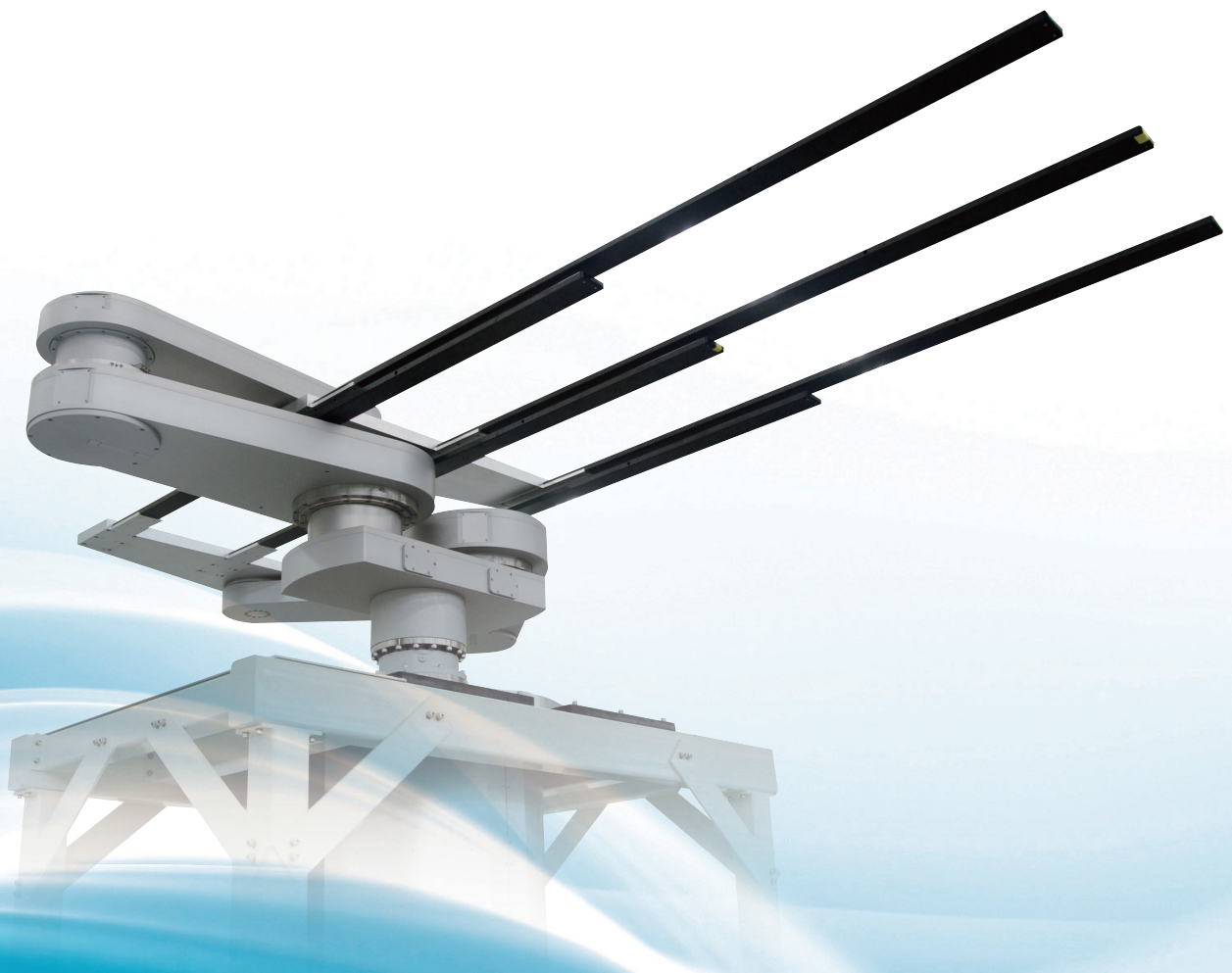


TRANSFER ROBOT

Wafer & Glass, Vacuum-Atmospheric



Contents

1. Wafer Transfer Robot (AR-Series)

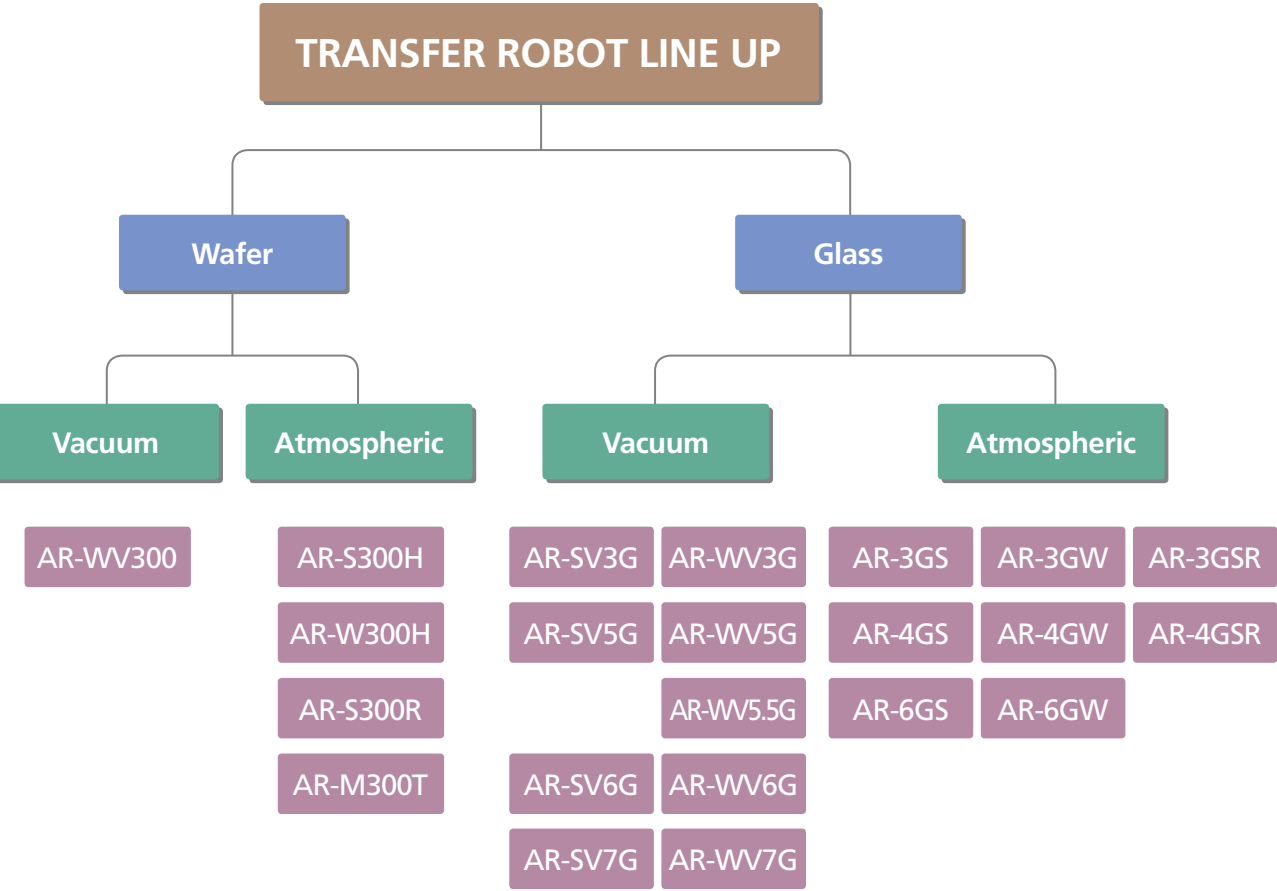
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2. Glass Transfer Robot (AR-Series)

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■ Wafer Transfer Robot (Vacuum)

FEATURES

1. The shortest path with Θ axis's limitless rotation

2. Realizing high-speed

3. Optimized configuration (Vacuum, N2 Environment)

4. Dry-bearing
1. Θ 축 무한회전으로 최단경로로 선회 가능

2. 고속반송 실현

3. 고(高)진공에서 저(低)진공, N2 환경까지 최적화된 구성으로 제안 가능

4. 드라이베어링 채용

■ Wafer Transfer Robot (Atmospheric)

FEATURES

1. Various models with combinations of main body, arm & hand, common running axis

2. Pay load 3kg (Wafer, Cassettes etc)

3. Realizing high-speed

4. Flexible customizing with modularity
1. 본체 구동부, 암, 핸드, 주행축 공용화, 각 모듈의 조합으로 다양한 사양의 시스템 구축이 가능

2. 암의 반송가능 질량이 3kg으로, 웨이퍼는 물론 카세트 등 중량물 반송에도 대응

3. 고속 반송 실현

4. 표준품의 모듈화를 통한 유연한 customizing 가능

■ Glass Transfer Robot (Vacuum)

FEATURES

1. Light-weight, high-speed, low-vibration, especially minimized the sagging at the top of end-effector and low cost

2. Maximized stroke with minimized space. High-speed & precision

3. The shortest path with Θ axis's limitless rotation

4. Optimized configuration (Vacuum, N2 Environment)
1. Long stroke임에도 불구하고, Hand의 선단진동을 최소화 하였으며, 경량화, 고속화, 저진동, 저가실현

2. 최소의 공간활용으로, 최대이송거리를 구현하였으며, 독자기술로 고강성, 고정도를 실현

3. Θ 축 무한회전으로 최단경로로 선회 가능

4. 고(高)진공에서 저(低)진공, N2 환경까지 최적화된 구성으로 제안 가능

■ Glass Transfer Robot (Atmospheric)

FEATURES

1. Turning large size glass over vertically, turn over at low pass line

2. Dongbu has plenty of experience from the Array process field to the Cell process field

3. Simple mechanistic structure enables high-efficiency air flow
1. 대형 액정기판을 수직으로 반전시키는 반송이 가능하며, 낮은 pass line에서의 반전 가능

2. Array공정에서 셀공정반송까지 폭넓은 실적을 보유하고 있습니다.

3. 간단한 기계구조는 고효율의 Air flow를 형성합니다.

Ordering Model

AR - WV 300 - 50
① ②③ ④ ⑤

- ① : AITEC ROBOT
- ② : ARM TYPE: S-Single W: Double
- ③ : Environment: V-Vacuum
- ④ : Wafer size
- ⑤ : Z axis stroke

Ordering Model

AR - S300R - 300
① ②③④ ⑤

- ① : AITEC ROBOT
- ② : ARM TYPE: S-Single W: Double
- ③ : Wafer size
- ④ : R: Reverse
- ⑤ : Z axis stroke

Ordering Model

AR - SV 5G - 100
① ②③④ ⑤

- ① : AITEC ROBOT
- ② : ARM TYPE: S-Single W: Double
- ③ : Environment: V-Vacuum
- ④ : Glass size
- ⑤ : Z axis stroke

Ordering Model

AR - 4GSR - 800
① ②③④ ⑤

- ① : AITEC ROBOT
- ② : Glass size
- ③ : ARM TYPE: S-Single W: Double
- ④ : R: Reverse
- ⑤ : Z axis stroke

