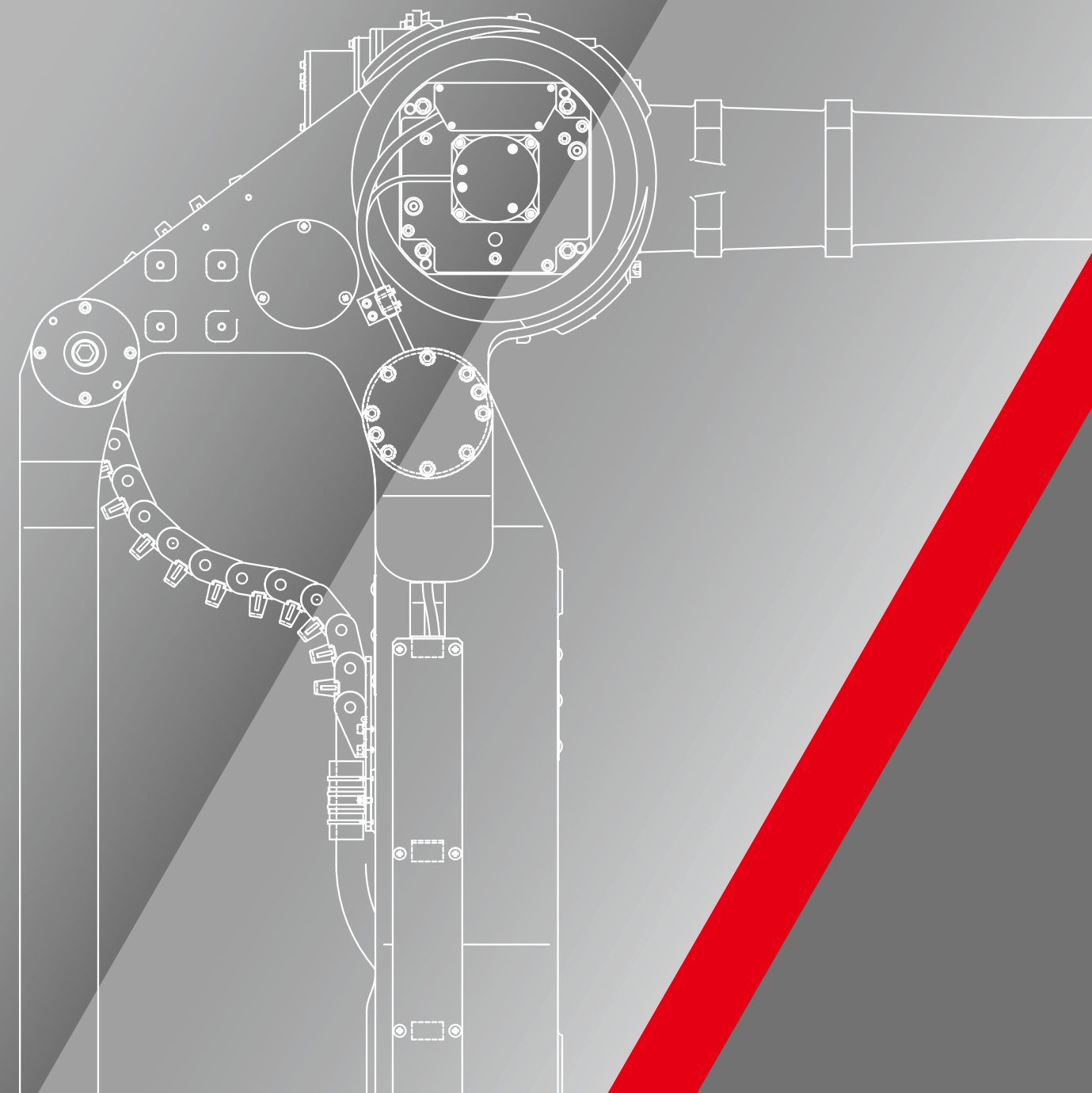




# Kawasaki Robot

## Z series

Large payload robots up to 300 kg



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\* Materials and specifications are subject to change without notice.

## Kawasaki Robot

### CAUTIONS TO BE TAKEN TO ENSURE SAFETY

- For those persons involved with the operation / service of your system, including Kawasaki Robot, they must strictly observe all safety regulations at all times. They should carefully read the Manuals and other related safety documents.
- Products described in this catalogue are general industrial robots. Therefore, if a customer wishes to use the Robot for special purposes, which might endanger operators or if the Robot has any problems, please contact us. We will be pleased to help you.
- Be careful as Photographs illustrated in this catalogue are frequently taken after removing safety fences and other safety devices stipulated in the safety regulations from the Robot operation system.



