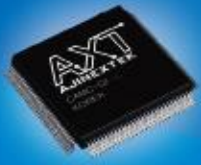


SCARA ROBOT

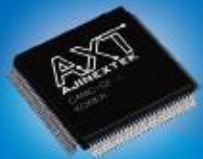


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 - TOSHIBA
 - ABB
 - YASKAWA
2. External view
 - TOSHIBA
 - YASKAWA



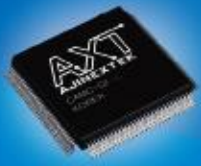
1. Selection table Robots



TOSHIBA



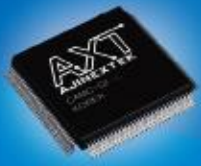
Model		THL300
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		300mm(125mm+175mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~160mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	660°/S
	Axis 2	660°/S
	Axis 3(Z axis)	1120mm/s
	Axis 4(Z axis rotation)	1500°/S
	Composite	5.1m/s
Standard cycle time(with 2kg load)		0.48s
Maximum payload mass		5kg(rated : 2kg)
Allowable moment of inertia		0.05kg·m ²
Positioning	X-Y	$\pm 0.01\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø4x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		0.7kVA
Mass		12kg



TOSHIBA



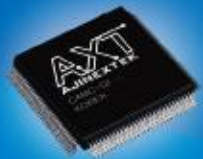
Model		THL400
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		400mm(225mm+175mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~160mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	660°/S
	Axis 2	660°/S
	Axis 3(Z axis)	1120mm/s
	Axis 4(Z axis rotation)	1500°/S
	Composite	6.3m/s
Standard cycle time(with 2kg load)		0.47s
Maximum payload mass		5kg(rated : 2kg)
Allowable moment of inertia		0.05kg·m ²
Positioning	X-Y	$\pm 0.01\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		$\varnothing 4 \times 3$ pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		0.7kVA
Mass		13kg



TOSHIBA



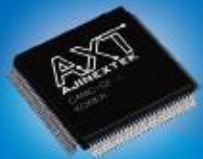
Model		THL500
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		500mm(200mm+300mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~150mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	450°/S
	Axis 2	450°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	6.3m/s
Standard cycle time(with 2kg load)		0.45s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	± 0.01 mm
repeatability	Z(Axis 3)	± 0.015 mm
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø6x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		22kg



TOSHIBA



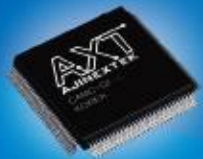
Model		THL600
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		600mm(300mm+300mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~150mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	450°/S
	Axis 2	450°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	7.1m/s
Standard cycle time(with 2kg load)		0.45s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	$\pm 0.01\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		$\varnothing 6 \times 3$ pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		23kg



TOSHIBA



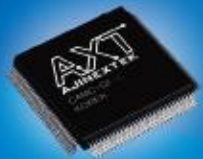
Model		THL700
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		700mm(400mm+300mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~150mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	450°/S
	Axis 2	450°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	7.9m/s
Standard cycle time(with 2kg load)		0.50s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	$\pm 0.01\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø6x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		24kg



TOSHIBA



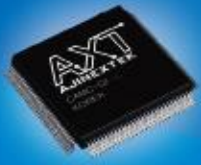
Model		THL800
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		800mm(350mm+450mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~150mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	187.5°/S
	Axis 2	217.5°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	4.3m/s
Standard cycle time(with 2kg load)		0.47s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	$\pm 0.02\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø6x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		33kg



TOSHIBA



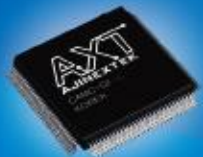
Model		THL900
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		900mm(450mm+450mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~300mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	187.5°/S
	Axis 2	217.5°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	4.6m/s
Standard cycle time(with 2kg load)		0.48s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	$\pm 0.02\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø6x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		35kg



TOSHIBA



Model		THL1000
Type		Horizontal multi-joint
No. of controlled axes		4
Arm length		1000mm(550mm+450mm)
Working envelope	Axis 1	$\pm 125^{\circ}$
	Axis 2	$\pm 145^{\circ}$
	Axis 3(Z axis)	0~300mm
	Axis 4(Z axis rotation)	$\pm 360^{\circ}$
Maximum speed	Axis 1	187.5°/S
	Axis 2	217.5°/S
	Axis 3(Z axis)	2000mm/s
	Axis 4(Z axis rotation)	1700°/S
	Composite	5.0m/s
Standard cycle time(with 2kg load)		0.48s
Maximum payload mass		10kg(rated : 2kg)
Allowable moment of inertia		0.2kg·m ²
Positioning	X-Y	$\pm 0.02\text{mm}$
repeatability	Z(Axis 3)	$\pm 0.015\text{mm}$
	Axis θ (Z-axis rotation)	$\pm 0.007^{\circ}$
Hand wiring		8input / 8outputs
Hand pneumatic joints		Ø6x3 pcs.
Position detection		Absolute
Robot controller cable		3.5m
Power capacity		1.4kVA
Mass		37kg

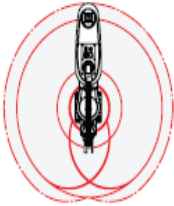




ABB

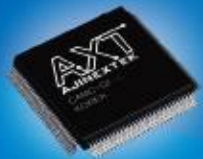
IRB 910SC

IRB 910SC-3/0.45,
IRB 910SC-3/0.55 and
IRB 910SC-3/0.65



		IRB910-3/0.45	IRB910-3/0.55	IRB910-3/0.65	Main applications
Load (kg)		3, max 6	3, max 6	3, max 6	Assembly
Reach (m)		0.45	0.55	0.65	Component Placement
Position repeatability (RP) (mm)	Axis 1 + 2	±0.01	±0.01	±0.01	Machine Loading
	Axis 3	±0.01	±0.01	±0.01	Machine Unloading
	Axis 4	±0.01 deg	±0.01 deg	±0.01 deg	Kitting
Working range					
Protection available		Std: IP20	Std: IP20	Std: IP20	
Mounting		Table	Table	Table	

