



ELECTRIC ACTUATORS

Contents

Economy series
ES EC

Compact series
KRF

Universal series
US USW

Press series
PCT PC

Controller series
TSC TLC THC TNU

with Servo driver controller

ENGLISH

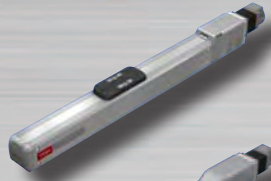


PRODUCT LINE UP

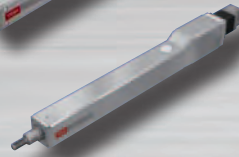


Economy series

ES



EC



Reasonably Priced

▶▶▶ **Chapter 1**



Compact series

KRF



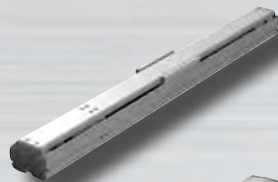
High Rigidity

▶▶▶ **Chapter 2**



Universal series

US



USW



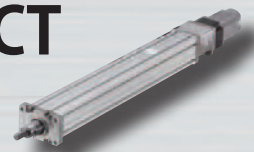
Long Stroke
Heavy Object
Transport

▶▶▶ **Chapter 3**

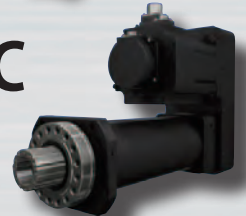


Press series

PCT



PC



Press Treated

▶▶▶ **Chapter 4**



Controller

TSC



TLC



THC



TNU



Corresponding Actuators

-ES/EC

-KRF

-ES/EC

-KRF

-US/USW

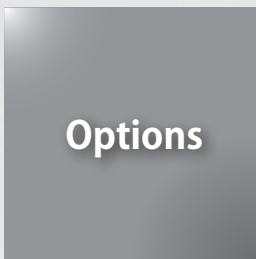
-PCT/PC

-KRF

-PCT/PC

-US/USW

▶▶▶ **Chapter 5**



Options

PC Setup Tool

D-STEP



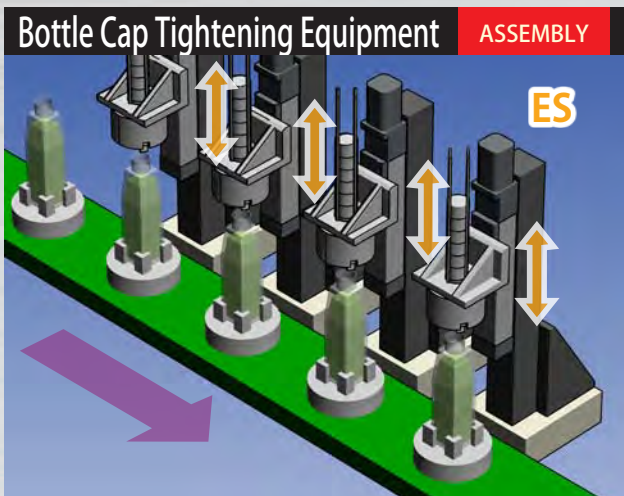
Digital Operator

TDO



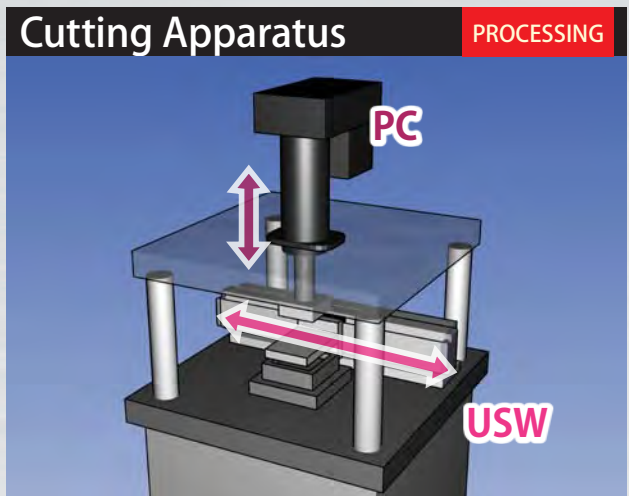
Supports two languages:
English / Japanese

▶▶▶ **Chapter 5**



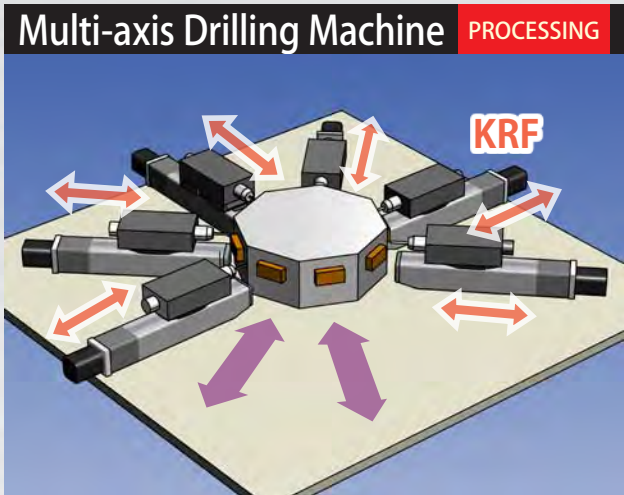
Bottle Cap Tightening Equipment ASSEMBLY

Model No. ES
ES is used for the cap supply unit. Eliminates variation due to differences between individuals and achieves further labor savings.



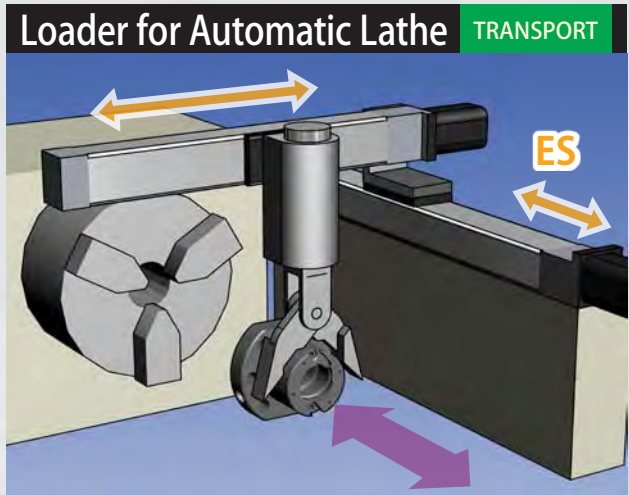
Cutting Apparatus PROCESSING

Model No. PC USW
The cleavage by punching using an electric press PC. By you are using a PC short overall length, the height of the equipment will be lower.



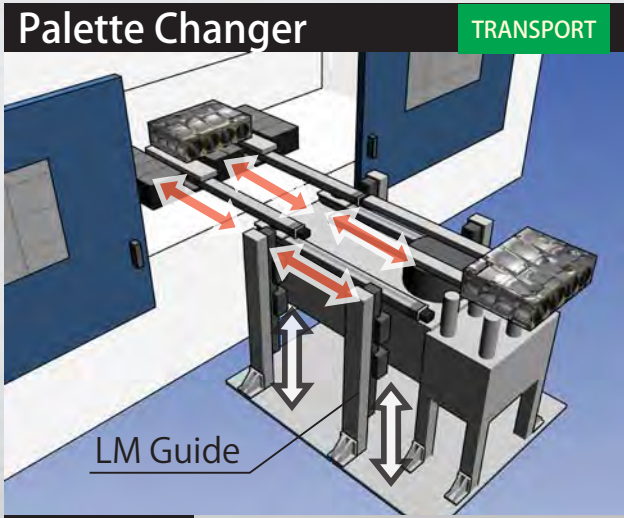
Multi-axis Drilling Machine PROCESSING

Model No. KRF
KRF is used for the multi-axis drilling machine. A smaller apparatus footprint is achieved with high rigidity and a compact design



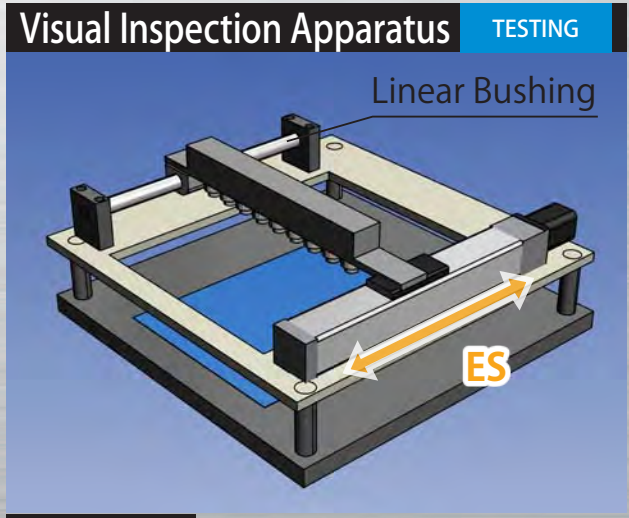
Loader for Automatic Lathe TRANSPORT

Model No. ES
ES is used as the loader for supplying work to the automatic lathe. Low cost device configuration is possible.



Palette Changer TRANSPORT

Model No. KRF LM Guide
KRF is used in the changer unit in a two-tiered configuration. Unit is more compact and features higher rigidity than conventional articulated robots.



Visual Inspection Apparatus TESTING

Model No. ES Linear Bushing
ES is used for the visual inspection apparatus equipped with a CCD camera. Low costs can be achieved by combining the apparatus with a Linear Bushing.

Economy series

Model: **ES** Slider Type

EC Cylinder Type



**Corresponding
Controller**



Chapter 1

Features 1-003

Series Specifications 1-005

Model Configuration 1-007

**Slider Type TSC specification
Basic Specifications & Dimensions 1-009**

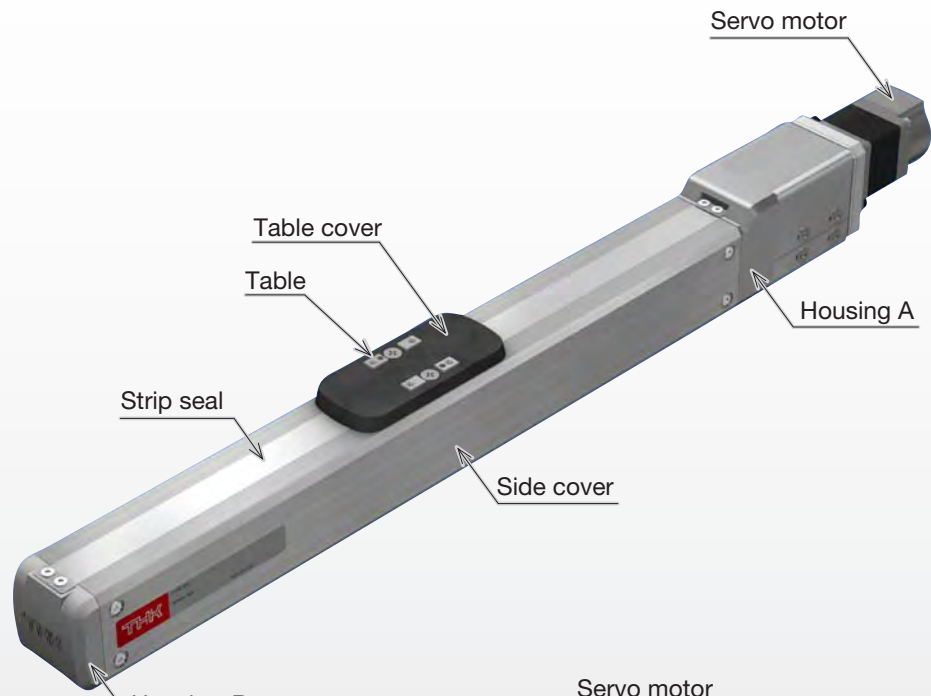
**Cylinder Type TLC specification
Basic Specifications & Dimensions 1-037**

Options 1-051

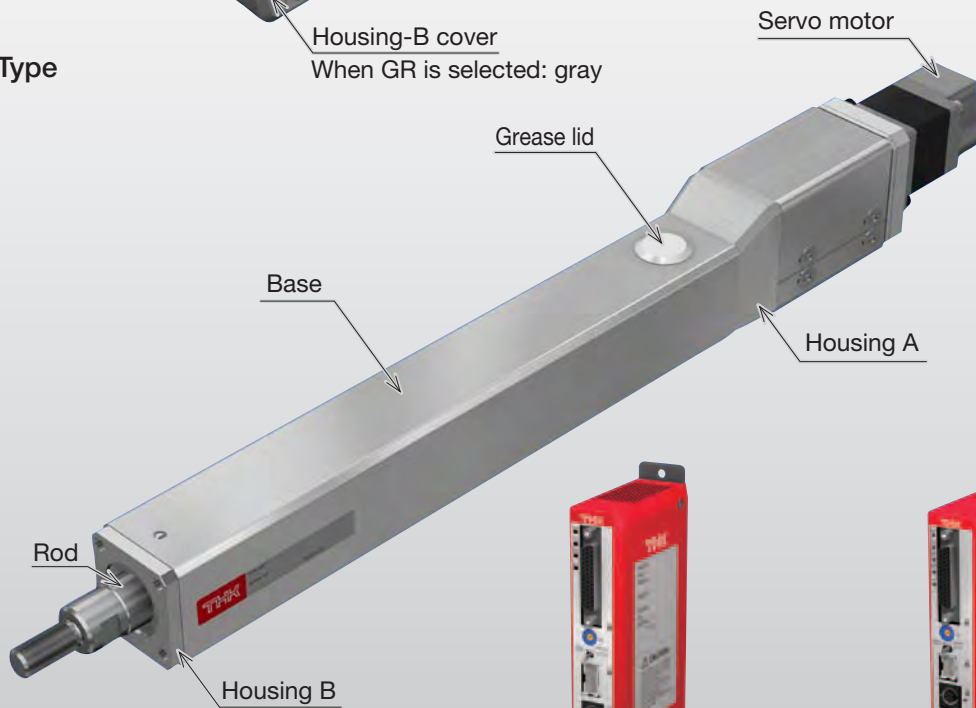
Electrical Actuator Economy series ES/EC

Lightweight, Compact

Slider Type
ES



Cylinder Type
EC



Housing-B cover
When GR is selected: gray



Stepper Driver Controller
TSC



Servo Driver Controller
TLC

Features

Compact and reliable

By incorporating an LM Guide within its rectilinear guide, the ES provides both compactness and reliability.

Reasonably priced

The use of LM Guides reduces the number of components required, making the ES available at a reasonable cost.

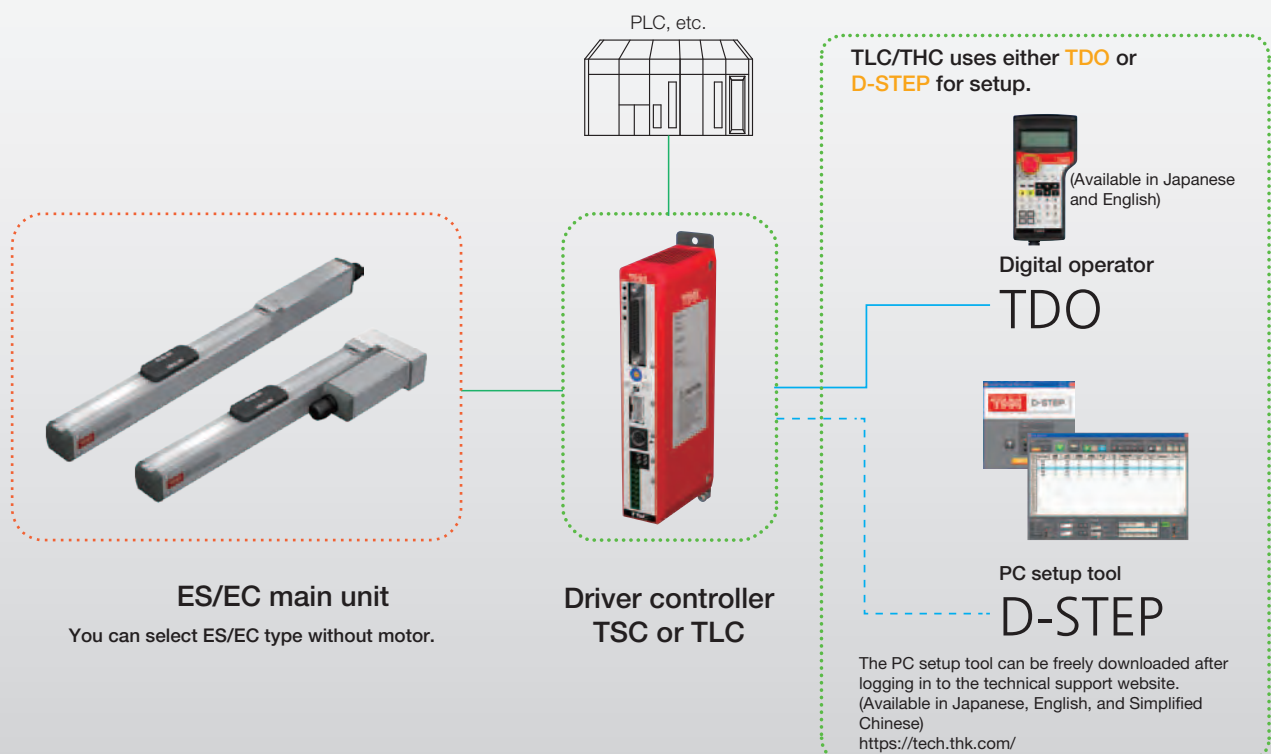
Long-term maintenance-free operation

The ES incorporates the model SRS LM Guide, equipped with ball retainers, as well as Lubricator QZ, for optimal ball-screw lubrication. The combined effect provides for long-term maintenance-free operation.

Predictable service life

The service life of the LM Guide and ball screw can be calculated based on usage conditions. Contact THK for details.

System



Series List (Stepper Driver Controller TSC Specification)

Model	Ball screw lead [mm]	Stroke [mm]	Motor type	Maximum load capacity *1 *2 [kg]	
				Horizontal mount	Vertical mount
ES3	6	50 - 300	Stepper motor □28	1	0.5
ES4	6	50 - 400	Stepper motor □35	9	4
	12			7.5	1.5
ES5	6	50 - 500	Stepper motor □42	10	5
	12			6	2
ES6	6	50 - 600	Stepper motor □42	10	5
	12			6	2
ES3R	6	50 - 300	Stepper motor □28	1	0.5
ES4R	6	50 - 400	Stepper motor □35	4	1.5
	12			2	1
ES5R	6	50 - 500	Stepper motor □42	8	2
	12			6	1
ES6R	6	50 - 600	Stepper motor □42	8	2
	12			6	1
EC3	6	50 - 200	Stepper motor □35	15	6
EC4	6	50 - 300	Stepper motor □42	40	12
	12			25	4.5
EC3R	6	50 - 200	Stepper motor □35	15	3
EC4R	6	50 - 300	Stepper motor □42	40	6
	12			15	4
EC3H	6	50 - 200	Stepper motor □35	15	6
EC4H	6	50 - 300	Stepper motor □42	40	12
	12			25	4.5

*1 This specification shows the values when combining with stepper driver controller TSC.

*2 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*3 Horizontal: 460, Vertical: 450

Series List (Servo Driver Controller TLC Specification)

Model	Ball screw lead [mm]	Stroke [mm]	Rated speed *1 [mm/s]	Motor rated output [W]	Maximum load capacity *2 [kg]	
					Horizontal	Vertical
ES5	6	50 to 500	300	50	10	5
	12		600		6	2
ES6	6	50 to 600	300	50	10	5
	12		600		6	2
EC4	6	50 to 300	300	50	14	6
	12		600		7	3
ES5R	6	50 to 500	300	50	8	2
	12		600		6	1
ES6R	6	50 to 600	300	50	8	2
	12		600		6	1
EC4R	6	50 to 300	300	50	14	6
	12		600		7	3
EC4H	6	50 to 300	300	50	14	6
	12		600		7	3

*1 Based on rated motor speed (3,000 min⁻¹).

*2 Based on load capacity at rated speed with 0.3G acceleration and deceleration rate.

*3 Maximum speed is dependent on motor speed of 3,000 min⁻¹ and, if applicable, permissible rotation speed of ball screw.