ISO certified in Akashi Works and Nishi-Kobe Works.

# Wide motion range, long reach and large motion angle of the wrist enable various applications in industrial fields.

Spot welding, material handling, sealing, ...by producing many different robots to suit various applications, Kawasaki has greatly contributed to automated production lines for automotive and general industries. Kawasaki is introducing the new "Z series" heavy-duty robot, which is developed using Kawasaki's advanced technology and extensive experience in robotics. The Z-series consists of eleven models and is available in floor mounting (ZX), shelf mounting (ZT) and compact (ZH) types.

## Features

### Improved cycle time

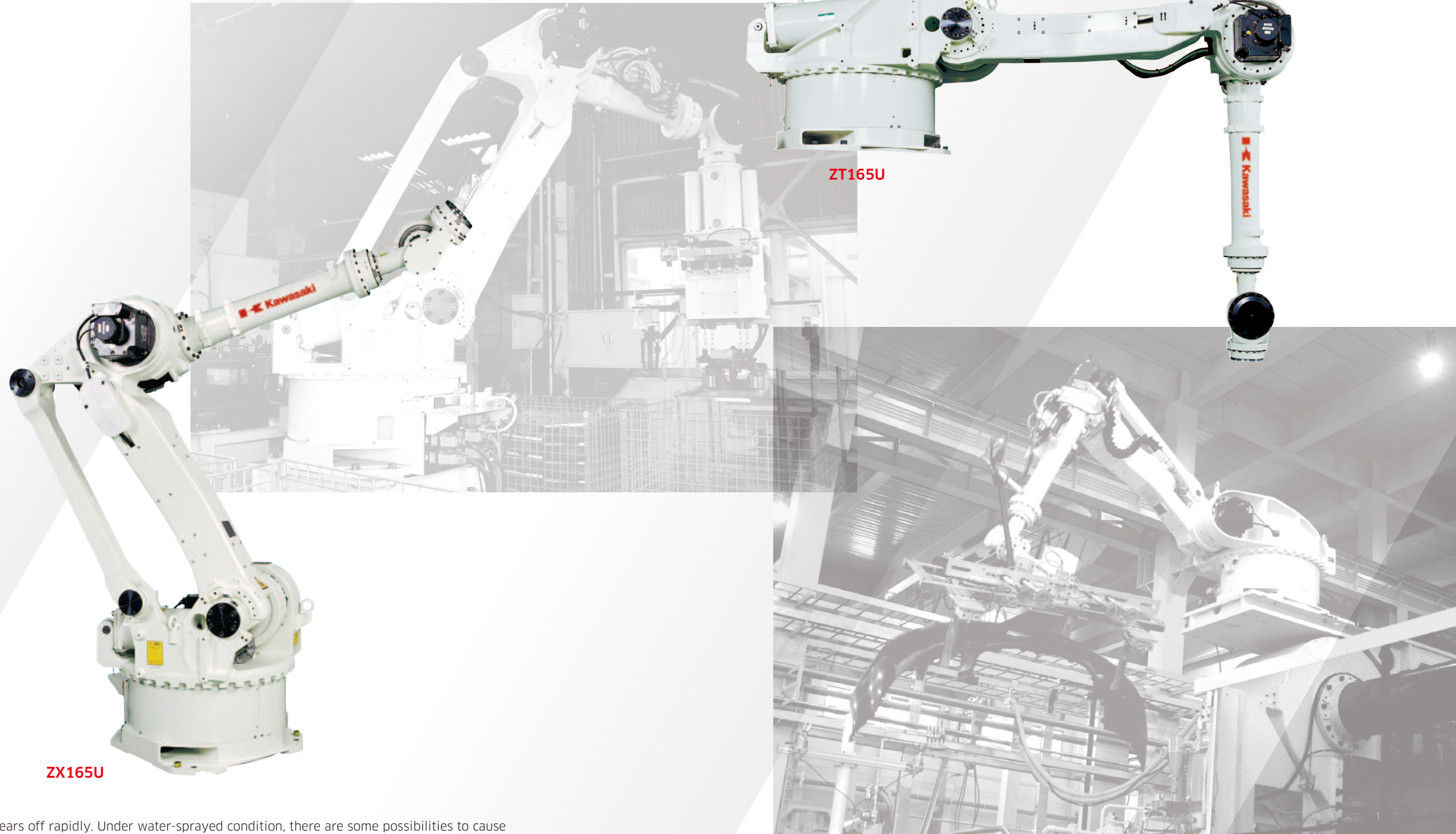
The cycle time has been greatly improved by reduction of the mass and adoption of the E-controller.

