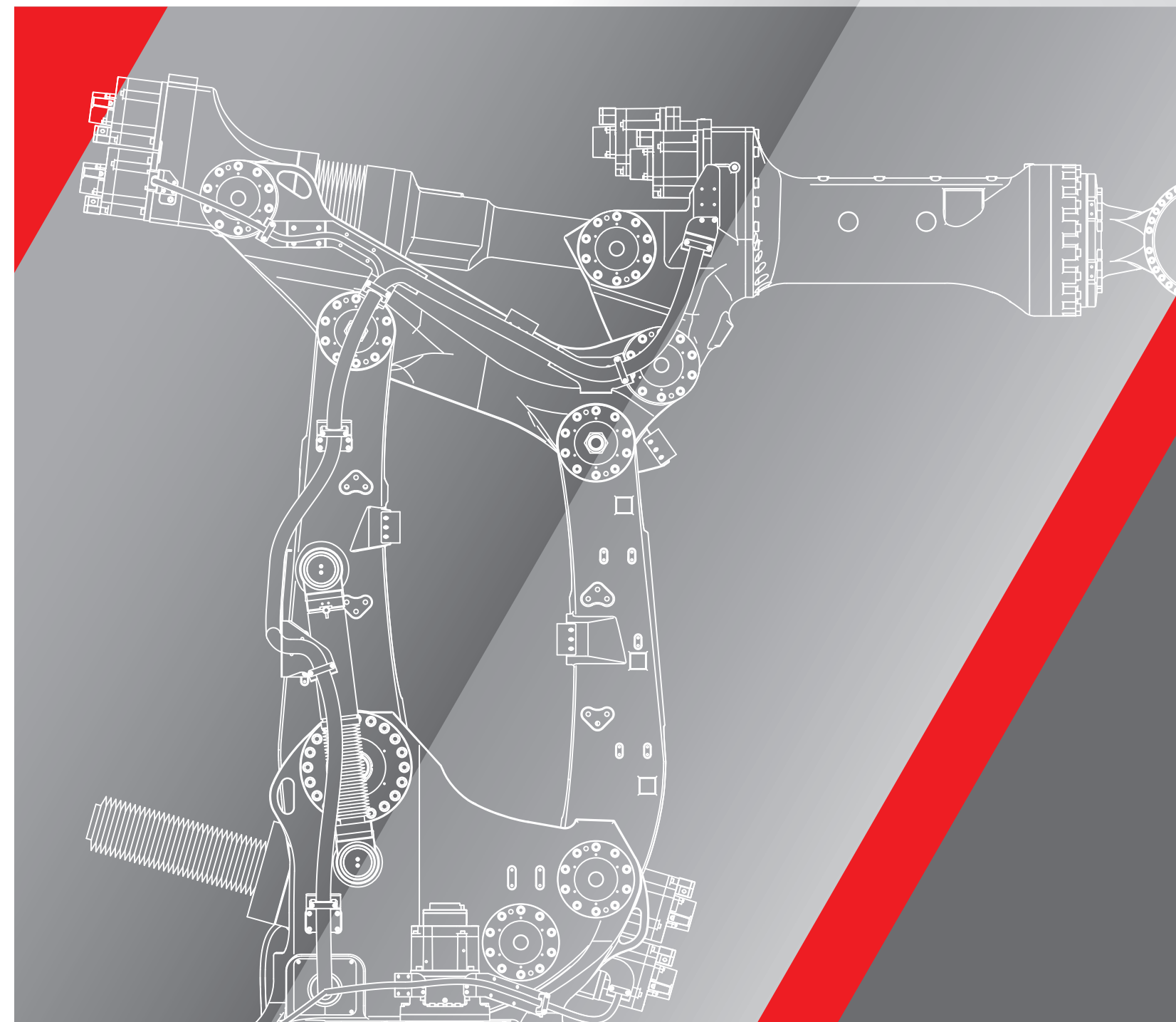


# Kawasaki Robot

## M series

Extra large payload robots - up to 1,500 kg



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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.