■ Wafer transfer robot with double arm in Vacuum condition

AR-WV300



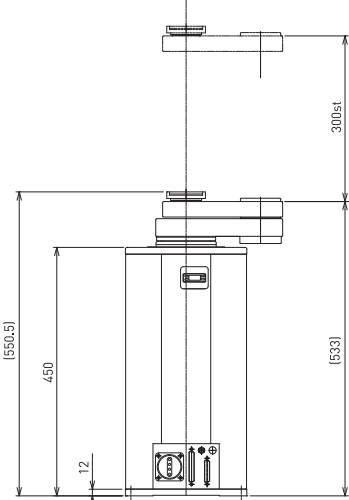
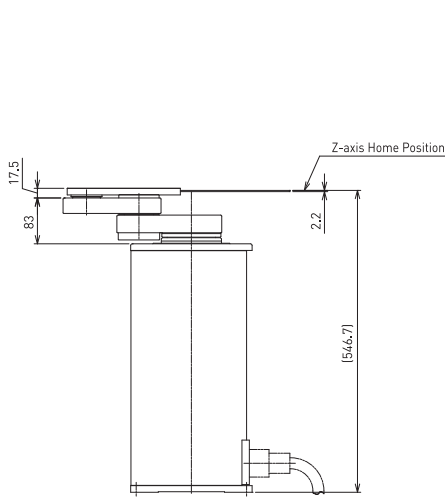
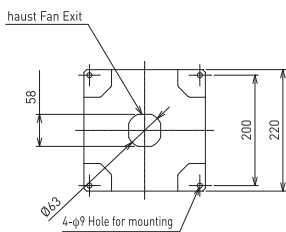
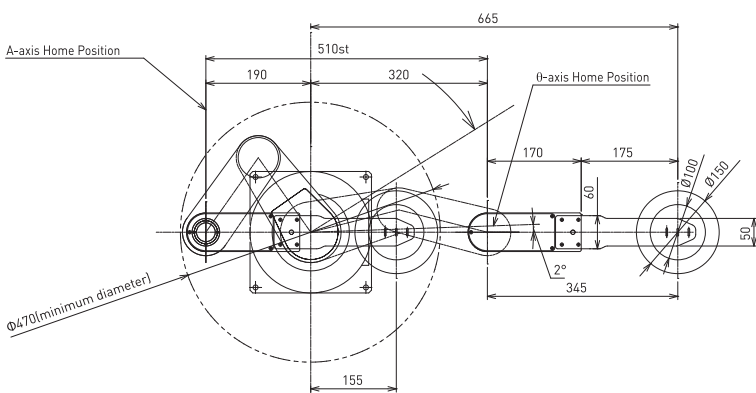
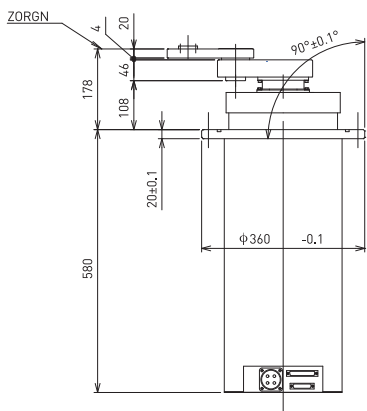
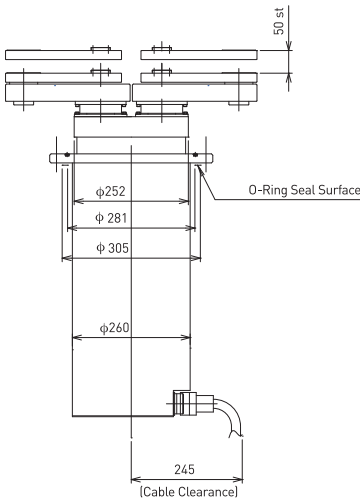
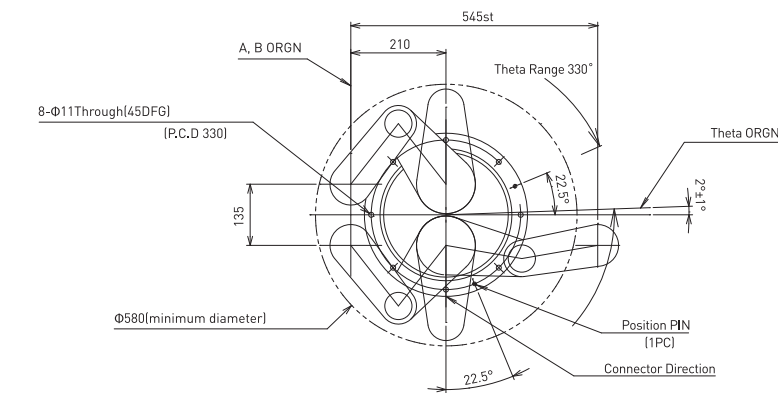
Model Name		AR-WV300-50
Structure		Cylindrical Coordinate
Moving Axes		4
Operating Range	A-axis	545mm
	B-axis	545mm
	θ-axis	330°
	Z-axis	50mm
Operating speed	A-axis	1000mm/sec
	B-axis	1000mm/sec
	θ-axis	216°/s
	Z-axis	75mm/s
Vacuum Seal Method		Mechanical lip-seal Bellows-seal
Repeatability		±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Leak rate		1 × 10 ⁻⁸ (Pa·m ³ /s)
Payload		700g(Including the hand)
Operating Environment	Atmospheric	Temp. : 0~40℃ Humid. : 70% under
	Vacuum	Vacuum level : 1 × 10 ⁻⁶ Pa(7.5 × 10 ⁻⁹ Torr) Temp. : 0~80℃
Robot Weight		Approximately 70kg
Appearance	Atmospheric	Aluminium white Alumite
	Vacuum	Aluminium(Non surface finishing)

■ Wafer transfer robot with single arm in Atmosphere condition

AR-S300H



Model Name		AR-S300H-300
Structure		Cylindrical Coordinate
Moving Axes		3
Operating Range (MAX)	A-axis	510mm
	θ-axis	330°
	Z-axis	300mm
Operating speed (MAX)	A-axis	1700mm/s
	θ-axis	470°/s
	Z-axis	500mm/s
Repeatability		±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Payload		3kg/1 per arm(Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 20kg
Appearance		Aluminium white Alumite, SUS buffing(#400)



■ Wafer transfer robot with double hands in Atmosphere condition

AR-M300T



* It is possible to do 3 ports

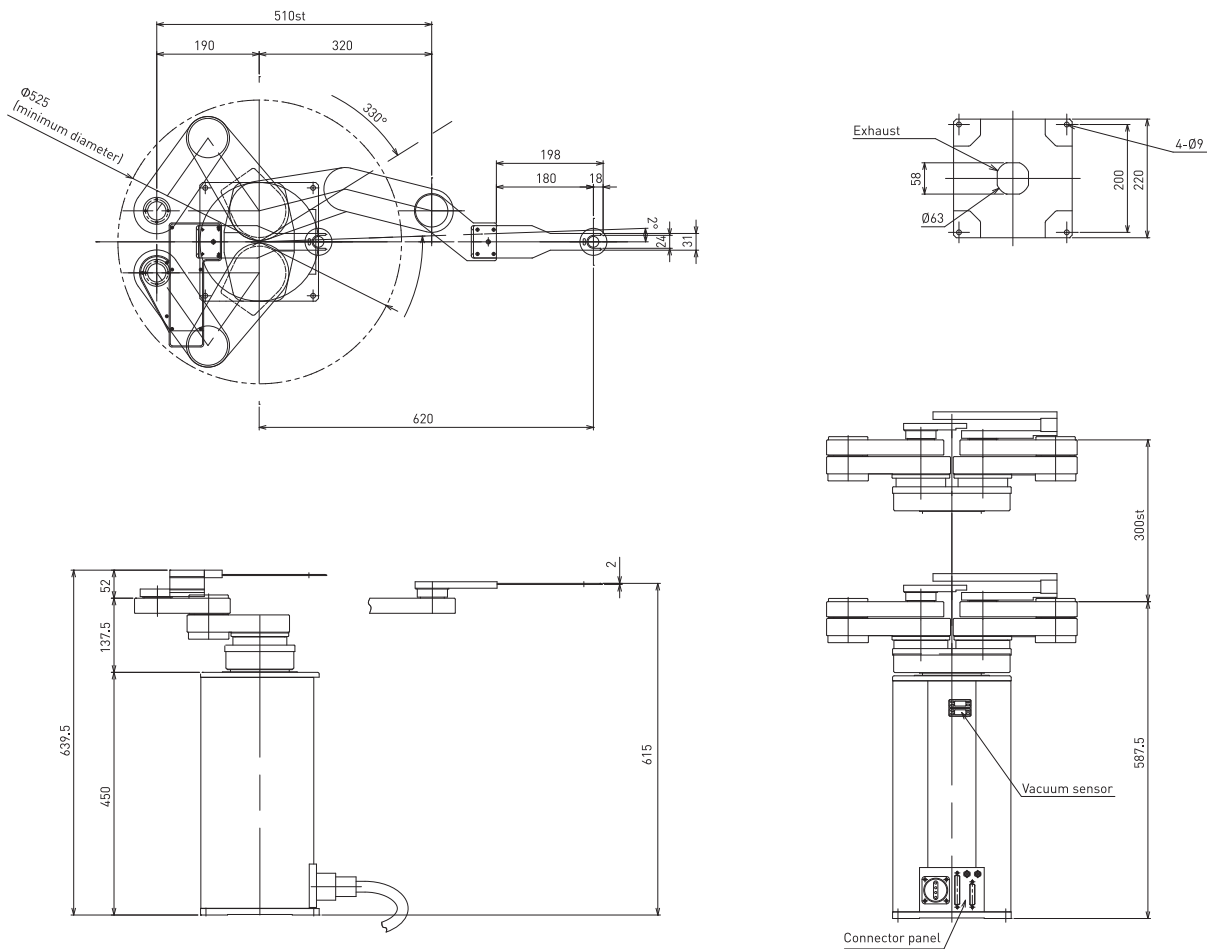
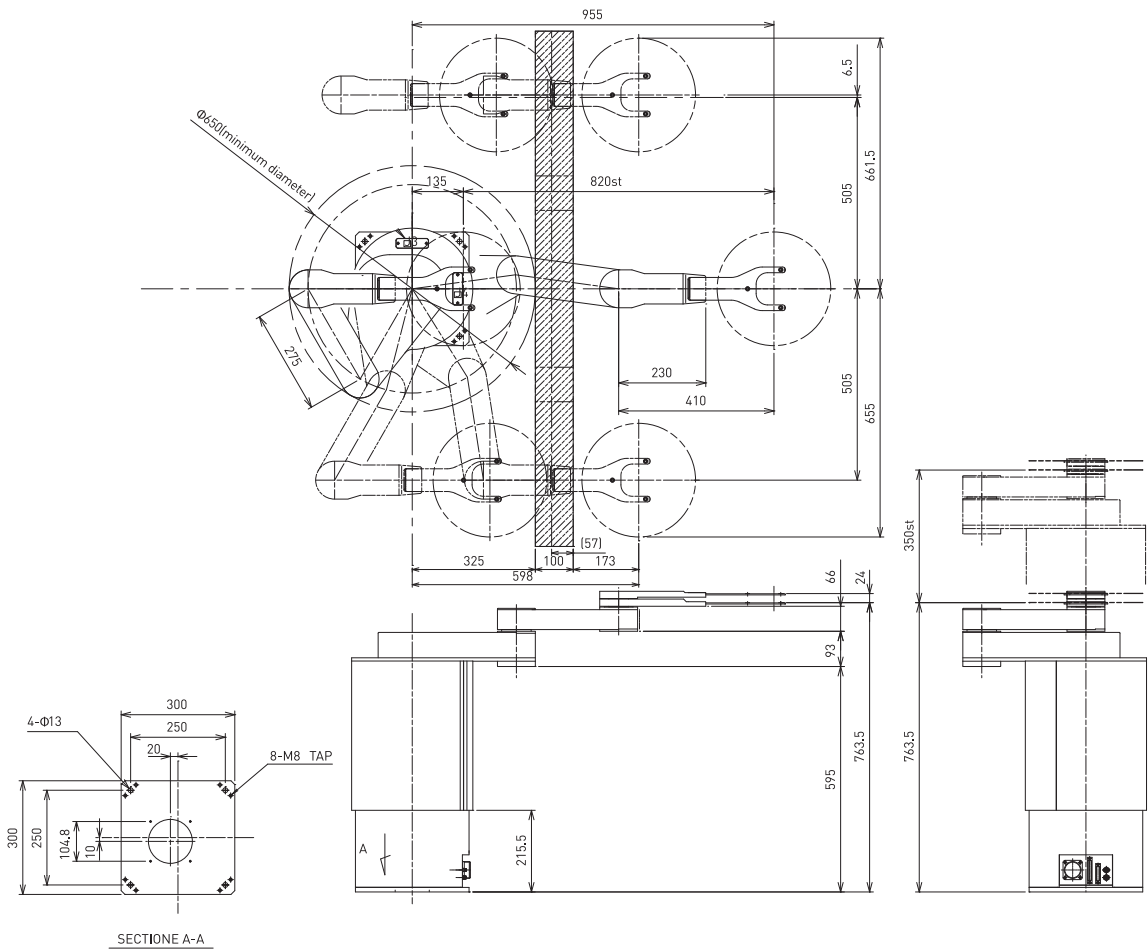
Model Name		AR-M300T-350
Structure		Cylindrical Coordinate
Moving Axes		5
Operating Range (Max)	R-axis	955mm
	θ-axis	360°
	A-axis	360°
Operating speed (Max)	A-axis	1000mm/s
	θ-axis	277°/sec
	Z-axis	413mm/s
Repeatability		±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Payload		1kg/1 per hand(Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 45kg
Appearance		Aluminium white Alumite, SUS buffing(#400)

