

Simple  friendly

Z series

The Flexible
Heavy-Duty
Robot

up to 300 kg payload

simply the highest performance robots

 **Kawasaki**

Kawasaki Robotics (USA), Inc.



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Z *series* **THE FLEXIBLE HEAVY-DUTY ROBOT**

The high payload long reach Z-Series robots were developed using Kawasaki's advanced technology and extensive experience in automation. The versatile and upgradeable designs are directly responsible for improved production line efficiencies in automotive and general industry applications.

HIGH QUALITY & LOW MAINTENANCE

The Z-Series Robots boast industry leading reliability and 10,000 hour maintenance intervals, which translate to low operating costs and the highest production efficiencies.

CYCLE TIME ADVANTAGE

The Z Robots can achieve superior operating speeds when combined with the ultra high processing speed capabilities of Kawasaki's latest E Controller. Faster speeds of up to 20% as compared to previous models translate to shorter cycle times, resulting in maximum production.

WIDE WORK ENVELOPE

The Kawasaki Z Robot combines a long reach arm with a minimal amount of dead space for the widest work envelope in its class. In addition, the patented Kawasaki Hybrid Link configuration enables the arm to rotate back over itself without having to rotate the base joint, thereby improving efficiency and minimizing power consumption.

SPACE SAVING DESIGN WITH INTEGRATED FEATURES

The small footprint of these high payload long reach robots allows for installations in confined areas. The Z-Series Robots are available with integrated pneumatic piping, wiring, and fork lift pockets, limiting the amount of work space required and minimizing potential interference.

ARM ID MEMORY

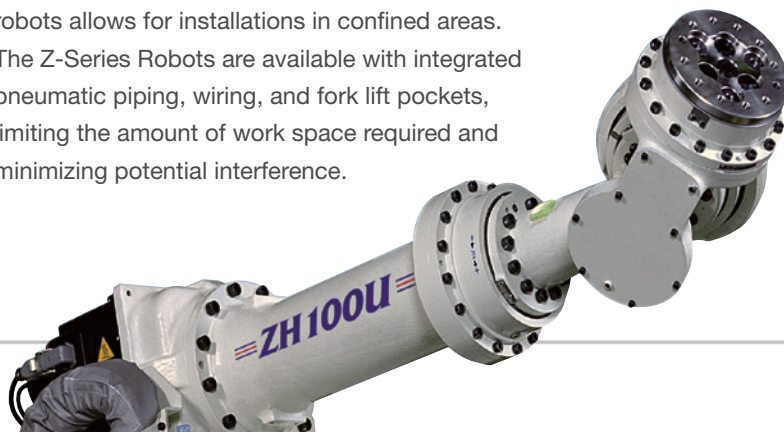
Kawasaki's Arm ID board enables the robot arm to be interchanged with any E Controller. The ID board stores all of the necessary servo encoder data. In the event of a production emergency, the controller can quickly and easily be replaced to allow for any service and maintenance procedures to be performed. This feature greatly limits potential system downtime.

PROGRAMMING FLEXIBILITY

Z-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.

UPGRADEABLE

The Z-Series robot line is manufactured using modular components and a common software platform. This flexible design allows some models to be modified to alter reach, payload capacities and speed. Both hardware and software alterations can easily be performed in the field. The ability to change the robot characteristics provide for greater flexibility to accommodate production and system changes.





The Z-Series heavy-duty robots are the workhorses of the Kawasaki Robotics product line. The robust low-maintenance Z Robots offer payload capacities from 100 to 300 kg and are available in floor mount (ZX), shelf mount (ZT) and compact (ZH) models to best suit the application. All Z Robots can be used with a Kawasaki 7th axis traversing unit, allowing for a flexible and expandable work range.

STANDARD FEATURES

Six-Axis Articulated Arm

Payload Capacity 100-300 kg

Electric AC Servo Drive Motors/Encoders

Common E Controller

Large Working Envelope

High Payload

- High wrist torque and inertia capacity
- Maximum payload capacity rated at full speed and full reach

Tool Mounting Flange: ISO 9409-1

Space Saving Design

- Small footprint
- Kawasaki Hybrid Link configuration
- Minimal dead zones

Production Advantages

- Modular arm design
- High speed operation
- Rapid and adaptive acceleration and deceleration rates

Low-Cost Maintenance

- 10,000 hour maintenance intervals
- Fittings for easy lubrication (one grease type)
- 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
- 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.)

