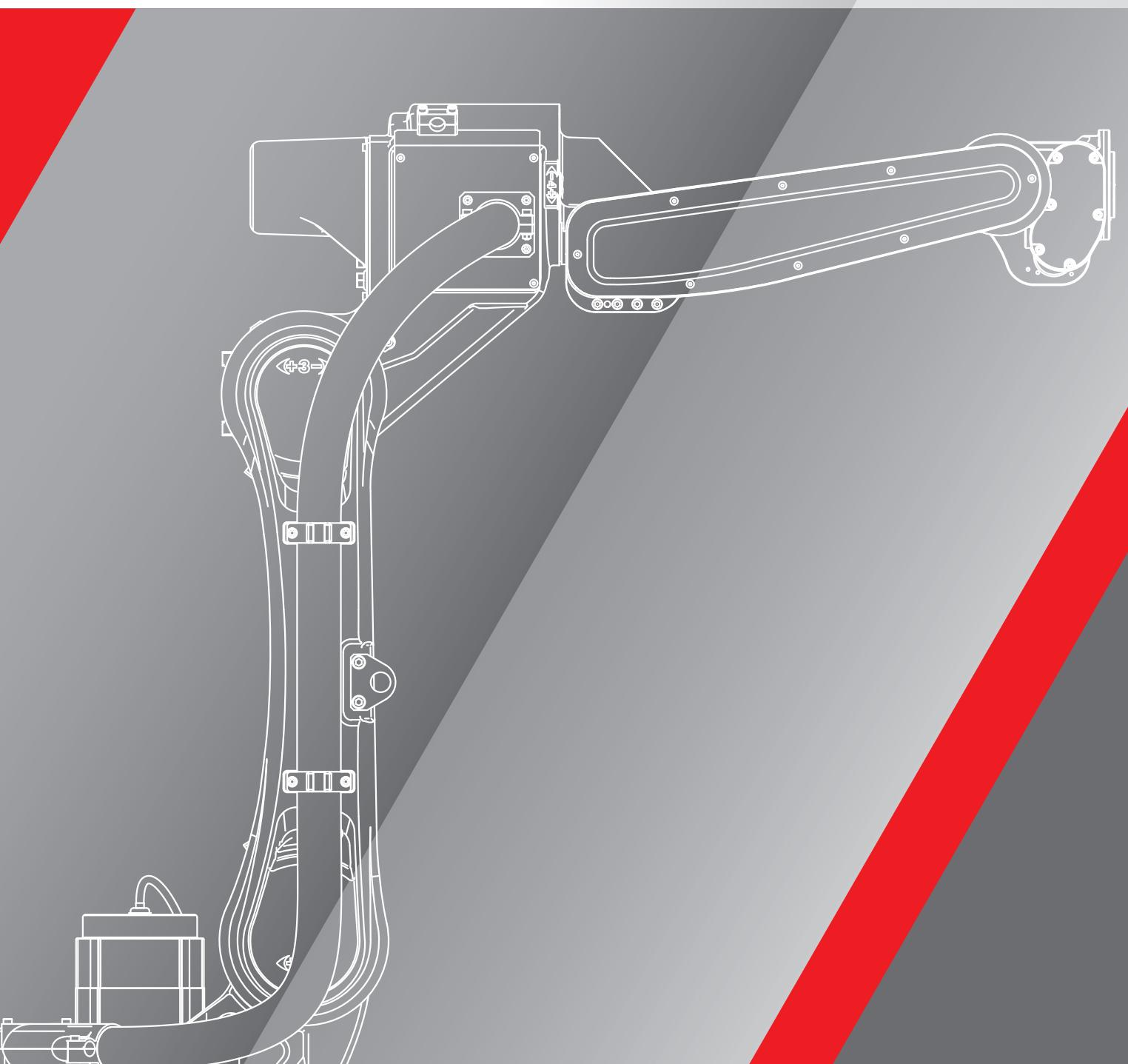


Kawasaki Robot

Arc welding robots



Kawasaki Robotics (USA), Inc.

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

Global Network

Kawasaki Heavy Industries, Ltd.

Tokyo Head Office/Robot Division
1-14-5, Kaigan, Minato-ku, Tokyo 105-8315, Japan
Phone: +81-3-3435-6852 Fax: +81-3-3437-9880

Kawasaki Heavy Industries, Ltd.

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

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

29 Sperberweg, 41468 Neuss, Germany
Phone: +49-2131-3426-0 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.

Bldg 3, No.16, Xiang'an Road, TEDA, Tianjin 300457, 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

KawasakiRobotics.com

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 Wixom, Michigan U.S.A.

Kawasaki arc welding robots use the latest arc welding technology to rival the quality of a skilled human welder.

Features

Application specific operation

Each robot is equipped standard with an easy to view and operate color LCD touchscreen teach pendant. The operator teaches the process path using dedicated arc welding teaching screens that are designed for simplified use and easy operation.

Welding condition database

During an automated process, the operator can change the welding conditions on-the-fly, and then store these changes to a built-in database. The saved conditions can then be recalled from the database and reused.

Reduced downtime

A standard, dedicated start sequence function improves the arc establishment. Also, for weld process faults, the robot includes a restart sequence function to automatically conduct overlap welding and resume the operation.

Manual arc control

The Kawasaki arc welding robots feature a one button “arc on / arc off” function to allow operators to easily and quickly turn the weld off and on during the automatic weld process. This manual arc control helps operators deal with part anomalies.

Advanced technology

Servo-torch, touch sensing, special weaving pattern, real-time path modification (RTPM) sensor, start-point sensing, multilayer welding function, and auto voltage control (AVC) sensor are some of the advanced arc welding options available with the Kawasaki welding robots.

