GB

IAI
Quality and Innovation

Tabletop Robot

TTA Series

www.intelligentactuator.de

Improved Tabletop Robot for Cell Production Applications. Featuring Significantly Higher Payload, Maximum Speed and Rigidity!

Enlarged variation with addition of ZR-axis type

1. Significantly Higher Payload and Maximum Speed

		TT (Conventional model)	TTA
Maximum payload (kg)	Work part side (X-axis)	10	20
	Tool side (Z-axis)	2	6
Maximum speed (mm/sec)	X-axis	300	800
	Y-axis	300	800
	Z-axis	300	400

➡ Up to **3** times

➡ Up to **2.6** times

2. Stores Much More Programs and Positions

The larger memory lets you store much more programs and positions.
The additional data recovery function enables original data recovery due to power failure during FLASH writing.

	TT (Conventional model)	TTA
Number of programs	64	255
Number of program steps	6000	9999
Number of multi-tasking programs	16	16
Number of display languages	2 (Japanese/English)	2 (Japanese/English)
Number of positions	3000	30000

➡ **4** times more programs

➡ **10** times more positions

3. Three Times as Many I/O Points as Conventional Models

When the standard I/O slot isn't enough, two additional I/O expansion slots can be installed.

Inputs/outputs

16 points/16 points ➡ Up to 48 points/48 points

3 times more

Supporting field networks

CC-Link DeviceNet PROFIBUS EtherNet/IP

4. More Variations

Gate Type and Cantilever Type are available in the lineup of TTA Series which are well-appraised with higher payload, maximum speed and rigidity.

■8 Variety Types for Various Operation Range

There are four types of operation ranges to select from for each of TTA-A (gate type) and TTA-C (cantilever type).
For 3-axis specification, we have prepared two types, 100mm and 150mm, for Z-axis.
You can select a model ideal for the size of your work part.

[TTA-A2]

200×200

300×300

400×400

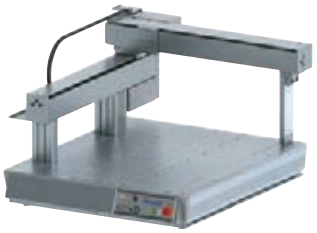
500×500

[TTA-C2]

200×150

300×250

400×350



500×450

■Difference between Gate Type TTA-A Series and Cantilever Type TTA-C Series

[TTA-A3]
Z-Axis Equipped Gate Type

With work piece mounted on the X-axis slider.
Work piece itself moves.

[TTA-C3]
Z-Axis Equipped Cantilever Type

With work piece mounted on the base.
Work piece itself does not move.

■CE Compliant Model Types

TTA-□□G, the global specification version, is compliant with CE.

5. Dedicated ZR- axis Now in Lineup

We have prepared the dedicated rotary axis, which was not available for the tabletop robot previously.
Range of application has been expanded by equipping a rotary axis (R-axis) at the tip of vertical axis (Z-axis).
It is now possible to mount a camera on the slider of the Z-axis.

TTA Series Lineup

Series		TTA											
Type (*1)		**Gate type**											
		A2G (2-axis global type with safety category specification) 				A3G (3-axis global type with safety category specification) 				A4G (4-axis global type with ZR rotary axis and safety category specification) 			
Stroke X/Y-axis (mm)		200x200 (with single pillar) (*2)	300x300 (with double pillar)	400x400 (with double pillar)	500x500 (Double pillar travel)	200x200 (with single pillar) (*2)	300x300 (with double pillar)	400x400 (with double pillar)	500x500 (with double pillar)	200x200 (with single pillar) (*2)	300x300 (with double pillar)	400x400 (with double pillar)	500x500 (with double pillar)
Stroke Z-axis (mm)		—				100/150				100/150			
Max. speed (mm/s)	X-axis	800				800				800			
	Y-axis	800				800				800			
	Z-axis	—				400				400			
	R-axis	—				—				1000 deg./s			
Load capacity (kg)	X-axis	20				20				20			
	Y-axis	10				—				—			
	Z-axis	—				6				6			
	R-axis	—				—				0.01 kg·m² (*3)			
Reference page		P. 8	P. 9	P. 10	P. 11	P. 16	P. 17	P. 18	P. 19	P. 24			
Type (*1)		**Cantilever type**											
		C2G (2-axis global type with safety category specification) 				C3G (3-axis global type with safety category specification) 				C4G (4-axis global type with ZR rotary axis and safety category specification) 			
Stroke X/Y-axis (mm)		200x150 (with single pillar) (*2)	300x250 (with double pillar)	400x350 (with double pillar)	500x450 (with double pillar)	200x150 (with single pillar) (*2)	300x250 (with double pillar)	400x350 (with double pillar)	500x450 (with double pillar)	200x150 (with single pillar) (*2)	300x250 (with double pillar)	400x350 (with double pillar)	500x450 (with double pillar)
Stroke Z-axis (mm)		—				100/150				100/150			
Max. speed (mm/s)	X-axis	600	700	800		600	700	800		600	700	800	
	Y-axis	540	640	800		540	640	800		540	640	800	
	Z-axis	—				400				400			
	R-axis	—				—				1000 deg./s			
Load capacity (kg)	X-axis	—				—				—			
	Y-axis	10				—				—			
	Z-axis	—				6				6			
	R-axis	—				—				0.01 kg·m² (*3)			
Reference page		P. 12	P. 13	P. 14	P. 15	P. 20	P. 21	P. 22	P. 23	P. 26			

(*1) All product types include power plug and power supply cable. (*2) Refer to Pg. 6 for additional pillar as option. (*3) Max. load moment of inertia.

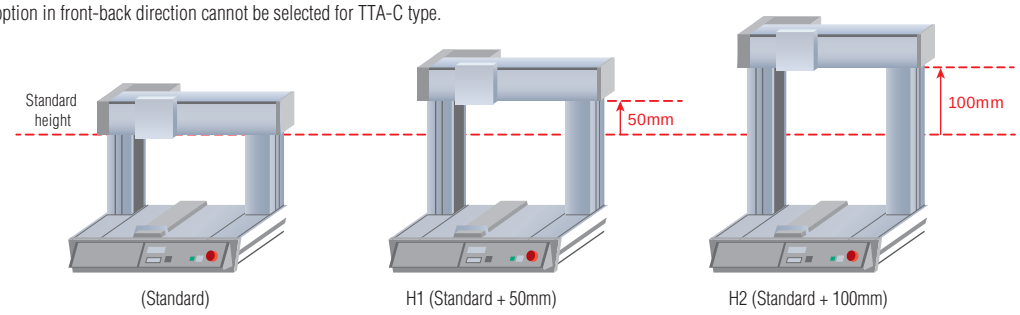
Additional Options Let You Change the Y-axis Height and Horizontal Position.

	Standard	Standard + 50mm up	Standard + 100mm up
Y-axis height is selectable	–	H1	H2

	Standard	Standard + 90mm forward	Standard + 180mm forward
Y-axis horizontal position is selectable	–	F1	F2

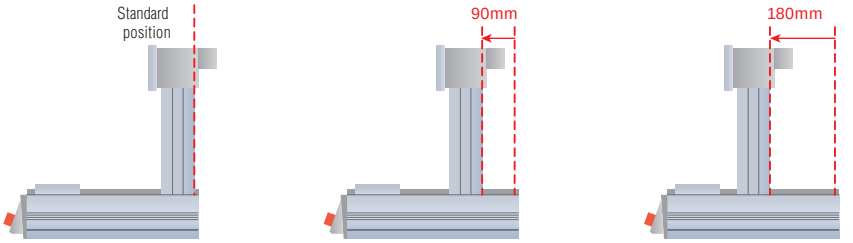
* To change both the Y-axis height and Y-axis horizontal position, specify the type codes in alphabetical order together with other option codes.
  (Example: AP-F1-FT-H2-OS)
* Y-axis position change option in front-back direction cannot be selected for TTA-C type.

Y-axis height is selectable



(Standard) H1 (Standard + 50mm) H2 (Standard + 100mm)

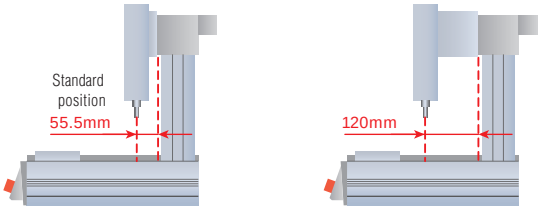
Y-axis horizontal position is selectable (Only available for TTA-A type)



(Standard) F1 (90mm forward of standard position) F2 (180mm forward of standard position)

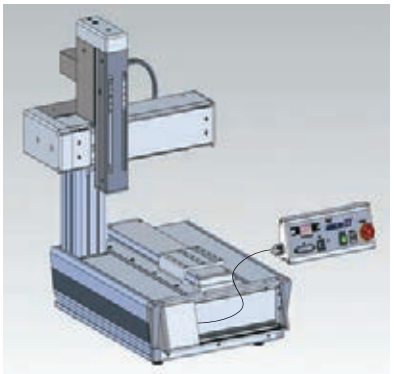
	Standard	Standard + 64.5mm forward
ZR-axis horizontal position is selectable	–	FZ

ZR-axis horizontal position is selectable



(Standard) FZ (64.5mm forward of standard position)

Optional Detachable Operation Console



The operation console can be separated from the product for handy operation.
(Cable length: 900mm)

System Configuration

Front Panel Wiring Layout

(*) TB-01-S coming with CE conformity.
For a safety category compliant system with deadman switch type TB-01-D(R) see TB-01 brochure.

Teaching Pendant (Option)
Model: TB-01-S (*)

5m

5m/3m

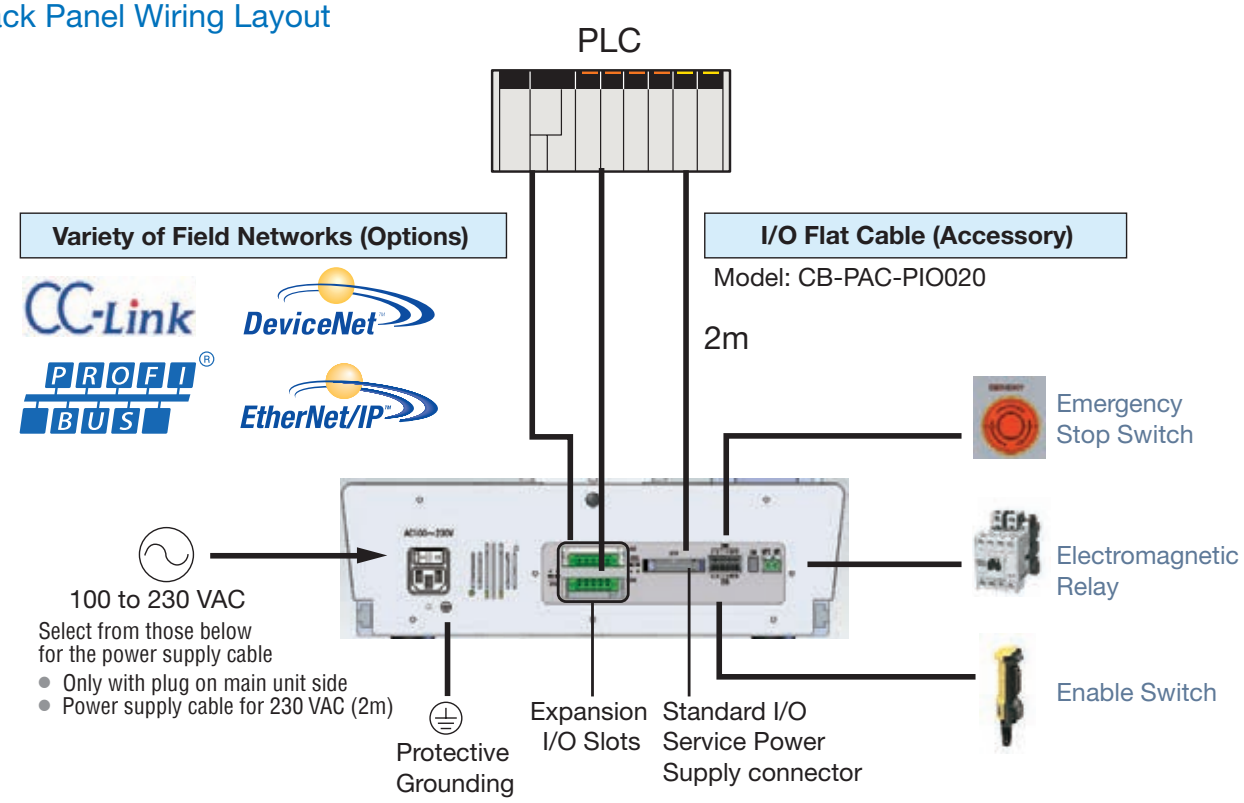
PC Connection Cable
(Supplied with the PC Software)
Model: CB-ST-E1MW050 (5m)
CB-SEL-USB030 (3m)
CB-ST-A1MW050 (5m)

PC Software (Option)
Model: IA-101-X-MW
IA-101-TTA-USB (**)
IA-101-X-USBMW
IA-101-XA-MW (***)

Dummy Plug
Model: DP-2 (**)

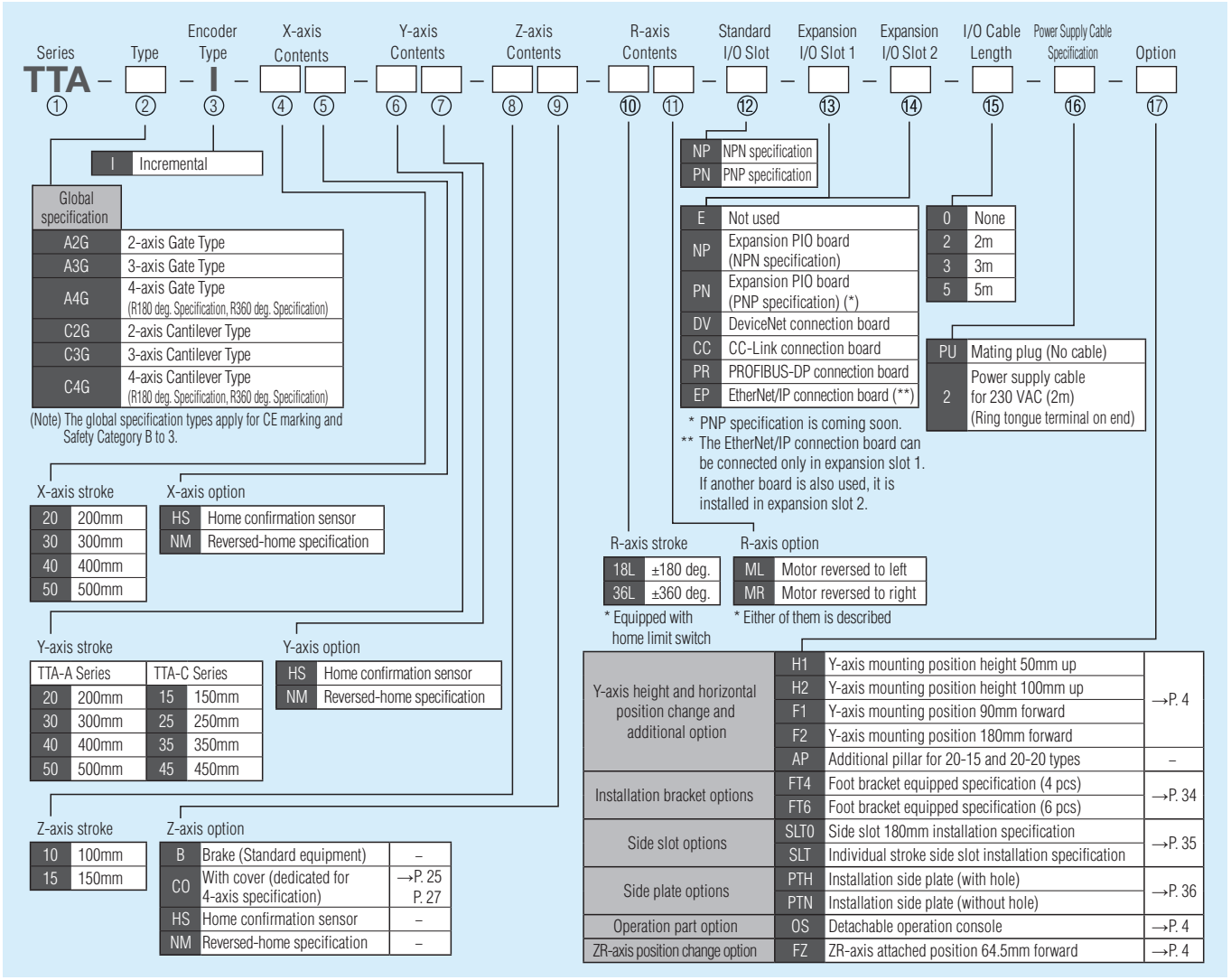
(**) Enclosed in global specification and PC software (IA-101-TTA-USB).
(***) Safety category compliant system with safety circuit emergency stop connector type IA-101-XA-MW including PC cable CB-ST-A1MW050.

Back Panel Wiring Layout



* Emergency stop switch, enable switch, electromagnetic relay, and other external devices may be connected and wired if necessary. If no devices are connected or wired, the robot will still operate properly. Connectors with jumper wires are supplied.

Explanation of Model Name



[Supplemental Explanation for Options]

AP **Additional pillar for 20-15 and 20-20 types**

This option can make 20-15 and 20-20 type, which are single pillar types in standard, a double pillar gate type.

FT4 **Foot bracket equipped specification (4 pcs)**

for X-axis stroke 20/30

FT6 **Foot bracket equipped specification (6 pcs)**

for X-axis stroke 40/50

SLT0 **Side slot 180mm installation specification**

It is to be selected when changing to slot specification in selection of FT4 or FT6. 20/30 type of X-axis stroke is equipped with 2 places of 180mm side slot and 40/50 type with 4 places.

SLT **Individual stroke side slot installation specification**

It is to be selected when changing to the slot specification considering the size of the main unit.
*It is not available to select for FT4 and FT6.

PTH **Installation side plate (with hole)**

Y-axis installation position: Suitable size will be selected for each of standard, F1 and F2
* Only available for TTA-A type

PTN **Installation side plate (without hole)**

Y-axis installation position: Suitable size will be selected for each of standard, F1 and F2
* Only available for TTA-A type

<Notes>

- The global specification types are enclosed with dummy plug [DP-2].
- F1 and F2 options cannot be selected for TTA-C type.