Maximum speed for each stroke ^{*1 *2} [mm/s]												
Stroke [mm]												
50	100	150	200	250	300	350	400	450	500	550	600	
300												
250												
500												
300												
500												
300										270	230	
500												460
300												
250												
Horizontal: 500, Vertical: 440												
Horizontal: 300, Vertical: 250												
500												
250												230
Horizontal: 500, Vertical: 450												★3
187												
Horizontal: 250, Vertical: 240				230	170							
450					340							
187												
250				230	170							
Horizontal: 400, Vertical: 370					340							
187												
Horizontal: 250, Vertical: 240				230	170							
450					340							

ES/EC

KRF

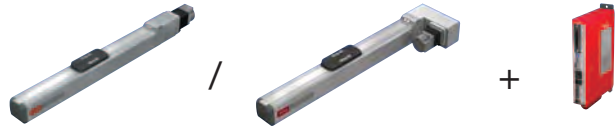
US/USW

PCT/PC

Controller

Maximum speed for each stroke ^{*3} [mm/s]												
Stroke [mm]												
50	100	150	200	250	300	350	400	450	500	550	600	
300												
600												
300										270	230	
600												540
300				230	170							
600				460	340							
300												
600												
300										270	230	
600												540
300				230	170							
600				460	340							
300				230	170							
600				460	340							

Model Configuration



ES/EC (with motor)

Model	Ball screw lead	Stroke	Design symbol	Control device	Option	Motor used	Motor cable orientation	Home position	Cable type and length
ES5R	06	0150	B	TL	MR-GR	M05	L	D00	F3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ES3	06: 6mm	0050: 50mm	B	TS: Stepper driver controller TSC TL: Servo driver controller TLC	No symbol: ES: Red cover EC: None MR: Motor right-turn folded ^{*1} ML: Motor left-turn folded ^{*1} GR: Change the cover color to gray ^{*2} SB: With slider base ^{*2} CB: With cylinder base ^{*3} FL: With flange ^{*3*4} LB: With link ball ^{*3*4} □ ₁ □ ₂ : Sensor ^{*2}	28P: Stepper motor □28 35P: Stepper motor □35 42P: Stepper motor □42 28PB: Stepper motor □28 with brake 35PB: Stepper motor □35 with brake 42PB: Stepper motor □42 with brake M05: 50W M05B: 50W with brake	No symbol: When selecting TSC R: Right U: Up L: Left D: Down	D00: Motor side R00: Reverse motor side	No symbol: None S3: Standard 3m S5: Standard 5m SA: Standard 10m [*] F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

R represents motor wrap, and H represents with linear bush.

For ES3, ES3R, EC3, EC3R and EC3H, only ball screw lead 6 is applicable.

Maximum stroke differs depending on models.
ES3: 300mm
ES4: 400mm
ES5: 500mm
ES6: 600mm
EC3: 200mm
EC4: 300mm

Change the cover color to gray
You can change the color of ES housing cover to gray.
No symbol: red When GR is selected: gray

If the GR is not included in the model configuration, cover will be red.

Specify the option symbol by writing in the order of description from left adding "-".

Indicates the type and length of attached cables. Cables you can select differ depending on controllers.
TSC: "S3", "S5", "SA"
TLC: "F3", "F5", "FA", "H3", "H5", "HA"
^{*} For control device (5) TSC, when using a 10m actuator cable, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

ES
If you select "MR" as an option, "R", "U" and "D" cannot be selected.
If you select "ML" as an option, "L", "U" and "D" cannot be selected.
EC
If you select "MR" as an option, "R" cannot be selected.
If you select "ML" as an option, "L" cannot be selected.

Motors differ depending on models.
ES3: "28P", "28PB" EC3: "35P", "35PB"
ES4: "35P", "35PB" EC4: "42P", "42PB"
ES5: "42P", "42PB" "M05", "M05B"
ES6: "M05", "M05B"
"42P", "42PB"
"M05", "M05B"

*1 This is valid only when selecting ES□R or EC□R for model (1).
*2 This is valid only when selecting ES for model (1).
*3 This is valid only when selecting EC for model (1).
*4 If you select EC□H for model (1), "FL" and "LB" cannot be selected.

Motor wrap direction

Slider type ES

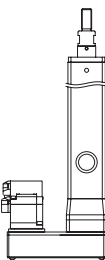


Option symbol ML: Left-turn folded

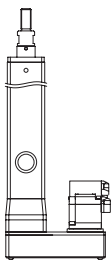


Option symbol MR: Right-turn folded

Cylinder type EC



Option symbol ML: Left-turn folded



Option symbol MR: Right-turn folded

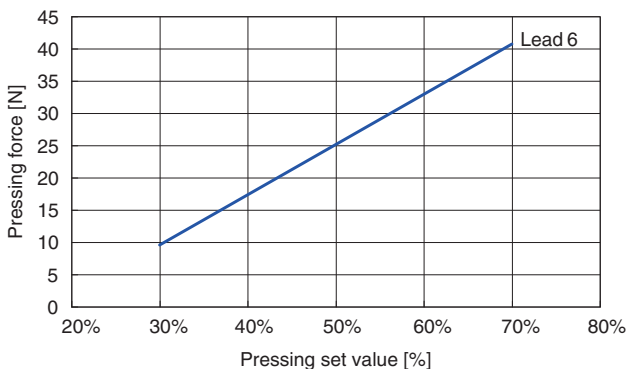
Pages for detailed description

(6) Options		
	GR: Change the cover color to gray	P. 1-051
	SB: With slider base	P. 1-052
	CB: With cylinder base	P. 1-056
	FL: With flange	P. 1-056
	LB: With link ball	P. 1-056
	□ ₁ □ ₂ : Sensor	P. 1-054

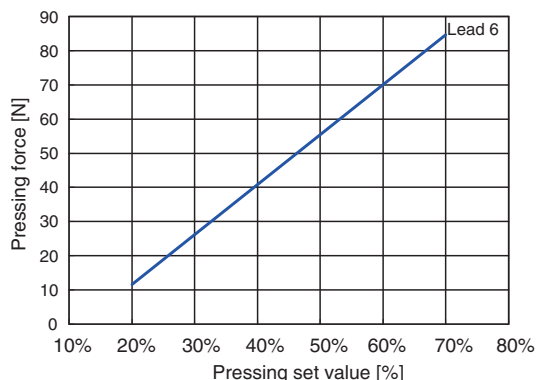
Pressing Force and Pressing Set Value: Relationship Diagram

Pressing force may vary depending on the pressing set value. For the mounting method, see .

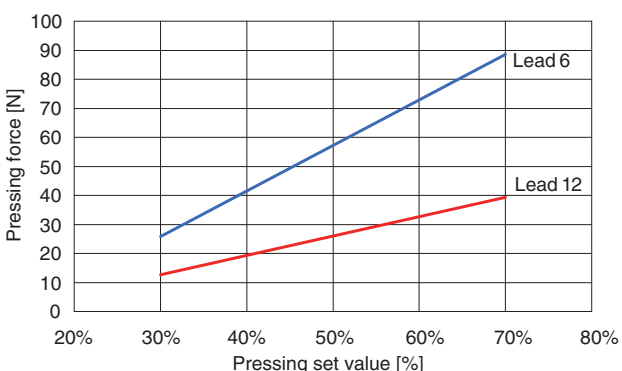
■ ES3/ES3R (TSC)



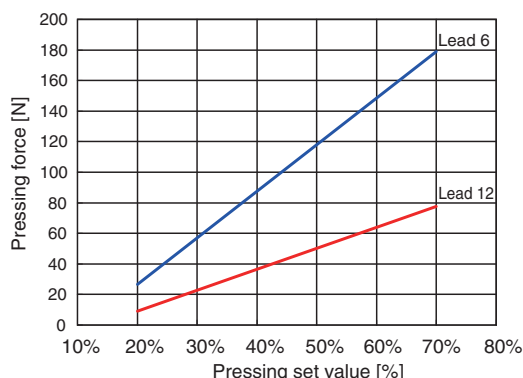
■ EC3/EC3R (TSC)



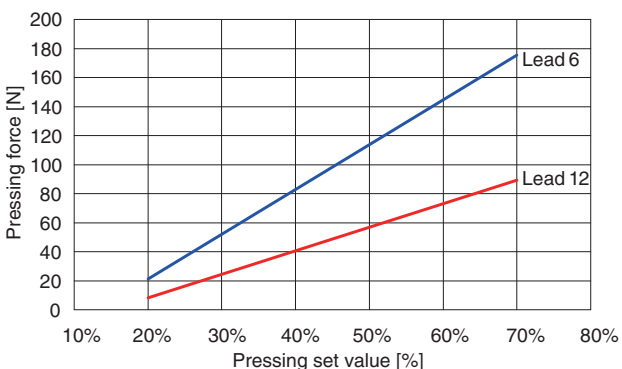
■ ES4/ES4R (TSC)



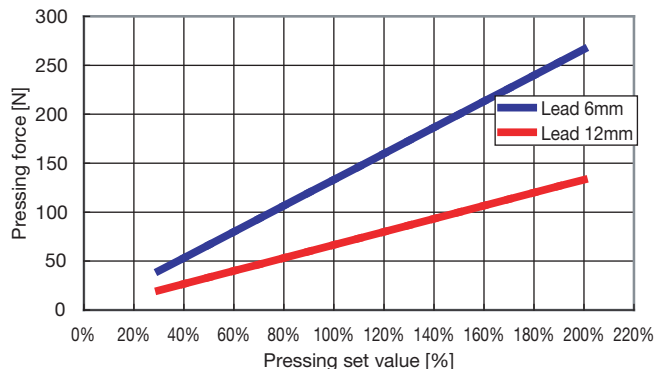
■ EC4/EC4R (TSC)



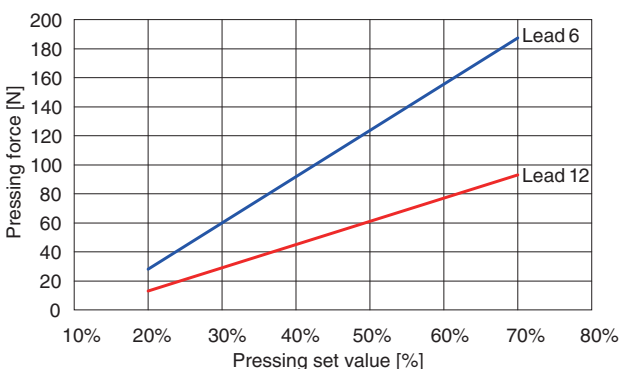
■ ES5/ES5R (TSC)



■ ES5,6/ES5,6R/EC4/EC4R/EC4H (TLC)



■ ES6/ES6R (TSC)



Model	ES5,6/EC4 (For both direct coupling and motor wrap)	
Lead[mm]	6	12
Pressing set maximum thrust[N]	266	133

Precautions

- (1) Pressing set value 100 [%] represents the value at the time of the rated motor torque.
- (2) For ES/EC direct coupling, up to 200% can be set as pressing set value. Continuous operation, however, cannot be possible. For continuous operation, use the effective load rating of 70% as a guide line.
- (3) Since this thrust is a theoretical value calculated using the calculation formula, it may differ from the actual value.
- (4) This diagram shows theoretical values for operation in horizontal orientation. When you use this product with a vertical orientation, the following precautions are required:
 When pressing in the vertical orientation, or in the same direction as the gravitation, the force equal to Payload x Gravitation is added.
 When pressing in the vertical orientation, or in the opposite direction from the gravitation, the force equal to Payload x Gravitation is reduced.

Economy series

ES3 Slider type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES3	06	0150	B	TS	GR-SB	28P	D00	S3
ES3	06: 6mm	0050: 50mm to 0300: 300mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	28P: □28 28PB: □28 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

Basic Specifications

Control device type		TSC	
Motor		□28	
Ball screw lead [mm]		6	
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		Ma: 6.0, Mb: 7.5, Mc: 5.9	

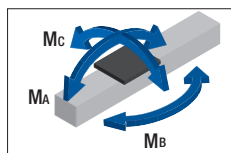
*1 Service life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

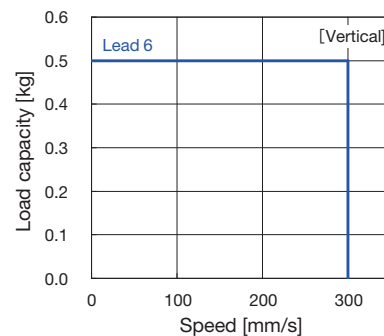
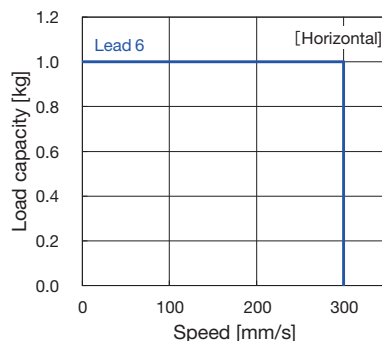
*2 Maximum permissible moment when unit is stationary.

Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

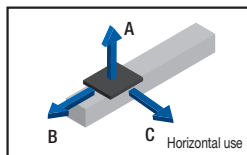
Static Permissible Moment



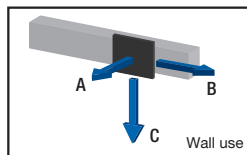
Speed and Load Capacity: Relationship Diagram



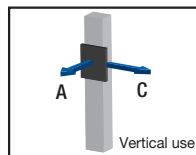
Permissible Overhang Length *



Ball screw lead [mm]		Load mass [kg]	Horizontal mount [mm]		
			A	B	C
6	0.5	200	200	200	200
	1	200	160	200	200



Ball screw lead [mm]		Load mass [kg]	Wall mount [mm]		
			A	B	C
6	0.5	200	200	200	200
	1	170	150	200	200



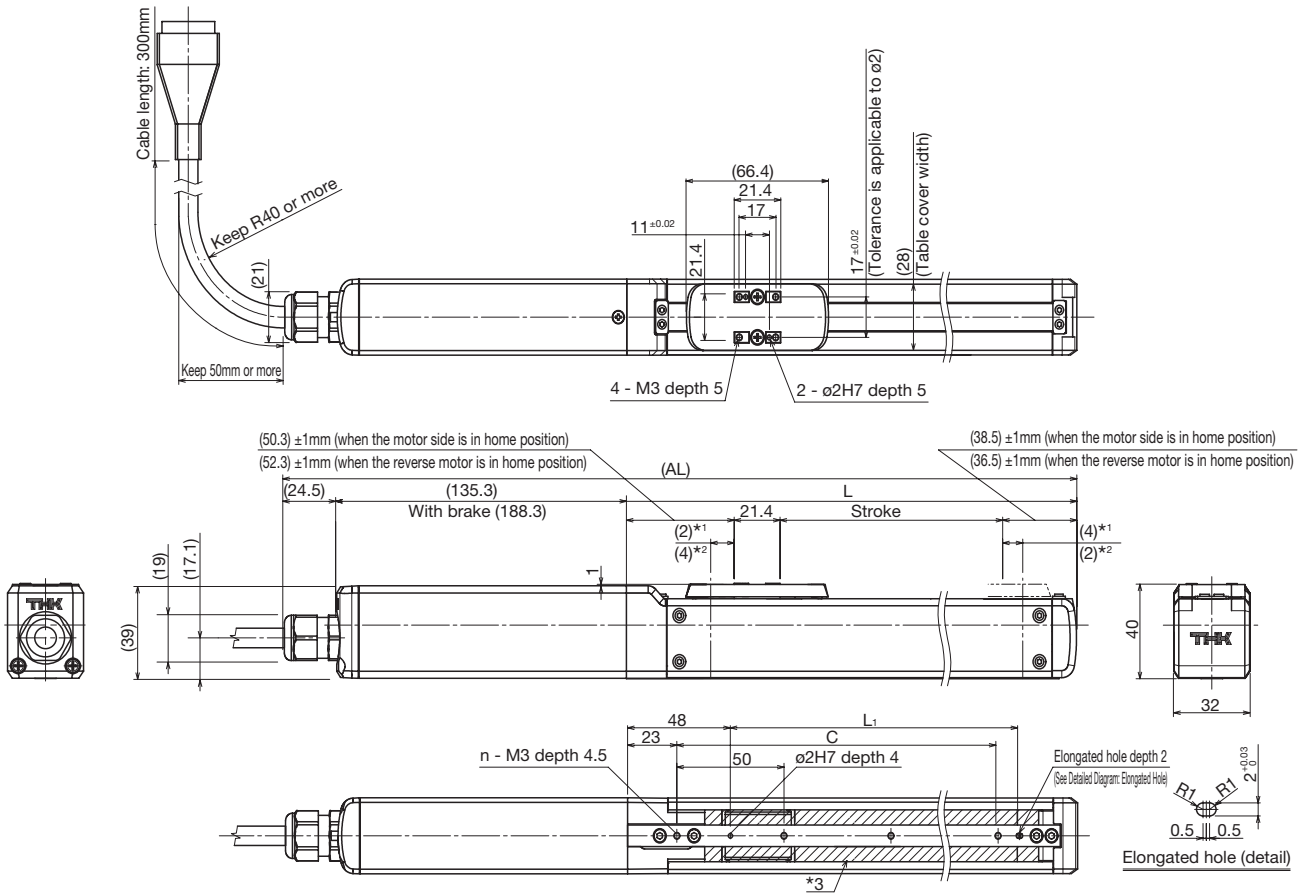
Ball screw lead [mm]		Load mass [kg]	Vertical mount [mm]	
			A	C
6	0.3	200	200	200
	0.5	200	200	200

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES3 + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

*3 represents the opening parts.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	300					
Dimensions [mm]	AL ^{*3}	320 (373)	370 (423)	420 (473)	470 (523)	520 (573)	570 (623)
	L	160.2	210.2	260.2	310.2	360.2	410.2
	L ₁	85	135	185	235	285	335
Mounting hole count	C	100	150	200	250	300	350
	n	3	4	5	6	7	8
Weight ^{*3} [kg]		1 (1.3)	1 (1.4)	1.1 (1.4)	1.1 (1.5)	1.3 (1.5)	1.3 (1.6)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES3R

Slider type TSC specification Motor wrap



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES3R	06	0150	B	TS	MR-GR	28P	D00	S3
ES3R	06: 6mm	0050: 50mm to 0300: 300mm	B	TS: TSC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base <input type="checkbox"/> ₁ <input type="checkbox"/> ₂ : Sensors	28P: <input type="checkbox"/> 28 28PB: <input type="checkbox"/> 28 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

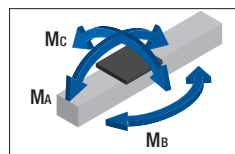
Basic Specifications

Control device type		TSC	
Motor		<input type="checkbox"/> 28	
Ball screw lead [mm]		6	
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		M _A : 6.0, M _B : 7.5, M _C : 5.9	

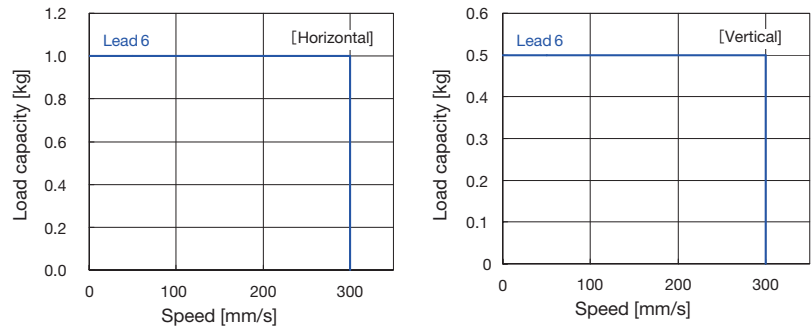
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

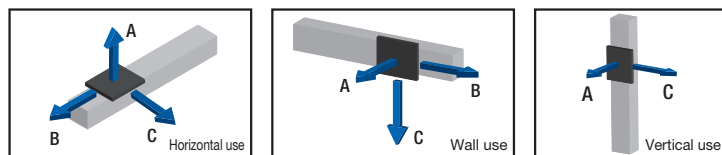
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



Horizontal mount		[mm]			Wall mount		[mm]			Vertical mount		[mm]	
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	0.5	200	200	200	6	0.5	200	200	200	6	0.3	200	200
	1	200	160	200		1	170	150	200		0.5	200	200