Offline programming

Kawasaki offers arc welding specific offline programming software to automatically generate robot programs from 3D CAD data. Kawasaki's KCONG software significantly reduces robot teaching time and lowers production costs.



BA006N

BA006L

RS006L

RS010N



RS010L

RS015X

RS020N

Standard specifications

	BA006N	BA006L	RS006L	RS010N	RS010L	RS015X	RS020N	
Type	Articulated							
Degree of freedom (axes)	6							
Max. payload (kg)	6	6	6	10	10	15	20	
Max. reach (mm)	1,445	2,036	1,650	1,450	1,925	3,150	1,725	
Positional repeatability (mm) *1	±0.06	±0.08	±0.03	±0.03	±0.05	±0.06	±0.04	
Motion range (°)	Arm rotation (JT1)	±165	±165	±180	±180	±180	±180	
	Arm out-in (JT2)	+150 - -90	+150 - -90	+145 - -105	+145 - -105	+155 - -105	+140 - -105	
	Arm up-down (JT3)	+90 - -175	+90 - -175	+150 - -163	+150 - -163	+135 - -155	+150 - -163	
	Wrist swivel (JT4)	±180	±180	±270	±270	±360	±270	
	Wrist bend (JT5)	±135	±135	±145	±145	±145	±145	
	Wrist twist (JT6)	±360	±360	±360	±360	±360	±360	
Max. speed (°/s)	Arm rotation (JT1)	240	210	250	250	190	190	
	Arm out-in (JT2)	240	210	250	250	205	180	
	Arm up-down (JT3)	220	220	215	215	210	200	
	Wrist swivel (JT4)	430	430	365	365	400	410	
	Wrist bend (JT5)	430	430	380	380	360	360	
	Wrist twist (JT6)	650	650	700	700	610	610	
Moment (N·m)	Wrist swivel (JT4)	12	12	13	22	22	34	
	Wrist bend (JT5)	12	12	13	22	22	34	
	Wrist twist (JT6)	3.75	3.75	7.5	10	10	22	
Moment of inertia (kg·m²)	Wrist swivel (JT4)	0.4	0.4	0.45	0.7	0.7	0.8	
	Wrist bend (JT5)	0.4	0.4	0.45	0.7	0.7	0.8	
	Wrist twist (JT6)	0.07	0.07	0.14	0.2	0.2	0.25	
Mass (kg)	150	160	150	150	230	545	230	
Body color	Munsell 10GY9/1 equivalent							
Installation	Floor, Ceiling							
Environmental conditions	Ambient temperature (°C)	0 - 45						
	Relative humidity (%)	35 - 85 (no dew, nor frost allowed)						
Power requirements (kVA) *2	2.0	2.0	2.0	2.0	3.0	4.0	3.0	
Controller	America	E01	E01			E02	E01	
	Europe							
	Japan & Asia							

*1: Conforms to ISO9283 *2: Depends on the payload and motion patterns

Optional equipment

- Shock sensor
- Torch bracket (350 A / 500 A)
- Installation base (600 mm / 300 mm)
- Base plate (750 mm × 750 mm × 25 mm)
- Linear slide
- Positioner
- Servo torch
- RTPM (arc sensor)
- AVC (arc sensor dedicated to TIG welding)
- 3D laser sensor
- Wall mounting

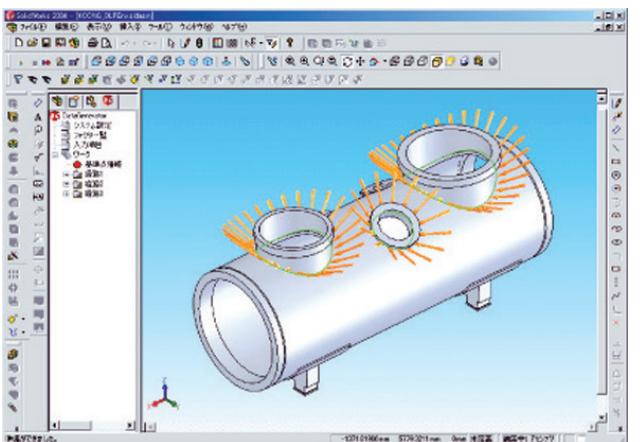
Integration with many welding power supplies

For communication between the Kawasaki robot and power source as well as easy and comprehensive arc welding process controls, Kawasaki Robotics offers welder specific interfaces to leading arc welding power sources, such as:

- Lincoln
- Miller
- Fronius
- OTC Daihen

KCONG Kawasaki Common Offline NC data Generator

KCONG, our offline programming software, automatically generates a robot's welding path based off of workpiece geometry.



Features

No need for time-consuming robot teaching

KCONG generates robot welding paths quickly and easily from 3D CAD data such as DXF, IGES, STEP or VRML.

Offline process verification

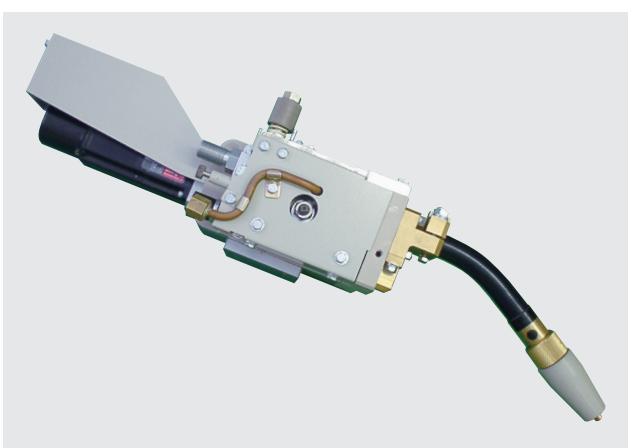
Once KCONG automatically generates the robot welding path, users can then view the simulation of the arc welding process, check for collisions, weld access, and system layout issues, and make fine adjustments to the generated welding path.