### Wide work envelope

The Z-series has wide work envelope due to long reach and small dead space. Joint 1 travel is 360 degrees with mechanical hard stops.

### Upgradability

The ZX165U can be upgraded to a faster robot or higher payload robot by adding simple hardware and software at the user site. The alteration at the production site is easier and economical. This means that an exact model selection at the design stage is not required.



\* 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

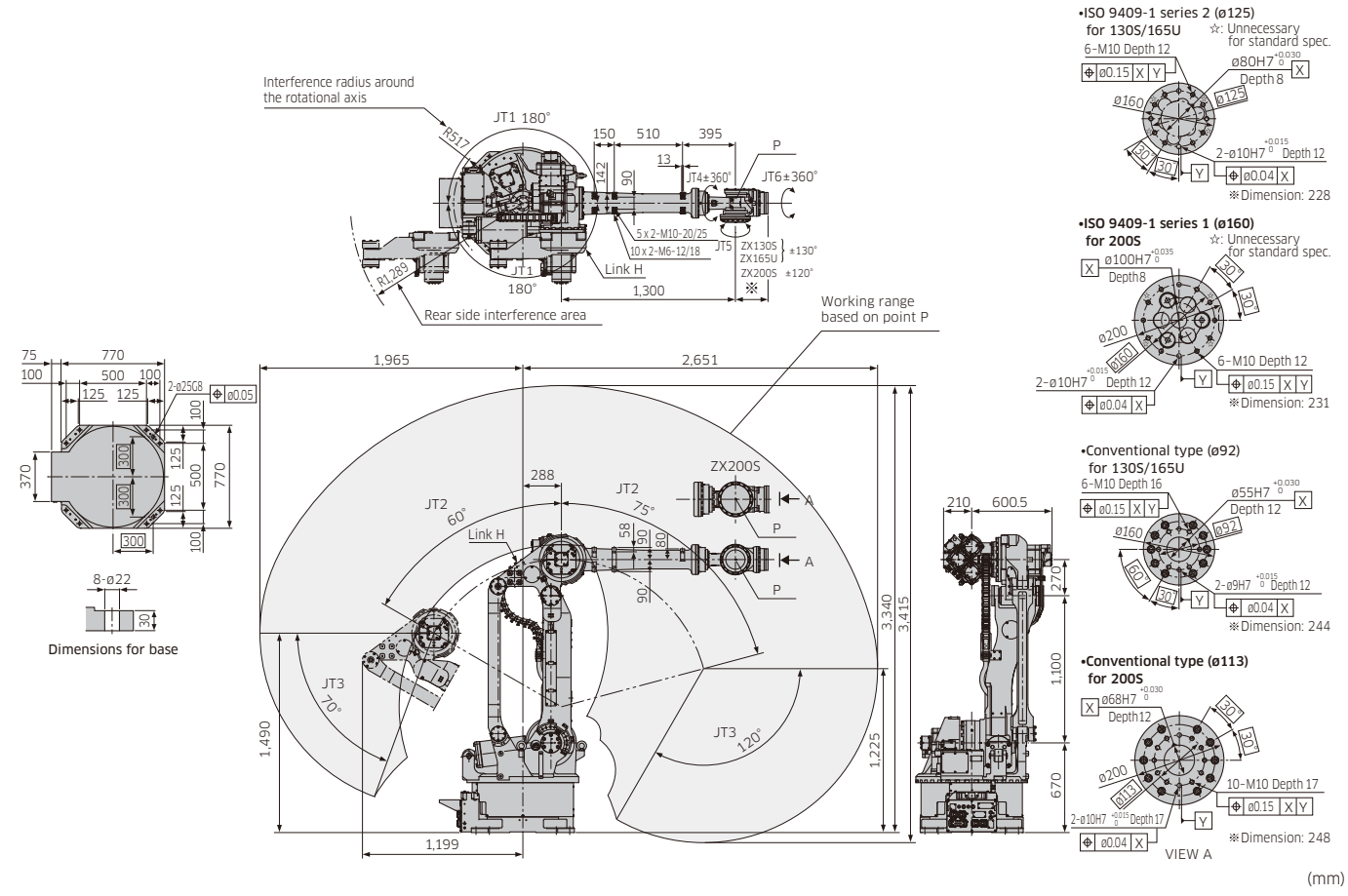
		ZX130S		ZX130L		ZX165U		ZX200S		ZX300S		ZH100U			
Arm type		Articulated type								Articulated type					
Degree of freedom (axes)		6 (7 : option)								6 (7 : option)					
Max. payload (kg)		130		130		165		200		300		100			
Positional repeatability (mm) *1		±0.3								±0.3					
Axis work envelope and Max. speed	Axis	Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)		Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)	
	Arm rotation (JT1)	±180	130	±180	110	±180	110		±180	105	±180	100	±160	140	
	Arm out-in (JT2)	+75 - -60	130	+75 - -60	110	+75 - -60	110		+75 - -60	110	+75 - -60	85	+120 - -60	100	
	Arm up-down (JT3)	+250 - -120	130	+250 - -120	110	+250 - -120	115		+250 - -120	105	+250 - -120	85	+75 - -90	100	
	Wrist swivel (JT4)	±360	180	±360	140	±360	140		±360	120	±360	90	±360	150	
	Wrist bend (JT5)	±130	180	±130	135	±130	155		±120	120	±120	90	±130	150	
