B) ≤ 30kg	-	
Max. load capacity on J3 casing		30 kg (B)		10 kg	
Allowable load moment at wrist	J4 axis	1360 N·m	139 kgf·m	1333 N·m	136 kgf·m
	J5 axis	1360 N·m	139 kgf·m	1333 N·m	136 kgf·m
	J6 axis	735 N·m	75 kgf·m	706 N·m	72 kgf·m
Allowable load inertia at wrist	J4 axis	147 kg·m ²	1500 kgf·cm·s ²	141.1 kg·m ²	1440 kgf·cm·s ²
	J5 axis	147 kg·m ²	1500 kgf·cm·s ²	141.1 kg·m ²	1440 kgf·cm·s ²
	J6 axis	82 kg·m ²	837 kgf·cm·s ²	78.4 kg·m ²	800 kgf·cm·s ²
Drive method		Electric servo drive by servo motor			
Repeatability Note 2)		± 0.05 mm		± 0.1 mm	
Mass Note 3)		1020 kg		1180 kg	
Installation environment		Ambient temperature : 0 to 45°C Ambient humidity : Normally 75%RH or less (No condensation allowed.) Short time (Within 1 month) 95%RH or less (No condensation allowed.) Vibration acceleration : 4.9 m/s ² (0.5G) or less		Ambient temperature : 0 to 55°C(Robot), 0 to 45°C(Controller) Washing solution temperature : Up to 60°C Vibration acceleration : 4.9 m/s ² (0.5G) or less Note 4)	

Note 1) During short distance motions, the axis speed may not reach the maximum value stated.

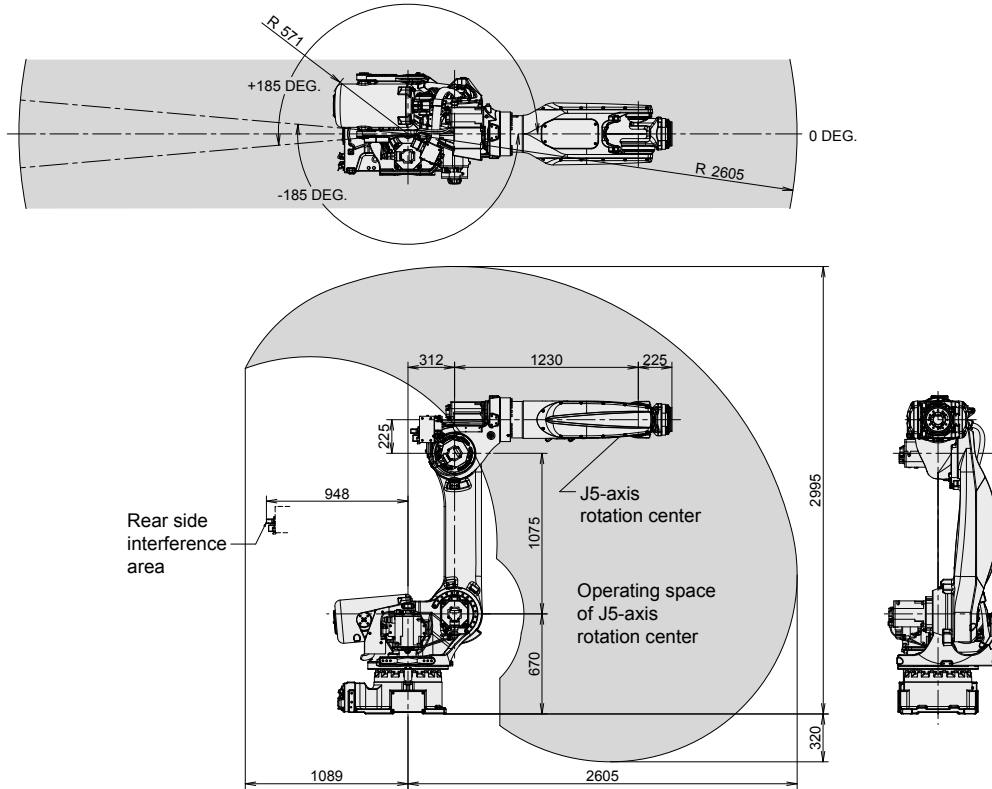
Note 2) Compliant with ISO 9283.

Note 3) Without controller.

Note 4) Air purge is required.