Direct program download

After verifying the weld process and making any necessary adjustments, the operation program is generated by KCONG. The completed weld operation program can then be downloaded directly to the robot controller.

Servo torch

Kawasaki's servo torch option delivers high quality welding.



Features

Can be used with small-gauge iron or aluminum wire

The steady feed of the iron (ø 0.6 mm) or aluminum wire results in no buckling.

Excellent arc stability

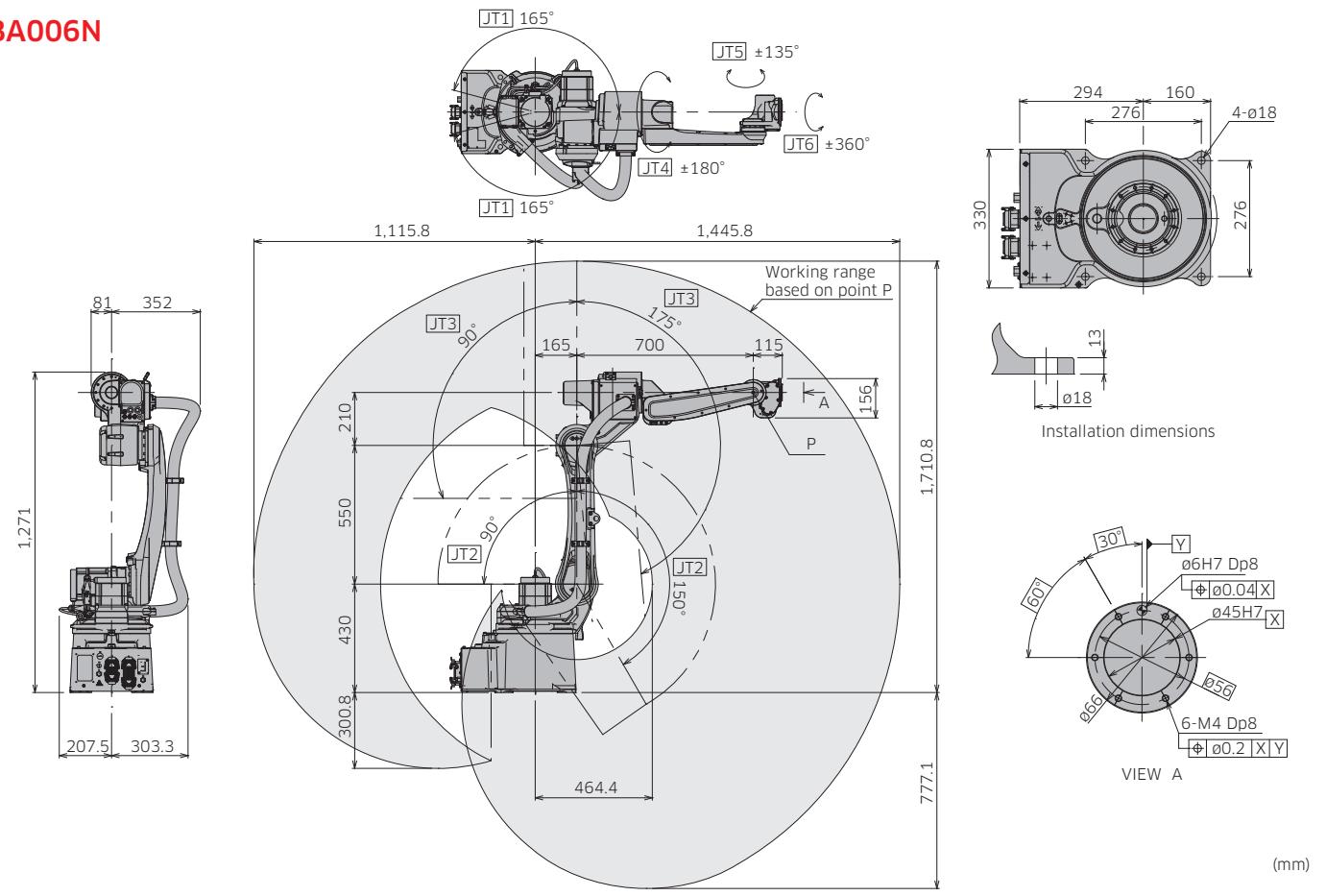
The constant speed and control of the wire feed results in excellent arc stability.

