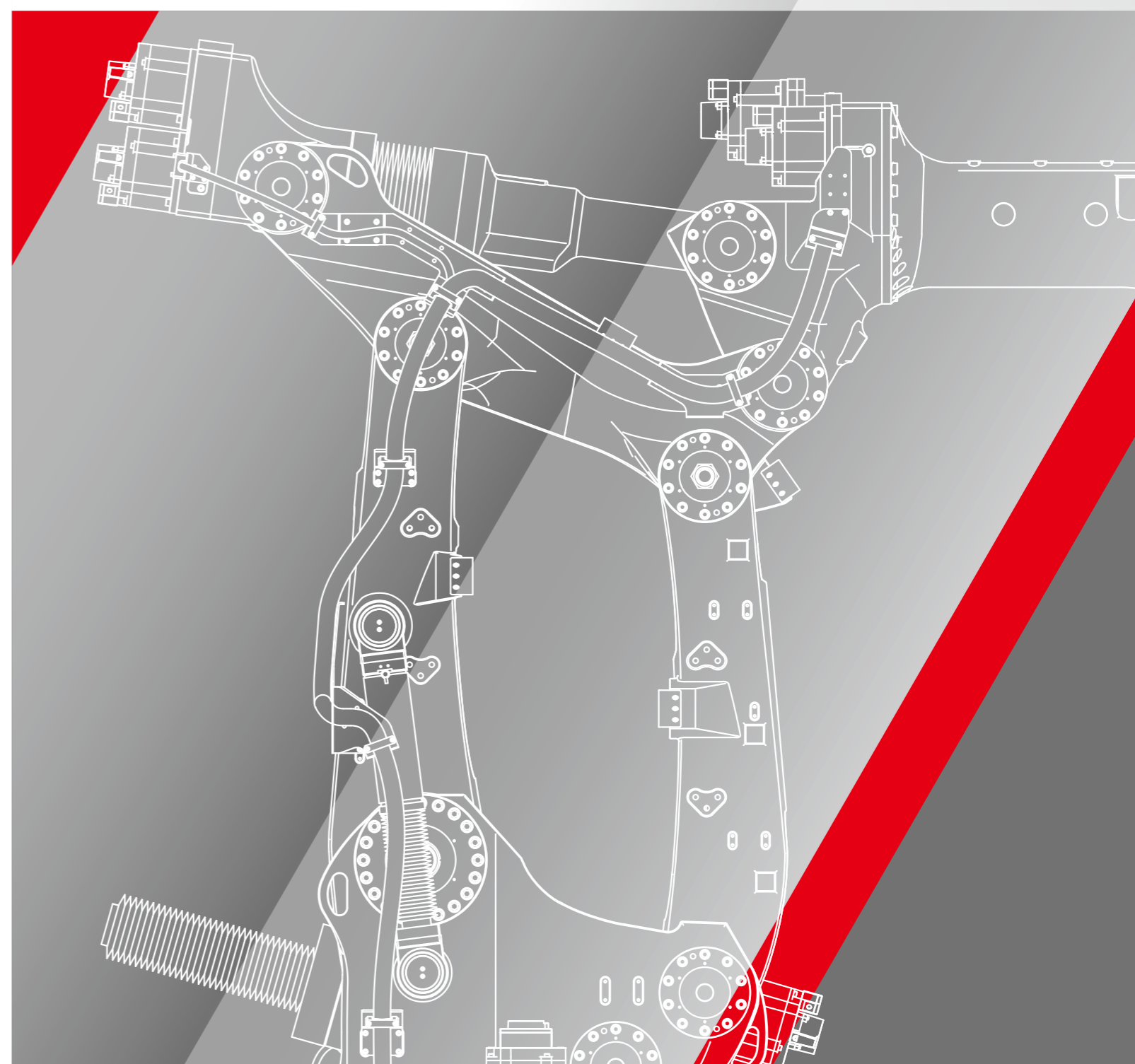




Kawasaki Robot

M series

Extra large payload robots up to 1,500 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.

Maximum payload 1,500 kg Incorporating a compact profile design with long reach and high wrist torque

The “M series” – this powerful robot developed by Kawasaki Heavy Industries, a pioneer of industrial robot manufacture, has a maximum payload of 1,500 kg. Its superior design gives it the power to lift and manipulate heavy loads with great ease and high accuracy. Kawasaki’s own mechanism makes the waist more compact and allows it to support a larger payload capacity.

Features

Compact profile

The MX adopts a new link structure for the JT3 (upper and lower arms), while the MG adopts Kawasaki’s own hybrid link mechanism and ball screws for the JT3. Two large motors to drive them make the counterweight unnecessary and the robot’s waist compact.

High wrist torque

The MG15HL have superb wrist torque. This torque increases the offset distance from the twist flange surface to the center of gravity of a workpiece. Its application offers excellent results when working with off-centered workpieces.

