



Simple  friendly



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

up to 80 kg payload

simply the highest performance robots



Kawasaki Robotics (USA), Inc.



HIGH-SPEED, HIGH-PERFORMANCE INDUSTRIAL ROBOTS

The new R-Series Robots are setting the benchmark for all small to medium duty industrial robots. The compact design, along with industry leading speed, reach and work range make the R-Series Robots ideal for a wide range of applications throughout a multitude of diverse industries.

ULTRA HIGH-SPEED OPERATION

The new lightweight arm along with high-output high-revolution motors provide industry leading acceleration and high-speed operation. The acceleration rate automatically adjusts to suit the payload and robot posture to deliver optimum performance and the shortest cycle times.

WIDE WORK RANGE

In addition to extending the robot's maximum reach, the rotation range of each axis has also been increased. The extended motion range translates to a larger usable work area with minimal dead-space and greater flexibility.

ENVIRONMENTAL PROTECTION

The R-Series incorporates a double-seal construction on all axes and the electrical connections are water-resistant, offering an IP67 classification for wrist and IP65 for the remaining axes. If a wash-down arm is required, the entire robot can be provided as IP67.

HIGH TORQUE

High-output motors, combined with a rigid arm construction, allow for superior wrist torque and load capacity.

INTEGRATED FEATURES

Built-in pneumatic lines and internal wiring for sensors and solenoid valves are standard. Mounting pads and taps are provided to allow easy installation of additional cabling, tubing or equipment.

SPACE SAVING

The slim arm design requires very little floor space. Multiple robots can be installed in "high-density" applications without impeding performance.

PROGRAMMING FLEXIBILITY

R-Series Robots can be programmed in two ways, via the robot teach pendant or a computer, and using one of the two Kawasaki's programming methodologies, Block Step or AS Language. The Block Step programming method eliminates time consuming program teaching with auto-path generating software. The powerful AS Language provides ultimate flexibility via any word processor text file and enables the programmer to create advanced logic, manipulate

program locations, integrate peripheral components and control the application process.



R-Series

Simple friendly



STANDARD FEATURES

Six-Axis Articulated Arm

Payload Capacity 3-80 kg

Electric AC Servo Drive Motors/Encoders

Common E Controller

Large Working Envelope

Payload

- 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

- 5,000 hour maintenance intervals
- Fittings for simple lubrication
- Modular components for quick repairs

Programming

- Simplified "Block Step" teaching
- Advanced Kawasaki "AS Language"
- PC (Process Control) programs
- Ethernet TCP/IP, RS-232 port for PC communication
- Menu driven software
- Programmable graphical user interface (GUI)
- On-screen diagnostics

Safety

- Three-position teach pendant safety switch
- Rotational hard stops and software limits
- Continuous monitoring of speed and position
- UL approved

(See E Controller brochure or visit www.kawasakirobotics.com for controller features and specifications.)

COMPACT RS03N ROBOT

The compact RS03N Robot is a fully functional 6-axis robot complete with all the features of the larger robots, yet weighs a mere 20 kg. This high speed unit has brakes on all axes, incorporates internal pneumatic lines, while its compact size allows it to be mounted directly to a machine or table top.