	Wrist twist (JT6)	±360	280	±360	230	±360	260		±360	200	±360	150	±360	250	
	Arm traverse (JT7) *2	standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s		standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s	
Moment (N·m) *3	Wrist swivel (JT4)	735		735		911.4			1,274		1,715		874		
	Wrist bend (JT5)	735		735		911.4			1,274		1,715		874		
	Wrist twist (JT6)	421.4		421.4		450.8			686		862		392		
Moment of Inertia (kg·m <sup>2</sup> ) *3	Wrist swivel (JT4)	51.9		51.9		78.4			117.6		166.6		90.0		
	Wrist bend (JT5)	51.9		51.9		78.4			117.6		166.6		90.0		
	Wrist twist (JT6)	27.4		27.4		40.2			63.7		107.8		20.0		
Mass (kg)		1,350		1,400		1,350			1,400		1,400		750		
Mounting		Floor								Floor					
Integrated function		Air piping (12 mm dia. x 2)								Air piping (12 mm dia. x 2)				-	
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)								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)				Mechanical hard stop JT1/JT2/JT3, End stroke limit switch JT1/JT2/JT3, Special color, Traversing track, Internal wiring for end effector, Internal hoses of cooling water for welding gun, Wiring for solenoid valve for grippers (DC24V)	
Color		Munsell 10GY9/1 equivalent								Munsell 10GY9/1 equivalent					
Power requirements (kVA) *4		7.5								7.5					
Controller	America	E02								E02					
	Europe														
	Japan & Asia														