High rigidity

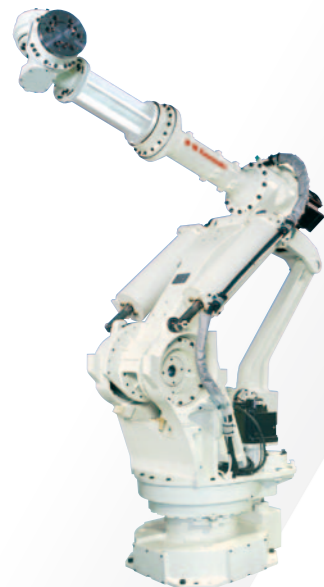
The second and third axes that affect the accuracy of hand motions use highly rigid ball screws with minimal backlash. This reduces arm deflection while enabling high positioning accuracy. (MG)

Wide motion range

Kawasaki’s original hybrid link mechanism along with the ball screws used in the second and third axes ensures a wide work envelope when the arm moves forward. (MG)

Many variations

Four MX models (6-axis type, 350 - 700 kg) and two MG models (6-axis type, 1,000 - 1,500 kg) are floor mounting types. The MT400N (6-axis, 400kg) is a shelf mounting type. These models are for assembling and handling applications.



MX350L



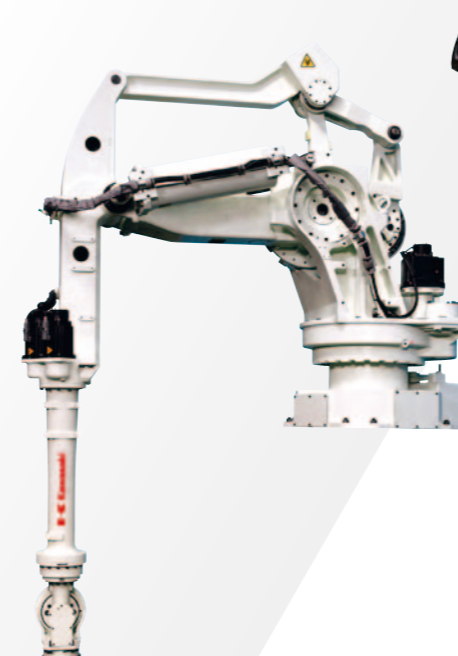
MX420L



MX500N



MX700N



MT400N



MG10HL



MG15HL



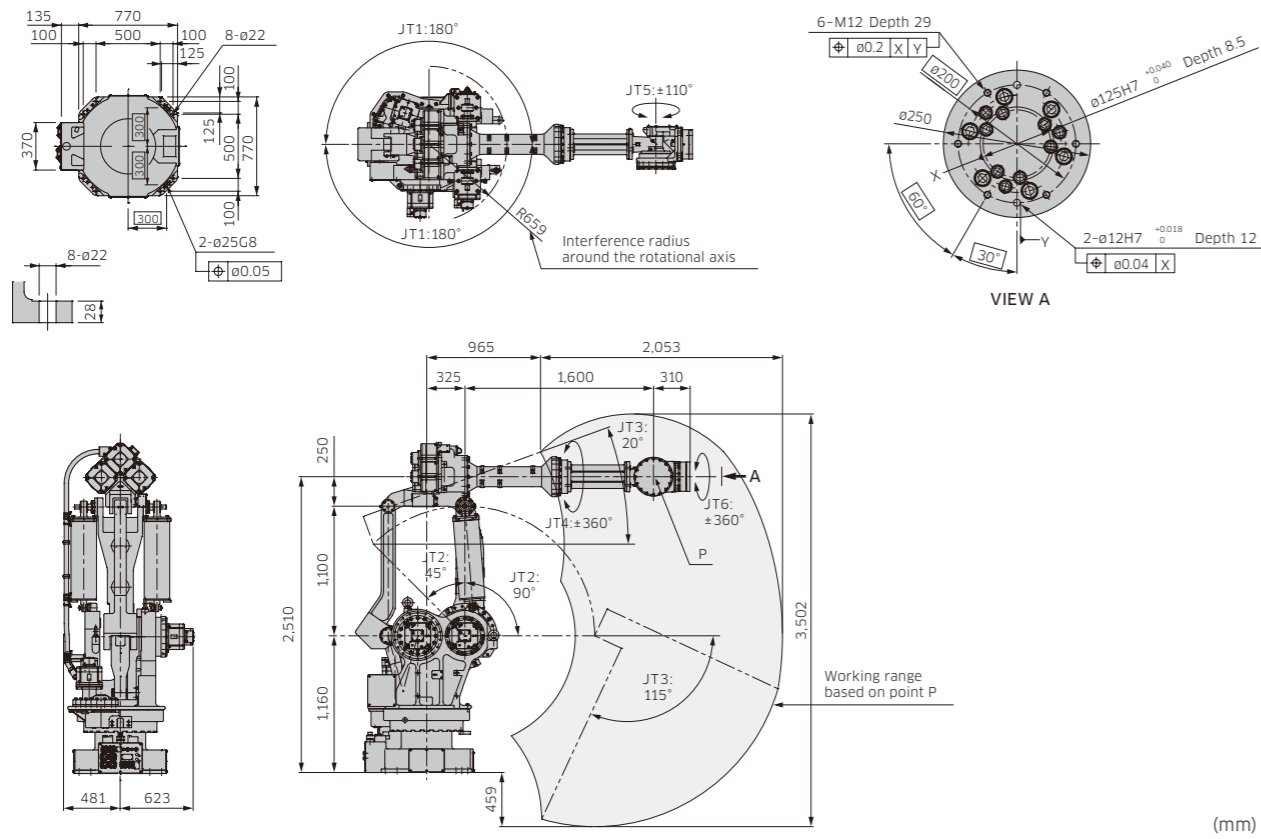
| | | MX350L | MX420L | MX500N | MX700N |
|--|--------------------------|---|------------|------------|------------|
| Type | | Articulated robot | | | |
| Degree of freedom (axes) | | 6 | | | |
| Max. Payload (kg) | | 350 | 420 | 500 | 700 |
| Max. Reach (mm) | | 3,018 | 2,778 | 2,540 | 2,540 |
| Repeatability (mm) | | ±0.5 (at the tool mounting surface) | | | |
| Motion Range (°) | Arm rotation (JT1) | ±180 | ±180 | ±180 | ±180 |
| | Arm out-in (JT2) | +90 - -45 | +90 - -45 | +90 - -45 | +90 - -45 |
| | Arm down-up (JT3) | +20 - -115 | +20 - -125 | +20 - -130 | +20 - -130 |
| | Wrist swivel (JT4) | ±360 | ±360 | ±360 | ±360 |
| | Wrist bend (JT5) | ±110 | ±110 | ±110 | ±110 |
| | Wrist twist (JT6) | ±360 | ±360 | ±360 | ±360 |
| Max. Speed (°/s) | Arm rotation (JT1) | 80 | 80 | 80 | 65 |
| | Arm out-in (JT2) | 70 | 70 | 70 | 50 |
| | Arm down-up (JT3) | 70 | 70 | 70 | 45 |
| | Wrist swivel (JT4) | 80 | 80 | 80 | 50 |
| | Wrist bend (JT5) | 80 | 80 | 80 | 50 |
| | Wrist twist (JT6) | 120 | 120 | 120 | 95 |
| Moment (N·m) | Wrist swivel (JT4) | 2,740 | 3,290 | 3,920 | 5,488 |
| | Wrist bend (JT5) | 2,740 | 3,290 | 3,920 | 5,488 |
| | Wrist twist (JT6) | 1,960 | 1,960 | 1,960 | 2,744 |
| Moment of Inertia (kg·m ²) | Wrist swivel (JT4) | 400 | 400 | 400 | 600 |
| | Wrist bend (JT5) | 400 | 400 | 400 | 600 |
| | Wrist twist (JT6) | 250 | 250 | 250 | 388 |
| Mass (without Options) (kg) | | 2,800 | 2,800 | 2,750 | 2,860 |
| Driving Motor | | Brushless AC servo motor | | | |
| Mounting | | Floor | | | |
| Environmental Condition | Ambient temperature (°C) | 0 - 45 | | | |