Improved arc ignition performance

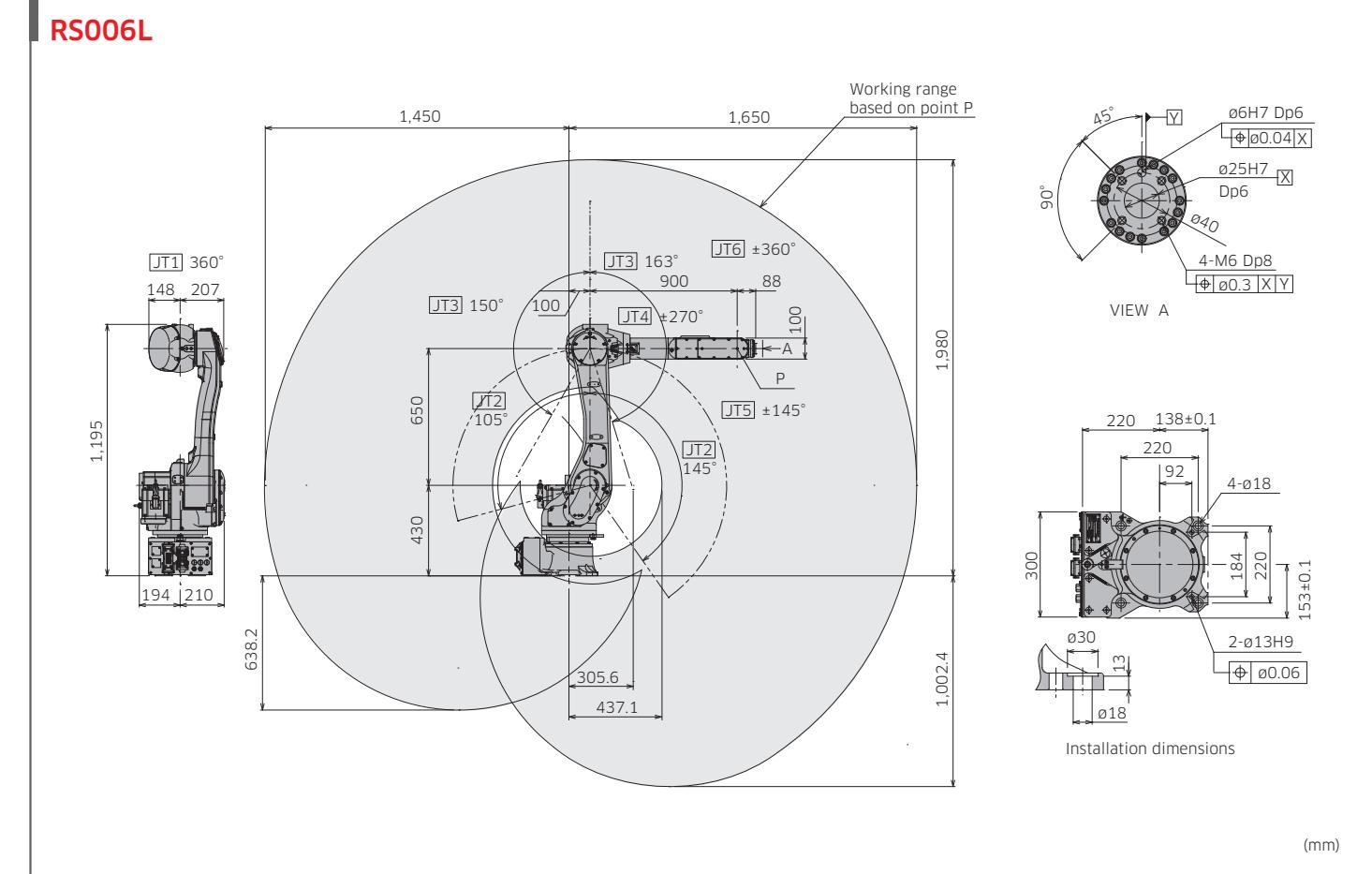
The servo torch can control complex wire feeding at the start and end of welding operations, thereby improving arc ignition.