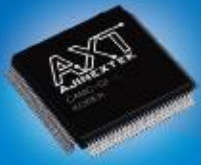
Certified by IPA



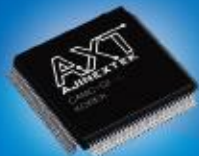
YASKAWA



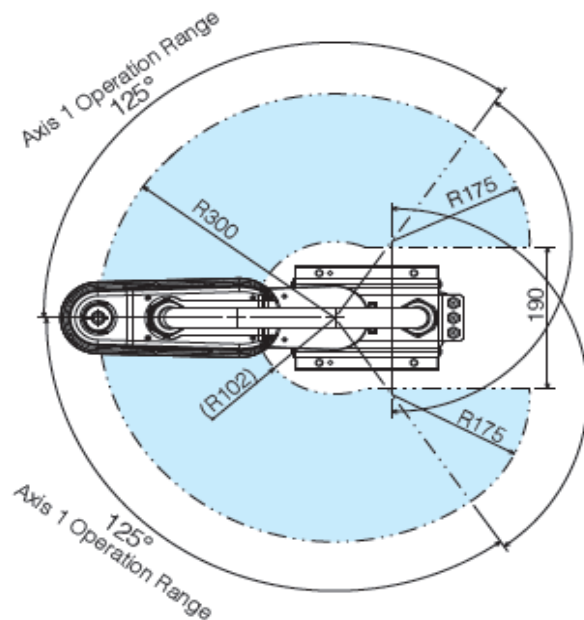
Model		MYS450L	MYS650L	MYS850L	MYS1,000L
Type		Horizontal multi-joint	Horizontal multi-joint	Horizontal multi-joint	Horizontal multi-joint
No. of controlled axes		4	4	4	4
Arm length		450mm (200mm+250mm)	650mm (400mm+250mm)	650mm (450mm+400mm)	1,000mm (600mm+400mm)
Working envelope	Axis 1	-	-	-	-
	Axis 2	-	-	-	-
	Axis 3(Z axis)	0~330mm	0~330mm	0~420mm	0~420mm
	Axis 4(Z axis rotation)	-	-	-	-
Maximum speed	Axis 1	-	-	-	-
	Axis 2	-	-	-	-
	Axis 3(Z axis)	-	-	-	-
	Axis 4(Z axis rotation)	-	-	-	-
	Composite	-	-	-	-
Standard cycle time		-	-	-	-
Maximum payload mass		6kg	6kg	10kg	20kg
Allowable moment of inertia (Normal / Max)		0.01kg·m ² / 0.12kg·m ²	0.01kg·m ² / 0.12kg·m ²	0.02kg·m ² / 0.25kg·m ²	0.02kg·m ² / 0.45kg·m ²
Positioning	X-Y	-	-	-	-
repeatability	Z(Axis 3)	-	-	-	-
	Axisθ(Z-axis rotation)	-	-	-	-
Hand wiring		-	-	-	-
Hand pneumatic joints		-	-	-	-
Position detection		-	-	-	-
Robot controller cable		-	-	-	-
Power capacity		-	-	-	-
Mass		27kg	28kg	46kg	48kg



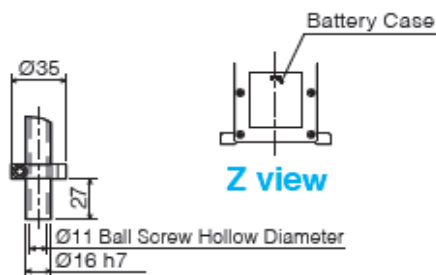
2. External view



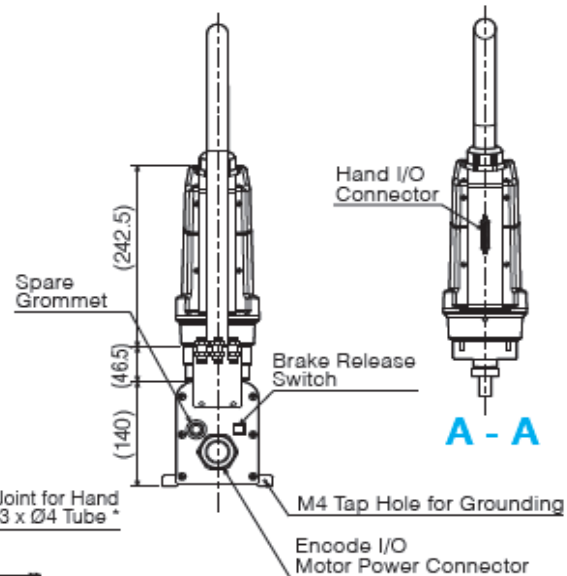
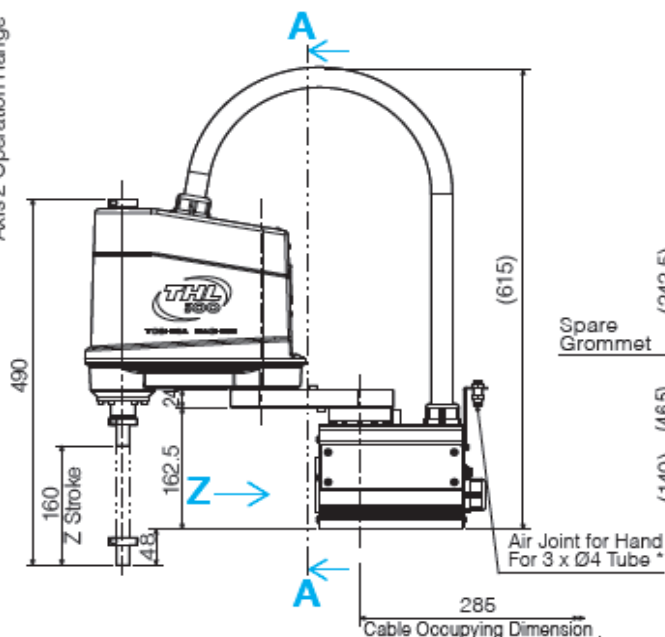
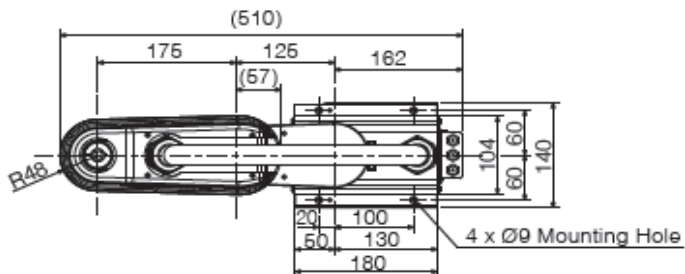
(TOSHIBA-THL300)