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES3R + TSC



ES/EC

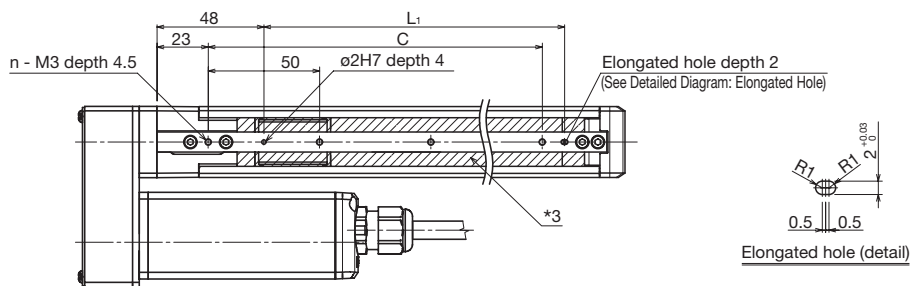
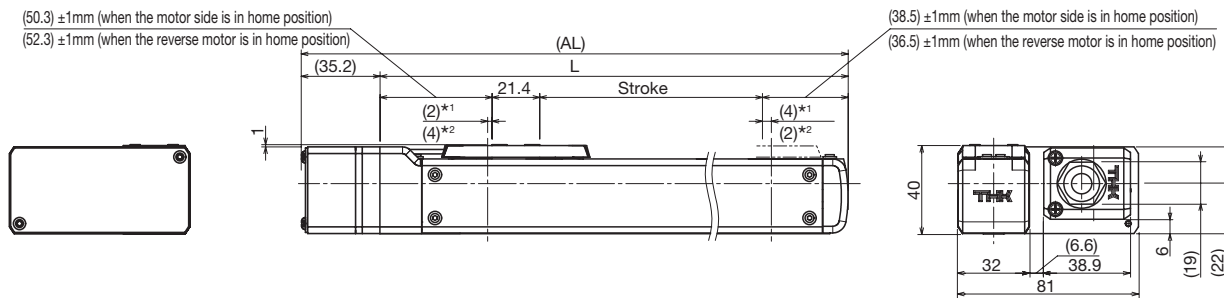
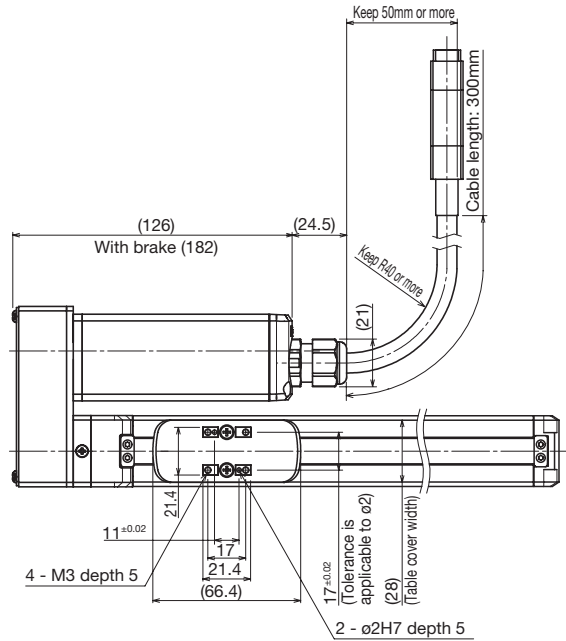
KRF

US/USW

PCT/PC

Controller

Dimensions



*¹ Stroke to the mechanical stopper when the motor side is in home position.
*² Stroke to the mechanical stopper when the reverse motor side is in home position.
*³ represents the opening parts.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)
Maximum speed * ¹ * ² [mm/s]	Ball screw lead: 6mm	300					
Dimensions [mm]	AL	195.4	245.4	295.4	345.4	395.4	445.4
	L	160.2	210.2	260.2	310.2	360.2	410.2
	L ₁	85	135	185	235	285	335
	C	100	150	200	250	300	350
Mounting hole count	n	3	4	5	6	7	8
Weight * ³ [kg]		1 (1.3)	1.1 (1.3)	1.1 (1.4)	1.2 (1.5)	1.3 (1.5)	1.3 (1.6)

*¹ Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*² Dependent on permissible rotational speed of ball screw.

*³ Values when a brake is installed are shown in parentheses.

Economy series

ES4

Slider type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES4	06	0150	B	TS	GR-SB	35P	D00	S3
ES4	06: 6mm 12: 12mm	0050: 50mm to 0400: 400mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	35P: □35 35PB: □35 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

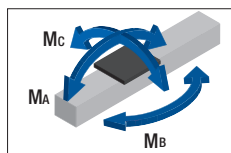
Basic Specifications

Control device type	TSC	
Motor	□35	
Ball screw lead [mm]	6	12
Maximum load	Acceleration and deceleration rate	Horizontal mount
Weight [kg]	Vertical	0.3G
	0.2G	9
		7.5
Running life *1 [km]	5000	
Positioning repeatability [mm]	±0.020	
Lost motion [mm]	0.1	
Static permissible moment *2 [N·m]	M _A : 9.3, M _B : 13.5, M _C : 17.7	

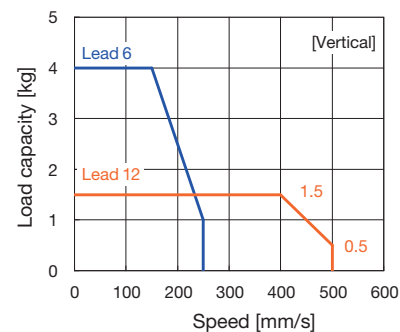
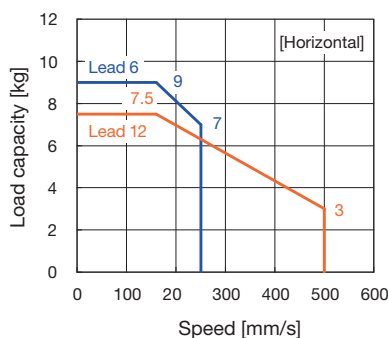
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

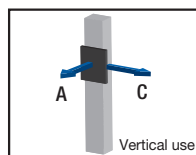
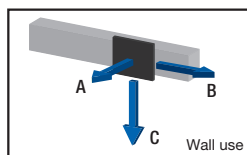
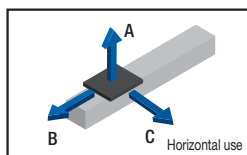
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



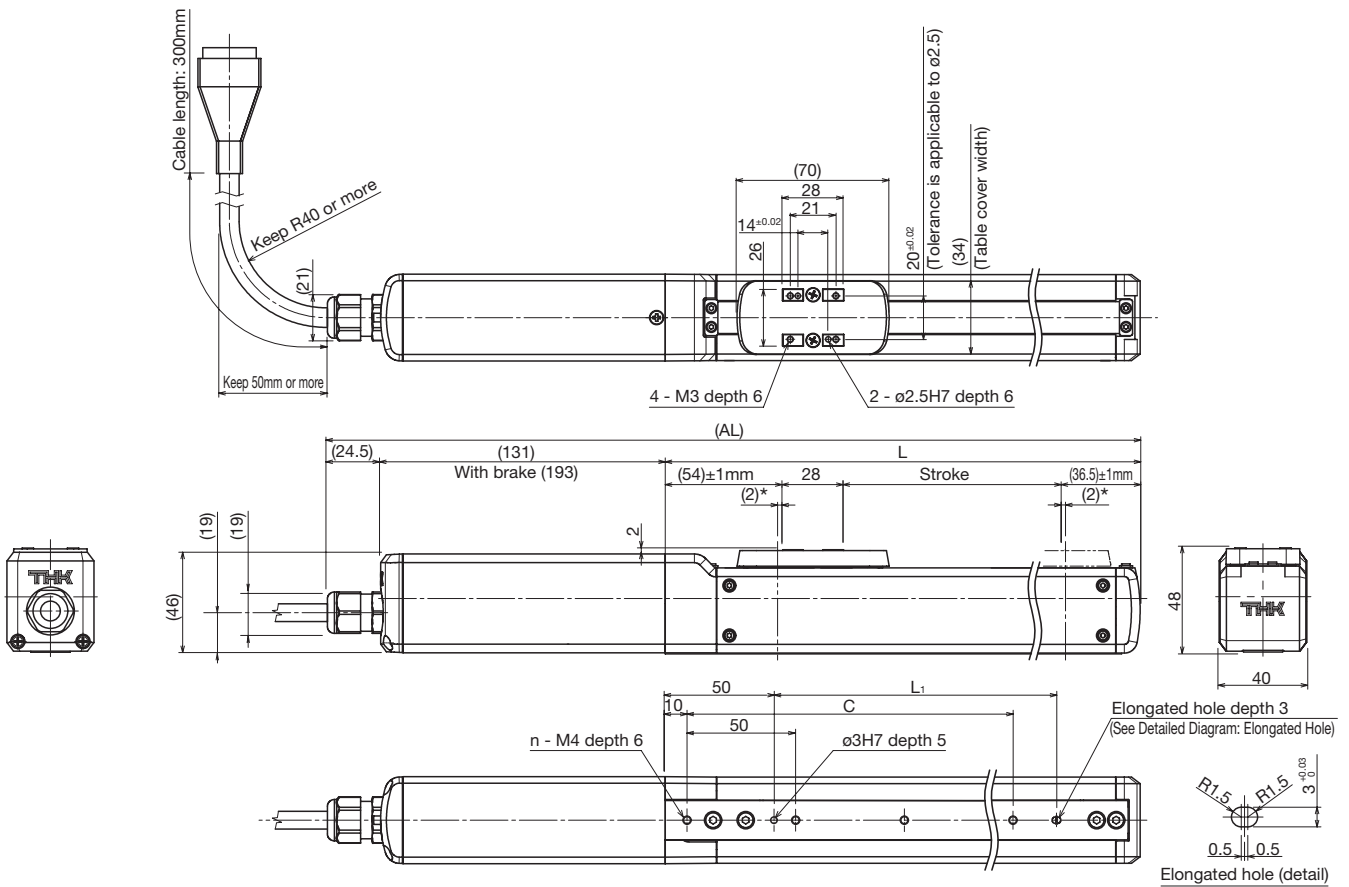
Horizontal mount		[mm]			Wall mount		[mm]			Vertical mount		[mm]	
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	4.5	300	50	100	6	4.5	60	30	300	6	2	100	110
	9	160	20	40		9	10	5	70		4	30	40
12	3.8	260	60	100	12	3.8	70	40	220	12	0.8	260	300
	7.5	110	20	40		7.5	10	10	50		1.5	130	150

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES4 + TSC



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)	50 (54)	100 (104)	150 (154)	200 (204)	250 (254)	300 (304)	350 (354)	400 (404)	
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm	250							
	Ball screw lead: 12mm	500							
Dimensions [mm]	AL*3	324 (386)	374 (436)	424 (486)	474 (536)	524 (586)	574 (636)	624 (686)	674 (736)
	L	168.5	218.5	268.5	318.5	368.5	418.5	468.5	518.5
	L ₁	80	130	180	230	280	330	380	430
	C	100	150	200	250	300	350	400	450
Mounting hole count	n	3	4	5	6	7	8	9	10
Weight *3 [kg]	1.5 (1.9)	1.6 (2.1)	1.7 (2.2)	1.8 (2.3)	1.9 (2.4)	2 (2.5)	2.1 (2.6)	2.2 (2.7)	

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES4R

Slider type TSC specification Motor wrap



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES4R	06	0150	B	TS	MR-GR	35P	D00	S3
ES4R	06: 6mm 12: 12mm	0050: 50mm to 0400: 400mm	B	TS: TSC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	35P: □35 35PB: □35 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is *RSAN-2003 (TDK-Lambda Corporation)*.

Basic Specifications

Control device type		TSC	
Motor		□35	
Ball screw lead [mm]		6	12
Maximum load	Acceleration and deceleration rate	0.3G	0.2G
	Horizontal mount	4	2
Weight [kg]	Vertical	1.5	1
	Running life *1 [km]	5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		M _A : 9.3, M _B : 13.5, M _C : 17.7	

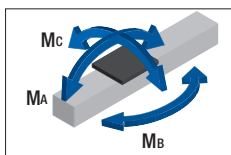
*1 Service life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

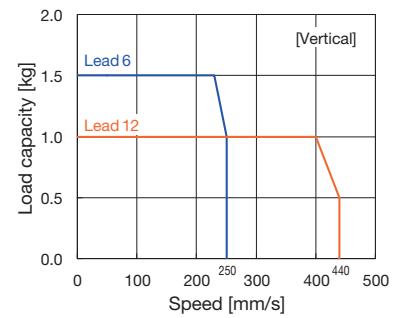
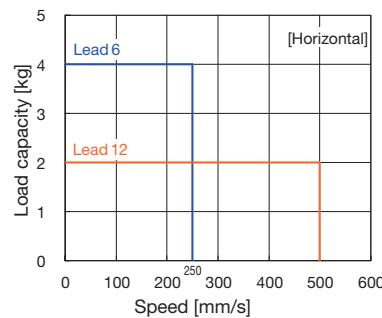
*2 Maximum permissible moment when unit is stationary.

Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

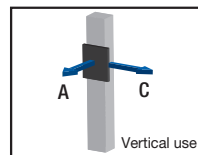
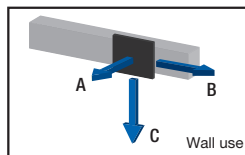
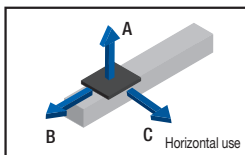
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



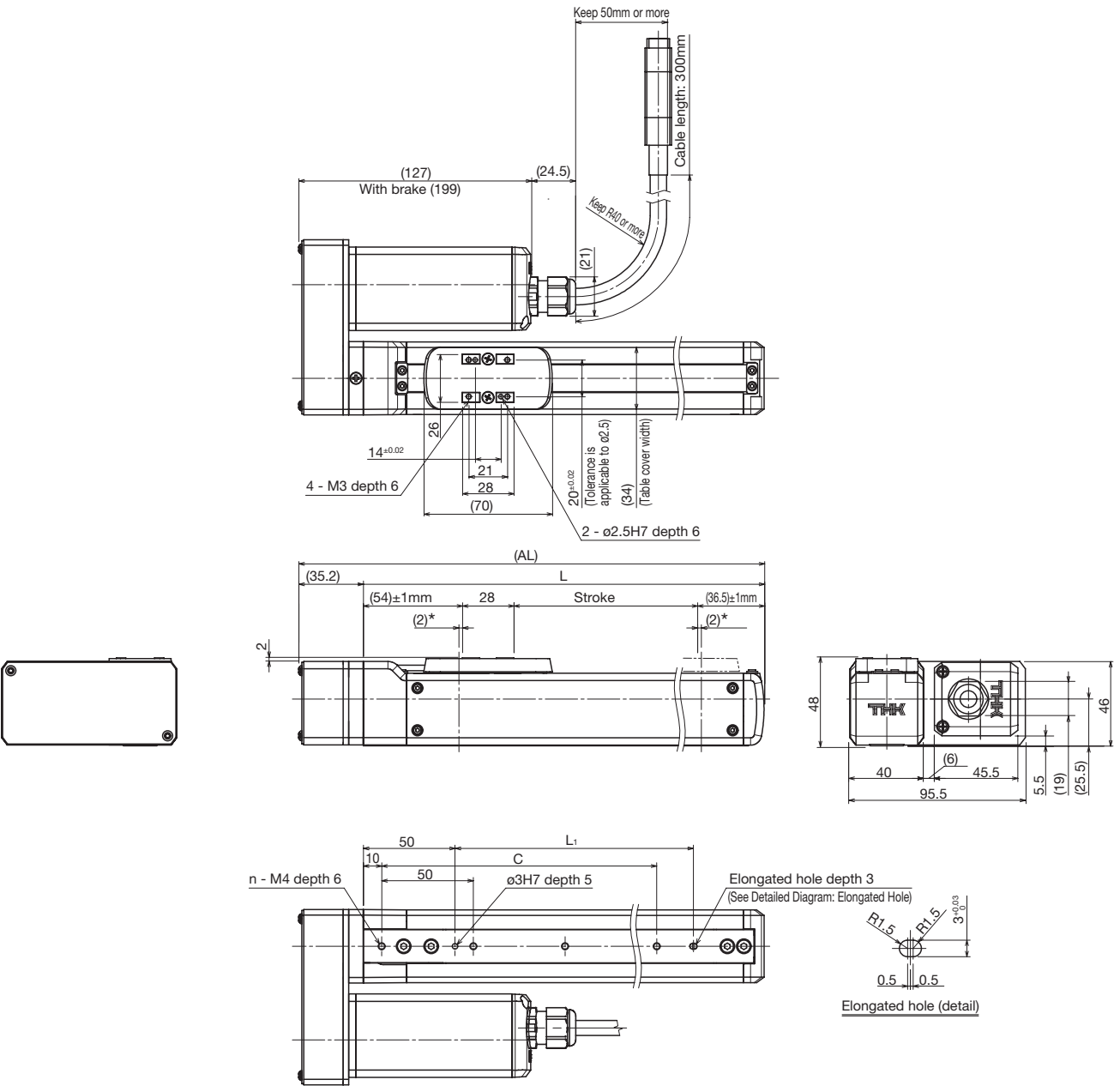
Horizontal mount				Wall mount				Vertical mount					
Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]	Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]	Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]		
6	2	300	120	240	6	2	210	110	300	6	0.8	280	300
	4	300	50	110		4	80	40	300		1.5	140	160
12	1	300	240	300	12	1	300	260	300	12	0.5	300	300
	2	300	120	200		2	170	110	300		1	210	240

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES4R + TSC



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		50 (54)	100 (104)	150 (154)	200 (204)	250 (254)	300 (304)	350 (354)	400 (404)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	250							
	Ball screw lead: 12mm	Horizontal: 500, Vertical: 440							
Dimensions [mm]	AL ^{*3}	203.7	253.7	303.7	353.7	403.7	453.7	503.7	553.7
	L	168.5	218.5	268.5	318.5	368.5	418.5	468.5	518.5
	L ₁	80	130	180	230	280	330	380	430
	C	100	150	200	250	300	350	400	450
Mounting hole count	n	3	4	5	6	7	8	9	10
Weight ^{*3} [kg]		1.6 (2)	1.7 (2.1)	1.8 (2.2)	1.9 (2.3)	2 (2.4)	2.1 (2.5)	2.2 (2.6)	2.3 (2.7)

^{*1} Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

^{*2} Dependent on permissible rotational speed of ball screw.

^{*3} Values when a brake is installed are shown in parentheses.

Economy series

ES5 Slider type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES5	06	0150	B	TS	GR-SB	42P	D00	S3
ES5	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is *RSAN-2003 (TDK-Lambda Corporation)*.