■ Wafer transfer robot wiht double arms in Atmosphere condition

AR-W300H



Model Name		AR-W300H-300
Structure		Cylindrical Coordinate
Moving Axes		4
Operating Range	A-axis	510mm
	B-axis	510mm
	θ-axis	330°
	Z-axis	300mm
Operating speed	A-axis	1700mm/sec
	B-axis	1700mm/sec
	θ-axis	470°/s
	Z-axis	500mm/s
Repeatability		±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Payload		3kg/1 per arm(Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 27kg
Appearance		Aluminium white Alumite, SUS buffing(#400)



■ Wafer transfer robot(Reverse type)

AR-S300R



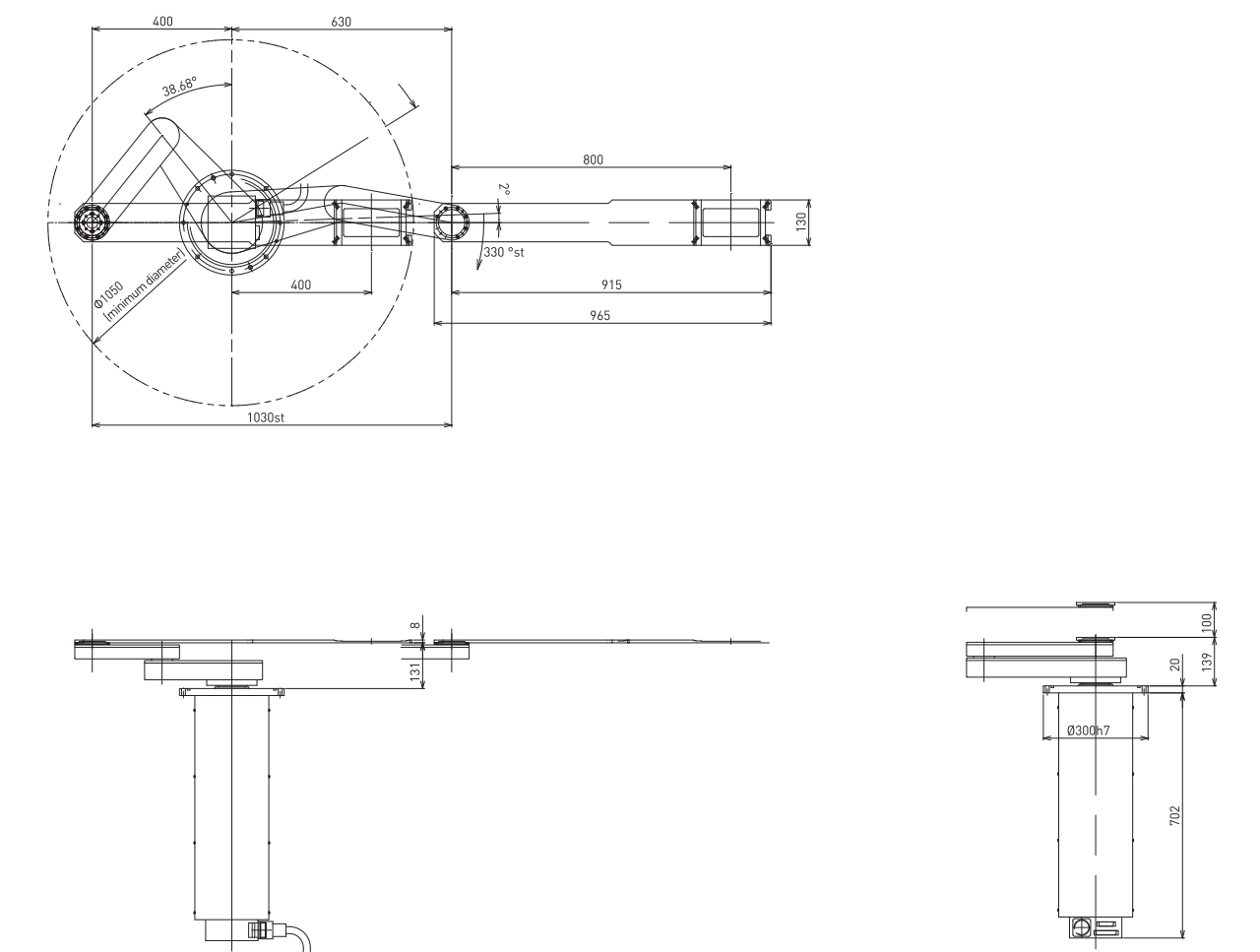
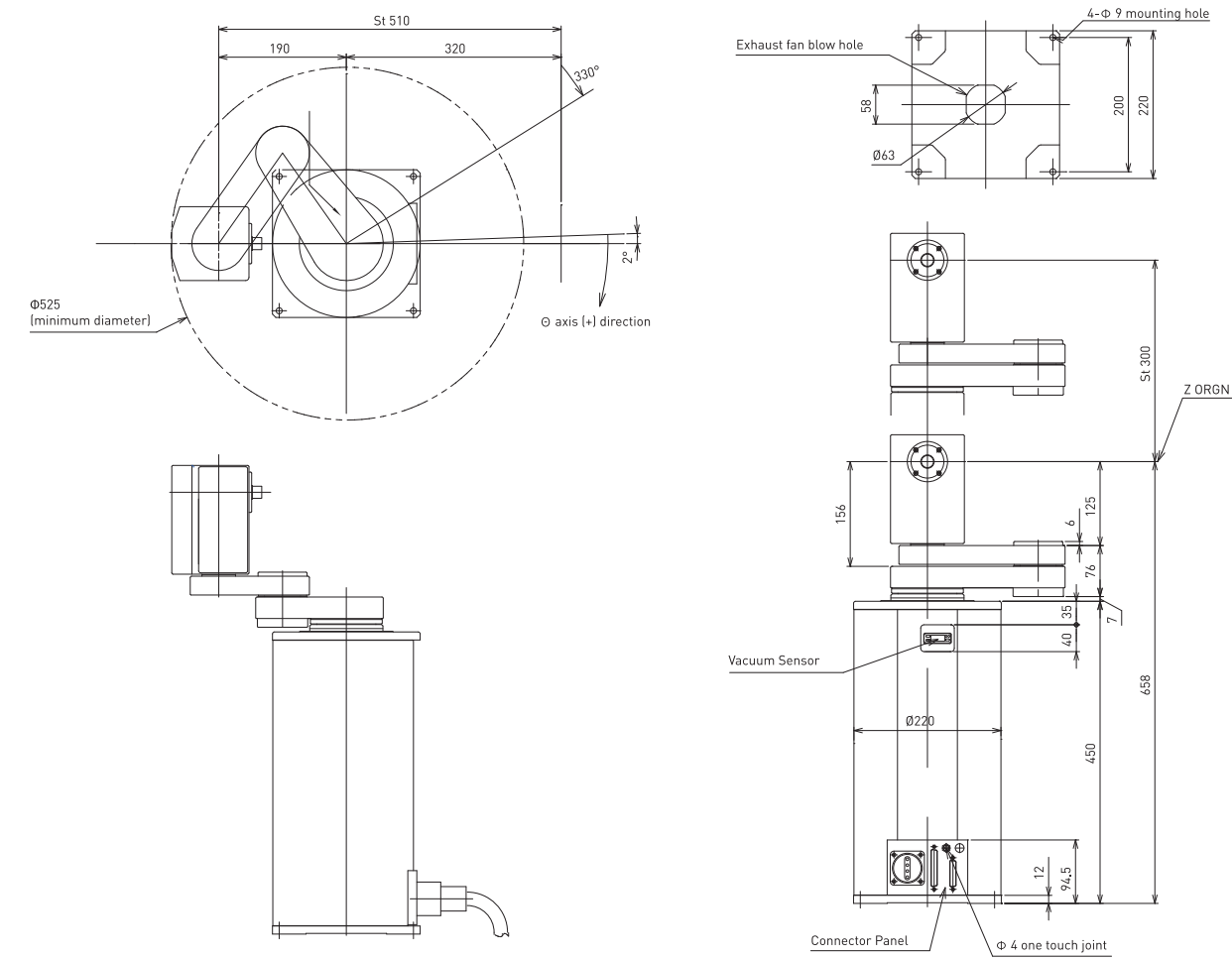
Model Name		AR-S300R-300R
Structure		Cylindrical Coordinate
Moving Axes		3+1
Operating Range	A-axis	510mm
	θ-axis	330°
	Z-axis	300mm
	R-axis	183°
Operating speed (MAX)	A-axis	600mm/sec
	θ-axis	235°/sec
	Z-axis	150mm/sec
	R-axis	300/s
Repeatability		±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Payload		500g (Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 29kg
Appearance	Main body : Aluminium white Alumite, SUS buffing(#400)	
	Reverse : Teflon coating(Balck)	

■ Transfer robot with single arm in Vacuum

AR-SV3G



Model Name		AR-SV3G-100
Structure		Cylindrical Coordinate
Moving Axes		3
Operating Range	A-axis	1030mm
	θ-axis	330°
	Z-axis	100mm
Operating speed (MAX)	A-axis	600mm/sec
	θ-axis	70°/sec
	Z-axis	100mm/sec
Repeatability	A, θ-axis	±0.2mm
	Z-axis	±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Vacuum Seal Method		Mechanical lip-seal Bellows-seal
Leak rate		1 x 10 ⁻⁹ Pa·m ³ /sec He
Payload		4.0kg (Including the hand)
Operating Environment	Atmospheric	Temp. : 0~40℃ Humid. : 70% under
	Vacuum	1.0 x 10 ⁻⁶ (Pa) Temp. 0~80℃
Robot Weight		70kg (Including the hand)
Appearance		Aluminium white Alumite, SUS buffing(#400)

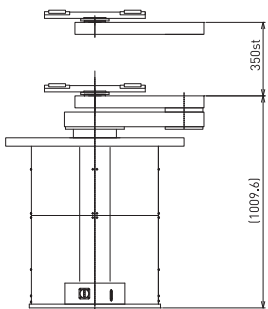
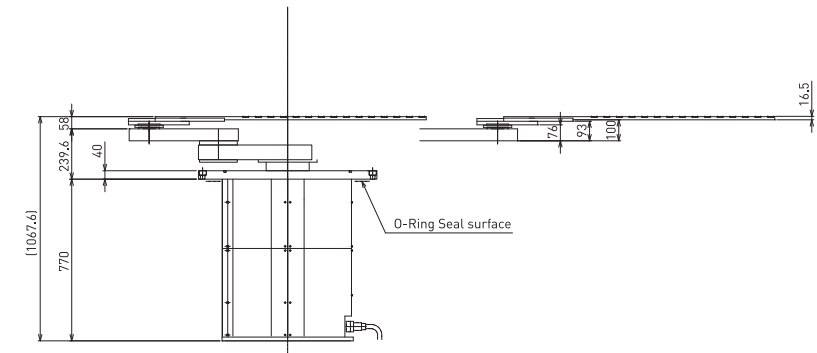
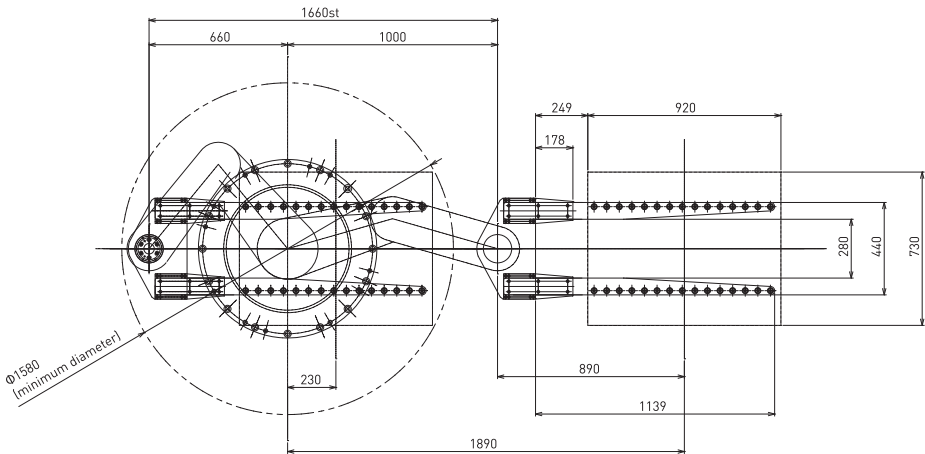


