Large payload robots - up to 300 kg
The large payload long reach Z series robots can perform a wide range of applications across diverse industries.

The Z series heavy-duty robots are the workhorses of the Kawasaki Robotics product line. The versatile and upgradeable designs are directly responsible for improved production line efficiencies in automotive and general industry applications. The robust low-maintenance Z series 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.

Features

**Cycle time advantage**
The Z series robots’ reduced footprint combined with the E Controller results in improved cycle times.

**Wide work envelope**
A long-reach arm combined with minimal dead space results in the widest work envelope in its class.

**Flexibility**
The Z series line is manufactured using modular components and a common software platform. This design allows some models’ characteristics to be modified, providing great flexibility to accommodate production and system changes. Both hardware and software alterations can easily be performed in the field.

* Under dusty working environment, oil-sealing wears off rapidly. Under water-sprayed condition, there are some possibilities to cause metal-rust or weaken the water resistance.
## Standard Specifications

**ZX130U**  |  **ZX130L**  |  **ZX165U**  |  **ZX200S**  |  **ZX300S**  |  **ZHI100U**
---|---|---|---|---|---
**Type**  | Articulated  | Articulated  | Articulated  | Articulated  | Articulated  
**Degrees of Freedom**  | 6 (Option: 7)  | 6 (Option: 7)  | 6 (Option: 7)  | 6 (Option: 7)  | 6 (Option: 7)  
**Max. payload (kg)**  | 130  | 360  | 360  | 360  | 360  
**Max. reach (mm)**  | 2,650  | 1,000  | 1,000  | 1,000  | 1,000  
**Positional repeatability (mm)**  | 1 ±0.3  | 1 ±0.3  | 1 ±0.3  | 1 ±0.3  | 1 ±0.3  

### Work Envelope

<table>
<thead>
<tr>
<th>Axis</th>
<th>Motion range (°)</th>
<th>Max. Speed (°/s)</th>
<th>Motion range (°)</th>
<th>Max. Speed (°/s)</th>
<th>Motion range (°)</th>
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<th>Motion range (°)</th>
<th>Max. Speed (°/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm rotation (JT1)</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
</tr>
<tr>
<td>Arm out-in (JT2)</td>
<td>±60 - 75</td>
<td>105</td>
<td>±60 - 75</td>
<td>105</td>
<td>±60 - 75</td>
<td>105</td>
<td>±60 - 75</td>
<td>105</td>
<td>±60 - 75</td>
<td>105</td>
</tr>
<tr>
<td>Arm up-down (JT3)</td>
<td>±150 - 175</td>
<td>105</td>
<td>±150 - 175</td>
<td>105</td>
<td>±150 - 175</td>
<td>105</td>
<td>±150 - 175</td>
<td>105</td>
<td>±150 - 175</td>
<td>105</td>
</tr>
<tr>
<td>wrist swivel (JT4)</td>
<td>±180</td>
<td>140</td>
<td>±180</td>
<td>140</td>
<td>±180</td>
<td>140</td>
<td>±180</td>
<td>140</td>
<td>±180</td>
<td>140</td>
</tr>
<tr>
<td>wrist bend (JT5)</td>
<td>±130</td>
<td>135</td>
<td>±130</td>
<td>135</td>
<td>±130</td>
<td>135</td>
<td>±130</td>
<td>135</td>
<td>±130</td>
<td>135</td>
</tr>
<tr>
<td>wrist twist (JT6)</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
</tr>
<tr>
<td>Arm traverse (JT7)</td>
<td>2,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
</tr>
</tbody>
</table>

### Moment (N·m)

- Wrist swivel (JT4): 735
- Wrist bend (JT5): 735
- Wrist twist (JT6): 421

### Moment of Inertia (kg·m²)

- Wrist swivel (JT4): 107.8
- Wrist bend (JT5): 107.8
- Wrist twist (JT6): 45.9

### Mass (kg)

- 1,550

### Mounting

- Floor

### Option

- Mechanical hard stop JT1/JT2/JT3
- End stroke limit switch JT1/JT2/JT3
- Special color
- Traversing track
- Internal wiring for end effector
- Double solenoid valve 1/2
- Single solenoid valve 1/2
- Double sol.1+single sol.1
- FRL unit
- Internal hoses of cooling water for welding gun
- Wiring for solenoid valve for grippers (DC24V)

