

INDUSTRIAL ROBOTS

## SCARA ROBOTS

General catalog for SCARA robots

THE Series

THL Series

TH/THP Series





# SCARA



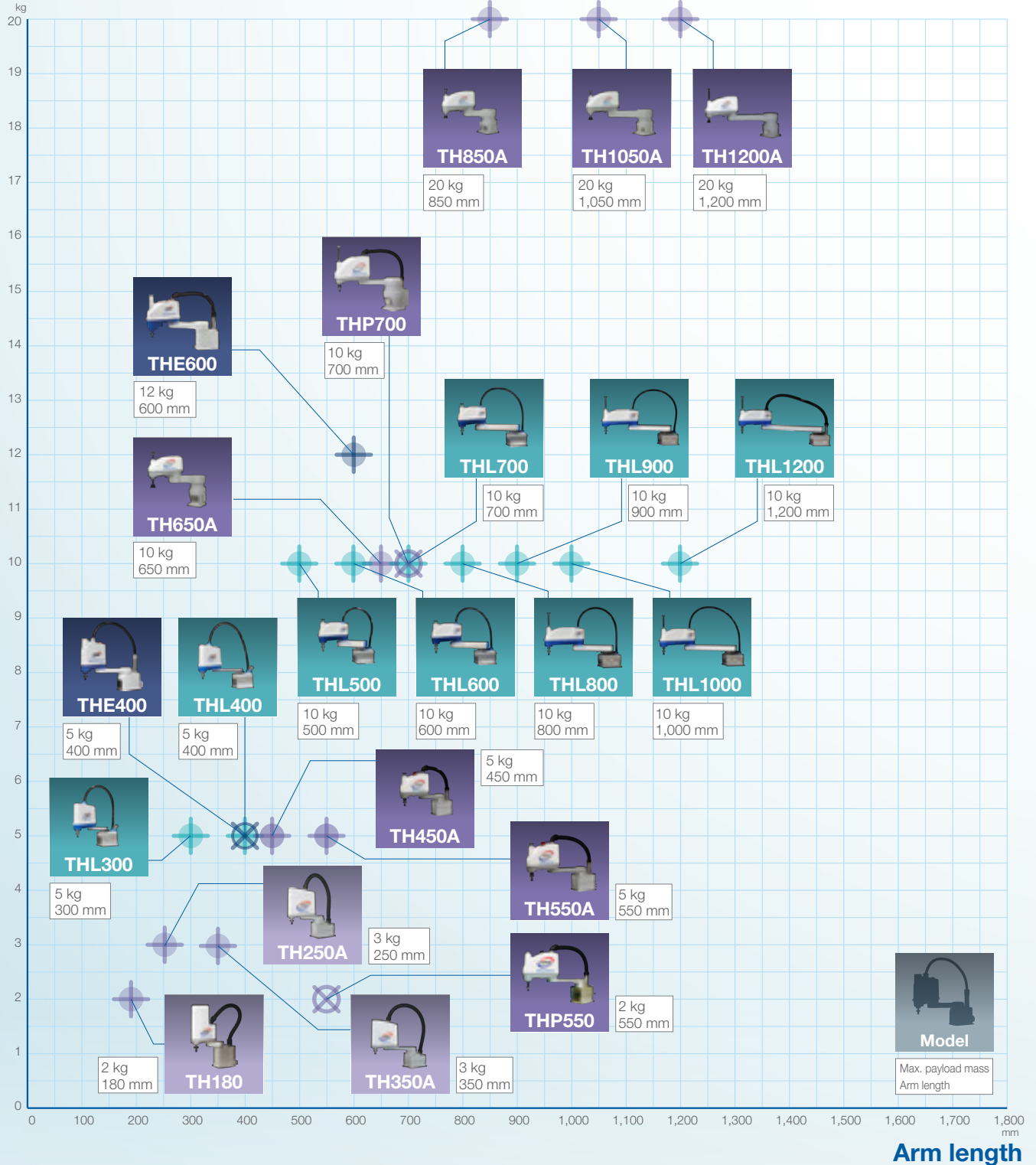
# HIGH QUALITY

## HISTORY

	<ul style="list-style-type: none"> <li>TH450A</li> <li>TH550A</li> <li>THP550</li> </ul>	<ul style="list-style-type: none"> <li>THL300</li> <li>THL400</li> </ul>	<ul style="list-style-type: none"> <li>THL500</li> <li>THL600</li> <li>THL700</li> </ul>	<ul style="list-style-type: none"> <li>THL800</li> <li>THL900</li> <li>THL1000</li> </ul>	<ul style="list-style-type: none"> <li>THE400</li> </ul>	<ul style="list-style-type: none"> <li>THE600</li> </ul>					
<ul style="list-style-type: none"> <li>TH850A</li> <li>TH1050A</li> </ul>	<ul style="list-style-type: none"> <li>TH1200A</li> </ul>				<ul style="list-style-type: none"> <li>THL1200</li> </ul>						
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Vertical articulated robot</b> <ul style="list-style-type: none"> <li>TV800/TV1000</li> </ul>	<ul style="list-style-type: none"> <li>TV1000H-WP</li> </ul>			<ul style="list-style-type: none"> <li>TV600</li> </ul>	<ul style="list-style-type: none"> <li>TVL500</li> <li>TVL700</li> </ul>			<ul style="list-style-type: none"> <li>TVM900</li> <li>TVM1200</li> <li>TVM1500</li> </ul>			
				<ul style="list-style-type: none"> <li>TLD1100 (Line Dancer)</li> </ul>			<ul style="list-style-type: none"> <li>SWAN</li> <li>CoSWAN</li> </ul>				<ul style="list-style-type: none"> <li>SR-405HC</li> </ul>

# Contributes to productivity improvement in line work by high speed operation

## Maximum payload mass



### Various options

(Main robot options)

- Z-Axis long stroke
- Protective bellows for Z-Axis
- Z-Axis cap
- Cleanroom specification
- Dust-proof and splash-proof specification
- Ceiling-mount type
- Tool flange for end effector mounting
- Support of Safety Category 3
- Additional Axis (Traverse axis, Wrist axis, etc.)

Details:

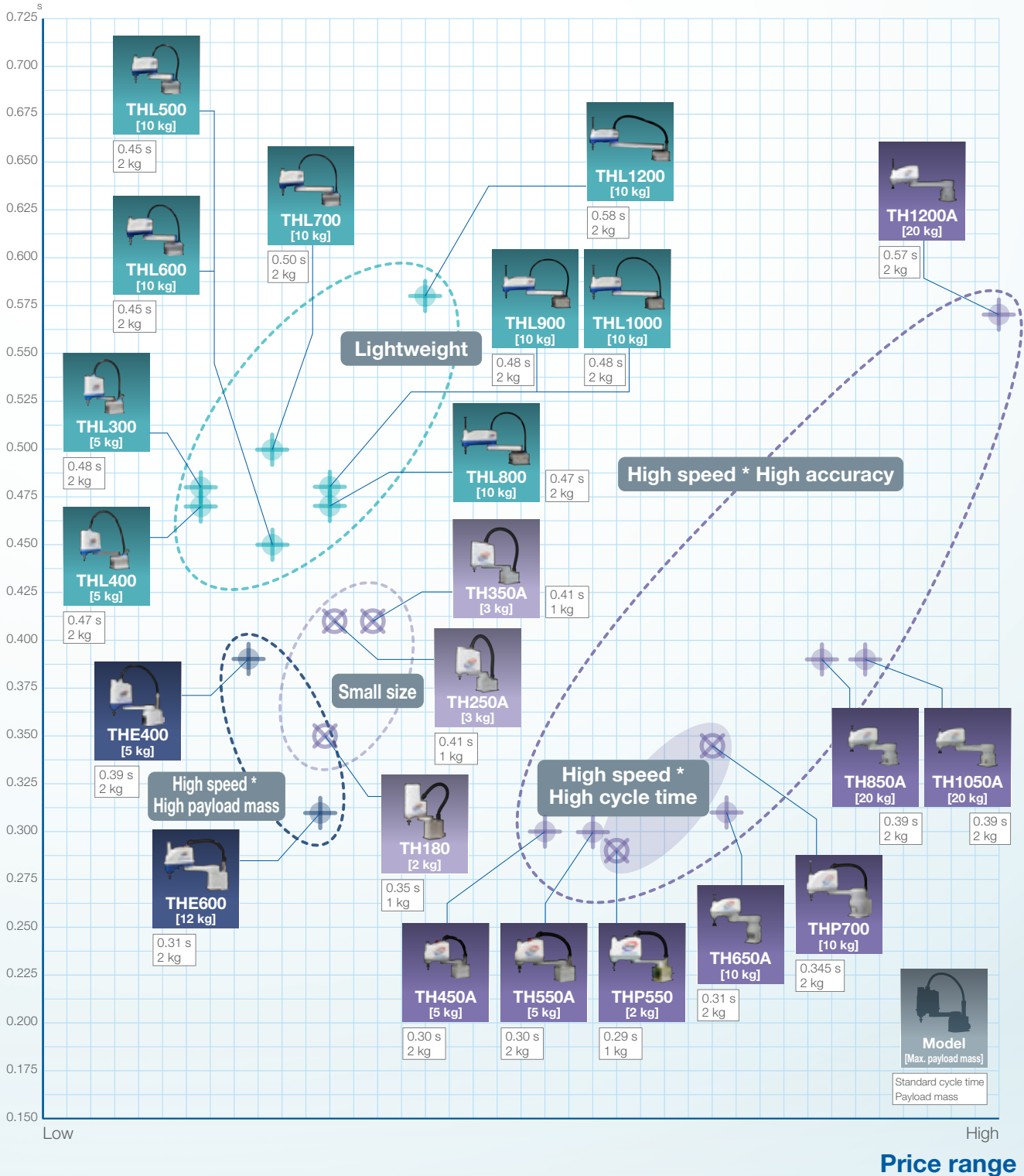
THE Series: P11

THL Series: P23

TH Series: P38

and high performance handling. Selection can be made according to the application.

## Standard cycle time



### Please watch the videos of our SCARA robot

To see this application video use this QR code or see the details below

<https://www.youtube.com/watch?v=f7o5qgcEI7I>



To download the catalog and CAD data use this QR code or see the details below

<https://www.shibaura-machine.co.jp/en/product/robot/download.html>



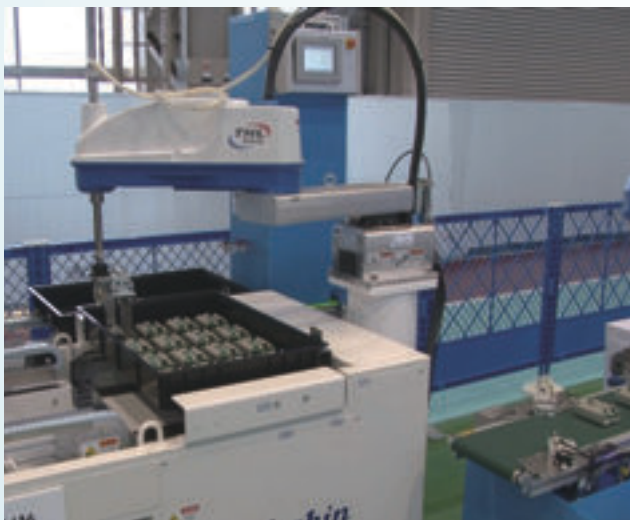


# Example of applications using SCARA robots

Type: THL

## Conveyance and inspection of boards

Assessment of boards by an inspection machine and packing of an accepted product into a box.



To see the application video use this QR Code

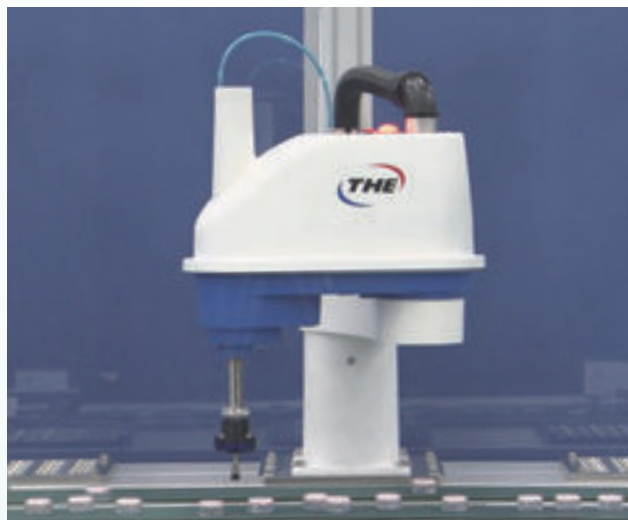
<https://youtu.be/6VXwr-CG930>



Type: THE

## Conveyance of cosmetic items with conveyor tracking

Synchronization with the conveyor enables robots to sort and convey efficiently.



To see the application video use this QR Code

<https://youtu.be/f7o5qgcEI7I>



Type: THL

## Bolt fastening and conveyance of small parts

Assembly of small parts, fastening of bolts and conveying of completed parts.



To see the application video use this QR Code

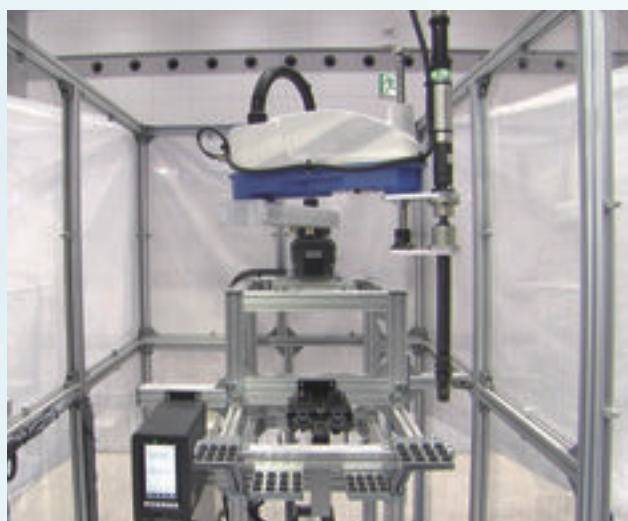
<https://youtu.be/N4tbGTLEBcl>



Type: THL

## Robot system for high torque fastening

Implementing automation of screw and nut fastening, which requires high torque fastening. It can also be used for socket changes.



To see the application video use this QR Code

<https://www.youtube.com/watch?v=0wcveuJxEGI>



# THE Series

## High speed

Fastest cycle time : 0.31 sec  
Support of mass production for precision parts

## High accuracy

Suitable for the assembly and the inspection process of electronics equipment and automobile components, where precision is required

## Accurate movement trajectory

Suitable for coating process for grease and adhesive



Order  
model  
code

# THE 400 - Z - B - L05 - TF - E - S

Arm length

Z-Axis long stroke

Tool flange for end effector mounting

E: CE Marking  
K: KCs Marking

BL: Battery-less type motor  
S: Special specification

Cable between robot and controller

Cable between robot and controller L05: Cable length 5 m, L08: Cable length 8 m, L10: Cable length 10 m, L15: Cable length 15 m, L00R: Cable length 3.5 m (movable), L05R: Cable length 5 m (movable), L08R: Cable length 8 m (movable), L10R: Cable length 10 m (movable), L15R: Cable length 15 m (movable)

Option

B: Z With protective bellows, C: With cap, CRB: Clean room design, WS: Z-axis (axis3) shaft for wire routing, IP: IP65 dust-proof and drip-proof, T: Ceiling-mount type, WB: Z-axis (axis 3) upper and lower bellows



THE400



THE600

Model		THE400	THE600
Arm length (1st Arm + 2nd Arm)		400 mm (225 mm+175 mm)	600 mm (325 mm+275 mm)
Maximum speed (Axis 1 and 2 composite)		7.0 m/sec	8.0 m/sec
Standard cycle time (with 2 kg load) <sup>1</sup>		0.39 sec	0.31 sec
Maximum payload mass <sup>2</sup>		5 kg (rated 1 kg)	12 kg (rated 2 kg)
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm	±0.01 mm
	Axis C (Axis 4)	±0.007 deg	±0.005 deg
Mass		15 kg	31 kg
Connectable controller		TSL3000, TSL3000E	TS5000

<sup>1</sup>1: Continuous operation is not possible beyond the effective load ratio. Horizontal 300 mm, vertical 25 mm, round-trip with coarse positioning.

<sup>2</sup>2: Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.

<sup>3</sup>3: Positioning repeatability accuracy in one-direction movement, when the environmental temperature and robot temperature are constant. It is not the absolute positioning accuracy. The specification value may be exceeded depending on moving pattern, load mass and offset amount. Positioning repeatability for X-Y and C are for when Z-axis is at the uppermost position. Trajectory accuracy is not ensured.







# There are various options so that robots can be used in a variety of applications, environment, and layouts.

## Z-Axis long stroke (Z)

The Z-axis stroke range is extended. Useful when handling long work pieces and when height or depth is required.

## Protective bellows for Z-Axis (B)

Bellows protect the lower part of the ball screw when liquid or particles could become attached.

\*Cycle time and working envelope of Z-axis (axis 3) is different from standard specification. Please contact us for more details.

## Z-axis upper cap (C)

Cap protects the upper part of the ball screw when liquid or particles could become attached. It also prevents the cable from touching peripheral equipment.

## Cleanroom specification (CRB)

Cleanroom design equivalent to ISO clean Class 3. Effective for dust-averse applications such as semiconductor and electronics manufacturing.

## Z-axis shaft for wire routing (WS)

Adds shaft for hand wire routing. Prevents wire from scraping when the robot hand wiring is put through the hollow part of ball screw.

## Dust-proof and splash-proof specification (IP)

Dust-proof and splash-proof specification equivalent to IP65. (Does not allow dust intrusion and prevents the robot from the harmful effects of splashing water.)

\*Limitation of acceleration/deceleration rates. Please contact us for more details.

