



series

**High-Speed
High-Performance
Industrial Robots**



Kawasaki

Kawasaki Robotics (USA), Inc.

Simple  friendly

simply the highest performance robots on the planet



Kawasaki Robotics (USA), Inc.



Adapting to Changing Environments

In 1969, Kawasaki Heavy Industries developed the first industrial robots manufactured in Japan. Since then, Kawasaki has maintained its role as a pioneer in the robot industry. The past four decades of automation experience, research and continuous improvement have contributed to the success of the Kawasaki F-Series Robots.

Designed for applications with light to medium payloads, the F-Series robots provide accurate, high-speed performance with an extremely flexible work envelope. The lightweight slim arm construction, simplified vertical alignment, and pedestal mounted joint one motor; allow the F-Series robots to require less floor space while maneuvering within a large work envelope. These robots are highly adaptable with multiple mounting options and a variety of arm configurations to suit most any application.

The most unique feature of Kawasaki's F-Series Robots is their modular construction. This unique attribute provides customers with the option to completely customize the robot to their specifications. More than 30 variations are available within the series to accommodate most any reach, payload, or application requirement.

The F-Series Robots, combined with the advanced D Controller, breathes new life into production lines.

1 High Speed and High Performance

The F-Series Robots can reduce your production cycle times. High speeds are achieved through the use of compact high-output motors and high-efficient reduction gears, all housed within the F-Series lightweight arm construction. The F-Series Robots, combined with the ultra-high processing speeds of the Kawasaki D Controller, achieve industry leading acceleration and deceleration rates while maintaining smooth and efficient operation.

2 Small and Compact Design

The F-Series Robots excel in confined work zones. Manufacturing facilities are constantly striving to optimize floor space in an effort to increase efficiencies. The robot pedestal houses the joint one motor/encoder providing the F-Series Robots with one of the smallest footprints in its class. Internal pneumatic lines and signal wiring is standard on most F-Series Robots, reducing the need for bulky external harnesses. The F-Series small footprint and slim design, coupled with a simple vertical arm configuration, allows engineers and designers to create automated work cells while utilizing a minimum amount of floor space.

3 Multiple Arm Configurations

With payload capabilities up to 60KG and reach lengths up to 3482mm, the F-Series Robots can be configured to meet most any light to medium payload application. From welding, to wash down, to clean room applications; Kawasaki has an F-Series robot to match your needs. The lineup is comprised of several platforms utilizing modular components allowing for the unique ability to make changes to the arm configuration to increase/reduce reach and/or payload. All the F-Series robots are designed for wall, ceiling, and floor mounting, enabling complete flexibility in system design.



F Series



Standard Features:

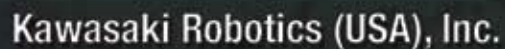
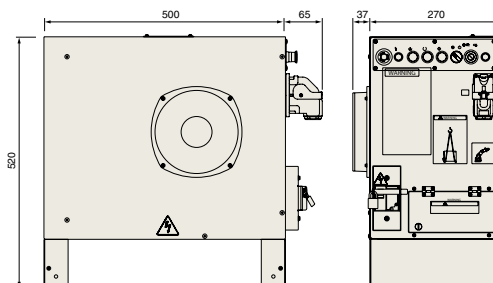
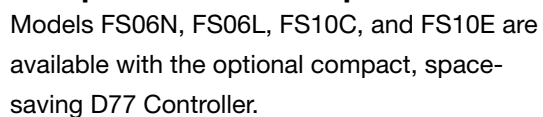
- Six-Axis Articulated Arm
- Payload Capacity 3-60 kg (6.6-132 lbs)
- Electric AC Servo Drive Motors/Encoders
- Common D Controller
- Large Working Envelope
- Heavy-Duty Cycle
 - High wrist torque and inertia capacity
 - Maximum payload capacity rated at full speed and full reach
- Space Saving Design
 - Small footprint
 - Slim arm construction
 - Integrated pneumatic lines and signal harness
 - Minimal dead zones
- Production Advantages
 - Variety of reach and payload configurations
 - Modular arm design
 - High speed operation
 - Rapid and adaptive acceleration and deceleration rates
 - Protection rating Wrist IP67 (Arm IP65)
- Low-Cost Maintenance
 - Greater than 80,000 hours MTBF
 - 5,000 hour maintenance intervals
 - Fittings for simple lubrication
 - Modular components for quick repairs
- Programming
 - Simplified "Block Step" teaching
 - Advanced Kawasaki "AS Language"
 - RS-232 port for PC communication
 - Menu driven software
 - Technically advanced D Controller
 - On-screen diagnostics
- Safety
 - Three-Position Teach Pendant Safety Switch
 - Hard stops and software limits
 - UL approved