■ Transfer robot with single arm in Vacuum

AR-SV5G



Model Name		AR-SV5G-070
Structure		Cylindrical Coordinate
Moving Axes		3
Operating Range	A-axis	1750mm
	θ-axis	330°
	Z-axis	70mm
Operating speed	A-axis	1200mm/sec
	θ-axis	100°/sec
	Z-axis	100mm/sec
Operating Tact time	A-axis	2.5sec
	θ-axis	4.0sec
	Z-axis	1.5sec
Repeatability	A, θ-axis	±0.1mm
	Z-axis	±0.1mm
Vibration(left/right)		2mm under (70% of speed)
Vibration(height)		5mm under
Cleanliness		Class 1(0.1μm/cf)
Vacuum Seal Method		Mechanical lip-seal, Bellows-seal
Leak rate		1.0 × 10 ⁻⁷ Pa·m ³ /s
Payload		20kg/1per arm(Including the hand)
Operating Environment	Atmospheric	Temp. : 0~40℃ Humid. : 70% under
	Vacuum	Vacuum level : 1.0 × 10 ⁻⁵ Pa(1x10 ⁻⁸ Torr) Temp. : 0~80℃
Robot Weight		Approximately 180kg

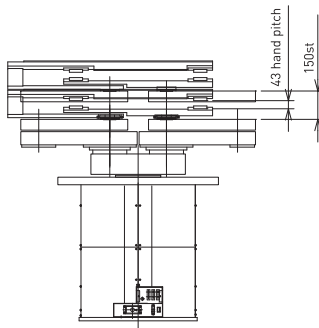
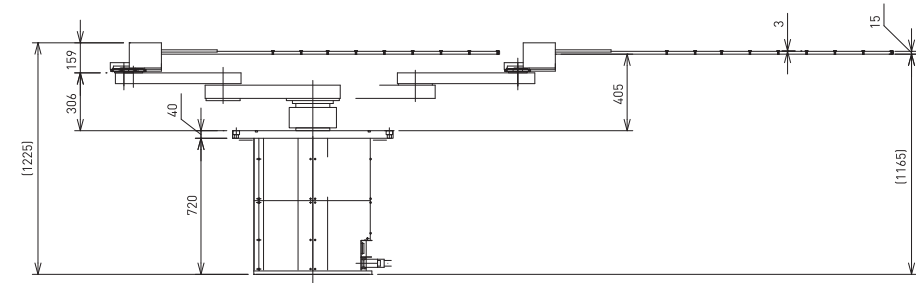
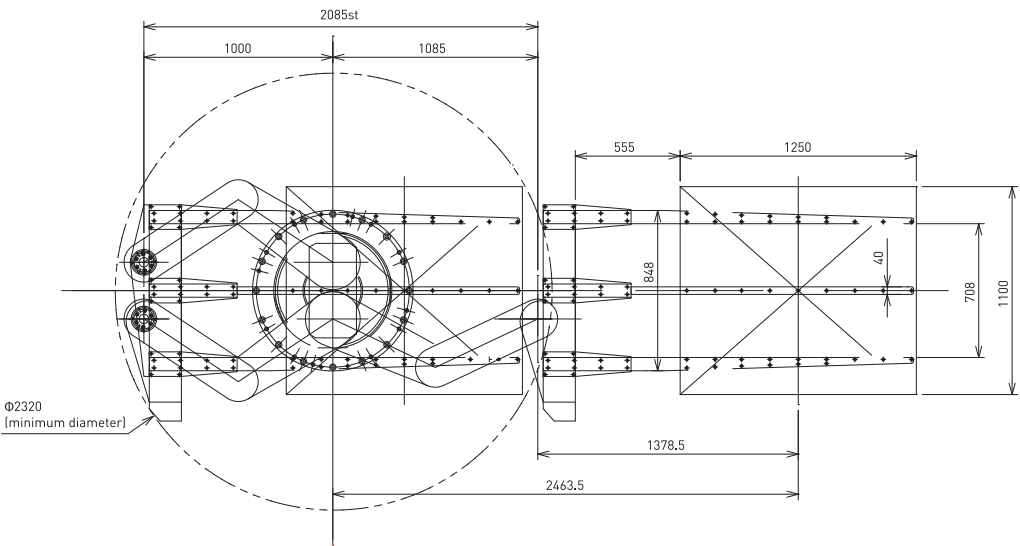


■ Glass transfer robot with double arms in Vacuum

AR-WV5G



Model Name		AR-WV5G-150
Structure		Cylindrical Coordinate
Moving Axes		4
Operating Range	A-axis	2085mm
	B-axis	2085mm
	θ-axis	Continuous
	Z-axis	150mm
Operating speed (MAX)	A-axis	1200mm/s
	B-axis	1200mm/s
	θ-axis	120°/sec
	Z-axis	120mm/s
Repeatability	A, θ-axis	±0.1mm
	Z-axis	±0.1mm
Cleanliness		Class 1(0.1μm/cf)
Vacuum Seal Method		Mechanical lip-seal Bellows-seal
Leak rate		1.0 × 10 ⁻⁷ Pa·m ³ /s
Payload		15kg(Including the hand)
Operating Environment	Atmospheric	Temp. : 0~40℃ Humid. : 70% under
	Vacuum	1.0 × 10 ⁻⁵ Pa Temp. : 0~80℃
Robot Weight		280kg (Including the hand)
Appearance		Aluminium white Alumite, SUS buffing(#400)



■ Glass transfer robot with double arms in Vacuum condition

AR-WV5.5G



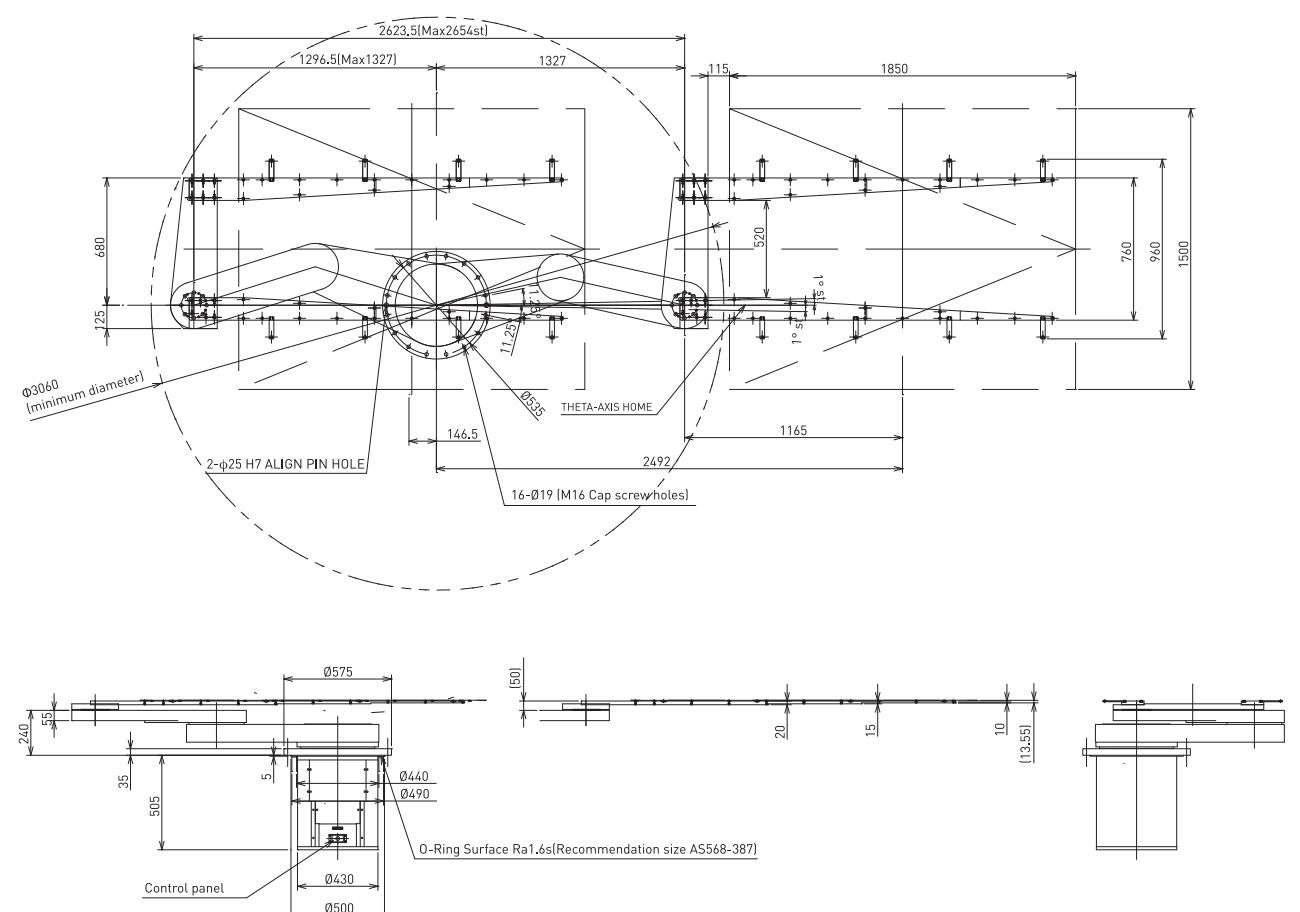
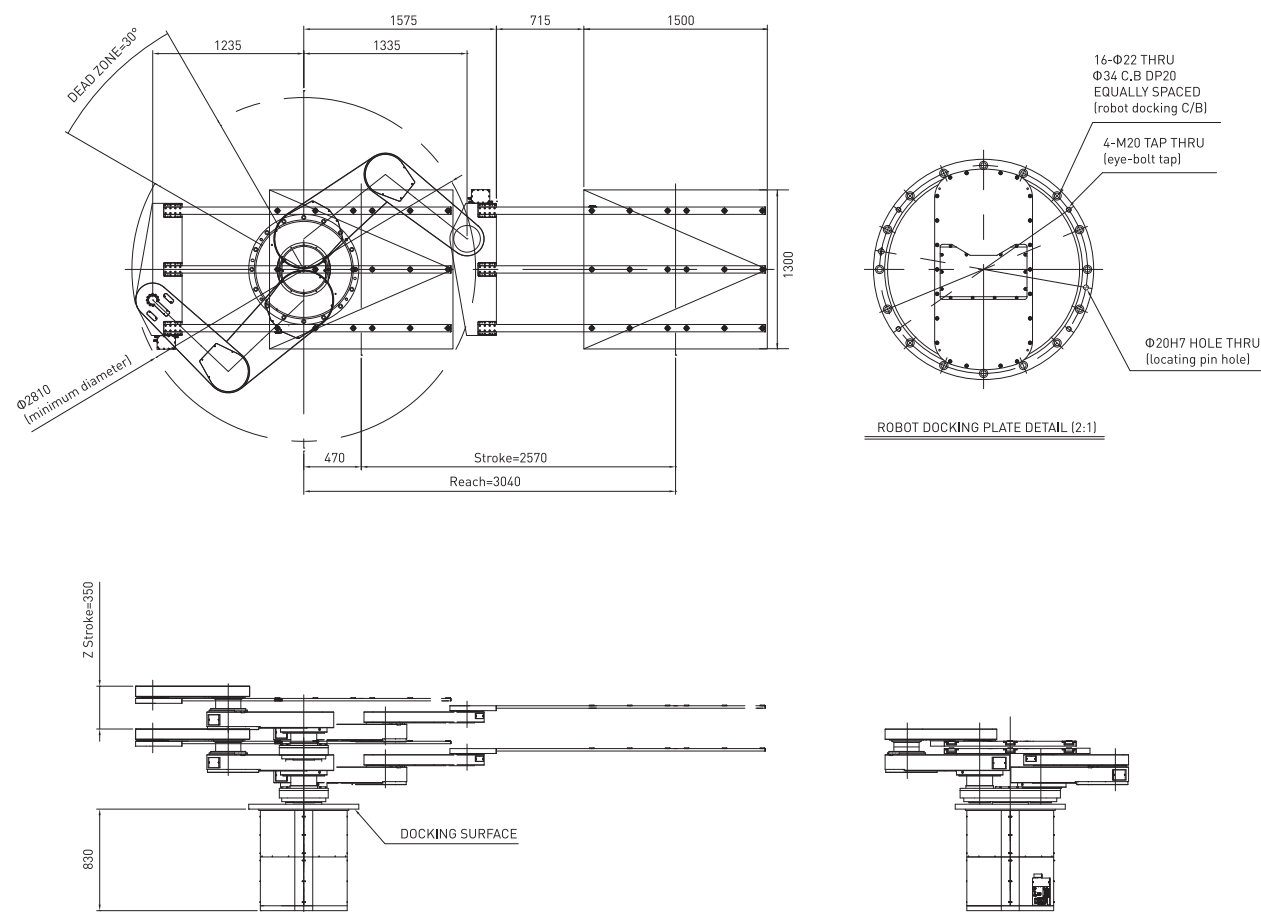
Model Name		AR-WV5.5G-350
Structure		Cylindrical coordinate
Moving Axes		4
Motion Range	A, B-axis	2470mm
	θ-axis	Continuous
	Z-axis	350mm
Motion Speed	A, B-axis	2470mm/2.5sec
	θ-axis	180deg/2.5sec
	Z-axis	350mm/2.0sec
Repeatability		± 0.5mm
Cleanliness Class		ISO Class 4
Degree of attainment vacuum		1.0 × 10 ⁻⁵ Pa
Leak rate		1.0 × 10 ⁻⁷ Pa·m ³ /s
Payload		50kg/arm(Including end-effector Base plate)
Vacuum Seal Method		Special lipseal, Method bellows
Environment for use	Atmosphere side	Temperature:Less than 40degree-C Humidity:Less than 70%
	Vacuum side	Temperature:Less than 80degree-C
Robot Weight		Approximare 2000kg



