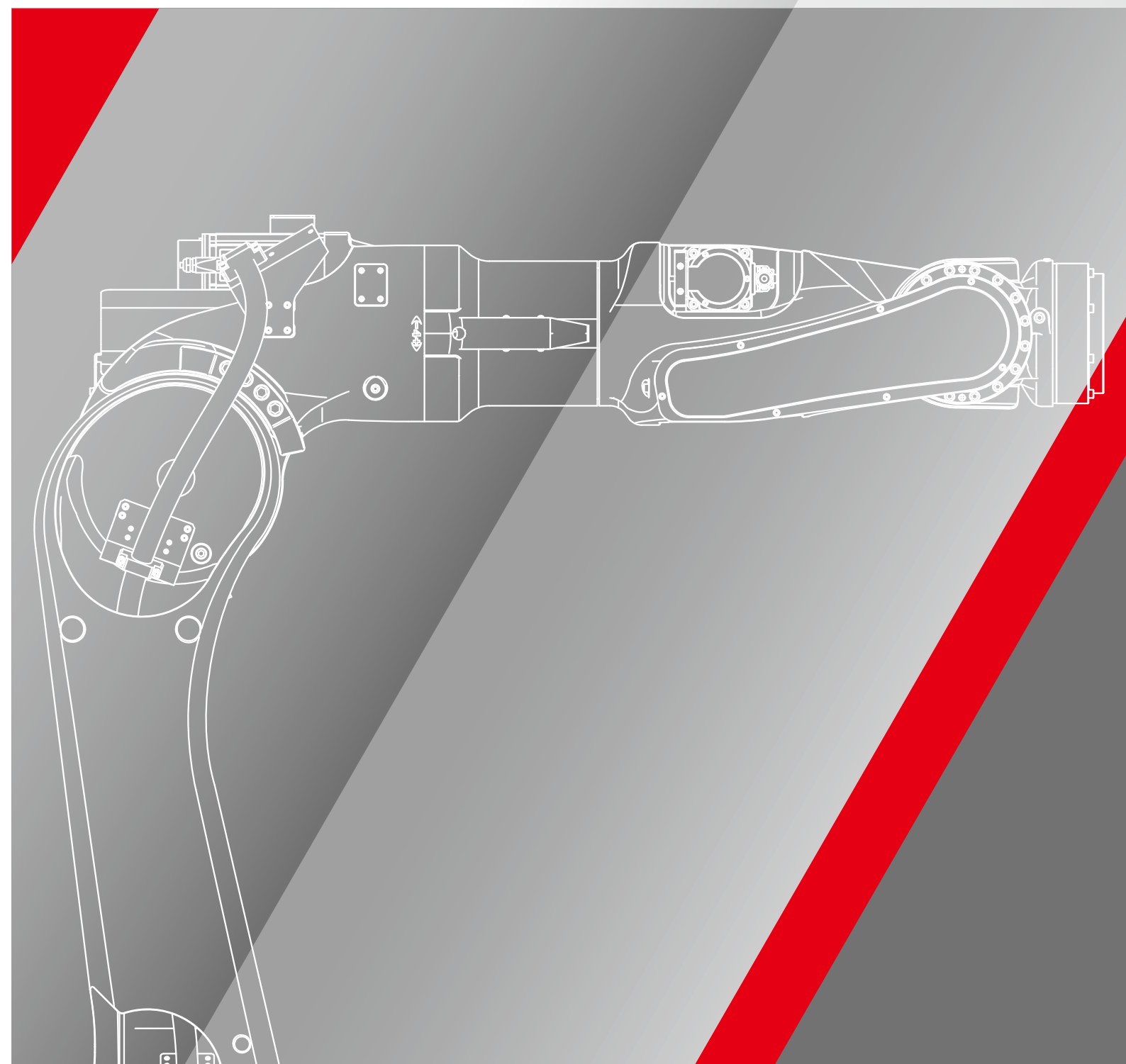




# Kawasaki Robot

## B series Spot welding robots



### Kawasaki Heavy Industries, Ltd.

#### ROBOT DIVISION

##### Tokyo Head Office/Robot Division

1-14-5, Kaigan, Minato-ku, Tokyo 105-8315, Japan  
Phone: +81-3-3435-2501 Fax: +81-3-3437-9880