Operating space

R-2000/210F-26D Hollow, /165F-26D Hollow, /100F-26D Hollow



Specifications

Model	R-2000/210F-26D Hollow			R-2000/165F-26D Hollow			R-2000/100F-26D Hollow		
Type	Articulated Type								
Controlled axes	6 axes (J1, J2, J3, J4, J5, J6)								
Reach	2605 mm								
Installation	Floor								
Motion range (Maximum Speed) Note 1)	J1 axis rotation	370° (120°/s)	6.46 rad (2.09 rad/s)	370° (130°/s)	6.46 rad (2.27 rad/s)	370° (105°/s)	6.46 rad (1.83 rad/s)	370° (130°/s)	2.44 rad (2.27 rad/s)
	J2 axis rotation	140° (90°/s)	2.44 rad (1.57 rad/s)	140° (110°/s)	2.44 rad (1.92 rad/s)	140° (130°/s)	2.44 rad (2.27 rad/s)	140° (130°/s)	2.44 rad (2.27 rad/s)
	J3 axis rotation	236.6° (100°/s)	4.13 rad (1.75 rad/s)	236.6° (115°/s)	4.13 rad (2.01 rad/s)	236.6° (130°/s)	4.13 rad (2.27 rad/s)	236.6° (130°/s)	4.13 rad (2.27 rad/s)
	J4 axis wrist rotation	420° (140°/s)	7.33 rad (2.44 rad/s)	420° (175°/s)	7.33 rad (3.05 rad/s)	420° (200°/s)	7.33 rad (3.49 rad/s)	420° (200°/s)	7.33 rad (3.49 rad/s)
	J5 axis wrist swing	250° (130°/s)	4.36 rad (2.27 rad/s)	250° (170°/s)	4.36 rad (2.97 rad/s)	250° (160°/s)	4.36 rad (2.79 rad/s)	250° (160°/s)	4.36 rad (2.79 rad/s)
	J6 axis wrist rotation	420° (220°/s)	7.33 rad (3.84 rad/s)	420° (280°/s)	7.33 rad (4.89 rad/s)	420° (300°/s)	7.33 rad (5.24 rad/s)	420° (300°/s)	7.33 rad (5.24 rad/s)
Max. load capacity at wrist	210 kg			165 kg			100 kg		
Max. load capacity at J2 base	550 kg			550 kg			550 kg		
Max. load capacity on J3 casing	20 kg			20 kg			50 kg		
Allowable load moment at wrist	J4 axis	1380 N·m	141 kgf·m	1000 N·m	102 kgf·m	850 N·m	86.7 kgf·m	850 N·m	86.7 kgf·m
	J5 axis	1380 N·m	141 kgf·m	1000 N·m	102 kgf·m	850 N·m	86.7 kgf·m	850 N·m	86.7 kgf·m
	J6 axis	735 N·m	75 kgf·m	620 N·m	63 kgf·m	450 N·m	45.9 kgf·m	450 N·m	45.9 kgf·m
Allowable load inertia at wrist	J4 axis	228 kg·m ²	2327 kgf·cm·s ²	122 kg·m ²	1245 kgf·cm·s ²	90 kg·m ²	918 kgf·cm·s ²	90 kg·m ²	918 kgf·cm·s ²
	J5 axis	228 kg·m ²	2327 kgf·cm·s ²	122 kg·m ²	1245 kgf·cm·s ²	90 kg·m ²	918 kgf·cm·s ²	90 kg·m ²	918 kgf·cm·s ²
	J6 axis	196 kg·m ²	2000 kgf·cm·s ²	100 kg·m ²	1020 kgf·cm·s ²	50 kg·m ²	510 kgf·cm·s ²	50 kg·m ²	510 kgf·cm·s ²
Drive method	Electric servo drive by servo motor								
Repeatability Note 2)	± 0.05 mm								
Mass Note 3)	1150 kg								
Installation environment	Ambient temperature : 0 to 45°C Ambient humidity : Normally 75%RH or less (No condensation allowed.) Short time (Within 1 month) 95%RH or less (No condensation allowed.) Vibration acceleration : 4.9 m/s ² (0.5G) or less								

Note 1) During short distance motions, the axis speed may not reach the maximum value stated.

Note 2) Compliant with ISO 9283.

Note 3) Without controller.

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