■Options with Surcharge

Name	Option code	
Home confirmation sensor	HS	
Y-axis mounting position height 50mm up	H1	
Y-axis mounting position height 100mm up	H2	
Y-axis mounting position 90mm forward	F1	
Y-axis mounting position 180mm forward	F2	
ZR-axis attached position 64.5mm forward	FZ	
Additional pillar for 20-15 and 20-20 types	AP	
Foot bracket equipped specification (4 pcs)	FT4	
Foot bracket equipped specification (6 pcs)	FT6	
Side slot 180mm installation specification	SLT0	
Individual stroke side slot installation specification	SLT	
Installation side plate (with hole)	PTH	
Installation side plate (without hole)	PTN	
Detachable operation console	OS	
With Z-axis cover	CO	

Notes

Notes on Catalog Specifications

Speed

"Speed" refers to the set speed when the actuator is in motion.
The slider accelerates from a stationary state. Once the set speed is reached, the slider will move at that speed until immediately before the target position (specified position), where the slider will decelerate to a stop.

Acceleration/Deceleration

"Acceleration" refers to the rate of change of speed from a stationary state until the set speed is reached.
"Deceleration" refers to the rate of change of speed from the set speed until the slider stops.
Acceleration and deceleration are set in "G" (0.3G = 2940mm/sec^2, Rotary axis is 0.3G = 2940deg./sec^2).

Duty cycle

The tabletop robot can be operated at a duty cycle of 100%.

$$\text{Duty cycle (\%)} = \frac{\text{Operating time}}{\text{Operating time + Stopped time}} \times 100$$

Positioning repeatability

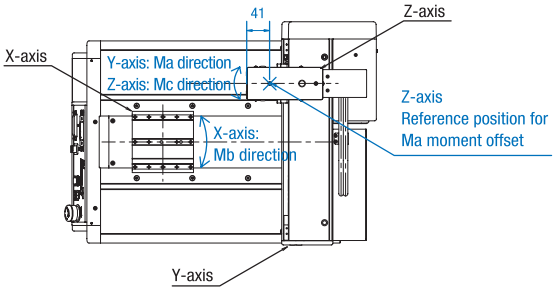
"Positioning repeatability" refers to the positioning accuracy when the actuator is repeatedly moved to a prestored position. It is different from "absolute positioning accuracy".

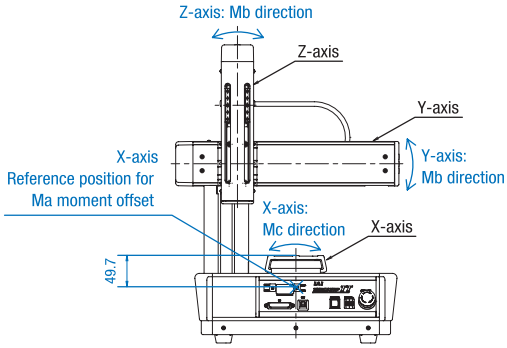
Home

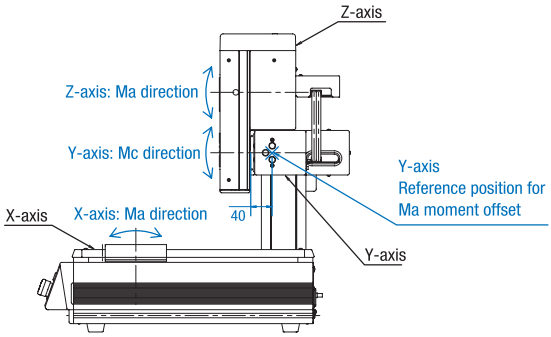
The home is located on the motor side on the actuator for standard specification, or on the front side of the actuator in the reversed-home specification.
During home return the slider moves until it contacts the mechanical end, and then it reversed its direction.
Be careful to prevent contact with surrounding parts.

Dynamic allowable moment (Ma, Mb, Mc)

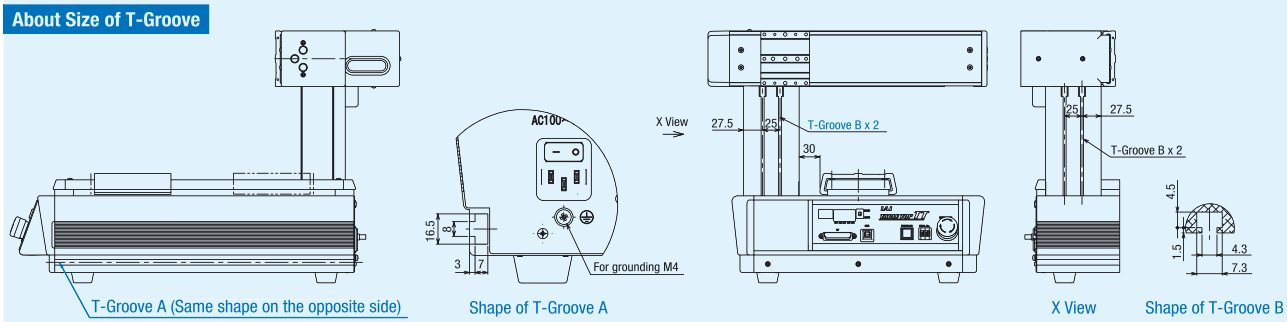
The load moment is calculated by assuming a travel life of 5000km. Note that if the specified moment value is exceeded, the service life of the guide will be reduced. The direction of each moment and applicable reference point are shown below:







About Size of T-Groove



TTA-A2G-20-20

Tabletop Robot Gate Type 2-axis Specification
XY-axis: 200mm

Model Specification Items

TTA – □ – I – 20 □ – 20 □ – □ – □ – □ – □ – □ —— □ —— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	A2G: 2-axis global specification (Gate type)	I: Incremental specification	20: 200mm	HS: Home confirmation sensor NM: Reversed-home specification	20: 200mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A2G-I-20 ① -20 ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧	X-axis	Incremental	Pulse motor	24 or equiv.	200	1 ~800	20
	Y-axis			24 or equiv.	200	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	20kg
Actuator weight	24kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

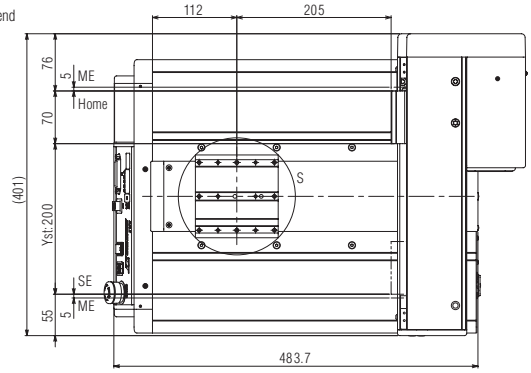
You can download CAD drawings from our website.

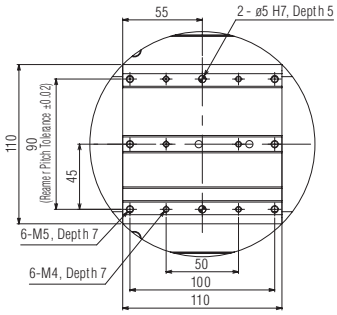
2D CAD

RoHS

* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

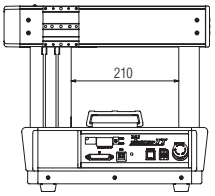
SE: Stroke end
ME: Mechanical end

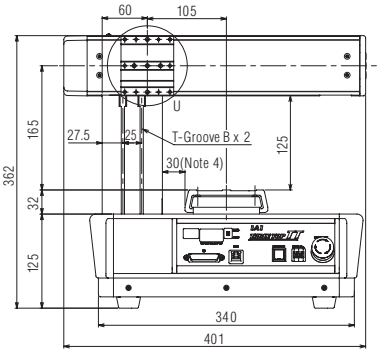


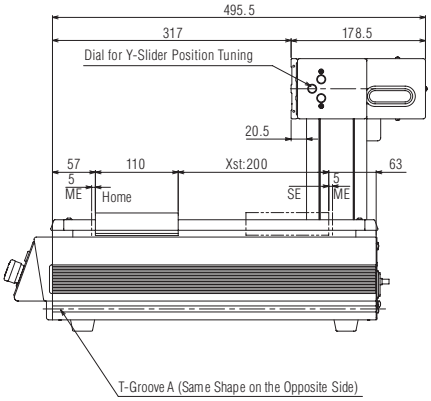


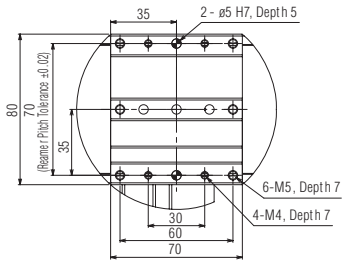
Detailed Diagram S (Detail of X-axis Slider)

■AP (Additional Pillar Option) Dimensions









Detailed Diagram U (Detail of Y-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A2G-30-30

Tabletop Robot Gate Type 2-axis Specification
XY-axis: 300mm

Model Specification Items

TTA – □ – I – 30 □ – 30 □ – □ – □ – □ – □ – □ – □ – □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A2G: 2-axis global specification (Gate type)		I: Incremental specification	30: 300mm	HS: Home confirmation sensor NM: Reversed-home specification	30: 300mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A2G-I-30 ① -30 ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧	X-axis	Incremental	Pulse motor	24 or equiv.	300	1 ~800	20
	Y-axis			24 or equiv.	300	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	30kg
Actuator weight	31kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

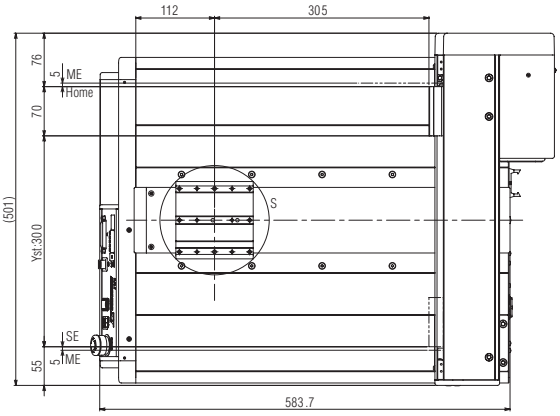
You can download CAD drawings from our website.

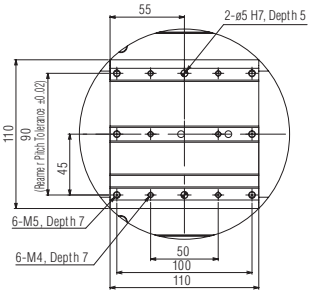
2D CAD

RoHS

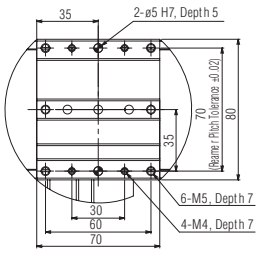
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

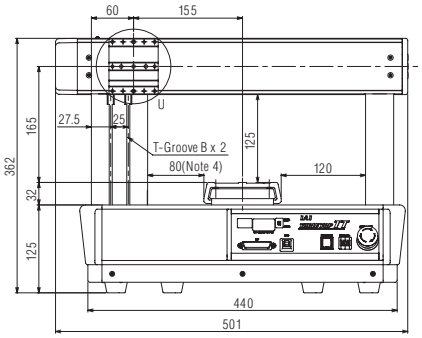


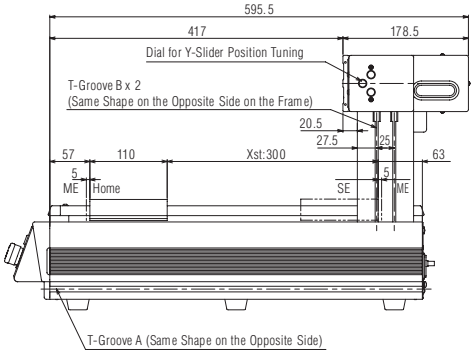


Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Y-axis Slider)





Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A2G-40-40

Tabletop Robot Gate Type 2-axis Specification
XY-axis: 400mm

Model Specification Items

TTA — □ — I — 40 — □ — 40 — □ — □ — □ — □ — □ — □ — □ — □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A2G: 2-axis global specification (Gate type)		I: Incremental specification	40: 400mm	HS: Home confirmation sensor NM: Reversed-home specification	40: 400mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A2G-I-40 ① -40 ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧	X-axis	Incremental	Pulse motor	24 or equiv.	400	1 ~800	20
	Y-axis			24 or equiv.	400	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	40kg
Actuator weight	37kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

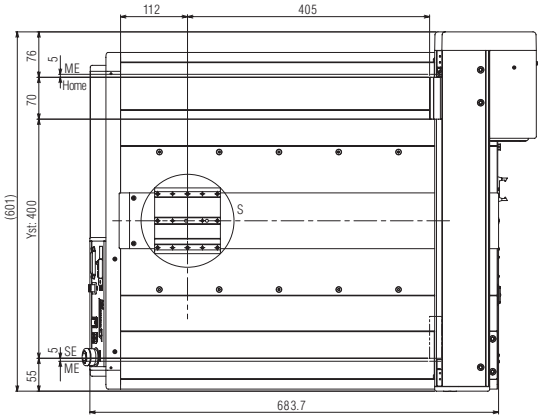
You can download CAD drawings from our website.

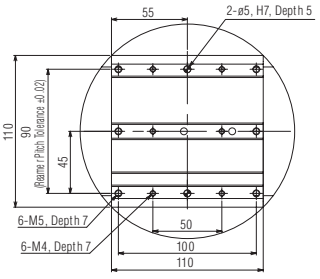
2D CAD

RoHS

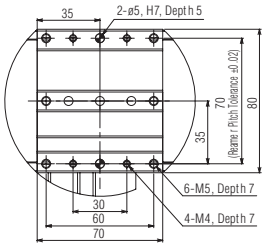
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

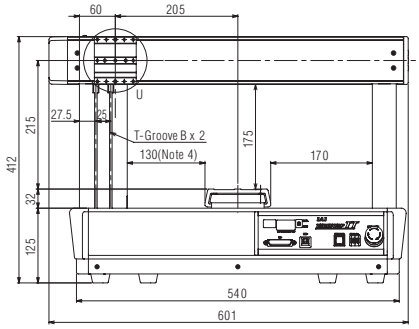


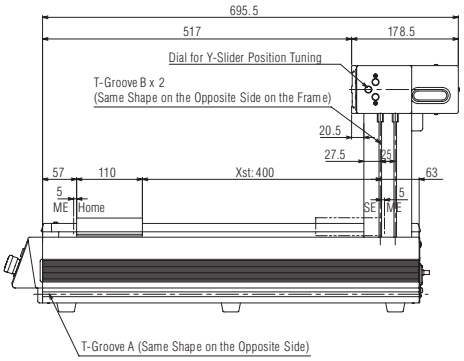


Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Y-axis Slider)





Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A2G-50-50

Tabletop Robot Gate Type 2-axis Specification
XY-axis: 500mm

Model Specification Items

TTA — □ — I — 50 □ — 50 □ — □ — □ — □ — □ — □ — □ — □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A2G: 2-axis global specification (Gate type)		I: Incremental specification	50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	50: 500mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A2G-I-50 ①-50 ②-③-④-⑤-⑥-⑦-⑧	X-axis	Incremental	Pulse motor	24 or equiv.	500	1 ~800	20
	Y-axis			24 or equiv.	500	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	50kg
Actuator weight	44kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

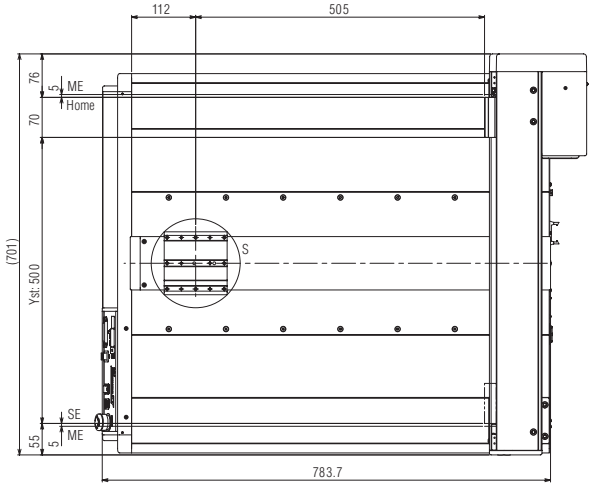
You can download CAD drawings from our website.

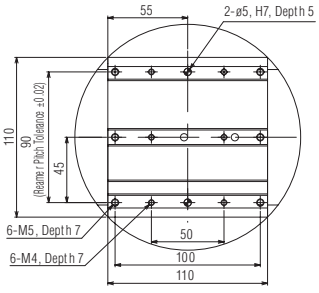
2D CAD

RoHS

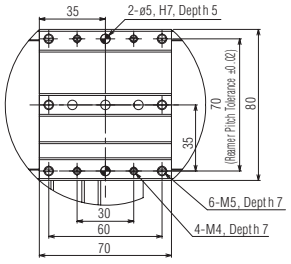
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

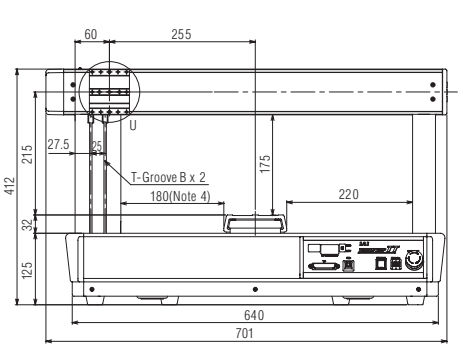


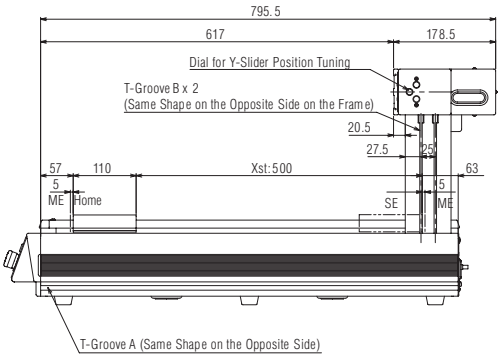


Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Y-axis Slider)





Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-C2G-20-15

Tabletop Robot Cantilever Type 2-axis Specification
X-axis: 200mm, Y-axis: 150mm

Model Specification Items

TTA – □ – I – 20 □ – 15 □ – □ – □ – □ – □ – □ —— □ —— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C2G: 2-axis global specification (Cantilever type)	I: Incremental specification	20: 200mm	HS: Home confirmation sensor NM: Reversed-home specification	15: 150mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C2G-I-20 ①-15 ②-③-④-⑤-⑥-⑦-⑧	X-axis	Incremental	Pulse motor	24 or equiv.	200	1 ~600	-
	Y-axis			24 or equiv.	150	1 ~540	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	40kg
Actuator weight	25kg

Dimensions

You can download CAD drawings from our website.