##### Akashi Works/Robot Division

1-1, Kawasaki-cho, Akashi, Hyogo 673-8666, Japan  
Phone: +81-78-921-2946 Fax: +81-78-923-6548

#### Global Network

##### Kawasaki Robotics (USA), Inc.

28140 Lakeview Drive, Wixom, MI 48393, U.S.A.  
Phone: +1-248-446-4100 Fax: +1-248-446-4200

##### Kawasaki Robotics (UK) Ltd.

Unit 4 Easter Court, Europa Boulevard, Westbrook Warrington  
Cheshire, WA5 7ZB, United Kingdom  
Phone: +44-1925-71-3000 Fax: +44-1925-71-3001

##### Kawasaki Robotics GmbH

Im Taubental 32, 41468 Neuss, Germany  
Phone: +49-2131-34260 Fax: +49-2131-3426-22

##### Kawasaki Robotics Korea, Ltd.

43, Namdong-daero 215beon-gil, Namdong-gu, Incheon, 21633,  
Korea  
Phone: +82-32-821-6941 Fax: +82-32-821-6947

##### Kawasaki Robotics (Tianjin) Co., Ltd.

1-2/F, Building 6, No.19 Xinhuan Road, TEDA, China  
Phone: +86-22-5983-1888 Fax: +86-22-5983-1889

##### Kawasaki Motors Enterprise (Thailand) Co., Ltd.

(Rayong Robot Center)  
119/10 Moo 4 T.Pluak Daeng, A.Pluak Daeng, Rayong 21140  
Thailand  
Phone: +66-38-955-040-58 Fax: +66-38-955-145

<https://robotics.kawasaki.com/>

\* 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.

# Our advanced robotics technologies streamline the spot welding process.

The B series is a line of spot welding robots that perfectly embodies the expertise we have cultivated in the field of spot welding, effectively taking performance to the next level.