\*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

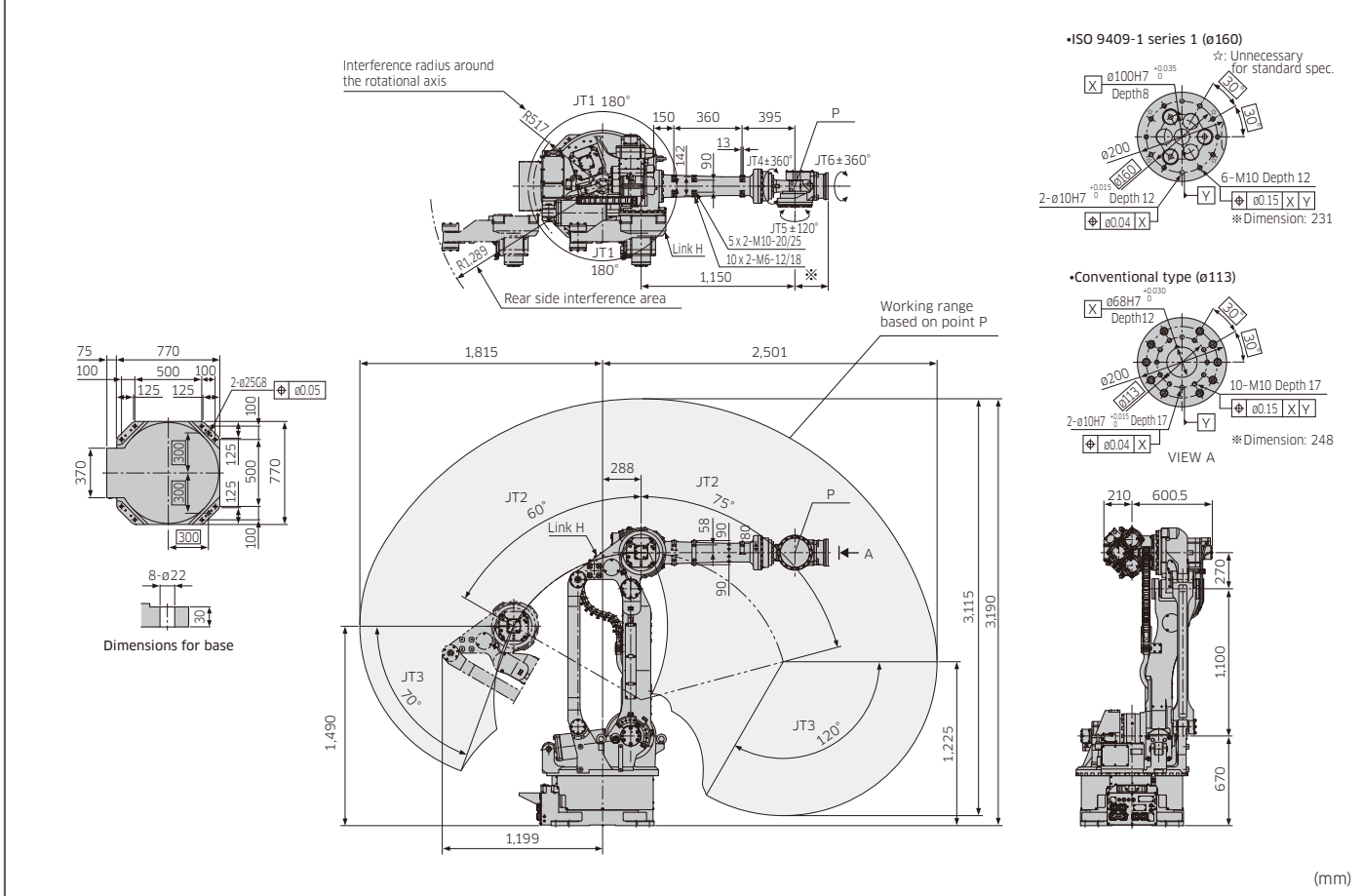
		ZT130S		ZT165U		ZT200S	
Arm type		Articulated type					
Degree of freedom (axes)		6 (7 : option)					
Max. payload (kg)		130		165		200	
Positional repeatability (mm) *1		±0.3					
Axis work envelope and Max. speed	Axis	Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)	Max. stroke (°)	Max. speed (°/s)
	Arm rotation (JT1)	±180	130	±180	105	±180	100
	Arm out-in (JT2)	+60 - -75	130	+60 - -75	105	+60 - -75	100
	Arm up-down (JT3)	+165 - -95	130	+165 - -95	105	+165 - -95	90
	Wrist swivel (JT4)	±360	180	±360	135	±360	120
	Wrist bend (JT5)	±130	180	±130	135	±120	115
	Wrist twist (JT6)	±360	280	±360	210	±360	180
	Arm traverse (JT7) *2	standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s	standard 2,000 mm	1,000 mm/s
Moment (N·m) *3	Wrist swivel (JT4)	735		911.4		1,274	
	Wrist bend (JT5)	735		911.4		1,274	
	Wrist twist (JT6)	421		450.8		686	
Moment of Inertia (kg·m <sup>2</sup> ) *3	Wrist swivel (JT4)	51.9		78.4		117.6	
	Wrist bend (JT5)	51.9		78.4		117.6	
	Wrist twist (JT6)	27.4		40.2		63.7	
Mass (kg)		1,550		1,550		1,600	
Mounting		Shelf					
Integrated function		Air piping (12 mm dia. x 2)					
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) *4		7.5					
Controller	America	E02					
	Europe						
	Japan & Asia						