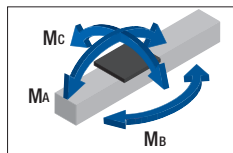
Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount 0.3G	10
	Vertical	0.2G	5
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		Ma: 10.5, Mb: 22, Mc: 22.1	

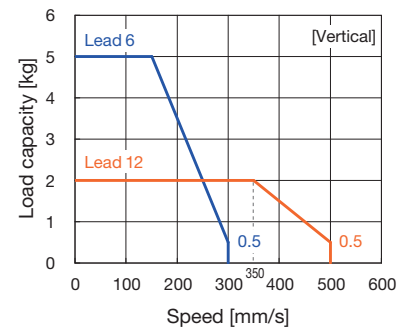
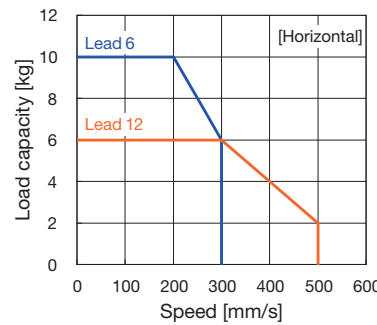
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

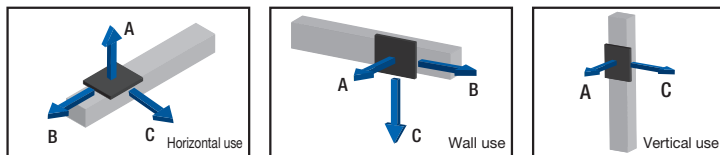
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



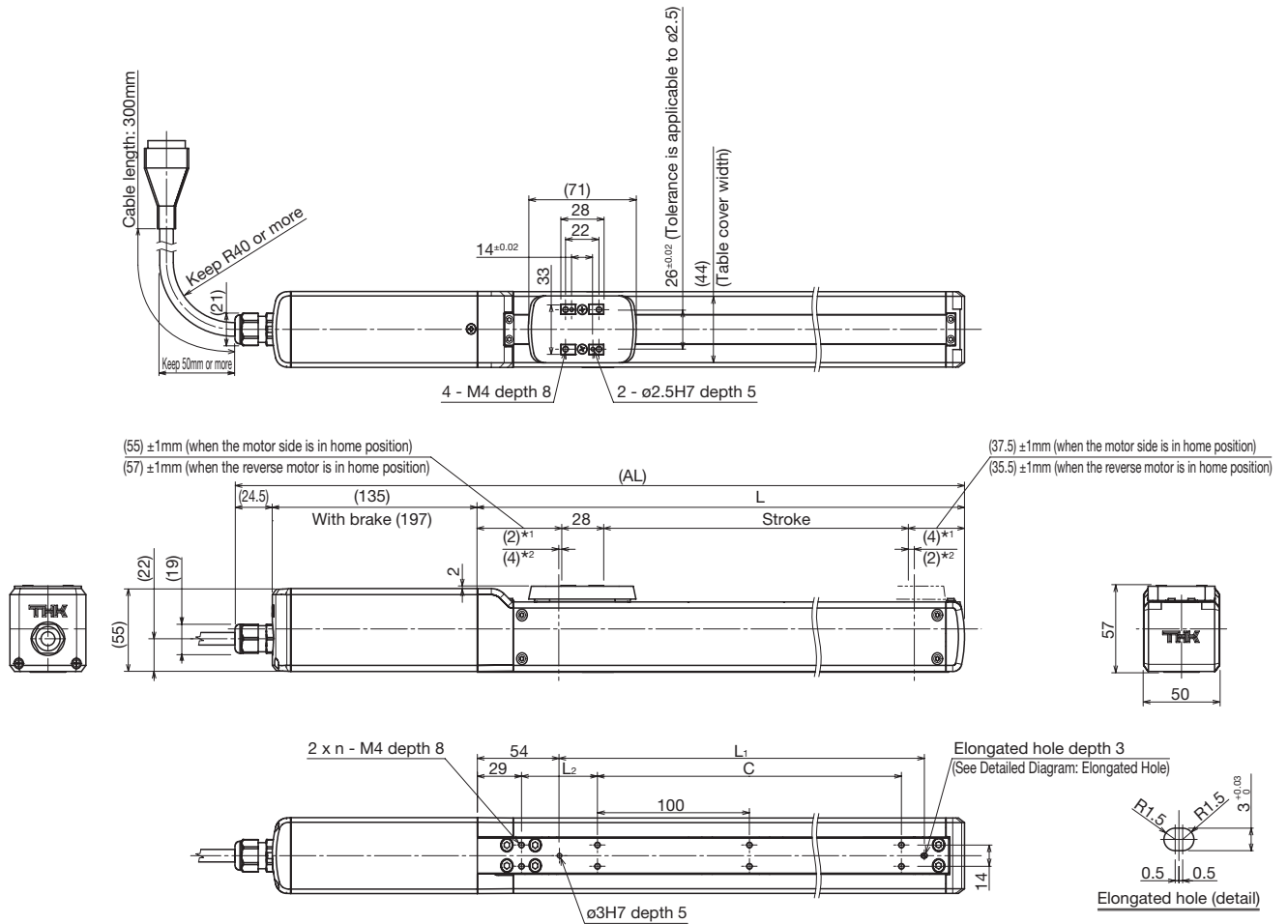
Horizontal mount [mm]				Wall mount [mm]				Vertical mount [mm]					
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	5	400	90	200	6	5	160	70	400	6	2.5	160	160
	10	270	40	90		10	50	20	220		5	70	70
12	3	400	160	280	12	3	260	130	400	12	1	400	400
	6	320	70	130		6	100	50	250		2	200	200

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES5 + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
 *2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	300									
	Ball screw lead: 12mm	500									
Dimensions [mm]	AL ^{*3}	330 (392)	380 (442)	430 (492)	480 (542)	530 (592)	580 (642)	630 (692)	680 (742)	730 (792)	780 (842)
	L	170.5	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5
	L ₁	90	140	190	240	290	340	390	440	490	540
	L ₂	100	50	100	50	100	50	100	50	100	50
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500
	n	2	3	3	4	4	5	5	6	6	7
Weight ^{*3} [kg]		2.1 (2.6)	2.2 (2.7)	2.3 (2.8)	2.5 (3)	2.6 (3.1)	2.8 (3.2)	2.9 (3.4)	3 (3.5)	3.2 (3.7)	3.3 (3.8)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES5R Slider type TSC specification Motor wrap



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES5R	06	0150	B	TS	MR-GR	42P	D00	S3
ES5R	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TS: TSC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is *RSAN-2003 (TDK-Lambda Corporation)*.

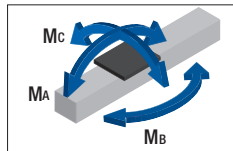
Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
	Vertical	0.2G	
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		Ma: 10.5, Mb: 22, Mc: 22.1	

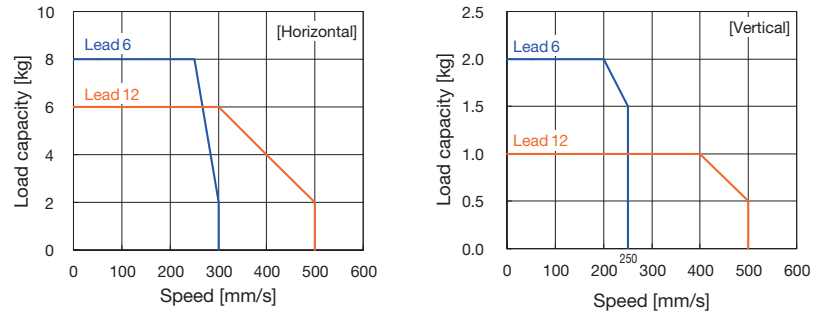
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

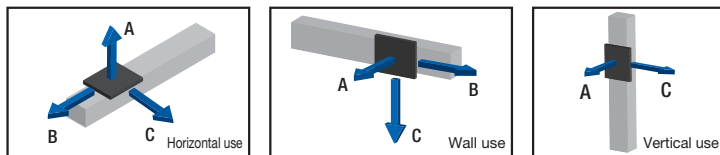
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



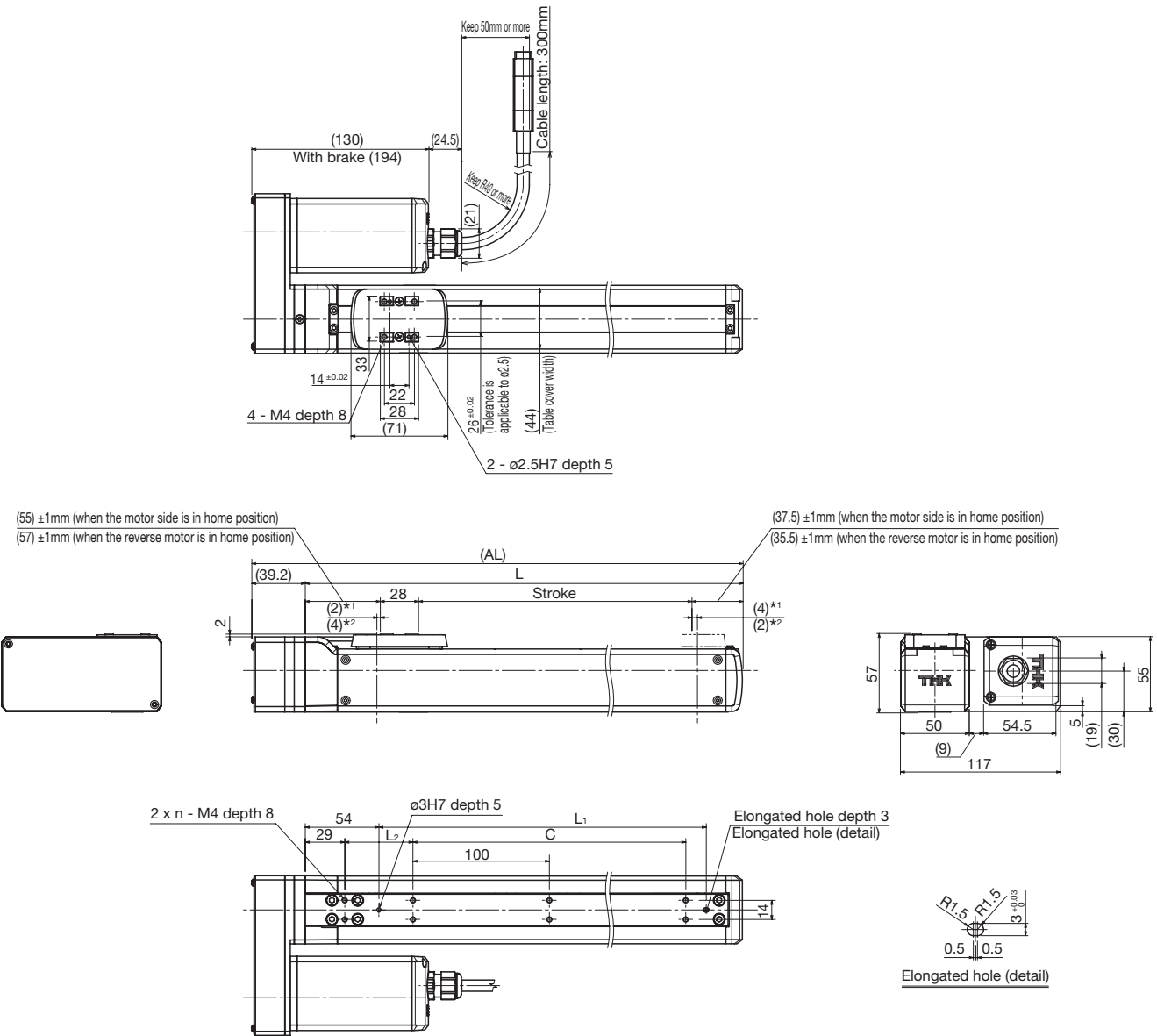
Horizontal mount [mm]				Wall mount [mm]				Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	Ball screw lead [mm]	Load mass [kg]	A	B	Ball screw lead [mm]	Load mass [kg]	A	C	
6	4	400	110	260	4	220	90	400	6	1	400	400
	8	340	50	120	8	80	30	320	6	2	210	210
12	3	400	160	280	3	260	130	400	12	0.5	400	400
	6	320	70	130	6	100	50	250	12	1	400	400

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES5R + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
 *2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	Horizontal: 300, Vertical: 250									
	Ball screw lead: 12mm	500									
Dimensions [mm]	AL	209.7	259.7	309.7	359.7	409.7	459.7	509.7	559.7	609.7	659.7
	L	170.5	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5
	L ₁	90	140	190	240	290	340	390	440	490	540
	L ₂	100	50	100	50	100	50	100	50	100	50
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500
	n	2	3	3	4	4	5	5	6	6	7
Weight ^{*3} [kg]		2.2 (2.8)	2.3 (2.9)	2.4 (3)	2.6 (3.2)	2.7 (3.3)	2.8 (3.5)	3 (3.6)	3.1 (3.8)	3.3 (3.9)	3.4 (4)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".
 *2 Dependent on permissible rotational speed of ball screw.
 *3 Values when a brake is installed are shown in parentheses.

ES/EC
KRF
US/USW
PCT/PC
Controller

Economy series

ES6

Slider type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES6	06	0150	B	TS	GR-SB	42P	D00	S3
ES6	06: 6mm 12: 12mm	0050: 50mm to 0600: 600mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray SB: With slider base □1□2: Sensors	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

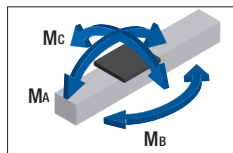
Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
	Vertical	0.2G	
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		Ma: 10.5, Mb: 22, Mc: 22.1	

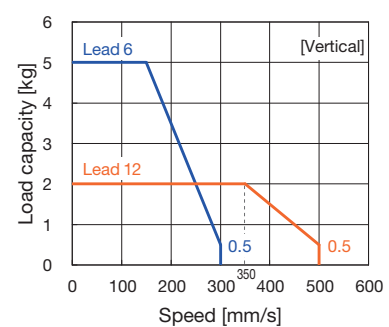
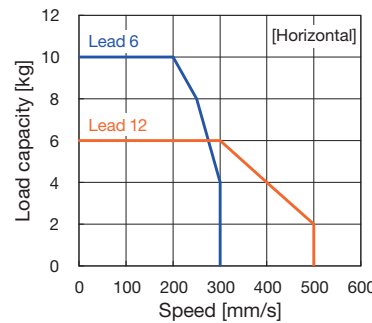
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

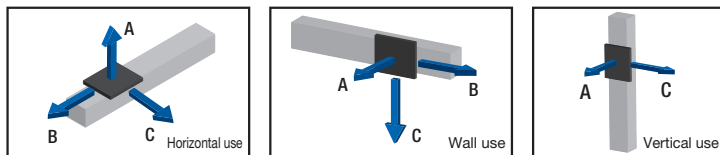
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



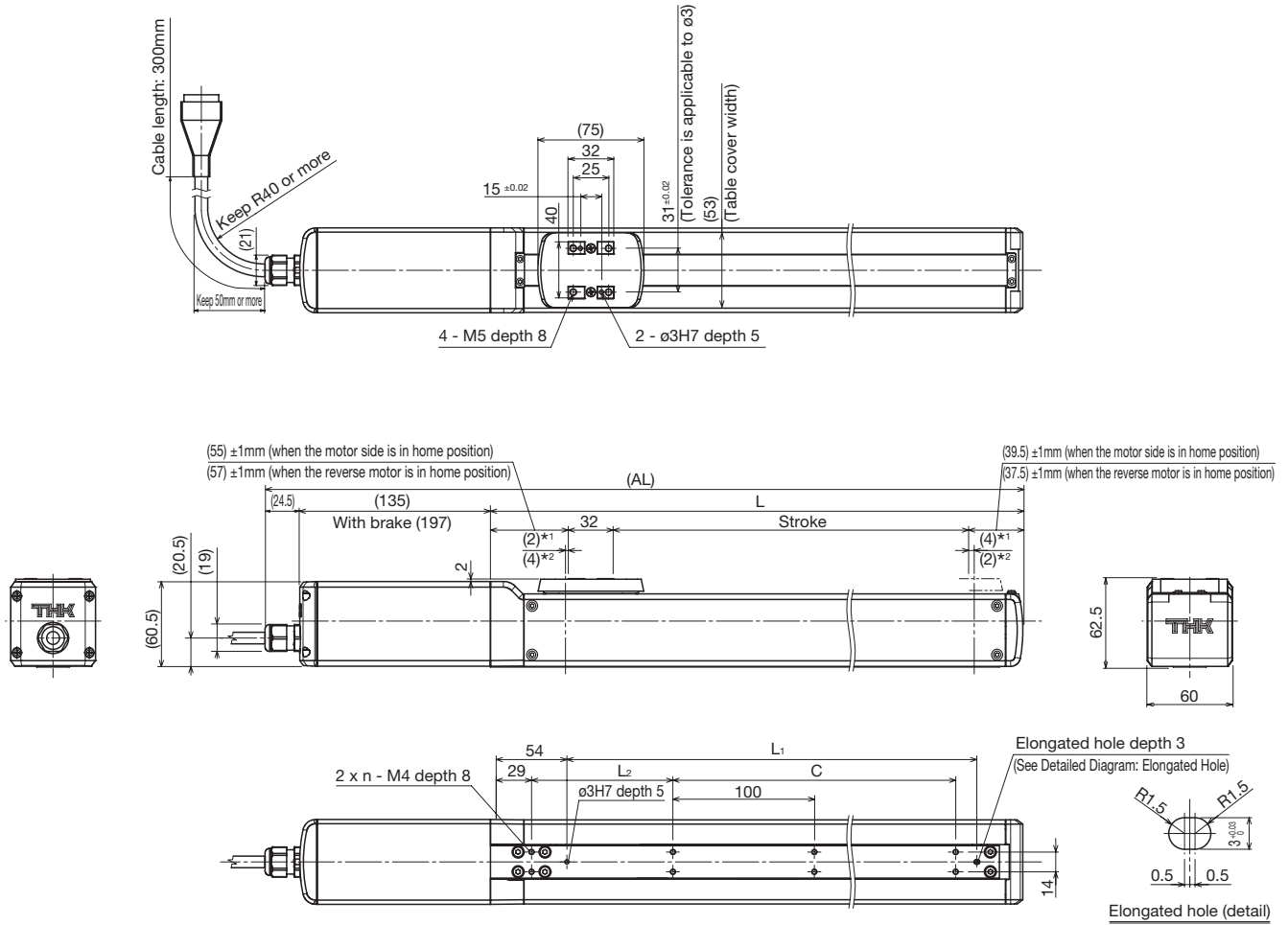
Horizontal mount				Wall mount				Vertical mount			
Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]	Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]	Ball screw lead [mm]	Load mass [kg]	A [mm]	C [mm]
6	5	500	200	6	5	160	500	6	2.5	160	160
	10	260	90		10	40	20		210	5	60
12	3	500	280	12	3	250	500	12	1	420	420
	6	320	130		6	90	50		240	2	190

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES6 + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
 *2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)	550 (556)	600 (606)
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm	300										270	230
	Ball screw lead: 12mm	500											460
Dimensions [mm]	AL *3	336 (398)	386 (448)	436 (498)	486 (548)	536 (598)	586 (648)	636 (698)	686 (748)	736 (798)	786 (848)	836 (898)	886 (948)
	L	176.5	226.5	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5
	L ₁	90	140	190	240	290	340	390	440	490	540	590	640
	L ₂	100	50	100	50	100	50	100	50	100	50	100	50
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500	500	600
	n	2	3	3	4	4	5	5	6	6	7	7	8
Weight *3 [kg]		2.4 (2.9)	2.6 (3)	2.7 (3.2)	2.8 (3.3)	3 (3.5)	3.1 (3.6)	3.3 (3.8)	3.4 (3.9)	3.5 (4)	3.7 (4.2)	3.8 (4.3)	4 (4.5)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".
 *2 Dependent on permissible rotational speed of ball screw.
 *3 Values when a brake is installed are shown in parentheses.

ES/EC
KRF
US/USW
PCT/PC
Controller

Economy series

ES6R Slider type TSC specification Motor wrap



ES/EC
KRF
US/USW
PCT/PC
Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
ES6R	06	0150	B	TS	MR-GR	42P	D00	S3
ES6R	06: 6mm 12: 12mm	0050: 50mm to 0600: 600mm	B	TS: TSC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensors	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3: Standard 3m S5: Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is *RSAN-2003 (TDK-Lambda Corporation).