| | Relative humidity (%) | 35 - 85 (No dew, nor frost allowed) | | | |
| Built-In Utilities | | Pneumatic pipings (ø12 x 2 lines) Wirings for valves to drive hand (DC24V x 7 circuits) | | | |
| Option | | Adjustable mechanical stopper JT1/JT2/JT3 Limit switch JT1/JT2/JT3 Internal signal harness Double solenoid valve (3 circuit/2 circuit) F.R.L. combination (Air cleaning equipment) | | | |
| Controller | | E04 | | | |

| | | MT400N | MG10HL | MG15HL |
|--|--------------------------|--|---|--------------|
| Type | | Articulated robot | | |
| Degree of freedom (axes) | | 6 | | |
| Max. Payload (kg) | | 400 | 1,000 | 1,500 |
| Max. Reach (mm) | | 3,503 | 4,005 | 4,005 |
| Repeatability (mm) | | ±0.5 (at the tool mounting surface) | ±0.1 (at the tool mounting surface) | |
| Motion Range (°) | Arm rotation (JT1) | ±180 | ±150 | ±150 |
| | Arm out-in (JT2) | +15 - -135 | +90 - -40 | +90 - -40 |
| | Arm down-up (JT3) | +106 - -30 | +30 - -110 | +30 - -110 * |
| | Wrist swivel (JT4) | ±360 | ±360 | ±360 |
| | Wrist bend (JT5) | ±120 | ±120 | ±120 |
| | Wrist twist (JT6) | ±360 | ±360 | ±360 |
| Max. Speed (°/s) | Arm rotation (JT1) | 80 | 65 | 65 |
| | Arm out-in (JT2) | 70 | 33.5 | 33.5 |
| | Arm down-up (JT3) | 70 | 37.5 | 37.5 |
| | Wrist swivel (JT4) | 70 | 65 | 36 |
| | Wrist bend (JT5) | 70 | 65 | 36 |
| | Wrist twist (JT6) | 130 | 80 | 80 |
| Moment (N·m) | Wrist swivel (JT4) | 2,150 | 8,800 | 15,000 |
| | Wrist bend (JT5) | 2,150 | 8,800 | 15,000 |
| | Wrist twist (JT6) | 980 | 4,410 | 4,410 |
| Moment of Inertia (kg·m ²) | Wrist swivel (JT4) | 200 | 1,800 | 2,250 |
| | Wrist bend (JT5) | 200 | 1,800 | 2,250 |
| | Wrist twist (JT6) | 147 | 1,200 | 1,200 |
| Mass (without Options) (kg) | | 2,600 | 6,500 | 6,550 |
| Driving Motor | | Brushless AC servo motor | | |
| Mounting | | Shelf | Floor | |
| Environmental Condition | Ambient temperature (°C) | 0 - 45 | | |
| | Relative humidity (%) | 35 - 85 (No dew, nor frost allowed) | | |
| Built-In Utilities | | Pneumatic pipings (ø12 x 2 lines) Wirings for valves to drive hand (DC24V x 7 circuits) | - | |
| Option | | Adjustable mechanical stopper JT1/JT2/JT3 Limit switch JT1/JT2/JT3 | Adjustable mechanical stopper JT1 Limit switch JT1/JT2/JT3 Internal signal harness Double solenoid valve (3 circuit/2 circuit) F.R.L. combination (Air cleaning equipment) | |
| Controller | | E02 | E58 | |

