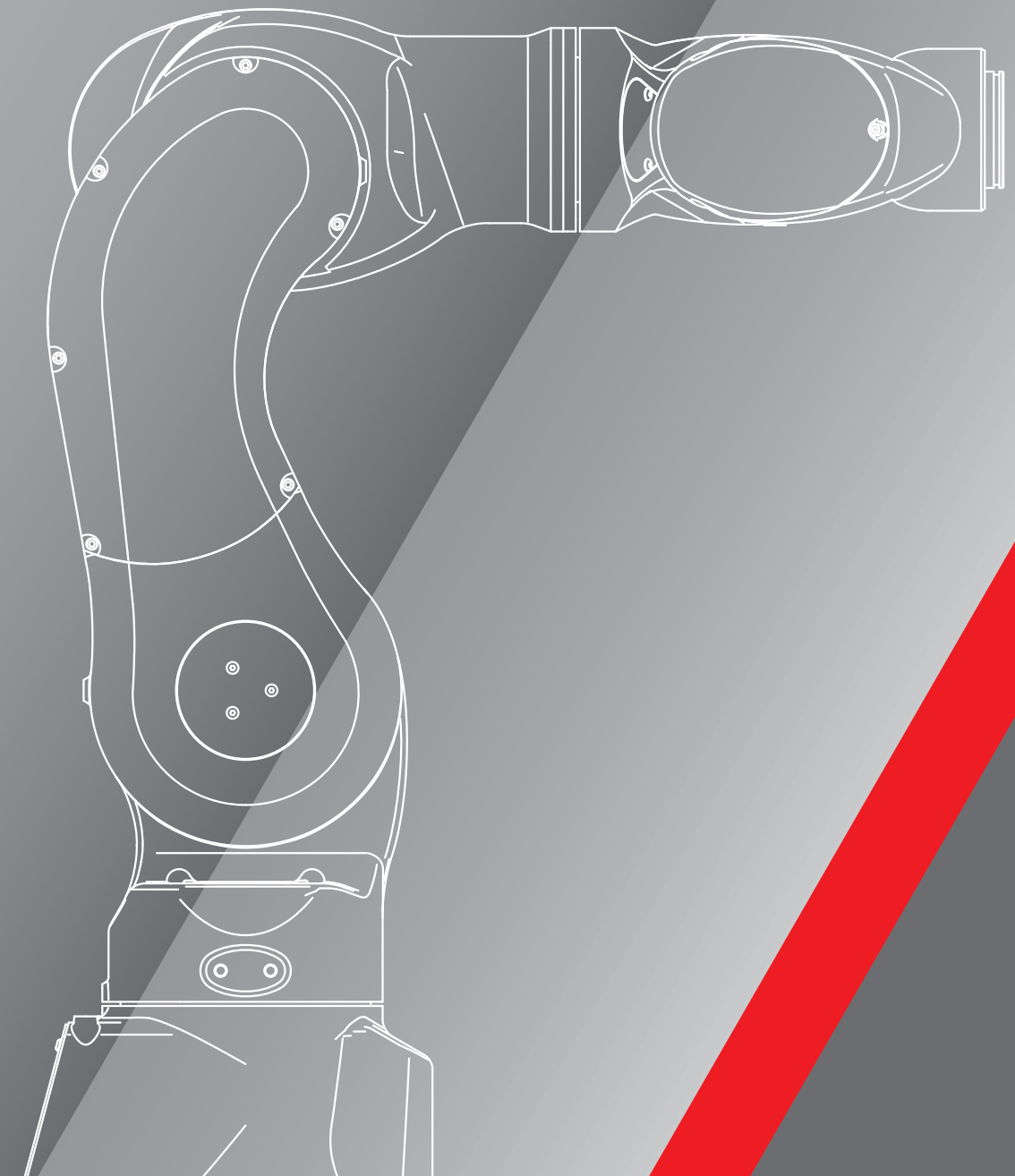




# Kawasaki Robot

## MC series

Medical and pharmaceutical robots



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## 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.

**Designed specifically for pharmaceutical and medical applications, the MC series clean robots meet the healthcare industry's demands.**

The Kawasaki MC series robots help prevent human errors, contamination risks and exposure to High Potency Active Pharmaceutical Ingredients, such as anticancer drugs. These robots meet the healthcare industry's processing equipment specifications for accuracy, consistency and cleanliness, making them ideal for assembly, dispensing, inspection and material handling applications.

## Features

## Human-like arm with compact body

The human-like arm joint configuration minimizes dead space and allows MC series robots to operate in constricted workspaces. Their compact design allows for direct mounting to a machine or table top.

## Sanitary features

The streamlined design of the MC004N robot features a smooth surface, high performance seals, and a chemical resistant epoxy paint finish to help prevent contamination. The MC004V robot offers a special metal coating and protective seals to withstand sterilization with Vaporized Hydrogen Peroxide (VHP).

## Hollow wrist

The MC series robots' through-arm cable and tube technology minimizes potential interference with other processing and manufacturing equipment.

## Cleanroom classification

Both MC series robots meet the ISO Class 5 (Class 100 of US FED STD 209E) cleanroom standard.