# With a maximum payload of 1,500 kg, M series robots incorporate a compact profile design with long reach and high wrist torque.

With an impressive payload capacity of up to 1,500 kg, the innovative M series robot line design gives it the power to lift and manipulate heavy loads with great ease and high accuracy. Kawasaki's patented link mechanism enables the powerful M series robots to lift payloads that exceed the limits of most industrial robots.

## Features

### Compact profile

Along with powerful motors, the MX new link structure for JT3 (arm up-down) and the MG Kawasaki hybrid link mechanism for JT2 (arm out-in) and JT3 make it possible to achieve a maximum payload capacity without the use of bulky and limiting counterweights, maximizing the robot's motion range and allowing for a compact footprint.

### High wrist torque

The M series robots achieve one of the highest available wrist torques in the industry. This high wrist torque provides the ability to significantly offset heavy payloads from the tool mounting flange.

### High rigidity

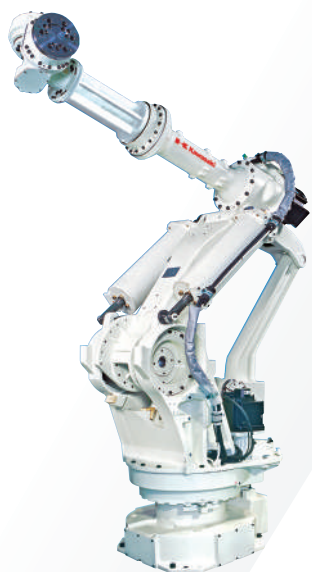
The second and third axes that affect the accuracy of hand motions use highly rigid ball screws with minimal backlash. This reduces arm deflection while enabling high positioning accuracy. (MG)

### Wide motion range

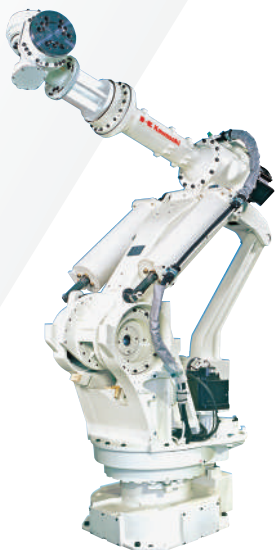
Kawasaki's original hybrid link mechanism along with the ball screws used in the second and third axes ensure a wide work envelope when the arm moves forward. (MG)

### Mounting options

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, 400 kg) is a shelf mounting type. These models are for assembly and material handling applications.