## Order model code

EX. THE 400 - Z - B - L05 - TF - E - S

- Arm length**
  - 400-600
- No.1**
  - No symbol: No option (standard)
  - Z: Z-Axis long stroke (Z)
- No.2**
  - No symbol: No option (standard)
  - B: Protective bellows for Z-Axis
  - C: Z-axis upper cap (C)
  - CRB: Cleanroom specification
  - WS: Z-axis (axis3) shaft for wire routing
  - IP: Dust-proof and splash-proof specification (IP65)
  - T: Ceiling-mount type
  - WB: Z-axis (axis 3) upper and lower bellows
- No.3**
  - No symbol: Cable length 3.5 m (standard)
  - L05: Cable length 5 m
  - L08: Cable length 8 m
  - L10: Cable length 10 m
  - L15: Cable length 15 m
  - L00R: Cable length 3.5 m (movable)
  - L05R: Cable length 5 m (movable)
  - L08R: Cable length 8 m (movable)
  - L10R: Cable length 10 m (movable)
  - L15R: Cable length 15 m (movable)
- No.4**
  - No symbol: Tool flange for end effector mounting (standard)
  - TF: Tool flange for end effector mounting
- No.5**
  - No symbol: No special marking (standard)
  - E: CE Marking
  - K: KCs Marking
- No.6**
  - No symbol: No other options (standard)
  - BL: Battery-less motor (BL)
  - S: Special specification

## Option table

Type	No.	Symbol	THE400	THE600
No option (standard)	1	No symbol	○ (160 mm)	○ (210 mm)
Z-Axis long stroke (Z)		Z	△	△
No option (standard)	2	No symbol	○	○
Protective bellows for Z-Axis		B	○	△
Z-axis upper cap		C	○	○
Cleanroom specification		CRB	△	△
Z-axis (axis3) shaft for wire routing		WS	○	○
Dust-proof and splash-proof specification(IP65)		IP	○	△
Ceiling-mount type		T	○	○
Z-axis (axis 3) upper and lower bellows	WB	△	△	
Cable length 3.5 m (standard)	3	No symbol	○	○
Cable length 5 m		L05	○	○
Cable length 8 m		L08	○	○
Cable length 10 m		L10	○	○
Cable length 15 m		L15	○	○
Cable length 3.5 m (movable)		L00R	○	○
Cable length 5 m (movable)		L05R	○	○
Cable length 8 m (movable)		L08R	○	○
Cable length 10 m (movable)		L10R	○	○
Cable length 15 m (movable)		L15R	○	○
Tool flange for end effector mounting (standard)		No symbol	○	○
Tool flange for end effector mounting	TF	○	○	
No special marking (standard)	No symbol	○	○	
CE Marking	E	○	△	
KCs Marking	K	○	△	
No other options (standard)	No symbol	○	○	
Battery-less motor (BL)	BL	○	×	
Special specification	S	△	△	

○: Developed △: Please contact us for details ×: Not available

## Ceiling-mount type (T)

Space can be saved by installing ceiling mounted robots above the work area.

\*Working envelope is different from standard specification. Please contact us for more details.

## Change of cable length

Length of the cable between the robot and controller can be changed.

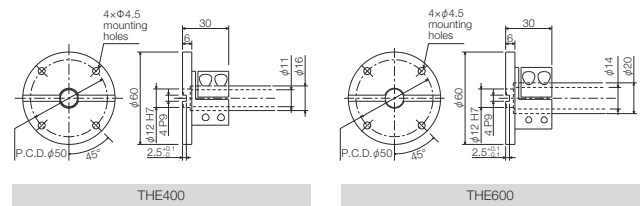
Useful when the control panel is far away from the robot.

\*Maximum length of cable between robot and controller depends on controller type. Please contact us for more details.

## Tool flange for end effector mounting (TF)

Flange helps to attach a tool, such as a gripper, at the end of the ball screw.

\*Please refer to dimensions of each robot for mounting method.



## Battery-less motor (BL)

Motor does not require battery back-up. Periodic replacement of battery is not required.

# THL Series

## Low cost

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Impressive performance at affordable prices

## Lightweight

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Lightweight robot (minimum: 12 kg)  
Easy installation in narrow spaces

## Wide variety of arm lengths

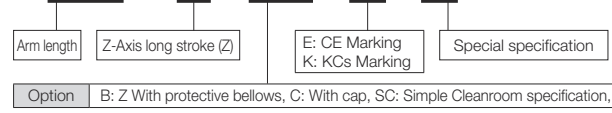
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Wide variety of arm lengths (300 mm to 1200 mm)  
You can select the best robot for your application

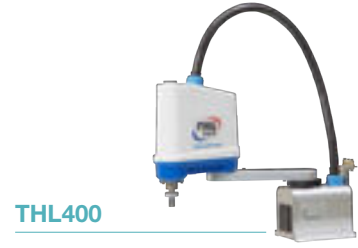


Order model code

# THL 300 - Z - SC - E - S



THL300



THL400



THL500



THL600



THL700



THL800



THL900



THL1000



THL1200

Model	THL300	THL400	THL500
Arm length (1st Arm + 2nd Arm)	300 mm (125 mm+175 mm)	400 mm (225 mm+175 mm)	500 mm (200 mm+300 mm)
Maximum speed (Axis 1 and 2 composite)	5.1 m/sec	6.3 m/sec	6.3 m/sec
Standard cycle time (with 2 kg load) <sup>1</sup>	0.48 sec	0.47 sec	0.45 sec
Maximum payload mass <sup>2</sup>	5 kg (rated 2 kg)	5 kg (rated 2 kg)	10 kg (rated 2 kg)
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm	±0.01 mm
	Axis Z (Axis 3)	±0.015 mm	±0.015 mm
	Axis C (Axis 4)	±0.007 deg	±0.007 deg
Mass	12 kg	13 kg	22 kg
Connectable controller	TSL3000, TSL3000E	TSL3000, TSL3000E	TSL3000, TSL3000E
Model	THL600	THL700	THL800
Arm length (1st Arm + 2nd Arm)	600 mm (300 mm+300 mm)	700 mm (400 mm+300 mm)	800 mm (350 mm+450 mm)
Maximum speed (Axis 1 and 2 composite)	7.1 m/sec	7.9 m/sec	4.3 m/sec
Standard cycle time (with 2 kg load) <sup>1</sup>	0.45 sec	0.50 sec	0.47 sec
Maximum payload mass <sup>2</sup>	10 kg (rated 2 kg)	10 kg (rated 2 kg)	10 kg (rated 2 kg)
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm	±0.02 mm
	Axis Z (Axis 3)	±0.015 mm	±0.015 mm
	Axis C (Axis 4)	±0.007 deg	±0.007 deg
Mass	23 kg	24 kg	33 kg
Connectable controller	TSL3000, TSL3000E	TSL3000, TSL3000E	TSL3000, TSL3000E
Model	THL900	THL1000	THL1200
Arm length (1st Arm + 2nd Arm)	900 mm (450 mm+450 mm)	1,000 mm (550 mm+450 mm)	1,200 mm (750 mm+450 mm)
Maximum speed (Axis 1 and 2 composite)	4.6 m/sec	5.0 m/sec	5.7 m/sec
Standard cycle time (with 2 kg load) <sup>1</sup>	0.48 sec	0.48 sec	0.58 sec
Maximum payload mass <sup>2</sup>	10 kg (rated 2 kg)	10 kg (rated 2 kg)	10 kg (rated 2 kg)
Positioning repeatability <sup>3</sup>	X-Y	±0.02 mm	±0.02 mm
	Axis Z (Axis 3)	±0.015 mm	±0.015 mm
	Axis C (Axis 4)	±0.007 deg	±0.007 deg
Mass	35 kg	37 kg	40 kg
Connectable controller	TSL3000, TSL3000E	TSL3000, TSL3000E	TSL3000, TSL3000E

<sup>1</sup>: Continuous operation is not possible beyond the effective load ratio. Horizontal 300 mm, vertical 25 mm, round-trip with coarse positioning.  
<sup>2</sup>: Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.  
<sup>3</sup>: Positioning repeatability accuracy in one-direction movement, when the environmental temperature and robot temperature are constant. It is not the absolute positioning accuracy. The specification value may be exceeded depending on moving pattern, load mass and offset amount. Positioning repeatability for X-Y and C are for when Z-axis is at the uppermost position. Trajectory accuracy is not ensured.  
<sup>4</sup>: Pneumatic joints for hand are provided on the base. Pipes are to be provided by the customers.



# THL300

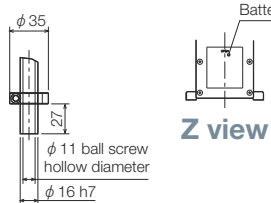
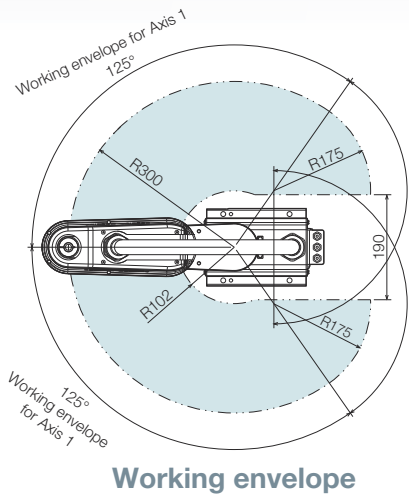


Model	THL300	
Arm length (1st Arm + 2nd Arm)	300 mm (125 mm+175 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~160 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	660 deg/sec
	Axis 2	660 deg/sec
	Axis 3 (Axis Z)	1120 mm/sec
	Axis 4 (Axis C)	1500 deg/sec
	Composite (Axis 1 and 2 composite)	5.1 m/sec
Standard cycle time <sup>*1</sup>	0.48 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	5 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.05 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>*4</sup>	φ4 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	0.7 kVA	
Mass	12 kg	
Connectable controller	TSL3000, TSL3000E	

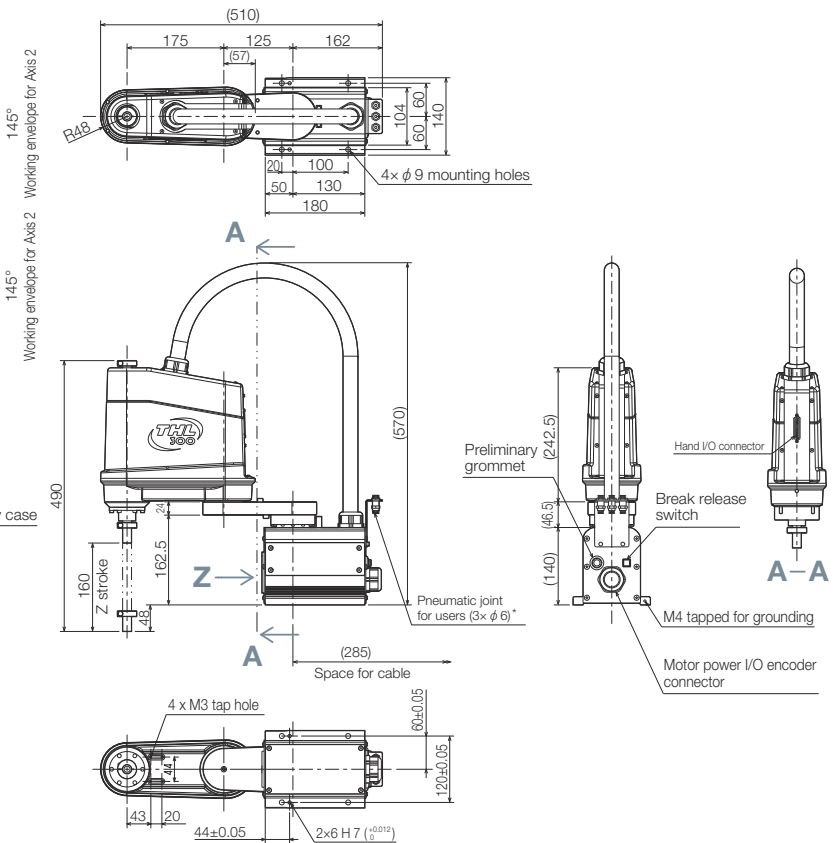
For \*1 to \*4 please see page 13.

## External View

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



## Detail view of EOAT



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# THL500

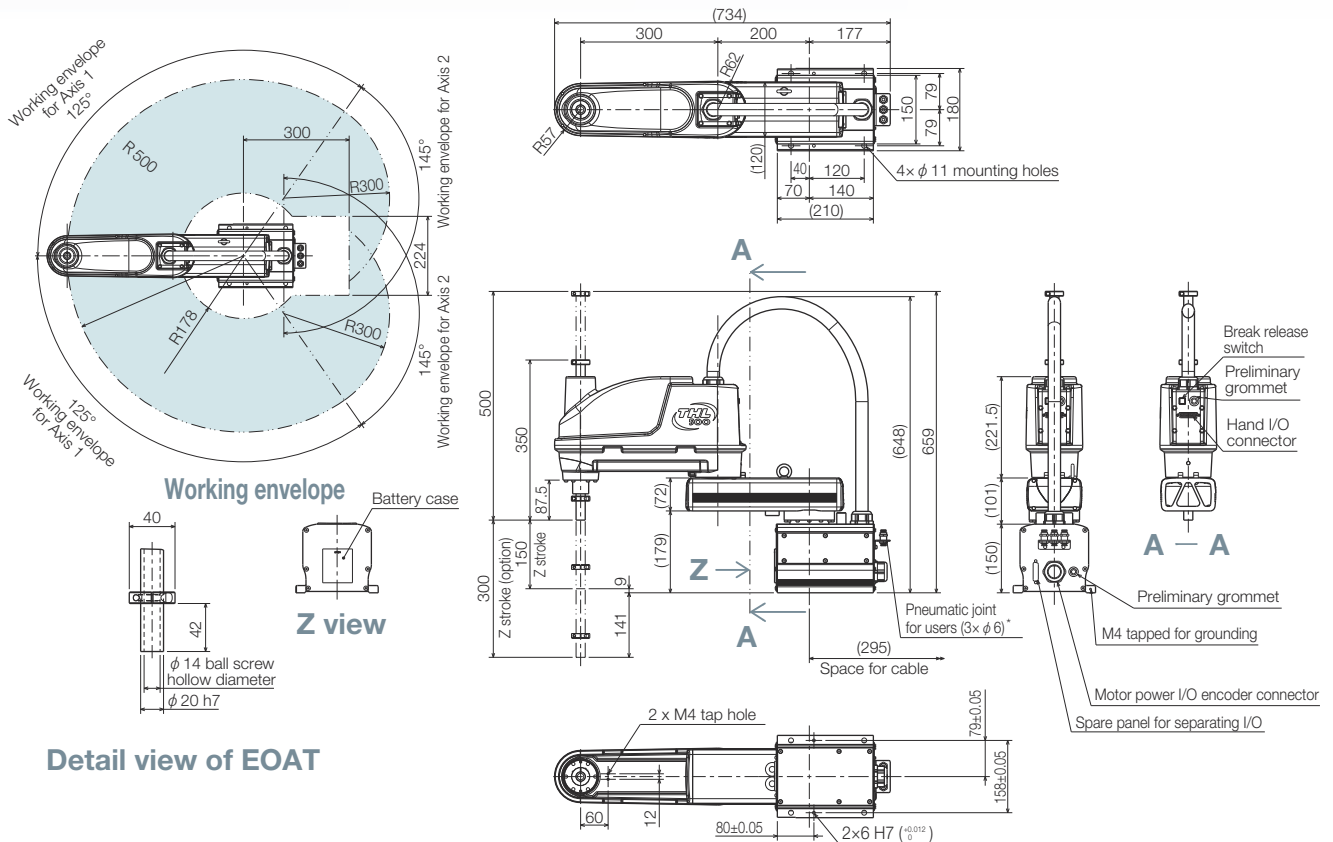


Model	THL500	
Arm length (1st Arm + 2nd Arm)	500 mm (200 mm+300 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	450 deg/sec
	Axis 2	450 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	6.3 m/sec
Standard cycle time <sup>*1</sup>	0.45 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>*4</sup>	φ6 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	1.4 kVA	
Mass	22 kg	
Connectable controller	TSL3000, TSL3000E	

For \*1 to \*4 please see page 13.