APPLICATIONS

Assembly

Dispensing

Inspection

Machine Tending

Material Handling

Material Removal

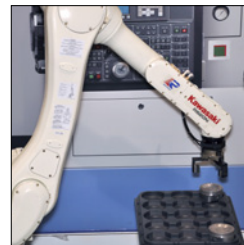
Welding



Bread Scoring



Machine Tending



Piston Handling



RS03N

simply the highest performance robots



High-Speed, High-Performance Industrial Robots

R-SERIES SPECIFICATIONS



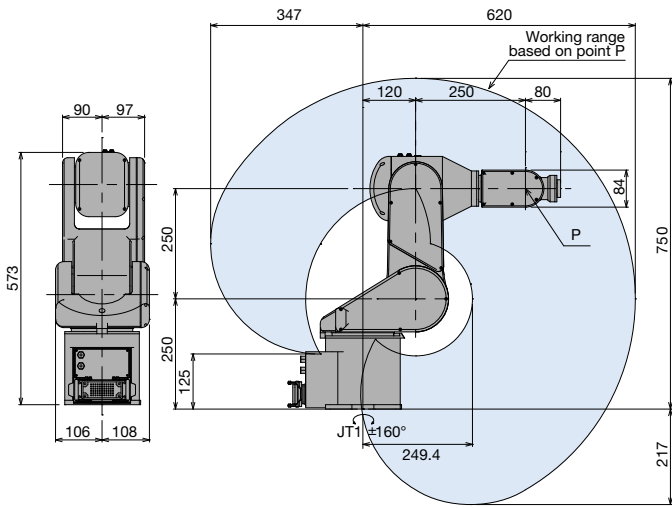
| MODEL | RS03N | RS05N | RS05L | RS06L | RS10N | |
|---------------------------|---|---|---------------------------------|---|---------------------------------|-----------------------|
| Type | Articulated | | | | | |
| Degrees of Freedom | 6 axes | | | | | |
| Payload | 3kg | 5 kg | 5 kg | 6 kg | 10 kg | |
| Horizontal Reach | 620 mm | 705 mm | 903 mm | 1,650 mm | 1,450 mm | |
| Vertical Reach | 967 mm | 1,118 mm | 1,484 mm | 2,982 mm | 2,582 mm | |
| Repeatability | ±0.02 mm | ±0.02 mm | ±0.03 mm | ±0.05 mm | ±0.04 mm | |
| Maximum Speed | 6,000 mm/s | 9,100 mm/s | 9,300 mm/s | 13,700 mm/s | 11,800 mm/s | |
| Motion Range | JT1 | ±160° | ±180° | ±180° | ±180° | |
| | JT2 | +150° ~ - 60° | +135° ~ - 80° | +135° ~ - 80° | +145° ~ - 105° | +145° ~ - 105° |
| | JT3 | +120° ~ -150° | +118° ~ -172° | +118° ~ -172° | +150° ~ -163° | +150° ~ -163° |
| | JT4 | ±360° | ±360° | ±360° | ±270° | ±270° |
| | JT5 | ±135° | ±145° | ±145° | ±145° | ±145° |
| | JT6 | ±360° | ±360° | ±360° | ±360° | ±360° |
| Maximum Speed | JT1 | 360°/s | 360°/s | 300°/s | 250°/s | 250°/s |
| | JT2 | 250°/s | 360°/s | 300°/s | 250°/s | 250°/s |
| | JT3 | 225°/s | 410°/s | 300°/s | 215°/s | 215°/s |
| | JT4 | 540°/s | 460°/s | 460°/s | 365°/s | 365°/s |
| | JT5 | 225°/s | 460°/s | 460°/s | 380°/s | 380°/s |
| | JT6 | 540°/s | 740°/s | 740°/s | 700°/s | 700°/s |
| Maximum Torque | JT4 | 5.8 N·m | 12.3 N·m | 12.3 N·m | 13 N·m | 22 N·m |