* : The maximum ranges of motion depend on the payload and the torque.



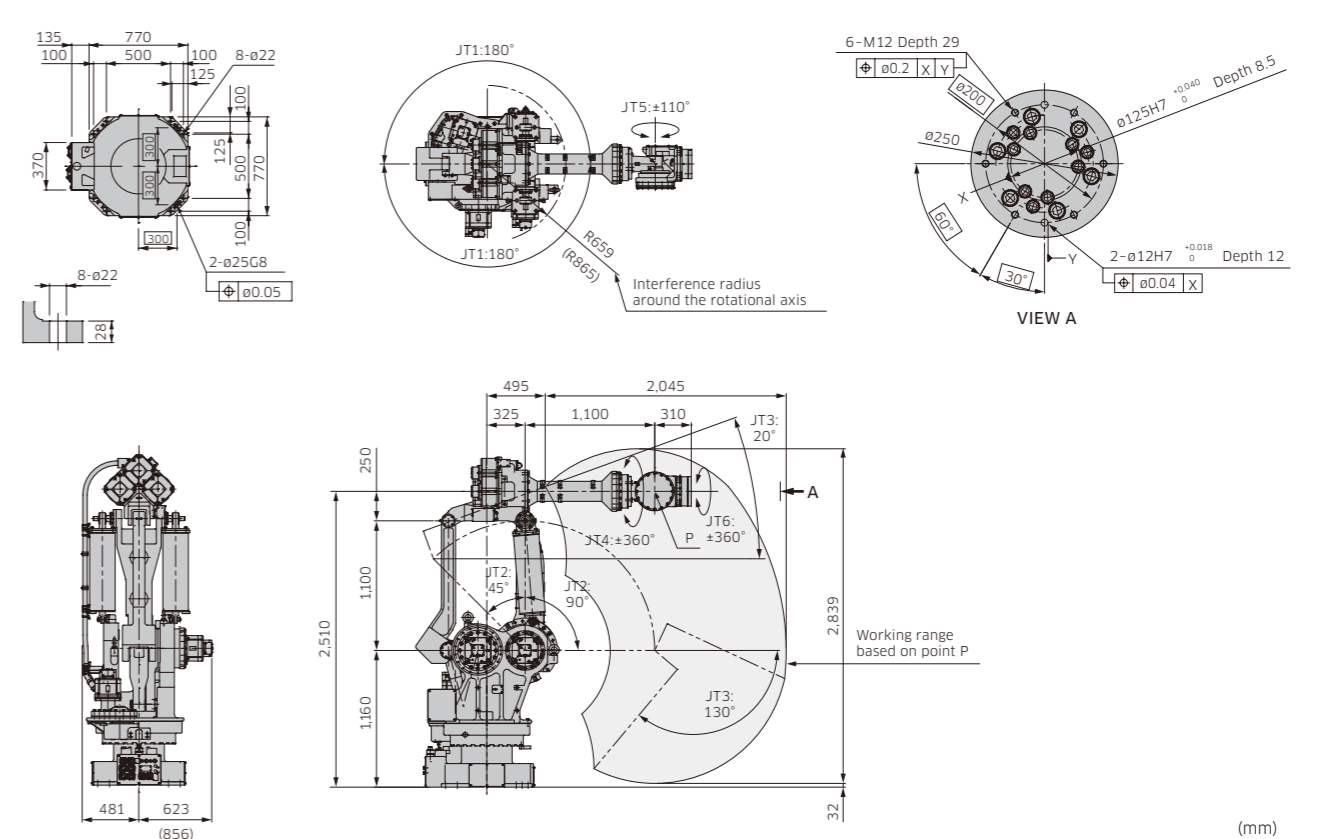
MX350L



(mm)