## External View

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



## Detail view of EOAT

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# THL700

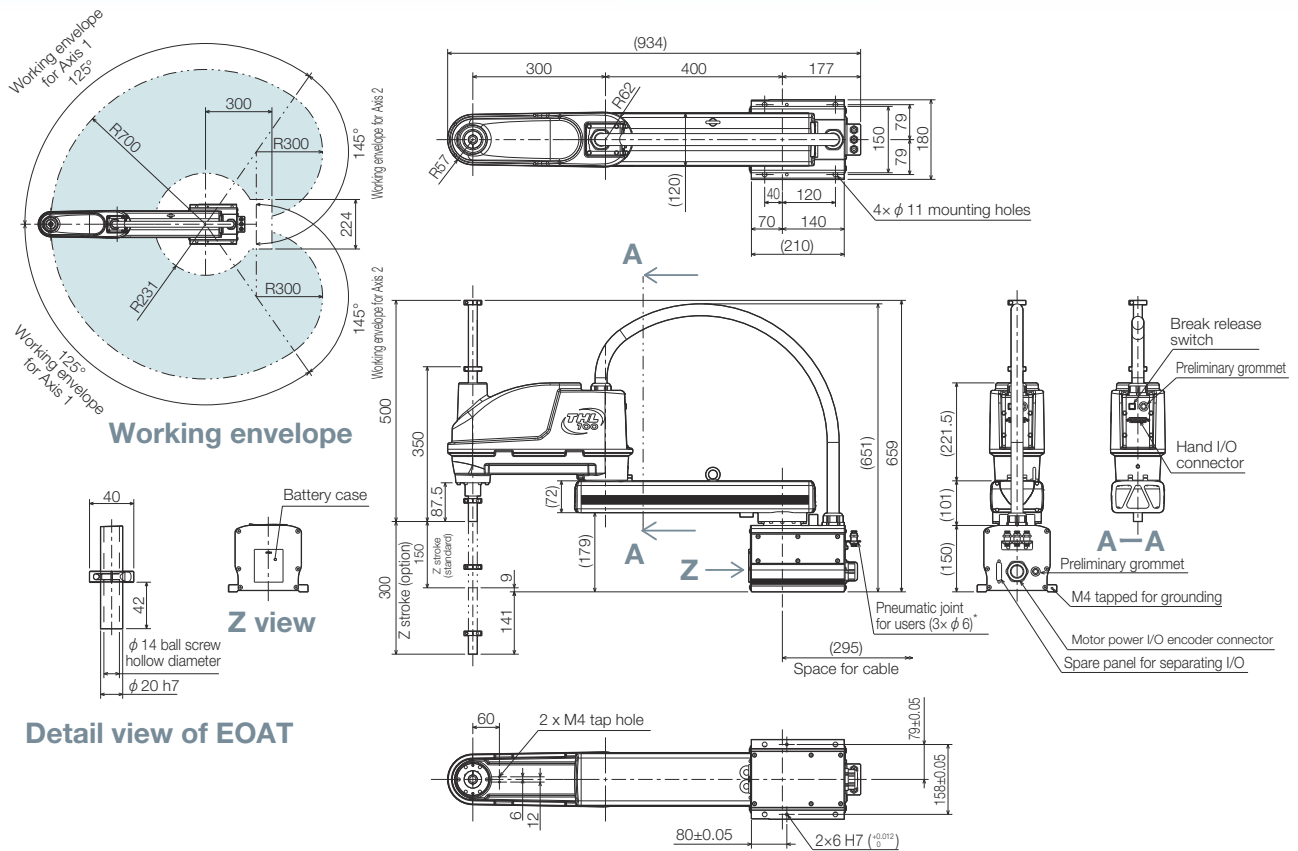


Model	THL700	
Arm length (1st Arm + 2nd Arm)	700 mm (400 mm+300 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	450 deg/sec
	Axis 2	450 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	7.9 m/sec
Standard cycle time <sup>*1</sup>	0.50 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>*4</sup>	φ6 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	1.4 kVA	
Mass	24 kg	
Connectable controller	TSL3000, TSL3000E	

For \*1 to \*4 please see page 13.

## External View

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



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# THL800

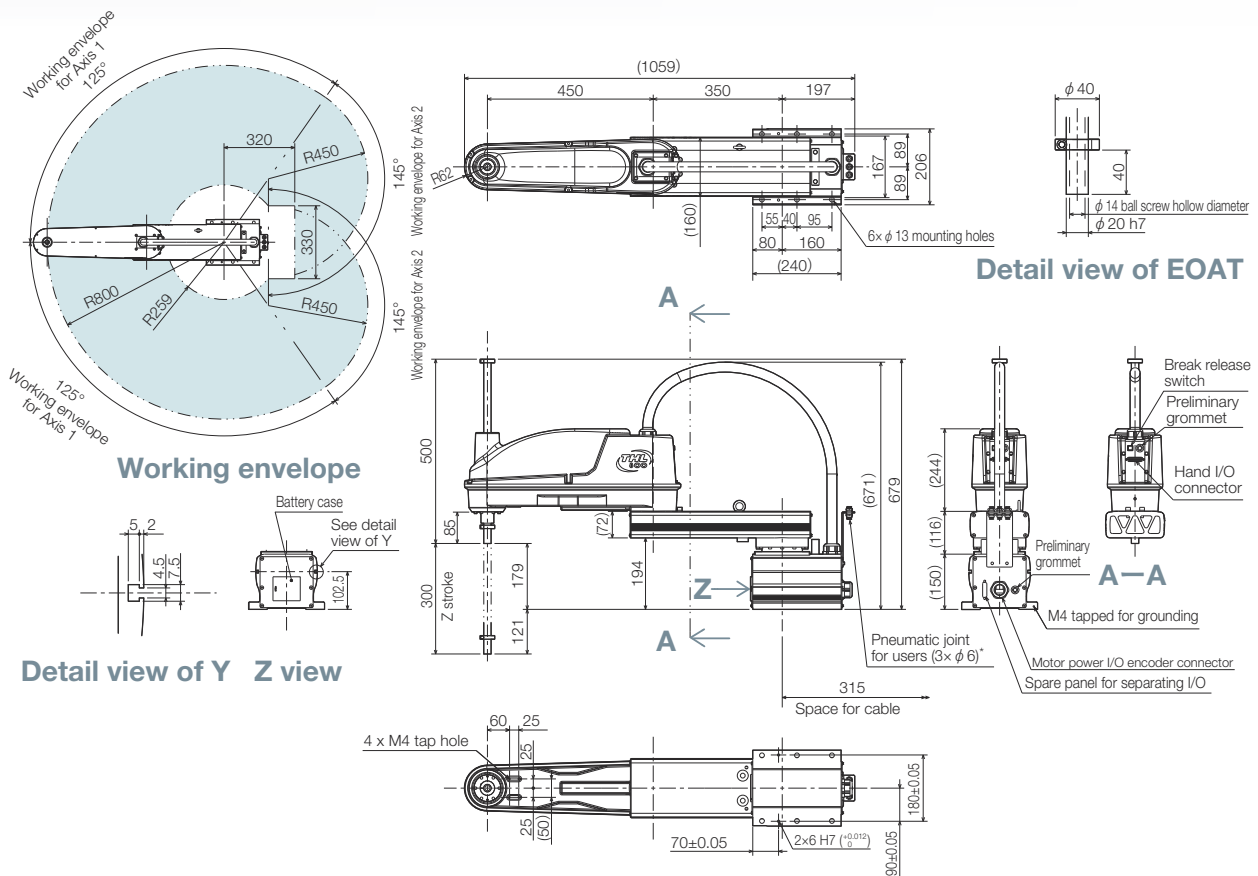


Model	THL800	
Arm length (1st Arm + 2nd Arm)	800 mm (350 mm+450 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~300 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	187.5 deg/sec
	Axis 2	217.5 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	4.3 m/sec
Standard cycle time <sup>1</sup>	0.47 sec (with 2 kg load)	
Maximum payload mass <sup>2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>3</sup>	X-Y	±0.02 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>4</sup>	φ6 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	1.4 kVA	
Mass	33 kg	
Connectable controller	TSL3000, TSL3000E	

For <sup>1</sup> to <sup>4</sup> please see page 13.

## External View

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



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# THL900

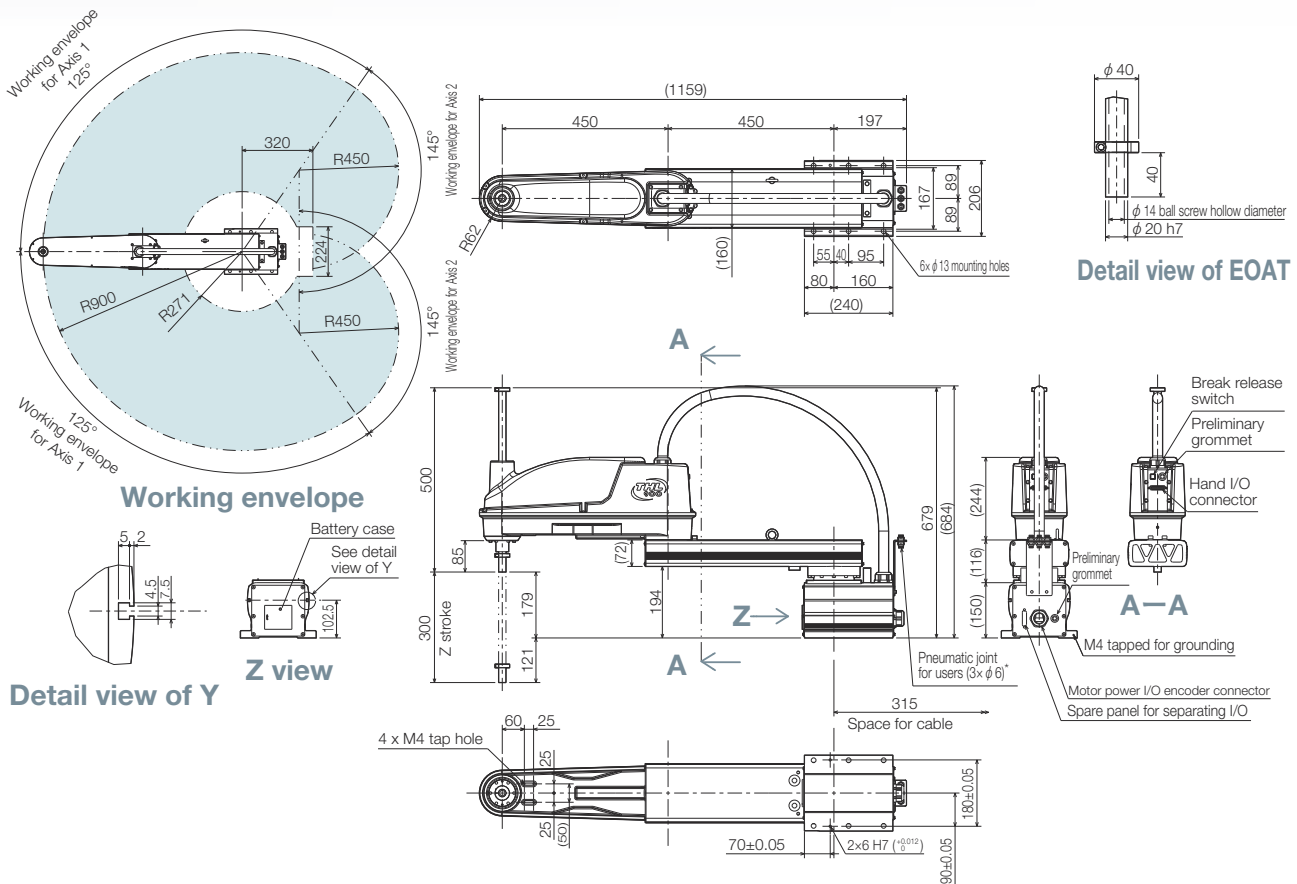


Model	THL900	
Arm length (1st Arm + 2nd Arm)	900 mm (450 mm+450 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~300 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	187.5 deg/sec
	Axis 2	217.5 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	4.6 m/sec
Standard cycle time <sup>*1</sup>	0.48 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.02 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>*4</sup>	φ6 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	1.4 kVA	
Mass	35 kg	
Connectable controller	TSL3000, TSL3000E	

For \*1 to \*4 please see page 13.

## External View

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



CAD Download URL <https://www.shibaura-machine.co.jp/en/product/robot/download.html>



# THL1000

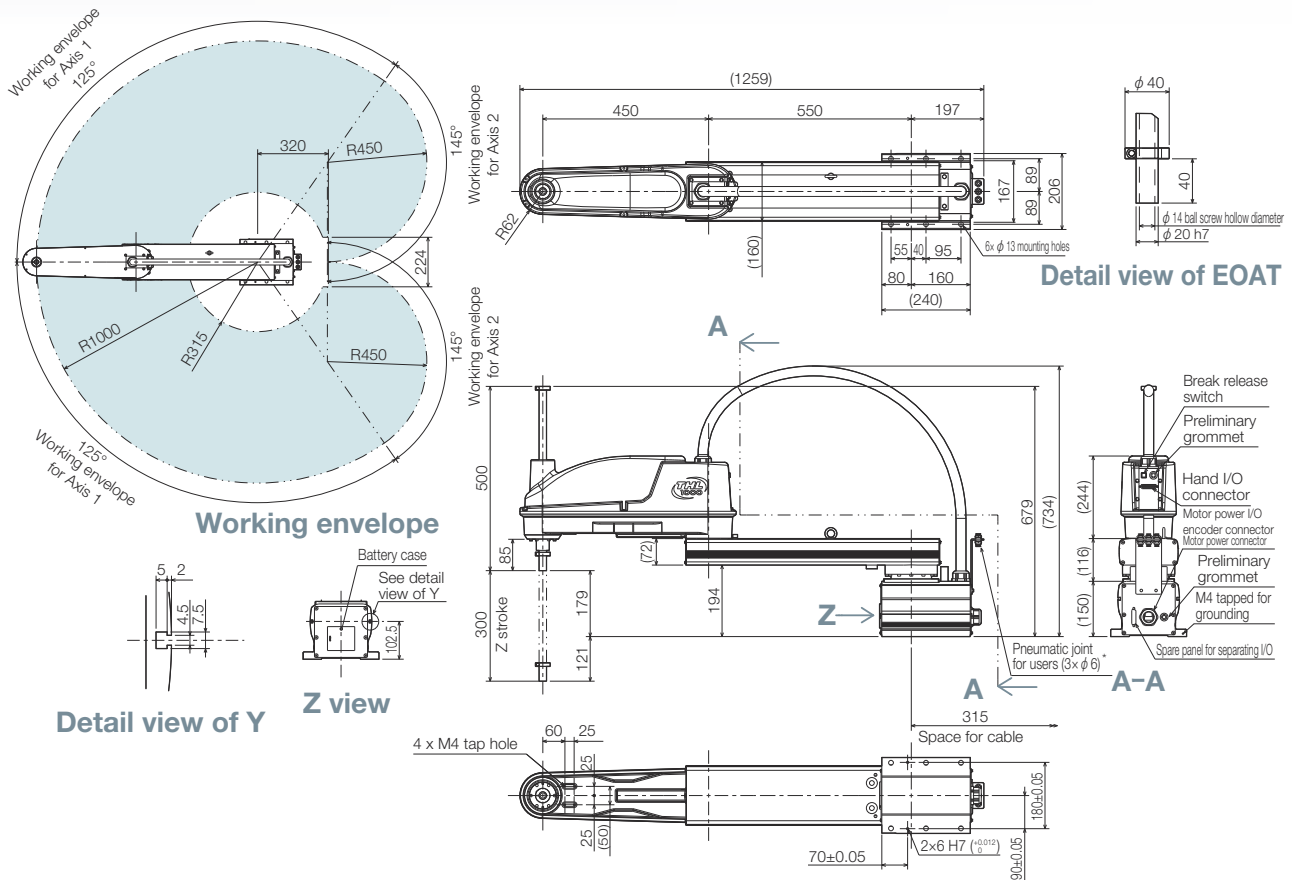


Model	THL1000	
Arm length (1st Arm + 2nd Arm)	1000 mm (550 mm+450 mm)	
Working envelope	Axis 1	±125 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~300 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	187.5 deg/sec
	Axis 2	217.5 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	5.0 m/sec
Standard cycle time <sup>1</sup>	0.48 sec (with 2 kg load)	
Maximum payload mass <sup>2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>3</sup>	X-Y	±0.02 mm
	Axis Z (Axis 3)	±0.015 mm
	Axis C (Axis 4)	±0.007 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint <sup>4</sup>	φ6 x 3 pcs	
Robot controller cable	3.5 m	
Power supply	1.4 kVA	
Mass	37 kg	
Connectable controller	TSL3000, TSL3000E	

For <sup>1</sup> to <sup>4</sup> please see page 13.

## External View

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



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# There are various options so robots can be used in a variety of applications, environments, and layouts.

## Z-Axis long stroke (Z)

The Z-axis stroke range is extended. Useful when handling long work pieces and when height or depth is required.

## Protective bellows for Z-Axis (B)

Bellows protect the lower part of the ball screw when liquid or particles could become attached. \*Cycle time and working envelope of Z-axis (axis 3) is different from standard specification. Please contact us for more details.

## Z-axis upper cap (C)

Cap protects the upper part of the ball screw when liquid or particles could become attached. It also prevents the cable from touching peripheral equipment.



## Simple cleanroom specification (SC)

Cleanroom design equivalent of ISO clean Class 5. Effective for dust-averse applications such as semiconductor and electronics manufacturing.

## Dust-proof specification (IP6X)

Dust-proof specification equivalent to IP6X. (Does not allow dust intrusion.) Suitable for dusty environments. \*Hand wire and hand pneumatic joints differ from standard specification. Please contact us for more details.

## Ceiling-mount type (T)

Space can be saved by installing ceiling-mounted robots above the work area. \* Working envelope is different from standard specification. Please contact us for more details.



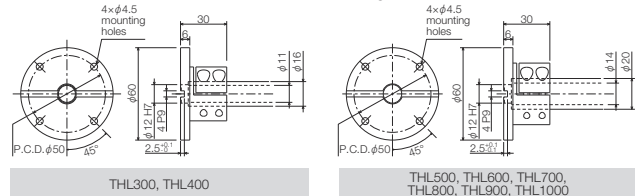
## Low height design (LH)

Alternative wire harness design enables lower height than standard and is suitable for installation in a tight space.

## Tool flange for end effector mounting (TF)

Flange helps to attach a tool, such as a gripper, at the end of the ball screw.

\*Please refer to dimensions of each robot for mounting method.