Motion range & dimensions

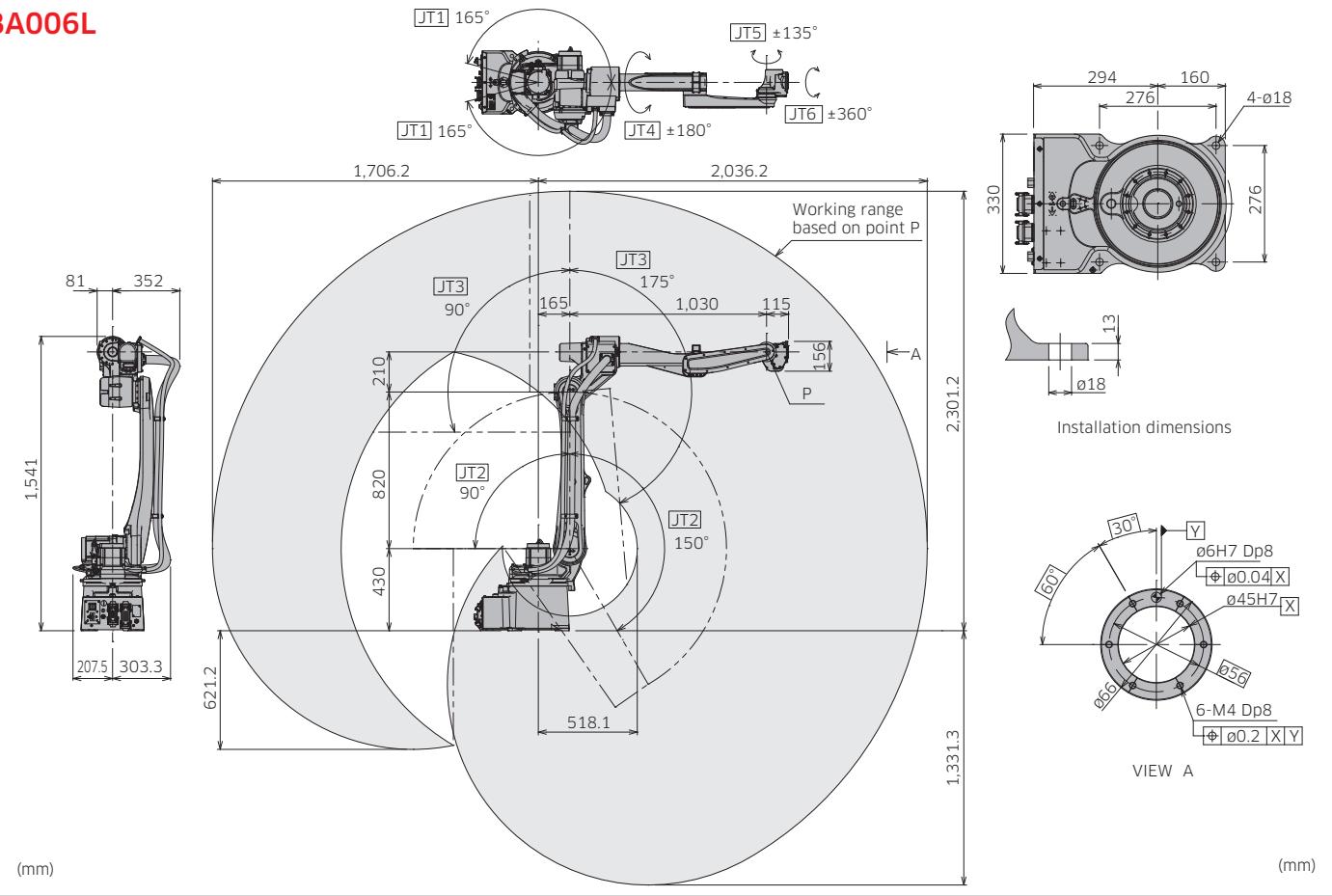
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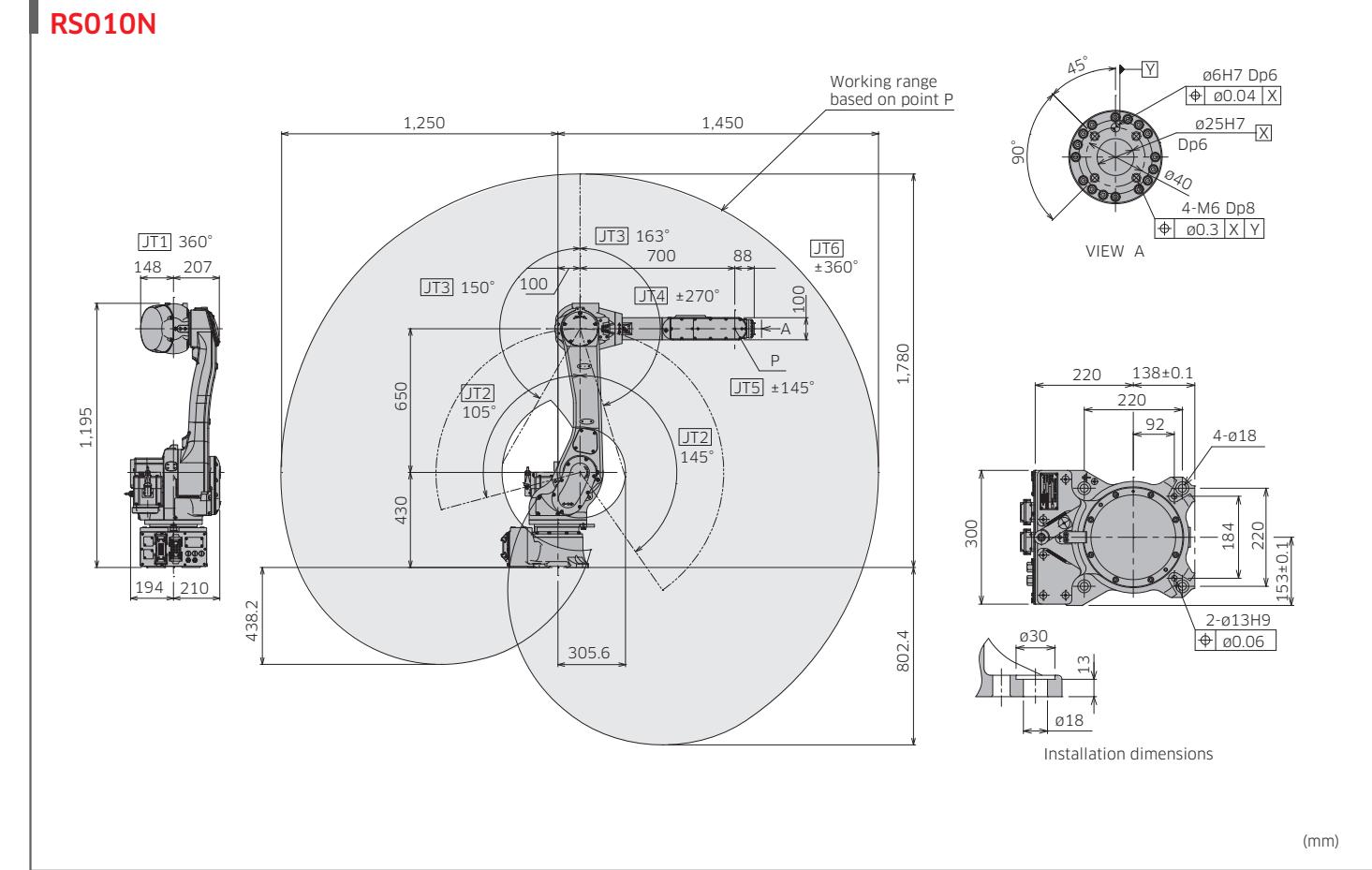
RS006L