MX350L



MX420L



MX500N



MX700N



MT400N



MG10HL



MG15HL

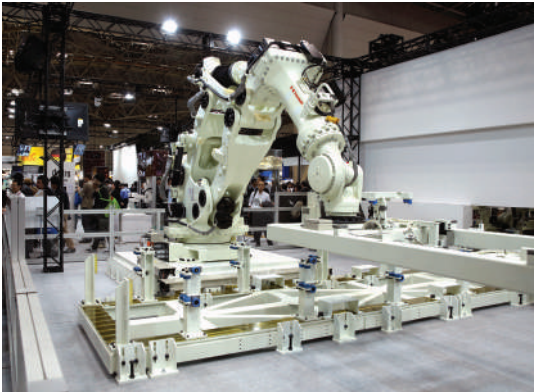


Standard specifications

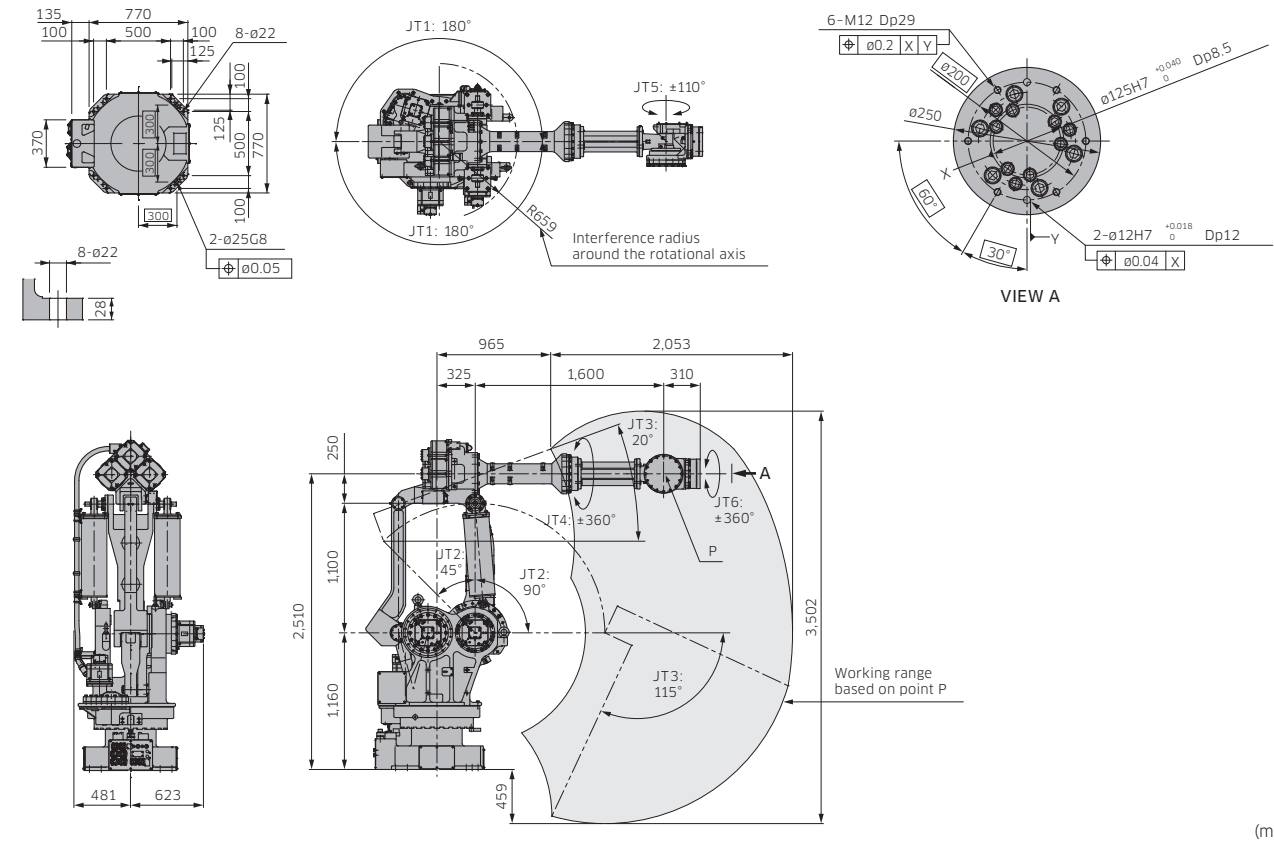
			MX350L	MX420L	MX500N	MX700N
Type			Articulated			
Degree of freedom (axes)			6			
Max. payload (kg)			350	420	500	700
Max. reach (mm)			3,018	2,778	2,540	2,540
Repeatability (mm)			±0.1 (at the tool mounting surface)			
Motion range (°)	Arm rotation (JT1)		±180	±180	±180	±180
	Arm out-in (JT2)		+90 - -45	+90 - -45	+90 - -45	+90 - -45
	Arm up-down (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 up-down (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·m²)	Wrist swivel (JT4)		400	400	400	600
	Wrist bend (JT5)		400	400	400	600
	Wrist twist (JT6)		250	250	250	388
Mass (kg)			2,800	2,800	2,750	2,860
Driving motor			Brushless AC servo motor			
Mounting			Floor			
Environmental conditions	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	America		E04			
	Europe					
	Japan & Asia					