APPLICATIONS

Assembly

Dispensing

Machine Tending

Material Handling

Material Removal

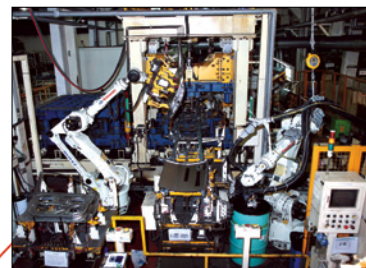
Spot Welding



Extracting workpiece from molding machine



Releasing and loading/unloading of large-sized workpieces using vision system



Hemming process of the car door

simply the highest performance robots



The Flexible Heavy-Duty Robot



Z-SERIES SPECIFICATIONS

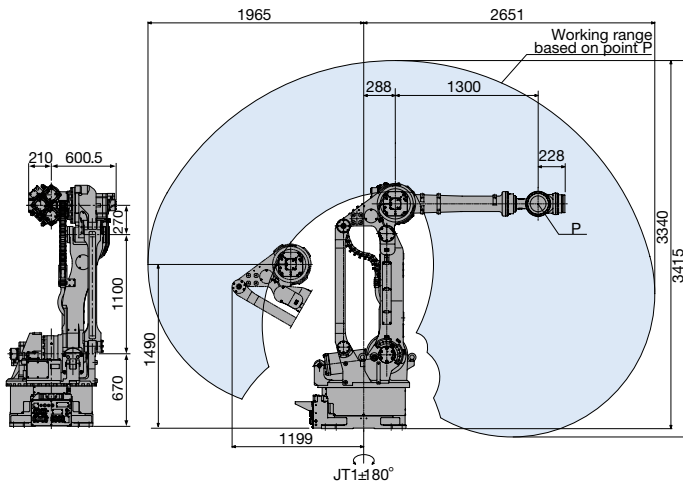
MODEL	ZXE130U	ZXE130L	ZXE165U	ZXE200S	ZXE300S
Type	Articulated				
Degrees of Freedom	6 axes				
Payload	130 kg	130 kg	165 kg	200 kg	300 kg
Horizontal Reach	2,651 mm	2,951 mm	2,651 mm	2,651 mm	2,501 mm
Vertical Reach	3,415 mm	4,015 mm	3,415 mm	3,415 mm	3,115 mm
Repeatability	±0.3 mm	±0.3 mm	±0.3 mm	±0.3 mm	±0.3 mm
Maximum Linear Speed	2,500 mm/s	2,500 mm/s	2,500 mm/s	2,500 mm/s	2,500 mm/s
Motion Range	JT1	±180°	±180°	±180°	±180°
	JT2	+75° ~ -60°	+75° ~ -60°	+75° ~ -60°	+75° ~ -60°
	JT3	+250° ~ -120°	+250° ~ -120°	+250° ~ -120°	+250° ~ -120°
	JT4	±360°	±360°	±360°	±360°
	JT5	±130°	±130°	±130°	±120°
	JT6	±360°	±360°	±360°	±360°
Maximum Speed	JT1	110°/s	110°/s	110°/s	105°/s
	JT2	110°/s	110°/s	110°/s	110°/s
	JT3	110°/s	110°/s	115°/s	105°/s
	JT4	140°/s	140°/s	140°/s	120°/s
	JT5	135°/s	135°/s	155°/s	120°/s
	JT6	230°/s	230°/s	260°/s	200°/s
Maximum Torque	JT4	735 N·m	735 N·m	911.4 N·m	1,274 N·m
	JT5	735 N·m	735 N·m	911.4 N·m	1,274 N·m
	JT6	421 N·m	421 N·m	451.8 N·m	686 N·m
Moment of Inertia	JT4	107.8 kg·m ²	107.8 kg·m ²	165.5 kg·m ²	199.8 kg·m ²
	JT5	107.8 kg·m ²	107.8 kg·m ²	165.5 kg·m ²	199.8 kg·m ²
	JT6	45.9 kg·m ²	45.9 kg·m ²	46.9 kg·m ²	154.9 kg·m ²
Motors	Brushless AC Servomotor				
Brakes	All axes				
Hard Stops	Adjustable mechanical stopper JT1				
Limit Switch	End of stroke limit switch JT1				
Mass	1,350 kg	1,400 kg	1,350 kg	1,400 kg	1,400 kg
Body Color	Kawasaki Standard				
Installation	Floor				
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 Utilities	Pneumatic piping (ø12 x 2 lines)				
Options	Linear track options Base plate Adjustable mechanical stopper JT2/JT3 Limit switch JT2/JT3 Signal harness (up to 24 inputs and 8 outputs) Double/single solenoid valves (2 units max.) Internal wiring (37 wires inside robot arm) Air cleaning equipment (filter, regulator, mist separator) Piping for cooling water Wrist flange adapter with ø92 mm mounting pattern				
Controller	E32				