### Color

- Munsell 10GY9/1 equivalent

### Power requirements (kVA)

- 7.5

### Controller

- America & Europe: E02
- Japan & Asia: E02

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**ZHI130U**  |  **ZX165U**  |  **ZX200S**
---|---|---
**Type**  | Articulated  | Articulated  | Articulated  
**Degrees of Freedom**  | 6 (Option: 7)  | 6 (Option: 7)  | 6 (Option: 7)  
**Max. payload (kg)**  | 130  | 200  | 200  
**Max. reach (mm)**  | 2,951  | 2,651  | 2,651  
**Positional repeatability (mm)**  | 1 ±0.3  | 1 ±0.3  | 1 ±0.3  

### Work Envelope

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<th>Max. Speed (°/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm rotation (JT1)</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
<td>±180</td>
<td>105</td>
</tr>
<tr>
<td>Arm out-in (JT2)</td>
<td>±75 - 120</td>
<td>105</td>
<td>±75 - 120</td>
<td>105</td>
<td>±75 - 120</td>
<td>105</td>
</tr>
<tr>
<td>Arm up-down (JT3)</td>
<td>±250 - 350</td>
<td>105</td>
<td>±250 - 350</td>
<td>105</td>
<td>±250 - 350</td>
<td>105</td>
</tr>
<tr>
<td>wrist swivel (JT4)</td>
<td>±360</td>
<td>140</td>
<td>±360</td>
<td>140</td>
<td>±360</td>
<td>140</td>
</tr>
<tr>
<td>wrist bend (JT5)</td>
<td>±120</td>
<td>120</td>
<td>±120</td>
<td>120</td>
<td>±120</td>
<td>120</td>
</tr>
<tr>
<td>wrist twist (JT6)</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
<td>±360</td>
<td>230</td>
</tr>
<tr>
<td>Arm traverse (JT7)</td>
<td>2,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
<td>1,000 mm</td>
</tr>
</tbody>
</table>

### Moment (N·m)

- Wrist swivel (JT4): 911.4
- Wrist bend (JT5): 911.4
- Wrist twist (JT6): 450.8

### Moment of Inertia (kg·m²)

- Wrist swivel (JT4): 78.4
- Wrist bend (JT5): 78.4
- Wrist twist (JT6): 40.2

### Mass (kg)

- 1,550

### Mounting

- Floor

### Option

- Mechanical hard stop JT1/JT2/JT3
- End stroke limit switch JT1/JT2/JT3
- Special color
- Traversing track
- Internal wiring for end effector
- Double solenoid valve 1/2
- Single solenoid valve 1/2
- Double sol.1+single sol.1
- FRL unit
- Internal hoses of cooling water for welding gun
- Wiring for solenoid valve for grippers (DC24V)

### Color

- Munsell 10GY9/1 equivalent

### Power requirements (kVA)

- 7.5

### Controller

- America & Europe: E02
- Japan & Asia: E02

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**Notes:**

1: Conforms to ISO9283
2: Option
3: In case of using the face plate which is supported by proper bolts and pins
4: Depends on the payload and motion patterns
Releasing and loading / unloading of large-sized workpieces by vision system

Hemming process of the car door

Releasing work from resin molding machine
The E Controller, delivering unprecedented quality with a compact size, was developed to respond to the requirements of our customers. Kawasaki’s past achievements and experience have led to the development of the most technically advanced controller available. This industry-leading design provides improved performance and easy operation that surpasses all expectations.

**Features**

**Compact**
The overall volume of the E Controller has been reduced compared with the previous model. The small footprint of this compact controller allows for installation in “high density” applications. For further space saving options, an upright-position or stacked installation is possible, without impeding performance.