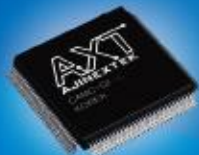
Operation Range



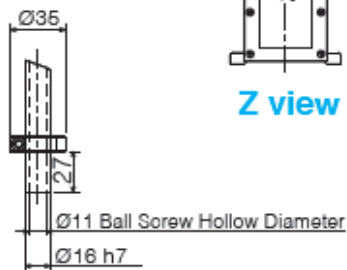
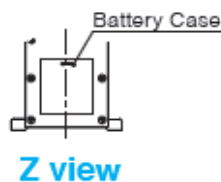
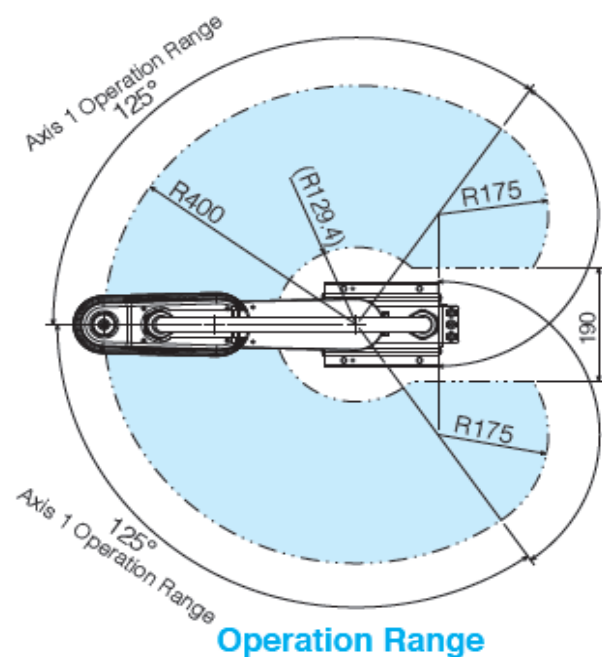
Hand Installation Area Detail



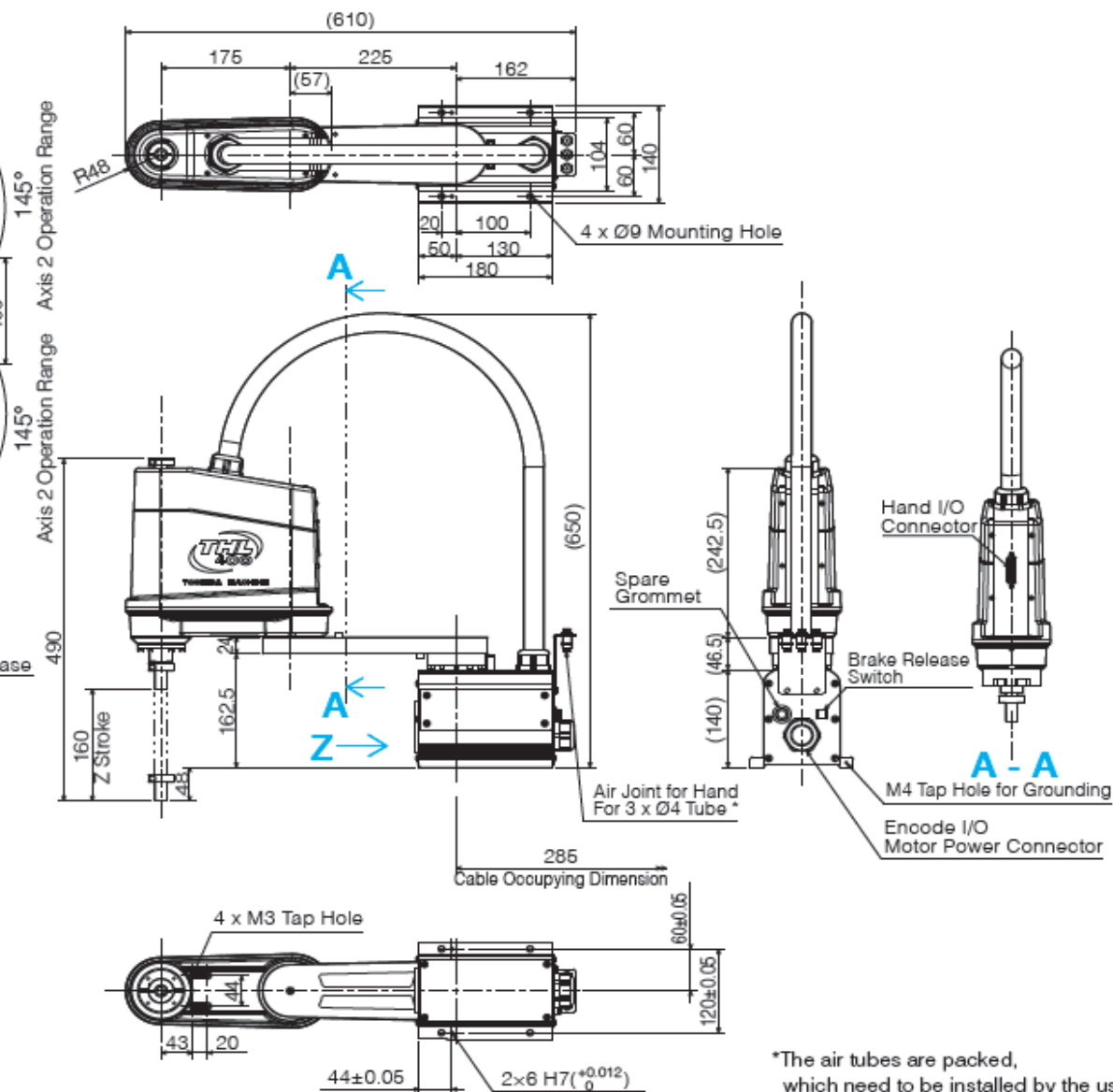
*The air tubes are packed, which need to be installed by the user.