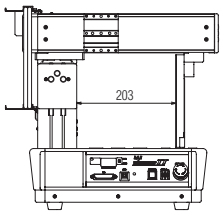
2D CAD

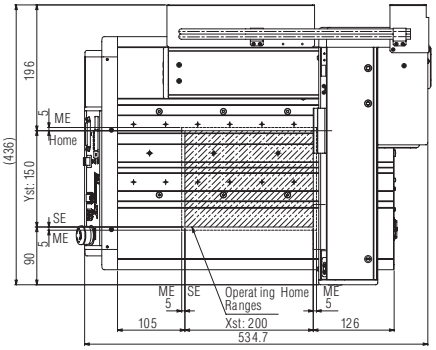
RoHS

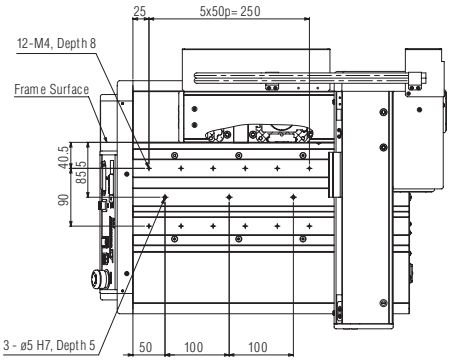
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

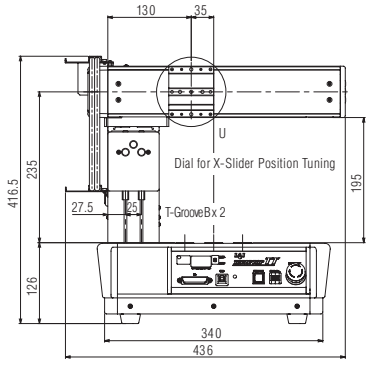
■AP (Additional Pillar Option) Dimensions

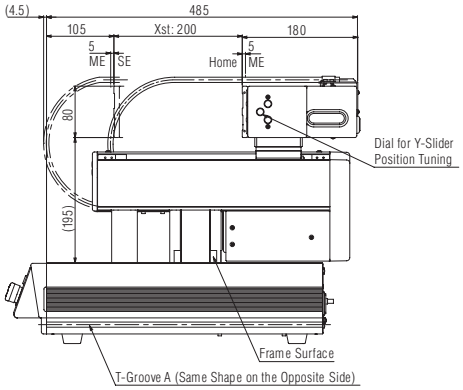


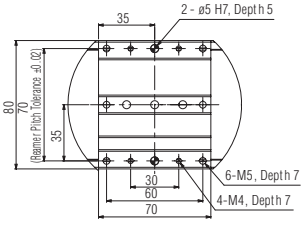




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Y-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

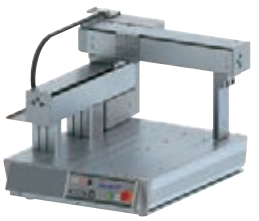
(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C2G-30-25

Tabletop Robot Cantilever Type 2-axis Specification
X-axis: 300mm, Y-axis: 250mm



Model Specification Items

TTA – □ – I – 30 □ – 25 □ – □ – □ – □ – □ – □ – □ ——— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C2G: 2-axis global specification (Cantilever type)	I: Incremental specification	30: 300mm	HS: Home confirmation sensor NM: Reversed-home specification	25: 250mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C2G-I-30 ① -25 ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧	X-axis	Incremental	Pulse motor	24 or equiv.	300	1 ~700	–
	Y-axis			24 or equiv.	250	1 ~640	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	60kg
Actuator weight	33kg

Dimensions

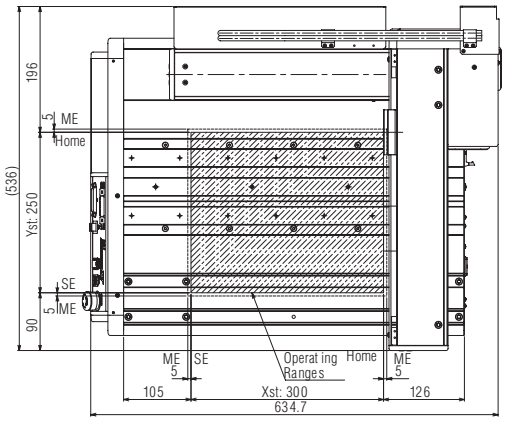
You can download CAD drawings from our website.

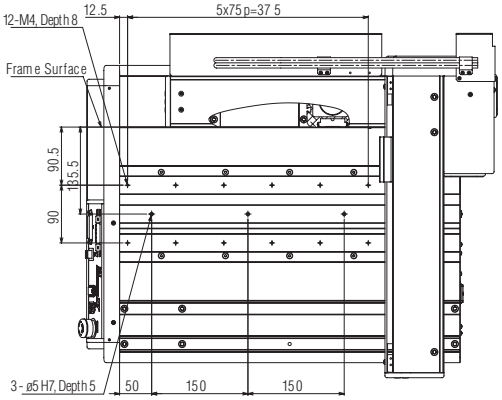
2D CAD

RoHS

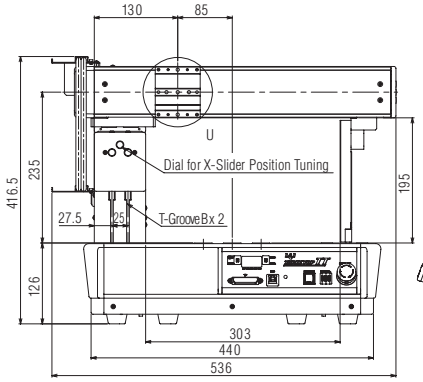
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

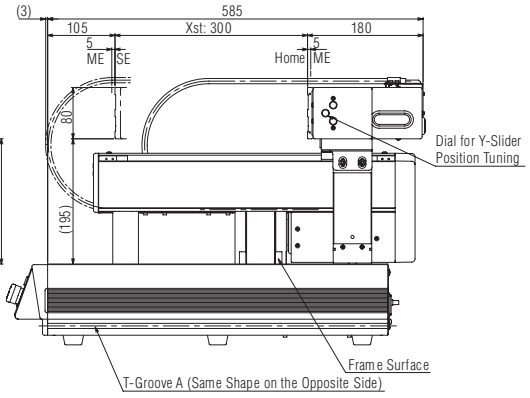
SE: Stroke end
ME: Mechanical end

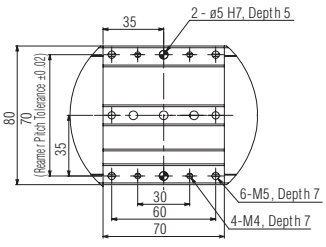




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Y-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C2G-40-35

Tabletop Robot Cantilever Type 2-axis Specification
X-axis: 400mm, Y-axis: 350mm

Model Specification Items

TTA – □ – I – 40 □ – 35 □ – □ – □ – □ – □ – □ – □ ——— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C2G: 2-axis global specification (Cantilever type)	I: Incremental specification	40: 400mm	HS: Home confirmation sensor NM: Reversed-home specification	35: 350mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C2G-I-40 ①-35 ②-③-④-⑤-⑥-⑦-⑧	X-axis	Incremental	Pulse motor	24 or equiv.	400	1 ~800	–
	Y-axis			24 or equiv.	350	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	80kg
Actuator weight	40kg

Dimensions

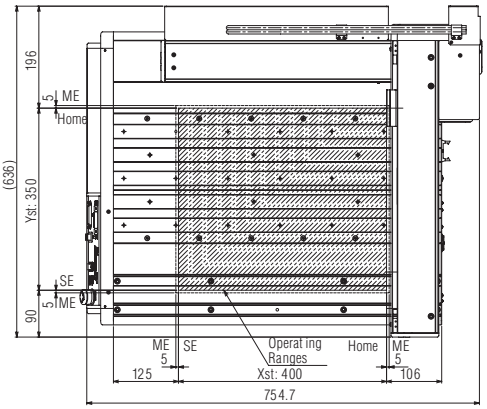
You can download CAD drawings from our website.

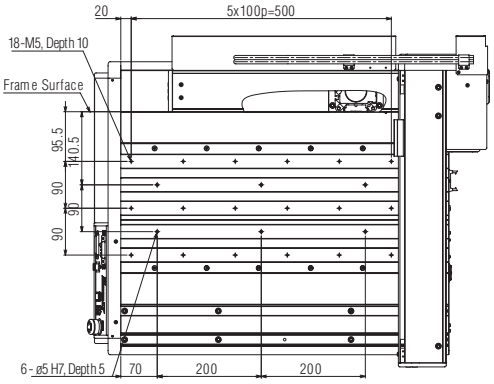
2D CAD

RoHS

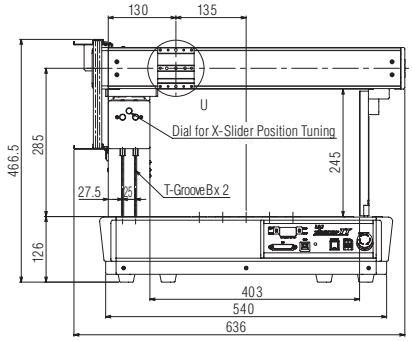
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

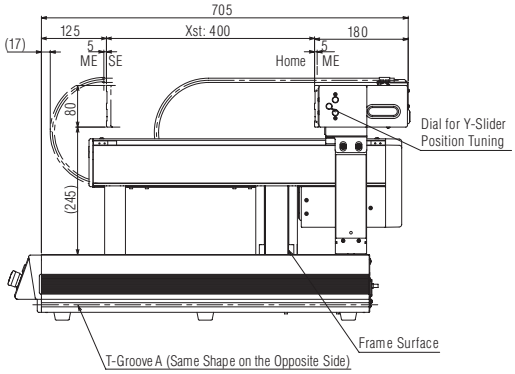
SE: Stroke end
ME: Mechanical end

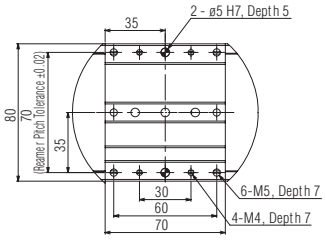




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Y-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.
(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C2G-50-45

Tabletop Robot Cantilever Type 2-axis Specification
X-axis: 500mm, Y-axis: 450mm

Model Specification Items

TTA – □ – I – 50 □ – 45 □ – □ – □ – □ – □ – □ —— □ —— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C2G: 2-axis global specification (Cantilever type)	I: Incremental specification	50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	45: 450mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below.		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C2G-I-50 ① -45 ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧	X-axis	Incremental	Pulse motor	24 or equiv.	500	1 ~800	–
	Y-axis			24 or equiv.	450	1 ~800	10

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the standard I/O slot, ④ and ⑤ indicate the expansion I/O slots, ⑥ indicates the I/O cable length, ⑦ indicates the power supply cable specification, and ⑧ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	Ballscrew (ø12mm, rolled C10) Speed increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Y-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	100kg
Actuator weight	47kg

Dimensions

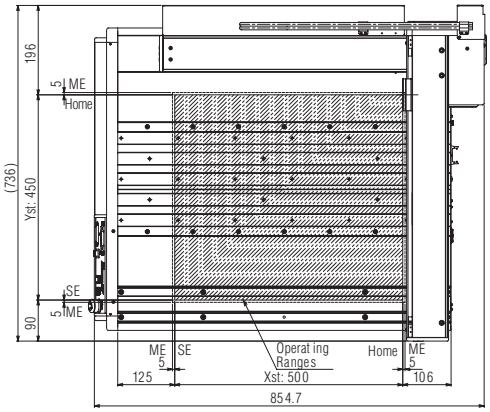
You can download CAD drawings from our website.

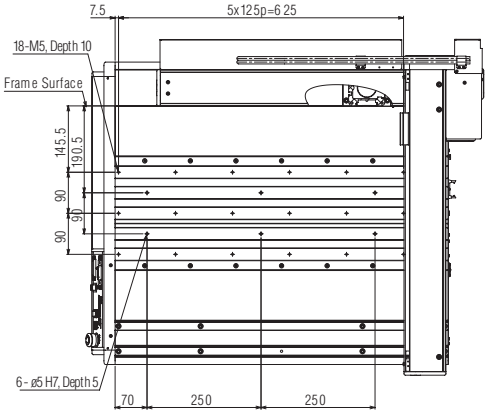
2D CAD

RoHS

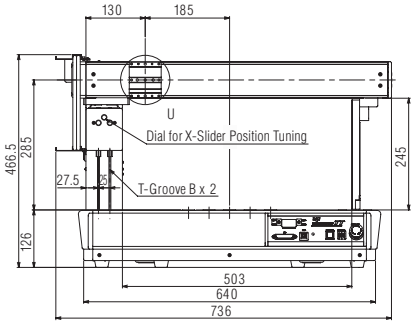
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

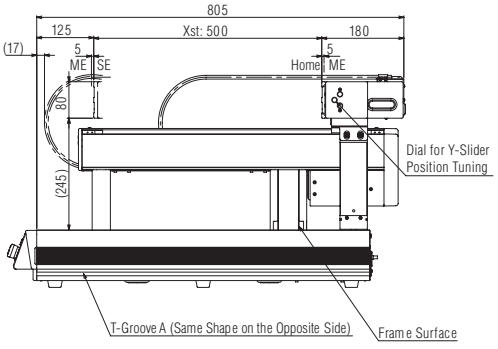
SE: Stroke end
ME: Mechanical end

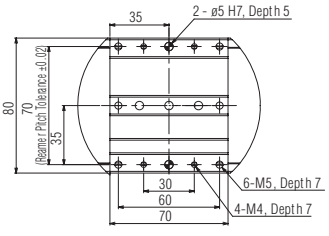




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Y-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	2 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-A3G-20-20

Tabletop Robot Gate Type 3-axis Specification
XY-axis: 200mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – □ – I – 20 □ – 20 □ – □ □ – □ □ - □ - □ - □ — □ — □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A3G: 3-axis global specification (Gate type)		I: Incremental specification	20: 200mm		20: 200mm		10: 100mm 15: 150mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

HS: Home confirmation sensor
NM: Reversed-home specification

B: Brake (Standard)
HS: Home confirmation sensor
NM: Reversed-home specification

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A3G-I-20 ①-20 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	200	1~800	20
	Y-axis			24 or equiv.	200	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	20kg
Actuator weight	27kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

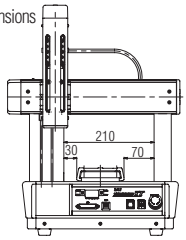
Dimensions

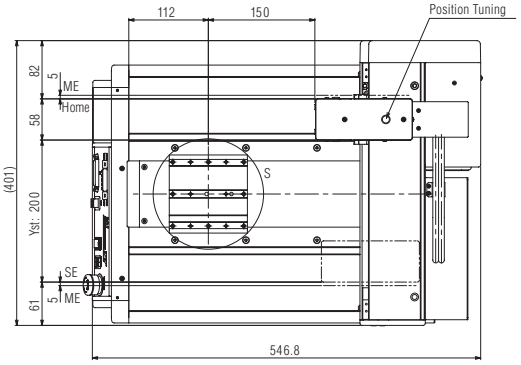
You can download CAD drawings from our website.

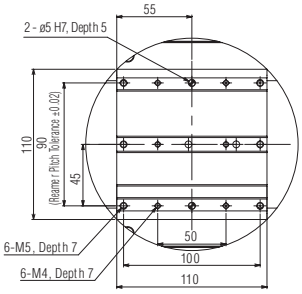
2D CAD

RoHS

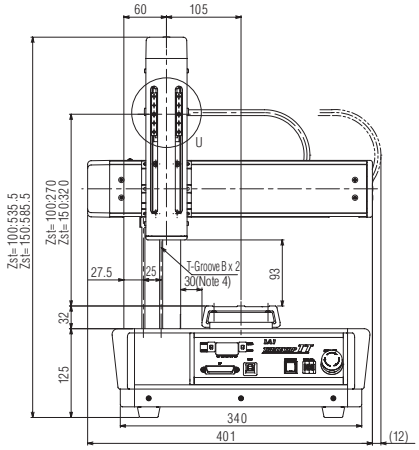
■AP (Additional Pillar Option) Dimensions

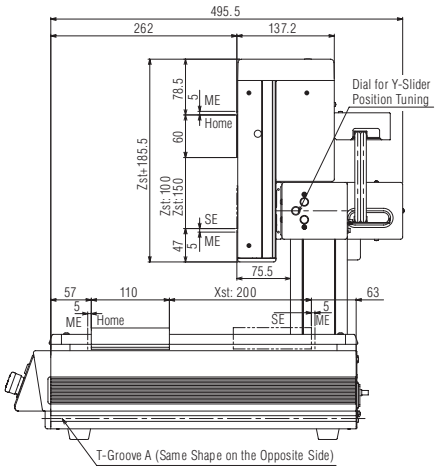


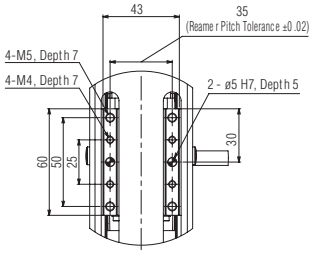




Detailed Diagram S (Detail of X-axis Slider)







Detailed Diagram U (Detail of Z-axis Slider)

* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A3G-30-30

Tabletop Robot Gate Type 3-axis Specification
XY-axis: 300mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – □ – I – 30 □ – 30 □ – □ □ – □ – □ - □ - □ — □ — □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A3G: 3-axis global specification (Gate type)		I: Incremental specification	30: 300mm		30: 300mm		10: 100mm 15: 150mm		NP: NPN specification PN: PNP specification			0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

X-axis option: HS: Home confirmation sensor; NM: Reversed-home specification

Z-axis option: B: Brake (Standard); HS: Home confirmation sensor; NM: Reversed-home specification

Expansion I/O slot 1 / 2: Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A3G-I-30 ①-30 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	300	1~800	20
	Y-axis			24 or equiv.	300	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	30kg
Actuator weight	34kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

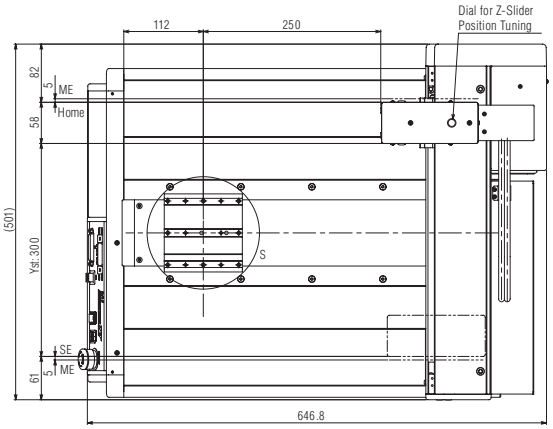
You can download CAD drawings from our website.