## Features

### High-speed spot welding

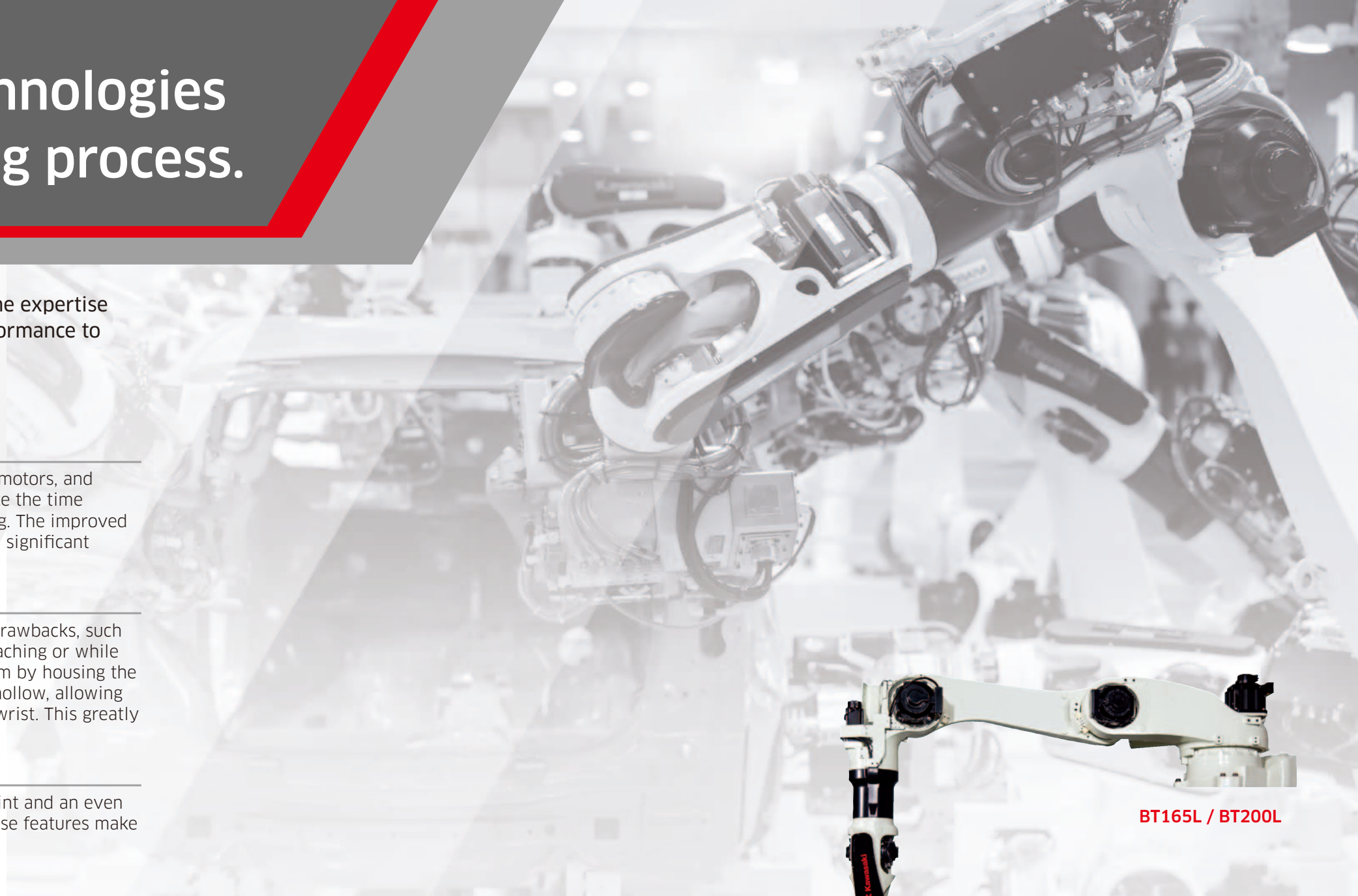
The B series robots come with lightweight arms and high-output, high-revolution motors, and utilize the latest in anti-vibration control technology. These features help to reduce the time needed for short-pitch movements, which constitute the main part of spot welding. The improved sequence of axial operations performed by the servo welding guns also leads to a significant reduction in cycle time.

### Integrated dress package

Exposed cable harnesses on conventionally dressed robots present a number of drawbacks, such as interference caused by adjacent robots or peripheral devices during in-field teaching or while executing playback after offline programming. The B series eliminates this problem by housing the cable harness within the robot arm. The arm and wrist of the B series robot are hollow, allowing the cable harness for spot welding to be internally routed between the base and wrist. This greatly boosts the efficiency of both offline programming and in-field teaching.

### Higher density installation

Compared to conventional robots, the B series robots have a much smaller footprint and an even thinner body. Coupled with the cable harnesses housed within the robot arm, these features make it possible to install a large number of BX series robots within a confined space.



