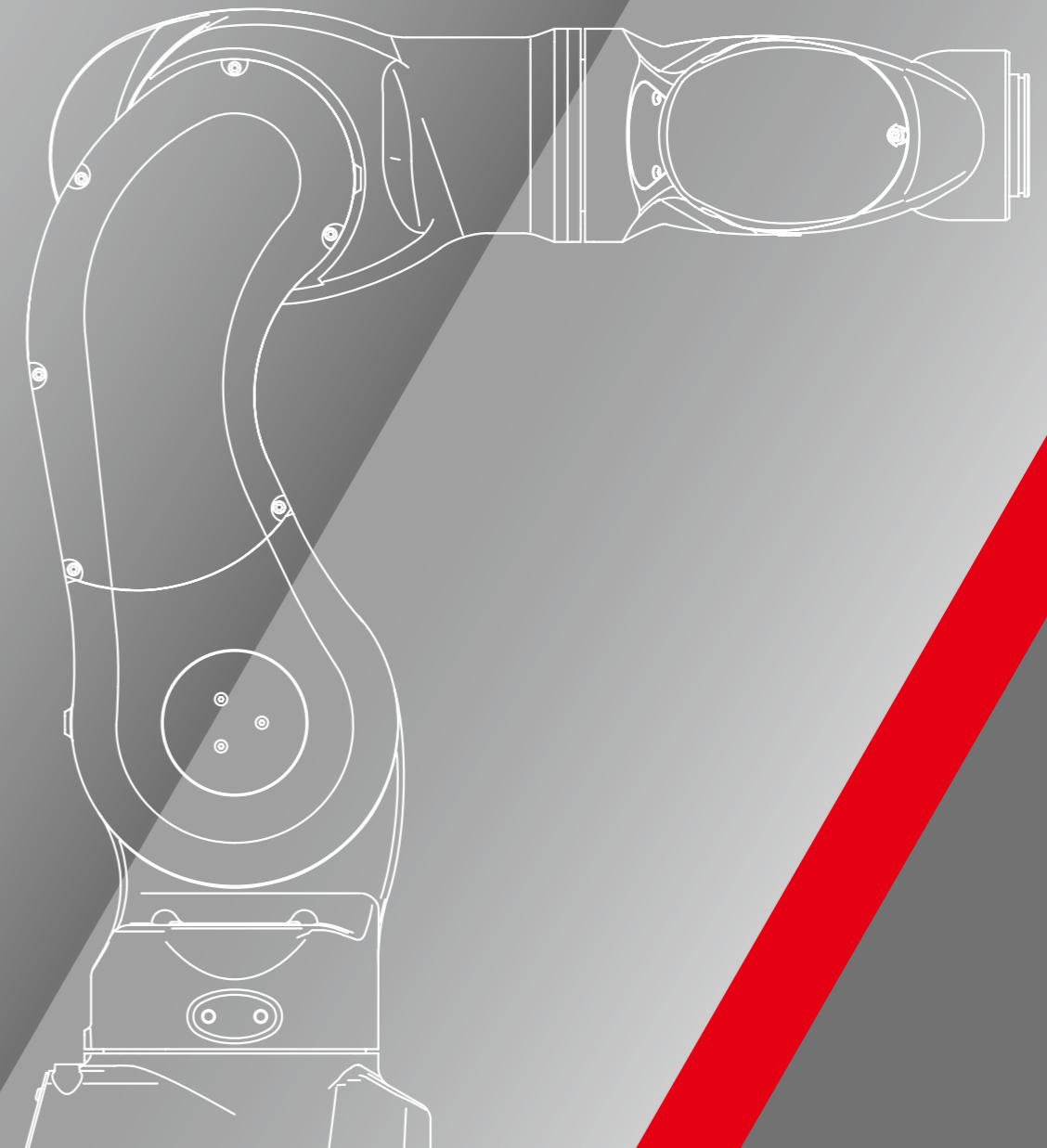




Kawasaki Robot MC series

Medical and pharmaceutical 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
29 Sperberweg, 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/>

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.

* Materials and specifications are subject to change without notice.