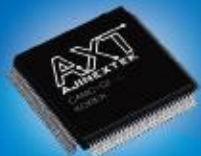
(TOSHIBA-THL400)



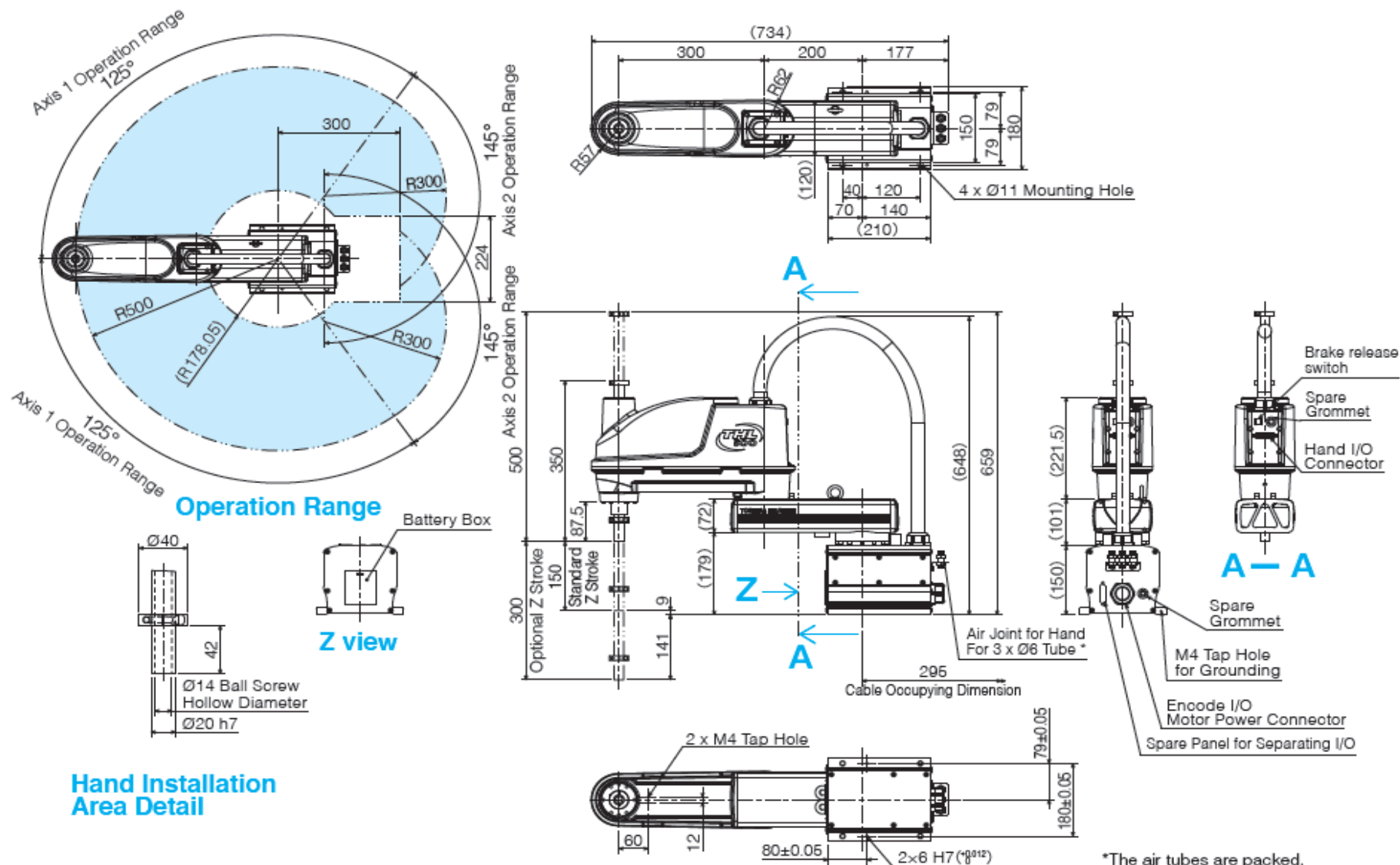
Hand Installation Area Detail



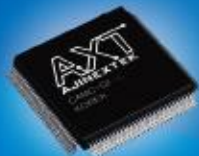
*The air tubes are packed, which need to be installed by the user.



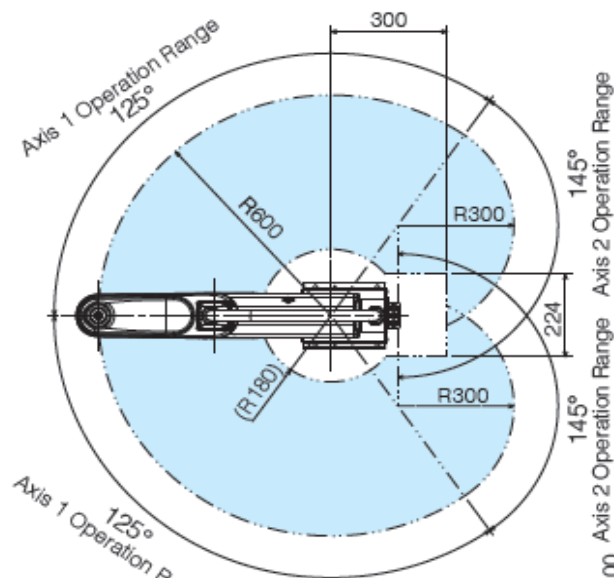
(TOSHIBA-THL500)



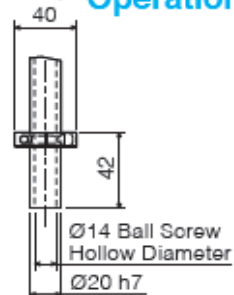
*The air tubes are packed, which need to be installed by the user.