BT165L / BT200L



BX100S

BX100N

BX100L

BX130X

BX165N

BX165L / BX200L

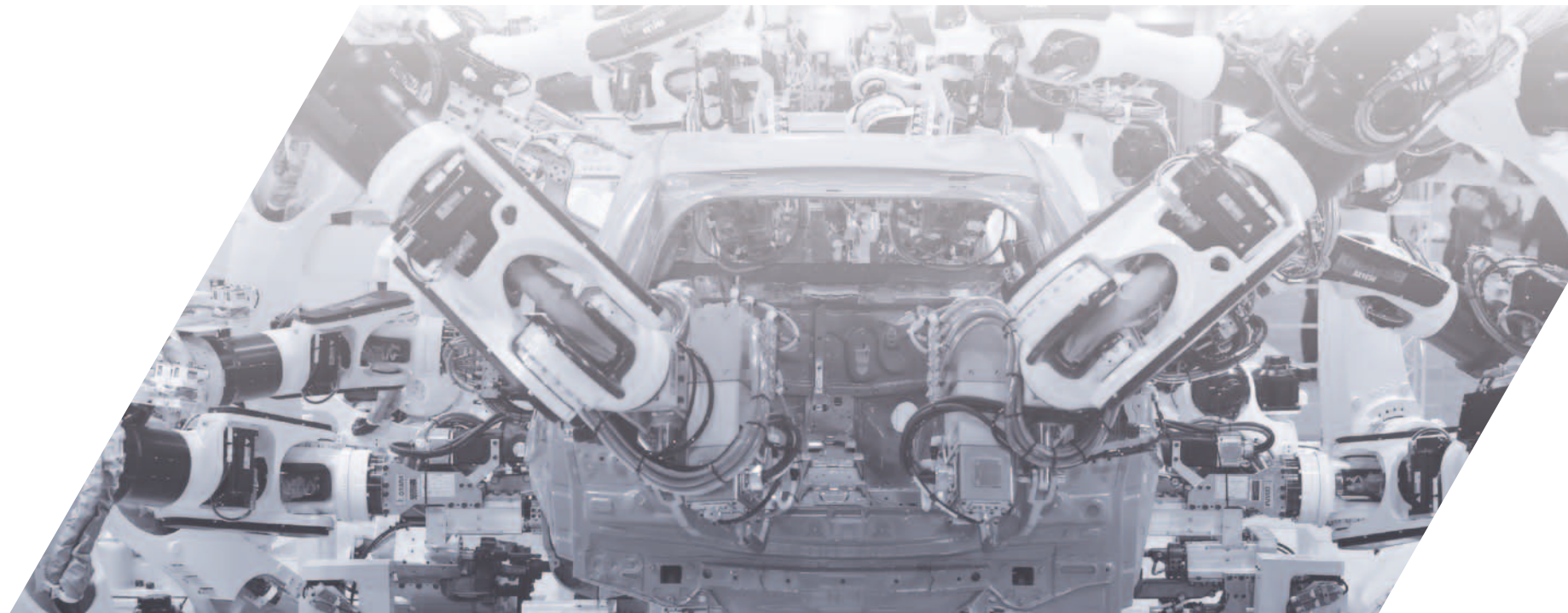
BX200X

BX250L / BX300L



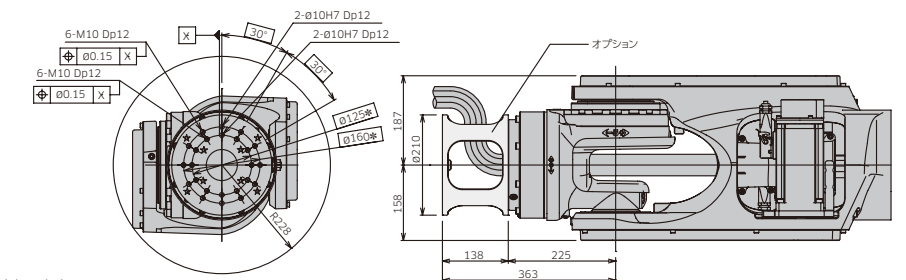
		BX100S	BX100N	BX100L	BX130X	BX165N		BX165L	BX200L	BX200X	BX250L	BX300L	BT165L	BT200L	
Type		Articulated robot						Articulated robot							
Degree of freedom (axes)		6						6							
Max. payload (kg)		100	100	100	130	165		165	200	200	250	300	165	200	
Max. reach (mm)		1,634	2,200	2,597	2,991	2,325		2,597	2,597	3,412	2,812	2,812	3,151	3,151	
Positional repeatability (mm) *1		±0.06	±0.06	±0.06	±0.06	±0.06		±0.06	±0.06	±0.07	±0.07	±0.07	±0.08	±0.08	
Motion range (°)	Arm rotation (JT1)	±160	±160	±160	±160	±160		±160	±160	±180	±180	±180	±160	±160	
	Arm out-in (JT2)	+120 - -65	+120 - -65	+76 - -60	+76 - -60	+76 - -60		+76 - -60	+76 - -60	+76 - -60	+76 - -60	+76 - -60	+80 - -130	+80 - -130	
	Arm up-down (JT3)	+90 - -81	+90 - -77	+90 - -75	+90 - -75	+90 - -75		+90 - -75	+90 - -75	+90 - -110	+90 - -120	+90 - -120	+90 - -75	+90 - -75	
	Wrist swivel (JT4)	±210	±210	±210	±210	±210		±210	±210	±210	±210	±210	±210	±210	
	Wrist bend (JT5)	±125	±125	±125	±125	±125		±125	±125	±125	±125	±125	±125	±125	
	Wrist twist (JT6)	±210	±210	±210	±210	±210		±210	±210	±210	±210	±210	±210	±210	
Max. speed (°/s)	Arm rotation (JT1)	135	135	105	105	105		120	105	125	125	125	120	105	