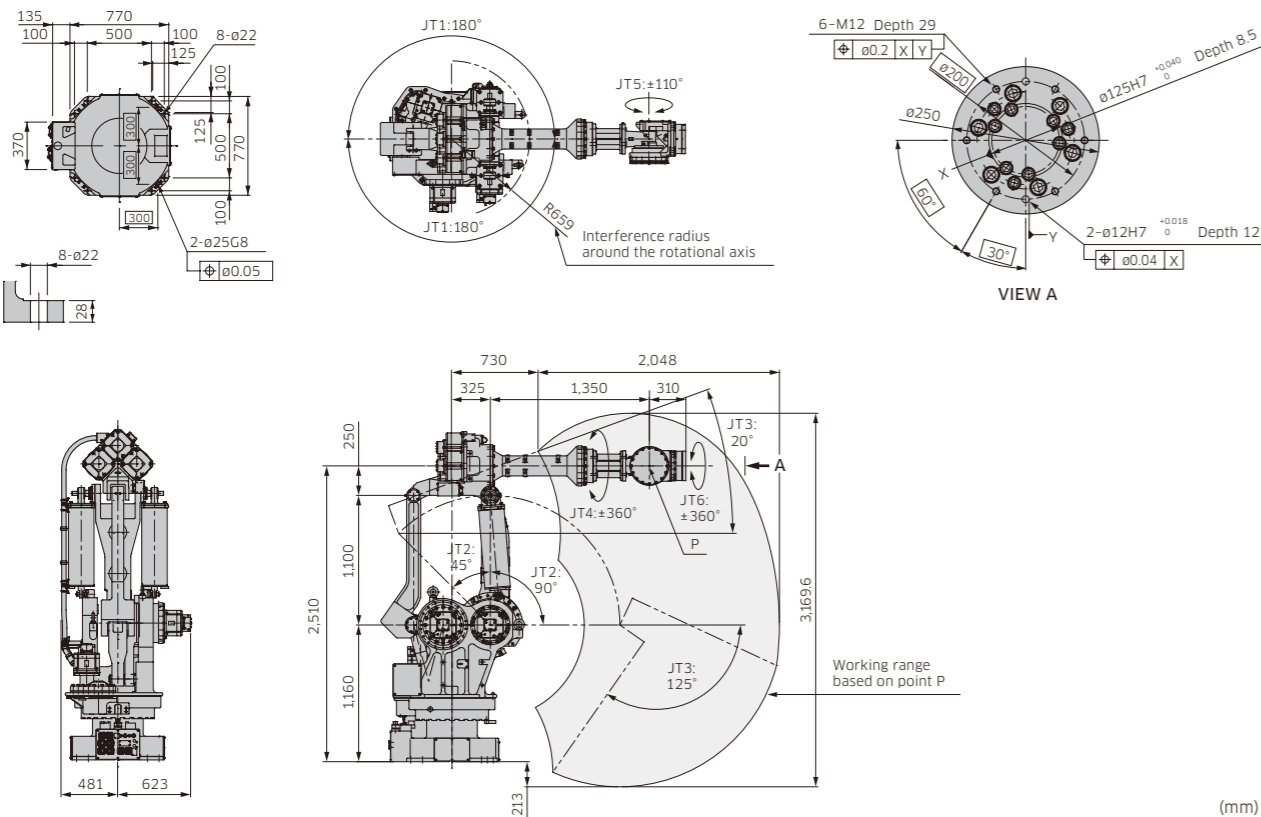
MX500N / 700N

* Figures in () represent MX700N.