\*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

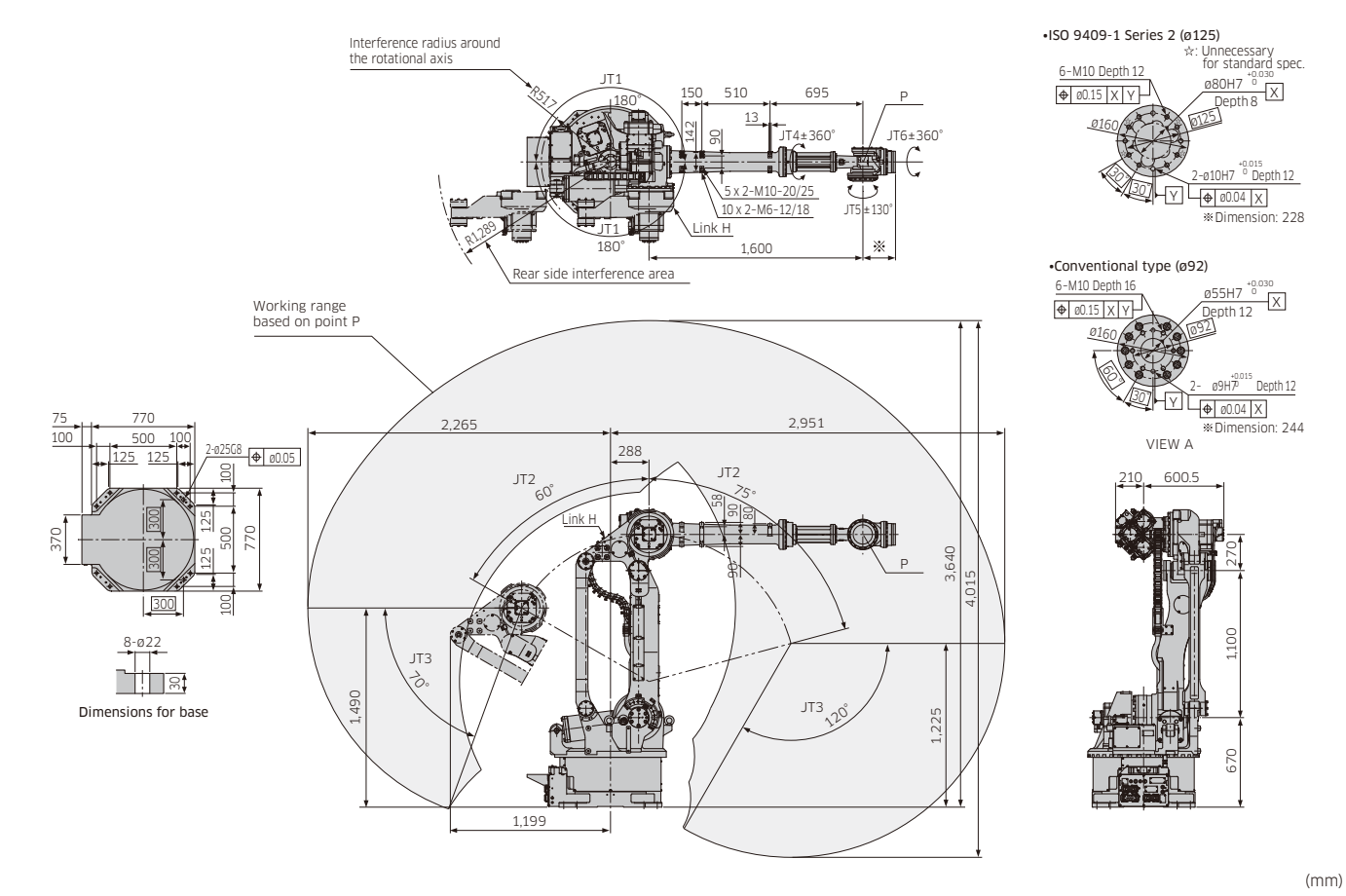
ZX130S/ZX165U/ZX200S



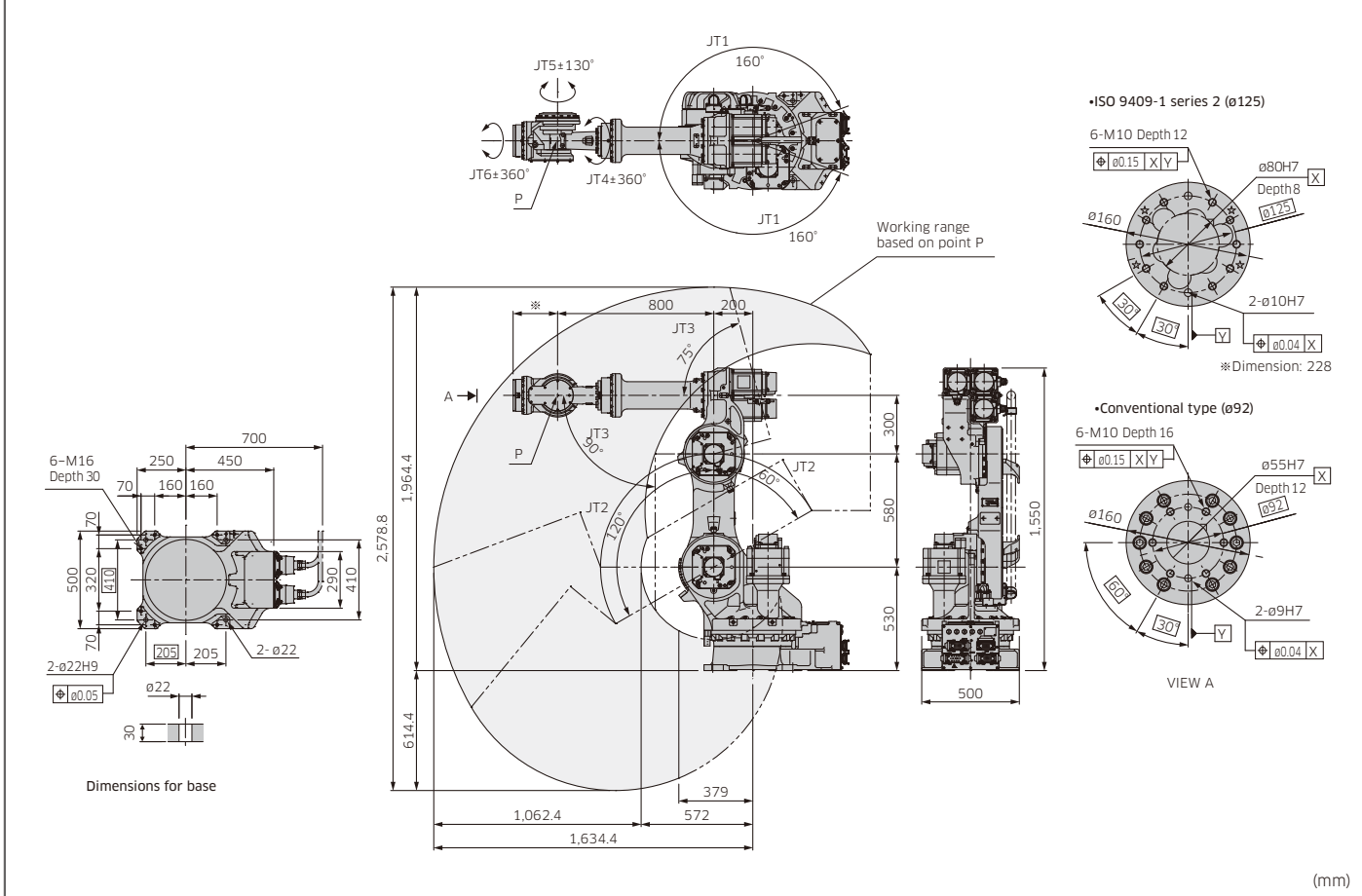
ZX300S



ZX130L



ZH100U







# E series

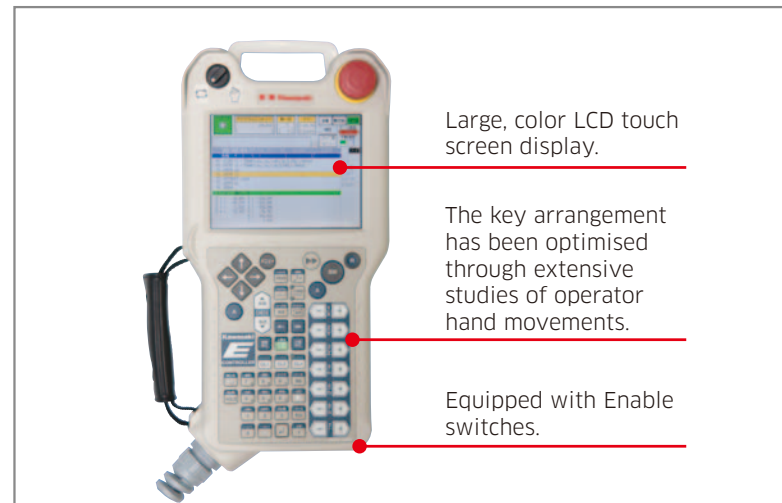
The E-Controller, with unprecedented quality and compact size, was created in response to customer demand. Kawasaki's collaboration of past achievements and experience has led to the development of the most technically advanced controller available. This industry leading design provides increased performance and easy operation that exceeds expectations.