## Order model code

EX. THL 300 - Z - SC - E - S

- Arm length: 300-1200
- No.1: No symbol (No option (standard)), Z (Z-Axis long stroke (Z))
- No.2: No symbol (No option (standard)), B (Protective bellows for Z-Axis), C (Z-axis upper cap (C)), SC (Simple cleanroom specification), IP6X (Dust-proof specification (IP6X)), T (Ceiling-mount type), LH (Low height design)
- No.3: No symbol (No special marking (standard)), E (CE Marking), K (KCs Marking)
- No.4: No symbol (No other options (standard)), S (Special specification)

## Option table

○: Developed △: Please contact us for detail ×: No development

Type	No.	Symbol	THL300, 400	THL500, 600, 700	THL800~1000	THL1200
No option (standard)	1	No symbol	○	○	○	○
Z-Axis long stroke (Z)		Z	△	○ (300 mm)	△	△
No option (standard)	2	No symbol	○	○	○	○
Protective bellows for Z-Axis		B	○	○	○	○
Z-axis upper cap		C	○	○	○	○
Simple cleanroom specification		SC	○	○	○	△
Dust-proof specification (IP6X)		IP6X	×	○	×	×
Ceiling-mount type		T	○ (THL400 only)	○	○	△
Low height design	LH	×	△ (THL600-THL700)	○ (THL1000 only)	△	
No special marking (standard)	3	No symbol	○	○	○	○
CE Marking		E	○	○	○	○
KCs Marking		K	○	○	○	△
No other options (standard)	4	No symbol	○	○	○	○
Special specification		S	△	△	△	△



# TH Series

## Wide variety of arm lengths

Wide variety of arm lengths (180 mm to 1200 mm)  
You can select the best robot for your application

## High payload mass

Maximum payload mass 20 kg  
Parts handling such as automobile components

## High speed and high accuracy

Fast cycle time (maximum: 0.30 sec)  
Suitable for mass production of precision parts



Order model code

# TH 450A - Z - B - E - S



Option B: Z With protective bellows, C: With cap, CRB: Cleanroom specification, IP65: IP65 Dust-proof, T: Ceiling-mount type.



Model	TH180	TH250A	TH350A
Arm length (1st Arm + 2nd Arm)	180 mm (70 mm+110 mm)	250 mm (125 mm+125 mm)	350 mm (225 mm+125 mm)
Maximum speed (Axis 1 and 2 composite)	2.6 m/sec	3.53 m/sec	3.24 m/sec
Standard cycle time (with 2 kg load) <sup>*1</sup>	0.35 sec	0.41 sec	0.41 sec
Maximum payload mass <sup>*2</sup>	2 kg (rated 1 kg)	3 kg (rated 1 kg)	3 kg (rated 1 kg)
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm	±0.01 mm
	Axis C (Axis 4)	±0.005 deg	±0.005 deg
Mass	9 kg	14 kg	14 kg
Connectable controller	TS3000, TS3000E	TS3000, TS3000E	TS3000, TS3000E
Model	TH450A	TH550A	TH650A
Arm length (1st Arm + 2nd Arm)	450 mm (200 mm+250 mm)	550 mm (300 mm+250 mm)	650 mm (300 mm+350 mm)
Maximum speed (Axis 1 and 2 composite)	7.3 m/sec	6.2 m/sec	7.52 m/sec
Standard cycle time (with 2 kg load) <sup>*1</sup>	0.30 sec	0.30 sec	0.31 sec
Maximum payload mass <sup>*2</sup>	5 kg (rated 2 kg)	5 kg (rated 2 kg)	10 kg (rated 2 kg)
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm	±0.01 mm
	Axis C (Axis 4)	±0.005 deg	±0.005 deg
Mass	26 kg	28 kg	52 kg
Connectable controller	TS3000, TS3000E	TS3000, TS3000E	TS3100, TS3100E
Model	TH850A	TH1050A	TH1200A
Arm length (1st Arm + 2nd Arm)	850 mm (300 mm+550 mm)	1050 mm (550 mm+500 mm)	1200 mm (700 mm+500 mm)
Maximum speed (Axis 1 and 2 composite)	8.13 m/sec	9.15 m/sec	7.9 m/sec
Standard cycle time (with 2 kg load) <sup>*1</sup>	0.39 sec	0.39 sec	0.57 sec
Maximum payload mass <sup>*2</sup>	20 kg (rated 5 kg)	20 kg (rated 5 kg)	20 kg (rated 5 kg)
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm	±0.01 mm
	Axis C (Axis 4)	±0.004 deg	±0.004 deg
Mass	76 kg	80 kg	83 kg
Connectable controller	TS3100, TS3100E	TS3100, TS3100E	TS3100, TS3100E

\*1: Continuous operation is not possible beyond the effective load ratio.  
 Horizontal 300 mm, vertical 25 mm, round-trip with coarse positioning (with 1 kg load for TH250A and TH350A). With 1 kg load, horizontal 100 mm, vertical 25 mm for TH180.  
 \*2: Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.  
 \*3: Positioning repeatable accuracy in one-direction movement, when the environmental temperature and robot temperature are constant. It is not the absolute positioning accuracy. The specification value may be exceeded depending on moving pattern, load mass and offset amount. Positioning repeatability for X-Y and C are for when Z-axis is at the uppermost position. Trajectory accuracy is not ensured.

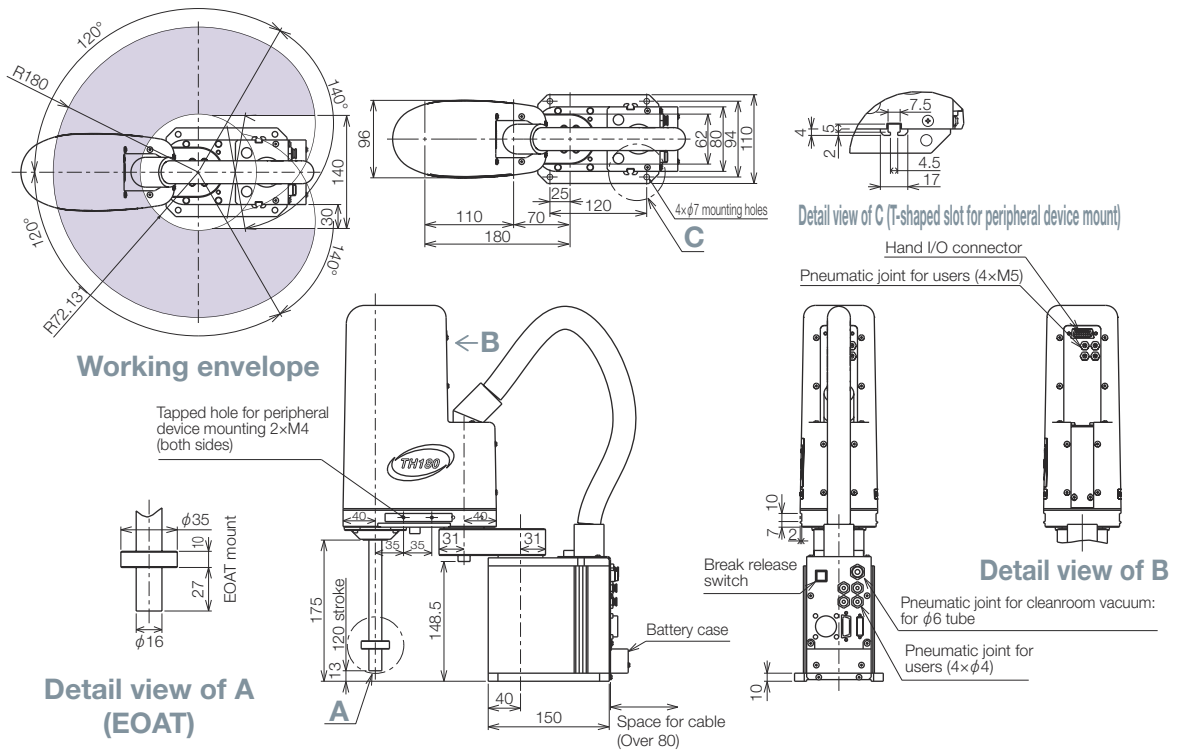
# TH180



Model	TH180	
Arm length (1st Arm + 2nd Arm)	250 mm (70 mm+110 mm)	
Working envelope	Axis 1	±120 deg
	Axis 2	±140 deg
	Axis 3 (Axis Z)	0~120 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	533 deg/sec
	Axis 2	480 deg/sec
	Axis 3 (Axis Z)	1013 mm/sec
	Axis 4 (Axis C)	1186 deg/sec
	Composite (Axis 1 and 2 composite)	2.6 m/sec
Standard cycle time <sup>*1</sup>	0.35 sec (with 1 kg load)	
Maximum payload mass <sup>*2</sup>	2 kg (rated 1 kg)	
Allowable moment of inertia <sup>*2</sup>	0.01 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	3 m	
Power supply	0.5 kVA	
Mass	9 kg	
Connectable controller	TS3000, TS3000E	

For \*1 to \*3 please see page 25.

## External View



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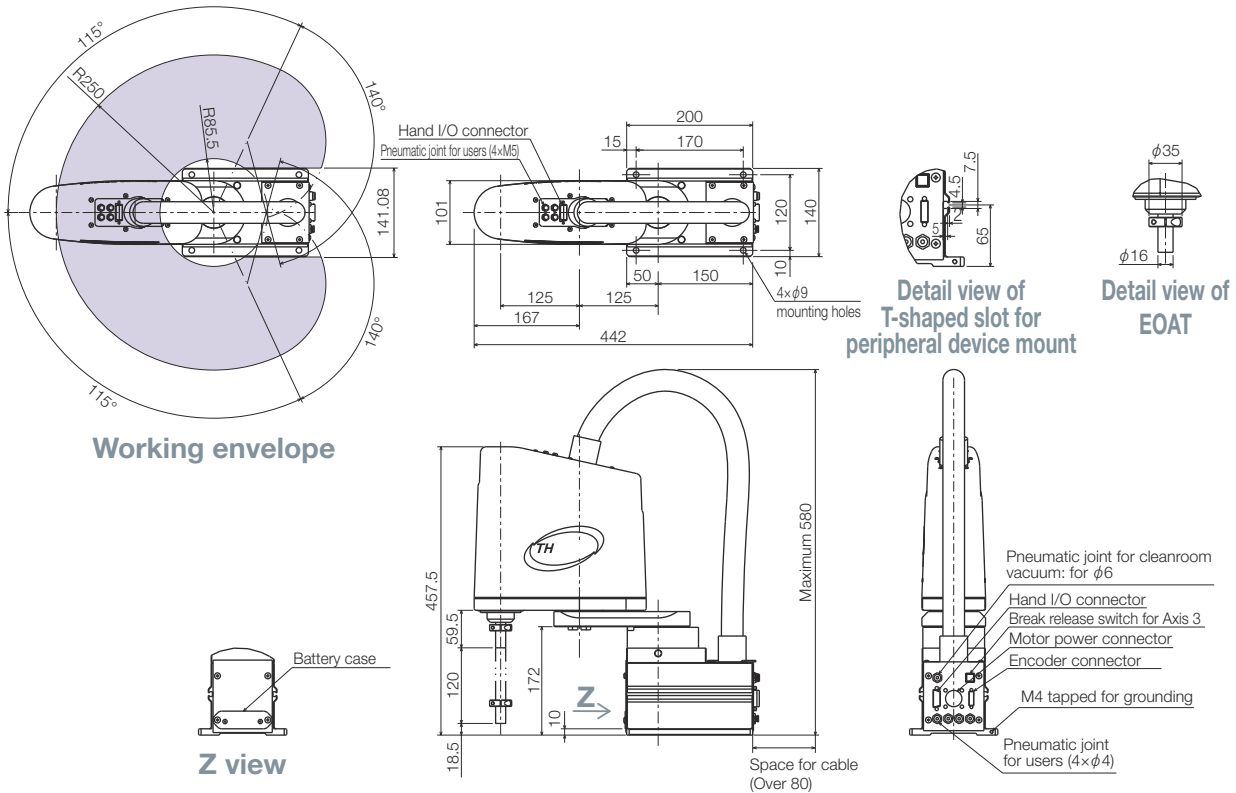
# TH250A



Model	TH250A	
Arm length (1st Arm + 2nd Arm)	250 mm (125 mm+125 mm)	
Working envelope	Axis 1	±115 deg
	Axis 2	±140 deg
	Axis 3 (Axis Z)	0~120 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	540 deg/sec
	Axis 2	540 deg/sec
	Axis 3 (Axis Z)	1120 mm/sec
	Axis 4 (Axis C)	1143 deg/sec
	Composite (Axis 1 and 2 composite)	3.53 m/sec
Standard cycle time <sup>1</sup>	0.41 sec (with 1 kg load)	
Maximum payload mass <sup>2</sup>	3 kg (rated 1 kg)	
Allowable moment of inertia <sup>2</sup>	0.017 kg·m <sup>2</sup>	
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	3 m	
Power supply	0.9 kVA	
Mass	14 kg	
Connectable controller	TS3000, TS3000E	

For <sup>1</sup> to <sup>3</sup> please see page 25.

## External View



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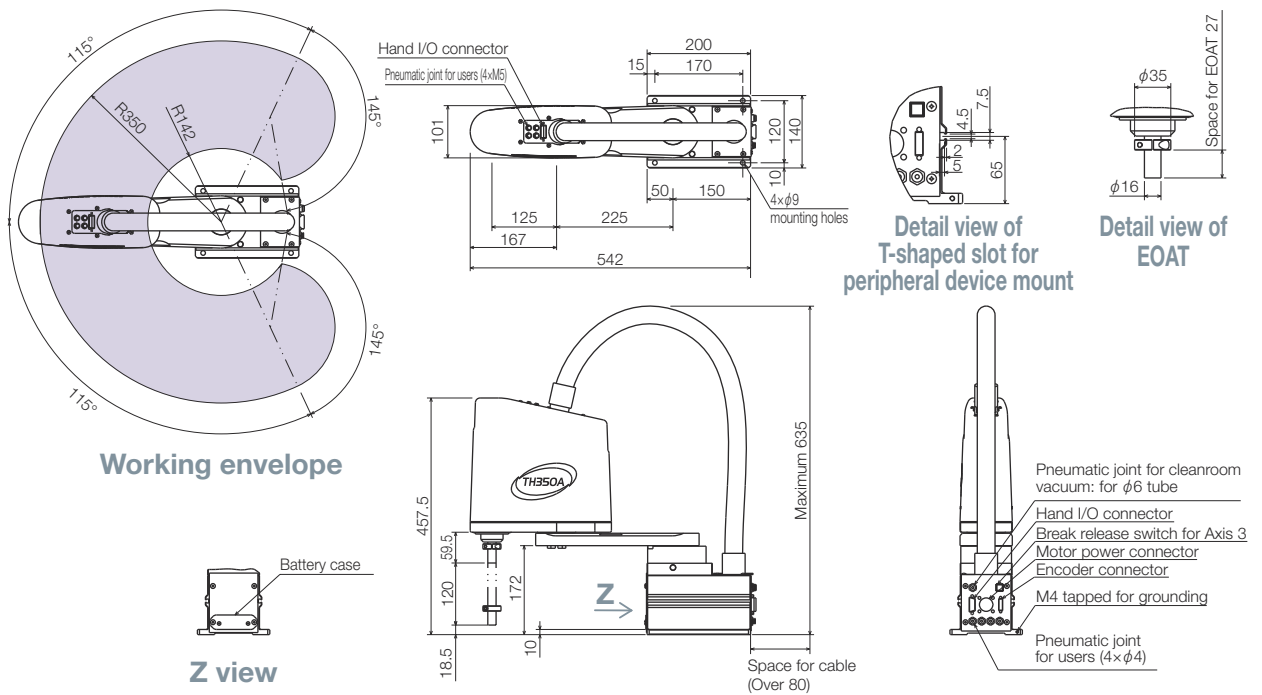
# TH350A



Model	TH350A	
Arm length (1st Arm + 2nd Arm)	350 mm (225 mm+125 mm)	
Working envelope	Axis 1	±115 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~120 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	337.5 deg/sec
	Axis 2	540 deg/sec
	Axis 3 (Axis Z)	1120 mm/sec
	Axis 4 (Axis C)	1143 deg/sec
	Composite (Axis 1 and 2 composite)	3.24 m/sec
Standard cycle time <sup>*1</sup>	0.41 sec (with 1 kg load)	
Maximum payload mass <sup>*2</sup>	3 kg (rated 1 kg)	
Allowable moment of inertia <sup>*2</sup>	0.017 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	3 m	
Power supply	0.9 kVA	
Mass	14 kg	
Connectable controller	TS3000, TS3000E	

For \*1 to \*3 please see page 25.