BA006L

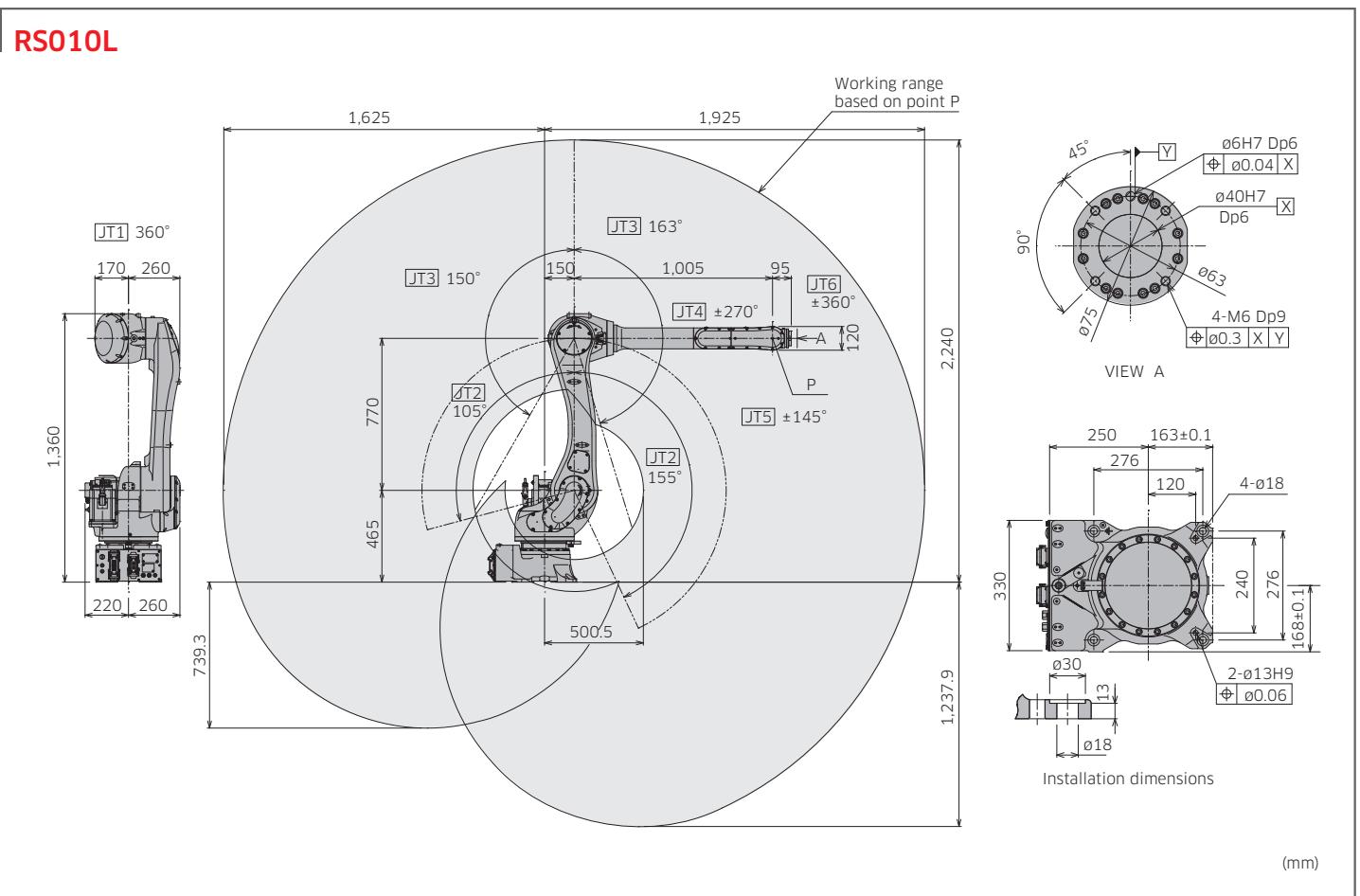


RS010N

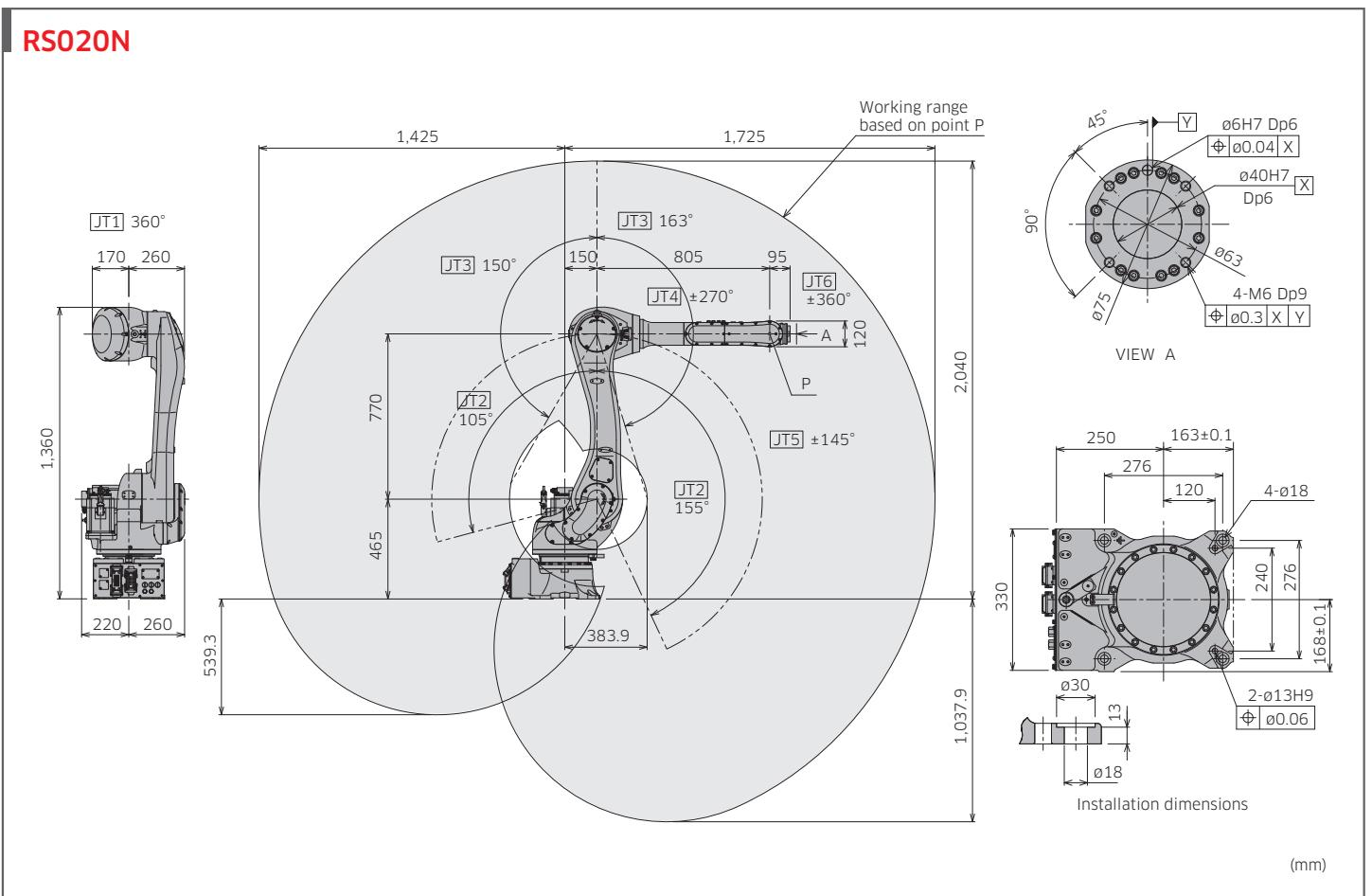