(See D Controller Brochure or visit www.kawasakirobotics.com for controller features and specifications)

Compact FS03 Robot

The Compact FS03 Robot is a fully functional 6-Axis robot complete with all the features of the larger robots, yet weighs a mere 20 Kg. These high speed units have brakes on all axis, incorporate internal pneumatic lines, while its compact size allows it to be mounted directly to a machine or table top. (go to www.kawasakirobotics.com or see FS03N brochure for full specifications)

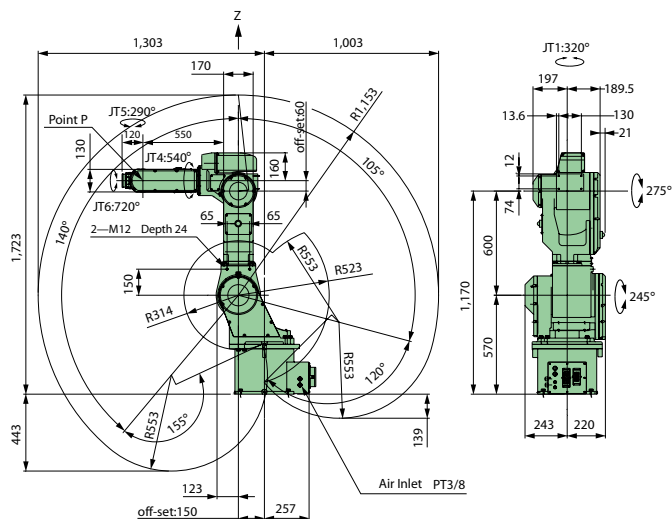


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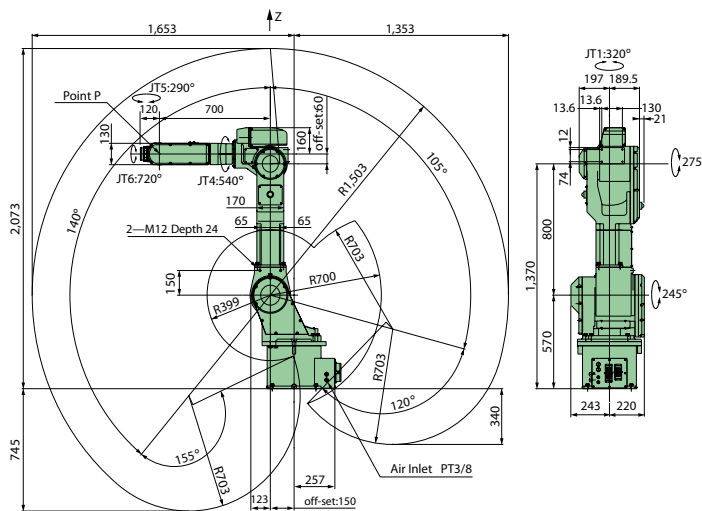


High Speed High-Performance Industrial Robots

FS20C



FS20N



Working Range Based on Point P

Type		FS06N	FS06L	FS10C	FS10E	FS10L	FS20C	FS20N
Specifications								
Payload		6 kg	6 kg	10 kg	10 kg	10 kg	20 kg	20 kg
Axes		6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*
Range of Motion	JT1	± 160°	± 160°	± 160°	± 160°	± 160°	± 160°	± 160°
	JT2	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°
	JT3	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°
	JT4	± 270°	± 270°	± 270°	± 270°	± 270°	± 270°	± 270°
	JT5	± 145°	± 145°	± 145°	± 145°	± 145°	± 145°	± 145°
	JT6*	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
	(optional) JT7**	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm
Max Speed	JT1	240°/sec	200°/sec	200°/sec	200°/sec	160°/sec	160°/sec	160°/sec
	JT2	200°/sec	140°/sec	140°/sec	140°/sec	140°/sec	140°/sec	140°/sec
	JT3	250°/sec	200°/sec	200°/sec	200°/sec	160°/sec	160°/sec	160°/sec
	JT4	430°/sec	360°/sec	360°/sec	360°/sec	330°/sec	330°/sec	330°/sec
	JT5	430°/sec	360°/sec	360°/sec	360°/sec	330°/sec	330°/sec	330°/sec
	JT6	720°/sec	600°/sec	600°/sec	600°/sec	500°/sec	500°/sec	500°/sec
	(optional) JT7**	1200 mm/sec	1200 mm/sec	1200 mm/sec	1200 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec
Wrist Rated Torque	JT4	12.0 N·m	12.0 N·m	21.5 N·m	21.5 N·m	21.5 N·m	39.3 N·m	39.3 N·m
	JT5	12.0 N·m	12.0 N·m	21.5 N·m	21.5 N·m	21.5 N·m	39.3 N·m	39.3 N·m
	JT6	6.0 N·m	6.0 N·m	9.8 N·m	9.8 N·m	9.8 N·m	19.6 N·m	19.6 N·m
Wrist Rated Moment of Inertia	JT4	0.24 kg·m ²	0.24 kg·m ²	0.63 kg·m ²	0.63 kg·m ²	0.63 kg·m ²	0.88 kg·m ²	0.88 kg·m ²
	JT5	0.24 kg·m ²	0.24 kg·m ²	0.63 kg·m ²	0.63 kg·m ²	0.63 kg·m ²	0.88 kg·m ²	0.88 kg·m ²
	JT6	0.07 kg·m ²	0.07 kg·m ²	0.15 kg·m ²	0.15 kg·m ²	0.15 kg·m ²	0.25 kg·m ²	0.25 kg·m ²
Vertical Reach		1432 mm	1981 mm	1432 mm	1881 mm	2392 mm	1843 mm	2193 mm
Horizontal Reach		1102 mm	1651 mm	1102 mm	1551 mm	1972 mm	1423 mm	1773 mm
Repeatability		±0.05 mm	±0.1 mm	±0.05 mm	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
Weight		165 kg	170 kg	165 kg	170 kg	280 kg	275 kg	280 kg
Installation		Wall, Ceiling, or Floor Mounted						
Environmental Conditions		0~45°C, 35-85% Relative Humidity without Condensation, IP67 Wrist (IP65 Arm)						
Positioning Feedback		Absolute Encoder						
Drive Motors		Brushless AC Servo Motor						