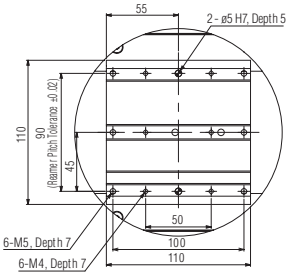
2D CAD

RoHS

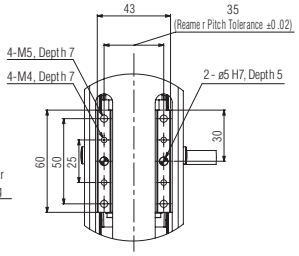
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

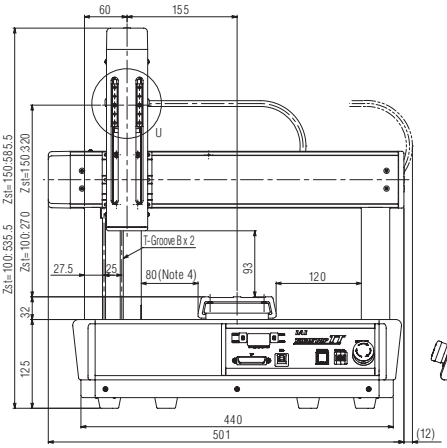


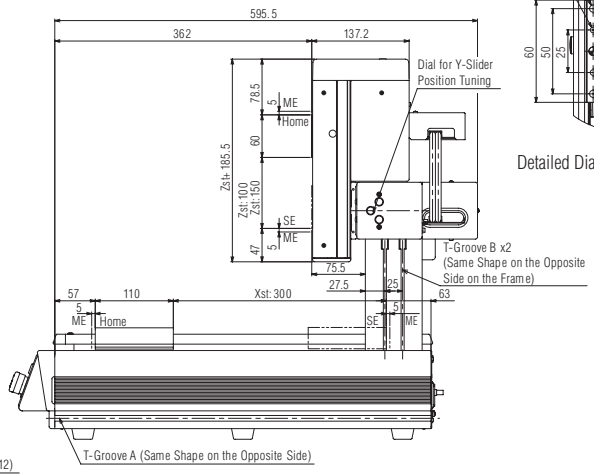


Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Y-axis Slider)





Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A3G-40-40

Tabletop Robot Gate Type 3-axis Specification
XY-axis: 400mm, Z-axis: 100mm/150mm

Model Specification Items

TTA — ☐ — I — 40 ☐ — 40 ☐ — ☐ ☐ — ☐ — ☐ - ☐ - ☐ - ☐ — ☐ — ☐

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A3G: 3-axis global specification (Gate type)		I: Incremental specification	40: 400mm		40: 400mm		10: 100mm 15: 150mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

HS: Home confirmation sensor
NM: Reversed-home specification

B: Brake (Standard)
HS: Home confirmation sensor
NM: Reversed-home specification

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A3G-I-40 ①-40 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	400	1~800	20
	Y-axis			24 or equiv.	400	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	40kg
Actuator weight	40kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

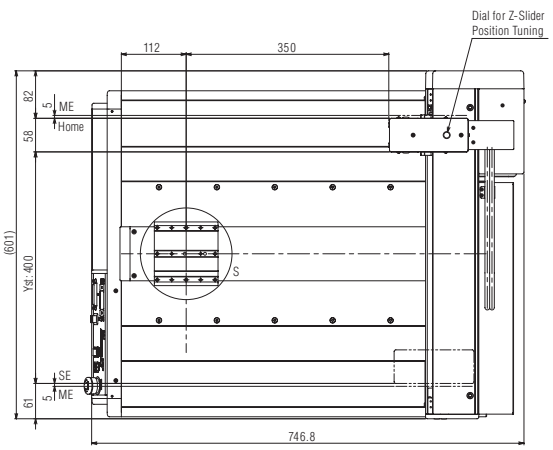
You can download CAD drawings from our website.

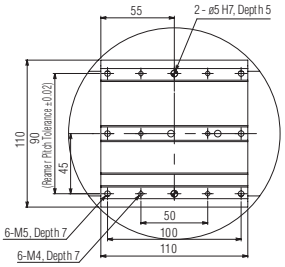
2D CAD

RoHS

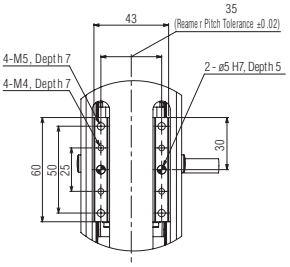
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

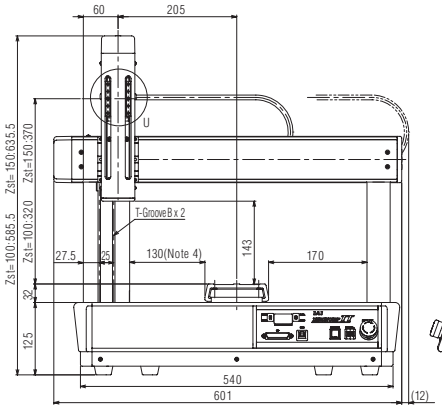


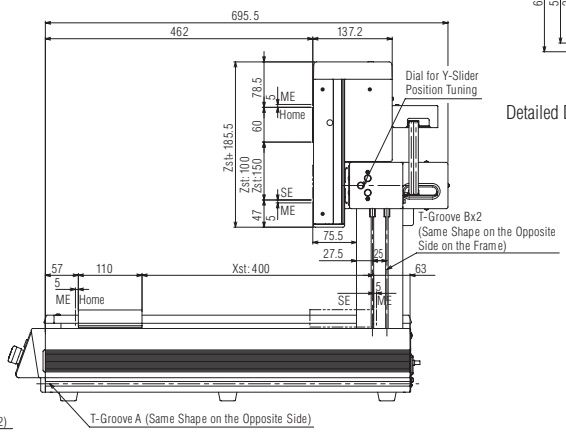


Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Z-axis Slider)





Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

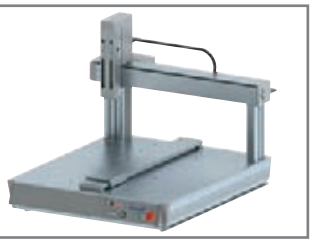
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A3G-50-50

Tabletop Robot Gate Type 3-axis Specification
XY-axis: 500mm, Z-axis: 100mm/150mm



Model Specification Items

TTA –	□ –	I –	50	□ –	50	□ –	□	□ –	□	□ -	□	- □	- □	— □	— □	— □
Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification		Option	

- Series: A3G: 3-axis global specification (Gate type)
- Type: I: Incremental specification
- Encoder type: 50: 500mm
- X-axis stroke: 50: 500mm
- X-axis option / Y-axis stroke / Y-axis option: HS: Home confirmation sensor; NM: Reversed-home specification
- Z-axis stroke: 10: 100mm; 15: 150mm
- Z-axis option: B: Brake (Standard); HS: Home confirmation sensor; NM: Reversed-home specification
- Standard I/O slot: NP: NPN specification; PN: PNP specification
- Expansion I/O slot 1 / Expansion I/O slot 2: Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."
- I/O cable length: 0: None; 2: 2m; 3: 3m; 5: 5m
- Power supply cable specification: PU: Mating plug (No cable); 2: Power supply cable for 230 VAC (2m)
- Option: Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-A3G-I-50 ①-50 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	500	1~800	20
	Y-axis			24 or equiv.	500	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	50kg
Actuator weight	47kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Dimensions

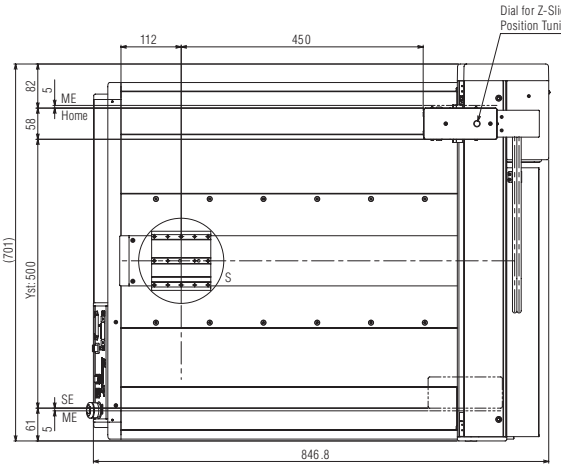
You can download CAD drawings from our website.

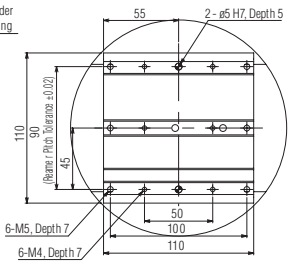
2D CAD

RoHS

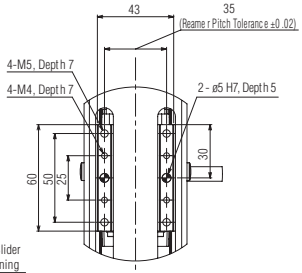
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

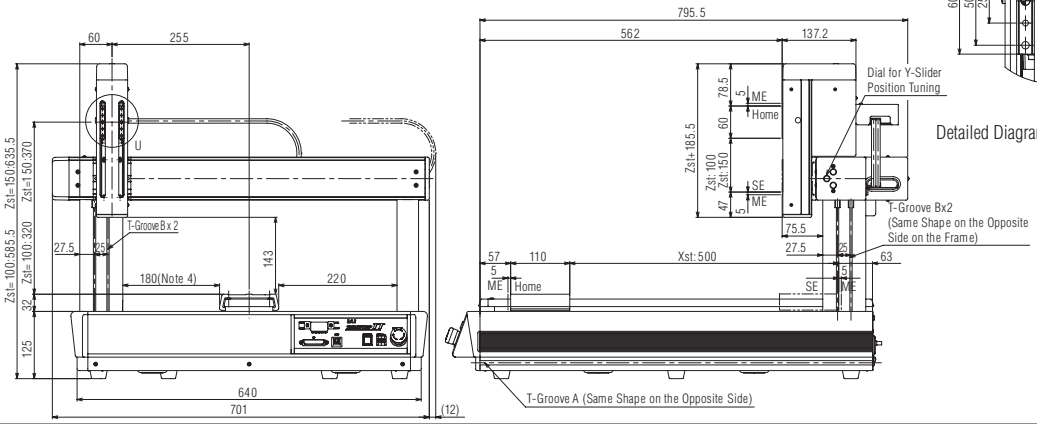




Detailed Diagram S (Detail of X-axis Slider)



Detailed Diagram U (Detail of Y-axis Slider)



Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-C3G-20-15

Tabletop Robot Cantilever Type 3-axis Specification
X-axis: 200mm, Y-axis: 150mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – □ – I – 20 □ – 15 □ – □ □ – □ – □ □ – □ – □ – □ – □ □ – □ ——— □ ——— □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA: C3G: 3-axis global specification (Cantilever type)	□	I: Incremental specification	20: 200mm	□ HS: Home confirmation sensor NM: Reversed-home specification	15: 150mm	□	10: 100mm 15: 150mm	□ B: Brake (Standard) HS: Home confirmation sensor NM: Reversed-home specification	NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C3G-I-20 ①-15 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	200	1~600	–
	Y-axis			24 or equiv.	150	1~540	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	40kg
Actuator weight	29kg

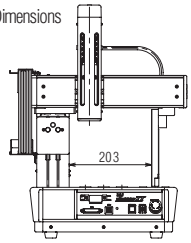
Dimensions

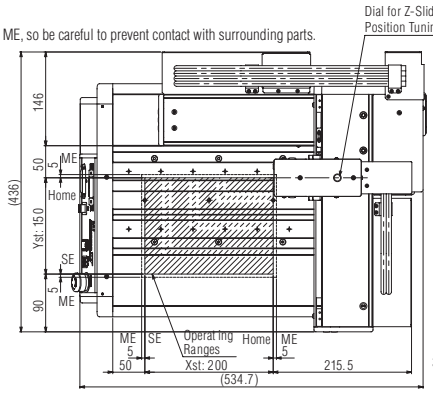
You can download CAD drawings from our website.

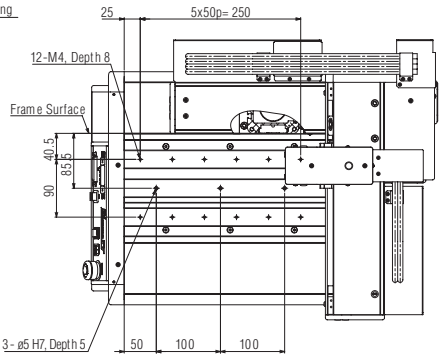
2D CAD RoHS

* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.
  SE: Stroke end
  ME: Mechanical end

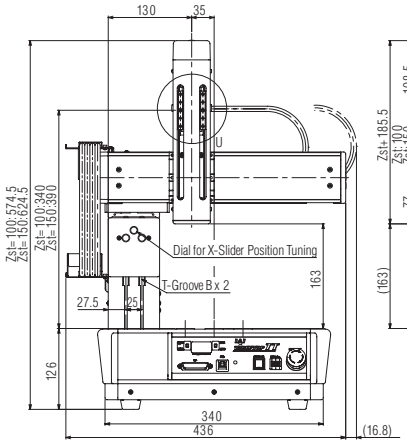
■AP (Additional Pillar Option) Dimensions

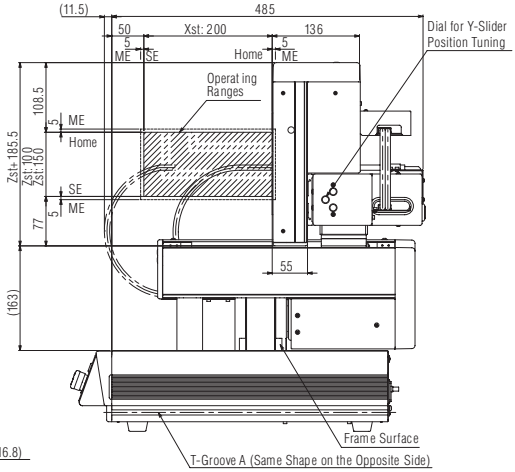


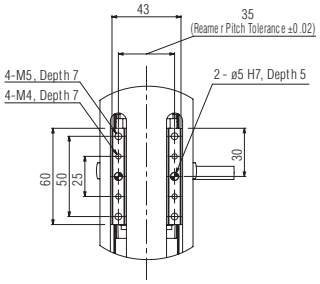




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Z-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.
(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C3G-30-25

Tabletop Robot Cantilever Type 3-axis Specification
X-axis: 300mm, Y-axis: 250mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – □ – I – 30 □ – 25 □ – □ – □ – □ – □ – □ - □ - □ - □ – □ – □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C3G: 3-axis global specification (Cantilever type)	I: Incremental specification	30: 300mm		25: 250mm		10: 100mm 15: 150mm		NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

HS: Home confirmation sensor
NM: Reversed-home specification

B: Brake (Standard)
HS: Home confirmation sensor
NM: Reversed-home specification

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C3G-I-30 ①-25 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	300	1~700	–
	Y-axis			24 or equiv.	250	1~640	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	60kg
Actuator weight	37kg

Dimensions

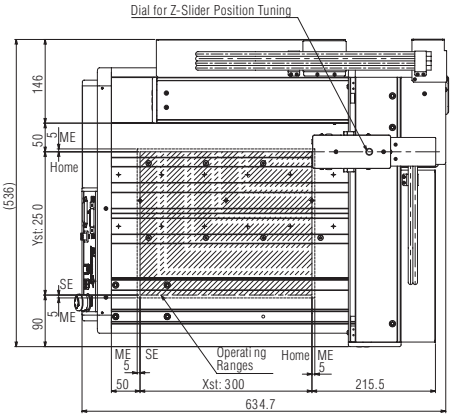
You can download CAD drawings from our website.

