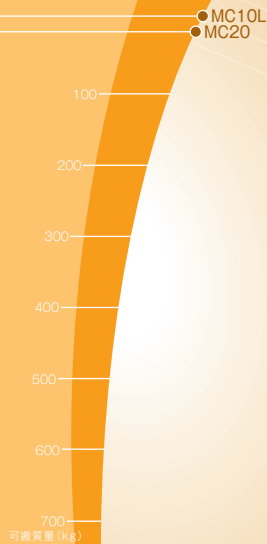


“Powerful & Compact” Robot for various manufacturing processes.

MC20/MC10L



Suitable for various purpose.

- Wide envelope and environment protection makes MC20 valuable robot for various kind of manufacturing processes.

Compact design

- Easy installation by compact design, and powerful wrist supports to transfer large or heavy works.

MC20/MC10L

Robot specifications

Item		Specifications	
Robot model		MC20-01	MC10L-01
Construction		Articulated construction	
Number of axes		6	
Drive system		AC servo system	
Max. operating area	J1	$\pm 3.14\text{rad}$ ($\pm 180^\circ$)	
	J2	$+1.05 \sim -2.53\text{rad}$ ($+60 \sim -145^\circ$)	
	J3	$+4.22 \sim -2.84\text{rad}$ ($+242 \sim -163^\circ$)	
	J4	$\pm 3.14\text{rad}$ ($\pm 180^\circ$)	
	J5	$\pm 2.42\text{rad}$ ($\pm 139^\circ$)	
	J6	$\pm 6.28\text{rad}$ ($\pm 360^\circ$)	
Max. speed	J1	2.96rad/s (170°/s)	2.62rad/s (150°/s)
	J2	2.96rad/s (170°/s)	
	J3	2.96rad/s (170°/s)	
	J4	6.28rad/s (360°/s)	
	J5	6.28rad/s (360°/s)	
	J6	10.5rad/s (600°/s)	
Payload ^{*1}		20 kg (22kg) 20kg(Max. 22kg)	10kg
Wrist torque	J4	49N·m	24.5N·m
	J5	49N·m	24.5N·m
	J6	23.5N·m	12N·m
Wrist moment of inertia ^{*2}	J4	1.6kg·m ²	
	J5	1.6kg·m ²	
	J6	0.8kg·m ²	0.7kg·m ²
Position repeat accuracy ^{*3}		$\pm 0.06\text{mm}$	
Maximum working air pressure		0.49MPa (5.0kgf/cm ²) 0.49MPa (5.0kgf/cm ²) or less	
Ambient temperature		0~45°C	
Installation		Floor mounted·Ceiling mounted	
Environmental resistance ^{*4}		IP65 Meets the IP65 standard (for dust and waterproofing)	
Robot mass		220kg	225kg

1 [rad] = $180/\pi$ [°], 1 [N·m] = 1/9.8[kgf·m]

*1 :This value varies from the installed position and the wrist load mass.

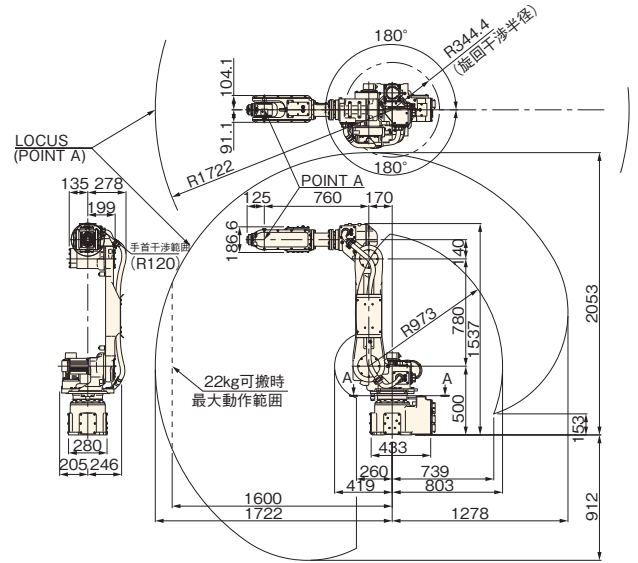
*2 :Note that wrist moment of inertia varies depending on wrist load conditions.

*3 :JIS B 8432 compliant.