AR-SV6G



Model Name		AR-SV6G-A28T2
Moving Axis		2
Operation range	A-axis	2600mm
	θ-axis	+/-°(For adjust Resolution 0.001°)
Operation speed (max)	A-axis	1600mm/sec
Time to reach full stroke	A-axis	3.0sec
Repeatability		+/-0.2mm
Leak rate		$1.0 \times 10^{-7} \text{Pa} \cdot \text{m}^3/\text{s}$
Cleanliness		Class 1($0.1 \mu\text{m}/\text{cf}$)
Payload		30Kg(Including end effector)
Operation Environment	Atmospheric side	Temperature 0~40[°C] Humidity 70% or below
	Vacuum side	Vacuum rate : $1.0 \times 10^{-5} \text{Pa}$ ($1 \times 10^{-8} \text{Torr}$) Temperature 0~80[°C]
Robot weight		approximately 160Kg

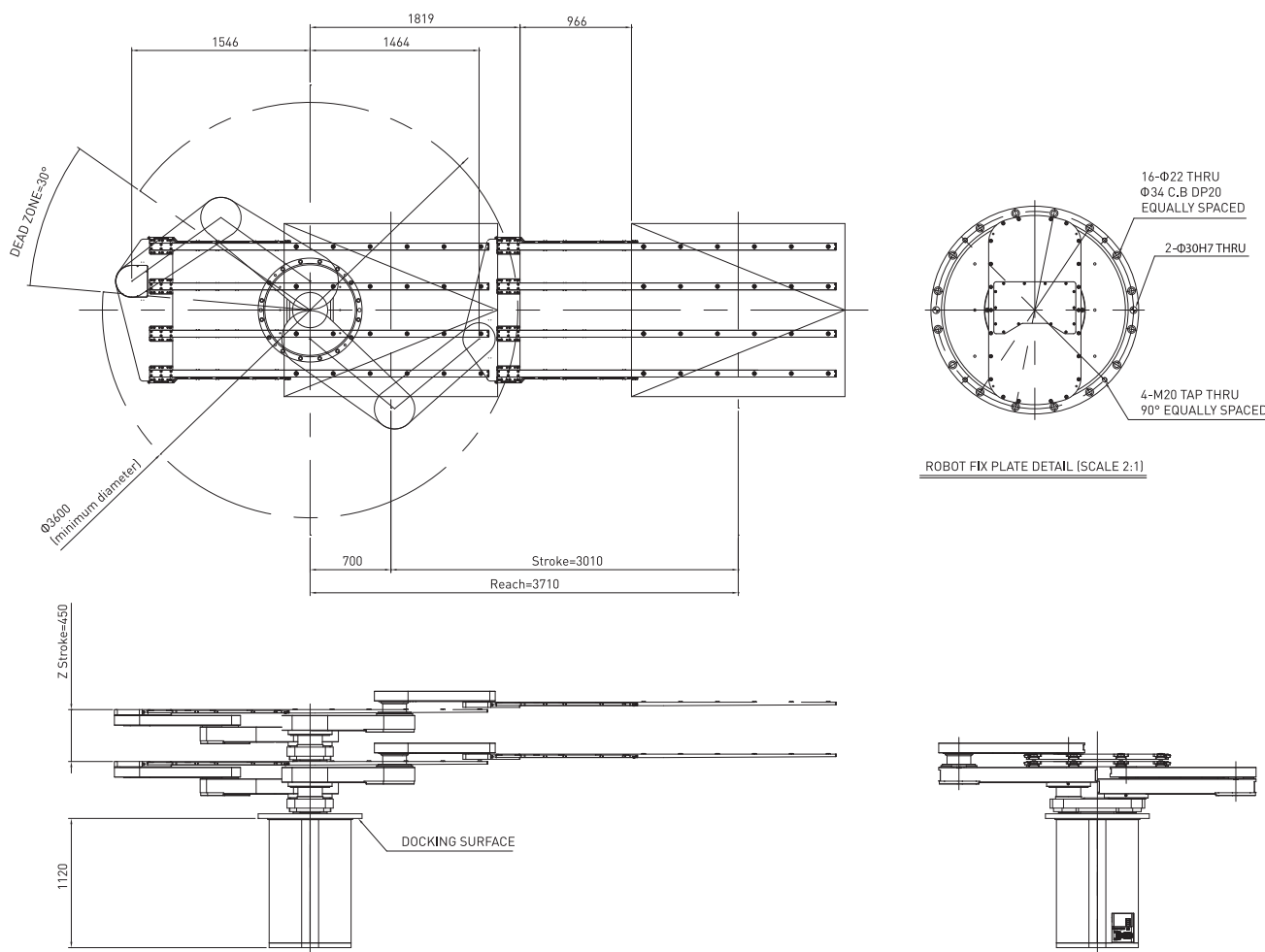


■ Glass transfer robot with double arms in Vacuum

AR-WV6S



Model Name		AR-WV6S-600
Structure		Cylindrical Coordinate
Moving Axis		4
Motion Range	A, B-axis	3275mm
	θ-axis	-145~+185 deg
	Z-axis	450mm
Motion Speed (MAX)	A, B-axis	3275mm/2.8sec
	θ-axis	185deg/2.35sec
	Z-axis	450mm/2.00sec
Repeatability		+/- 0.5mm
Cleanliness Class		ISO Class 3
Degree of attainment vacuum		1.0 × 10 ⁻⁵ Pa(1 × 10 ⁻⁸ Torr)
Leak rate		1.0 × 10 ⁻⁵ Pa·m ³ /s
Payload		Max. 50kg/arm(Hand is included)
Vaccum Seal Method		Mechanical lip-seal(Rotation)
		Bellows-seal(Z-Axis)
Environment for use	Atmosphere side	Temperature : 0~40℃ Humidity : Less than 70%
	Vaccum side	Temperature 0~80℃
Robot Weight		Approximately 1700kg

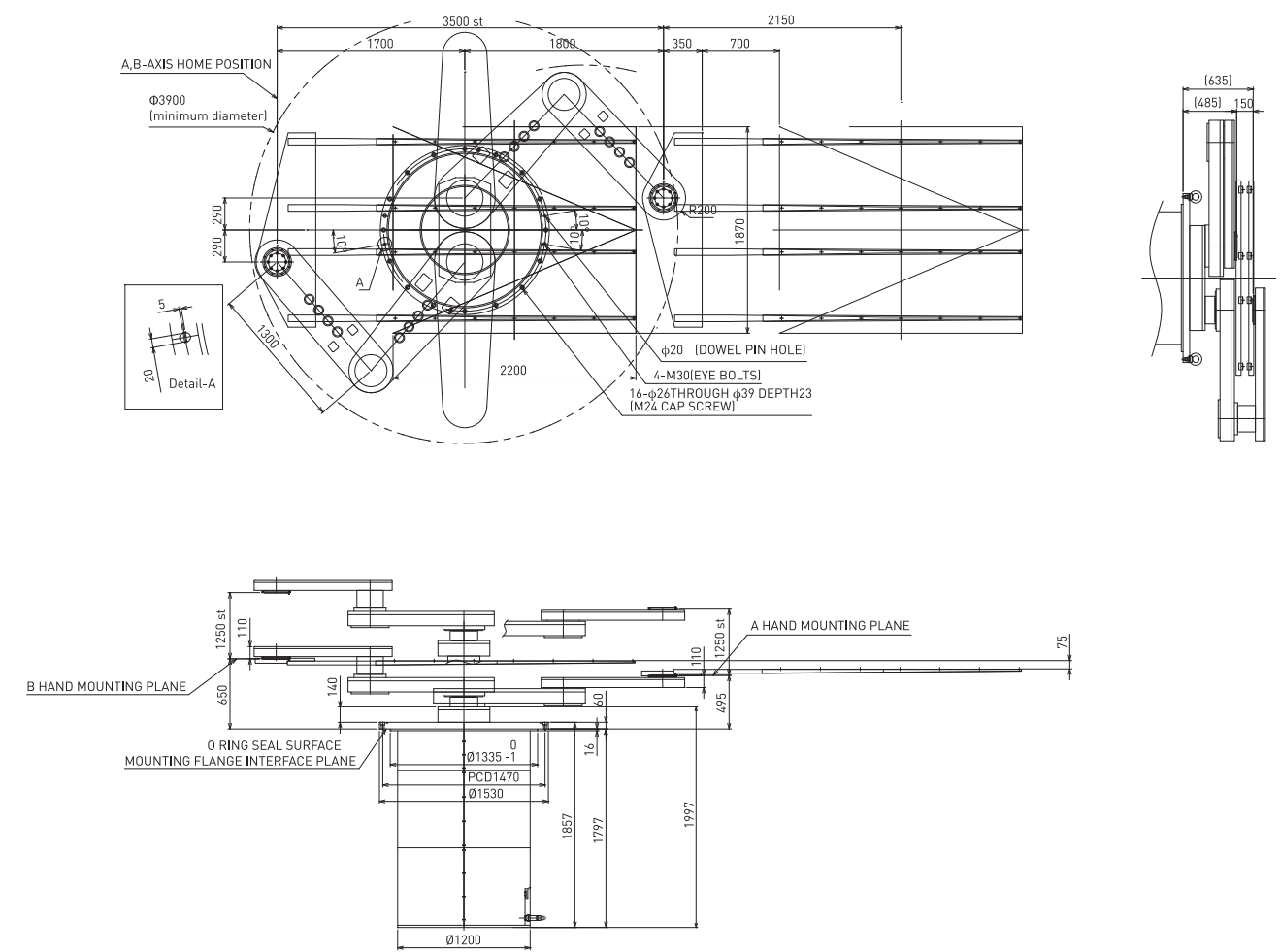


■ Glass transfer robot with double arms in Vacuum condition

AR-WV7G

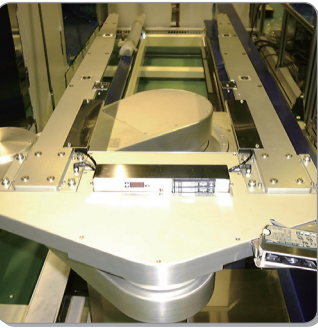


Model Name		AR-WV7G
Structure		Cylindrical Coordinate
Moving Axis		4
Operating Range	A-axis	3500mm
	θ-axis	Continuous
	Z-axis	1250mm
Operating Speed (MAX)	A-axis	2400mm/sec
	θ-axis	140deg/sec
	Z-axis	600mm/sec
Tact time	A-axis	3.2sec
	θ-axis	2.8sec
	Z-axis	4.5sec
Positioning repeatabilit		+/-0.5mm
Arm Trajectory		+/-8mm
Arm drooping		+/-7mm
Cleanliness		Class 1 (0.3μm/cf)
Degree of attainment vacuum		1.0 × 10 ⁻⁵ Pa(1 × 10 ⁻⁶ Torr)
Leak rate		1.0 × 10 ⁻⁷ Pa·m ³ /s
Payload		80kg(Including end-effector)
Glass size		1870 x 2200(t 0.5~1.1mm)
Vaccum Seal Method		Mechanical lip-seal(Rotation)
		Bellows-seal(Z-Axis)
Environment for use	Atmosphere side	Temperature : 0~40℃ Humidity : Less than 70 %
	Vaccum side	Temperature 0~80℃
Robot Weight		Approximately 2200kg