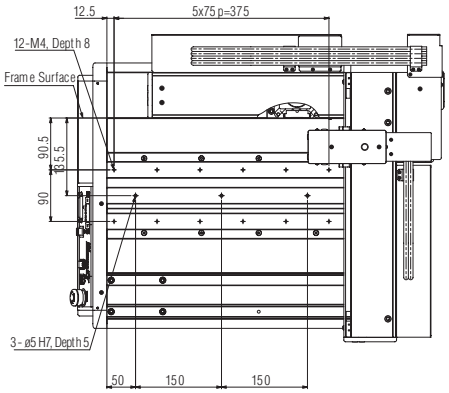
2D CAD

RoHS

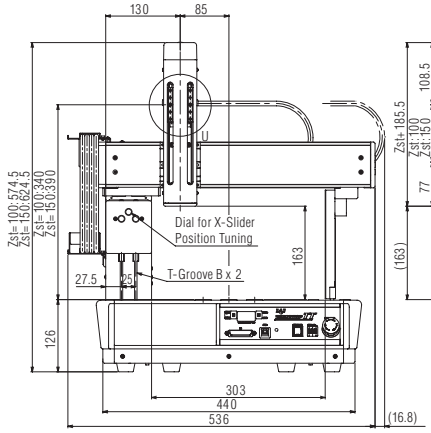
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

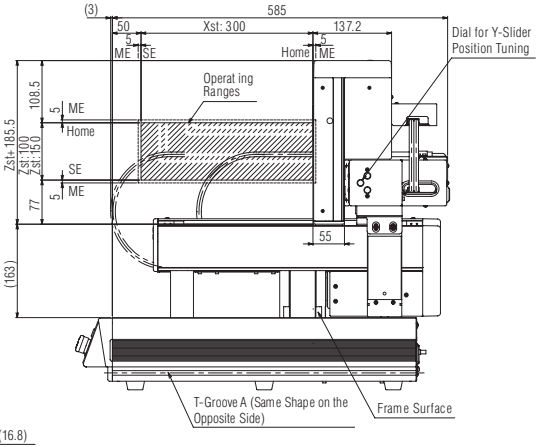
SE: Stroke end
ME: Mechanical end

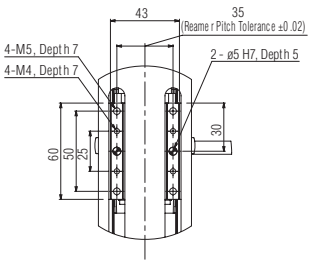




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Z-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.
(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C3G-40-35

Tabletop Robot Cantilever Type 3-axis Specification
X-axis: 400mm, Y-axis: 350mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – □ – I – 40 □ – 35 □ – □ □ – □ □ – □ – □ – □ – □ – □ – □ – □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C3G: 3-axis global specification (Cantilever type)	I: Incremental specification	40: 400mm		35: 350mm	HS: Home confirmation sensor NM: Reversed-home specification	10: 100mm 15: 150mm	B: Brake (Standard) HS: Home confirmation sensor NM: Reversed-home specification	NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C3G-I-40 ①-35 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	400	1~800	–
	Y-axis			24 or equiv.	350	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	80kg
Actuator weight	44kg

Dimensions

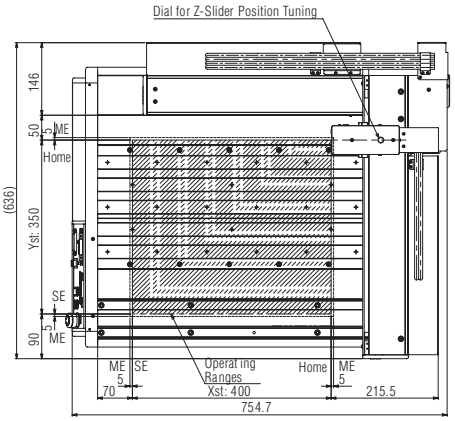
You can download CAD drawings from our website.

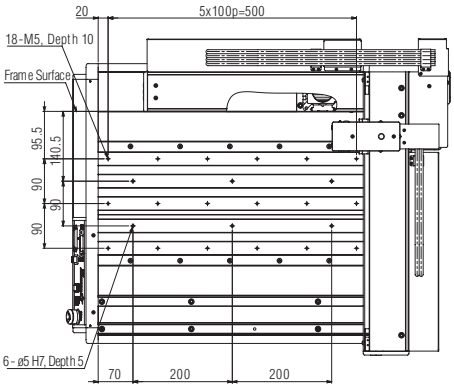
2D CAD

RoHS

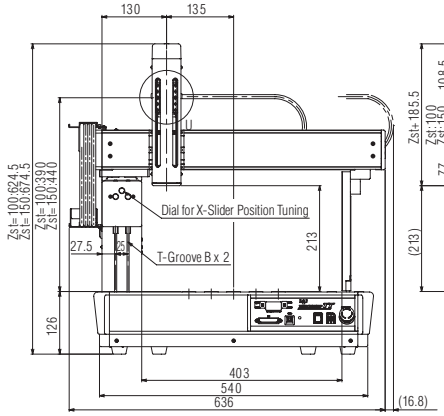
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

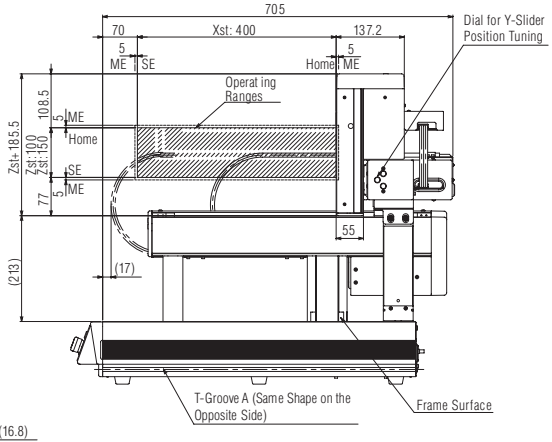
SE: Stroke end
ME: Mechanical end

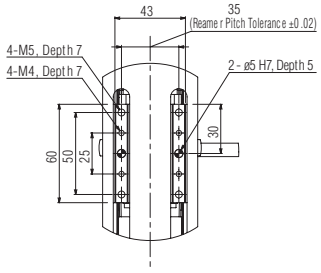




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Z-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.
(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C3G-50-45

Tabletop Robot Cantilever Type 3-axis Specification
X-axis: 500mm, Y-axis: 450mm, Z-axis: 100mm/150mm

Model Specification Items

TTA – ☐ – I – 50 ☐ – 45 ☐ – ☐ ☐ – ☐ ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
TTA	C3G: 3-axis global specification (Cantilever type)	I: Incremental specification	50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	45: 450mm		10: 100mm 15: 150mm	B: Brake (Standard) HS: Home confirmation sensor NM: Reversed-home specification	NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E."		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Encoder type	Motor type	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)
TTA-C3G-I-50 ①-45 ②-③B④-⑤-⑥-⑦-⑧-⑨-⑩	X-axis	Incremental	Pulse motor	24 or equiv.	500	1~800	–
	Y-axis			24 or equiv.	450	1~800	–
	Z-axis			12	100/150	1~400	6

* In the above model number, ① and ② indicate the XY-axis options, ③ indicates the Z-axis stroke, ④ indicates the Z-axis option(s), ⑤ indicates the standard I/O slot, ⑥ and ⑦ indicate the expansion I/O slots, ⑧ indicates the I/O cable length, ⑨ indicates the power supply cable specification, and ⑩ indicates the selected option(s).

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	±0.02mm (Note 2)
Lost motion	0.1mm or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	100kg
Actuator weight	51kg

Dimensions

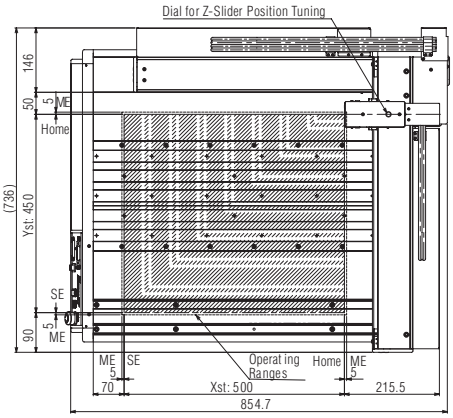
You can download CAD drawings from our website.

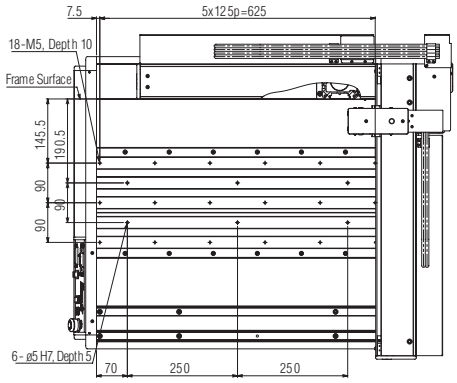
2D CAD

RoHS

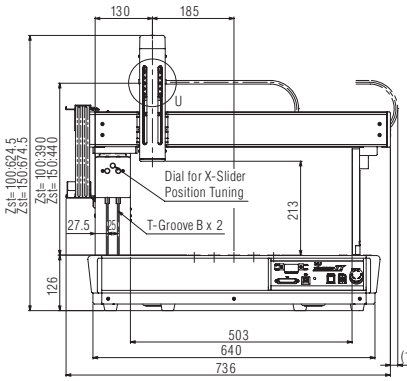
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

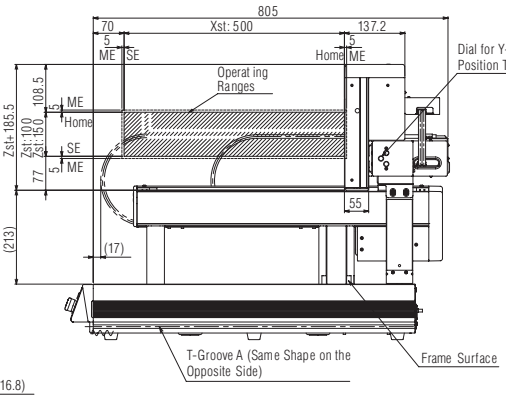
SE: Stroke end
ME: Mechanical end

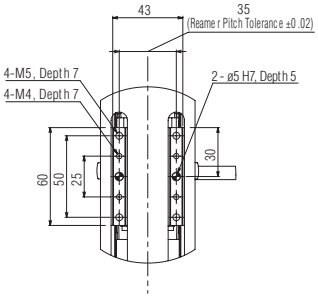




View for Top Base Hole Allocation







Detailed Diagram U (Detail of Z-axis Slider)

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	3 axes	Incremental	Program	230 VAC	→ P. 28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37.)

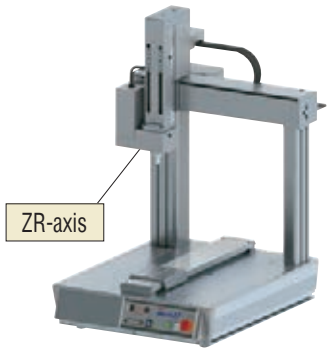
(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

Vertical Axis + Rotation

ZR Specification TTA-A4G

ZR Type with 4 axes is now added to the lineup of TTA Series (Gate Type).
It is equipped with rotary axis (R-axis) on the end of the vertical axis (Z-axis).



■Model Specification Items

TTA - □ — I - □ □ - □ □ - □ □ - □ □ — □ — □ — □ - □ - □ - □ - □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	R-axis stroke	R-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
A4G: 4-axis ZR type global specification		I: Incremental specification	20: 200mm 30: 300mm 40: 400mm 50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	20: 200mm 30: 300mm 40: 400mm 50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	10: 100mm 15: 150mm	B: Brake (Standard) CO: With cover HS: Home confirmation sensor NM: Reversed-home specification	18L: ±180deg. 36L: ±360deg. (Equipped with home limit switch)	ML: Motor Reversed to Left (Standard) MR: Motor Reversed to Right	NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E".		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)	Max. Load Moment of Inertia (kg·m²) (Note 1)
TTA-A4G-I-20□-20□	X-axis	24 or equiv.	200	1~800	20	–
	Y-axis	24 or equiv.	200	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-A4G-I-30□-30□	X-axis	24 or equiv.	300	1~800	20	–
	Y-axis	24 or equiv.	300	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-A4G-I-40□-40□	X-axis	24 or equiv.	400	1~800	20	–
	Y-axis	24 or equiv.	400	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-A4G-I-50□-50□	X-axis	24 or equiv.	500	1~800	20	–
	Y-axis	24 or equiv.	500	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	X/Y/Z-axis: ±0.02mm R-axis: ±0.015deg. (Note 2)
Lost motion	X/Y/Z-axis: 0.1mm or less R-axis: 0.06deg. or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 15.9Nm Mb: 15.9Nm Mc: 32.0Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Overhang load length	Z-axis: Ma: 75mm or less Mb: 180mm or less Mc: 180mm or less R-axis: Radius 100mm or less
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table*	20-20: 20kg 30-30: 30kg 40-40: 40kg 50-50: 50kg
Actuator weight	20-20: 28kg 30-30: 35kg 40-40: 41kg 50-50: 48kg

* Table part is defined as the top surface on the main body except for the slider part. It is not the payload of X-axis.

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	4 axes	Incremental	Program	230 VAC	→ P.28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37)
Note that the rotary axis may not be able to perform the maximum velocity depending on the value of the load moment of inertia. (Refer to P. 38)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

(Note 4) Secure 2mm or more to the main body frames when mounting a work piece on X slider.

TTA-A4G - □ - □

Dimensions

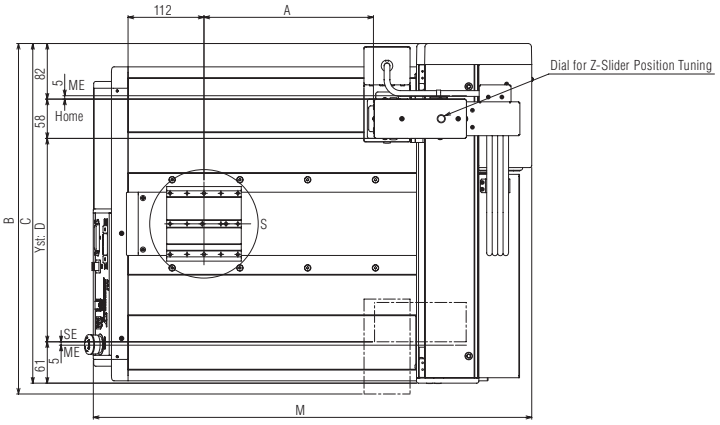
You can download CAD drawings from our website.

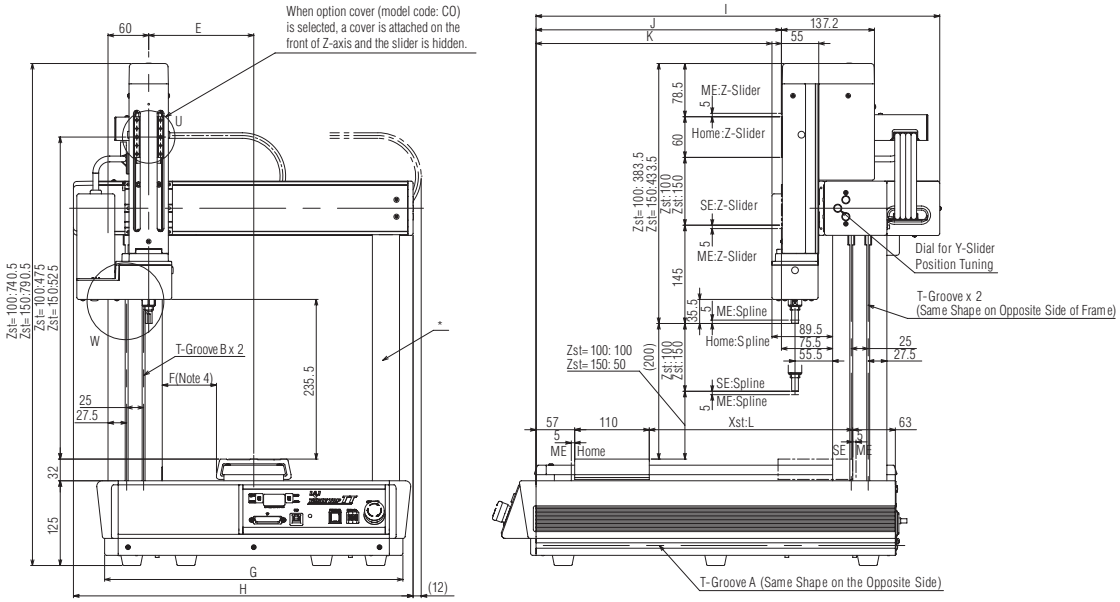
2D CAD

RoHS

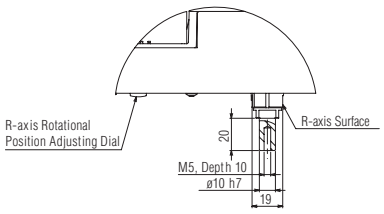
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

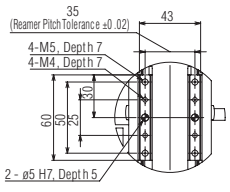




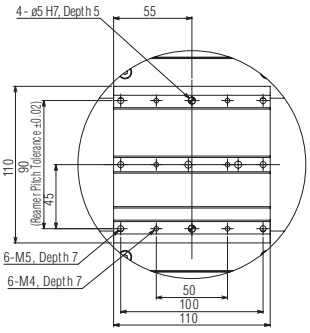
* Does not apply to 2020 type



Detailed Diagram W
(Detail of R Spline End)



Detailed Diagram U
(Detail of Z-axis Slider)



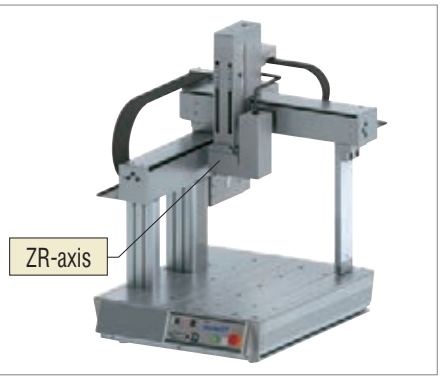
Detailed Diagram S
(Detail of X-axis Slider)

Stroke type	2020	3030	4040	5050
A	150	250	350	450
B	417	517	617	717
C	401	501	601	701
D	200	300	400	500
E	105	155	205	255
F	30	80	130	180
G	340	440	540	640
H	401	501	601	701
I	495.5	595.5	695.5	795.5
J	262	362	462	562
K	248	348	448	548
L	200	300	400	500
M	546.8	646.8	746.8	846.8

Vertical Axis + Rotation

ZR Specification TTA-C4G

ZR Type with 4 axes is now added to the lineup of TTA Series (Cantilever Type).
It is equipped with rotary axis (R-axis) on the end of the vertical axis (Z-axis).