| | JT5 | 5.8 N·m | 12.3 N·m | 12.3 N·m | 13 N·m | 22 N·m |
| | JT6 | 2.9 N·m | 7 N·m | 7 N·m | 7.5 N·m | 10 N·m |
| Moment of Inertia | JT4 | 0.12 kg·m ² | 0.4 kg·m ² | 0.4 kg·m ² | 0.45 kg·m ² | 0.7 kg·m ² |
| | JT5 | 0.12 kg·m ² | 0.4 kg·m ² | 0.4 kg·m ² | 0.45 kg·m ² | 0.7 kg·m ² |
| | JT6 | 0.03 kg·m ² | 0.12 kg·m ² | 0.12 kg·m ² | 0.14 kg·m ² | 0.2 kg·m ² |
| Motors | Brushless AC Servomotor | | | | | |
| Hard Stops | Adjustable mechanical stopper JT1 | | | Adjustable mechanical stopper JT1/JT2/JT3 | | |
| Brakes | All axes | | | | | |
| Mass | 20kg | 34 kg | 37 kg | 150 kg | 150 kg | |
| Body Color | Kawasaki Standard | | | | | |
| Installation | Floor, ceiling | Floor, wall, ceiling | | | | |
| Environmental Conditions | Temperature: 0 ~ 45° C | | | | | |
| | Humidity: 35 ~ 85 % (no dew, nor frost allowed) | | | | | |
| | Vibration: Less than 0.5 G | | | | | |
| Protection Classification | IP54 * Equivalent | Wrist: IP67 Base: IP65 * Equivalent | | | | |
| Built-in Harness | Sensor harness 12 inputs (exception - model RS03N: 4 inputs), 24VDC, GND & solenoid valve outputs | | | | | |
| Internal Wiring | --- | | | | | |
| Built-in Utilities | Pneumatic piping (ø4 x 2 lines) | Pneumatic piping (ø6 x 2 lines) | Pneumatic piping (ø6 x 2 lines) | Pneumatic piping (ø8 x 2 lines) | Pneumatic piping (ø8 x 2 lines) | |
| Options | Wall mount Double/single solenoid valves (2 units max.) | IP67 entire arm Riser (300/600 mm) Base plate Double/single solenoid valves (3 units max.) Air cleaning equipment (filter, regulator, mist separator) | | IP67 entire arm Linear track options Riser (300/600 mm) Base plate Double/single solenoid valves (4 units max.) Air cleaning equipment (filter, regulator, mist separator) Limit switch JT1 | | |
| Controller | E76 | E77 | E77 | E30 / E77 | E30 / E77 | |