			MT400N	MG10HL	MG15HL
Type			Articulated		
Degree of freedom (axes)			6		
Max. payload (kg)			400	1,000	1,500
Max. reach (mm)			3,503	4,005	4,005
Repeatability (mm)			±0.1 (at the tool mounting surface)		
Motion range (°)	Arm rotation (JT1)		±180	±150	±150
	Arm out-in (JT2)		+15 - -135	+90 - -40	+90 - -40
	Arm up-down (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 up-down (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·m²)	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 (kg)			2,600	6,500	6,550
Driving motor			Brushless AC servo motor		
Mounting			Shelf	Floor	
Environmental conditions	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	America		E02	E28	
	Europe				
	Japan & Asia				

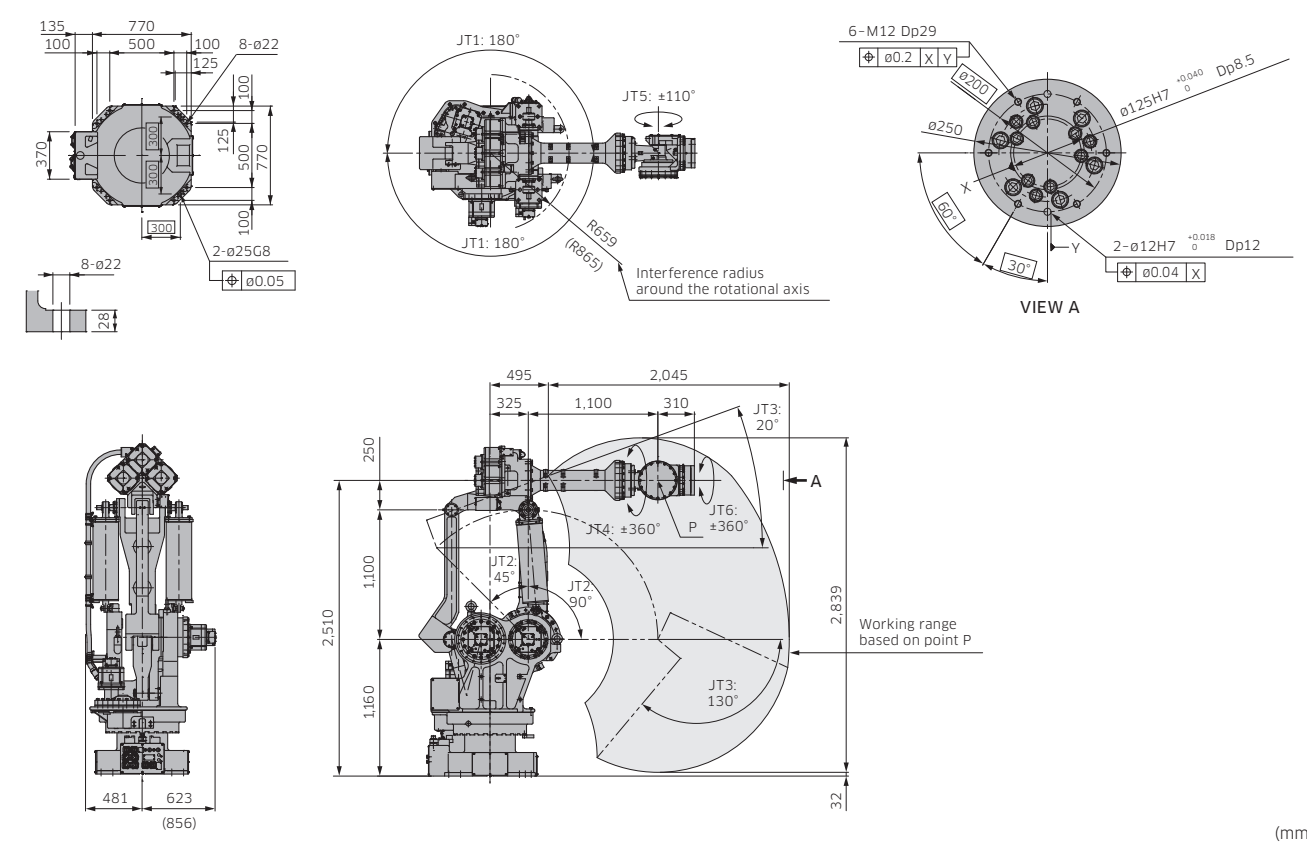
\* The maximum ranges of motion depend on the payload and the torque.