Motion range & dimensions

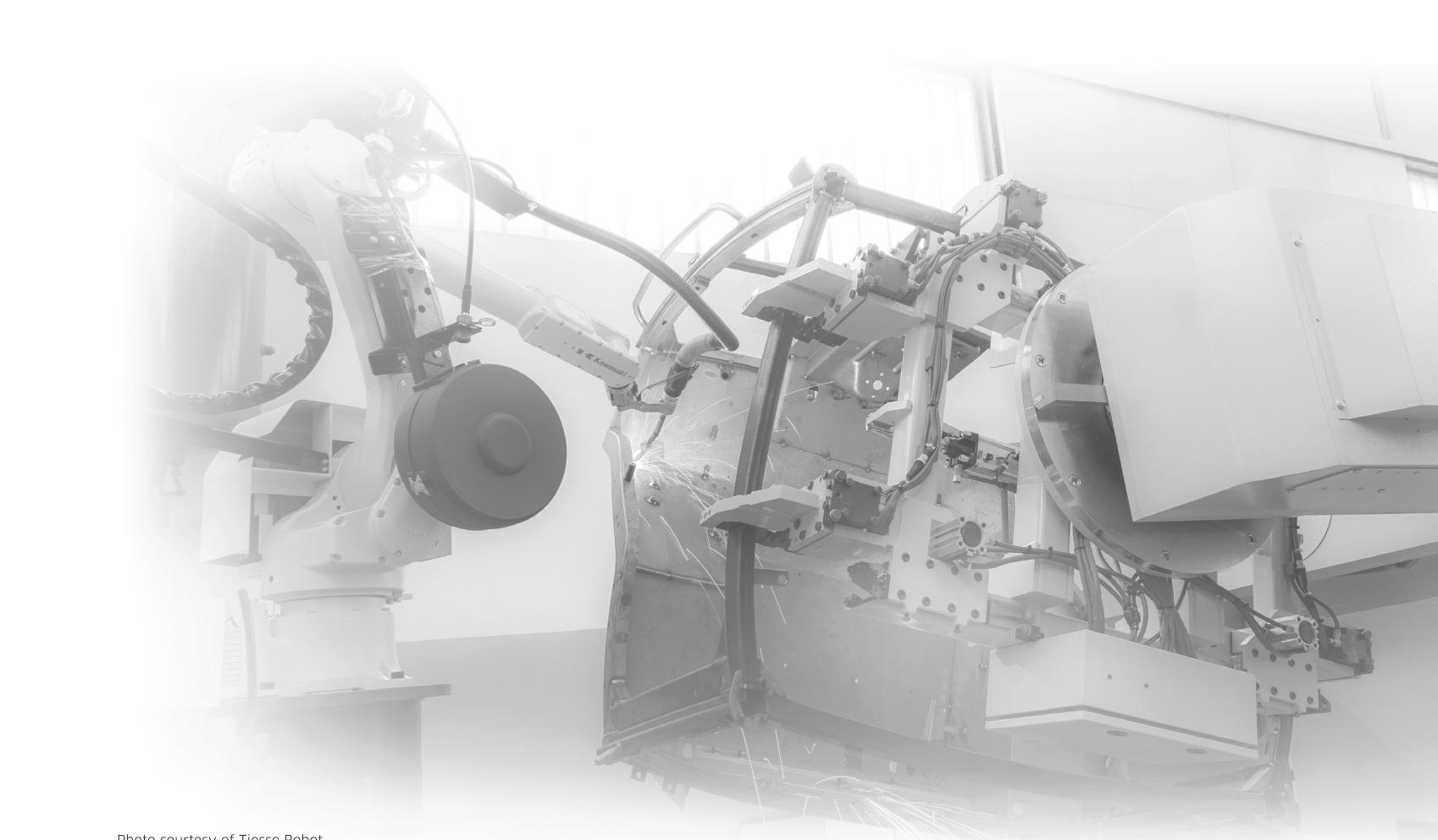
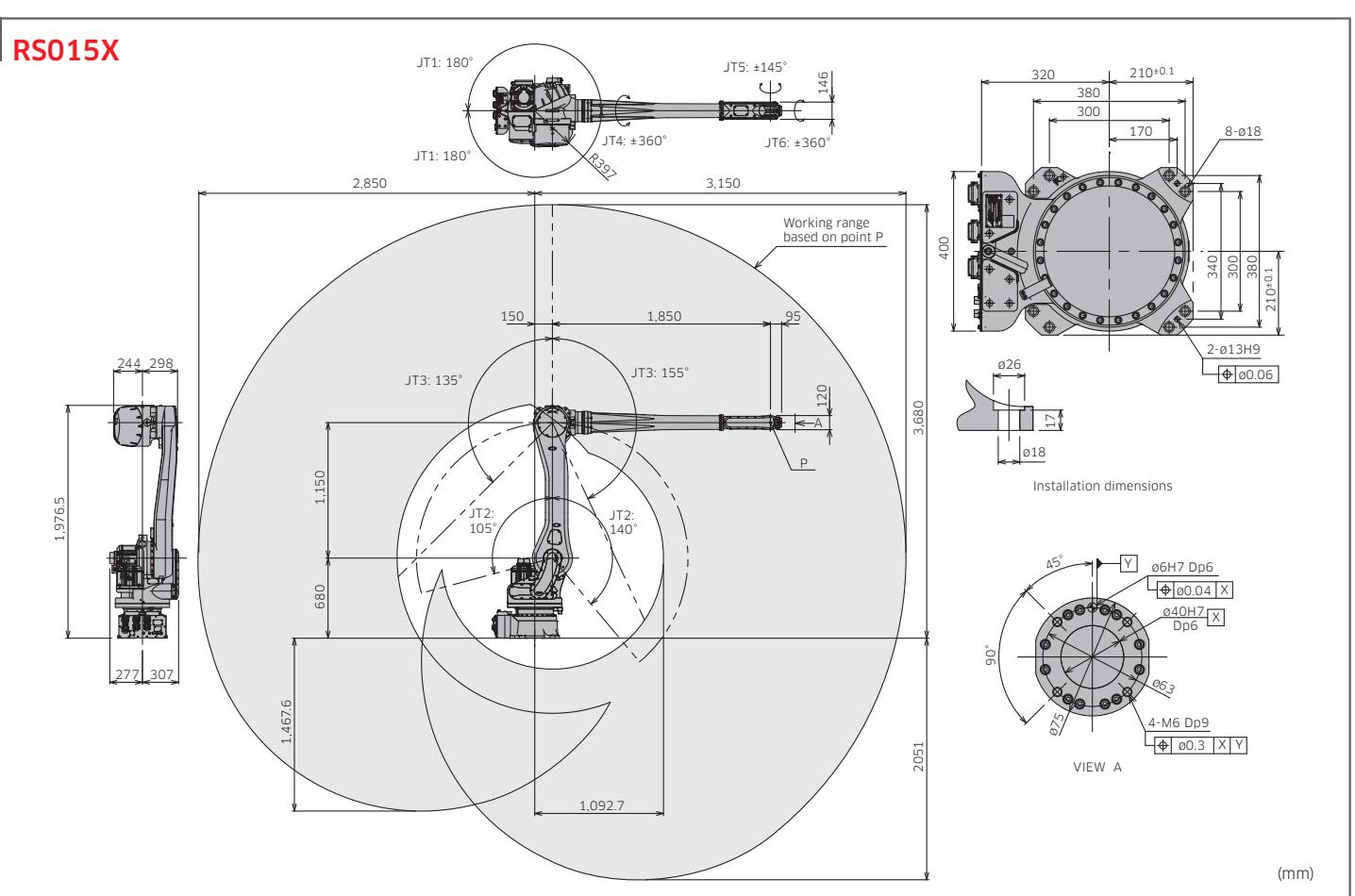
RSO10L