■ Glass transfer robot with single arm

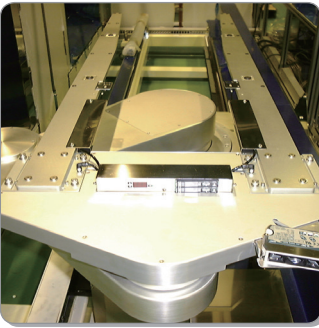
AR-3GS



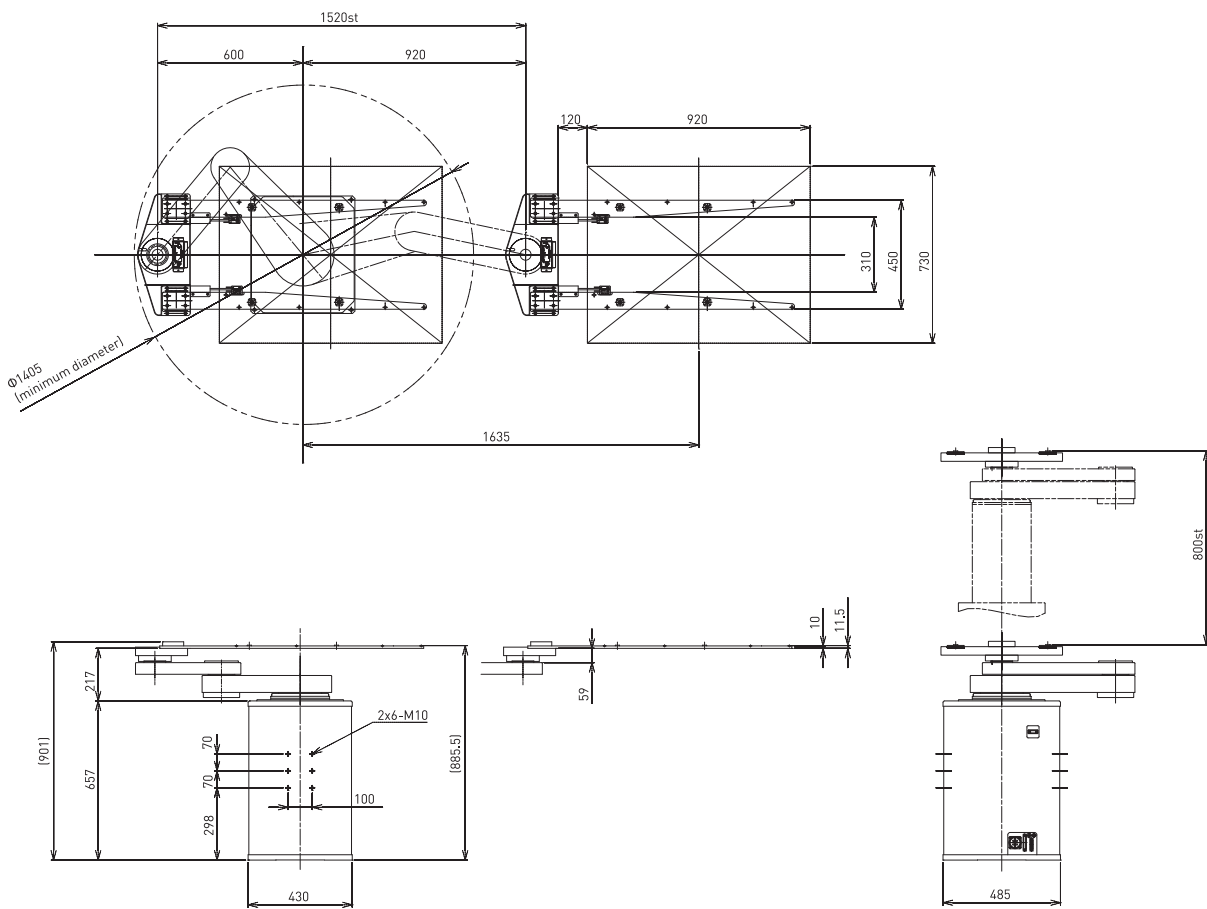
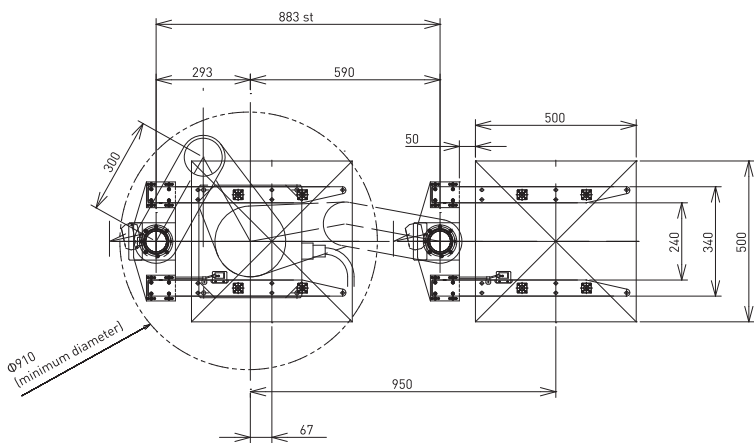
Model Name	AR-3GS-400 / AR-3GS-520 / AR-3GS-600	
Structure	Cylindrical Coordinate	
Moving Axes	3	
Operating Range(MAX)	A-axis	1120mm
	θ-axis	330°
	Z-axis	400mm / 520mm / 600mm
Operating speed (MAX)	A-axis	1400mm/s
	θ-axis	145°/sec
	Z-axis	210mm/s
Repeatability	±0.1mm	
Cleanliness	Class 10(0.3μm/cf)	
Payload	5kg/1 per arm (Including the hand)	
Operating Environment	Temp. : 0~40℃	
	Humid. : 70% under	
Robot Weight	Approximately 85kg / Approximately 90kg / Approximately 95kg	
Appearance	Aluminium white Alumite, SUS buffing (#400)	

■ Glass transfer robot with single arm

AR-4GS



Model Name	AR-4GS-800 / AR-4GS-1000	
Structure	Cylindrical Coordinate	
Moving Axes	3	
Operating Range(MAX)	A-axis	1460mm
	θ-axis	330°
	Z-axis	800mm / 1000mm
Operating speed (MAX)	A-axis	1700mm/s
	θ-axis	145°/sec
	Z-axis	400mm/s
Repeatability	±0.1mm	
Cleanliness	Class 10(0.3μm/cf)	
Payload	10kg/1 per arm(Including the hand)	
Operating Environment	Temp. : 0~40℃	
	Humid. : 70% under	
Robot Weight	Approximately 210kg / Approximately 230kg	
Appearance	Aluminium white Alumite, SUS buffing(#400)	



■ Glass Transfer Robot

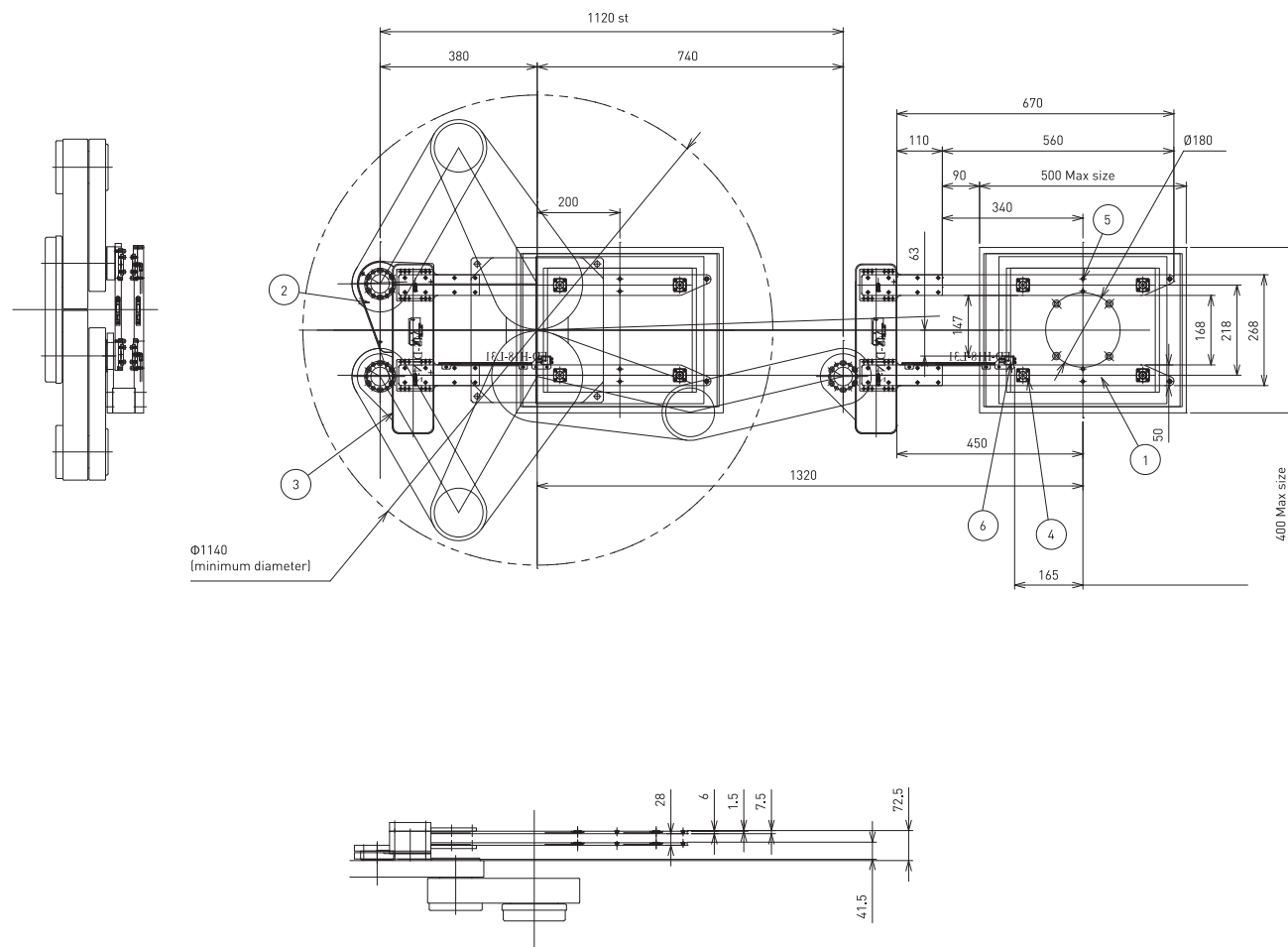
Atmospheric

■ Glass transfer robot with double arms

AR-3GW



Model Name		AR-3GW-400 / AR-3GW-520 / AR-3GW-600
Structure		Cylindrical Coordinate
Moving Axes		4
Operating Range(MAX)	A-axis	1120mm
	θ-axis	330°
	Z-axis	400mm / 520mm / 600mm
Operating speed (MAX)	A-axis	1400mm/s
	θ-axis	145°/sec
	Z-axis	210mm/s
Repeatability		±0.1mm
Cleanliness		Class 10(0.3μm/cf)
Payload		5kg/1 per arm (Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 100kg / Approximately 105kg / Approximately 110kg
Appearance		Aluminium white Alumite, SUS buffing(#400)