MC004V



MC004N

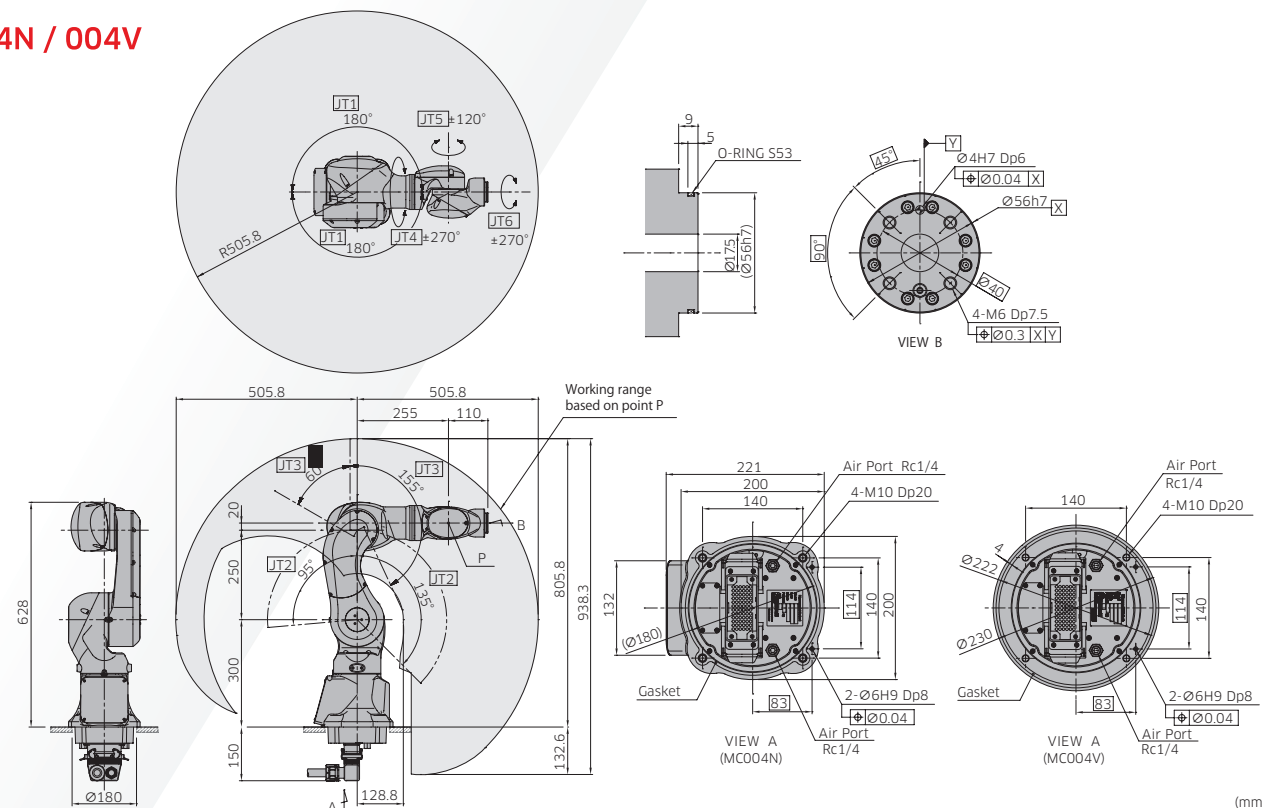
## Specifications

|                                  |                    | MC004N  | MC004V                    |
|----------------------------------|--------------------|---|---------------------------|
| Type                             |                    | Articulated   |                           |
| Degrees 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·m²)        | 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, Ceiling  |                           |
| Cable connection                 |                    | Bottom, Back  | Bottom                    |
| Environmental conditions         | Temperature (°C)   | 10 - 35   |                           |
|                                  | Humidity (%)       | 35 - 85 (no dew, nor frost allowed)                               |                           |
| Cleanliness                      |                    | ISO Class 5   |                           |
| Integrated function              |                    | Air piping (Ø4×2) 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: With a closed flange when using the built-in piping

## Motion range & dimensions

## MC004N / 004V



## Specifications

|                           |                          | F60   | Option   |
|---------------------------|--------------------------|---|--|
| Dimensions (mm)           |                          | W300 x D320 x H130 *1   |  |
| Structure                 |                          | Open structure with direct cooling system (IP20)  | Enclosed structure with indirect cooling system (IP54) *2      |
| Number of controlled axes |                          | 6   | 8  |
| Type of driving           |                          | Full digital servo system   |  |
| Types of motion control   | Manual mode              | Joint, Base, Tool   | Fixed tool point   |
|                           | 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  | Addition: 64 (max. 80)<br>Including remote I/O: 128 (max. 144) |
|                           | Output                   | 16  | Addition: 64 (max. 80)<br>Including remote I/O: 128 (max. 144) |
| Operation panel           |                          | Teach/Repeat switch, E-Stop switch  |  |
| Cable length (m)          | Robot-controller         | Harness between robot & controller 5  | 10, 15   |
|                           | Teach pendant            | Teach pendant cable 5   | 10, 15   |
| Mass (kg)                 |                          | 8.3 *   |  |
| Power requirements        |                          | AC200-230V ±10%, 50/60Hz, 1Ø  |  |
|                           |                          | 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, E - 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 (1000BASE-T/100BASE-TX/10BASE-T) x 2 ports |  |

\*1: Without options    \*2: Cabinet is larger