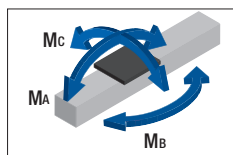
Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	0.3G	0.2G
	Horizontal mount	8	6
Vertical		2	1
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment ** [N·m]		Ma: 10.5, Mb: 22, Mc: 22.1	

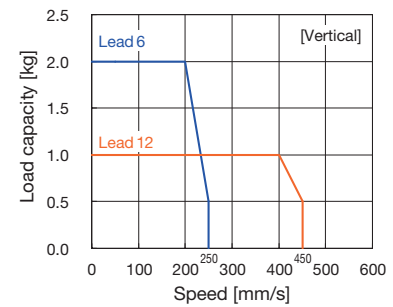
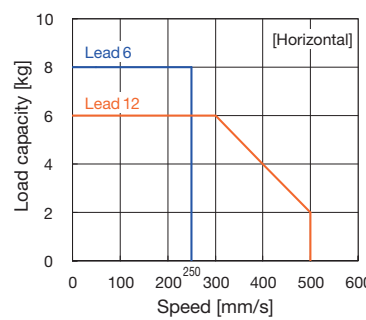
*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

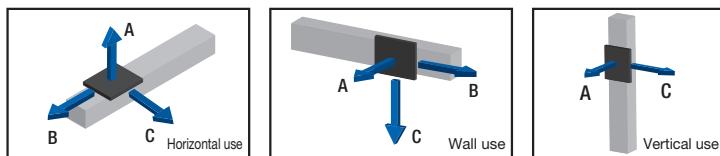
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



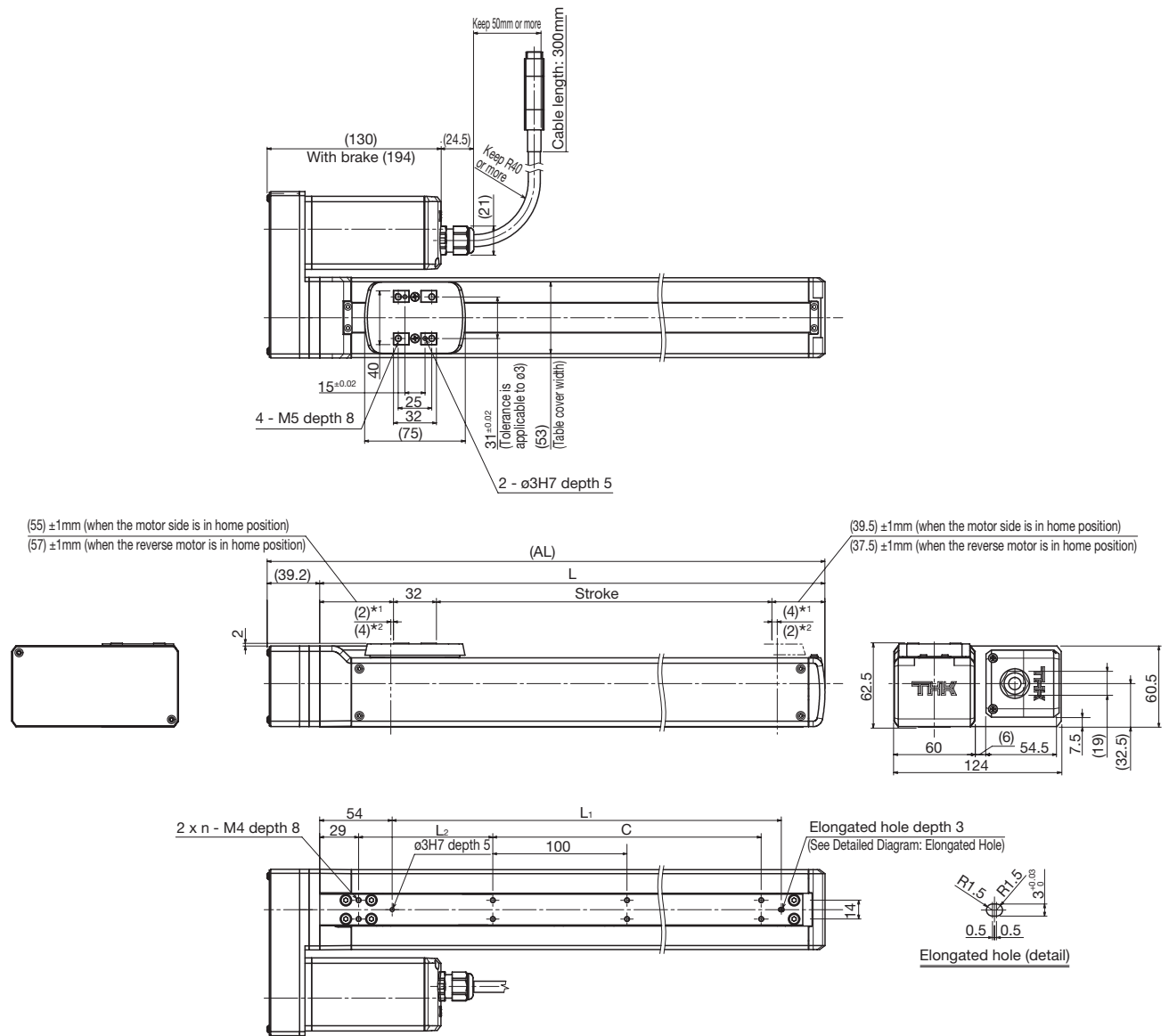
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	4	500	110	260	6	4	210	90	500	6	1	450	450
	8	340	50	120		8	70	30	300		2	210	210
12	3	500	160	280	12	3	250	130	500	12	0.5	500	500
	6	320	70	130		6	90	50	240		1	420	420

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal, 0.2G vertical, 150mm stroke.

ES6R + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
 *2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)	550 (556)	600 (606)
Maximum speed [mm/s]	Ball screw lead: 6mm	250											
	Ball screw lead: 12mm	Horizontal: 500, Vertical: 450											
Dimensions [mm]	AL	215.7	265.7	315.7	365.7	415.7	465.7	515.7	565.7	615.7	665.7	715.7	765.7
	L	176.5	226.5	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5
	L ₁	90	140	190	240	290	340	390	440	490	540	590	640
	L ₂	100	50	100	50	100	50	100	50	100	50	100	50
Mounting hole count	n	2	3	3	4	4	5	5	6	6	7	7	8
Weight * ³ [kg]		2.5 (3.1)	2.7 (3.3)	2.8 (3.4)	2.9 (3.5)	3.1 (3.7)	3.2 (3.8)	3.4 (4)	3.5 (4.1)	3.7 (4.3)	3.8 (4.4)	4 (4.6)	4.1 (4.7)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".
 *2 Dependent on permissible rotational speed of ball screw.
 *3 Values when a brake is installed are shown in parentheses.
 *4 Horizontal: 460, Vertical: 450

Economy series

EC3 Cylinder type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC3	06	0150	B	TS	GR-FL-LB	35P	D00	S3
EC3	06: 6mm	0050: 50mm to 0200: 200mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray CB: With cylinder base FL : With flange LB : With link ball	35P: □35 35PB: □35 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

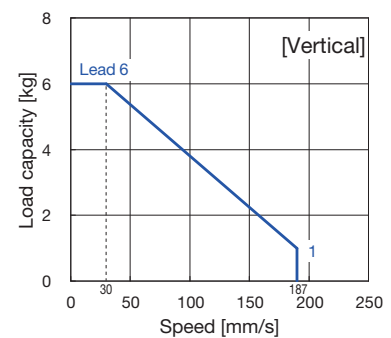
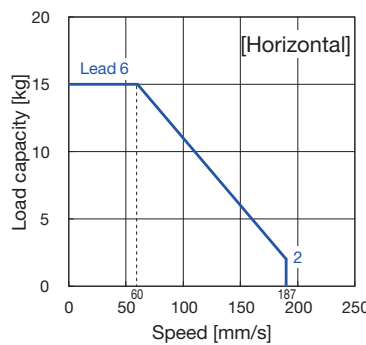
Basic Specifications

Control device type		TSC	
Motor		□35	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Running life *1 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Static permissible moment *2 [N·m]		±1.5	

*1 Service life is based on below conditions.
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

*2 Maximum permissible moment when unit is stationary.
Applied point of moment load for MA and MC are the top face of the table, and that for MB is the center of the table.

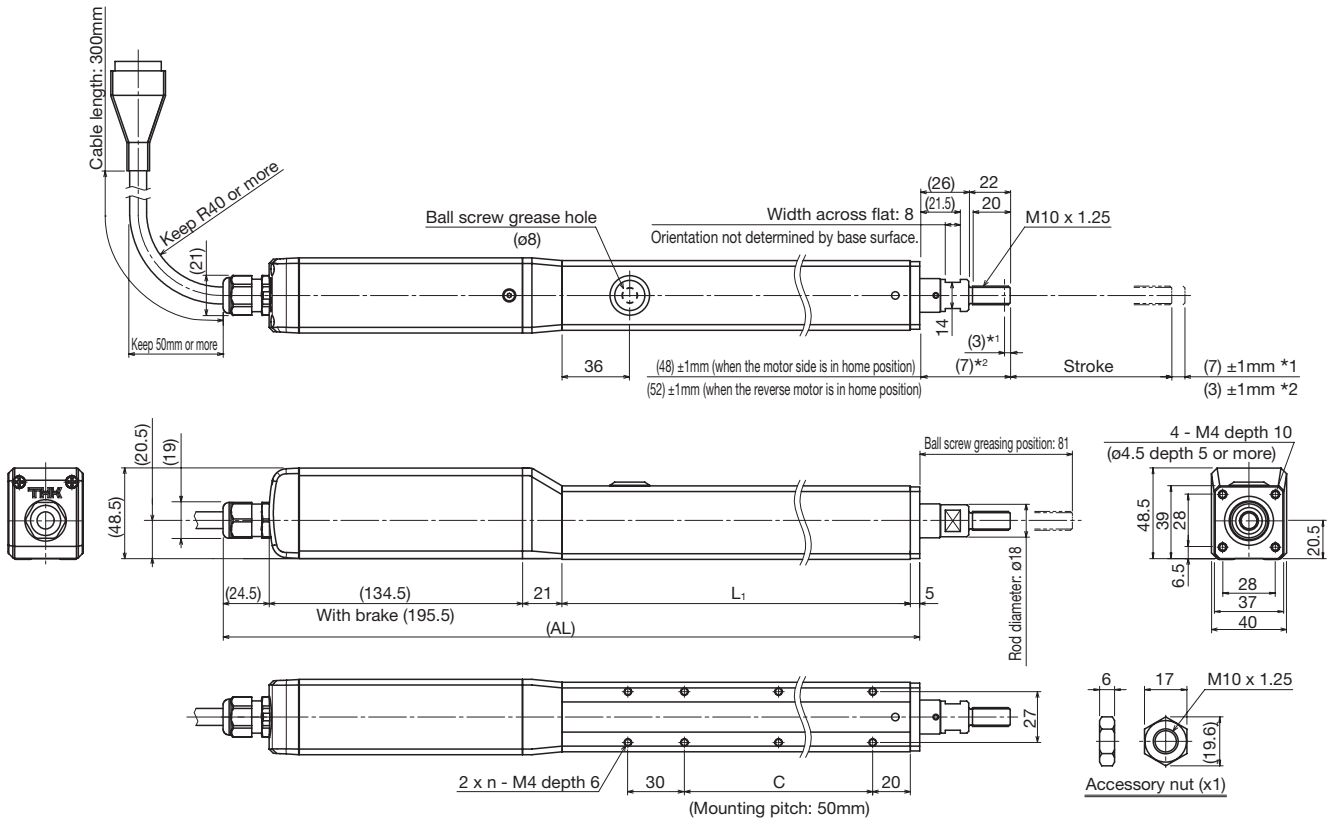
Speed and Load Capacity: Relationship Diagram



EC3 + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm	187			
Dimensions [mm]	AL *3	320 (381)	370 (431)	420 (481)	470 (531)
	L ₁	135	185	235	285
Mounting hole count	C	50	100	150	200
	n	3	4	5	6
Weight *3 [kg]		1.4 (1.8)	1.6 (2)	1.8 (2.2)	2 (2.4)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

EC3R

Cylinder type TSC specification Motor wrap



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC3R	06	0150	B	TS	MR-GR-FL-LB	35P	D00	S3
EC3R	06: 6mm	0050: 50mm to 0200: 200mm	B	TS: TSC	MR : Motor right-turn folded ML : Motor left-turn folded GR : Change the cover color to gray CB : With cylinder base FL : With flange LB : With link ball	35P: □35 35PB: □35 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

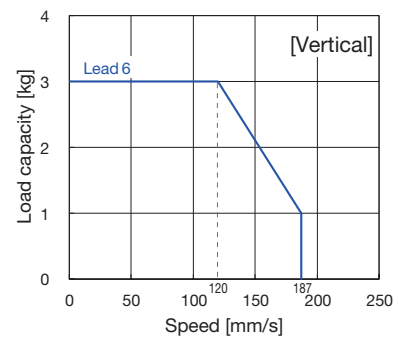
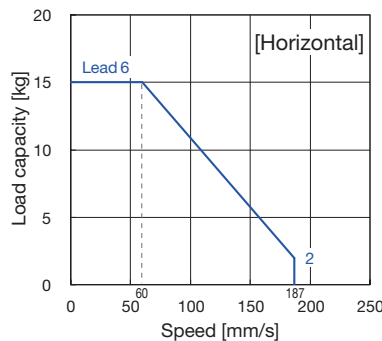
* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

Basic Specifications

Control device type		TSC	
Motor		□35	
Ball screw lead [mm]		6	
Maximum load	Acceleration and deceleration rate	Horizontal mount	0.3G
Weight*1 [kg]		Vertical	0.2G
			3
Running life*2 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±1.5	

*1 Only axial loads permissible. Only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.
 *2 The following conditions apply to running life. Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

Speed and Load Capacity: Relationship Diagram

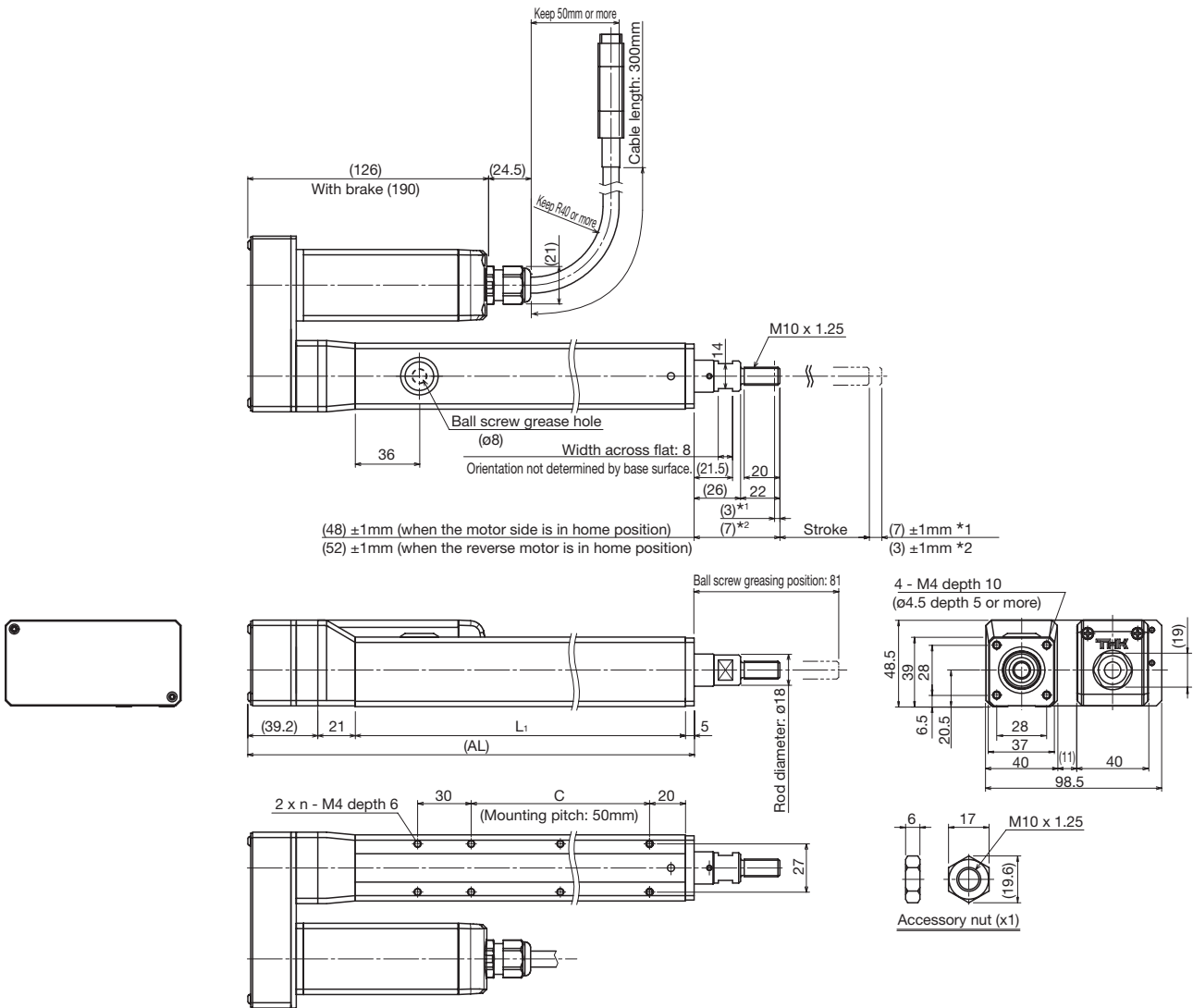


EC3R + TSC



Dimensions

ES/EC
KRF
US/USW
PCT/PC
Controller



*1 Stroke to the mechanical stopper when the motor side is in home position.
*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)
Maximum speed *1*2 [mm/s]	Ball screw lead: 6mm	187			
Dimensions [mm]	AL	200.2	250.2	300.2	350.2
	L ₁	135	185	235	285
	C	50	100	150	200
Mounting hole count	n	3	4	5	6
Weight *3 [kg]		1.4 (1.8)	1.6 (2.0)	1.8 (2.2)	2 (2.4)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

Economy series

EC3H

Cylinder type TSC specification Direct motor coupling/with linear bush



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC3H	06	0150	B	TS	GR-CB	35P	D00	S3
EC3H	06: 6mm	0050: 50mm to 0200: 200mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray CB: With cylinder base	35P: □35 35PB: □35 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

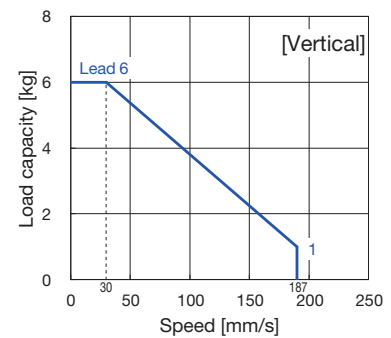
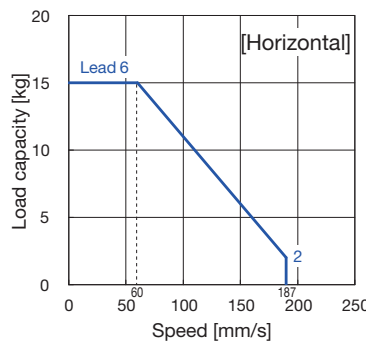
* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

Basic Specifications

Control device type		TSC	
Motor		□35	
Ball screw lead [mm]		6	
Maximum load Weight *1*2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Running life *2*3 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±0.05	

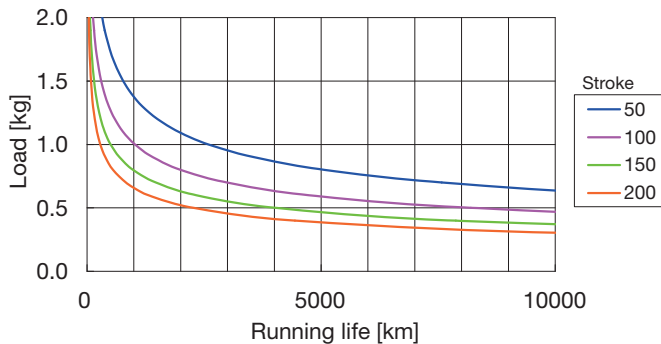
- *1 Only axial loads permissible. Only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.
- *2 Load capacity and running life may vary without an LM guide. For details, see "Reference End Load and Running Life".
- *3 The following conditions apply to running life. Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

Speed and Load Capacity: Relationship Diagram



Reference End Load and Running Life

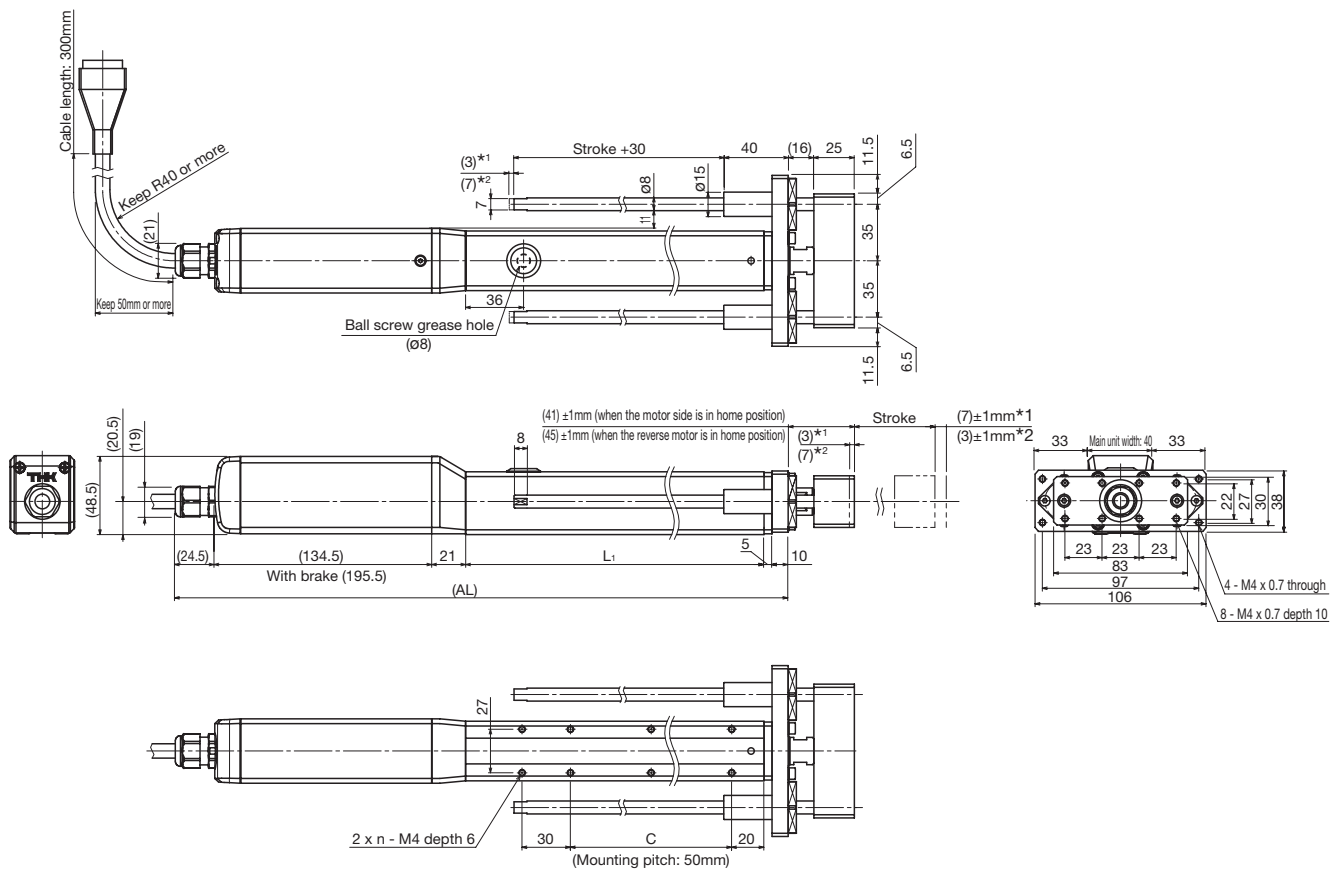
Running life varies when a load is applied to the end of the unit without using an LM Guide, as shown below.