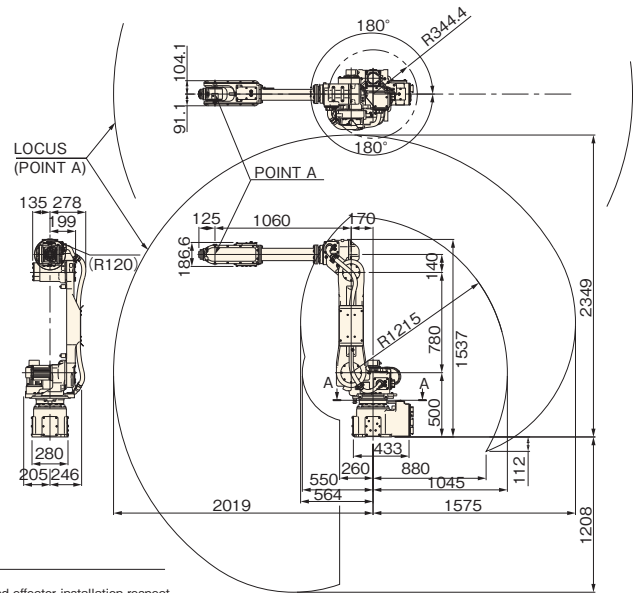
*4 :Fluids that corrode the seal material, such as organic solvents, acids, alkalis, salts, and petroleum-based cutting fluids, cannot be used.

Exterior dimensions and operating envelope

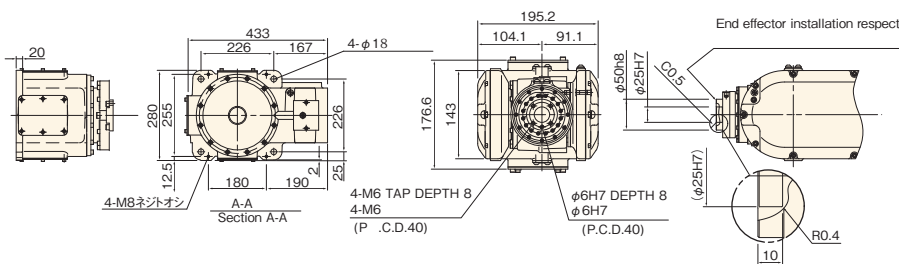
MC20-01



MC10L-01



Common Specification



*The specifications are subject to changes without notice.

*In case that an end user uses this product for military purpose or production of weapon, this product may be liable for the subject of export restriction stipulated in the Foreign Exchange and Foreign Trade Control Law. Please go through careful investigation and necessary formalities for export.

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CATALOG NO.

7305-3

2013.06.X-ABE-ABE

Robots for Handling Heavy Loads

MC350/MC280L/MC470P



Linkage-less construction is simple and compact

- Simple construction has no counterweights or parallel linkage
Compact form can be installed in small places

Expansive operating stroke and lifting capabilities

- Plenty of wrist torque (1.7 times our existing model) easily handles large work pieces
- Long arm type (MC280L) has maximum reach of 3,101 mm
- Super heavy lifting type (MC470P) can lift up to 470 kg (wrist must be directed downward)

High-speed motion

- Lower weight and greater rigidity make it the fastest robot in its class
- Reduce cycle times by up to 15% (compared to our existing model)

MC350/MC280L/MC470P

◆ Robot specifications

Item		Specifications			
Robot model		MC350-01	MC280L-01	MC470P-01	
Structure		Articulated construction			
No. of axes		6			
Drive system		AC servo system			
Max. working envelope	Arm	J1 Swivel	$\pm 3.14\text{rad} (\pm 180^\circ)$		
		J2 Horizontal	$-1.75 \sim +0.70\text{rad} (-100^\circ \sim +40^\circ)$		
		J3 Vertical	$-3.14 \sim +2.27\text{rad} (-180^\circ \sim +130^\circ)$	$-2.57 \sim +2.27\text{rad} (-147^\circ \sim +130^\circ)$	$-3.14 \sim +0.61\text{rad} (-180^\circ \sim +35^\circ)$
	Wrist	J4 Rotation2	$\pm 6.28\text{rad} (\pm 360^\circ)$		
		J5 Bend	$\pm 2.18\text{rad} (\pm 125^\circ)$		
		J6 Rotation1	$\pm 6.28\text{rad} (\pm 360^\circ)$		
Max. speed	Arm	J1 Swivel	1.83rad/s (105°/s)		
		J2 Horizontal	1.66rad/s (95°/s)	1.83rad/s (105°/s)	1.66rad/s (95°/s)
		J3 Vertical	1.66rad/s (95°/s)		
	Wrist	J4 Rotation2	1.92rad/s (110°/s)	2.09rad/s (120°/s)	1.92rad/s (110°/s)
		J5 Bend	1.92rad/s (110°/s)	2.09rad/s (120°/s)	1.92rad/s (110°/s)
		J6 Rotation1	3.14rad/s (180°/s)	3.49rad/s (200°/s)	3.14rad/s (180°/s)
Payload	Wrist	350kg	280kg	470kg	
	Forearm ¹	Max. 50kg	Max. 25kg	Max. 30kg	
Allowable static load torque	J4 Rotation2	2750N·m	1921N·m	2750N·m	
	J5 Bend	2750N·m	1921N·m	2750N·m	
	J6 Rotation1	1235N·m	988N·m	0N·m	
Max. allowable moment of inertia ²	J4 Rotation2	400kg·m ²			
	J5 Bend	400kg·m ²			
	J6 Rotation1	250kg·m ²			
Max. reach		2,771mm	3,101mm	2,771mm	
Position repeatability ³		$\pm 0.2\text{mm}$			
Ambient temperature		0 to 45°C ⁴			
Ambient humidity		20 to 85% RH (without condensation)			
Vibration		0.5 G or less			
Installation		Floor mount			
Weight		1620kg	1700kg	1620kg	