MX350L

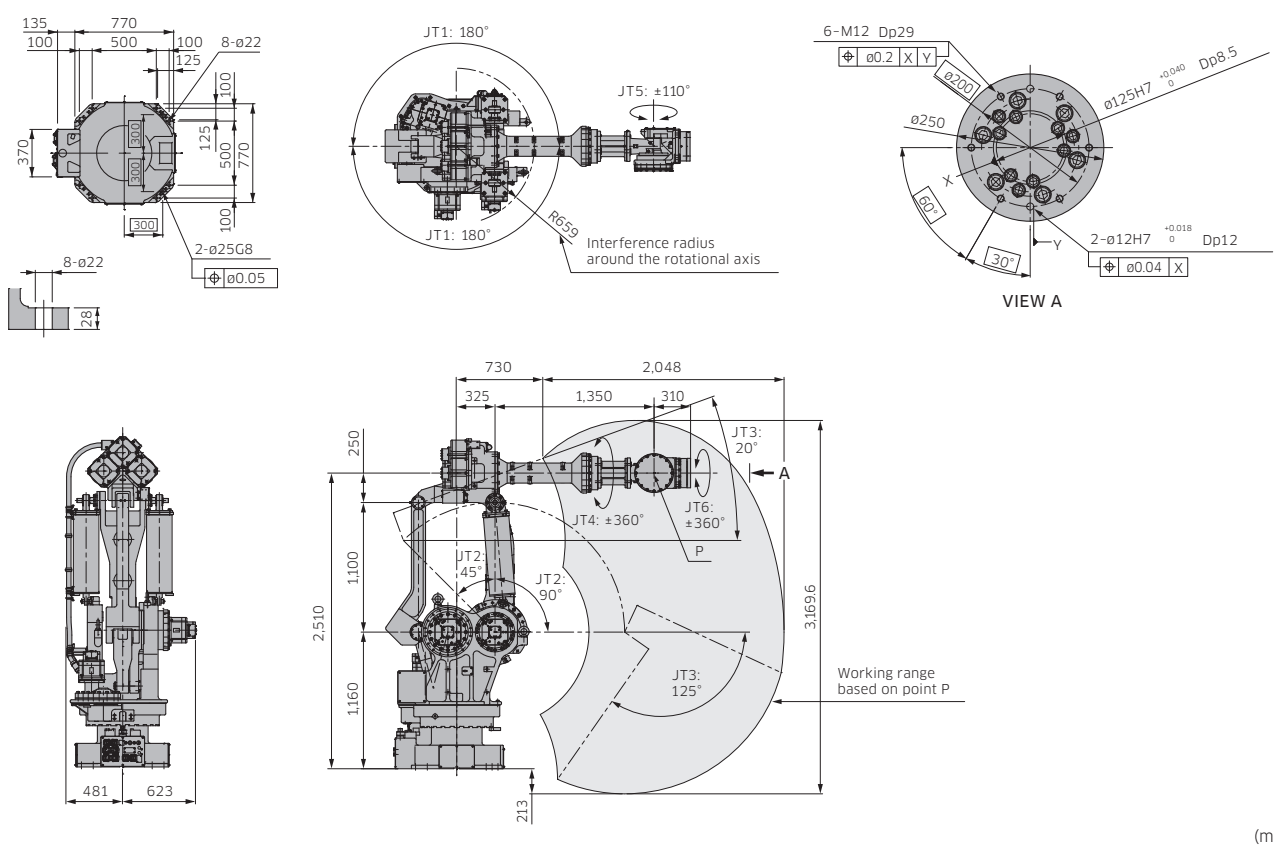


MX500N / MX700N