A clean robot for medical and pharmaceutical application: The new solutions from KAWASAKI offering based on advanced technologies.

Robotics Automation is required in the pharmaceutical and medical industries to avoid a human error, a contamination risk or a risk of exposure to High Potency Active Pharmaceutical Ingredient, such as an anticancer drugs. MC series is a robot for pharmaceutical and medical application that was developed to meet these requirements.

Features

Human arm-like

Human arm-like joint configurations provide minimal dead space and allow robot to rotate and operate in constricted workspaces.

Sanitary features

Streamlined design features a smooth surface, high performance seals, and a chemical resistant epoxy paint finish to facilitate decontamination process.

Hollow wrist

Through-arm cable and tube technology eliminates cable interference. (The built-in cable specification should be defined separately.)

Cleanroom classification

Meets ISO Class 5 (Class 100 of US FED STD 209E) cleanroom standard.

Compact body

Short and compact arm design is ideal for narrow or confined spaces.

MC004V Robot Arm for Sterilization by VHP (Vaporized Hydrogen Peroxide)

The robot arm has a special surface treatment and uses a special sealing material to cope with sterilization by VHP.

The encoder battery installed separately from the robot arm allows battery exchanges outside the isolator, providing higher maintainability.



MC004V



MC004N

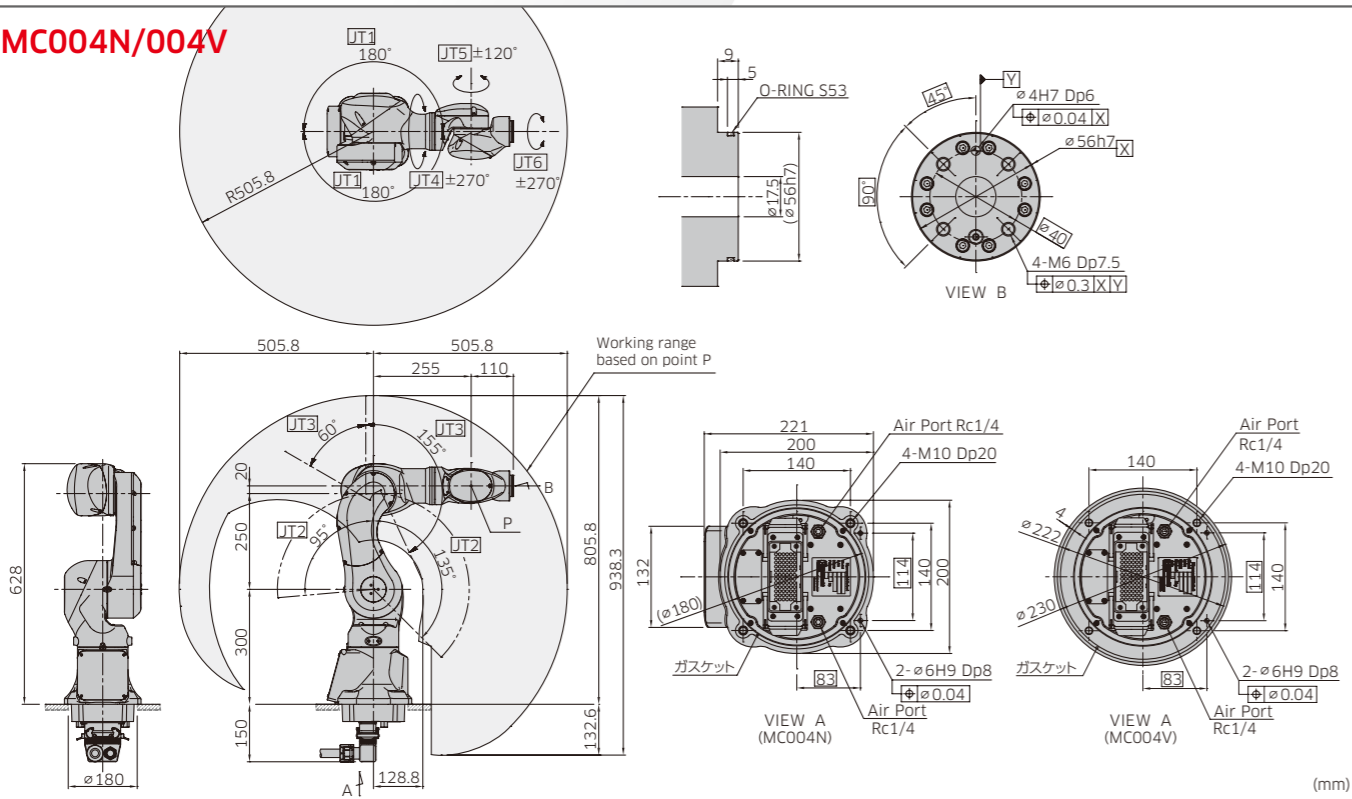
Specifications

		MC004N	MC004V
Type		Articulated robot	
Degree of freedom (axes)		6	
Max. payload (kg)		4	
Max. reach (mm)		505.8	
Positional repeatability (mm)*1		±0.05	
Motion range (°)	Arm rotation (JT1)	±180	
	Arm out-in (JT2)	+135 - -95	
	Arm up-down (JT3)	+60 - -155	
	Wrist swivel (JT4)	±270	
	Wrist bend (JT5)	±120	
	Wrist twist (JT6)	±270	
Max. speed (°/s)	Arm rotation (JT1)	200	
	Arm out-in (JT2)	180	
	Arm up-down (JT3)	225	
	Wrist swivel (JT4)	700	
	Wrist bend (JT5)	500	
	Wrist twist (JT6)	350	
Moment (N·m)	Wrist swivel (JT4)	8.5	