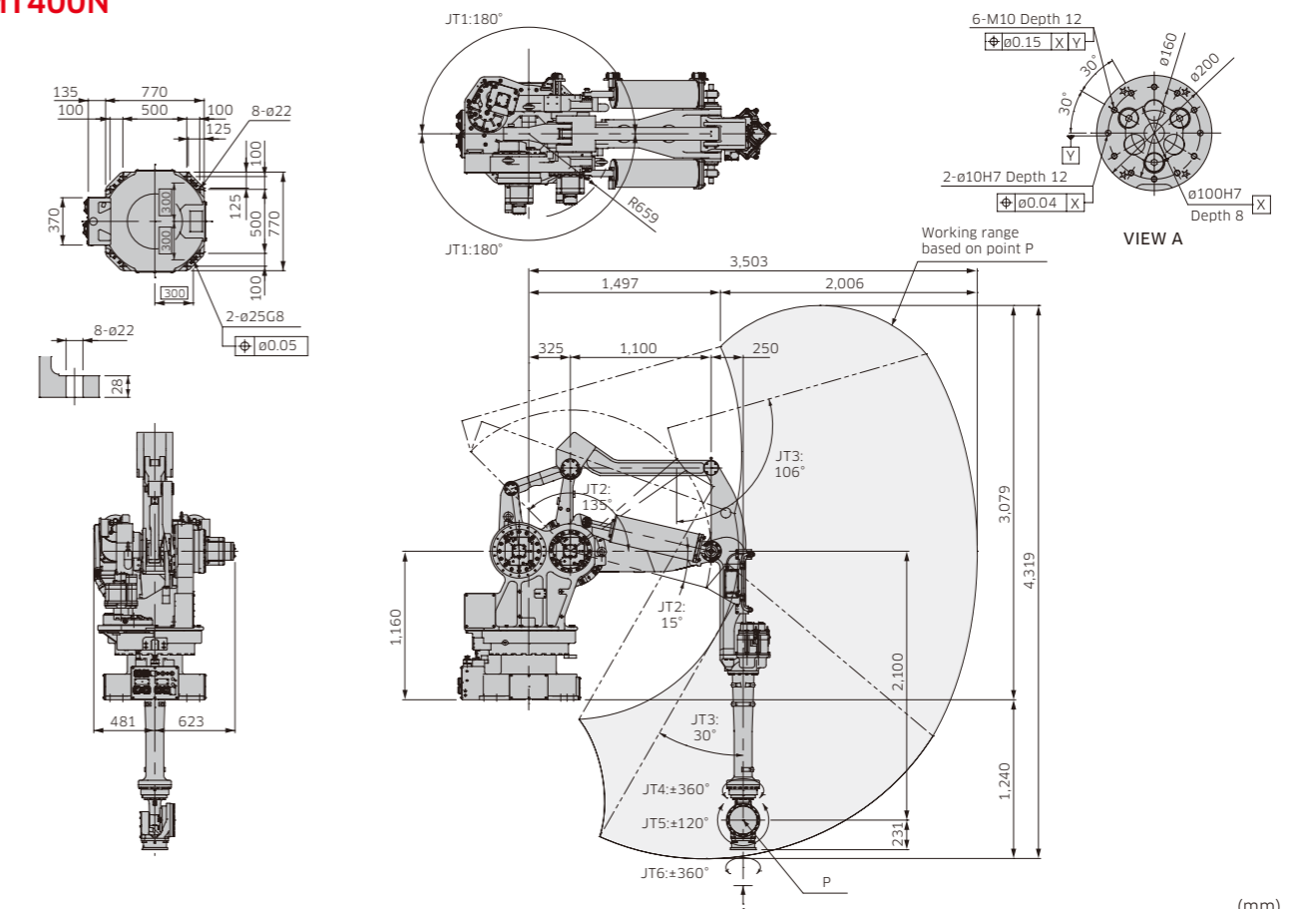
(mm)

MX420L



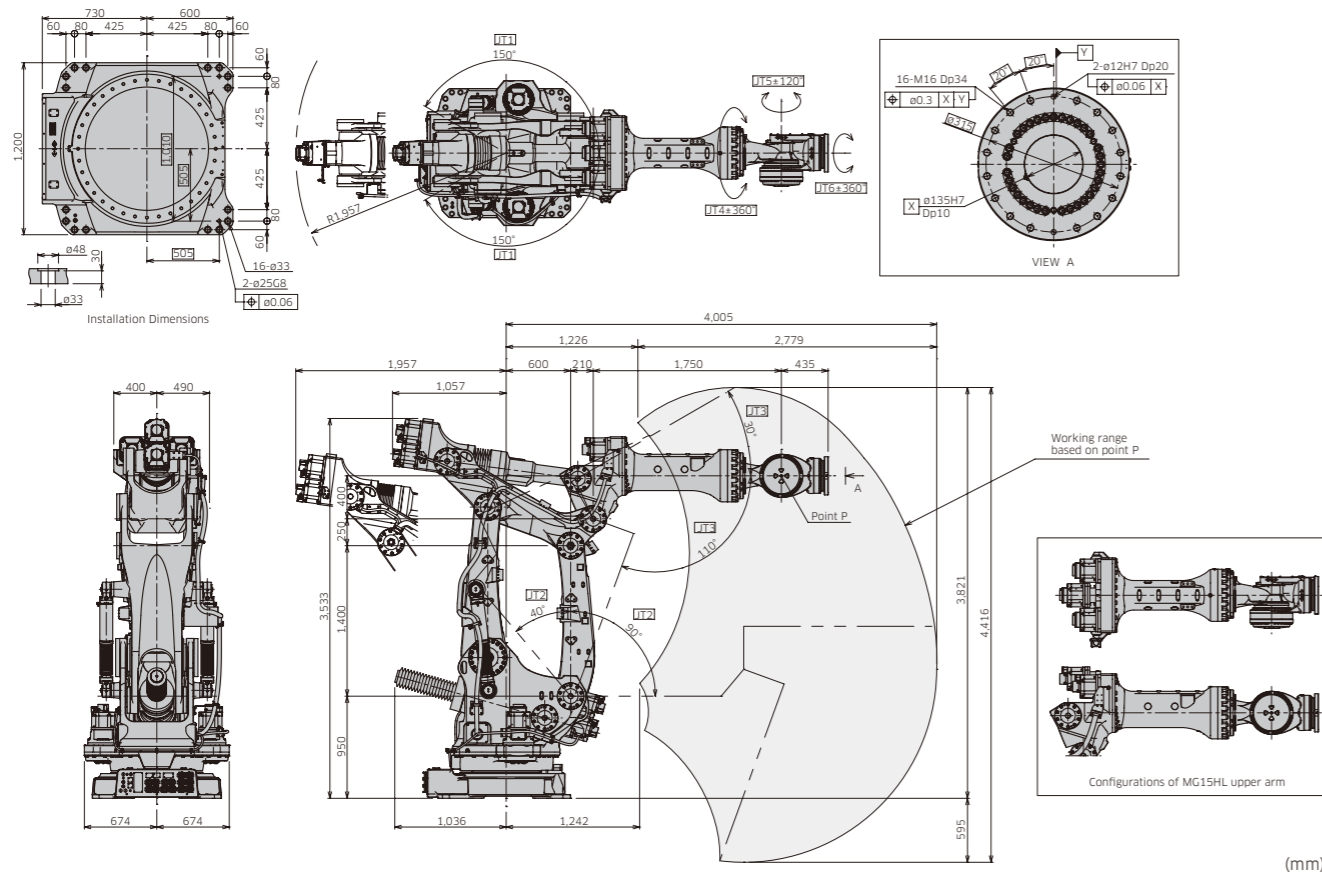
(mm)