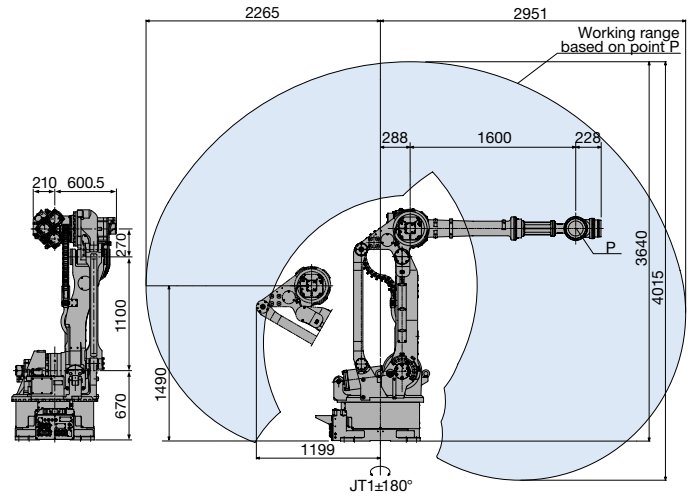
MODEL	ZHE100U	ZTE 130U	ZTE165U	ZTE165X	ZTE200S	
Type	Articulated					
Degrees of Freedom	6 axes					
Payload	100 kg	130 kg	165 kg	165 kg	200 kg	
Horizontal Reach	1,634 mm	3,230 mm	3,230 mm	2,830 mm	3,230 mm	
Vertical Reach	2,579 mm	4,571 mm	4,571 mm	4,366 mm	4,571 mm	
Repeatability	±0.3 mm	±0.3 mm	±0.3 mm	±0.3 mm	±0.3 mm	
Maximum Linear Speed	2,000 mm/s	2,500 mm/s	2,500 mm/s	2,500 mm/s	2,500 mm/s	
Motion Range	JT1	±160°	±180°	±180°	±180°	
	JT2	+120° ~ -60°	+60° ~ -75°	+60° ~ -75°	+50° ~ -120°	+60° ~ -75°
	JT3	+75° ~ -90°	+165° ~ -95°	+165° ~ -95°	+150° ~ -65°	+165° ~ -95°
	JT4	±360°	±360°	±360°	±360°	±360°
	JT5	±130°	±130°	±130°	±130°	±120°
	JT6	±360°	±360°	±360°	±360°	±360°
Maximum Speed	JT1	140°/s	105°/s	105°/s	120°/s	100°/s
	JT2	100°/s	105°/s	105°/s	110°/s	100°/s
	JT3	100°/s	105°/s	105°/s	115°/s	90°/s
	JT4	150°/s	140°/s	135°/s	140°/s	120°/s
	JT5	150°/s	135°/s	135°/s	155°/s	115°/s
	JT6	250°/s	230°/s	210°/s	260°/s	180°/s
Maximum Torque	JT4	874 N·m	735 N·m	911.4 N·m	911.4 N·m	1274 N·m
	JT5	874 N·m	735 N·m	911.4 N·m	911.4 N·m	1274 N·m
	JT6	392 N·m	421 N·m	450.8 N·m	450.8 N·m	686 N·m
Moment of Inertia	JT4	90 kg·m ²	107.8 kg·m ²	165.5 kg·m ²	165.5 kg·m ²	199.8 kg·m ²
	JT5	90 kg·m ²	107.8 kg·m ²	165.5 kg·m ²	165.5 kg·m ²	199.8 kg·m ²
	JT6	20 kg·m ²	45.9 kg·m ²	46.9 kg·m ²	46.9 kg·m ²	154.9 kg·m ²
Motors	Brushless AC Servomotor					
Brakes	All axes					
Hard Stops	Adjustable mechanical stopper JT1					
Limit Switch	End of stroke limit switch JT1					
Mass	750 kg	1,550 kg	1,550 kg	1,650 kg	1,600 kg	
Body Color	Kawasaki Standard					
Installation	Floor	Shelf				
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 Utilities	Pneumatic piping (ø12 x 2 lines)					
Options	Linear track options Base plate Adjustable mechanical stopper JT2/JT3 Limit switch JT2/JT3 Signal harness (up to 24 inputs and 8 outputs) Double/single solenoid valves (2 units max.) - excluding model ZHE100U Internal wiring (37 wires inside robot arm) Air cleaning equipment (filter, regulator, mist separator) - excluding model ZHE100U Piping for cooling water Wrist flange adapter with ø92 mm mounting pattern					
Controller	E32					