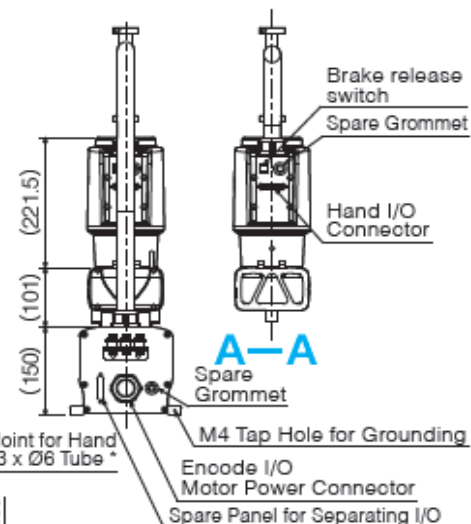
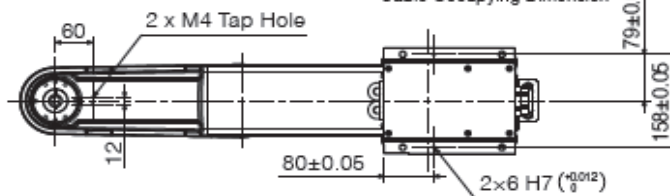
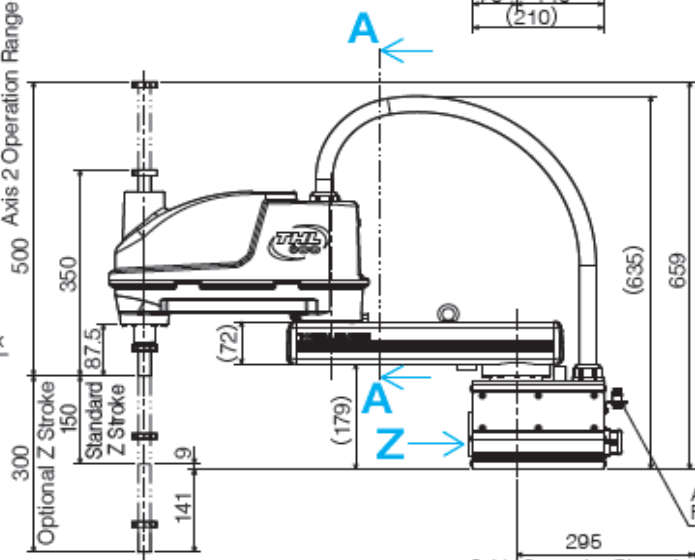
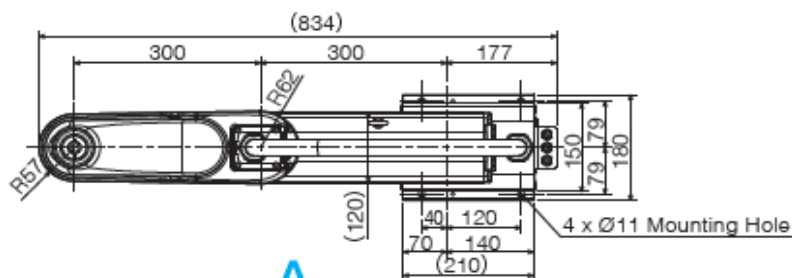
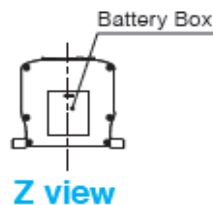
(TOSHIBA-THL600)



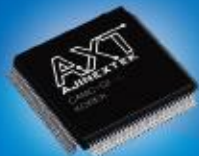
Operation Range



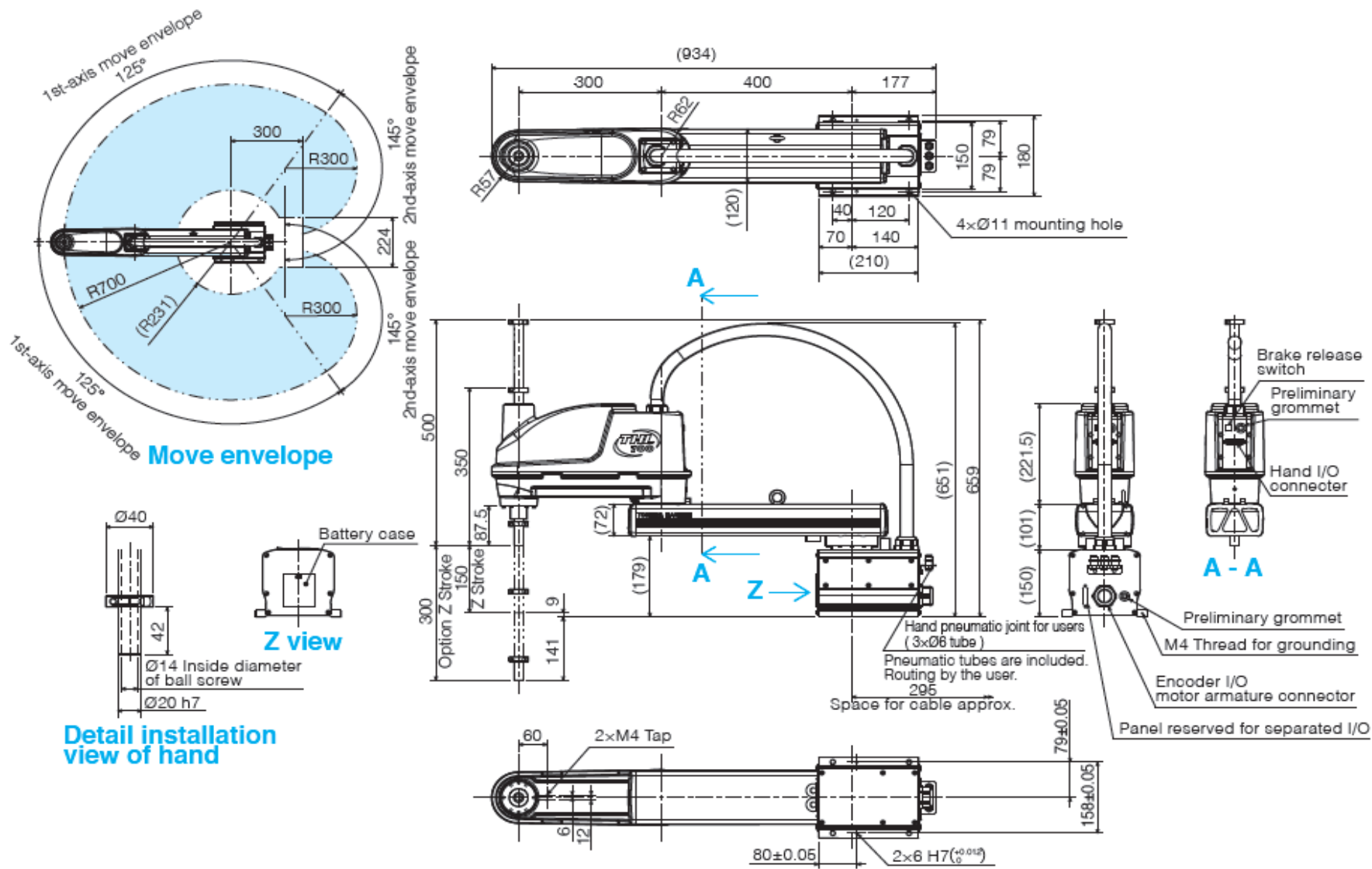
Hand Installation Area Detail



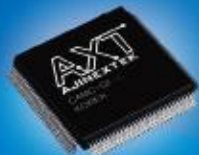
*The air tubes are packed, which need to be installed by the user.