EC3H + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)	50 (60)	100 (110)	150 (160)	200 (210)	
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm 187				
Dimensions [mm]	AL *3	330 (391)	380 (441)	430 (491)	480 (541)
	L ₁	135	185	235	285
	C	50	100	150	200
Mounting hole count	n	3	4	5	6
Weight *3 [kg]	1.7 (2.1)	1.9 (2.4)	2.2 (2.6)	2.4 (2.9)	

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

EC4 Cylinder type TSC specification Direct motor coupling



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC4	06	0150	B	TS	GR-FL-LB	42P	D00	S3
EC4	06: 6mm 12: 12mm	0050: 50mm to 0300: 300mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray CB: With cylinder base FL: With flange LB: With link ball	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3: Standard 3m S5: Standard 5m SA*: Standard 10m

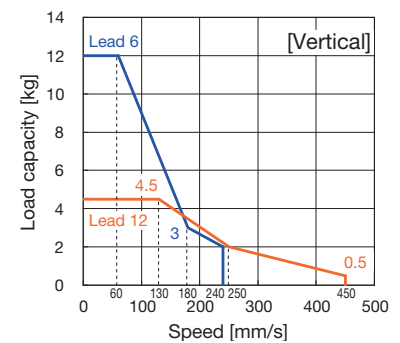
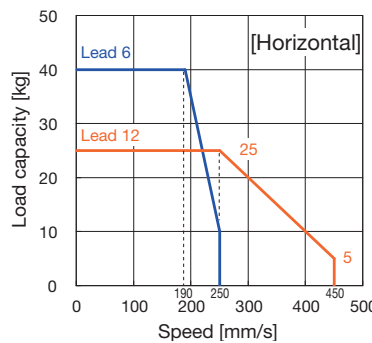
* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Weight*1 [kg]		12	4.5
Running life*2 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±1.5	

*1 Only axial loads permissible. Only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.
*2 The following conditions apply to running life. Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

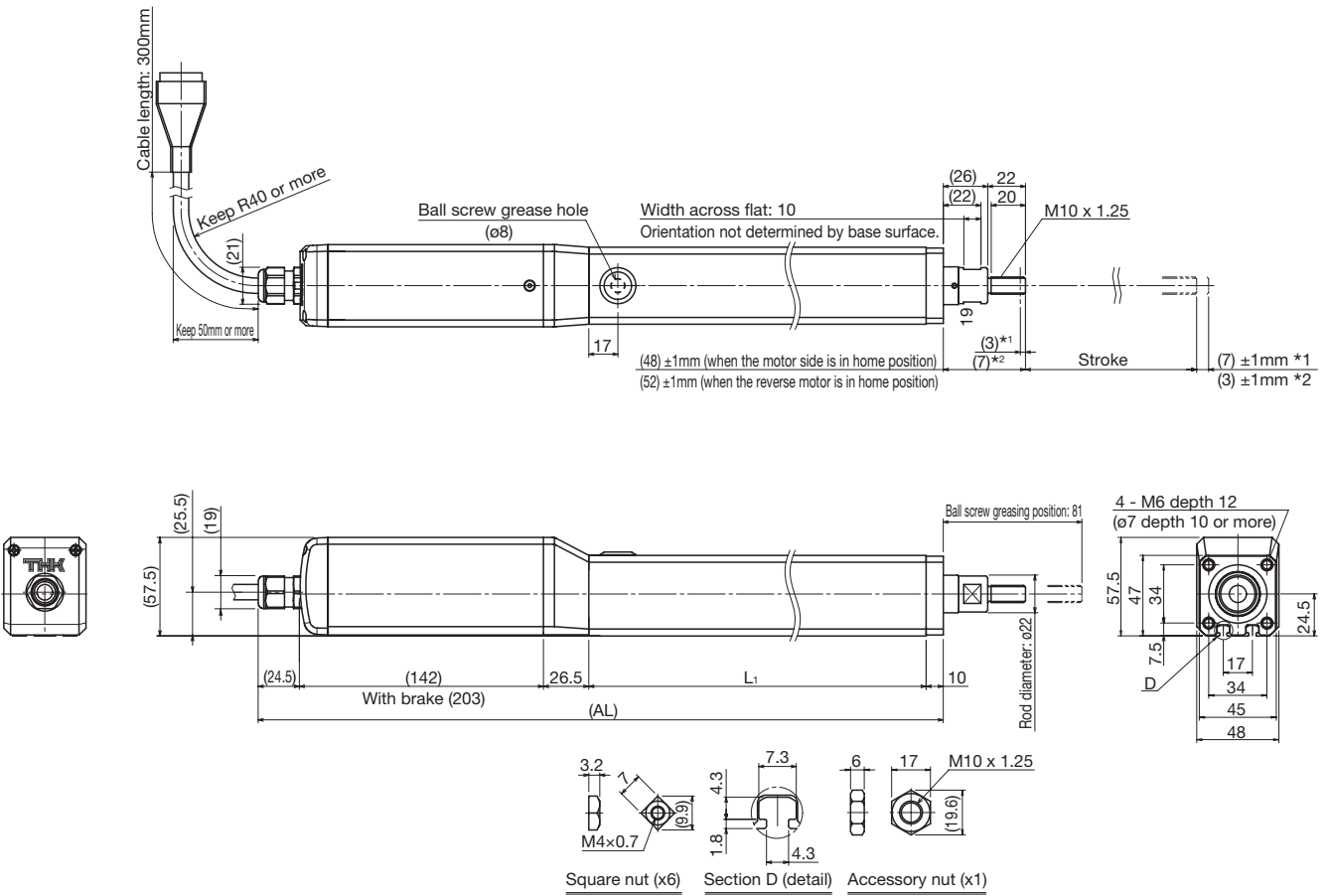
Speed and Load Capacity: Relationship Diagram



EC4 + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed [mm/s]	Ball screw lead: 6mm	Horizontal: 250, Vertical: 240				230	170
	Ball screw lead: 12mm	450					340
Dimensions [mm]	AL ^{*3}	350 (411)	400 (461)	450 (511)	500 (561)	550 (611)	600 (661)
	L ₁ ^{*4}	147	197	247	297	347	397
Weight ^{*3} [kg]		2.3 (2.9)	2.6 (3.2)	3 (3.5)	3.3 (3.8)	3.6 (4.2)	4 (4.5)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

*4 The dimension of the T slot corresponds to L₁.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

EC4R Cylinder type TSC specification Motor wrap



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC4R	06	0150	B	TS	MR-GR-FL-LB	42P	D00	S3
EC4R	06: 6mm 12: 12mm	0050: 50mm to 0300: 300mm	B	TS: TSC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray CB: With cylinder base FL: With flange LB: With link ball	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

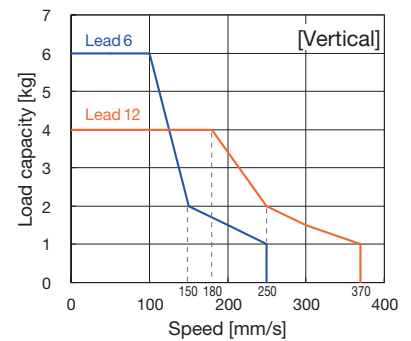
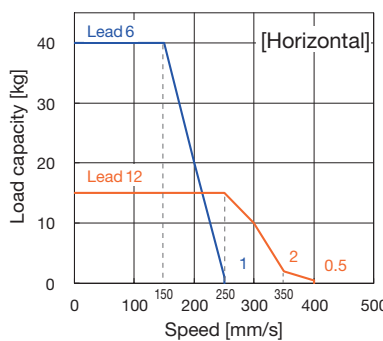
* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is *RSAN-2003 (TDK-Lambda Corporation)*.

Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight*1 [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
	Vertical	0.2G	
Running life*2 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±1.5	

*1 Only axial loads permissible. Only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.
*2 The following conditions apply to running life. Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

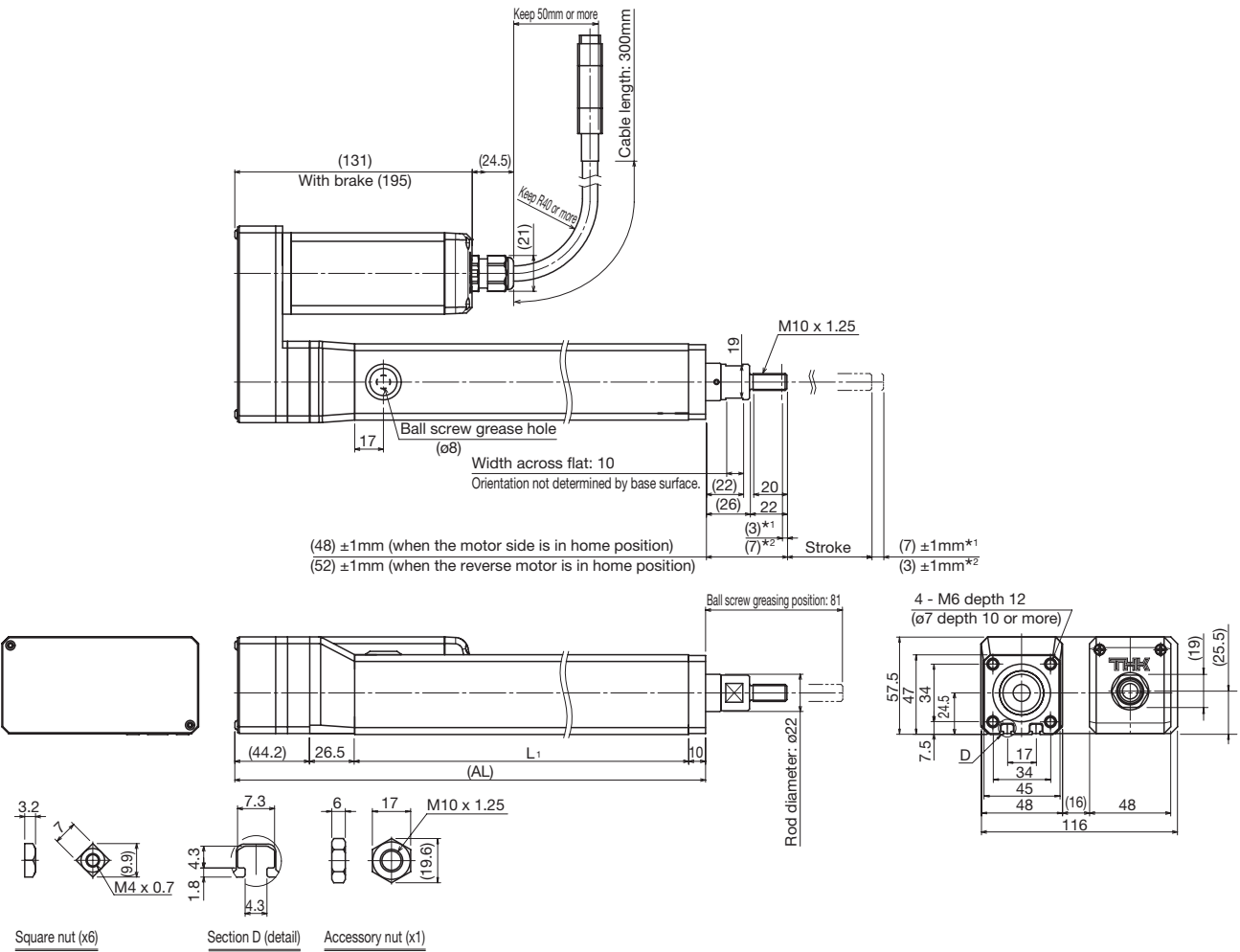
Speed and Load Capacity: Relationship Diagram



EC4R + TSC



Dimensions



Square nut (x6)

Section D (detail)

Accessory nut (x1)

*¹ Stroke to the mechanical stopper when the motor side is in home position.

*² Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed * ¹ * ² [mm/s]	Ball screw lead: 6mm	250				230	170
	Ball screw lead: 12mm	Horizontal: 400, Vertical: 370					340
Dimensions [mm]	AL	227.7	277.7	327.7	377.7	427.7	477.7
	L ₁ * ³	147	197	247	297	347	397
Weight * ⁴ [kg]		2.3 (2.9)	2.6 (3.2)	2.9 (3.6)	3.3 (3.9)	3.6 (4.2)	3.9 (4.5)

*¹ Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*² Dependent on permissible rotational speed of ball screw.

*³ The dimension of the T slot corresponds to L₁.

*⁴ Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

EC4H

Cylinder type TSC specification Direct motor coupling/with linear bush



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor used	Home position	Cable length
EC4H	06	0150	B	TS	GR-CB	42P	D00	S3
EC4H	06: 6mm 12: 12mm	0050: 50mm to 0300: 300mm	B	TS: TSC	No symbol: None GR: Change the cover color to gray CB: With cylinder base	42P: □42 42PB: □42 with brake	D00: Motor side R00: Reverse motor side	No symbol: None S3 : Standard 3m S5 : Standard 5m SA*: Standard 10m

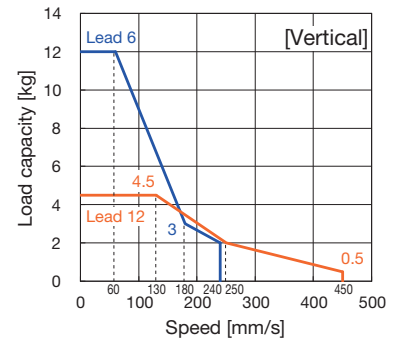
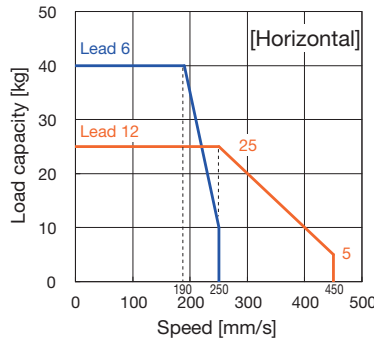
* To select SA, insert a noise filter to the TSC power supply. Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

Basic Specifications

Control device type		TSC	
Motor		□42	
Ball screw lead [mm]		6	12
Maximum load Weight *1*2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical	0.2G
Running life *2*3 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±0.05	

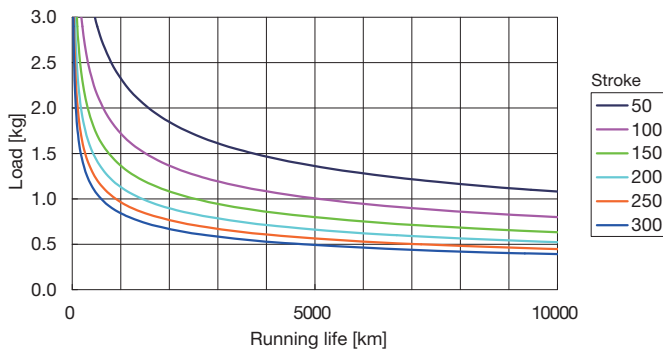
- *1 Only axial loads permissible. Only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.
- *2 Load capacity and running life may vary without an LM guide. For details, see "Reference End Load and Running Life".
- *3 The following conditions apply to running life. Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

Speed and Load Capacity: Relationship Diagram



Reference End Load and Running Life

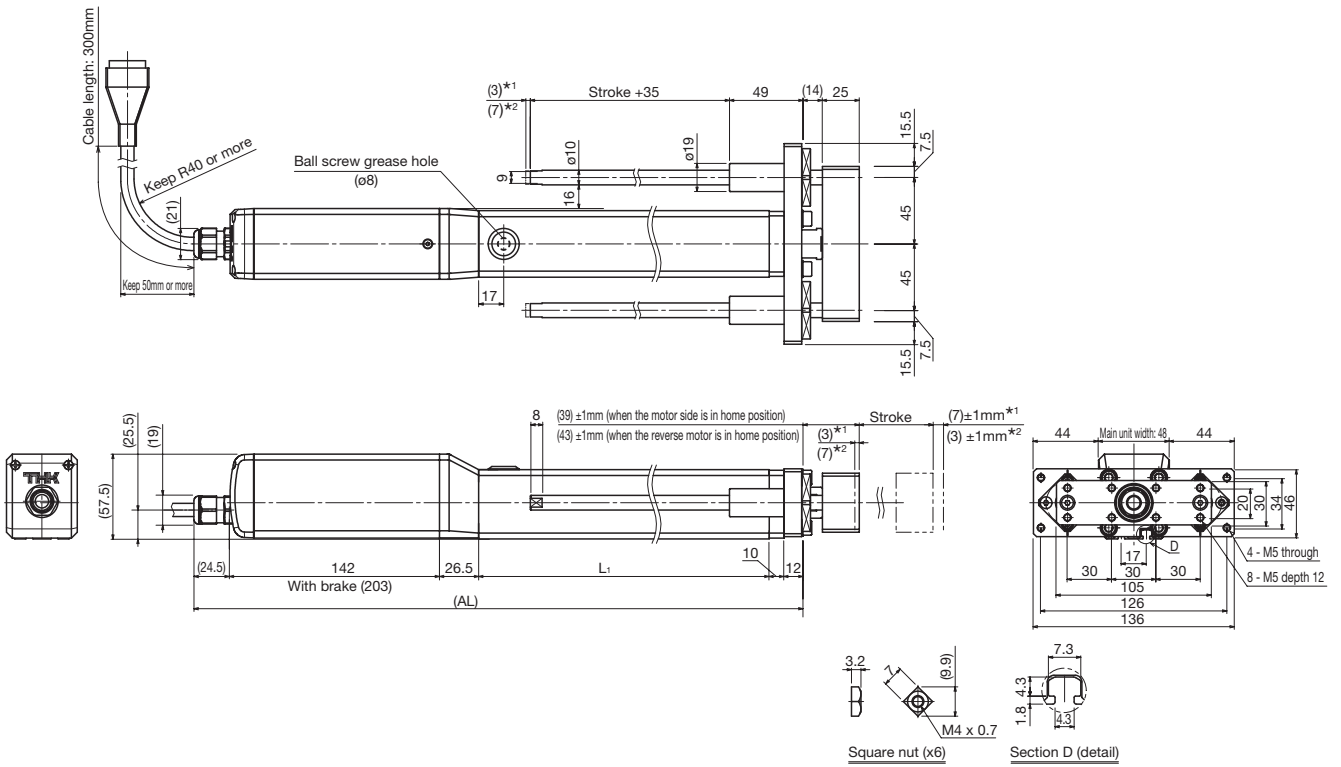
Running life varies when a load is applied to the end of the unit without using an LM Guide, as shown below.