**User-friendly operation**
The easy-to-use teach pendant now incorporates motor power and cycle start at your fingertips. Multiple information screens can be displayed simultaneously. The intuitive teaching interface is simple to use.

**Programming ease & flexibility**
A rich set of programming functions come standard with the E Controller to support a wide range of applications. Functions can be combined and easily configured within a system to suit a particular application. Also, the powerful Kawasaki AS Programming Language provides sophisticated robot motion and sequence controls.

**Advanced technologies**
The enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and quicker loading and saving of files. In addition, memory has been expanded to meet the need for higher program storage capacity. The controller comes equipped with a USB port for external storage devices.

**Easy maintenance**
Modular components with limited cables translate into easy diagnostics and maintenance. A host of maintenance functions are available, including self-diagnostics on hardware and application errors to minimize troubleshooting and reduce MTTR (Mean Time To Repair). Remote diagnostics via the web server enable service support from anywhere in the world.

**Expandable**
Two external axes can be added to the EOX controller for a total of nine controlled axes. Numerous communication fieldbuses are available for controlling peripheral devices. The Kawasaki K-Logic sequencer software can be combined with user customized interface panels on the teach pendant.

**Teach pendant**
Large, color LCD touch screen display
The key arrangement has been optimised through extensive studies of operator hand movements.
Equipped with Enable switches.

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (mm)</td>
<td>W550 × D580 × H278</td>
<td>Transformer unit: W580 × D580 × H178</td>
</tr>
<tr>
<td>Structure</td>
<td>Enclosed structure with indirect cooling system</td>
<td></td>
</tr>
<tr>
<td>Number of controlled axes</td>
<td>7</td>
<td>Max. 9</td>
</tr>
<tr>
<td>Drive system</td>
<td>Full digital servo system</td>
<td></td>
</tr>
<tr>
<td>Coordinate systems</td>
<td>Joint, Base, Tool</td>
<td>Fixed tool point</td>
</tr>
<tr>
<td>Types of motion control</td>
<td>Joint, Linear, Circular, Interpolated motion</td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>Point-to-point teaching or language based programming</td>
<td></td>
</tr>
<tr>
<td>Memory capacity (MB)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>General purpose signals</td>
<td>Motor power off, Hold</td>
<td></td>
</tr>
<tr>
<td>Emergency (Disable)</td>
<td>32</td>
<td>Max. 96</td>
</tr>
<tr>
<td>Emergency (Enable)</td>
<td>32</td>
<td>Max. 96</td>
</tr>
<tr>
<td>Operation panel</td>
<td>E-Stop switch, Teach/repeat switch, Control power light</td>
<td>Rapid feed check mode switch</td>
</tr>
<tr>
<td>Cable length</td>
<td>Teach pendant (m) 5</td>
<td>10, 15</td>
</tr>
<tr>
<td></td>
<td>Robot controller (m) 5</td>
<td>10, 15</td>
</tr>
<tr>
<td>Mass (kg)</td>
<td>40</td>
<td>Transformer unit: 45</td>
</tr>
<tr>
<td>Power requirements</td>
<td>AC200-220V ±10%, 50/60Hz, 3ø</td>
<td>AC380-415V ±10% or AC440-480V ±10% 50/60Hz, 3ø</td>
</tr>
<tr>
<td>Environmental conditions</td>
<td>Indoor temperature (°C) 0 - 45</td>
<td>Class D earth connection</td>
</tr>
<tr>
<td></td>
<td>Relative humidity (%) 35 - 85 (no dew, nor frost allowed)</td>
<td>Earth connection dedicated to robot, Leakage current: Maximum 100mA</td>
</tr>
<tr>
<td></td>
<td>Vacuum enclosure, Munsell 10GY9/1 equivalent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teach pendant (m) 5</td>
<td>Robot-controller (m) 10, 15</td>
</tr>
<tr>
<td></td>
<td>Transformer unit: 5</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>USB, Ethernet (100BASE-TX), RS-232C</td>
<td>USB memory</td>
</tr>
</tbody>
</table>

**System configuration diagram**