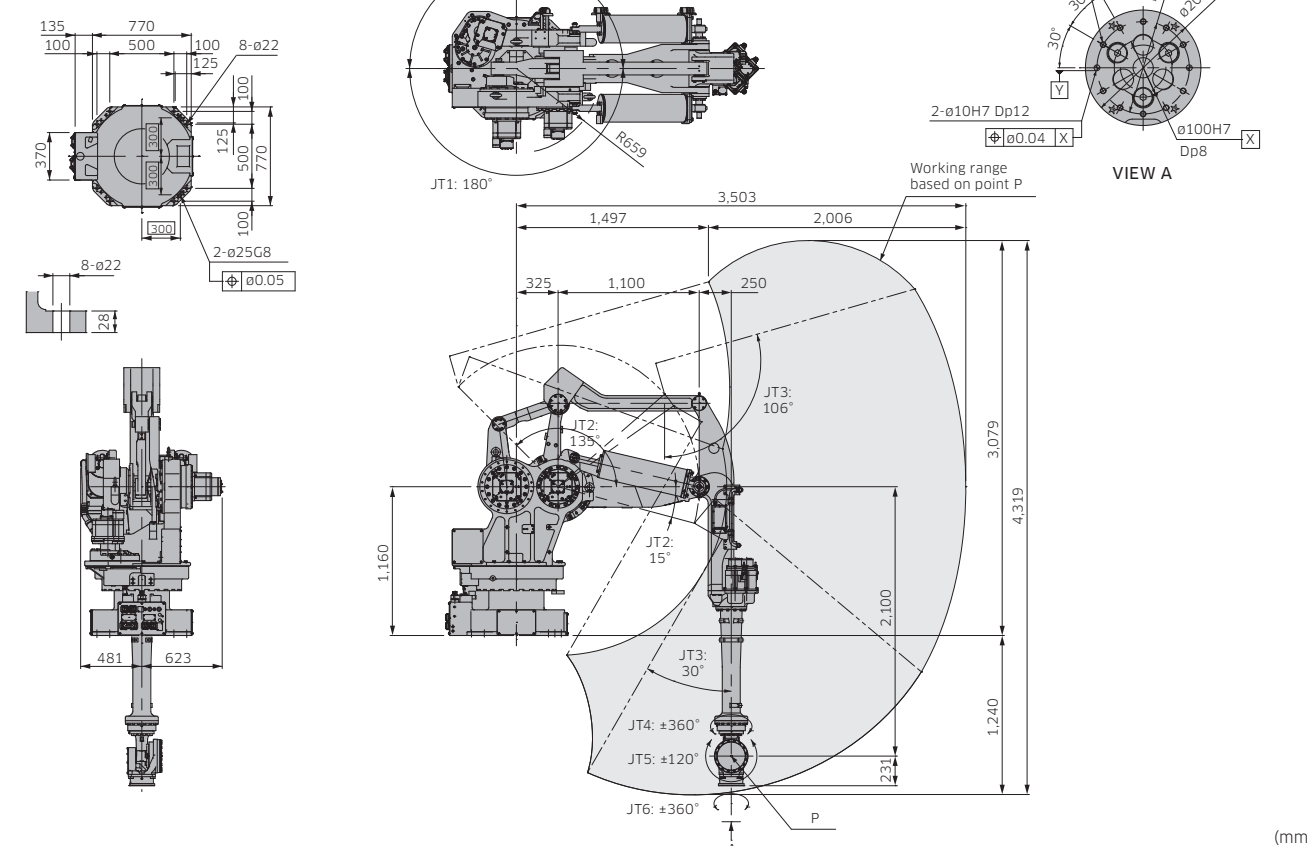


\* Figures in ( ) represent MX700N.