	Arm out-in (JT2)	125	110	130	90	130		110	90	102	120	102	110	85	
	Arm up-down (JT3)	155	140	130	130	130		130	100	85	100	85	130	100	
	Wrist swivel (JT4)	200	200	200	200	120		170	120	105	140	105	170	120	
	Wrist bend (JT5)	160	200	160	160	160		170	120	120	140	110	170	120	
	Wrist twist (JT6)	300	300	300	300	300		280	200	200	200	180	280	200	
Moment (N·m)	Wrist swivel (JT4)	830	588.4	830	830	930		952	1,334	1,334	1,800	2,300	952	1,334	
	Wrist bend (JT5)	830	588.4	830	830	930		952	1,334	1,334	1,800	2,300	952	1,334	
	Wrist twist (JT6)	441	294.2	441	441	490		491	588	588	750	1,000	491	588	
Moment of Inertia (kg·m <sup>2</sup> )	Wrist swivel (JT4)	85	60	85	85	99		99	199.8	199.8	200	240	99	199.8	
	Wrist bend (JT5)	85	60	85	85	99		99	199.8	199.8	200	240	99	199.8	
	Wrist twist (JT6)	45	30	45	45	49.5		49.5	154.9	154.9	165	200	49.5	154.9	
Mass (kg)		720	740	890	920	875		890	890	1,450	1,460	1,460	1,100	1,100	
Body color		Munsell 10GY9/1 equivalent						Munsell 10GY9/1 equivalent							
Installation		Floor						Floor						Shelf	
Environmental condition	Ambient temperature (°C)	0 - 45						0 - 45							
	Relative humidity (%)	35 - 85 (No dew, nor frost allowed)						35 - 85 (No dew, nor frost allowed)							
Power requirements (kVA) *2		5.0			7.5			7.5							
Degree of protection		Wrist : IP67 Base axis : IP54						Wrist : IP67 Base axis : IP54							
Controller		E02						E02							