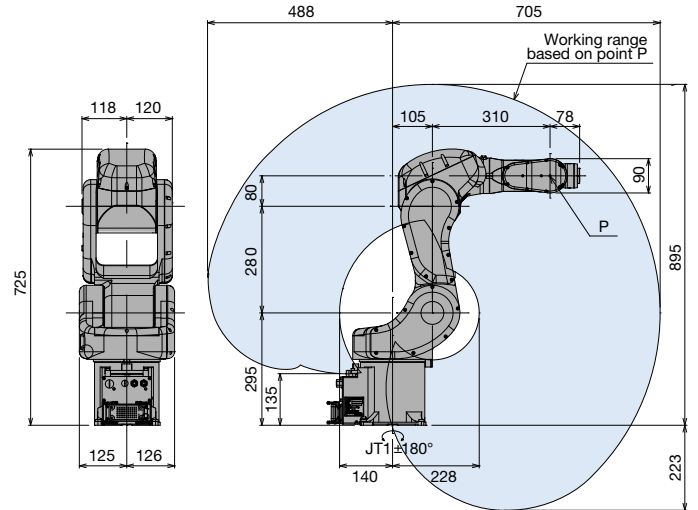
| MODEL | RS10L | RS20N | RS30N | RS50N | RS80N | |
|---------------------------|--|---------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|
| Type | Articulated | | | | | |
| Degrees of Freedom | 6 axes | | | | | |
| Payload | 10 kg | 20 kg | 30 kg | 50 kg | 80 kg | |
| Horizontal Reach | 1,925 mm | 1,725 mm | 2,100 mm | 2,100 mm | 2,100 mm | |
| Vertical Reach | 3,478 mm | 3,078 mm | 3,697 mm | 3,697 mm | 3,697 mm | |
| Repeatability | ±0.06 mm | ±0.05 mm | ±0.07 mm | ±0.07 mm | ±0.07 mm | |
| Maximum Speed | 13,100 mm/s | 11,500 mm/s | 13,400 mm/s | 13,400 mm/s | 12,700 mm/s | |
| Motion Range | JT1 | ±180° | ±180° | ±180° | ±180° | |
| | JT2 | +155° ~ -105° | +155° ~ -105° | +140° ~ -105° | +140° ~ -105° | +140° ~ -105° |
| | JT3 | +150° ~ -163° | +150° ~ -163° | +135° ~ -155° | +135° ~ -155° | +135° ~ -155° |
| | JT4 | ±270° | ±270° | ±360° | ±360° | ±360° |
| | JT5 | ±145° | ±145° | ±145° | ±145° | ±145° |
| | JT6 | ±360° | ±360° | ±360° | ±360° | ±360° |
| Maximum Speed | JT1 | 190°/s | 190°/s | 180°/s | 180°/s | 180°/s |
| | JT2 | 205°/s | 205°/s | 180°/s | 180°/s | 180°/s |
| | JT3 | 210°/s | 210°/s | 185°/s | 185°/s | 160°/s |
| | JT4 | 400°/s | 400°/s | 260°/s | 260°/s | 185°/s |
| | JT5 | 360°/s | 360°/s | 260°/s | 260°/s | 165°/s |
| | JT6 | 610°/s | 610°/s | 360°/s | 360°/s | 280°/s |
| Maximum Torque | JT4 | 22 N·m | 45 N·m | 210 N·m | 210 N·m | 336 N·m |
| | JT5 | 22 N·m | 45 N·m | 210 N·m | 210 N·m | 336 N·m |
| | JT6 | 10 N·m | 29 N·m | 130 N·m | 130 N·m | 194 N·m |
| Moment of Inertia | JT4 | 0.7 kg·m ² | 0.9 kg·m ² | 16.8 kg·m ² | 28 kg·m ² | 34 kg·m ² |
| | JT5 | 0.7 kg·m ² | 0.9 kg·m ² | 16.8 kg·m ² | 28 kg·m ² | 34 kg·m ² |
| | JT6 | 0.2 kg·m ² | 0.3 kg·m ² | 6.6 kg·m ² | 11 kg·m ² | 13.7 kg·m ² |
| Motors | Brushless AC Servomotor | | | | | |
| Hard Stops | Adjustable mechanical stopper JT1/JT2/JT3 | | | | | |
| Brakes | All axes | | | | | |
| Mass | 230 kg | 230 kg | 555 kg | 555 kg | 555 kg | |
| Body Color | Kawasaki Standard | | | | | |
| Installation | Floor, wall, ceiling | | | | | |
| Environmental Conditions | Temperature: 0 ~ 45° C | | | | | |
| | Humidity: 35 ~ 85 % (no dew, nor frost allowed) | | | | | |
| | Vibration: Less than 0.5 G | | | | | |
| Protection Classification | Wrist: IP67 Base: IP65 * Equivalent | | | | | |
| Built-in Harness | Sensor harness 12 inputs, 24VDC, GND & solenoid valve outputs | | | | | |
| Internal Wiring | --- | | 14 wires, inside robot arm | | | |
| Built-in Utilities | Pneumatic piping (ø8 x 2 lines) | Pneumatic piping (ø8 x 2 lines) | Pneumatic piping (ø10 x 2 lines) | Pneumatic piping (ø10 x 2 lines) | Pneumatic piping (ø10 x 2 lines) | |
| Options | IP67 entire arm Linear track options Riser (300/600 mm) Base plate Double/single solenoid valves (4 units max.) Air cleaning equipment (filter, regulator, mist separator) Limit switch JT1 JT1/JT2 motor cover | | | | | |
| Controller | E30 | E30 | E32 | E32 | E32 | |