1[rad] = 180/π[°], 1[N·m] = 1/9.8[kgf·m]

*1: Load specification of number 1 arm varies according to wrist load conditions and installation position.

*2: Note that the allowable moment of inertia of wrist varies with the wrist load conditions.

*3: JIS B 8432 compliant.

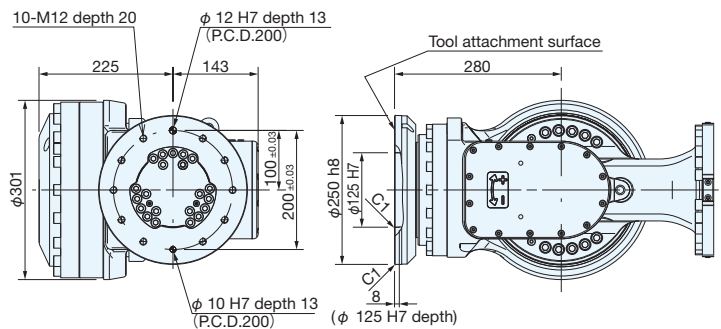
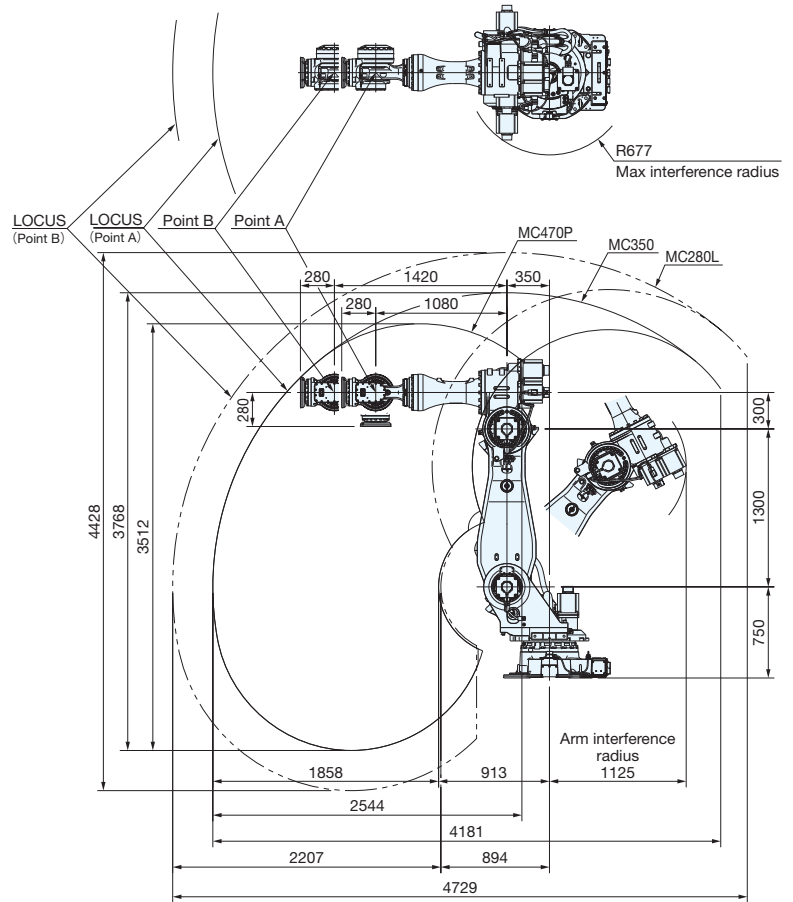
*4: Permitted height is not higher than 1,000m above sea level. If used in higher place, permitted temperature is affected by height.

*5: Software limits the downward vertical range of axis 5 to $\pm 5^\circ$.

Axis 4 can move $\pm 360^\circ$ and axis 5 can move $\pm 125^\circ$ only when the encoder correction screen or the software limit settings screen is open.

◆ Exterior dimensions and working envelope

MC350-01/MC280L-01/MC470P-01



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R7309E-2

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