MT400N



(mm)

MG10HL / MG15HL



(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.



E04

*Option



E58

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.

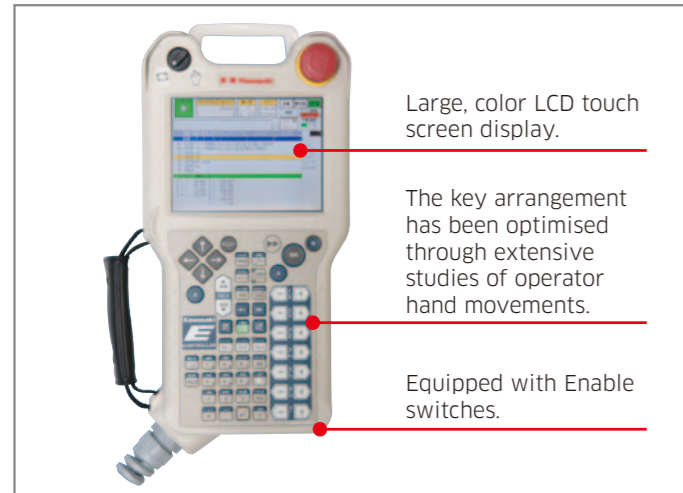
Highly expandable

With the use of additional amplifiers and multi axis controller, the E04 controller can support up to 16 external axes, and the E58 up to 17. Numerous communication fieldbuses can be used to control peripheral devices. Advanced systems can easily be built by using Kawasaki K-Logic sequencer software and the user-customized interface panel on the teach pendant.