MOTION RANGE & DIMENSIONS

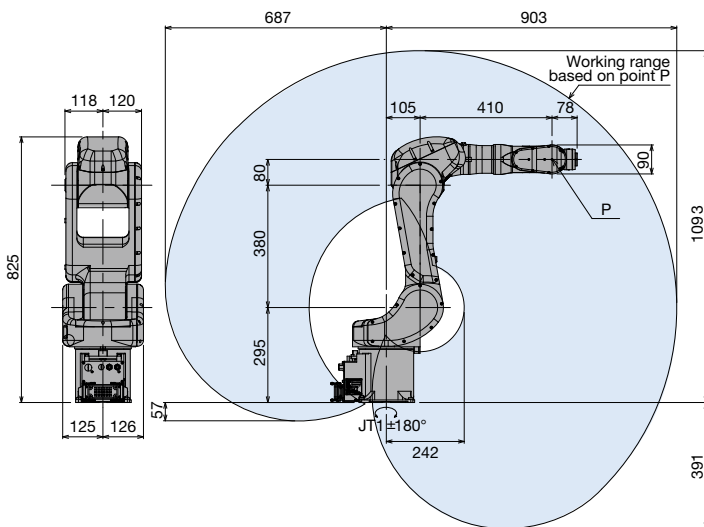
RS03N



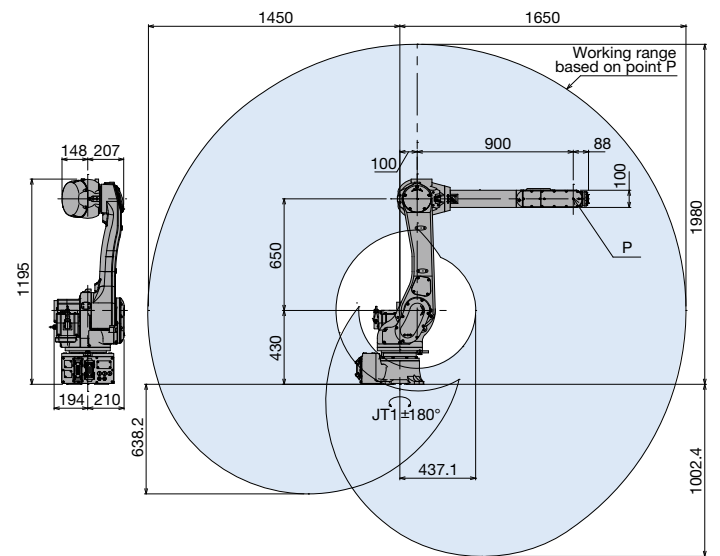
RS05N



RS05L



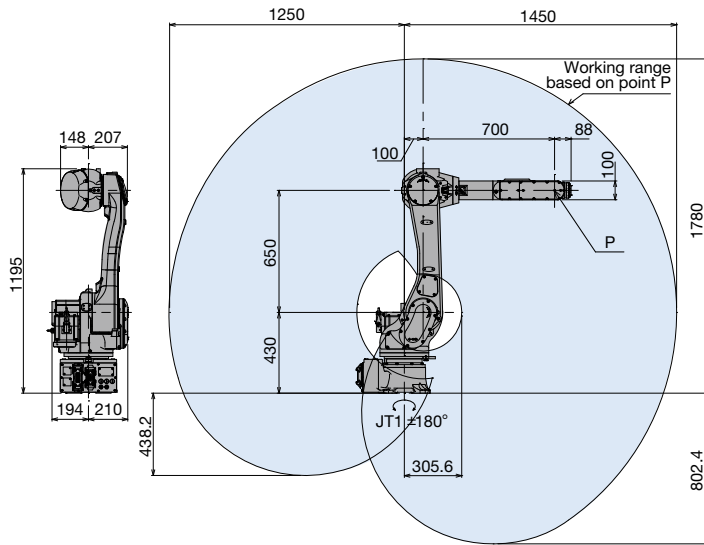
RS06L



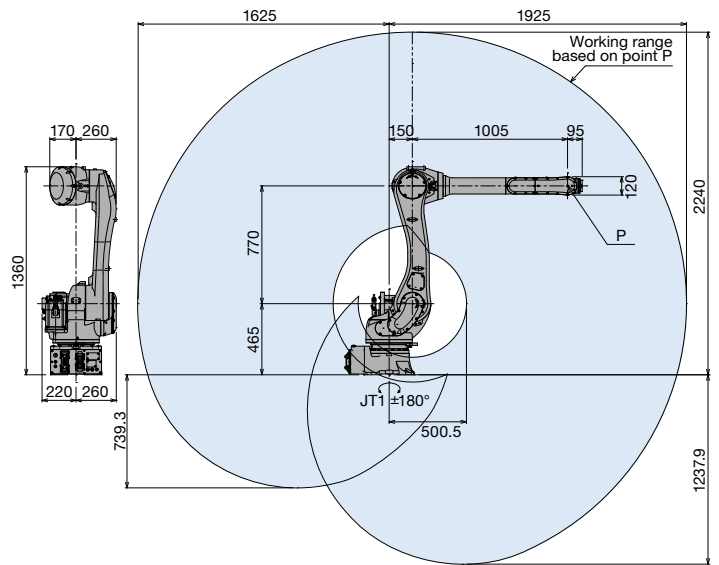