## External View



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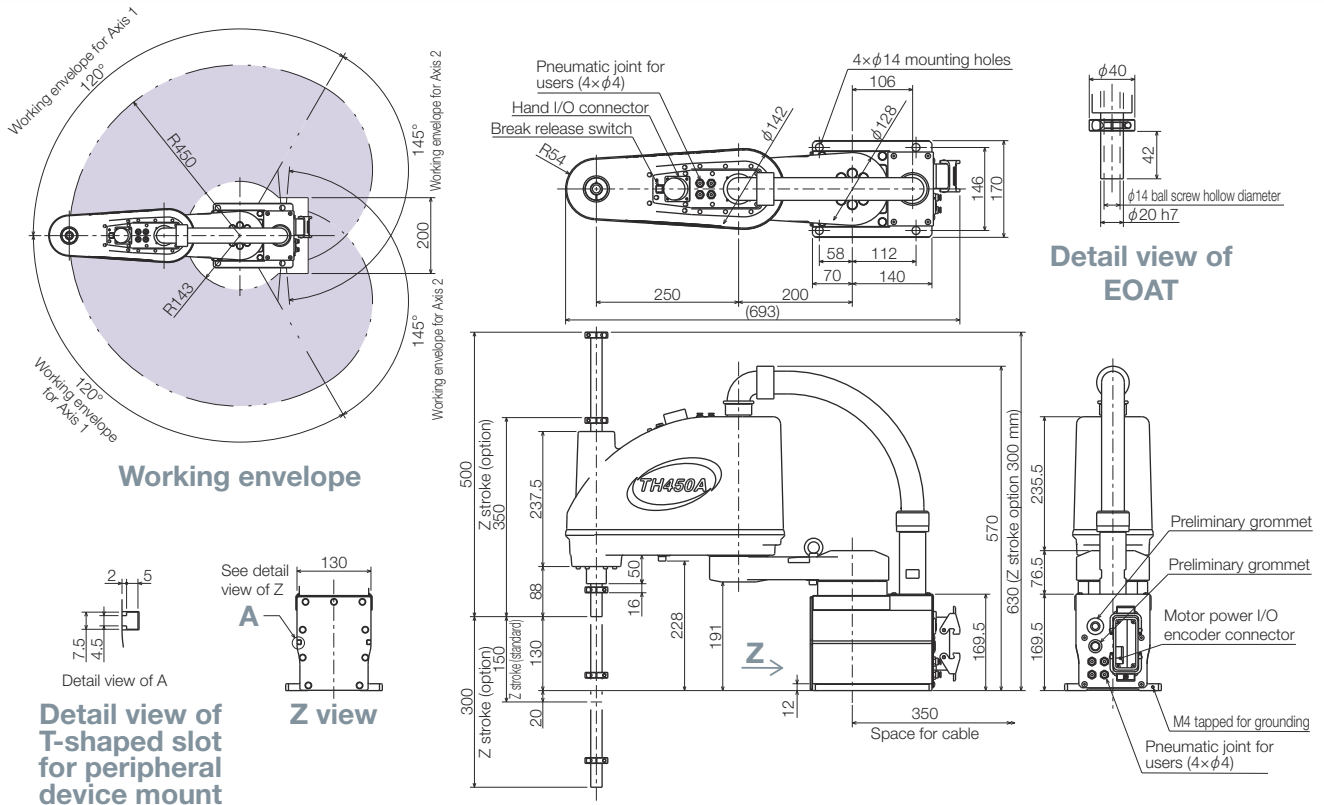
# TH450A



Model	TH450A	
Arm length (1st Arm + 2nd Arm)	450 mm (200 mm+250 mm)	
Working envelope	Axis 1	±120 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	600 deg/sec
	Axis 2	600 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	2000 deg/sec
	Composite (Axis 1 and 2 composite)	7.3 m/sec
Standard cycle time <sup>1</sup>	0.30 sec (with 2 kg load)	
Maximum payload mass <sup>2</sup>	5 kg (rated 2 kg)	
Allowable moment of inertia <sup>2</sup>	0.06 kg·m <sup>2</sup>	
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	5 m	
Power supply	2.3 kVA	
Mass	26 kg	
Connectable controller	TS3000, TS3000E	

For <sup>1</sup> to <sup>3</sup> please see page 25.

## External View



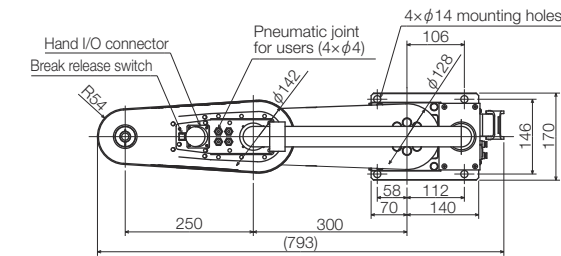
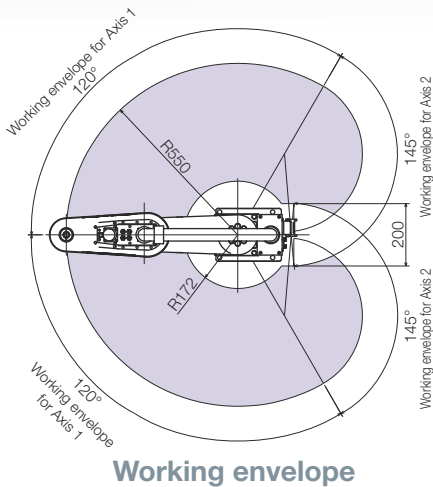
# TH550A



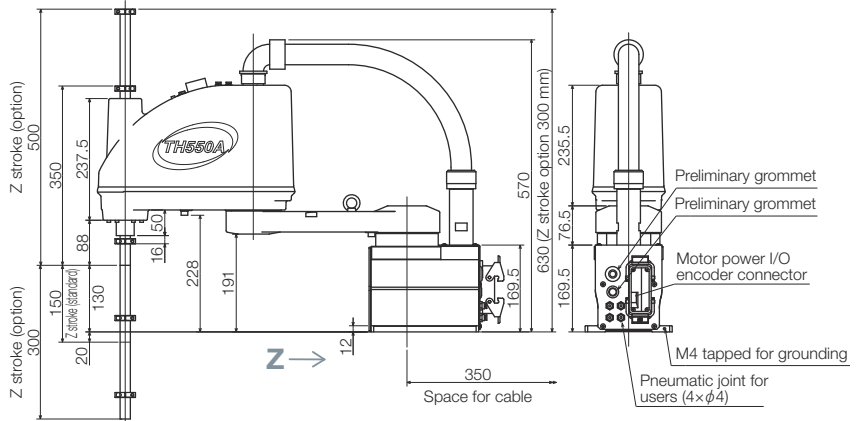
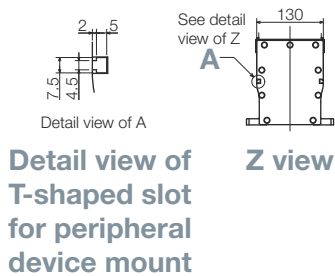
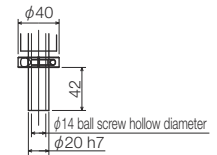
Model	TH550A	
Arm length (1st Arm + 2nd Arm)	550 mm (300 mm+250 mm)	
Working envelope	Axis 1	±120 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	375 deg/sec
	Axis 2	600 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	2000 deg/sec
	Composite (Axis 1 and 2 composite)	6.2 m/sec
Standard cycle time <sup>*1</sup>	0.30 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	5 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.06 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	5 m	
Power supply	2.3 kVA	
Mass	28 kg	
Connectable controller	TS3000, TS3000E	

For \*1 to \*3 please see page 25.

## External View



**Detail view of EOAT**



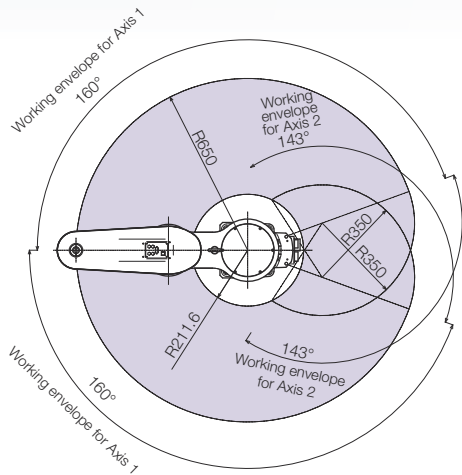
# TH650A



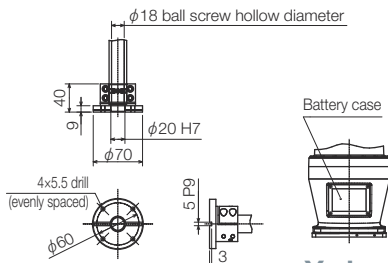
Model	TH650A	
Arm length (1st Arm + 2nd Arm)	650 mm (300 mm+350 mm)	
Working envelope	Axis 1	±160 deg
	Axis 2	±143 deg
	Axis 3 (Axis Z)	0~200 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	340 deg/sec
	Axis 2	600 deg/sec
	Axis 3 (Axis Z)	2050 mm/sec
	Axis 4 (Axis C)	1700 deg/sec
	Composite (Axis 1 and 2 composite)	7.52 m/sec
Standard cycle time <sup>1)</sup>	0.31 sec (with 2 kg load)	
Maximum payload mass <sup>2)</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>2)</sup>	0.1 kg·m <sup>2</sup>	
Positioning repeatability <sup>3)</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.004 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ6 x 4 pcs	
Robot controller cable	5 m	
Power supply	3.5 kVA	
Mass	52 kg	
Connectable controller	TS3100, TS3100E	

For <sup>1)</sup> to <sup>3)</sup> please see page 25.

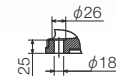
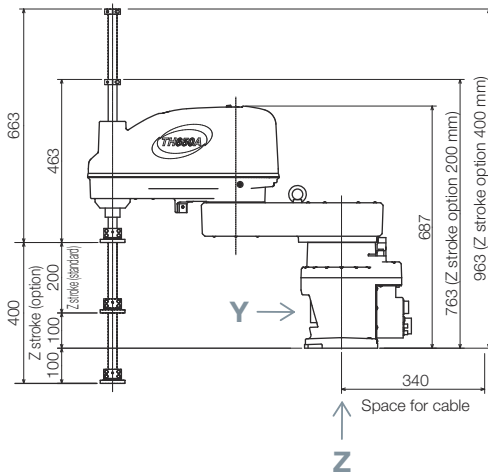
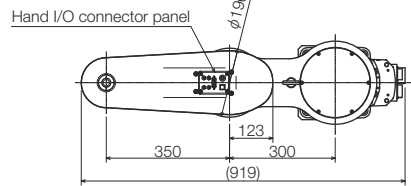
## External View



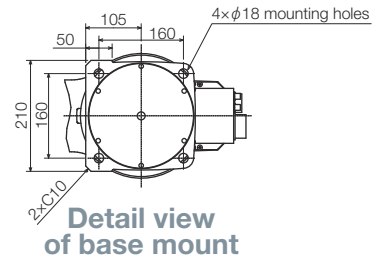
Working envelope



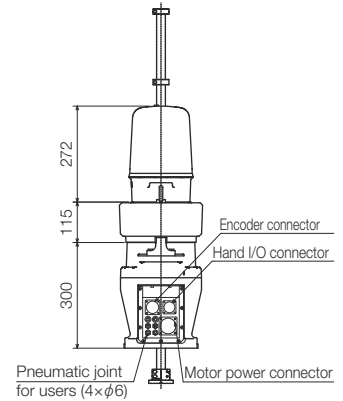
Detail view of EOAT



Detail view of mounting holes



Detail view of base mount



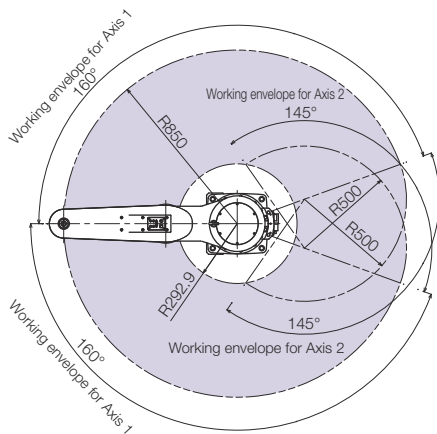
# TH850A



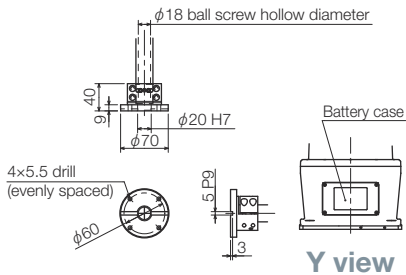
Model	TH850A	
Arm length (1st Arm + 2nd Arm)	850 mm (300 mm+550 mm)	
Working envelope	Axis 1	±160 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~200 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	300 deg/sec
	Axis 2	420 deg/sec
	Axis 3 (Axis Z)	2050 mm/sec
	Axis 4 (Axis C)	1200 deg/sec
	Composite (Axis 1 and 2 composite)	8.13 m/sec
Standard cycle time <sup>*1</sup>	0.39 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	20 kg (rated 5 kg)	
Allowable moment of inertia <sup>*2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.004 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ6 x 4 pcs	
Robot controller cable	5 m	
Power supply	4.4 kVA	
Mass	76 kg	
Connectable controller	TS3100, TS3100E	

For \*1 to \*3 please see page 25.

## External View

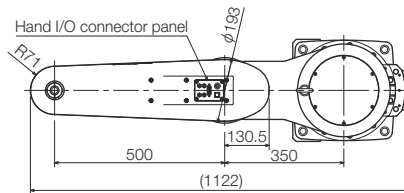


### Working envelope

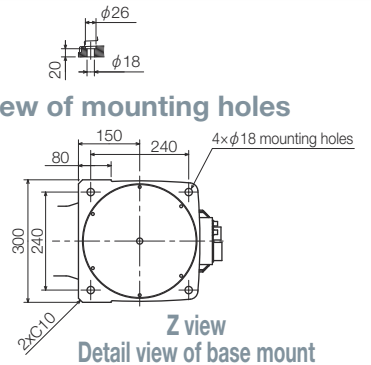


### Detail view of EOAT

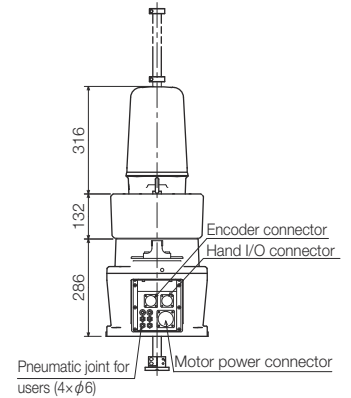
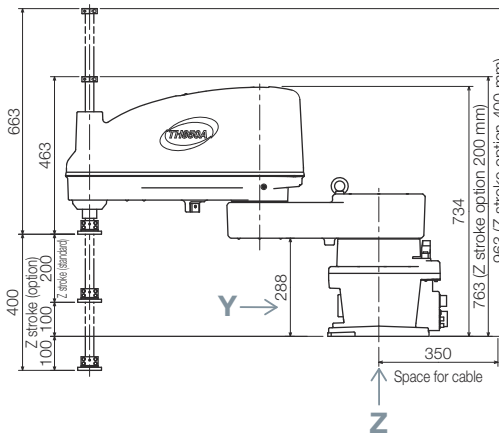
### Y view



### Detail view of mounting holes



### Z view Detail view of base mount



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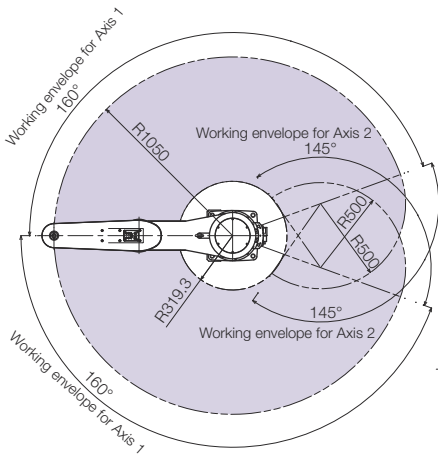
# TH1050A



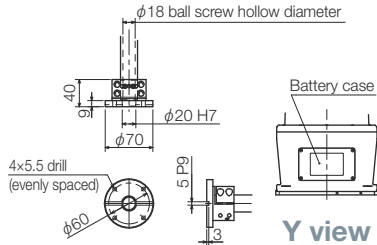
Model	TH1050A	
Arm length (1st Arm + 2nd Arm)	1050 mm (550 mm+500 mm)	
Working envelope	Axis 1	±160 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~200 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	300 deg/sec
	Axis 2	420 deg/sec
	Axis 3 (Axis Z)	2050 mm/sec
	Axis 4 (Axis C)	1200 deg/sec
	Composite (Axis 1 and 2 composite)	9.15 m/sec
Standard cycle time <sup>1</sup>	0.39 sec (with 2 kg load)	
Maximum payload mass <sup>2</sup>	20 kg (rated 5 kg)	
Allowable moment of inertia <sup>2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>3</sup>	X-Y	±0.01 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.004 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ6 x 4 pcs	
Robot controller cable	5 m	
Power supply	4.4 kVA	
Mass	80 kg	
Connectable controller	TS3100, TS3100E	

For <sup>1</sup> to <sup>3</sup> please see page 25.