(TOSHIBA-THL700)

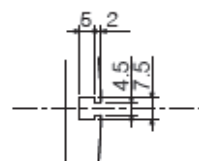
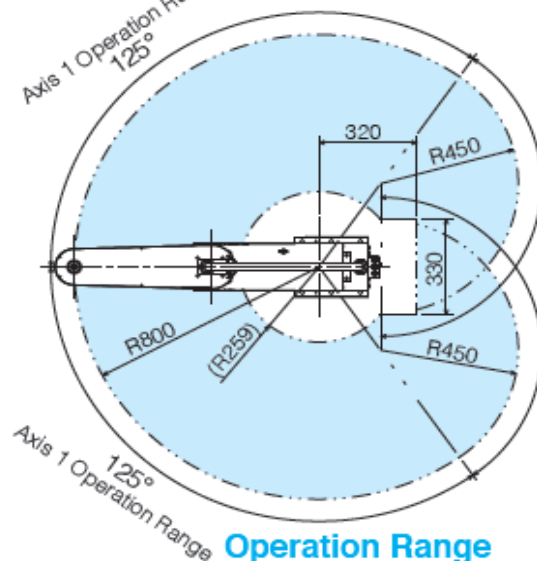


*The air tubes are packed, which need to be installed by the user.

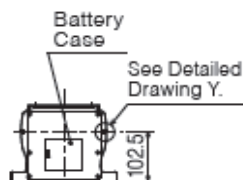


(TOSHIBA-THL800)

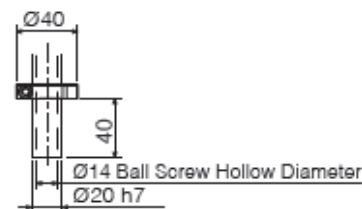
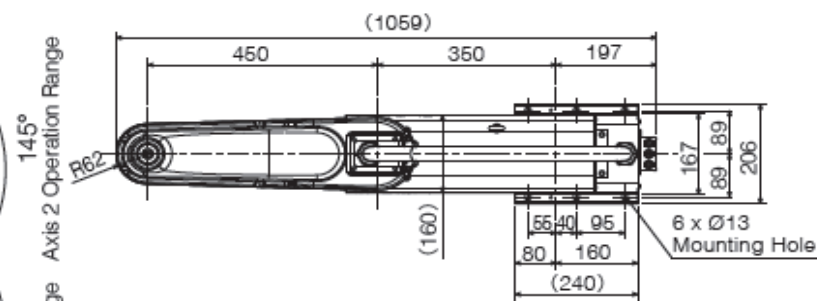
Axis 1 Operation Range
125°



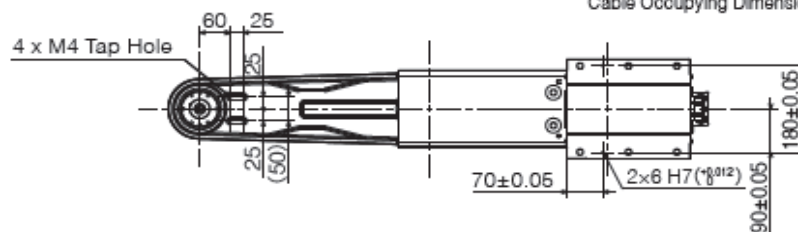
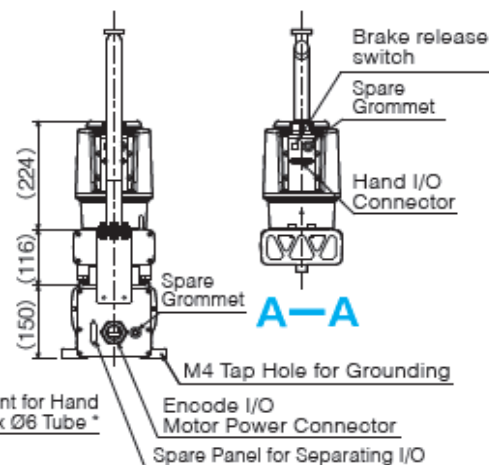
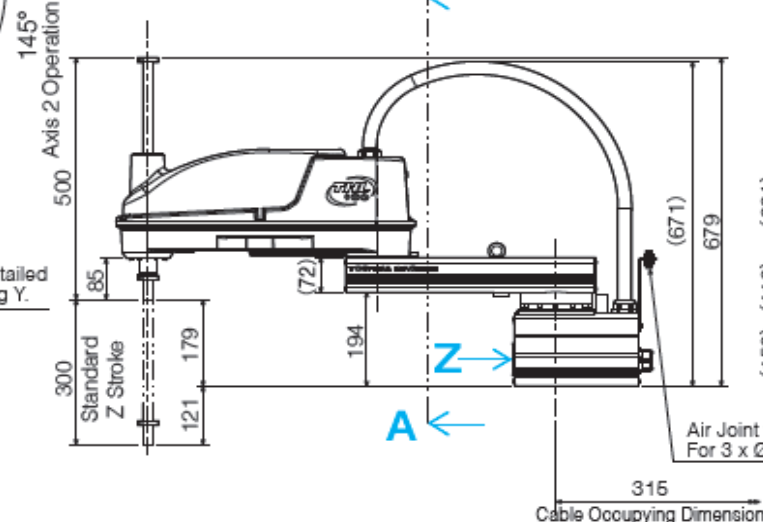
Detailed Drawing Y



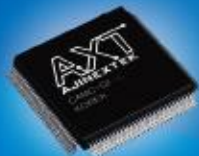
Z view



Hand Installation Area Detail



*The air tubes are packed, which need to be installed by the user.