\*1: conforms to ISO9283 \*2: depends on the payload and motion patterns



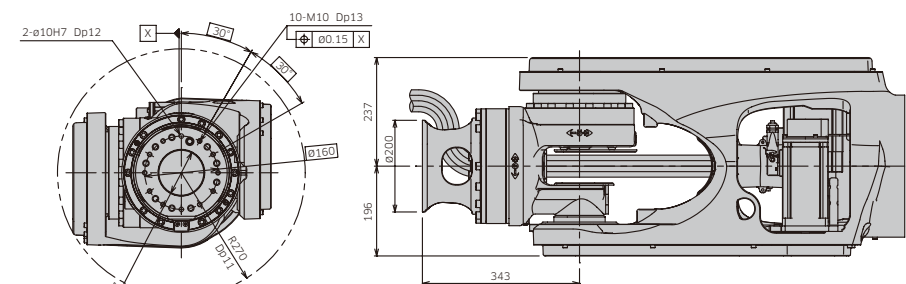
Dimensions of the wrist

- BX100S
- BX100N
- BX100L
- BX130X
- BX165N
- BX165L
- BX200L
- BX200X
- BT200L



☆ : Unnecessary to tighten bolts  
 \* : There are two available specifications for the tool-mounting tap holes in the adapter bracket:  
 1) combination of 125 PCD (pitch circle diameter) and 160 PCD and 2) combination of 92 PCD and 125 PCD.

- BX250L
- BX300L



(mm)







# E series

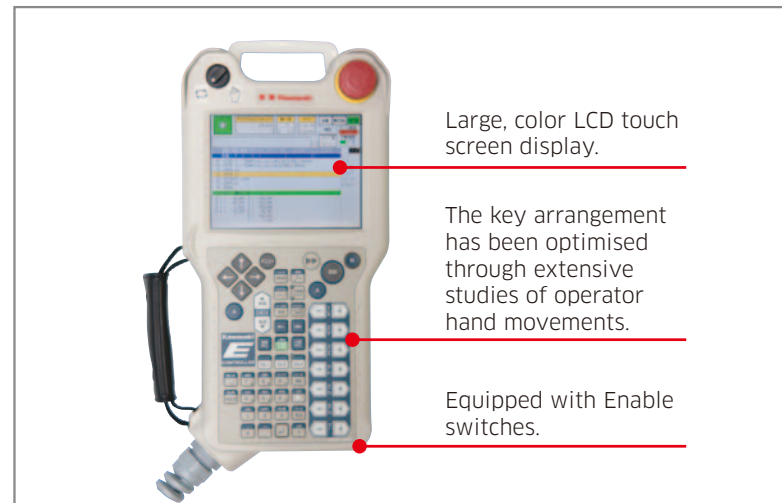
The E-Controller, with unprecedented quality and compact size, was created in response to customer demand. Kawasaki's collaboration of past achievements and experience has led to the development of the most technically advanced controller available. This industry leading design provides increased performance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



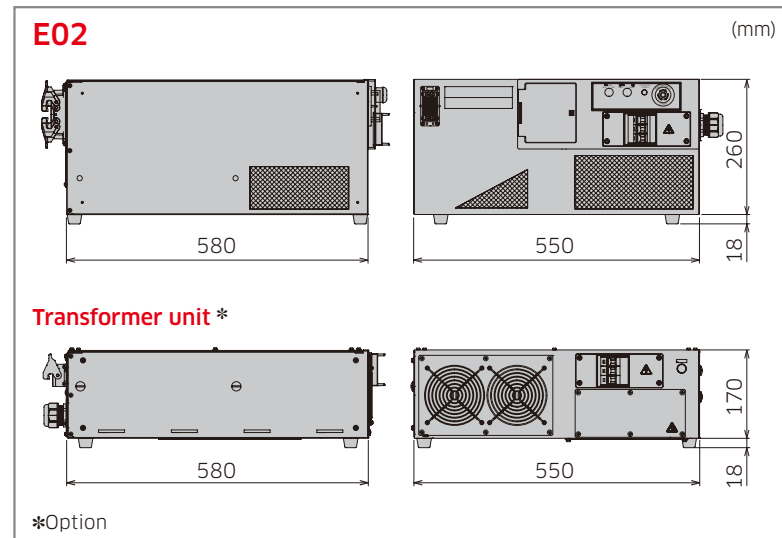
E02

\*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 an 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
		E02	
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.)	Fast 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		-	USB Memory
Interface		USB, Ethernet (100BASE-TX), RS-232C	

## System configuration diagram