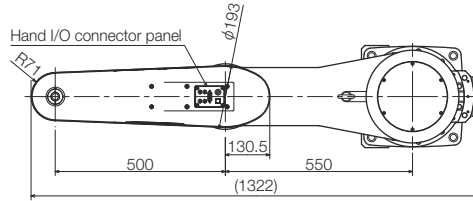
## External View



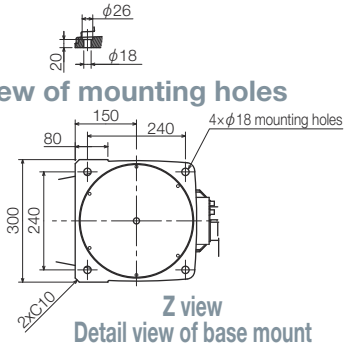
Working envelope



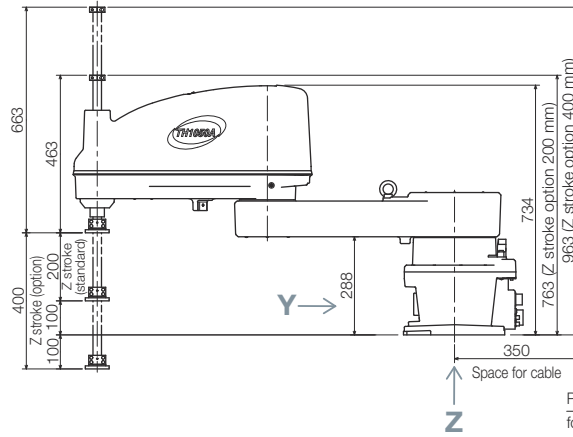
Detail view of EOAT



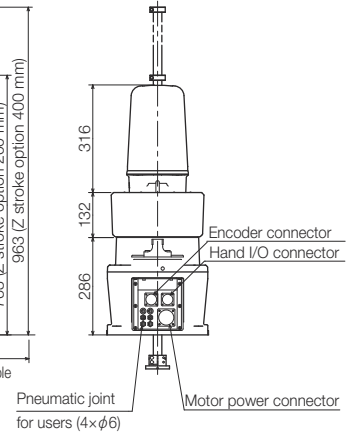
Detail view of mounting holes



Z view  
Detail view of base mount



Z





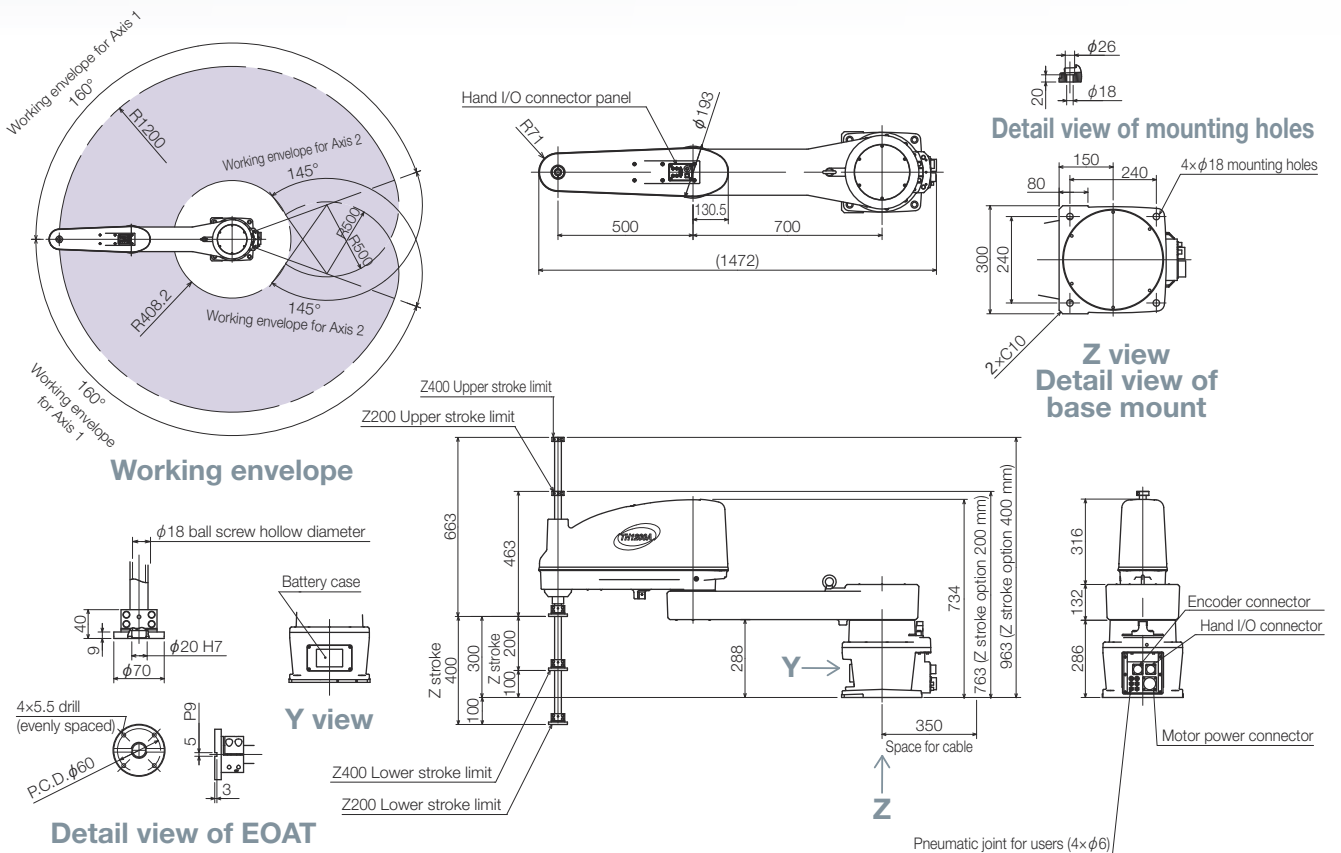
# TH1200A



Model	TH1200A	
Arm length (1st Arm + 2nd Arm)	1200 mm (700 mm+500 mm)	
Working envelope	Axis 1	±160 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~200 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	240 deg/sec
	Axis 2	330 deg/sec
	Axis 3 (Axis Z)	1800 mm/sec
	Axis 4 (Axis C)	1000 deg/sec
	Composite (Axis 1 and 2 composite)	7.9 m/sec
Standard cycle time <sup>*1</sup>	0.57 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	20 kg (rated 5 kg)	
Allowable moment of inertia <sup>*2</sup>	0.2 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.03 mm
	Axis Z (Axis 3)	±0.02 mm
	Axis C (Axis 4)	±0.005 deg
Hand wiring	5 inputs and 4 outputs	
Hand pneumatic joint	φ6 x 4 pcs	
Robot controller cable	5 m	
Power supply	4.4 kVA	
Mass	83 kg	
Connectable controller	TS3100, TS3100E	

For \*1 to \*3 please see page 25.

## External View



CAD Download URL <https://www.shibaura-machine.co.jp/en/product/robot/download.html>



# THP Series

Fastest cycle time: 0.29 sec  
Withstands 24-hour high-cycle operation  
Assists automation for continuous operations

Suitable for handling items such as food and clothing products and the inspection of automobile components and electronic parts

Order  
model  
code

THP 550 - Z - B - E - S

Arm length    Z-Axis long stroke    E: CE Marking  
K: KCs Marking    Special specification

Option    B: Z With protective bellows, C: With cap, CRB: Cleanroom specification, IP65: IP65 Dust-proof, T: Ceiling-mount type



THP550



THP700

Model		THP550	THP700
Arm length (1st Arm + 2nd Arm)		550 mm (300 mm+250 mm)	700 mm (350 mm+350 mm)
Maximum speed (Axis 1 and 2 composite)		6.21 m/sec	7.8 m/sec
Standard cycle time <sup>*1</sup>		0.29 sec (with 1 kg load)	0.345 sec (with 2 kg load)
Maximum payload mass <sup>*2</sup>		2 kg (rated 1 kg)	10 kg (rated 2 kg)
Positioning repeatability <sup>*3</sup>	X-Y	±0.015 mm	±0.03 mm
	Axis Z (Axis 3)	±0.01 mm	±0.02 mm
	Axis C (Axis 4)	±0.02 deg	±0.02 deg
Mass		26 kg	57 kg
Connectable controller		TS3000, TS3000E	TS3100, TS3100E

\*1: Continuous operation is not possible beyond the effective load ratio. Horizontal 300 mm, vertical 25 mm, round-trip with coarse positioning.

\*2: Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.

\*3: Positioning repeatability accuracy in one-direction movement, when the environmental temperature and robot temperature are constant. It is not the absolute positioning accuracy. The specification value may be exceeded depending on moving pattern, load mass and offset amount. Positioning repeatability for X-Y and C are for when Z-axis is at the uppermost position. Trajectory accuracy is not ensured.

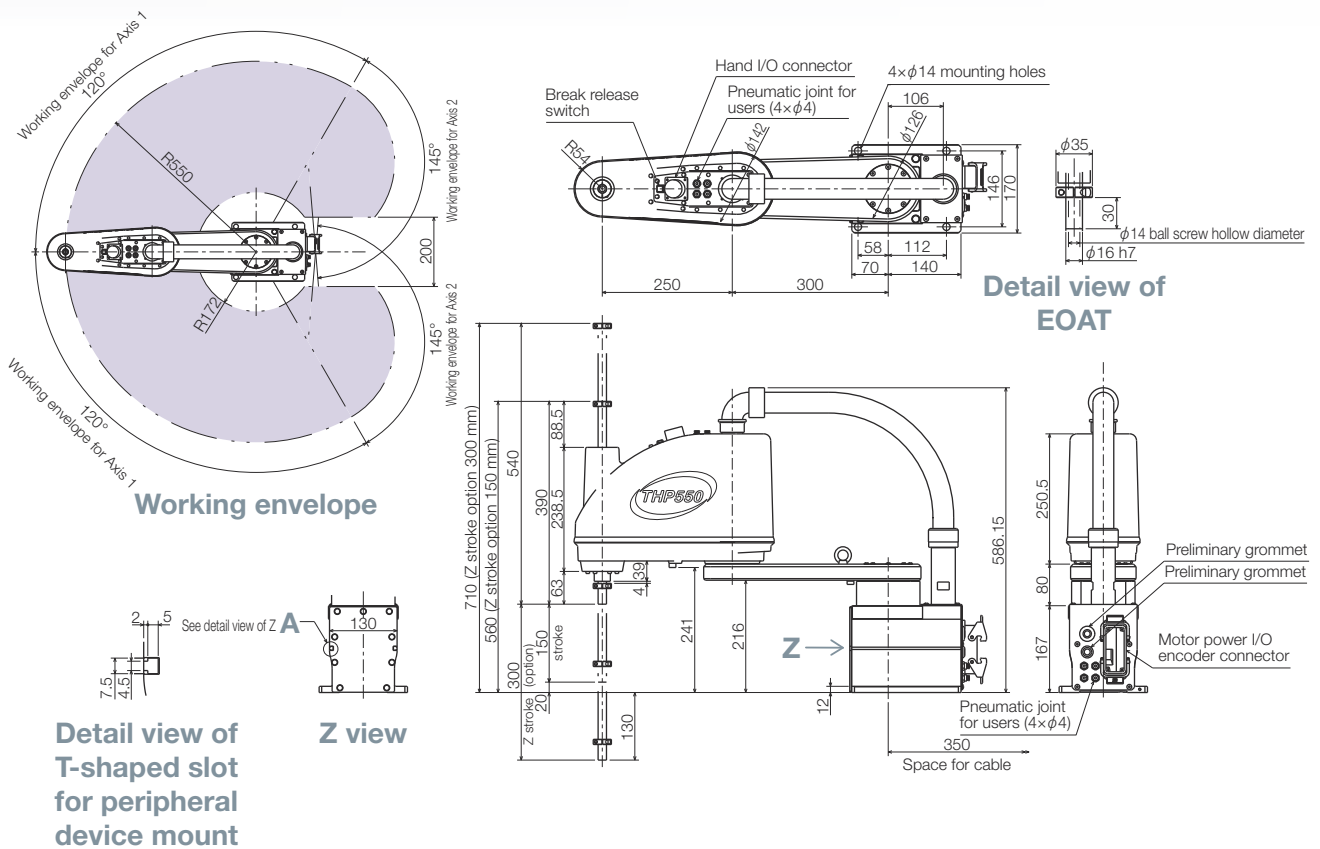
# THP550



Model	THP550	
Arm length (1st Arm + 2nd Arm)	550 mm (300 mm+250 mm)	
Working envelope	Axis 1	±120 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	375 deg/sec
	Axis 2	600 deg/sec
	Axis 3 (Axis Z)	2000 mm/sec
	Axis 4 (Axis C)	2000 deg/sec
	Composite (Axis 1 and 2 composite)	6.21 m/sec
Standard cycle time <sup>*1</sup>	0.29 sec (with 1 kg load)	
Maximum payload mass <sup>*2</sup>	2 kg (rated 1 kg)	
Allowable moment of inertia <sup>*2</sup>	0.01 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.015 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.02 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint	φ4 x 4 pcs	
Robot controller cable	5 m	
Power supply	2.3 kVA	
Mass	26 kg	
Connectable controller	TS3000, TS3000E	

For \*1 to \*3 please see page 25.

## External View



CAD Download URL <https://www.shibaura-machine.co.jp/en/product/robot/download.html>



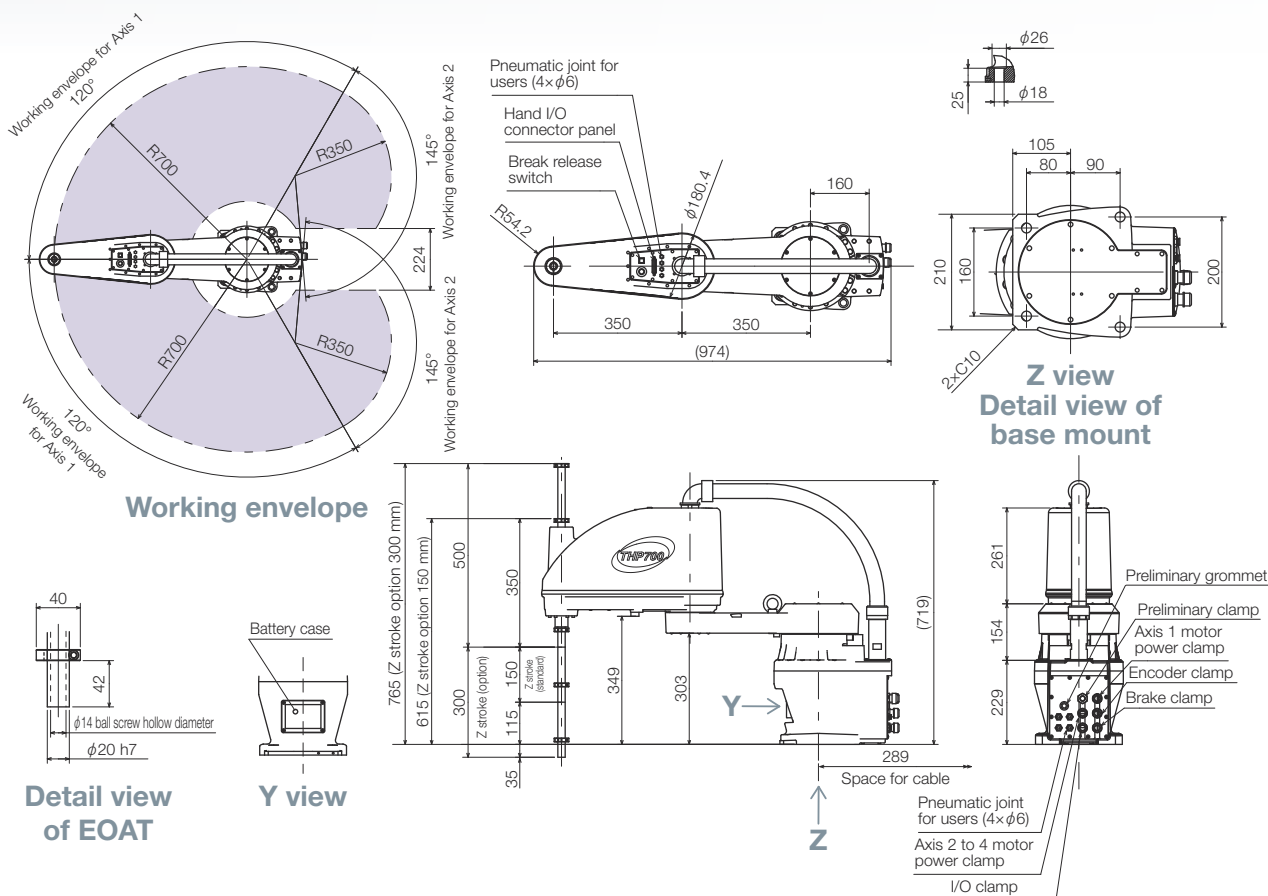
# THP700



Model	THP700	
Arm length (1st Arm + 2nd Arm)	700 mm (350 mm+350 mm)	
Working envelope	Axis 1	±120 deg
	Axis 2	±145 deg
	Axis 3 (Axis Z)	0~150 mm
	Axis 4 (Axis C)	±360 deg
Maximum speed	Axis 1	340 deg/sec
	Axis 2	600 deg/sec
	Axis 3 (Axis Z)	2050 mm/sec
	Axis 4 (Axis C)	1800 deg/sec
	Composite (Axis 1 and 2 composite)	7.8 m/sec
Standard cycle time <sup>*1</sup>	0.345 sec (with 2 kg load)	
Maximum payload mass <sup>*2</sup>	10 kg (rated 2 kg)	
Allowable moment of inertia <sup>*2</sup>	0.1 kg·m <sup>2</sup>	
Positioning repeatability <sup>*3</sup>	X-Y	±0.015 mm
	Axis Z (Axis 3)	±0.01 mm
	Axis C (Axis 4)	±0.01 deg
Hand wiring	8 inputs and 8 outputs	
Hand pneumatic joint	φ6 x 4 pcs	
Robot controller cable	5 m	
Power supply	4.8 kVA	
Mass	57 kg	
Connectable controller	TS3100, TS3100E	

For \*1 to \*3 please see page 25.

## External View



There are various options so robots can be used in a variety of applications, environments, and layouts.

### Z-Axis long stroke (Z)

The Z-Axis stroke range is extended. Useful when handling long work pieces and when height and depth is required.



Standard specification



Z-Axis long stroke

### Protective bellows for Z-Axis (B)

Bellows protect the lower part of the ball screw when liquid or particles could become attached.

\*Cycle time and working envelope of Z-axis (axis 3) is different from standard specification. Please contact us for more details.



Protective bellows for Z-axis (B)



Z-axis upper cap (C)

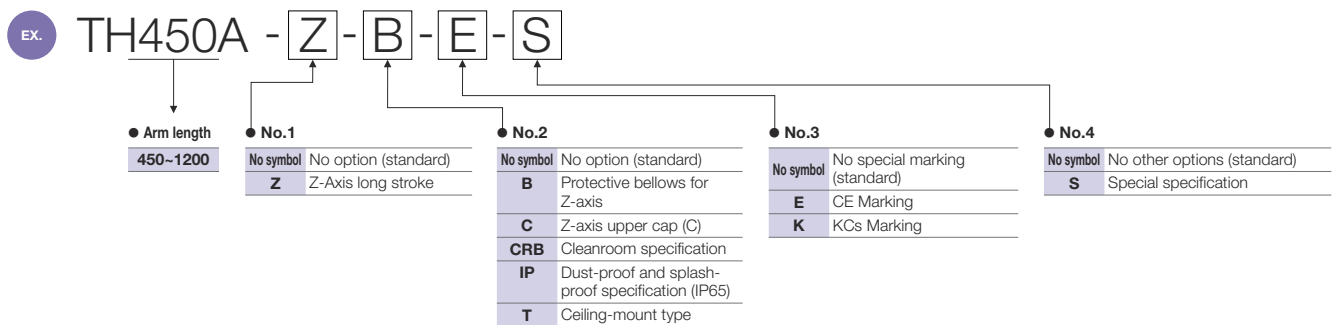
### Z-axis upper cap (C)

Cap protects the upper part of the ball screw when liquid or particles could become attached. It also prevents the cable from touching peripheral equipment.