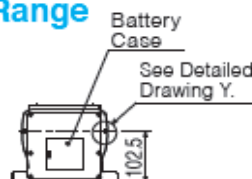


(TOSHIBA-THL900)

Axis 1 Operation Range
125°

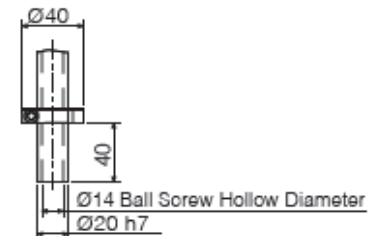
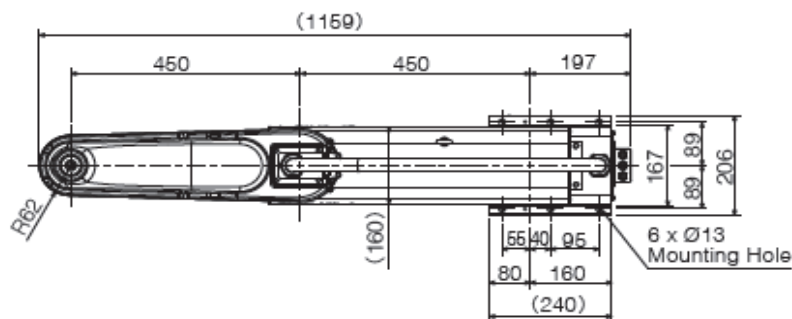
Axis 2 Operation Range
145°

Operation Range

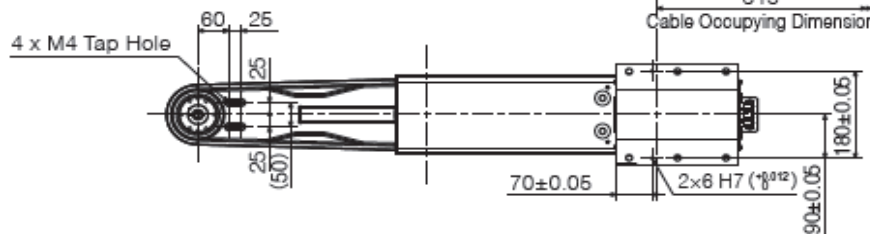
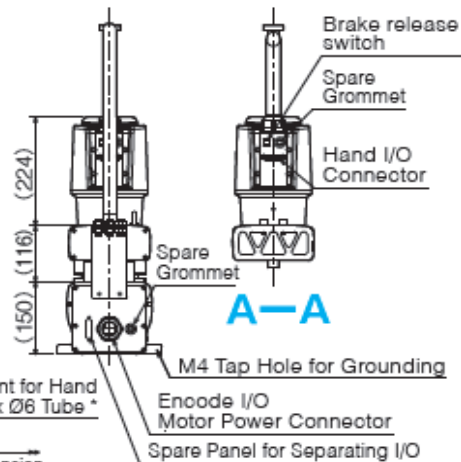
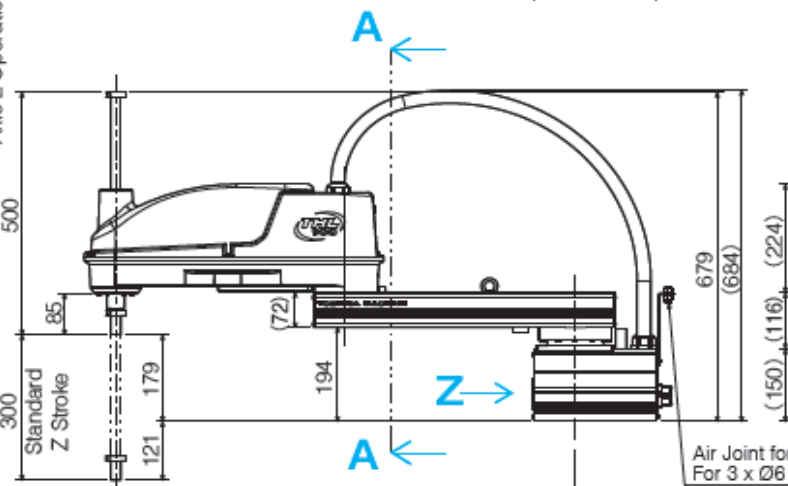