■Model Specification Items

TTA - □ — I - □ □ - □ □ - □ □ - □ □ - □ — □ — □ - □ - □ — □ — □ - □

Series	Type	Encoder type	X-axis stroke	X-axis option	Y-axis stroke	Y-axis option	Z-axis stroke	Z-axis option	R-axis stroke	R-axis option	Standard I/O slot	Expansion I/O slot 1	Expansion I/O slot 2	I/O cable length	Power supply cable specification	Option
C4G: 4-axis ZR type global specification		I: Incremental specification	20: 200mm 30: 300mm 40: 400mm 50: 500mm	HS: Home confirmation sensor NM: Reversed-home specification	15: 150mm 25: 250mm 35: 350mm 45: 450mm	HS: Home confirmation sensor NM: Reversed-home specification	10: 100mm 15: 150mm	B: Brake (Standard) CO: With cover HS: Home confirmation sensor NM: Reversed-home specification	18L: ±180deg. 36L: ±360deg. (Equipped with home limit switch)	MR: Motor Reversed to Right (Standard)	NP: NPN specification PN: PNP specification	Refer to the expansion I/O slot table below. * If the expansion I/O slot is not used, enter "E".		0: None 2: 2m 3: 3m 5: 5m	PU: Mating plug (No cable) 2: Power supply cable for 230 VAC (2m)	Refer to P. 6

* Refer to P. 6 for the details of model specification items.

Model/Specifications

Model number	Axis configuration	Lead (mm)	Stroke (mm)	Speed (mm/sec)	Payload (kg) (Note 1)	Max. Load Moment of Inertia (kg·m²) (Note 1)
TTA-C4G-I-20 □-15 □	X-axis	24 or equiv.	200	1~600	–	–
	Y-axis	24 or equiv.	150	1~540	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-C4G-I-30 □-25 □	X-axis	24 or equiv.	300	1~700	–	–
	Y-axis	24 or equiv.	250	1~640	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-C4G-I-40 □-35 □	X-axis	24 or equiv.	400	1~800	–	–
	Y-axis	24 or equiv.	350	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01
TTA-C4G-I-50 □-45 □	X-axis	24 or equiv.	500	1~800	–	–
	Y-axis	24 or equiv.	450	1~800	–	–
	Z-axis	12	100/150	1~400	6	–
	R-axis	–	18L: ±180deg. 36L: ±360deg.	1000deg./s		0.01

Expansion I/O Slot

Name	Model	
Not used	E	
Expansion PIO board (NPN specification)	NP	
Expansion PIO board (PNP specification)*	PN	
DeviceNet connection board	DV	
CC-Link connection board	CC	
PROFIBUS-DP connection board	PR	
EtherNet/IP connection board	EP	

* Coming soon

Common Specifications

Drive system	X/Y/Z-axis ballscrew (X/Y-axis: ø12mm, Z-axis: ø10mm, rolled C10) X-axis and Y-axis speeds increased at 1.5:1 using a timing belt
Positioning repeatability	X/Y/Z-axis: ±0.02mm R-axis: ±0.015deg. (Note 2)
Lost motion	X/Y/Z-axis: 0.1mm or less R-axis: 0.06deg. or less
Guide	Ball-circulation type linear guide
Dynamic allowable moment (Note 3)	X-axis: Ma: 12.6Nm Mb: 12.6Nm Mc: 37.4Nm Z-axis: Ma: 9.7Nm Mb: 9.7Nm Mc: 20.5Nm
Overhang load length	Z-axis: Ma: 75mm or less Mb: 180mm or less Mc: 180mm or less R-axis: Radius 100mm or less
Ambient temperature/humidity	0 to 40°C, 85% RH max. (non-condensing)
Loadable weight on table	20-15: 40kg 30-25: 60kg 40-35: 80kg 50-45: 100kg
Actuator weight	20-15: 36kg 30-25: 41kg 40-35: 48kg 50-45: 56kg

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Encoder type	Method of operation	Power-supply voltage	Page
Built-in	4 axes	Incremental	Program	230 VAC	→ P.28

Caution

(Note 1) The maximum speed cannot be achieved based on the maximum payload setting. The payload decreases when the speed is increased. Also note that the maximum acceleration/deceleration varies depending on the payload. (Refer to P. 37)
Note that the rotary axis may not be able to perform the maximum velocity depending on the value of the load moment of inertia. (Refer to P. 38)

(Note 2) It is limited to when the actuator temperature is constant. It does not guarantee the absolute accuracy.

(Note 3) The dynamic allowable moment is a value of each axis assuming a traveling life of 5000km. (Refer to P. 7 for the dynamic allowable moment.)

TTA-C4G - □ - □

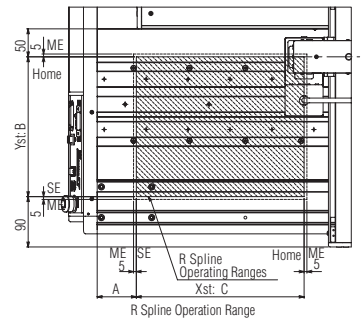
Dimensions

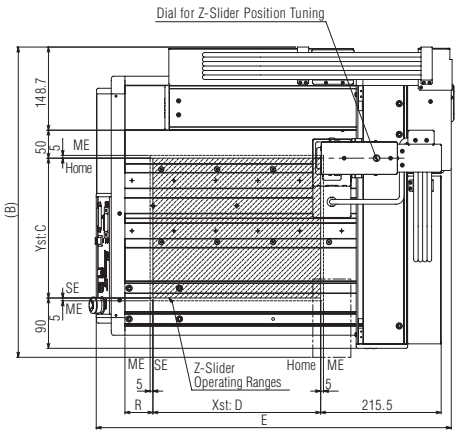
You can download CAD drawings from our website.

2D CAD RoHS

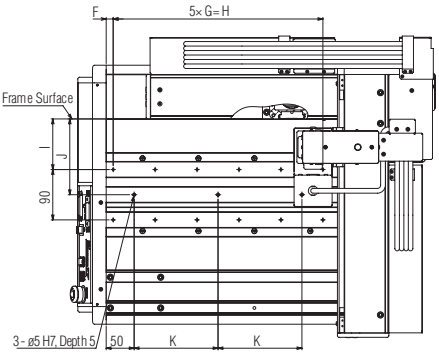
* Refer to P. 7 for dimensions of T-groove.
* During home return, the slider moves to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

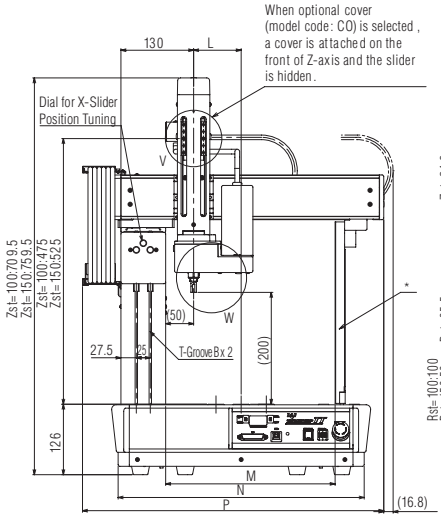




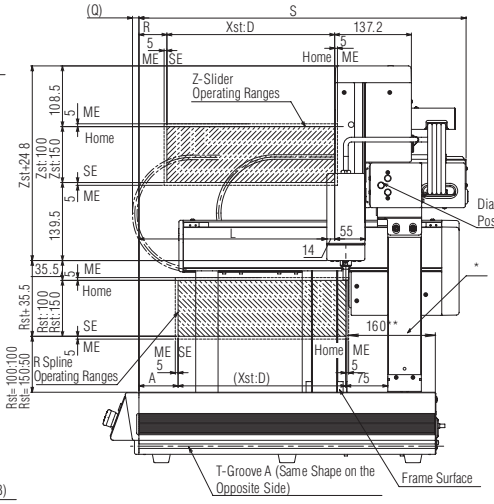
2015 / 3025 stroke type



View for Top Base Hole Allocation

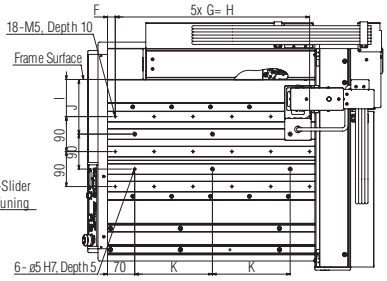


* Does not apply to 2015 type

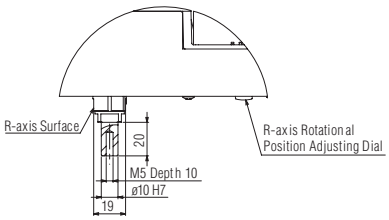


* Does not apply to 2015 type
** When 2015 type is selected

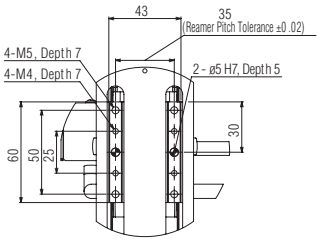
4035 / 5045 stroke type



View for Top Base Hole Allocation



Detailed Diagram W (Detail of R Spline End)



Detailed Diagram V (Detail of Z-axis Slider)

Stroke type	2015	3025	4035	5045
A	70	70	90	90
B	454.8	554.8	654.8	754.8
C	150	250	350	450
D	200	300	400	500
E	534.8	634.8	754.8	854.8
F	25	12.5	20	7.5
G	50	75	100	125
H	250	375	500	625
I	40.5	90.5	95.5	145.5
J	85.5	135.5	140.5	190.5
K	100	150	200	250
L	35	85	135	185
M	–	303	403	503
N	340	440	540	640
P	438.7	538.7	638.7	738.7
Q	11.5	11.5	-17	-17
R	50	50	70	70
S	485	585	705	805
T	236	336	456	556

Controller Specifications

Controller Specifications

Item			
Motor type			Pulse motor (Servo control)
Applicable encoder			Incremental encoder
Data-storage device			Flash ROM/FRAM
Number of program steps			9999
Number of positions			30000
Number of programs			255
Number of multi-tasking programs			16
Operation mode	Serial communication		○
	Program		○
	Positioner		—
	Pulse train		—
SIO interface	Communication method		RS232
	Baud rate		9.6, 19.2, 38.4, 57.6, 76.8, 115.2kbps
	Live wire insertion/removal	TP port	—
		USB	○
Standard I/O Interface	Input specification	Number of input	16 points
		Input voltage	DC24V ±10%
		Input current	7mA per circuit
		ON voltage	Min. DC16V
		OFF voltage	Max. DC5V
		Leak current	Allowable leak current: 1mA max.
		Isolation method	Photocoupler isolation
	Output specification	Number of output	16 points
		Load voltage	DC24V ±10%
		Maximum current	100mA per point, 400mA per 8 points (Note 1)
		Saturated voltage	Max.3V
		Leak current	Max 0.1mA
		Isolation method	Photocoupler isolation
Conforming expansion I/O interface			Expansion PIO NPN specification (16IN/16OUT)
			Expansion PIO PNP specification (16IN/16OUT) (Note 2)
			CC-Link (remote device)
			DeviceNet
			PROFIBUS-DP
			EtherNet/IP
Brake output voltage			DC24V ±10%
Connectable brake power			Max.5W
Calendar/clock function	Retention time		Approx. 10 days
	Charge time		Approx. 100 hours
Protective functions			Monitoring of overcurrent, fan speed drop, etc.
Power supply capacity			230V: 1.2A

(Note 1) The total load current for every 8 points from Standard I/O No. 316 is 400mA. (The maximum value per point is 100mA.)
(Note 2) Coming soon.

PIO Signal Table

Standard PIO Connector Pin Layout

Pin No.	Classification	Assignment	Pin No.	Classification	Assignment
1A	24V *	P24	1B	Output	OUT0
2A	24V *	P24	2B		OUT1
3A	-	-	3B		OUT2
4A	-	-	4B		OUT3
5A	Input	IN0	5B		OUT4
6A		IN1	6B		OUT5
7A		IN2	7B		OUT6
8A		IN3	8B		OUT7
9A		IN4	9B		OUT8
10A		IN5	10B		OUT9
11A		IN6	11B		OUT10
12A		IN7	12B		OUT11
13A		IN8	13B		OUT12
14A		IN9	14B		OUT13
15A		IN10	15B		OUT14
16A		IN11	16B		OUT15
17A		IN12	17B	-	-
18A		IN13	18B	-	-
19A		IN14	19B	0V *	N
20A		IN15	20B	0V *	N

* [24V]/[0V] indicates the 24V power input when the service power output is OFF, or 24V power output when the service power output is ON.
* [24V]/[0V] must not be connected to an external power supply when the service power output is ON.

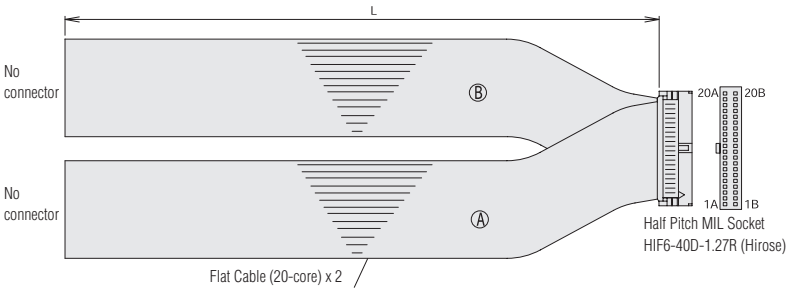
Expansion PIO Connector Pin Layout

Pin No.	Classification	Assignment	Pin No.	Classification	Assignment
1A	24V *	P24	1B	Output	OUT0
2A	24V *	P24	2B		OUT1
3A	-	-	3B		OUT2
4A	-	-	4B		OUT3
5A	Input	IN0	5B		OUT4
6A		IN1	6B		OUT5
7A		IN2	7B		OUT6
8A		IN3	8B		OUT7
9A		IN4	9B		OUT8
10A		IN5	10B		OUT9
11A		IN6	11B		OUT10
12A		IN7	12B		OUT11
13A		IN8	13B		OUT12
14A		IN9	14B		OUT13
15A		IN10	15B		OUT14
16A		IN11	16B		OUT15
17A		IN12	17B	-	-
18A		IN13	18B	-	-
19A		IN14	19B	0V *	N
20A		IN15	20B	0V *	N

* [24V]/[0V] (not connected to the service power) must be supplied with power even when the service power output is ON.

I/O cable (CB-PAC-PIO □□□)

* Enter the cable length (L) in □□□. Lengths up to 10 m are supported.
Example) 080 = 8 m



HIF6-40D-1.27R

No	Signal Name	Cable Color	Wiring	No	Signal Name	Cable Color	Wiring
1A	24V	Brown-1	Flat Cable Ⓐ (Crimped)	1B	OUT0	Brown-3	Flat Cable Ⓑ (Crimped) AWG28
2A	24V	Red-1		2B	OUT1	Red-3	
3A	-	Orange-1		3B	OUT2	Orange-3	
4A	-	Yellow-1		4B	OUT3	Yellow-3	
5A	IN0	Green-1		5B	OUT4	Green-3	
6A	IN1	Blue-1		6B	OUT5	Blue-3	
7A	IN2	Purple-1		7B	OUT6	Purple-3	
8A	IN3	Gray-1		8B	OUT7	Gray-3	
9A	IN4	White-1		9B	OUT8	White-3	
10A	IN5	Black-1		10B	OUT9	Black-3	
11A	IN6	Brown-2		11B	OUT10	Brown-4	
12A	IN7	Red-2		12B	OUT11	Red-4	
13A	IN8	Orange-2		13B	OUT12	Orange-4	
14A	IN9	Yellow-2		14B	OUT13	Yellow-4	
15A	IN10	Green-2		15B	OUT14	Green-4	
16A	IN11	Blue-2		16B	OUT15	Blue-4	
17A	IN12	Purple-2		17B	-	Purple-4	
18A	IN13	Gray-2		18B	-	Gray-4	
19A	IN14	White-2		19B	0V	White-4	
20A	IN15	Black-2		20B	0V	Black-4	

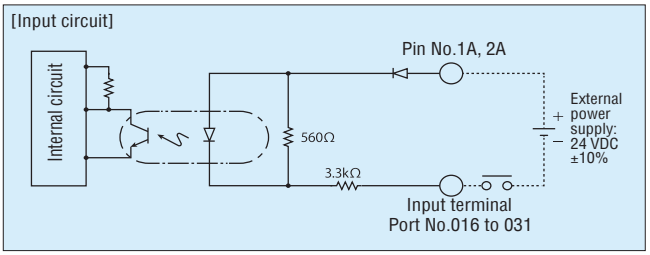
I/O Wiring Diagrams (Standard PIO)

■ Input Part: External input specification (NPN specification)

Item	Specification
Input voltage	24 VDC + 10%
Input current	7 mA/circuit
ON/OFF voltages	ON voltage---16.0 VDC min., OFF voltage---5.0 VDC max.
Isolation method	Photocoupler isolation

* The circuit diagram below assumes that the power is input externally (the service power output is OFF).
* In the circuit diagram below, the port numbers conform to the standard factory settings.
* The allowable leak current is 1 mA when the input is OFF.

[Input circuit]

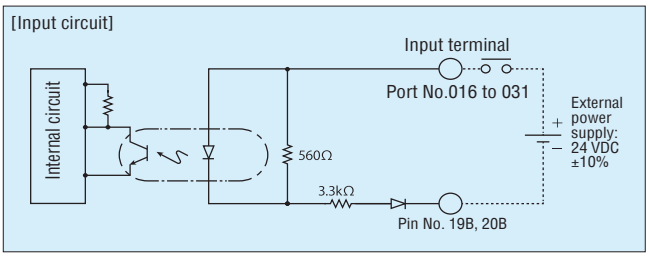


■ Input Part: External input specification (PNP specification)

Item	Specification
Input voltage	24 VDC + 10%
Input current	7 mA/circuit
ON/OFF voltages	ON voltage---8.0 VDC max., OFF voltage---19.0 VDC min.
Isolation method	Photocoupler isolation

* The circuit diagram below assumes that the power is input externally (the service power output is OFF).
* In the circuit diagram below, the port numbers conform to the standard factory settings.
* The allowable leak current is 1 mA when the input is OFF.

[Input circuit]

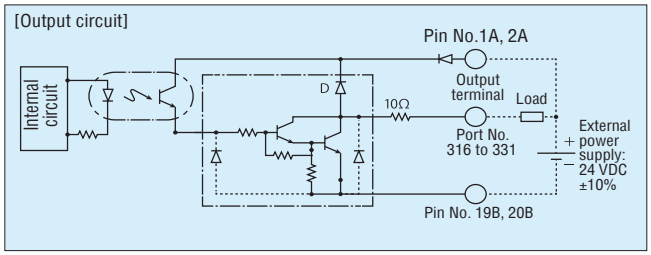


■ Output Part: External output specification (NPN specification)

Item	Specification	
Load voltage	24 VDC	TD62084 (or equivalent)
Maximum load current	100 mA/point, 400 mA/8 ports Note)	
Leak current	0.1 mA/point max.	
Isolation method	Photocoupler isolation	

* The circuit diagram assumes that the power is input externally (the service power output is OFF).
* In the circuit diagram below, the port numbers conform to the standard factory settings.
Note: The total load current for every 8 points from Standard I/O No. 316 is 400 mA. (Max. per point: 100 mA.)