EC4H + TSC



Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed [mm/s]	Ball screw lead: 6mm	Horizontal: 250, Vertical: 240				230	170
	Ball screw lead: 12mm	450					340
Dimensions [mm]	AL* ³	362 (423)	412 (473)	462 (523)	512 (573)	562 (623)	612 (673)
	L ₁ * ⁴	147	197	247	297	347	397
Weight * ³ [kg]		2.8 (3.4)	3.1 (3.8)	3.5 (4.1)	3.9 (4.5)	4.2 (4.8)	4.6 (5.2)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 Dependent on permissible rotational speed of ball screw.

*3 Values when a brake is installed are shown in parentheses.

*4 The dimension of the T slot corresponds to L₁.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES5 Slider type TLC specification Direct motor coupling, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

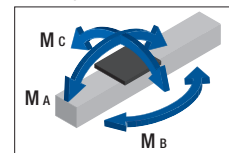
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
ES5	06	0150	B	TL	GR-SB	M05	R	D00	F3
ES5	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TL: TLC	No symbol: Red cover GR: Change the cover color to gray SB: With slider base □₁□₂: Sensor	M05: 50W M05B: 50W with brake	R: Right U: Up L: Left D: Down	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	10	6
		Vertical	0.3G	5	2
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Static permissible moment *6 [N·m]				M _A : 10.5, M _B : 22, M _C : 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

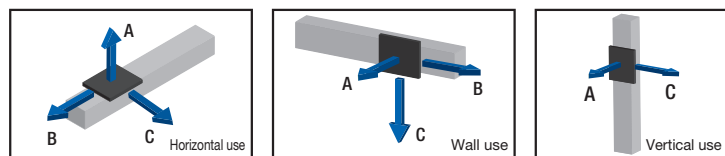
*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

*6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	5	400	90	200	6	5	160	70	400	6	2.5	160	160
	10	270	40	90		10	50	20	220		5	70	70
12	3	400	160	280	12	3	260	130	400	12	1	400	400
	6	320	70	130		6	100	50	250		2	200	200

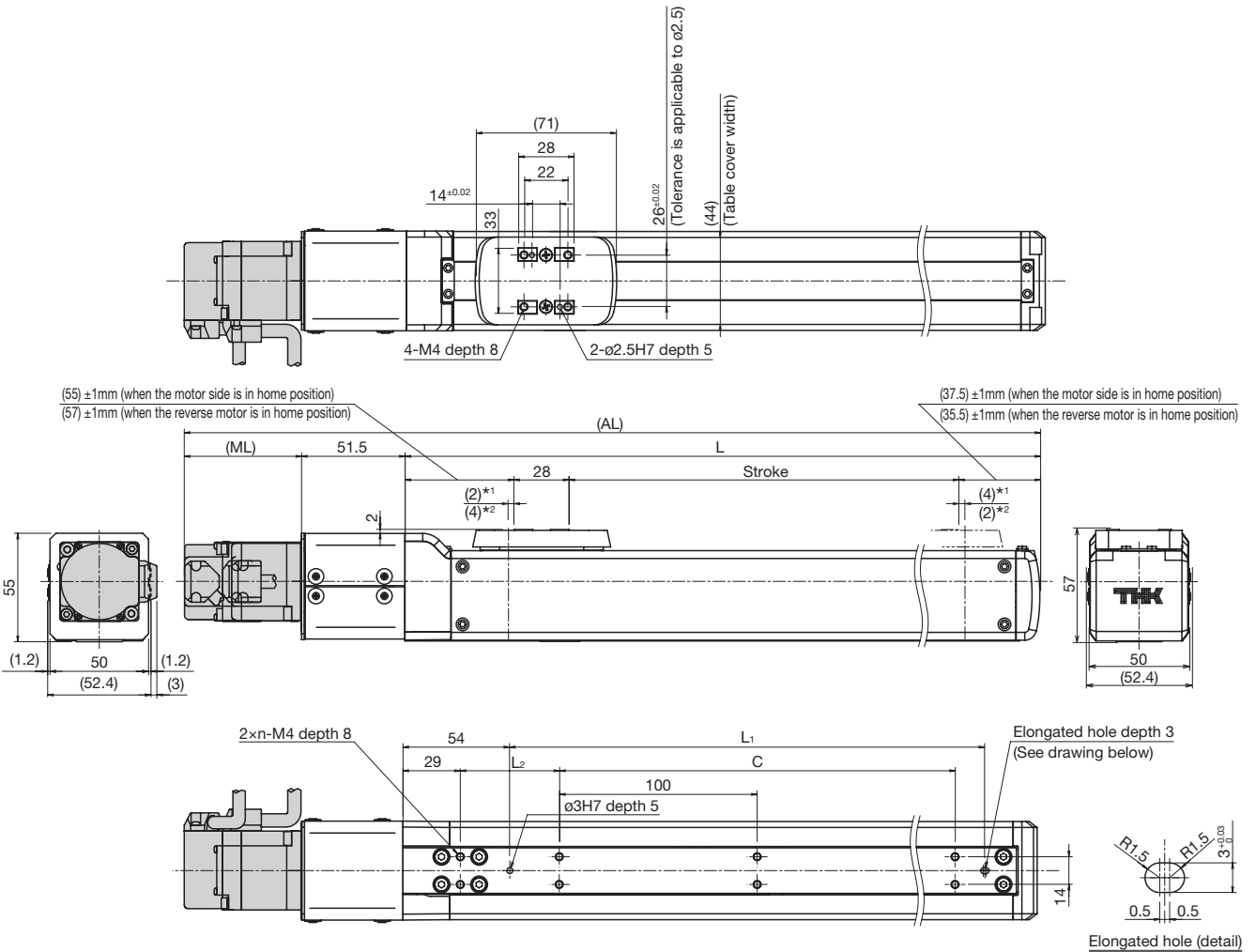
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

ES5 + TLC



Motor rated output
50W

Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300									
	Ball screw lead: 12mm	600									
Dimensions [mm]	AL *2	281.5 (317.1)	331.5 (367.1)	381.5 (417.1)	431.5 (467.1)	481.5 (517.1)	531.5 (567.1)	581.5 (617.1)	631.5 (667.1)	681.5 (717.1)	731.5 (767.1)
	ML *2	59.5 (95.1)									
	L	170.5	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5
	L1	90	140	190	240	290	340	390	440	490	540
	L2	100	50	100	50	100	50	100	50	100	50
	C	0	100	100	200	200	300	300	400	400	500
Mounting hole count	n	2	3	3	4	4	5	5	6	6	7
Weight *2 [kg]		2.0 (2.2)	2.1 (2.3)	2.2 (2.4)	2.4 (2.6)	2.5 (2.7)	2.7 (2.9)	2.8 (3.0)	2.9 (3.1)	3.1 (3.3)	3.2 (3.4)

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES5R Slider type TLC specification Motor wrap, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

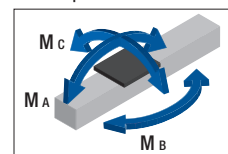
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
ES5R	06	0150	B	TL	MR-GR	M05	L	D00	F3
ES5R	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TL: TLC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensor	M05 : 50W M05B: 50W with brake	R: Right L: Left	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed * ¹ [mm/s]				300	600
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	0.3G	8	6
		Vertical	0.3G	2	1
Rated thrust * ³ [N]				134	67
Maximum thrust * ⁴ [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life * ⁵ [km]				5000	
Static permissible moment * ⁶ [N·m]				M _A : 10.5, M _B : 22, M _C : 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).

*² At rated speed.

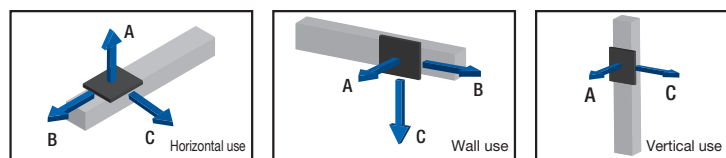
*³ At rated motor torque.

*⁴ Dependent on maximum motor torque and permissible load.

*⁵ Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

*⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	4	400	110	260	6	4	220	90	400	6	1	400	400	
	8	340	50	120		8	80	30	320		2	210	210	
12	3	400	160	280	12	3	260	130	400	12	0.5	400	400	
	6	320	70	130		6	100	50	250		1	400	400	

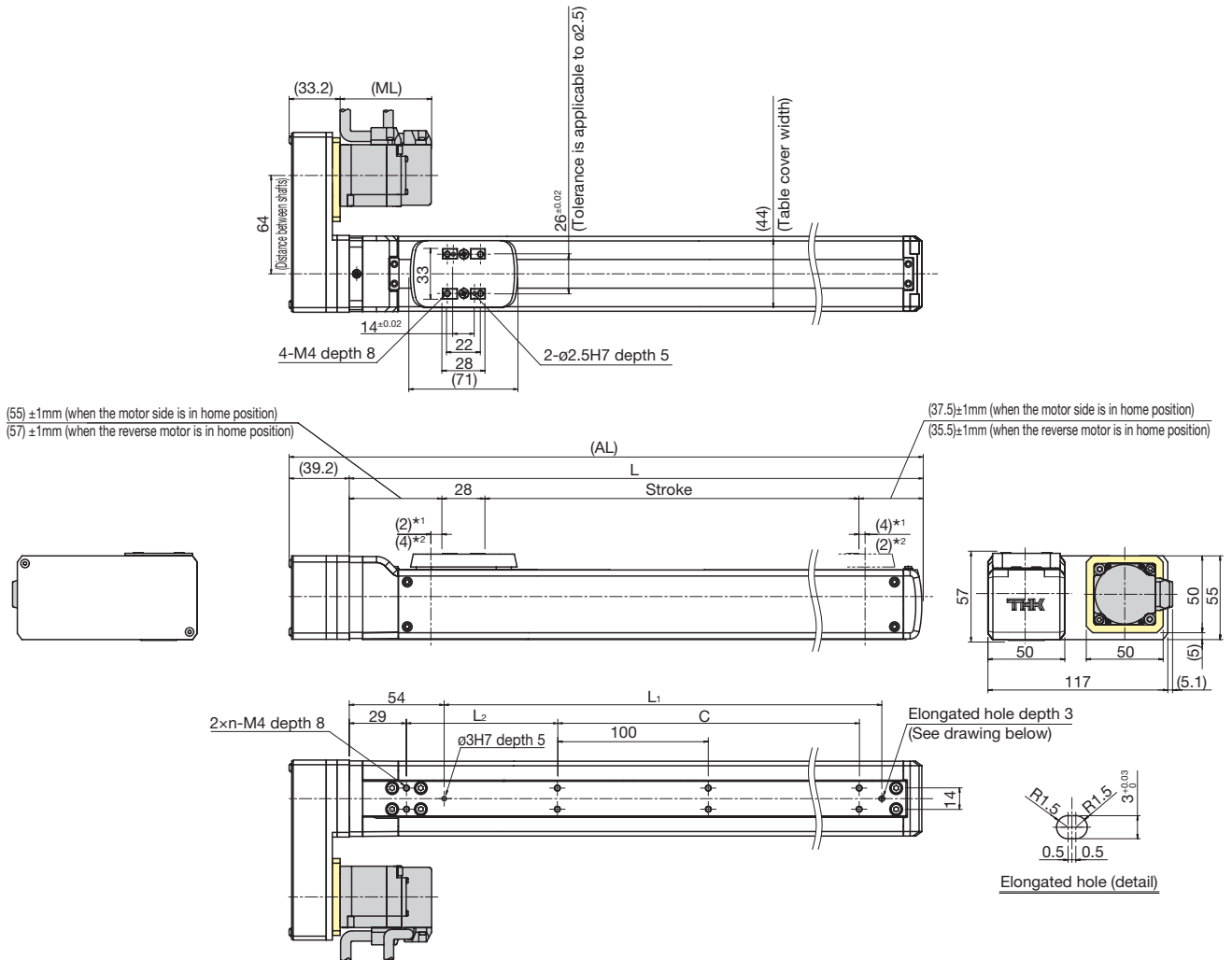
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

ES5R + TLC



Motor rated output
50W

Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300									
	Ball screw lead: 12mm	600									
Dimensions [mm]	AL	209.7	259.7	309.7	359.7	409.7	459.7	509.7	559.7	609.7	659.7
	ML *2	59.5 (95.1)									
	L	170.5	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5
	L ₁	90	140	190	240	290	340	390	440	490	540
	L ₂	100	50	100	50	100	50	100	50	100	50
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500
	n	2	3	3	4	4	5	5	6	6	7
Weight *2 [kg]		2.0 (2.2)	2.1 (2.3)	2.2 (2.4)	2.4 (2.6)	2.5 (2.7)	2.6 (2.8)	2.8 (3.0)	2.9 (3.1)	3.1 (3.3)	3.2 (3.4)

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES6 Slider type TLC specification Direct motor coupling, 50W



ES/EC
KRF
US/USW
PCT/PC
Controller

Model Configuration

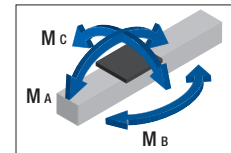
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
ES6	06	0150	B	TL	GR-SB	M05	R	D00	F3
ES6	06: 6mm 12: 12mm	0050: 50mm to 0600: 600mm	B	TL: TLC	No symbol: Red cover GR: Change the cover color to gray SB: With slider base □ ₁ □ ₂ : Sensor	M05 : 50W M05B: 50W with brake	R: Right U: Up L: Left D: Down	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	10	6
		Vertical	0.3G	5	2
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Static permissible moment *6 [N·m]				M _A : 10.5, M _B : 22, M _C : 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

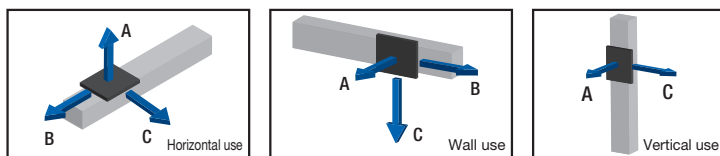
*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

*6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

Permissible Overhang Length*



Horizontal mount				Wall mount				Vertical mount					
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	5	500	90	200	6	5	160	70	500	6	2.5	160	160
	10	260	40	90		10	40	20	210		5	60	60
12	3	500	160	280	12	3	250	130	500	12	1	420	420
	6	320	70	130		6	90	50	240		2	190	190

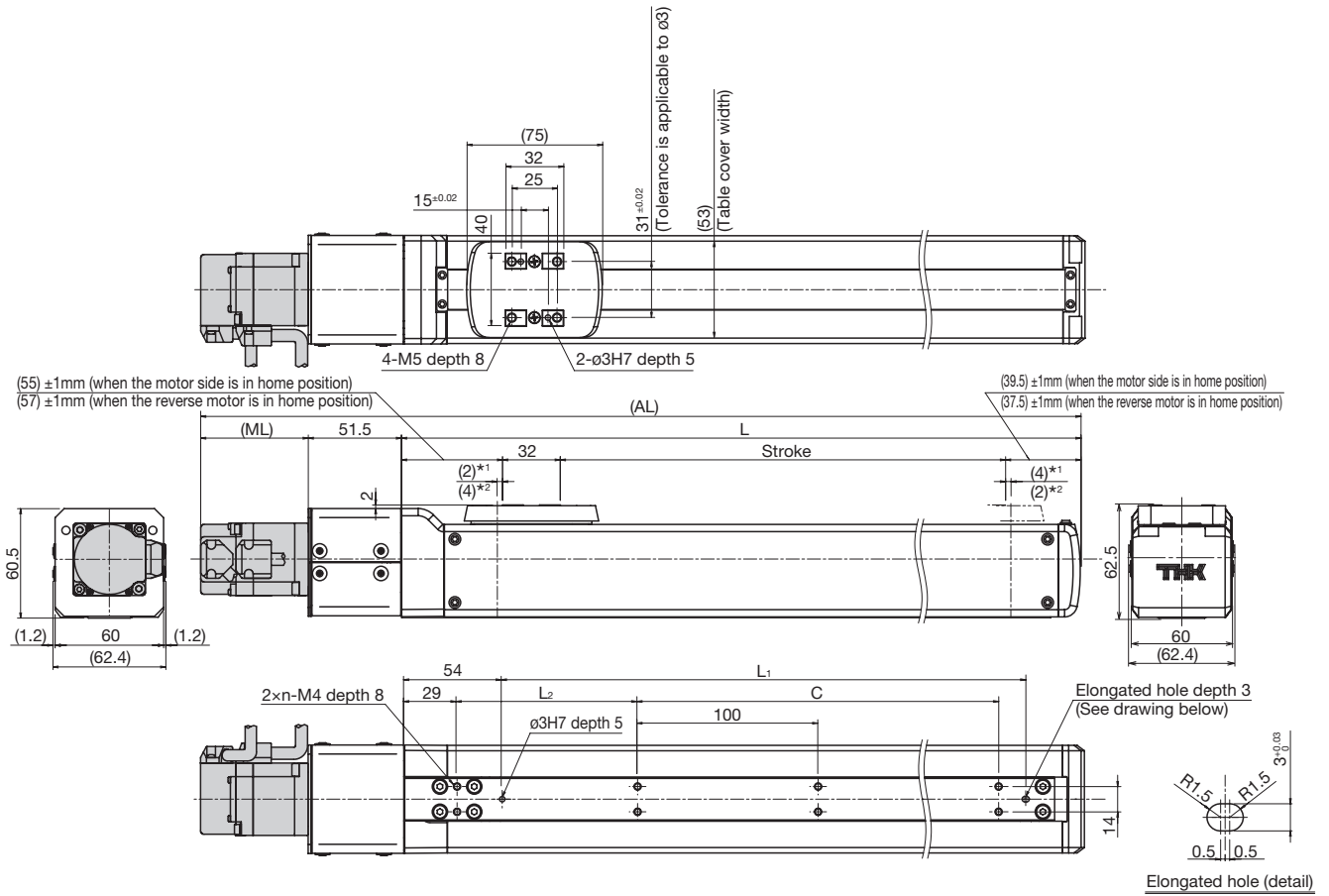
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

ES6 + TLC



Motor rated output
50W

Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)	550 (556)	600 (606)	
Maximum speed *1 [mm/s]	Ball screw lead: 6mm											300	270	230
	Ball screw lead: 12mm											600	540	460
Dimensions [mm]	AL *2	287.5 (323.1)	337.5 (373.1)	387.5 (423.1)	437.5 (473.1)	487.5 (523.1)	537.5 (573.1)	587.5 (623.1)	637.5 (673.1)	687.5 (723.1)	737.5 (773.1)	787.5 (823.1)	837.5 (873.1)	
	ML *2	59.5 (95.1)												
	L	176.5	226.5	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5	
	L ₁	90	140	190	240	290	340	390	440	490	540	590	640	
	L ₂	100	50	100	50	100	50	100	50	100	50	100	50	
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500	500	600	
	n	2	3	3	4	4	5	5	6	6	7	7	8	
Weight *2 [kg]		2.3 (2.5)	2.5 (2.7)	2.6 (2.8)	2.7 (2.9)	2.9 (3.1)	3.0 (3.2)	3.2 (3.4)	3.3 (3.5)	3.5 (3.7)	3.6 (3.8)	3.8 (4.0)	3.9 (4.1)	

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

ES6R Slider type TLC specification Motor wrap, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

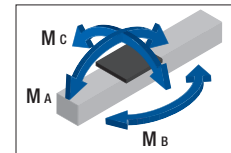
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
ES6R	06	0150	B	TL	MR-GR	M05	L	D00	F3
ES6R	06: 6mm 12: 12mm	0050: 50mm to 0600: 600mm	B	TL: TLC	MR: Motor right-turn folded ML: Motor left-turn folded GR: Change the cover color to gray SB: With slider base <input type="checkbox"/> ₁ <input type="checkbox"/> ₂ : Sensor	M05 : 50W M05B: 50W with brake	R: Right L: Left	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	8	6
		Vertical	0.3G	2	1
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Static permissible moment *6 [N·m]				M _A : 10.5, M _B : 22, M _C : 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

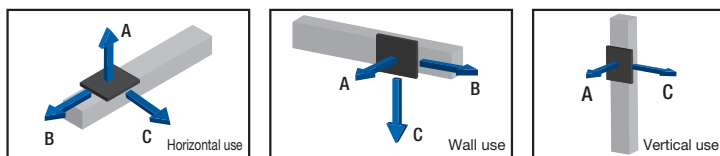
*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