Detailed Drawing Y

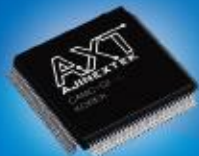
Axis 2 Operation Range
145°



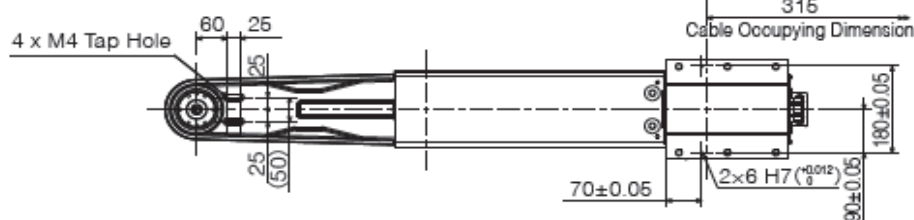
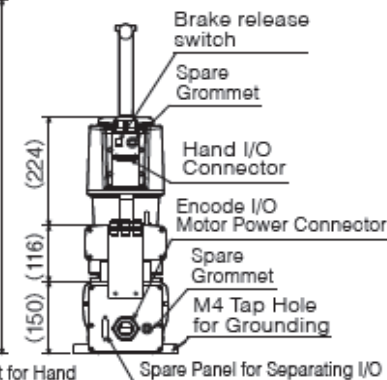
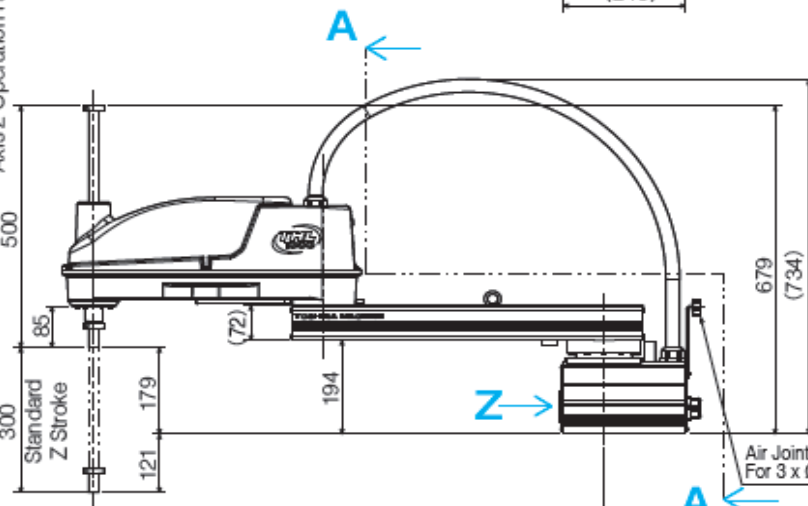
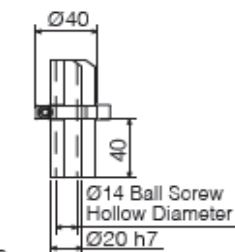
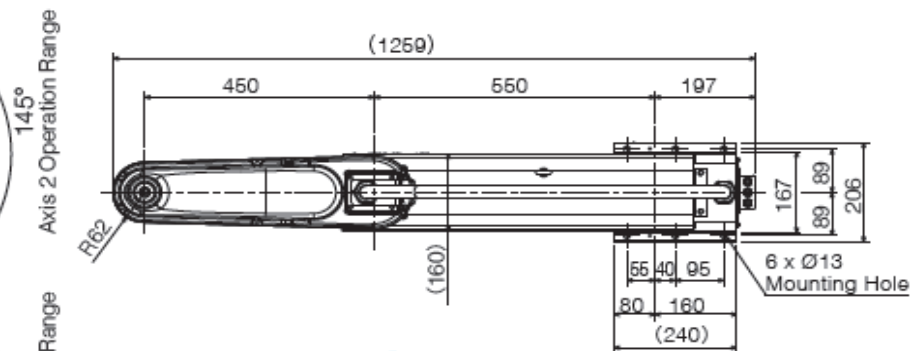
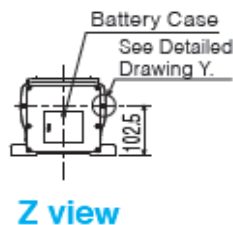
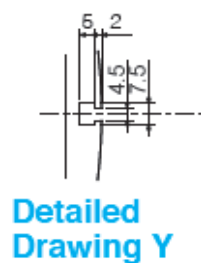
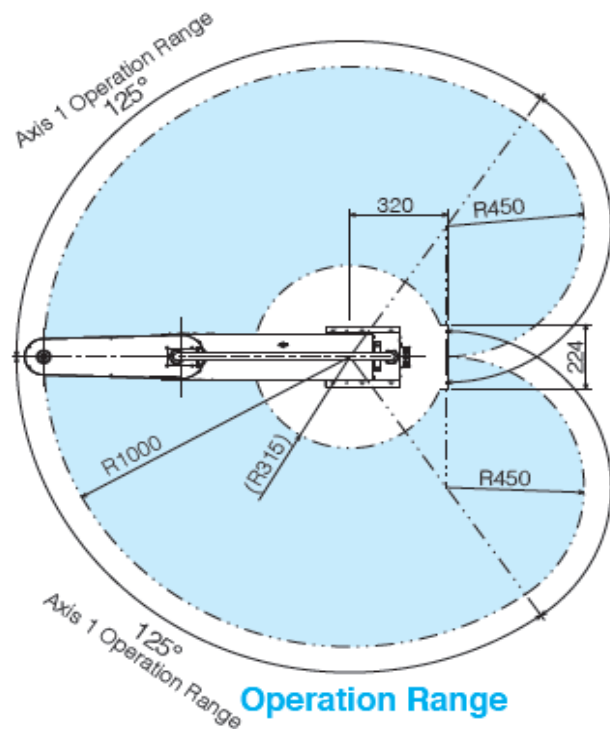
Hand Installation Area Detail



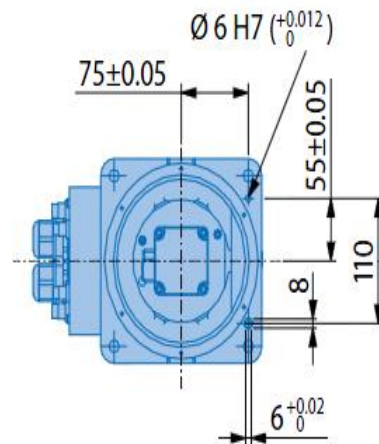
*The air tubes are packed, which need to be installed by the user.



(TOSHIBA-THL1000)



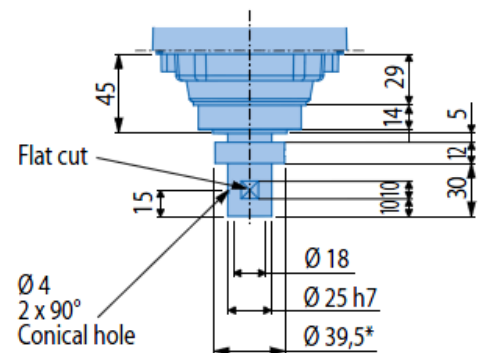
*The air tubes are packed, which need to be installed by the user.



[illegible]

Technical drawing of a mechanical part (Fig. 1.10) showing dimensions and tolerances. The drawing includes a top view and a side view. Key dimensions and tolerances are:

- Top view dimensions:
 - Overall width: 75 ± 0.05
 - Overall height: 110
 - Distance from top edge to centerline: 55 ± 0.05
 - Distance from centerline to bottom edge: 8
 - Distance from bottom edge to centerline: $6^{+0.02}_0$
- Side view dimensions:
 - Overall height: 110
 - Distance from top edge to centerline: 55 ± 0.05
 - Distance from centerline to bottom edge: 8
 - Distance from bottom edge to centerline: $6^{+0.02}_0$
- Surface finish: $\text{Ra} 0.012$
- Material: Ø 6 H7

[illegible]**View A**

[illegible]

View A