[Output circuit]

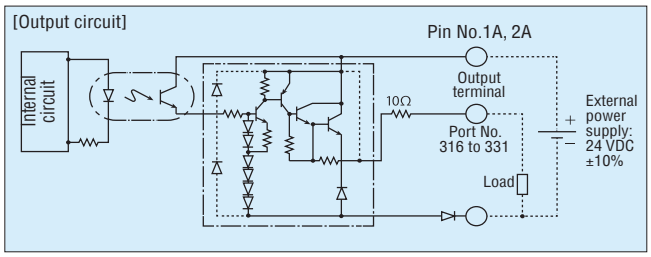


■ Output Part: External output specification (PNP specification)

Item	Specification	
Load voltage	24 VDC	TD62783 (or equivalent)
Maximum load current	100 mA/point, 400 mA/8 ports Note)	
Leak current	0.1 mA/point max.	
Isolation method	Photocoupler isolation	

* The circuit diagram assumes that the power is input externally (the service power output is OFF).
* In the circuit diagram below, the port numbers conform to the standard factory settings.
Note: The total load current for every 8 points from Standard I/O No. 316 is 400 mA. (Max. per point: 100 mA.)

[Output circuit]

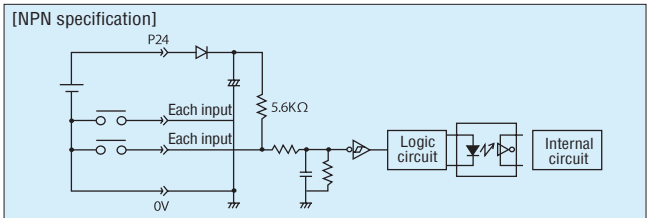


I/O Wiring Diagrams (Expansion PIO)

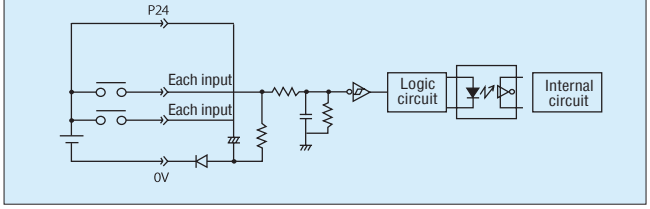
■ Input Part: External input specification

Item	Specification
Number of input	16 points
Input voltage	24 VDC + 10%
Input current	4 mA/circuit
ON/OFF voltages	ON voltage---18.0 VDC min. (3.5 mA), OFF voltage---6.0 VDC max. (1 mA)
Isolation method	Photocoupler isolation

[NPN specification]



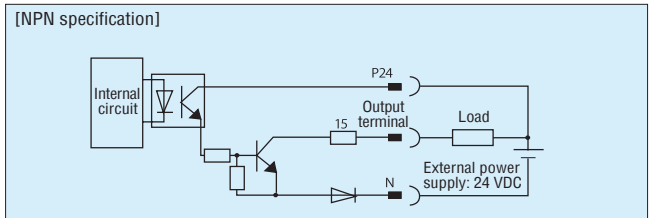
[PNP specification]* *Coming soon.



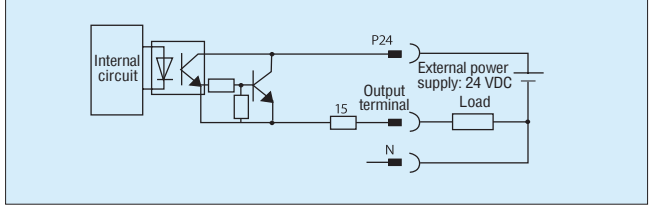
■ Output Part: External output specification

Item	Specification
Number of output	16 points
Rated load voltage	24 VDC
Maximum current	50 mA/circuit
Isolation method	Photocoupler isolation

[NPN specification]

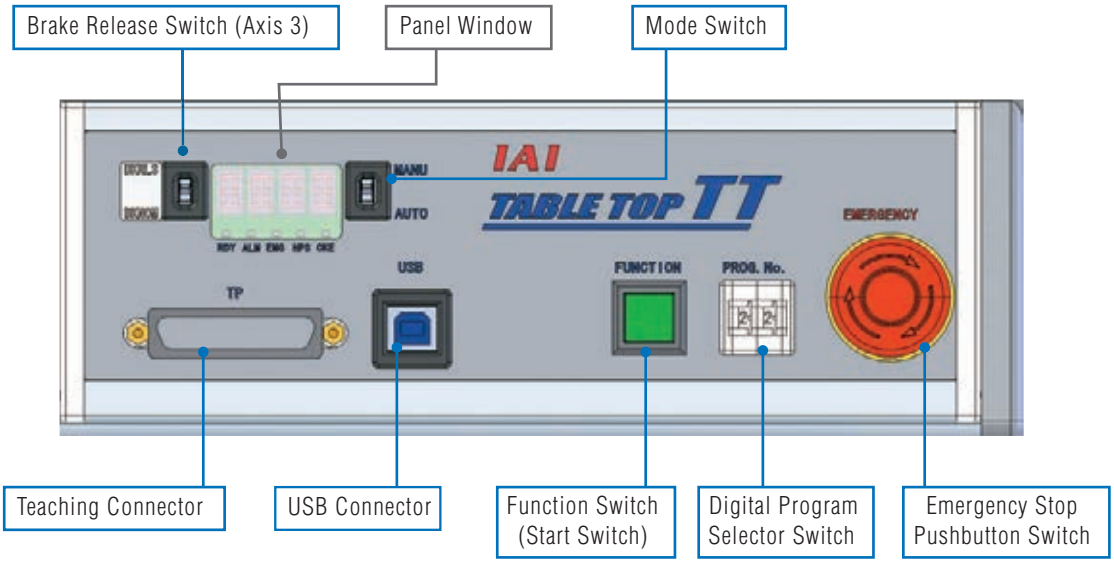


[PNP specification]* *Coming soon.

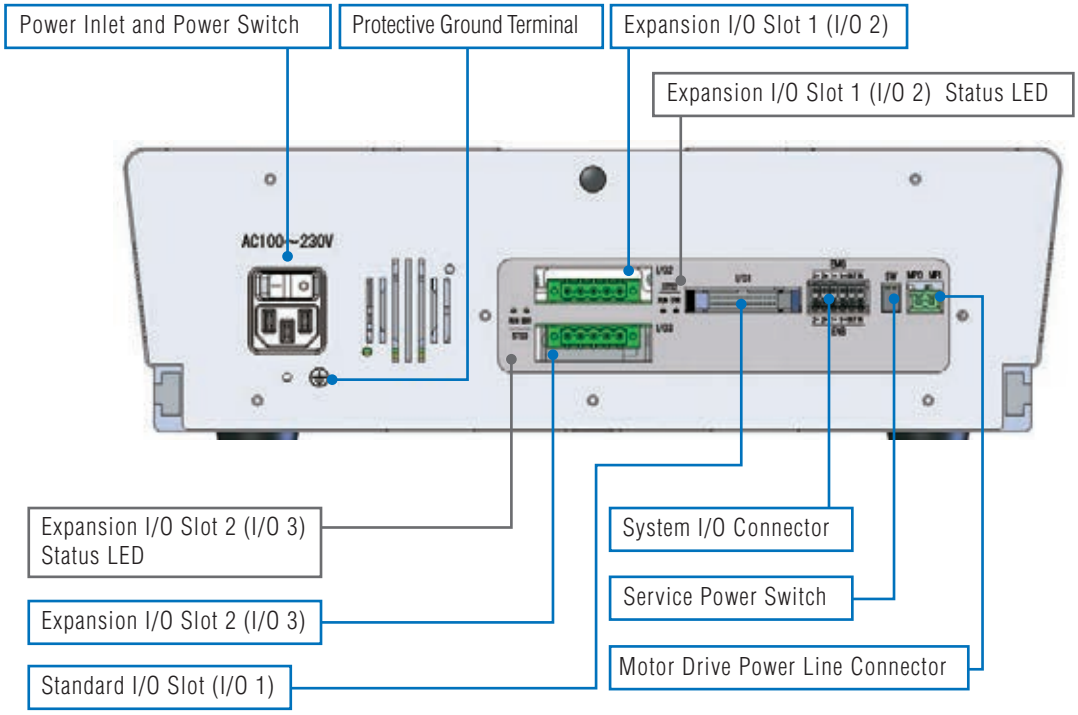


Name of Each Part

Front



Rear



I/O Interface

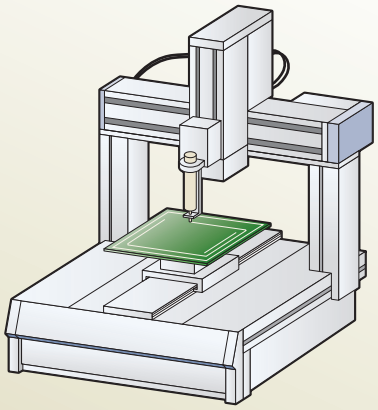
Standard I/O slot	Standard PIO (Input 16 points/output 16 points)
Expansion I/O slot 1 [Option]	Expansion PIO (Input 16 points/output 16 points), or Field Network (*1)
Expansion I/O slot 2 [Option]	Expansion PIO (Input 16 points/output 16 points), or Field Network (*1)
System I/O slot	Emergency stop input 2 contacts, enable input 2 contacts
Motor power I/O connector	For cutting off external drive power

*1: For field network (CC-Link, DeviceNet, PROFIBUS-DP or EtherNet/IP) connection, the maximum number of input points is 240 and maximum number of output points is 240.
EtherNet/IP (slot 1) + EtherNet/IP (slot 2) is not supported.
If you use a vision system, connect it to EtherNet/IP.

Examples of Applications

Coating

The TTA's high-performance interpolation function makes it an ideal actuator for coating targets having a 2- or 3-dimensional shape.

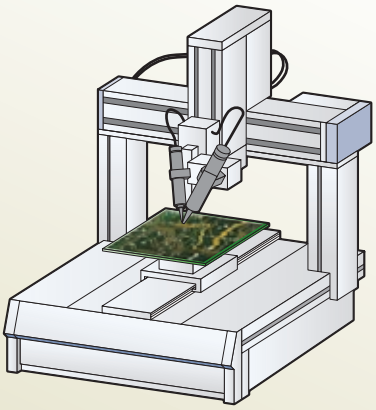


Applications

Applying silicone to circuit boards, adhesive to speakers, sealant to fuel cells, etc.

Soldering

With its 30000-point positioning capability, the TTA can easily apply solder to circuit boards, etc.

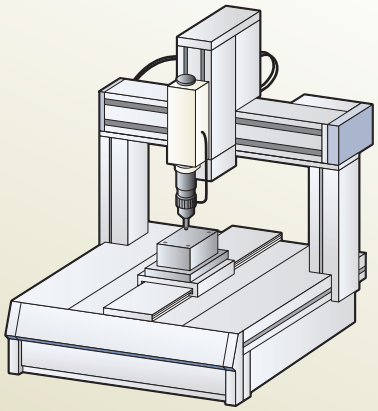


Applications

Soldering electronic components.

Driving screws

The push-motion function of the Z-axis can be used to hold a screwdriver against the load to tighten screws.

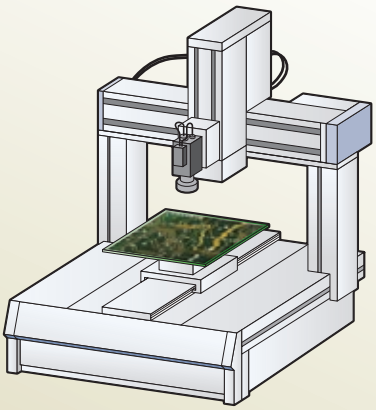


Applications

Tightening screws into electronic components and automotive parts.

Circuit board inspection

You can attach an image sensor to the Z-axis to inspect circuit boards and components.



Applications

Checking circuit boards for mounting defects, inspecting processed parts.

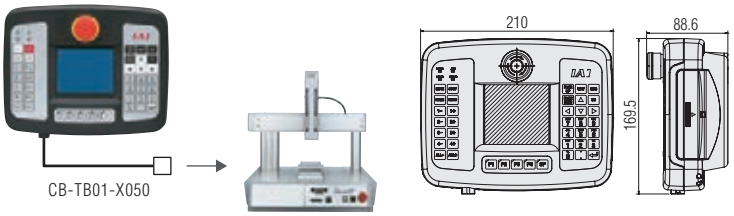
Teaching Pendant

Features: A teaching device offering program/position input, trial operation and monitoring functions.

Model: **TB-01-S**

* This model is the standard specification. If you are interested in the deadman switch specifiction, specify the model number of the applicable teaching pendant (TB-01D-N/TB-01DR-N) and that of the cable (CB-TB1-X050).
** TB-01-S is coming soon with CE conformity.

Configuration:



Specifications:

Item	TB-01-S
Rated voltage	DC24V
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0~50°C
Ambient operating humidity	20~85% RH (non-condensing)
Environmental endurance	IP40 (in initial state)
Weight	507g (TB-01-S; teaching pendant only)

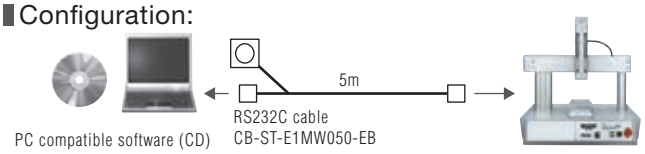
PC Compatible Software (for Windows PCs only)

Features: A startup support software program offering program/position input function, test operation function, monitoring function, and more. The functions needed for debugging have been enhanced to help reduce the startup time.

Note: The TTA series only supports version 10.0.0.0 or later.

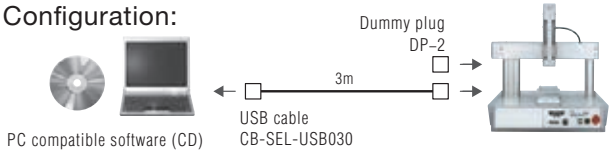
Model: **IA-101-X-MW** (RS232C cable included) (Note)

Configuration:



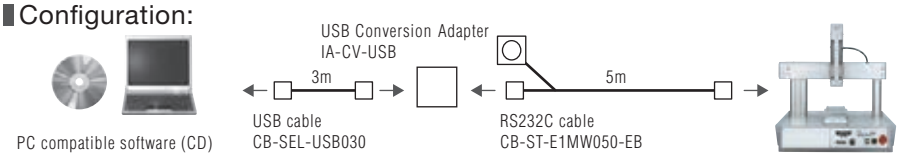
Model: **IA-101-TTA-USB** (USB cable included)

Configuration:



Model: **IA-101-X-USBMW** (USB conversion adapter + cable included) (Note)

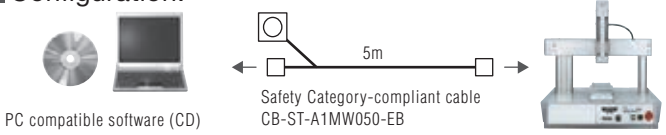
Configuration:



<Note>
The RS232C standard cable CB-ST-**E**1MW050-EB cannot be used when "Building an enable system that uses a system I/O connector and external power supply" or "Building a redundant safety circuit." (The RS232C safety category cable CB-ST-**A**1MW050-EB or the software kit IA-101-X**A**-MW must be used instead.)

Model: **IA-101-XA-MW** (With Safety Category 4-compliant cable)

Configuration:

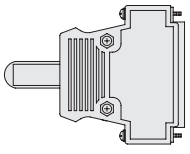


<If you have IA-101-TT-USB>
- It can be used with TTA by upgrading the version of the software.
- Dummy plug [DP-1] enclosed in IA-101-TT-USB is not applicable for Safety Categories.
  To make it applicable, [DP-2] is necessary.

Dummy Plug

Features: Connect this plug to the teaching connector to cut off the enable circuit when the TTA series is linked to a PC using a USB cable.

Model: **DP-2** This is a part enclosed in global type (TTA-A☐G and TTA-C☐G) and PC compatible software (Model: IA-101-TTA-USB).

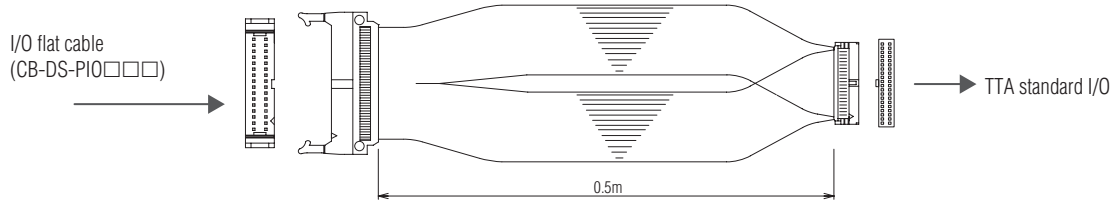


- The plug supports emergency stop/enable circuit redundancy (up to category 3).

I/O Conversion Cable

Features: This conversion cable is used to connect the I/O flat cable (CB-DS-PIO□□□) for conventional TT series to the standard I/O slot of the TTA series.