*JT6 (Optional) Continuous Spin Feature **With Traversing Unit
For More Information Please Contact Kawasaki Robotics (USA) Inc.

1 mm = 0.0394 in.
1 kg = 2.20 lbs.

1 kg·m = 7.23 ft·lb
1 kg·m·s² = 7.23 ft·lb·s²



Technical drawing of the R855 robot arm, showing top and side views with dimensions and labels.

Top View Dimensions:

- Overall width: 1,805
- Overall depth: 1,505
- Distance from center to end effector: 850
- End effector length: 165
- End effector diameter: 16
- End effector angle: JT5:260°
- End effector offset: off-set:90
- End effector offset distance: 150
- End effector offset angle: JT4:540°
- End effector offset distance: 150
- End effector offset angle: JT6:720°
- End effector offset distance: 200
- End effector offset angle: 105°
- End effector offset distance: 62
- End effector offset angle: 140°
- End effector offset distance: 210
- End effector offset angle: 155°
- End effector offset distance: 322
- End effector offset angle: 120°
- End effector offset distance: 185
- End effector offset angle: 180°
- End effector offset distance: 382
- End effector offset angle: 270°
- End effector offset distance: 185
- End effector offset angle: 330°
- End effector offset distance: 322
- End effector offset angle: 300°
- End effector offset distance: 185
- End effector offset angle: 270°
- End effector offset distance: 382
- End effector offset angle: 240°
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- End effector offset angle: 210°
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- End effector offset angle: 150°
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- End effector offset distance: 185
- End effector offset angle: 90°
- End effector offset distance: 382
- End effector offset angle: 60°
- End effector offset distance: 185
- End effector offset angle: 30°
- End effector offset distance: 322
- End effector offset angle: 0°
- End effector offset distance: 185
- End effector offset angle: 330°
- End effector offset distance: 322
- End effector offset angle: 300°
- End effector offset distance: 185
- End effector offset angle: 270°
- End effector offset distance: 382
- End effector offset angle: 240°
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- End effector offset distance: 185
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- End effector offset distance: 322
- End effector offset angle: 120°
- End effector offset distance: 185
- End effector offset angle: 90°
- End effector offset distance: 382
- End effector offset angle: 60°
- End effector offset distance: 185
- End effector offset angle: 30°
- End effector offset distance: 322
- End effector offset angle: 0°
- End effector offset distance: 185

Side View Dimensions:

- Overall height: 1,480
- Overall width: 275
- Overall depth: 222
- End effector length: 20
- End effector diameter: 65
- End effector angle: JT1:320°
- End effector offset: off-set:90
- End effector offset distance: 150
- End effector offset angle: JT4:540°
- End effector offset distance: 150
- End effector offset angle: JT6:720°
- End effector offset distance: 200
- End effector offset angle: 105°
- End effector offset distance: 62
- End effector offset angle: 140°
- End effector offset distance: 210
- End effector offset angle: 155°
- End effector offset distance: 322
- End effector offset angle: 120°
- End effector offset distance: 185
- End effector offset angle: 180°
- End effector offset distance: 382
- End effector offset angle: 270°
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- End effector offset distance: 185
- End effector offset angle: 270°
- End effector offset distance: 382
- End effector offset angle: 240°
- End effector offset distance: 185
- End effector offset angle: 210°
- End effector offset distance: 322
- End effector offset angle: 180°
- End effector offset distance: 185
- End effector offset angle: 150°
- End effector offset distance: 322
- End effector offset angle: 120°
- End effector offset distance: 185
- End effector offset angle: 90°
- End effector offset distance: 382
- End effector offset angle: 60°
- End effector offset distance: 185
- End effector offset angle: 30°
- End effector offset distance: 322
- End effector offset angle: 0°
- End effector offset distance: 185