### Cleanroom specification (CRB/CR)

Our SCARA robots have optional CRB specifications, which are equivalent to ISO Air Cleanliness Class 3, or CR specifications for a simple clean environment. These options are useful in dust-free manufacturing processes, such as semi-conductor and liquid crystal manufacturing. Choose a CRB-specification or CR-specification robot in accordance with your operating environment.

### Order model code





### Dust-proof and splash-proof specification (IP)

Dust-proof and splash-proof specification equivalent to IP65. (Does not allow dust intrusion and prevents the robot from the harmful effects of splashing water.)

\*Limitation of acceleration/deceleration rates. Please contact us for more details.

### Ceiling-mount type (T)

Space can be saved by installing ceiling mounted robots above the work area.

\*Working envelope is different from standard specification. Please contact us for more details.



### Optional cables length

The length of the cable between a SCARA robot and its controller can be extended.

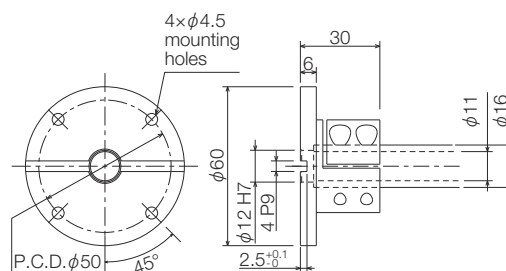
Suitable for when the robot and controller panel are far apart.

\*Maximum length depends on the controller. Please contact us for more details.

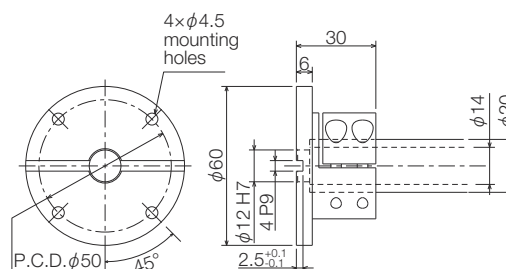
### Tool flange for end effector mounting

Flange helps to attach a tool, such as a gripper, at the end of the ball screw.

\*Please refer to dimensions of each robot for mounting method.



TH180, TH250A, TH350A, THP550



TH450A, TH550A, THP700

### Option table

○: Developed    △: Please contact us for detail    x: No development

Type	No.	Symbol	TH450A, TH550A	TH650A	TH850A, TH1050A, TH1200A
No option (standard)	1	No symbol	○	○	○
Z-Axis long stroke		Z	○ (300 mm)	○ (400 mm)	○ (400 mm)
No option (standard)	2	No symbol	○	○	○
Protective bellows for Z-axis		B	○	○	○
Z-axis upper cap (C)		C	○	○	○
Cleanroom specification		CRB	○	○	○
Dust-proof and splash-proof specification (IP65)		IP	○	○	○
Ceiling-mount type		T	○	○	○ (TH1050A only)
No special marking (standard)	3	No symbol	○	○	○
CE Marking		E	○	○	○
KCs Marking		K	△	△	○
No other options (standard)	4	No symbol	○	○	○
Special specification		S	△	△	△

# Controller Teach Pendant

## Small and lightweight

Small and lightweight controller (height 161 mm to 266 mm)  
Contributes to the reduction in size of a control panel

## Powerful software

Provides world-class programming support  
User-friendly software

## TC mini (simple PLC) function

Includes simple PLC function as standard  
Customization possible for I/O allocation



# TS5000



### Order model code

EX. TS5000 - M - S - HR - IO - CC - CV

<p>● Power board capacity</p> <p><b>M</b> THE/THA-equivalent power board</p>	<p>● OS type</p> <p><b>S</b> (SCARA) 4-axis System</p>	<p>● Hand I/O</p> <p><b>HR</b> Hand I/O is built in the robot (8 inputs and 8 outputs)</p>	<p>● Extended I/O</p> <table border="1"> <tr> <td>No symbol</td> <td>Without expansion I/O</td> </tr> <tr> <td><b>IO</b></td> <td>With expansion I/O</td> </tr> </table>	No symbol	Without expansion I/O	<b>IO</b>	With expansion I/O	<p>● Fieldbus</p> <table border="1"> <tr> <td>No symbol</td> <td>Without fieldbus</td> </tr> <tr> <td><b>CC</b></td> <td>CC-Link</td> </tr> <tr> <td><b>DN</b></td> <td>DeviceNet</td> </tr> <tr> <td><b>PB</b></td> <td>PROFIBUS</td> </tr> <tr> <td><b>IP</b></td> <td>EtherNet/IP</td> </tr> <tr> <td><b>PN</b></td> <td>PROFINET</td> </tr> </table>	No symbol	Without fieldbus	<b>CC</b>	CC-Link	<b>DN</b>	DeviceNet	<b>PB</b>	PROFIBUS	<b>IP</b>	EtherNet/IP	<b>PN</b>	PROFINET	<p>● Conveyor tracking synchronization function</p> <table border="1"> <tr> <td>No symbol</td> <td>Without conveyor tracking synchronization function</td> </tr> <tr> <td><b>CV</b></td> <td>With conveyor tracking synchronization function</td> </tr> </table>	No symbol	Without conveyor tracking synchronization function	<b>CV</b>	With conveyor tracking synchronization function
No symbol	Without expansion I/O																								
<b>IO</b>	With expansion I/O																								
No symbol	Without fieldbus																								
<b>CC</b>	CC-Link																								
<b>DN</b>	DeviceNet																								
<b>PB</b>	PROFIBUS																								
<b>IP</b>	EtherNet/IP																								
<b>PN</b>	PROFINET																								
No symbol	Without conveyor tracking synchronization function																								
<b>CV</b>	With conveyor tracking synchronization function																								

### Improvement in synchronized control and tracking precision by enhanced servo performances.

Faster control cycle results in improved synchronized control and tracking precision (position control cycle is three times faster than the previous model). This enables more sensitive control during the robot's fast movements and improves its performance in such aspects as locus precision and vibration suppression. Acceleration auto adjustment function (SPURT function) - acceleration rate is increased when the load stress to the motor and reduction gear is low. This contributes to a shorter cycle time.

### Improved communication performance and IoT fast data communication

Enhanced communication capabilities with Gigabit Ethernet. Real-time transmission of internal data is possible. Enhanced Ethernet communication for better functionality. Easy to use by most popular communication standard. Simultaneous communication by 8 general-purpose ports (IP1~8) and dedicated ports (motion command port, monitor port, periodic communication port, etc.) is possible and improves operation efficiency. Ready to meet the requirement for taking part in a "heavy-edge" system, as improves precision in AI vibration analysis and data collection for predictive and preventative maintenance.

### Enhanced robot programming language

New compiler (processing system). Clear and succinct SCOL program with new and improved commands. For example functions include character string type variables, string manipulation functions, conditional branching and coordinate conversion functions.

### The compact controller contributes to a smaller control panel

The small and high performance controller features a new CPU with improved functionality. All the connectors are on the front side. Its size and installation area are approximately 2/3 smaller than the existing model (TS3100). The compact controller contributes to a smaller control panel. The fan-less design reduces maintenance.

### Increase in user file capacity

File memory capacity has been increased to 12 MB. With the addition of an SD card, it can be increased to a maximum of 32 GB.

### Other features

Built-in PLC TCmini is included as standard. Changes of input and output signals can be made and stored in the memory without restriction.

Model	TS5000	
Number of controlled axes	4 axis	
Program language	SCOL2 (Original language)	
Movement command	PTP (point to point), CP (Continuous Path:Liner,Circular), short-cut, arch motion	
Memory	Built-in Flash ROM Capacity: 12 Mbytes	
Auxiliary memory	SD card (SD and SDHC) Maximum capacity: 32 Gbytes	
Number of programs that can be stored	Memory	Maximum: 512 Use files: 502 System files: 10
	Auxiliary memory	Maximum: 512 Use files: 512
Maximum number of program lines	Per program, Teaching points: 5,000 points Program part: 5,000 lines	
I/O signals	General	8 inputs and 8 outputs
	System	13 input signals Program selection, start, stop, program reset, etc. 9 output signals Servo on, emergency stop, fault, etc.
Communication port	Ethernet: 8 ports	
Power supply <sup>1</sup>	Main power supply	Single phase AC190 V to 240 V 50/60 Hz
	Power supply for I/O signals	DC24 V (over 100 W)
Outer dimensions	365 (W) ×161 (H) ×350 (D) mm <sup>2</sup>	
Mass	11 kg	
Teach Pendant (optional)	Teach Pendant: TP5000, TP1000 <sup>3</sup>	
Connectable robot	THE600	

<sup>1</sup>: Please see specification table for power capacity of each robot  
<sup>2</sup>: Height (H) includes the rubber legs. Please secure the space for cable wiring.  
<sup>3</sup>: A converter cable is necessary in order to connect with TP1000. TP3000 is not compatible. TP3000 is not compatible.



Please see website for details <https://www.shibaura-machine.co.jp/en/product/robot/lineup/th/ts5000.html>

# TSL3000 TSL3000E



TSL3000



TSL3000E

# TS3000, TS3000E TS3100, TS3100E



TS3000, TS3000E



TS3100, TS3100E

Model	TSL3000	TSL3000E
Number of controlled axes	4 axis	
Program language	SCOL (Original language)	
Movement command	PTP (point to point), CP (Continuous Path: Liner,Circular), short-cut, arch motion	
Memory	0.5 MB	
Auxiliary memory	USB memory	
Number of programs that can be stored	Maximum: 256 Use files: 243 System files: 13	
Maximum number of program lines	Per program, Teaching points: 2000 points Program part: 3000 lines	
I/O signals	General	8 inputs and 8 outputs
	System	13 input signals: Program selection, start, stop, program reset, etc. 9 output signals: Servo on, emergency stop, fault, etc.
Communication port	RS-232C: 1 port (COM1) general	
Power supply <sup>1)</sup>	Main power supply	Single phase AC190 V to 240 V 50/60 Hz
	Power supply for I/O signals	DC24 V (over 100 W)
Outer dimensions	150 (W) × 266 (H) × 304 (D) mm <sup>2)</sup>	320 (W) × 266 (H) × 304 (D) mm <sup>2)</sup>
Mass	7 kg	13 kg
Teach Pendant (optional)	Teach Pendant :TP1000, TP3000	
Connectable robot	THL series THE400	

<sup>1)</sup>: Please see specification table for power capacity of each robot  
<sup>2)</sup>: Height (H) includes the rubber legs.

Model	TS3000, TS3000E	TS3100, TS3100E
Number of controlled axes	4 axis	6 axis
Program language	SCOL (Original language)	
Movement command	PTP (point to point), CP (Continuous Path: Liner,Circular), short-cut, arch motion	
Memory	1.5 MB	
Auxiliary memory	USB memory	
Number of programs that can be stored	Maximum: 256 Use files: 243 System files: 13	
Maximum number of program lines	Per program, Teaching points: 2000 points Program part: 3000 lines	
I/O signals	General	32 inputs and 32 outputs
	System	13 input signals: Program selection, start, stop, program reset, etc. 9 output signals: Servo on, emergency stop, fault, etc.
Communication port	RS-232C: 1 port (COM1) general	
Power supply <sup>1)</sup>	Main power supply	Single phase AC200 V to 240 V 50/60 Hz
	Power supply for I/O signals	DC24 V (over 100 W)
Outer dimensions	290 (W) × 241 (H) × 298 (D) mm <sup>2)</sup>	420 (W) × 241 (H) × 298 (D) mm <sup>2)</sup>
Mass	13 kg	17 kg
Teach Pendant (optional)	Teach Pendant :TP1000, TP3000	
Connectable robot	TH180, TH250A TH350A, TH450A TH550A, THP550	TH650A, TH850A, TH1050A, TH1200A, THP700

<sup>1)</sup>: Please see specification table for power capacity of each robot  
<sup>2)</sup>: Height (H) includes the rubber legs.

Please see  
website for details

- TSL3000, TSL3000E  
<https://www.shibaura-machine.co.jp/en/product/robot/lineup/th/tsl3000.html>
- TS3000  
<https://www.shibaura-machine.co.jp/en/product/robot/lineup/th/ts3000.html>
- TS3100  
<https://www.shibaura-machine.co.jp/en/product/robot/lineup/th/ts3100.html>



TSL3000, TSL3000E



TS3000



TS3100

# TP5000



## Improved operability

With 7-inch, widescreen color touch-sensitive panel for intuitive operation is realized.

In the larger display area, programs and position data can be checked easily. Split-screen display allows two sets of data to be shown side-by-side, for example the current position display and program monitor. Program editing can be done with the full on-screen keyboard.

## Ease of handling and operation.

Fast boot-up, ready in 30 seconds.

Multiple languages are selectable including Japanese, English and Chinese with Korean planned.

Master mode (AUTO/MANUAL) switchable by key switch on the teach pendant.

Model	TP5000
Display devices	7-Inch, wide TFT LCD
Input method	Touch-Sensitive Operator panel
Mass	800 g (except cable)
Outer dimensions	218 (W) × 173 (H) × 60 (D) mm
Cable length	5 m (standard), 10 m, 15 m (option)
Protection level	IP65
Connectable controller	TS5000

# TP3000



Please see website for details

<https://www.shibaura-machine.co.jp/en/product/robot/lineup/tv/TP3000.html>



Model	TP3000
Input method	Graphic operation keyboard
Mass	520 g (except cable)
Outer dimensions	226 (W) × 162 (H) × 55 (D) mm
Cable length	5 m
Protection level	IP65
Connectable controller	TSL3000, TSL3000E, TS3000, TS3000E, TS3100, TS3100E

- Features an easy-to-view vivid color screen
- Equipped with graphic operation keys
- Equipped with language association function
- Outline function

# TP1000



Model	TP1000
Input method	Button
Mass	600 g (except cable)
Outer dimensions	133 (W) × 255 (H) × 48 (D) mm
Cable length	5 m
Connectable controller	TSL3000, TSL3000E, TS3000, TS3000E, TS3100, TS3100E

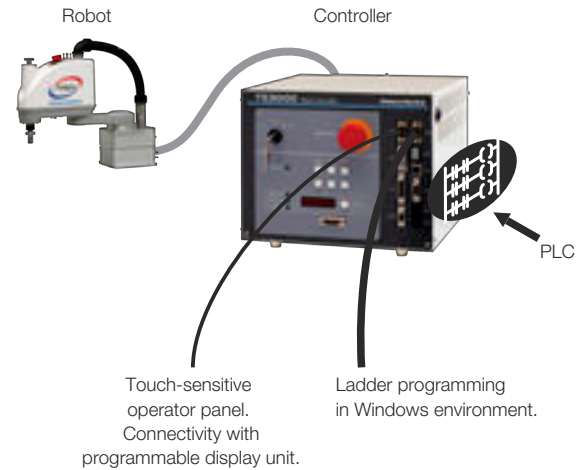
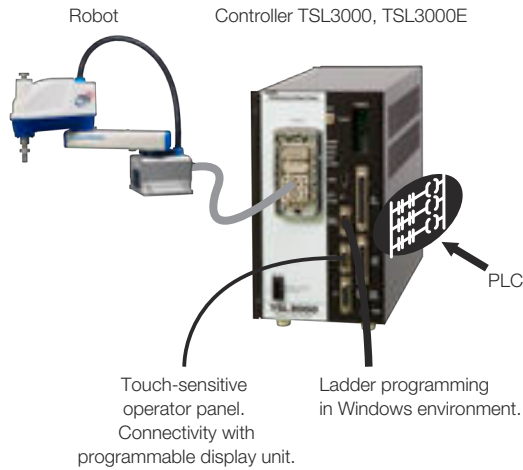


## Built-in PLC TCmini

A PLC (TCmini) is built into the controllers. Input and output signals can be handled by ladder-style programming logic, independent from robot motion. Please use "TC-WORX" optional software for editing.

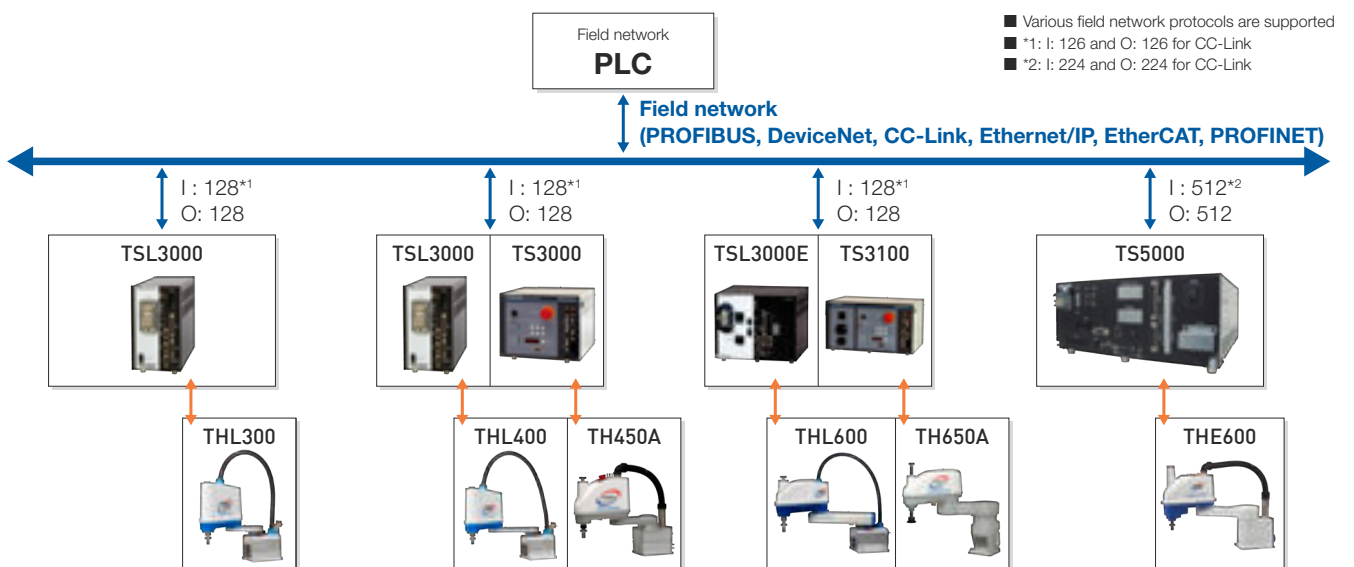
[Features and advantages]

- TCmini controls input/output signals of standard I/O, extension I/O and touch-sensitive panel by ladder program and exchanges data with robot program.
- Address of I/O can be changed, and contributes to flexible system design.