	Wrist bend (JT5)	8.5	
	Wrist twist (JT6)	4.0	
Moment of Inertia (kg·m ²)	Wrist swivel (JT4)	0.2	
	Wrist bend (JT5)	0.2	
	Wrist twist (JT6)	0.1	
Mass (kg)	25		
Body color	White 12-MTJ-500938 (epoxy paint)	Special surface treatment	
Installation	Floor		
Cable connection	Bottom, Back	Bottom	
Environmental condition	Temperature (°C)	10 - 35	
	Humidity (%)	35 - 85 (No dew, nor frost allowed)	
Cleanliness	ISO Class5		
Integrated function	Air piping (∅4×2) Through from the wrist flange, Port size : Rc1/4		
Power requirements (kVA)*2	1.0		
Degree of protection*3	IP65 (Wrist : IP67)		
Matching controller	F60		

*1: conforms to ISO9283
 *2: depends on the payload and motion patterns
 *3: The flange must be closed in case of using the built-in piping.

Motion range & dimensions

MC004N/004V



Specifications

		F60	Option
Dimensions (mm)		W300 x D320 x H130 *	
Structure		Open structure with direct cooling system	
Number of controlled axes		6	
Type of driving		Full digital servo system	
Types of motion control	Manual mode	Joint, Base, Tool	
	Teach mode	joint, linear and circular interpolated motions	
Teaching method		point to point teaching or language based programming	
Memory capacity (MB)		16	
I/O signals	External signal	E- stop, Hold etc.	
	Input	16	
	Output	16	
Operation panel		Teach/Repeat switch, E-stop switch	
Cable length (m)	Robot-controller	Harness between robot & controller 5	
	Teach pendant	Teach pendant cable 5	
Mass (kg)		8.3 *	
Power requirements		AC200-230V ±10%, 50/60Hz, 1∅ Class D earth connection (Earth connection dedicated to robots)	
Environmental conditions	Ambient temperature (°C)	0 - 45	
	Relative humidity (%)	35 - 85 (no condensation)	
Teach pendant		TFT Color LCD with touch panel, emergency stop switch, teach lock switch and enable switch	
Color		Munsell 5Y8.5/1 equivalent	
External interface		USB 2.0 x 3 ports, RS-232C x 2 ports, Ethernet (100BASE-T/100BASE-TX/10BASE-T) x 2 ports	

*: Without option
 • Please contact Kawasaki about the robot arm types that match the F60 controller and options.