RS020N



RSO15X



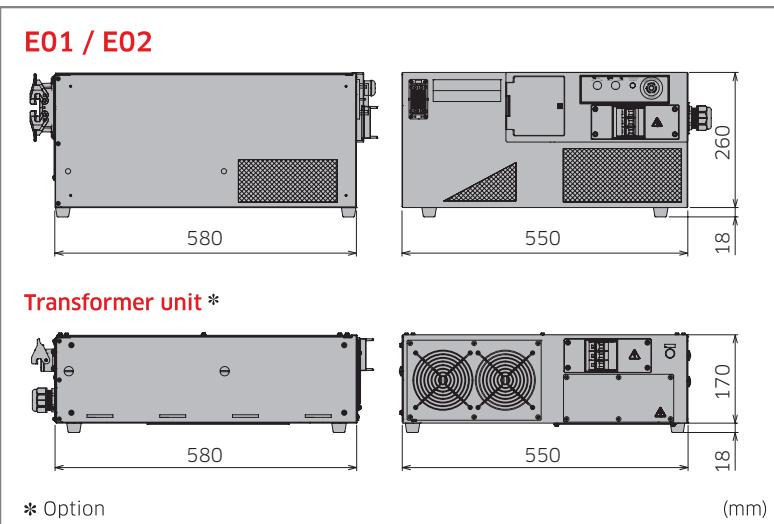
E series

- An evolution of engineering excellence

Kawasaki has incorporated more than 45 years of experience as a robot industry leader into the development of the most technically advanced controller available. The E Controller combines high performance, unprecedented reliability, a host of integrated features and simple operation, all in a compact design.



External view & dimensions



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 function enables service support from anywhere in the world.

Expandable

Two external axes can be added to the E01/E02 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.

Specifications

	Standard	Option
	E01 / E02	
America		
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 Input (channels) Output (channels)	Motor power off, Hold 32 32
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)	Cycle start switch, Motor-on switch, Hold/run switch, Error light, Rapid-feed check mode switch
Cable length	Teach pendant (m) Robot-controller (m)	5 5
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
Environmental conditions	Ambient temperature (°C) Relative humidity (%)	0 - 45 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