MX420L



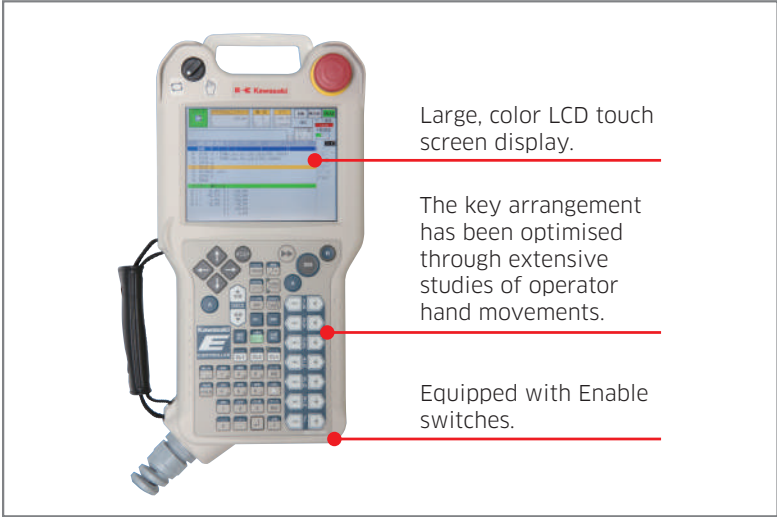
MT400N



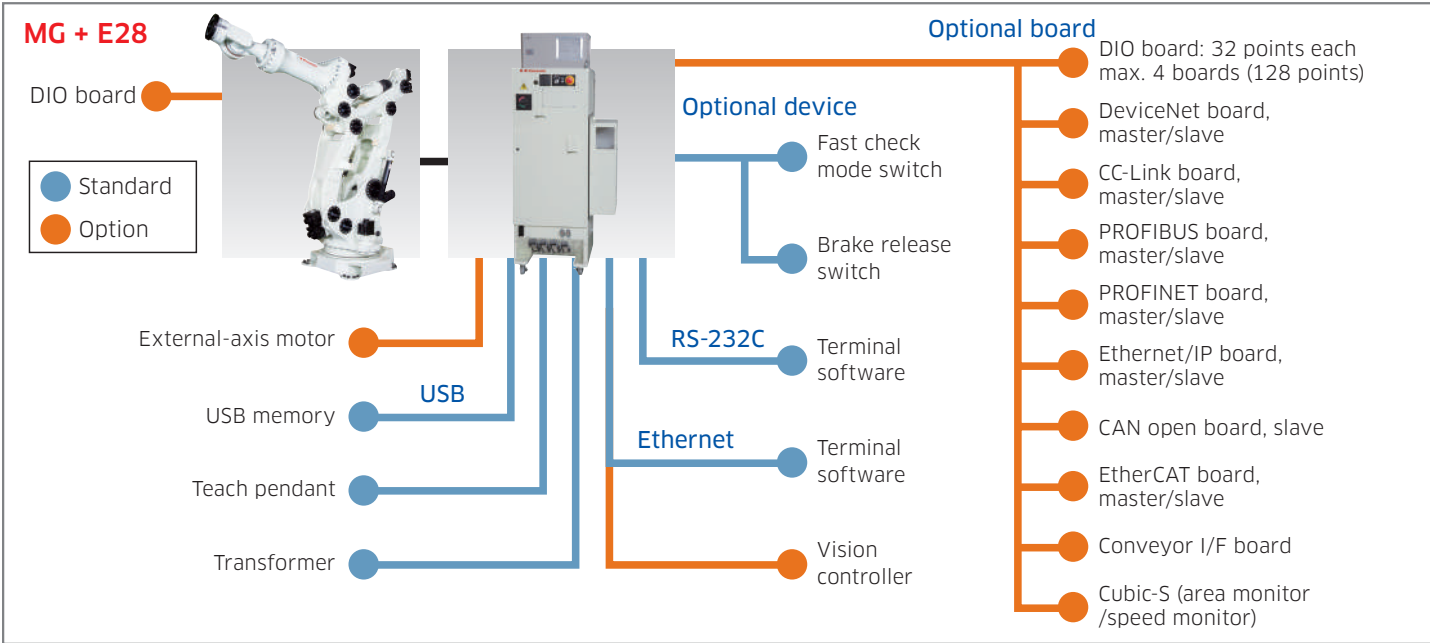
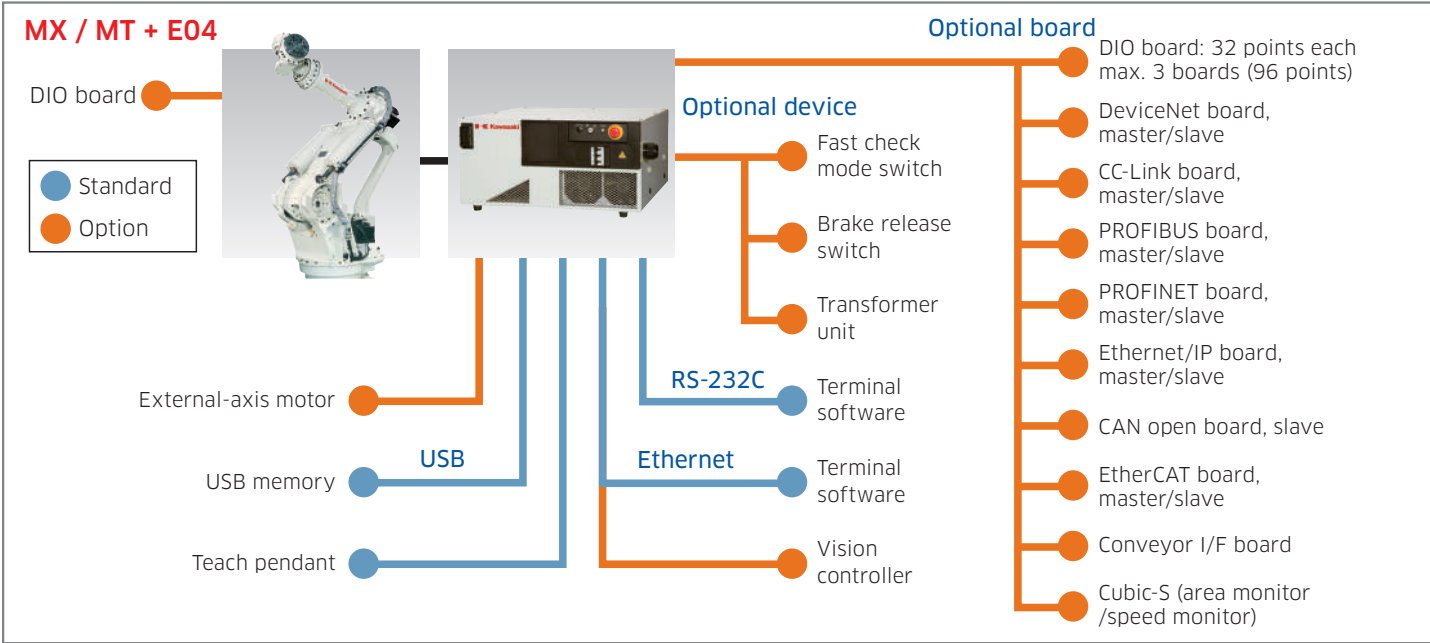




Teach pendant



System configuration diagram



Specifications

		Standard		Option
		E04	E28	
Dimensions (mm)		W550 × D580 × H278	W680 × D550 × H1,630	E04 Transformer unit: W580 × D580 × H178
Structure		Enclosed structure with indirect cooling system		
Number of controlled axes		6	9	E04: Max. 16 (adding external amplifier) E28: Max. 17 (adding external amplifier)
Drive system		Full digital servo system		
Coordinate systems		Joint, Base, Tool		Fixed tool point
Types of motion control		Joint / Linear / Circular interpolated motion	Joint / Linear motion	E28: 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		E04: Max. 96 E28: Max. 128
	Output (channels)	32		E04: Max. 96 E28: Max. 128
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	280	Transformer unit: 45
Power requirements		AC200-220V ±10%, 50/60Hz, 3ø	AC200-220V / AC380-415V / AC440-480V ±10%, 50/60Hz, 3ø	E04 Transformer unit: AC380-415V / AC440-480V ±10%, 50/60Hz, 3ø
		Class-D earth connection (Earth connection dedicated to robots), Leakage current: Maximum 100mA		
Environmental conditions	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		-		USB memory
Interface		USB, Ethernet (100BASE-TX), RS-232C		

External view & dimensions