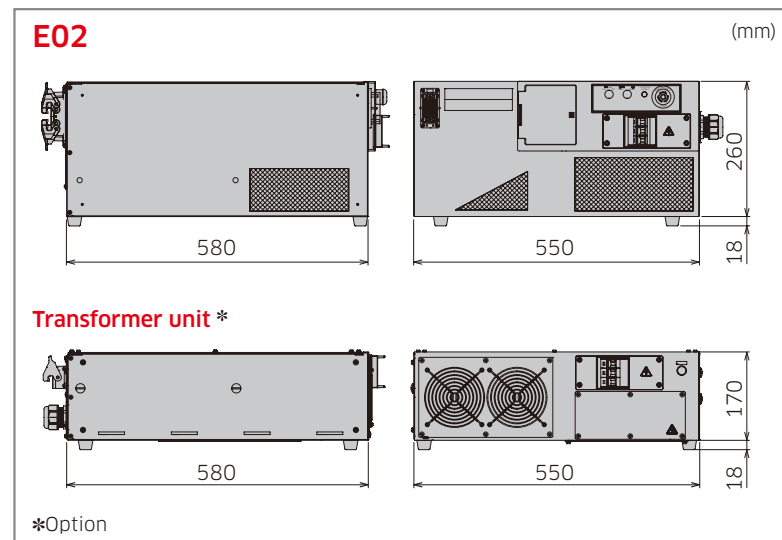
E02

\*Option

## Teach pendant



## External view & dimensions



## Features

### Compact

Small footprint of the E controller makes it easy to achieve high-density layouts. And overall volume has been reduced greatly compared with the previous model. As a result, an upright-position installation or stacked installation is possible, in order to save installation space.

### User-friendly operation system

The operation system has now fully developed into a more user-friendly design. The operator can turn on the motors and activate the cycle start all from the teach pendant, thereby realizing a more convenient system control. The two information screens can be displayed simultaneously, enabling the operator to view different types of information easily (for example, positional and signal information).

### Abundance of functions

The large variety of unique functions makes it possible to support a wide range of applications. These functions can be combined and easily configured within a system to suit a particular application. Likewise, the built-in Kawasaki "AS Language" provides sophisticated robot motion and sequence controls.

### Incorporating the latest technologies

The enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and quicker saving and loading of files, and countless other advantages. In addition, the memory has been expanded to answer the need for higher program storage capacity. A USB port is equipped as a external storage conduit.

### Easier maintenance

With modular components and fewer cables, Kawasaki has developed a controller that is compact and easy to maintain. A host of maintenance functions are available, including the DIAG function for self-diagnostics, a maintenance support function that can handle not only hardware errors but also application errors. In addition to the DIAG function, there are other additional functions, such as a Web server that enables engineers to perform remote diagnostics.

### Highly expandable

This is expandable to up to three external axes with additional amplifiers. The system is compatible with a large number of field buses that are used for controlling peripheral devices. Users can combine the Kawasaki KLogic software sequencer function, which can be edited on the teach pendant, with the user-customizable interface panels to create a highly sophisticated system.

## Specifications

		Standard	Option
America		E02	Option
Europe			
Japan & Asia			
Dimensions (mm)		W550×D580×H278	Transformer unit: W580×D580×H178
Structure		Enclosed structure / Indirect cooling system	
Number of controlled axes		7	Max. 9
Drive system		Full digital servo system	
Coordinate systems		Joint, Base, Tool	Fixed tool point
Types of motion control		Joint/Linear/Circular Interpolated motion	
Programming		Point to point teaching or language based programming	
Memory capacity (MB)		8	
General purpose signals	External operation	Motor power off, Hold	
	Input (Channels)	32	Max. 96
	Output (Channels)	32	Max. 96
Operation panel		E-Stop switch, teach/repeat switch, control power light (Cycle start, motor-on, hold/run, and error reset are activated from the teach pendant.)	Rapid-feed check mode switch
Cable length	Teach pendant (m)	5	10, 15
	Robot-controller (m)	5	10, 15
Mass (kg)		40	Transformer unit: 45
Power requirements		AC200-220V ±10%, 50/60Hz, 3ø	*Transformer unit AC380-415V ±10% or AC440-480V ±10% 50/60Hz, 3ø
		Class-D earth connection (Earth connection dedicated to robots), leakage current: Maximum 100mA	
Environmental condition	Ambient temperature (°C)	0 - 45 (0 - 40 for E7x in vertical use)	
	Relative humidity (%)	35 - 85 (no dew, nor frost allowed)	
Body color		Munsell 10GY9/1 equivalent	
Teach pendant		TFT color LCD display with touch-panel, E-Stop switch, teach lock switch, Enable switch	
Auxiliary storage unit		-	
Interface		USB, Ethernet (100BASE-TX), RS-232C	

## System configuration diagram