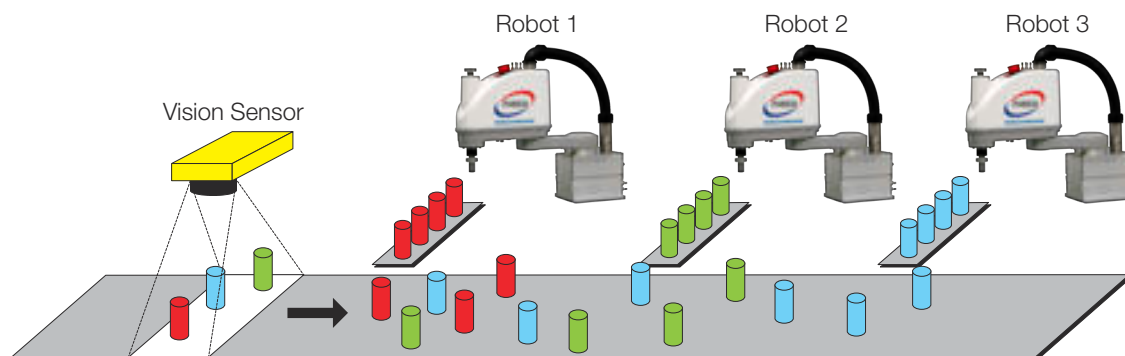
## Industrial networks

Various industrial networks are supported. Please refer to the table for each applicable industrial network. The usable number of I/O is dependant on network.



## Vision + Conveyor Synchronization

- A large number and variety of types of work pieces on a conveyor can be sorted and put into boxes by multiple robots in coordination.
- Damage and breakage of work pieces is avoided by synchronization with the conveyor.
- Programming is made easy with special, dedicated commands to achieve efficient work-piece handling, with functionalities such as identification and duplicate data avoidance.



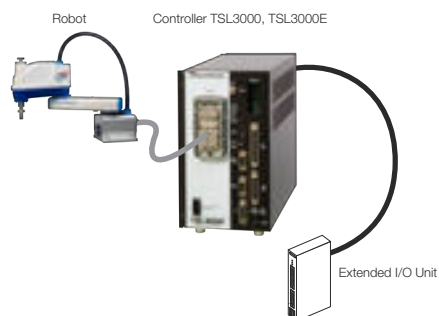
## CE Marking

## KCs Marking

Applicable to each marking

## Extended I/O Unit

The number of I/O signals can be increased with the addition of the extended I/O module.



I/O Extension via Serial Communication Remote location (maximum 400 m). (Maximum 28 Outputs / 20 Inputs) x2

## Additional axis

An additional axis can be added for usage such as moving the robot on a traverse axis.

## Option table

		TS5000	TSL3000	TSL3000E	TS3000	TS3000E	TS3100	TS3100E
Built-in PLC TCmini		1 k word 2 ms	1 k word 5 ms	1 k word 5 ms	1 k word 5 ms	1 k word 5 ms	1 k word 5 ms	1 k word 5 ms
Industrial network <sup>1</sup>	CC-Link	○	○	○	○	○	○	○
	DeviceNet	○	○	○	○	○	○	○
	PROFIBUS	○	○	○	○	○	○	○
	EtherNet/IP	○	○	○	○	○	○	○
	EtherCAT	×	○	○	○	○	○	○
	PROFINET	○	○	○	○	○	○	○
Vision + Conveyor Synchronization		○	×	○	○	○	○	○
CE Marking		under development	×	○	×	○	×	○
KCs Marking		×	○	○	×	○	×	○
Additional axis		×	×	×	○	○	○	○
Extended I/O Unit		○	○	○	○	○	○	○

<sup>1</sup> : Ethernet is registered trademark of XEROX Corp. from the U.S.

CC-Link is registered trademark of CC-Link society

Device Net and Ethernet I/P is registered trademark of ODVA.

PROFIBUS and PROFINET is registered trademark of PROFIBUS User Organization.

Ether CAT is registered trademark and patent technology of Beckoff Automation GmbH from Germany.

## Robot Programming Assist Tool

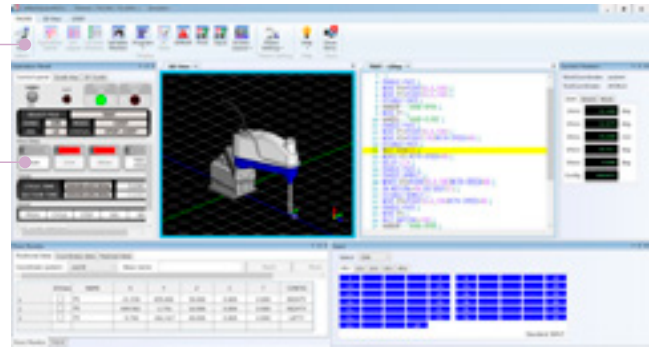


### Easy Operation

**Easy-to-understand, intuitive screen design, ribbon interface, window-dock function for customizable operator panels**

Beginners will find it easy to understand and can quickly master robot programming skills. For experienced robot users, TSAssist helps them make robot programs efficiently.

- Easy-to-understand, intuitive screen design
- Ribbon interface
- Customized operation panels by window-dock function



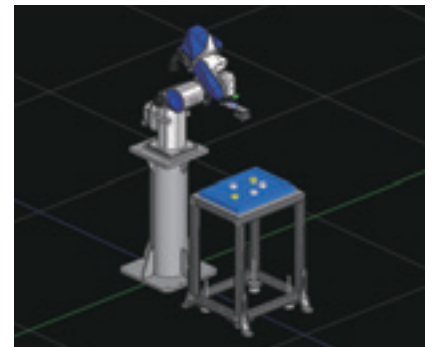
### High Performance 3D Simulation

**Interference check, Locus display, timer (cycle time measurement), placing simple work pieces and model shapes, loading 3D CAD data, saving 3D simulations to a video file and multi-angle view**

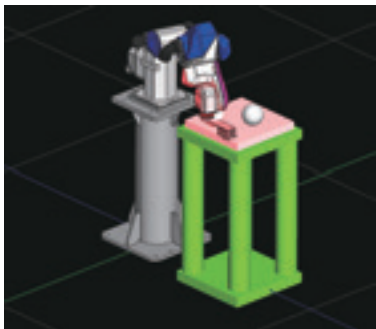
These functions enable the accurate and high quality estimation of robot-automation processes. From simple outline simulation to detailed simulation closer to actual machine implementation, TSAssist helps with all phases of the robot automation system life cycle, from initial "sketch," planning, proposal, designing and installation, to the improvement and repurposing of existing facilities.

\* ".stl" files of 3D CAD data can add to TSAssist directly. The conversion software "Virfit Agent" is required to add the ".stp" files of 3D CAD data.

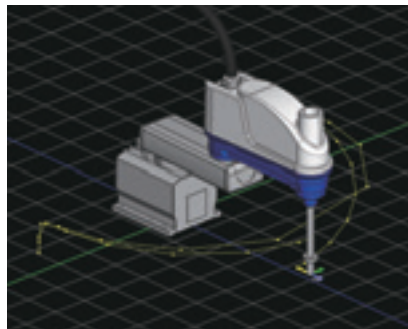
\* USB license key (sold separately) is required to use the high performance 3D simulation.



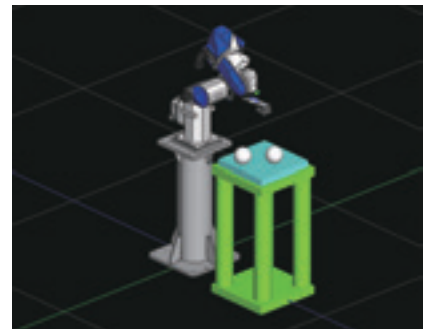
#### ■ Interference check



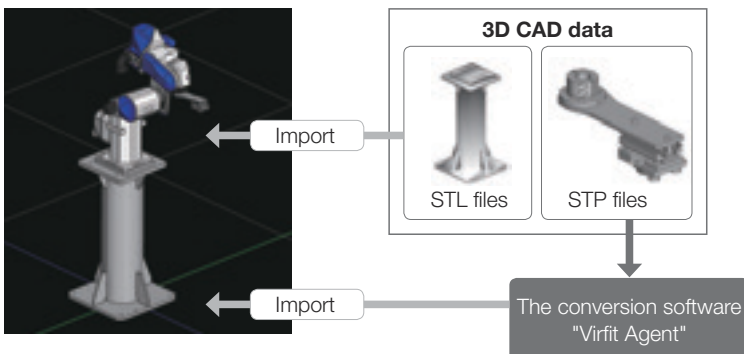
#### ■ Locus display



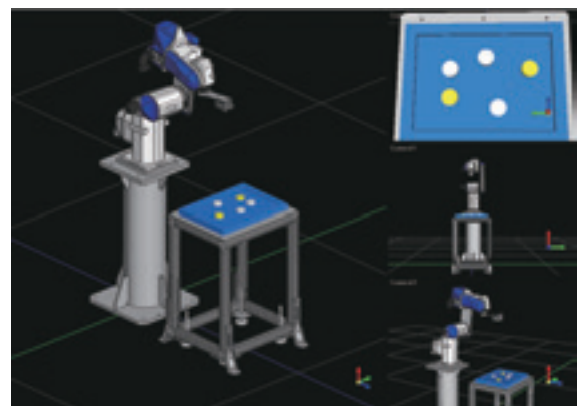
#### ■ Placing simple work pieces



#### ■ Loading 3D CAD data



#### ■ Multi-angle view



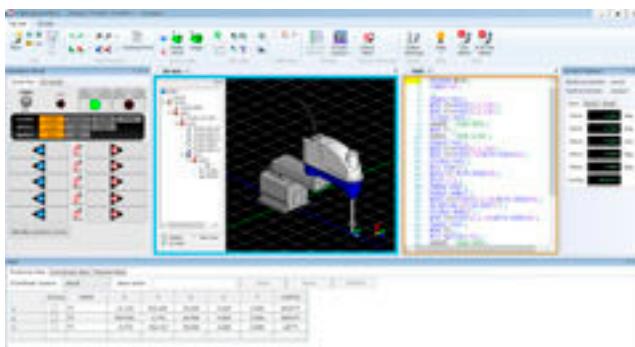
#### ■ Timer (cycle time measurement)

#### ■ Saving 3D simulation to a video file

# Highly Functional Program Editor

**Robot language input support (keyword suggestions), outline display and split display.**

Point data (taught position information) editor with, sort, search and filter functions. In 3D editor mode, the robot can be guided by mouse dragging and by clicking on the object model surface. No complex position calculation is necessary. With these functions, programming can be done efficiently with minimum mistakes.



■ Robot language input support (keyword suggestions)



■ Outline display



■ Split display



- Point data editor's sort, search and filter functions
- 3D editor mode enables robot guidance and teaching by mouse

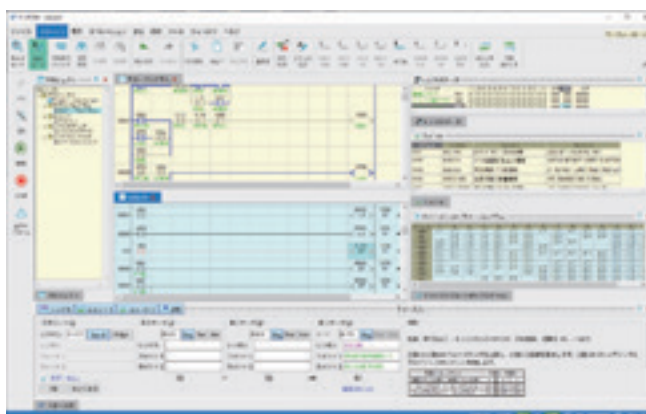
## Operating environment

OS	Windows7 / 8.1 / 10 (32/64bit)
CPU	Intel Core I series or newer than Intel Core2 Quad
Memory	More than 2 GB recommended
Monitor	Screen resolution 1024×768 (WXGA) or higher *1366×768 (FEXGA) is recommended
HDD	More than 1 GB free hard drive space
Graphics (display)	NVIDIA GeForce series, Quadro series, Intel HD Graphics 4000 or newer recommended DirectX 9.0c ready More than 64 MB graphics memory recommended Direct3D Acceleration enable
Mouse	Use Wheel Mouse for operation
USB	Use 1Port (USB2.0 for USB license key)
DVD-ROM	Use DVD-ROM drive to install this software
I/F	LAN-Port or COM-Port for connect to Controller

## TC-WORX

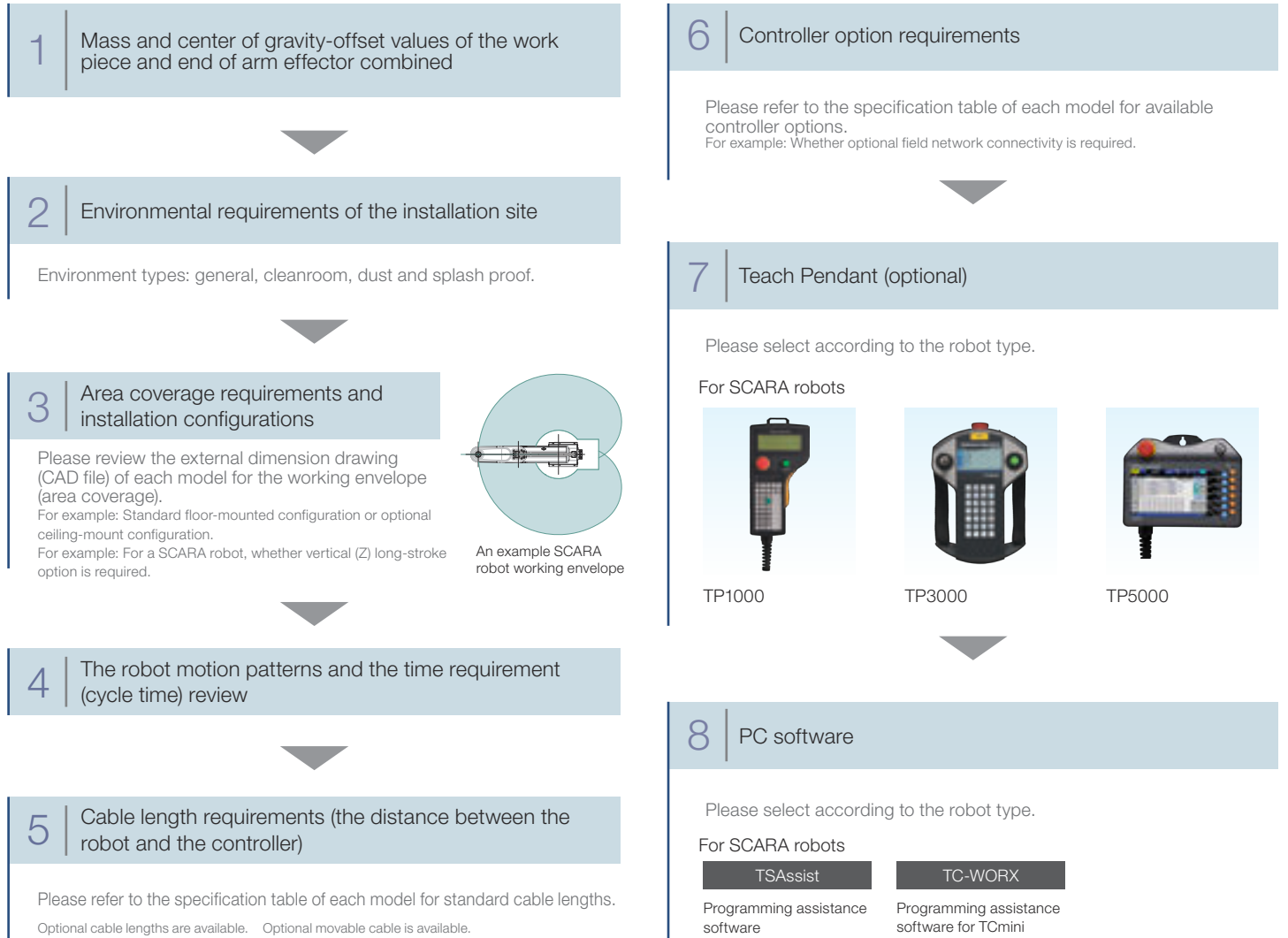
### For programming the simple PLC

1. Ladder-style logic programming for the simple PLC.
2. In addition to program creation, online monitoring of ladder program and I/O status to help reduce development and debugging time.
3. Extensive functions, such as address map display, comment display and search, are provided.



# Robot selection guidelines

In order to select a robot model please consider the following factors:



\* This document presents an overview of our robot product lineup. For full details, such as specification data and external dimension CAD files, please refer to the brochure for each model and our website. Please contact our sales representatives with any questions you may have.

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\* Contents included in this catalog are subject to change without prior notice.