Model: **CB-TTA-PIOJ005**

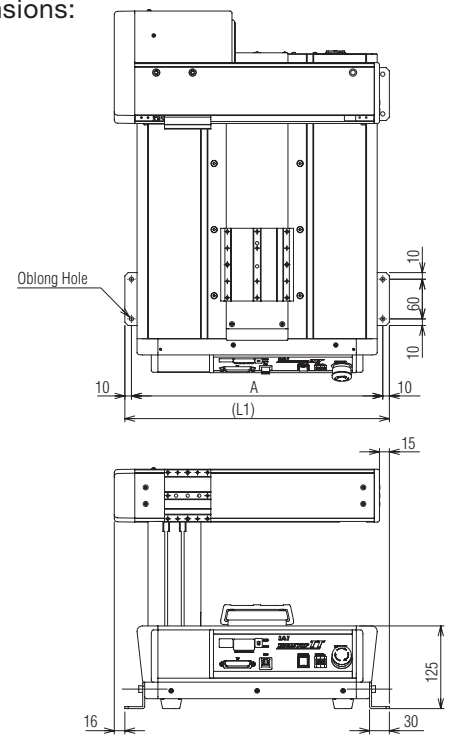


Actuator Mounting Brackets
(4 pieces / 6 pieces in one set, enclosed with attachment screws and nuts)

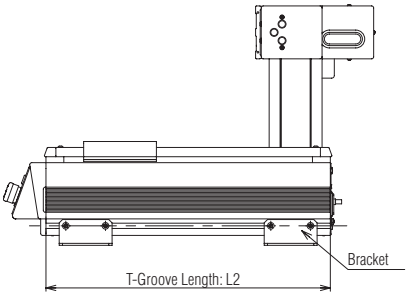
Model: **TTA-FT-4** (for X-axis stroke 20/30)
TTA-FT-6 (for X-axis stroke 40/50)

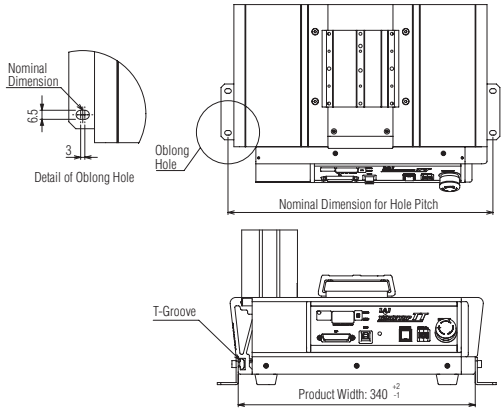
* 4 pieces of installation brackets are enclosed in 20/30 type of X-axis stroke and 6 pieces in 40/50 type.

Dimensions:



X-Y Stroke	L1	L2	A	Number of Brackets
20-20/20-15	400	430	380	4
30-30/30-25	500	530	480	
40-40/40-35	600	630	580	6
50-50/50-45	700	730	680	





When making your own bracket

When making your own bracket, have oblong holes to the hole pitch in the direction of production width to secure margin to attachment.
Make the oblong holes 3mm or more to the nominal position.

Side Slot Options

Side slot can be selected as an option. It becomes handy when customers themselves need to attach a device to the TTA.
Side slot is available from individual stroke specification (Option code: SLT) and 180mm specification (Option code: SLT0).

■Individual Stroke Side Slot (Option Code: SLT)

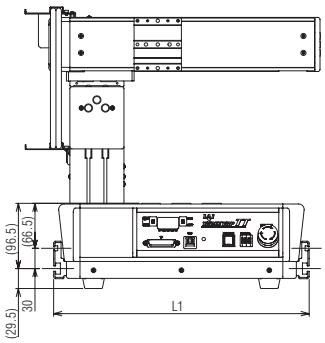
It is available when selecting slot specification considering body size.
It is not available when selecting FT4 or FT6 as an option.

Dimension Table

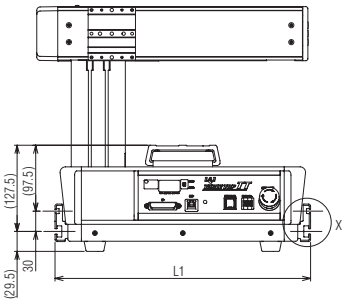
Model	L1	L2
20-20/20-15	378	430
30-30/30-25	478	530
40-40/40-35	578	630
50-50/50-45	678	730

■Front View

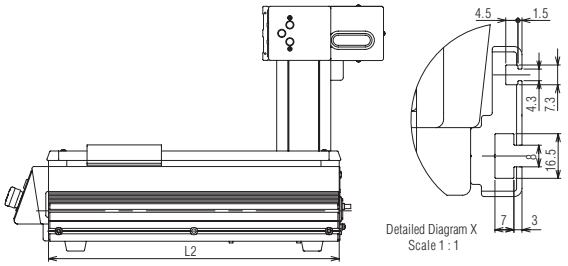
TTA-A type



TTA-C type



■Side View (TTA-A, TTA-C)

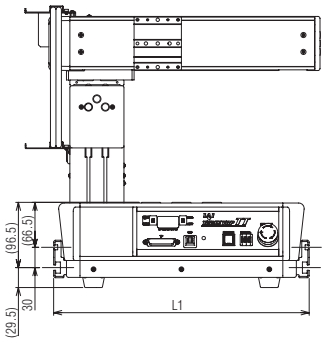


■Side Slot 180mm Installation Specification (Option Code: SLT0)

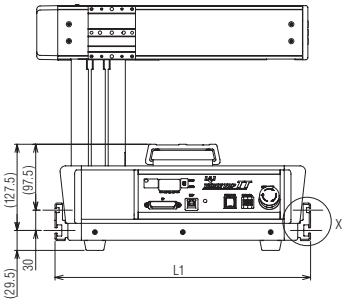
It is available when selecting FT4 or FT6 as slot specification.
20/30 type of X-axis stroke is equipped with 2 places of 180mm side slot where 40/50 type has 4 places.

■Front View

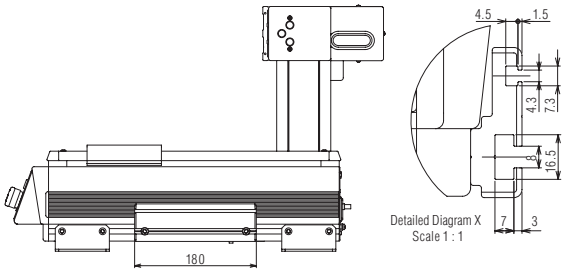
TTA-A type



TTA-C type



■Side View (TTA-A, TTA-C)



Side Plate Options

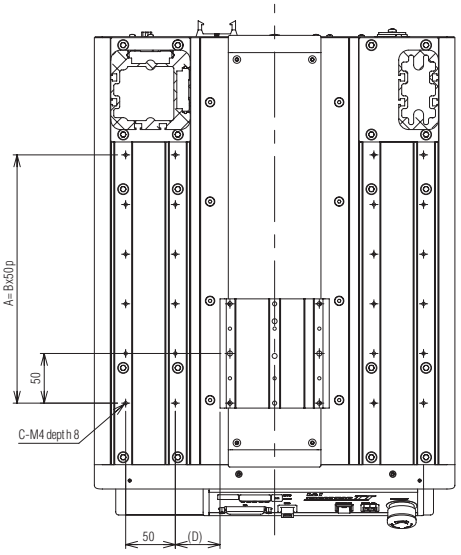
Side plate can be selected as an option. It becomes handy when customers themselves need to attach a device to the TTA.
There are two types for the side plate, one with holes already available (option code: PTH) and the other where you make holes of your own (option code: PTN).

* This option is available only for TTA-A type.
* Option code: PTN is a plate with no hole of M4, depth8 shown in the figure below.

■Standard Specification Hole Positions

Dimension Table

Model	A	B	C	D
20-20/20-15	250	5	12	45
30-30/30-25	350	7	16	95
40-40/40-35	450	9	20	145
50-50/50-45	550	11	24	195

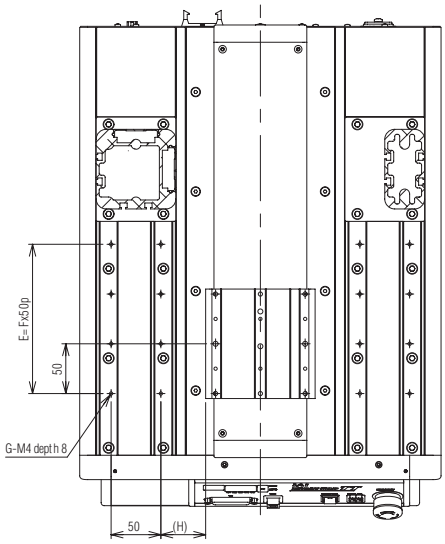


■Frame Position F1 Specification Hole Position

It is when Option F1 is selected in the actuator model code.

Dimension Table

Model	E	F	G	H
20-20/20-15	150	3	8	45
30-30/30-25	250	5	12	95
40-40/40-35	350	7	16	145
50-50/50-45	450	9	20	195

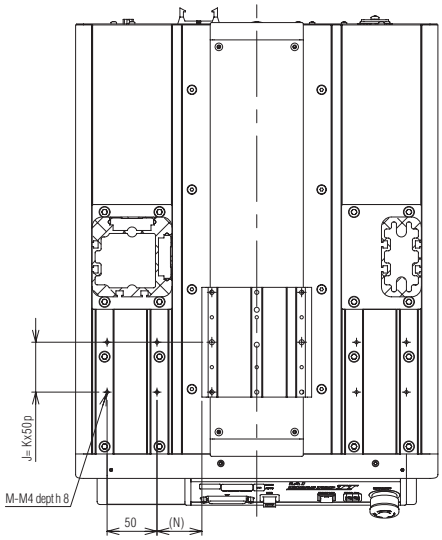


■Frame Position F2 Specification Hole Position

It is when Option F2 is selected in the actuator model code.

Dimension Table

Model	J	K	M	N
20-20/20-15	50	1	4	45
30-30/30-25	150	3	8	95
40-40/40-35	250	5	12	145
50-50/50-45	350	7	16	195



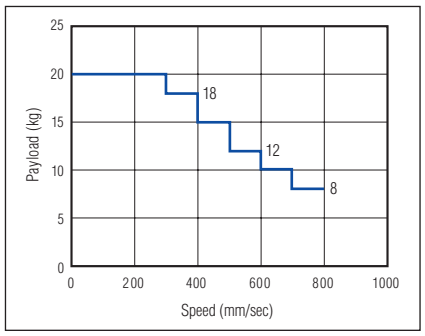
Notes

■Correlation Diagram of Payload and Speed (X-axis/Y-axis/Z-axis)

All models in the TTA series use pulse motors. Due to the characteristics of the pulse motor, the payload decreases as the speed increases. Use the tables below to check if the desired speed and payload are met.

[TTA-A Series]

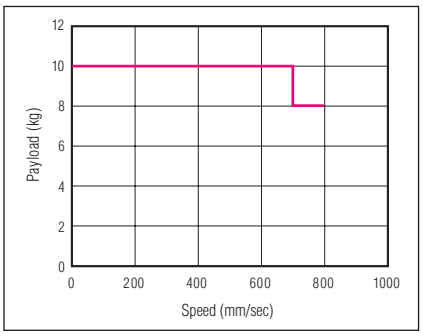
X-axis



Payload and acceleration/deceleration

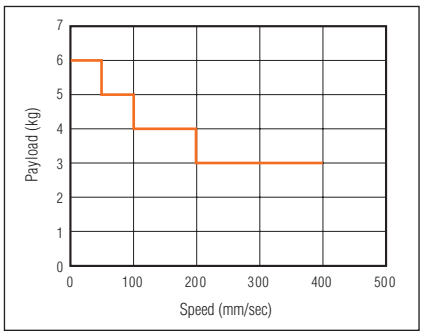
Payload	Acceleration/deceleration
20kg	0.2G or less
18kg	0.2G or less
15kg	0.3G or less
12kg	0.3G or less
10kg	0.4G or less
8kg	0.4G or less

Y-axis



- Set the acceleration/deceleration to 0.4G at max.

Z-axis



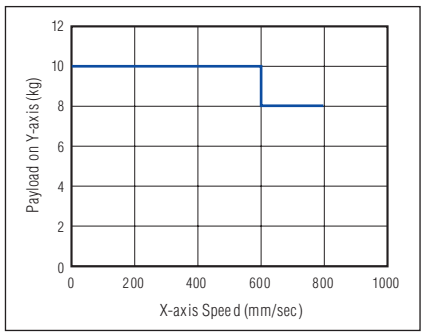
- Set the acceleration/deceleration to 0.2G at max.

[TTA-C Series]

The maximum velocity of X-axis for TTA-C2 may differ depending on the Payload. Also, the maximum velocity of X-axis and Y-axis for C3 and C4 may differ depending on the Payload on Z-axis.

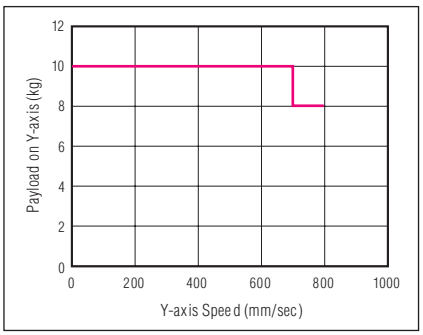
TTA-C2

X-axis



- Set the acceleration/deceleration to 0.2G at max.

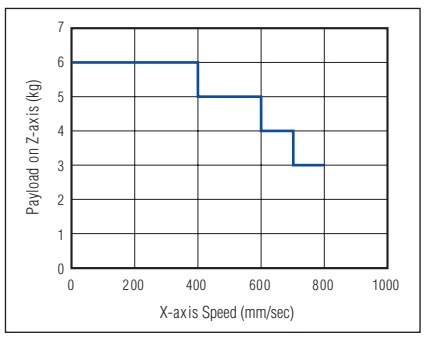
Y-axis



- Set the acceleration/deceleration to 0.2G at max.

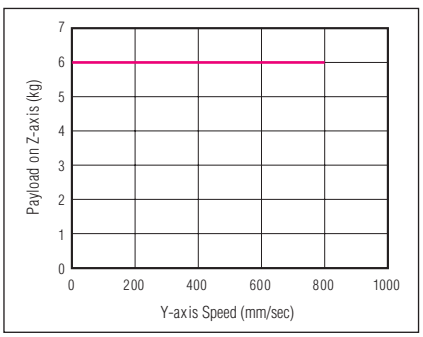
TTA-C3/C4

X-axis



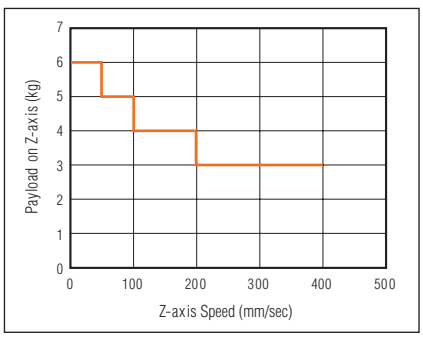
- Set the acceleration/deceleration to 0.2G at max.

Y-axis



- Set the acceleration/deceleration to 0.2G at max.

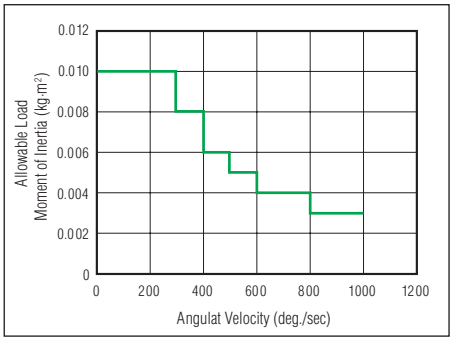
Z-axis



- Set the acceleration/deceleration to 0.2G at max.

■Correlation Graph for Allowable Load Moment of Inertia and Angular Velocity (R-Axis)

R-axis



Allowable load moment of inertia, angular velocity, angular acceleration and deceleration (R)

Allowable Load Moment of Inertia	Angular Velocity	Acceleration/deceleration
0.010kg·m²	100deg./sec	1000deg./sec²
0.010kg·m²	200deg./sec	1000deg./sec²
0.010kg·m²	300deg./sec	1000deg./sec²
0.008kg·m²	400deg./sec	1778deg./sec²
0.006kg·m²	500deg./sec	2778deg./sec²
0.005kg·m²	600deg./sec	4000deg./sec²
0.004kg·m²	700deg./sec	5444deg./sec²
0.004kg·m²	800deg./sec	7111deg./sec²
0.003kg·m²	900deg./sec	9000deg./sec²
0.003kg·m²	1000deg./sec	11111deg./sec²

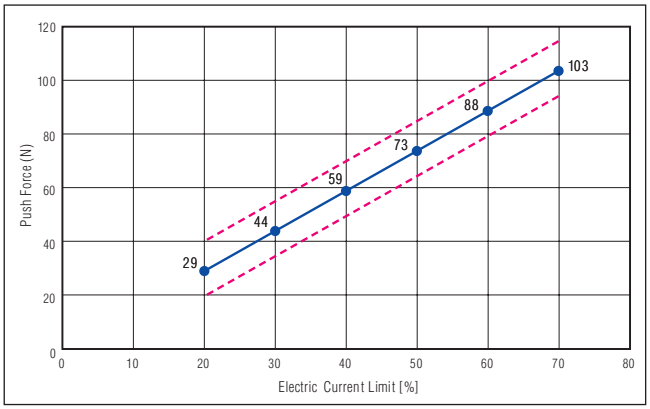
(Note) Convert to G when setting to a teaching tool such as PC compatible software. (1G=9800deg./sec²).

■Correlation Graph of Push Force and Electric Current Limit

In the case of push-motion operation, the push force can be changed freely by changing the electric current limit of the controller. (Only for TTA-A Series)

Take the push force below as a reference.

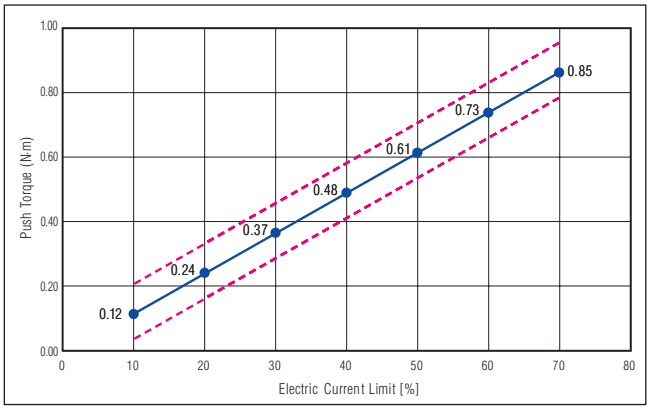
Z-axis



* The push force may vary by ±10% of the maximum push force.

Contact IAI if it is required to have push control on the rotary axis (R-axis). Take the graph below as a reference.

R-axis



* There is dispersion of ±10% (range of red dotted lines) to the maximum for the pressing force.

TTA Tabletop Series
Catalogue No. 0415-E

The information contained in this catalog is subject to change without notice for the purpose of product inprovement

ISO 9001
BUREAU VERITAS
Certification

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