■ Glass Transfer Robot

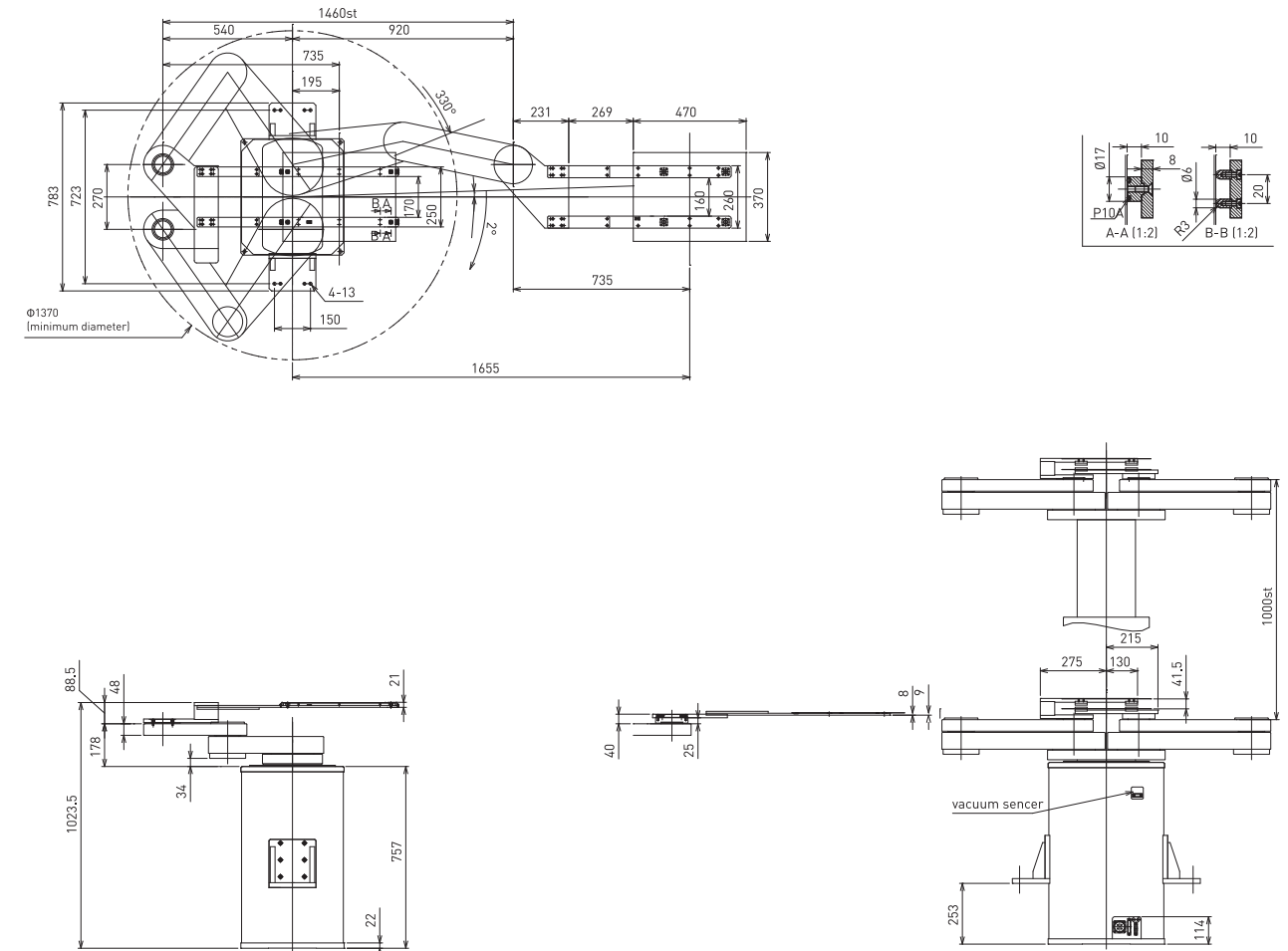
Atmospheric

■ Glass transfer robot with double arms

AR-4GW



Model Name		AR-4GW-800 / AR-4GW-1000
Structure		Cylindrical Coordinate
Moving Axes		4
Operating Range(MAX)	A, B-axis	1460mm
	θ-axis	330°
	Z-axis	800mm / 1000mm
Operating speed (MAX)	A, B-axis	1700mm/s
	θ-axis	145 °/sec
	Z-axis	400mm/s
Repeatability		±0.1mm
Cleanliness		Class 10(0.3μm/cf)
Payload		10kg/1 per arm(Including the hand)
Operating Environment		Temp. : 0~40℃ Humid. : 70% under
Robot Weight		Approximately 250kg Approximately 270kg
Appearance		Aluminium white Alumite, SUS buffing(#400)



■ Glass transfer robot with single arm(Reverse type)

AR-3GSR



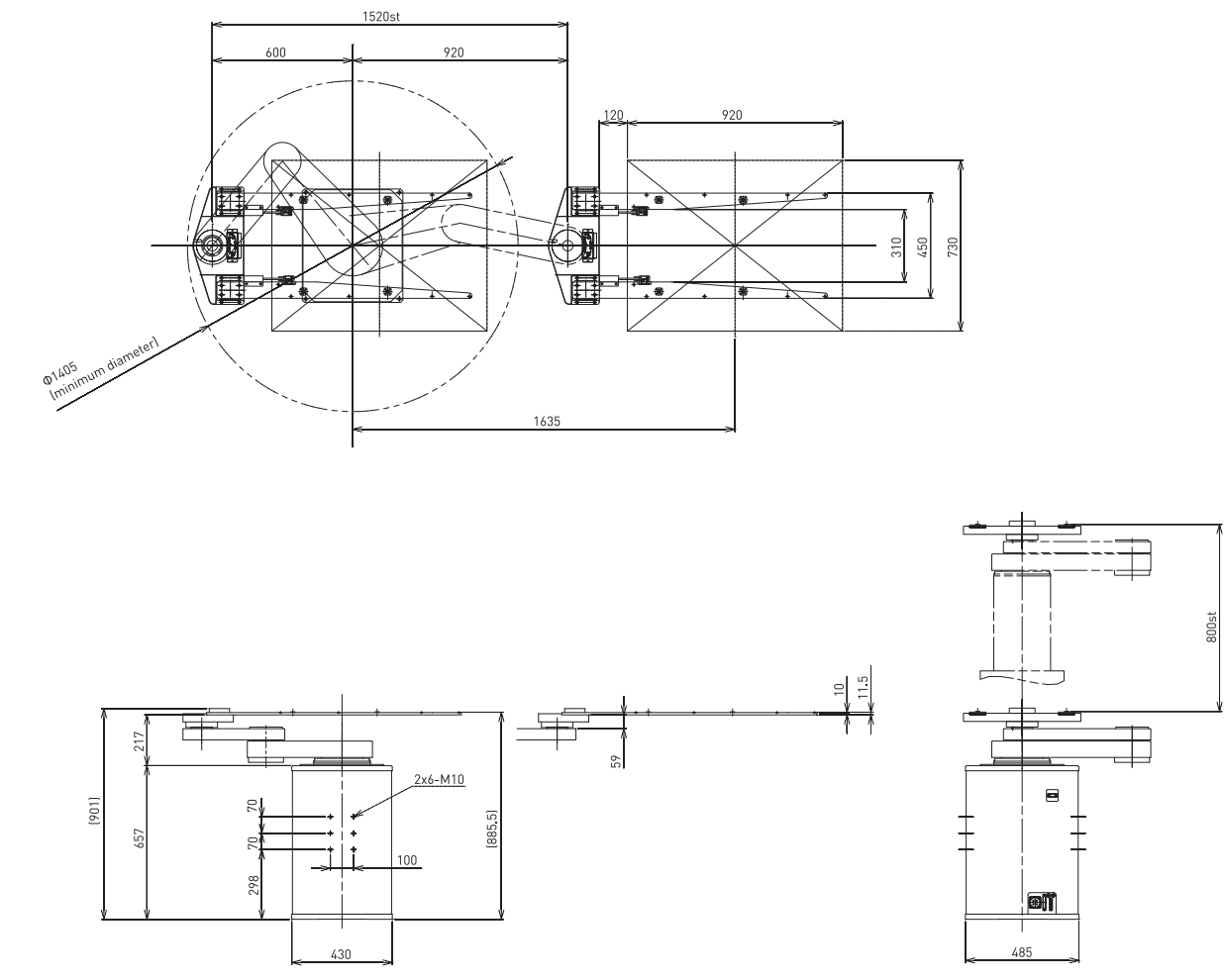
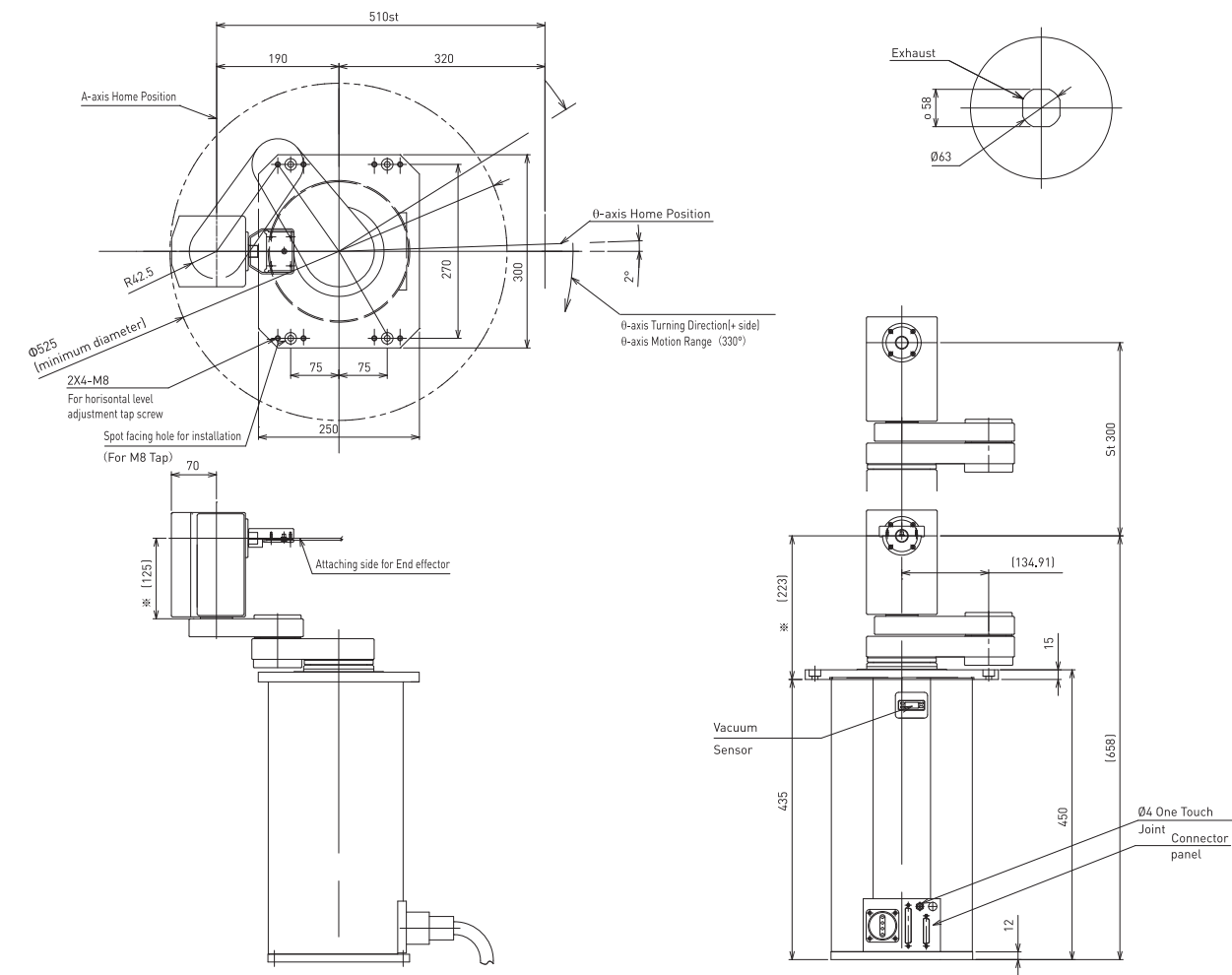
Model Name	AR-3GSR
Structure	Cylindrical Coordinate
Moving Axes	3+1
Operating Range(MAX)	A-axis
	1120mm
	θ-axis
	330°
Operating speed (MAX)	Z-axis
	400mm / 520mm / 600mm
	R-axis
	185°
Operating speed (MAX)	A-axis
	800mm/s
	θ-axis
	100°/sec
Operating speed (MAX)	Z-axis
	150mm/s
Operating speed (MAX)	R-axis
	30°/s
Repeatability	±0.2mm
Cleanliness	Class 10(0.1μm/cf)
Power	Vacuum 54kPa(over) 10NL/min
Payload	4kg/1 per arm(Including the hand)
Operating Environment	Temp. : 0~40℃
	Humid. : 70% under
Robot Weight	Approximately 100kg / Approximately 105kg / Approximately 110kg
Appearance	Aluminium white Alumite, SUS buffing (#400)