MOTION RANGE & DIMENSIONS

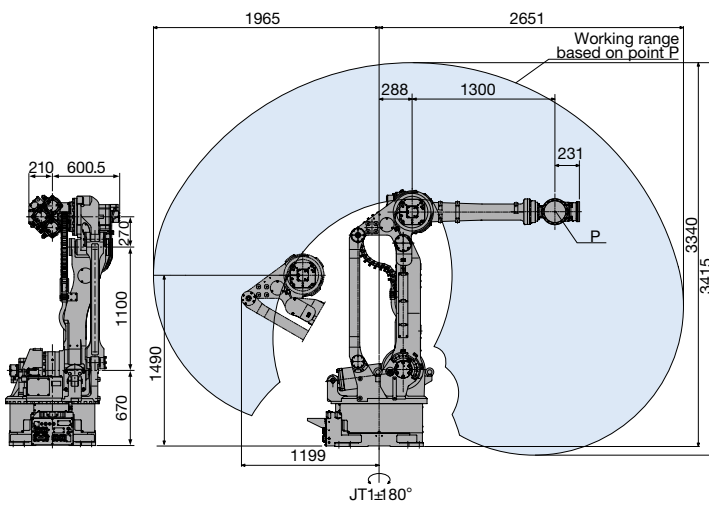
ZXE130U, ZXE165U



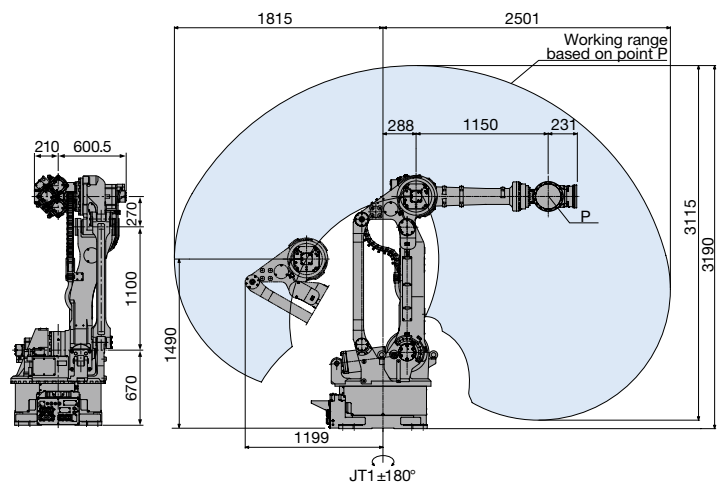
ZXE130L



ZXE200S

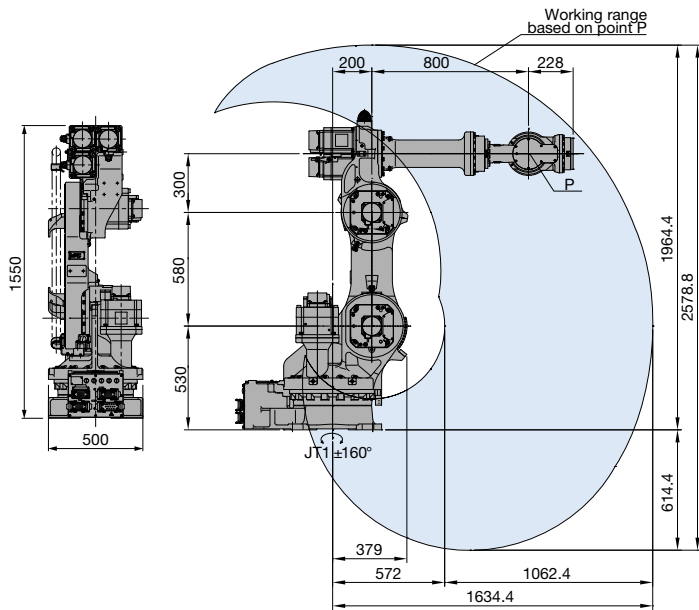


ZXE300S

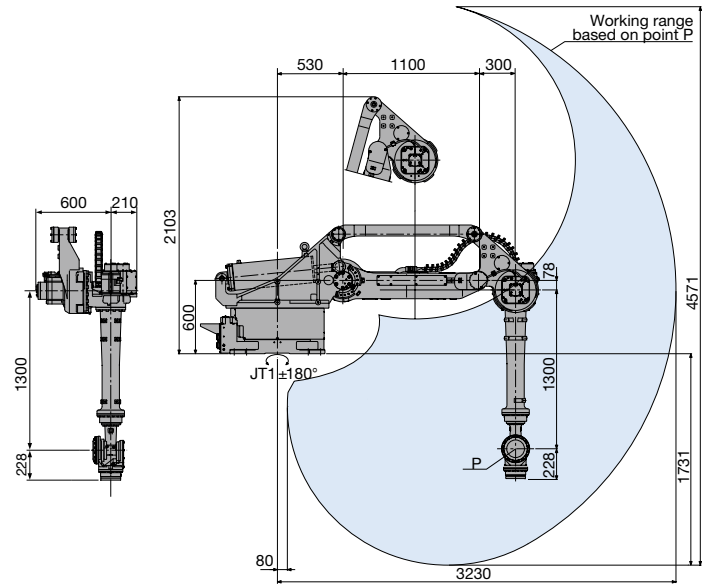