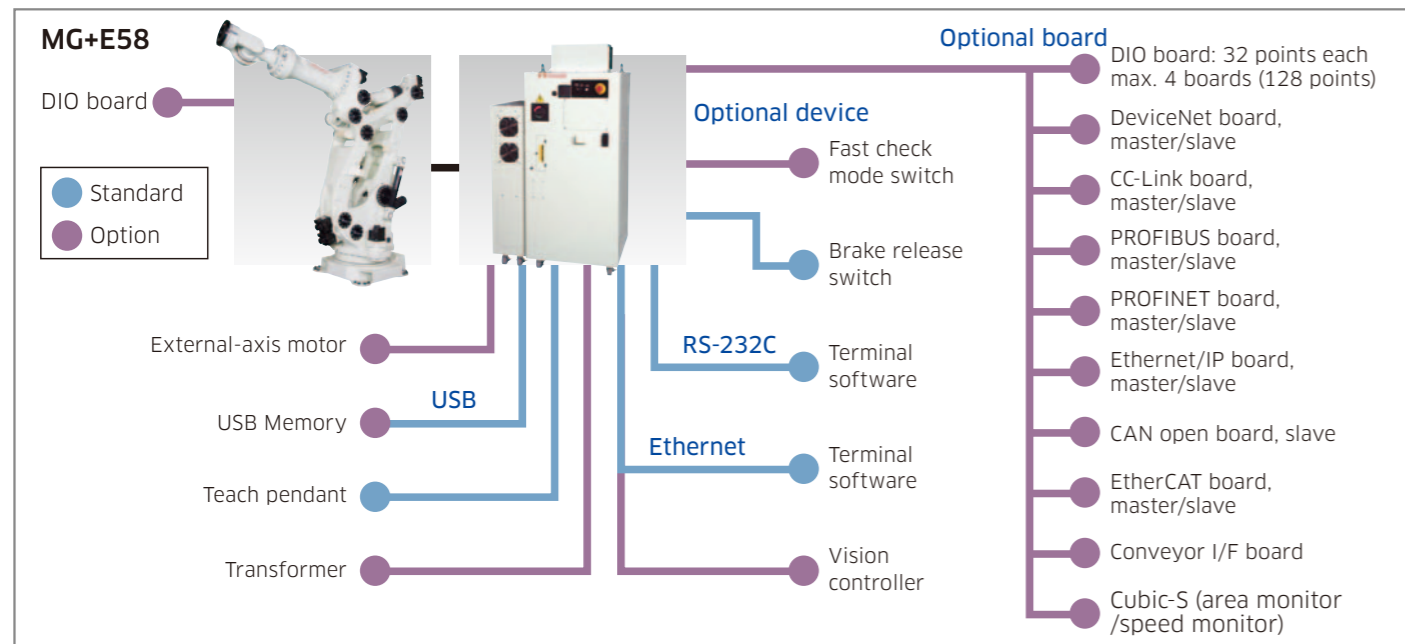
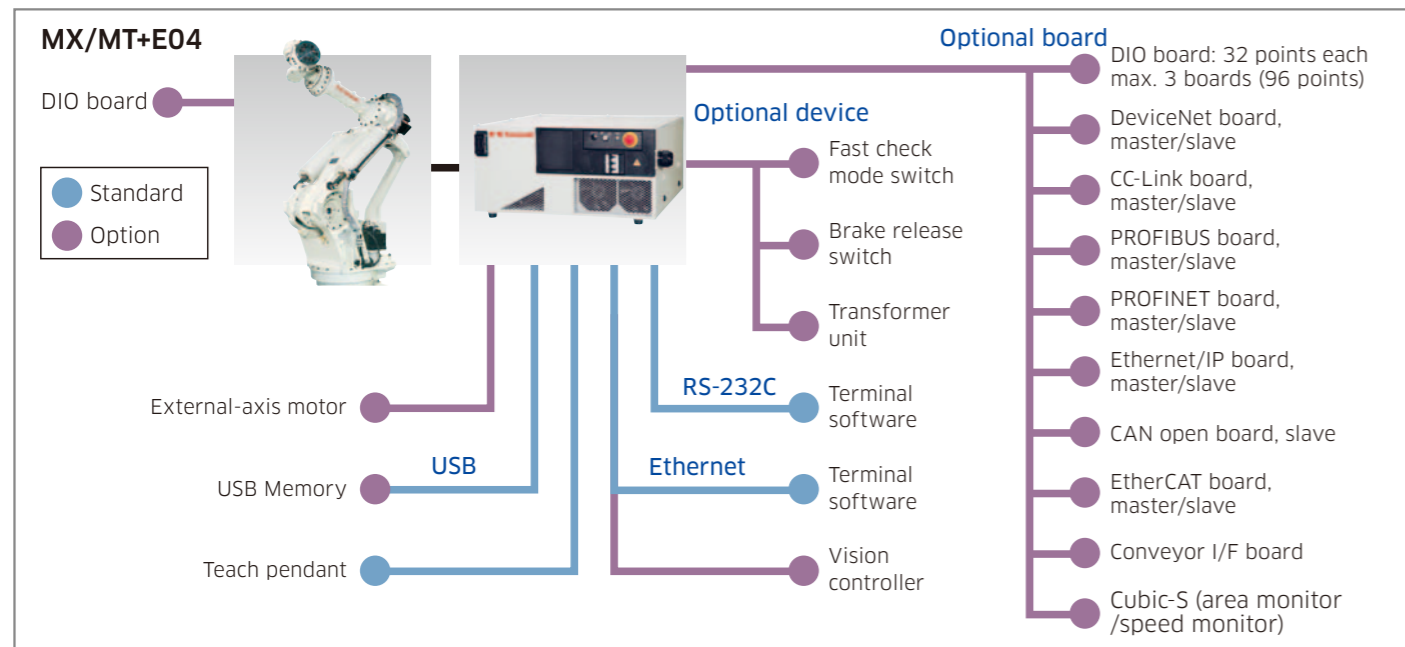
Global Unified Specification

The E04 is a universal controller equipped with an optional transformer unit to cope with different primary power sources worldwide.

Teach pendant



System configuration diagram



Specifications

| | Standard | | Option |
|---------------------------|--|-------------------------------------|--|
| | E04 | E58 | |
| Dimensions (mm) | W550×D580×H278 | W755×D550×H1,370 | E04: Transformer unit: W580×D580×H178 |
| Structure | Enclosed structure / Indirect cooling system | | |
| Number of controlled axes | 6 | 9 | E04: Max. 16 (adding external amplifier) E58: Max. 17 (adding external amplifier) |
| Drive system | Full digital servo system | | |
| Coordinate systems | Joint, Base, Tool | | |
| Types of motion control | Joint/Linear/Circular Interpolated motion | Joint/Linear motion | E58: Circular Interpolated |
| 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 | |
| | Output (Channels) | 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.) | | Fast check mode switch |
| Cable length | Teach pendant (m) | 5 | |
| | Robot-controller (m) | 5 | |
| Mass (kg) | 40 | 165 | E04: Transformer unit: 45 E58: When built-in transformer: 215 |
| Power requirements | AC200-220V ±10%, 50/60Hz, 3ø | AC200-220V ±10%, 50/60Hz, 3ø | (E04) *When using transformer unit AC380-415V ±10% } (selectable) AC440-480V ±10% } 50/60Hz, 3ø (E58) *When built-in transformer AC380-415V ±10% } (selectable) 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 | |
| | 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 | | |

External view & dimensions