■ Glass transfer robot with single arm(Reverse type)

AR-4GSR

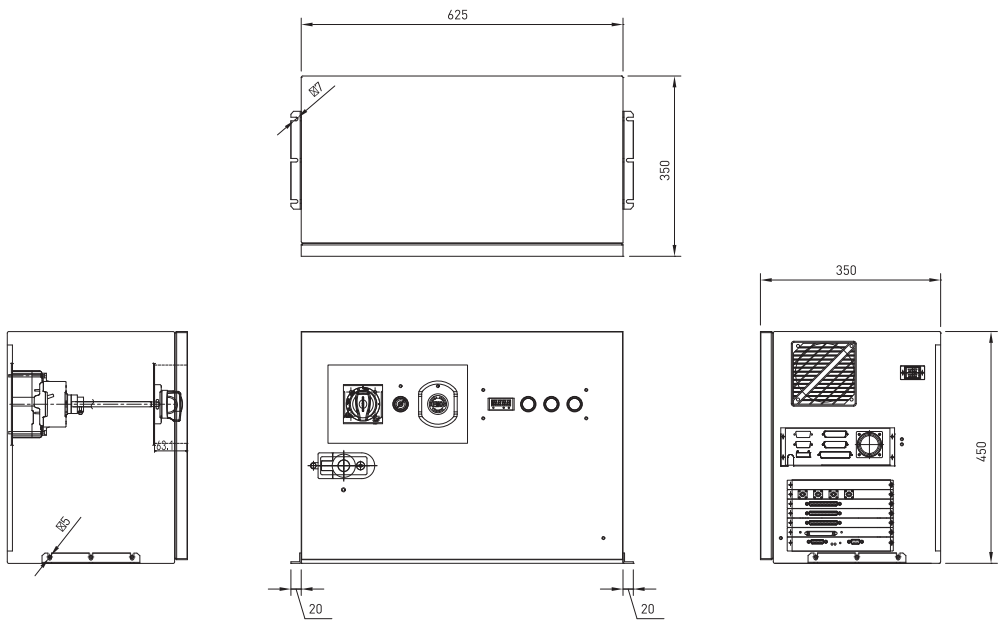


Model Name	AR-4GSR
Structure	Cylindrical Coordinate
Moving Axes	3+1
Operating Range(MAX)	A-axis
	1460mm
	θ-axis
	330°
Operating speed (MAX)	Z-axis
	800mm / 1000mm
	R-axis
	185°
Operating speed (MAX)	A-axis
	1000mm/s
	θ-axis
	100°/sec
Operating speed (MAX)	Z-axis
	400mm/s
Operating speed (MAX)	R-axis
	30°/sec
Repeatability	±0.2mm
Cleanliness	Class 10(0.1μm/cf)
Power	Vacuum 54kPa(over) 10NL/min
Payload	10kg/1 per arm(Including the hand)
Operating Environment	Temp. : 0~40℃
	Humid. : 70% under
Robot Weight	Approximately 225kg / Approximately 245kg
Appearance	Aluminium white Alumite, SUS buffing(#400)



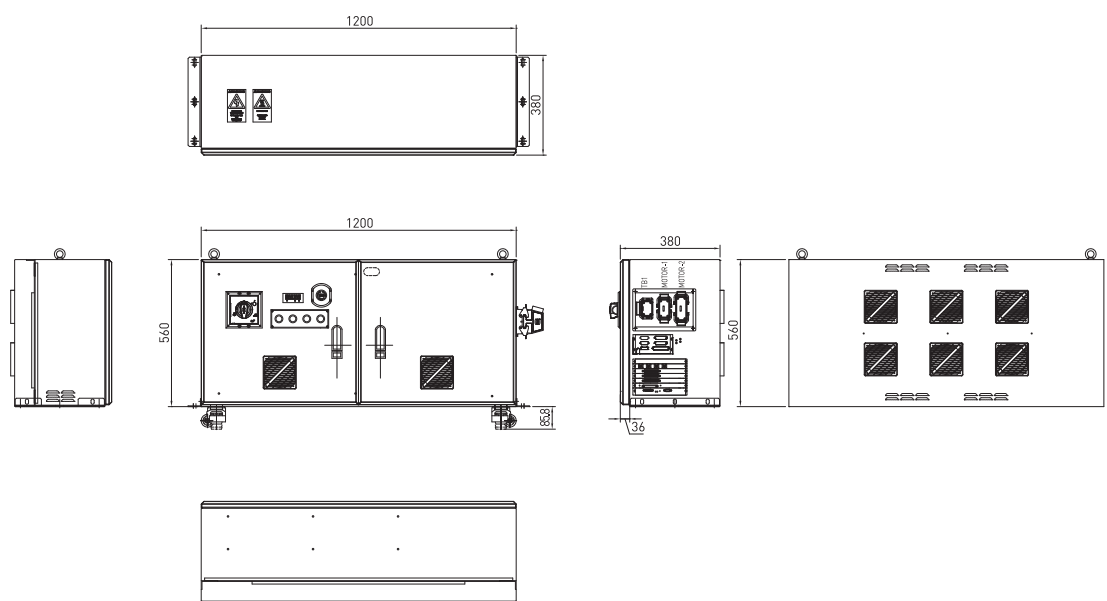
DAI-2500A

Model Name	2500A
Voltage / Frequency	AC200 ~ 230V ±10% 10A 50/60Hz
Capacity(kVA)	1.0 KVA
Operation Conditions	Temperature : 0~40℃, Humidity : 70% (No condensing)
Weight	42kg



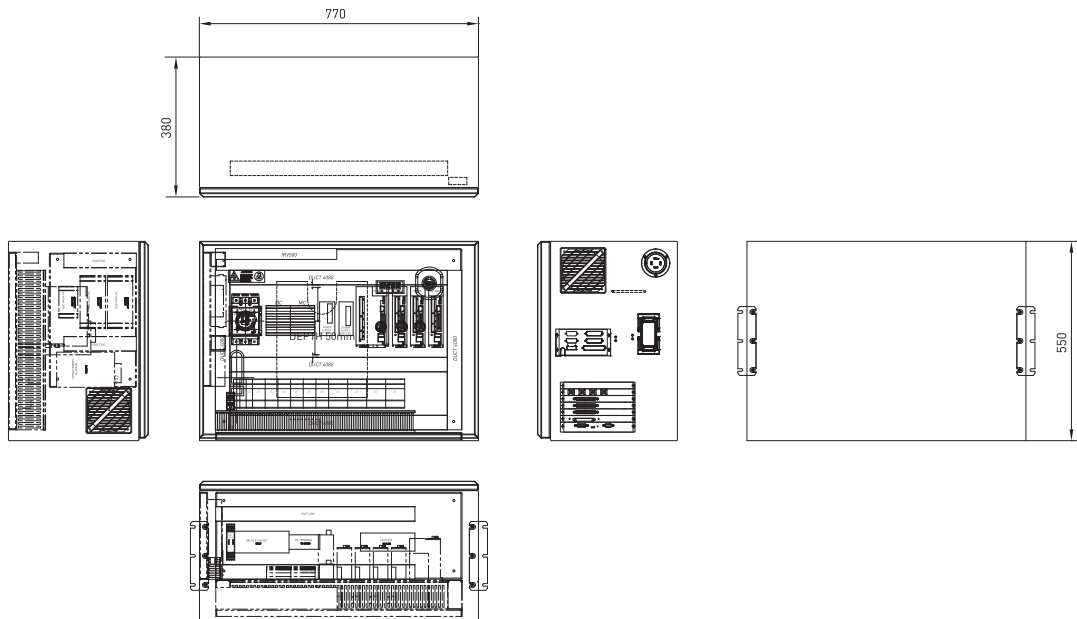
DAI-2500C

Model Name	2500C
Voltage / Frequency	AC200 ~ 230V ±10% 60A 50/60Hz
Capacity(kVA)	16.5 KVA
Operation Conditions	Temperature : 0~40℃, Humidity : 70% (No condensing)
Weight	150kg



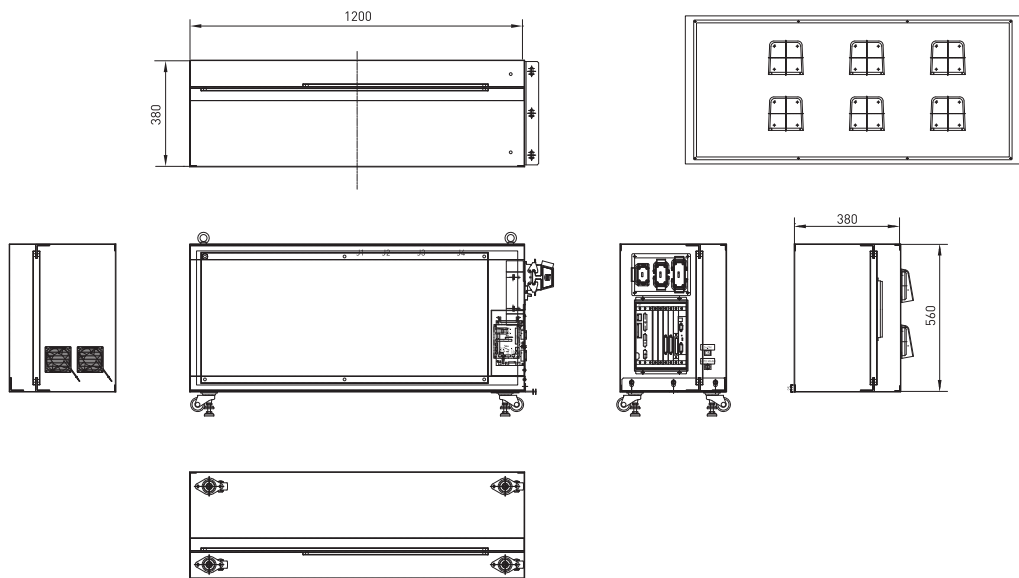
DAI-2500B

Model Name	2500B
Voltage / Frequency	AC200 ~ 230V ±10% 18A 50/60Hz
Capacity(kVA)	7.0 KVA
Operation Conditions	Temperature : 0~40℃, Humidity : 70% (No condensing)
Weight	80kg



DAI-2500F

Model Name	2500F
Voltage / Frequency	AC200 ~ 230V ±10% 60A 50/60Hz
Capacity(kVA)	16.0 KVA
Operation Conditions	Temperature : 0~40℃, Humidity : 70% (No condensing)
Weight	120kg





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