Labels:

- Point P
- 2-M16 Depth 25
- R855
- R752
- R446
- R855
- Air Inlet PT3/8

Type		FS30N	FS30L	FS45C	FS45N	FS60L	FS10X	FS20X
Specifications								
Payload		30 kg	30 kg	45 kg	45 kg	60 kg	10 kg	20 kg
Axes		6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*	6 (7)*
Range of Motion	JT1	± 160°	± 160°	± 160°	± 160°	± 160°	± 160°	± 160°
	JT2	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°	+140°~-105°
	JT3	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°	+120°~-155°
	JT4	± 270°	± 270°	± 270°	± 270°	± 270°	± 270°	± 270°
	JT5	± 130°	± 130°	± 130°	± 130°	± 130°	± 145°	± 145°
	JT6*	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
(optional)	JT7**	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm	Standard 2000mm
Max Speed	JT1	160°/sec	160°/sec	160°/sec	160°/sec	160°/sec	160°/sec	160°/sec
	JT2	140°/sec	140°/sec	140°/sec	140°/sec	100°/sec	140°/sec	140°/sec
	JT3	160°/sec	160°/sec	160°/sec	160°/sec	110°/sec	200°/sec	200°/sec
	JT4	240°/sec	240°/sec	240°/sec	240°/sec	180°/sec	300°/sec	300°/sec
	JT5	240°/sec	240°/sec	240°/sec	240°/sec	175°/sec	360°/sec	330°/sec
	JT6	340°/sec	340°/sec	340°/sec	340°/sec	260°/sec	600°/sec	500°/sec
(optional)	JT7**	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec
Wrist Rated Torque	JT4	176.4 N·m	176.4 N·m	176.4 N·m	176.4 N·m	235.2 N·m	21.5 N·m	39.3 N·m
	JT5	176.4 N·m	176.4 N·m	176.4 N·m	176.4 N·m	235.2 N·m	21.5 N·m	39.3 N·m
	JT6	98.0 N·m	98.0 N·m	98.0 N·m	98.0 N·m	130.3 N·m	9.8 N·m	19.6 N·m
Wrist Rated Moment of Inertia	JT4	7.2 kg·m ²	7.2 kg·m ²	10.8 kg·m ²	10.8 kg·m ²	24.8 kg·m ²	0.63 kg·m ²	0.88 kg·m ²
	JT5	7.2 kg·m ²	7.2 kg·m ²	10.8 kg·m ²	10.8 kg·m ²	24.8 kg·m ²	0.63 kg·m ²	0.88 kg·m ²
	JT6	3.3 kg·m ²	3.3 kg·m ²	5.0 kg·m ²	5.0 kg·m ²	6.7 kg·m ²	0.15 kg·m ²	0.25 kg·m ²
Vertical Reach		2371 mm	2799 mm	2371 mm	2500 mm	2799 mm	3582 mm	3353 mm
Horizontal Reach		1841 mm	2269 mm	1841 mm	1970 mm	2269 mm	3052 mm	2823 mm
Repeatability		±0.15 mm	±0.15 mm	±0.15 mm	±0.15 mm	±0.15 mm	±0.23 mm	±0.5 mm
Weight		575 kg	585 kg	575 kg	580 kg	585 kg	580 kg	585 kg
Installation		Wall, Ceiling, or Floor Mounted						
Environmental Conditions		0~45°C, 35~85% Relative Humidity without Condensation, IP67 Wrist (IP65 Arm)						
Positioning Feedback		Absolute Encoder						
Drive Motors		Brushless AC Servo Motor						

UL US LISTED



Kawasaki Robotics (USA), Inc.

28140 Lakeview Drive
Wixom, Michigan 48393

Phone: (248) 446-4100
Fax: (248) 446-4200

Louisville, Kentucky

Phone: (502) 893-3889

Atlanta, Georgia

Phone: (770) 218-5887

San Jose, California

Phone: (408) 432-0990

Canada

Phone: (905) 465-0880

Mexico

Phone: (52) 33 3110-1895

www.kawasakirobotics.com