MOTION RANGE & DIMENSIONS

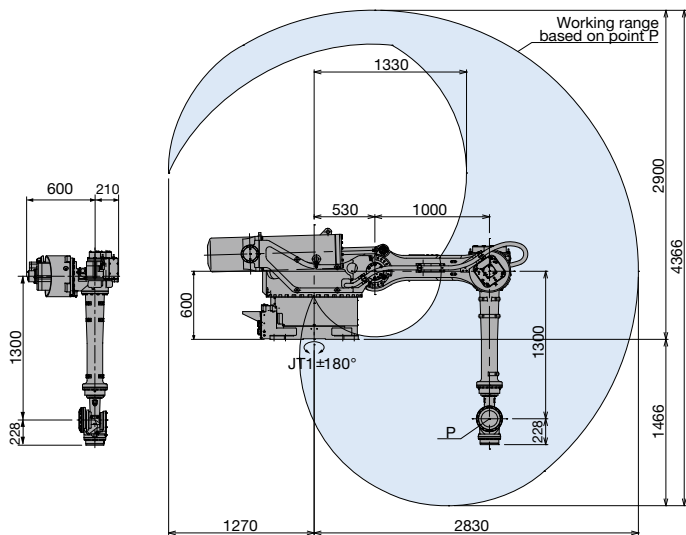
ZHE100U



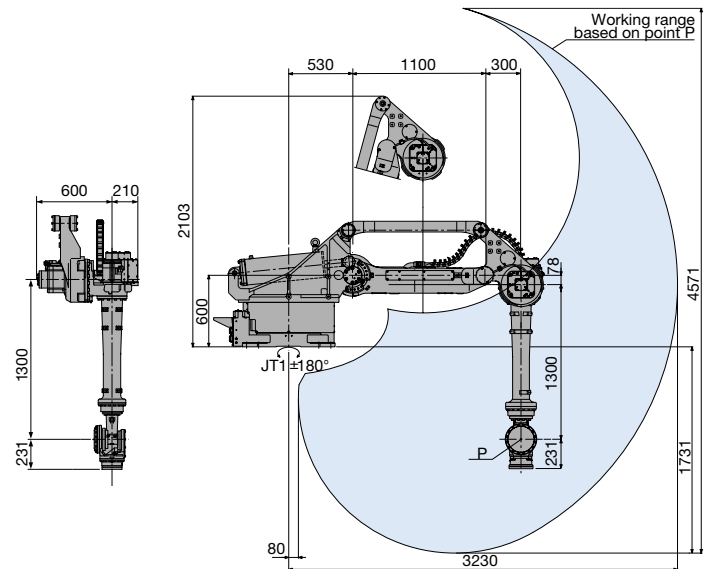
ZTE130U, ZTE165U



ZTE165X



ZTE200S



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