(mm)

MOTION RANGE & DIMENSIONS

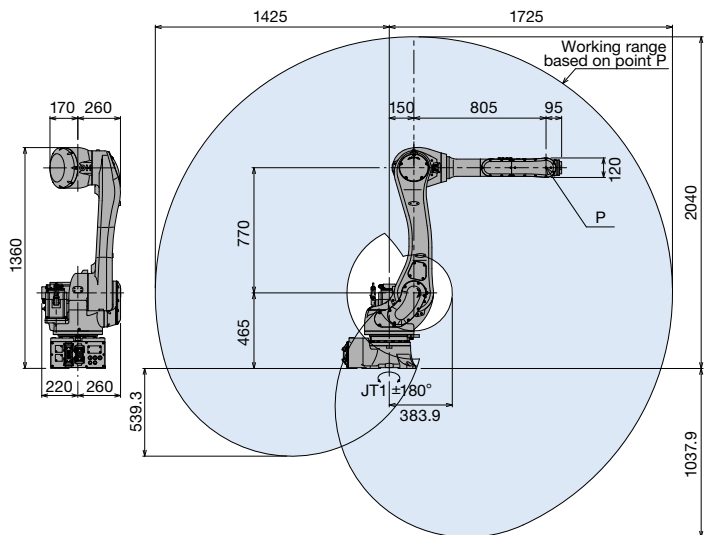
RS10N



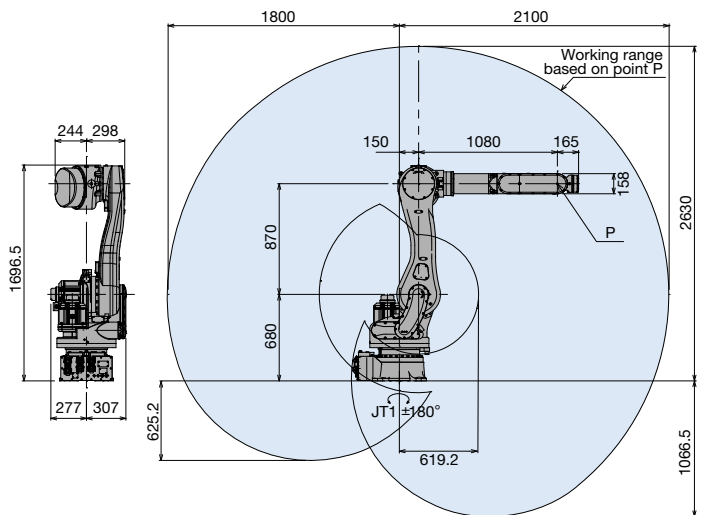
RS10L



RS20N



RS30N, RS50N, RS80N



(mm)



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