*6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	4	500	110	260	6	4	210	90	500	6	1	450	450
	8	340	50	120		8	70	30	360		2	210	210
12	3	500	160	280	12	3	250	130	500	12	0.5	500	500
	6	320	70	130		6	90	50	240		1	420	420

* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

ES6R + TLC



Motor rated output
50W

Dimensions

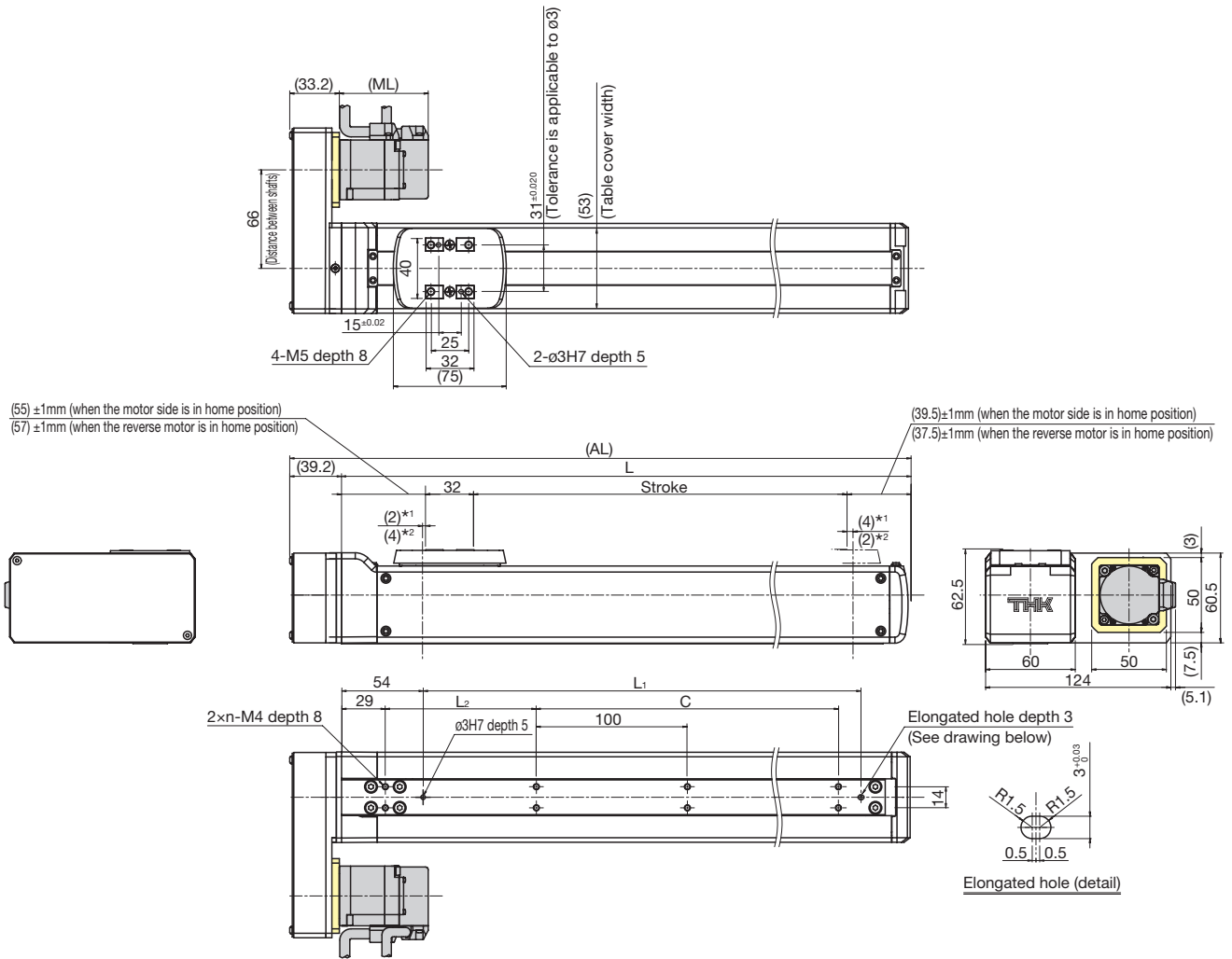
ES/EC

KRF

US/USW

PCT/PC

Controller



- *1 Stroke to the mechanical stopper when the motor side is in home position.
- *2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)	550 (556)	600 (606)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm											270	230
	Ball screw lead: 12mm											540	460
Dimensions [mm]	AL	215.7	265.7	315.7	365.7	415.7	465.7	515.7	565.7	615.7	665.7	715.7	765.7
	ML *2	59.5 (95.1)											
	L	176.5	226.5	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5
	L ₁	90	140	190	240	290	340	390	440	490	540	590	640
	L ₂	100	50	100	50	100	50	100	50	100	50	100	50
Mounting hole count	C	0	100	100	200	200	300	300	400	400	500	500	600
	n	2	3	3	4	4	5	5	6	6	7	7	8
Weight *2 [kg]		2.3 (2.5)	2.4 (2.6)	2.6 (2.8)	2.7 (2.9)	2.8 (3.0)	3.0 (3.2)	3.1 (3.3)	3.3 (3.5)	3.4 (3.6)	3.6 (3.8)	3.7 (3.9)	3.8 (4.0)

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

Economy series

EC4

Cylinder type TLC specification Direct motor coupling, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
EC4	06	0150	B	TL	FL-LB	M05	R	D00	F3
EC4	06 : 6mm 12 : 12mm	0050 : 50mm to 0300 : 300mm	B	TL : TLC	No symbol : Red cover CB : With cylinder base FL : With flange LB : With link ball	M05 : 50W M05B : 50W with brake	R : Right U : Up L : Left D : Down	D00 : Motor side R00 : Reverse motor side	F3 : Standard 3m F5 : Standard 5m FA : Standard 10m H3 : High flex 3m H5 : High flex 5m HA : High flex 10m

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	14	7
		Vertical	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	
Rod non-rotational accuracy [°]				±1.5	

*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

Only axial loads permissible; only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.

*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

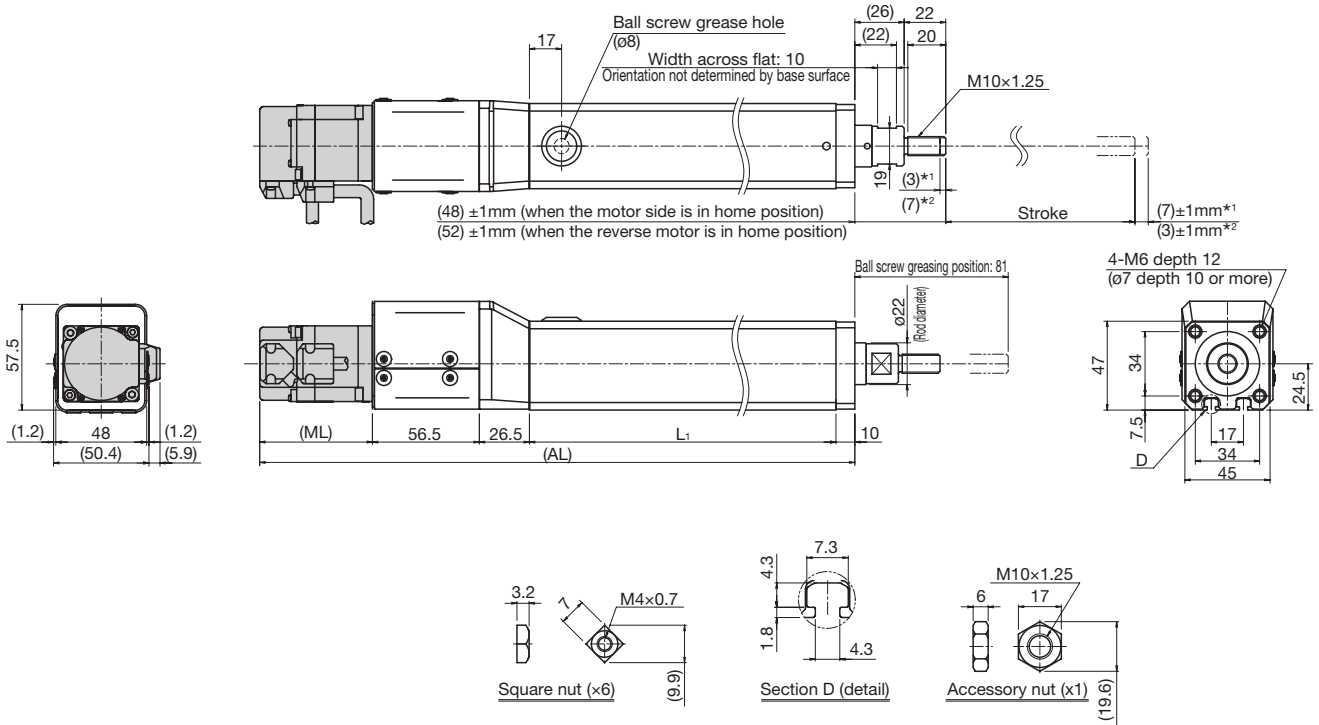
*5 Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

EC4 + TLC



Motor rated output
50W

Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.
*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300			230	170	
	Ball screw lead: 12mm	600			460	340	
Dimensions [mm]	AL *2	299.5 (335.1)	349.5 (385.1)	399.5 (435.1)	449.5 (485.1)	499.5 (535.1)	549.5 (585.1)
	ML *2	59.5 (95.1)					
	L ₁ *3	147	197	247	297	347	397
Weight *2 [kg]		2.0 (2.2)	2.4 (2.6)	2.7 (2.9)	3.0 (3.2)	3.3 (3.5)	3.7 (3.9)

*1 Dependent on ball screw's permissible rotation speed.
*2 Values when brake is installed are shown in parentheses.
*3 T slot milling in the range of L₁.

ES/EC
KRF
US/USW
PCT/PC
Controller

Economy series

EC4R

Cylinder type TLC specification Motor wrap, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
EC4R	06	0150	B	TL	MR-FL-LB	M05	R	D00	F3
EC4R	06: 6mm 12: 12mm	0050: 50mm to 0300: 300mm	B	TL: TLC	MR: Motor right-turn folded ML: Motor left-turn folded CB: With cylinder base FL: With flange LB: With link ball	M05 : 50W M05B: 50W with brake	R: Right U: Up L: Left D: Down	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m F8: Standard 10m H3: High flex 3m H5: High flex 5m H8: High flex 10m

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	14	7
		Vertical	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	
Rod non-rotational accuracy [°]				±1.5	

*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

Only axial loads permissible; only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.

*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

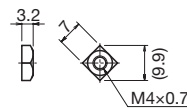
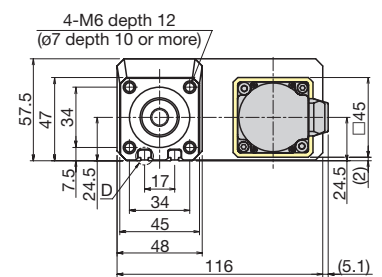
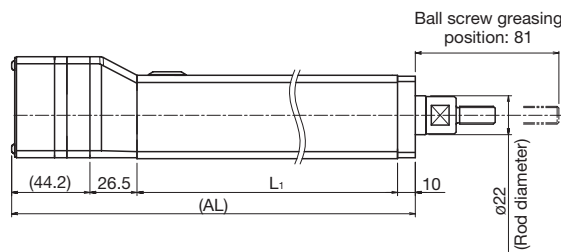
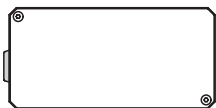
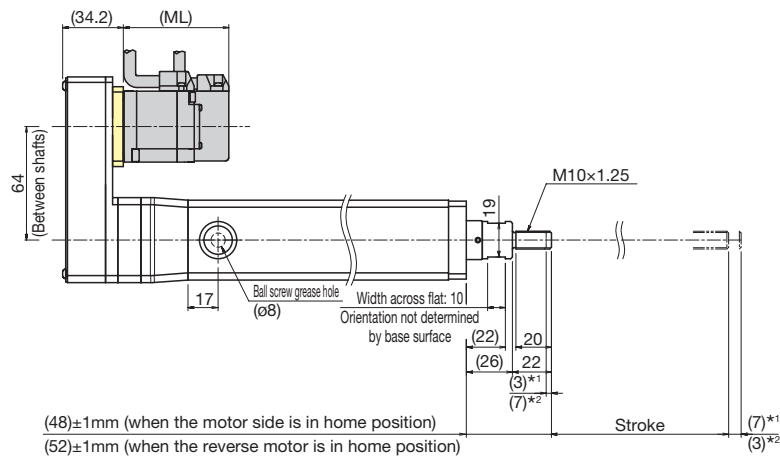
*5 The following conditions apply to running life: maximum load capacity (with LM guide), maximum speed, 0.3G horizontal or vertical.

EC4R + TLC

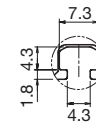


Motor rated output
50W

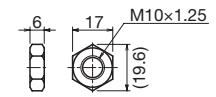
Dimensions



Square nut (x6)



Section D (detail)



Accessory nut (x1)

*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm			300		230	170
	Ball screw lead: 12mm			600		460	340
Dimensions [mm]	AL	227.7	277.7	327.7	377.7	427.7	477.7
	ML *2	59.5 (95.1)					
	L1 *3	147	197	247	297	347	397
Weight *2 [kg]		2.1 (2.3)	2.4 (2.6)	2.7 (2.9)	3.0 (3.2)	3.4 (3.6)	3.7 (3.9)

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

*3 T slot milling in the range of L1.

ES/EC

KRF

US/USW

PCT/PC

Controller

Economy series

EC4H

Cylinder type TLC specification Direct motor coupling/with linear bush



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
EC4H	06	0150	B	TL	CB	M05	R	D00	F3
EC4H	06: 6mm 12: 12mm	0050: 50mm to 0300: 300mm	B	TL: TLC	No symbol: None CB: With cylinder base	M05 : 50W M05B: 50W with brake	R: Right U: Up L: Left D: Down	D00: Motor side R00: Reverse motor side	F3: Standard 3m F5: Standard 5m FA: Standard 10m H3: High flex 3m H5: High flex 5m HA: High flex 10m

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	12
Rated speed *1 [mm/s]				300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	14	7
		Vertical	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				266	133
Electromagnetic brake retention [N]				268	134
Running life *5 [km]				5000	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	
Rod non-rotational accuracy [°]				±0.05	

*1 At rated motor speed (3,000 min⁻¹).

*2 At rated speed.

Only axial loads permissible; only an axial load may be applied to rod via LM Guide. LM Guide sliding resistance must be considered when making selection.

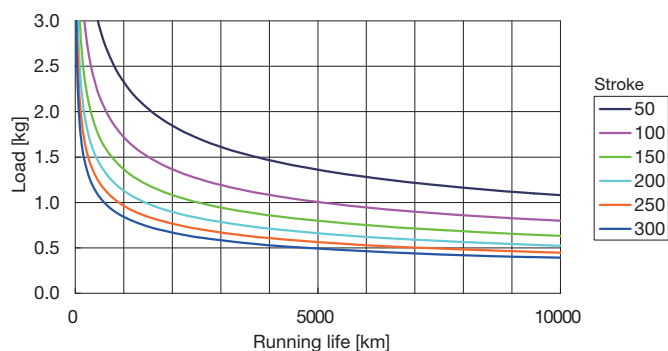
*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B & C: 0mm; stroke: 50mm.

Reference End Load and Running Life

Running life varies when a load is applied to the end of the unit without using an LM Guide, as shown below.



EC4H + TLC



Motor rated output
50W

ES/EC

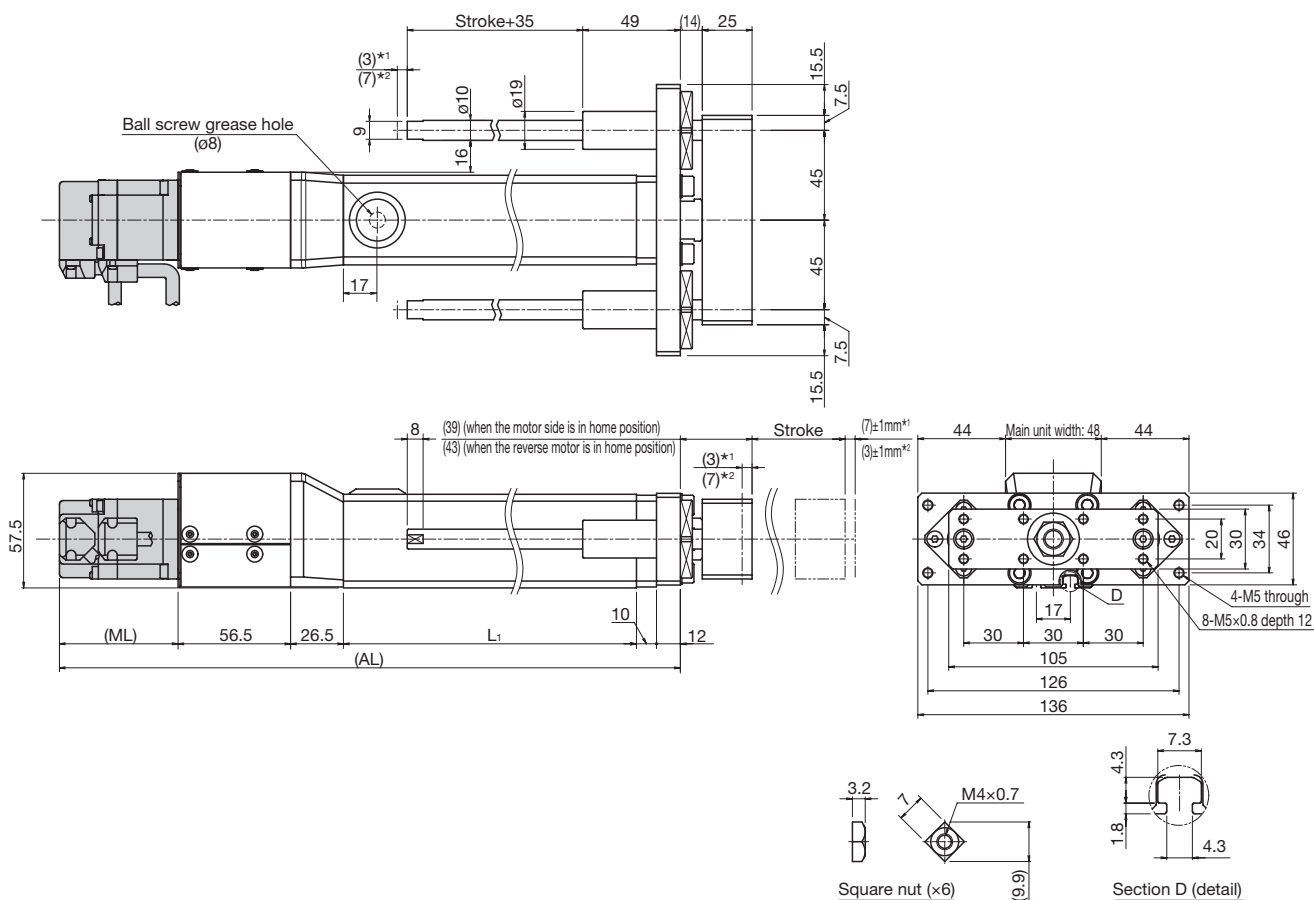
KRF

US/USW

PCT/PC

Controller

Dimensions



*1 Stroke to the mechanical stopper when the motor side is in home position.

*2 Stroke to the mechanical stopper when the reverse motor side is in home position.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm			300		230	170
	Ball screw lead: 12mm			600		460	340
Dimensions [mm]	AL*2	311.5 (347.1)	361.5 (397.1)	411.5 (447.1)	461.5 (497.1)	511.5 (547.1)	561.5 (597.1)
	ML*2	59.5 (95.1)					
	L _T *3	147	197	247	297	347	397
Weight *2 [kg]		2.6 (2.8)	3.0 (3.2)	3.3 (3.5)	3.7 (3.9)	4.0 (4.2)	4.4 (4.6)

*1 Dependent on ball screw's permissible rotation speed.

*2 Values when brake is installed are shown in parentheses.

*3 T slot milling in the range of L_T.

ES Option

GR: Change the cover color to gray

As an option for ES, the cover color can be changed from red to gray.



Housing-B cover



No symbol: red cover



When GR is selected: gray cover

If the GR is not included in the model configuration, cover will be red.

ES/EC

KRF

US/USW

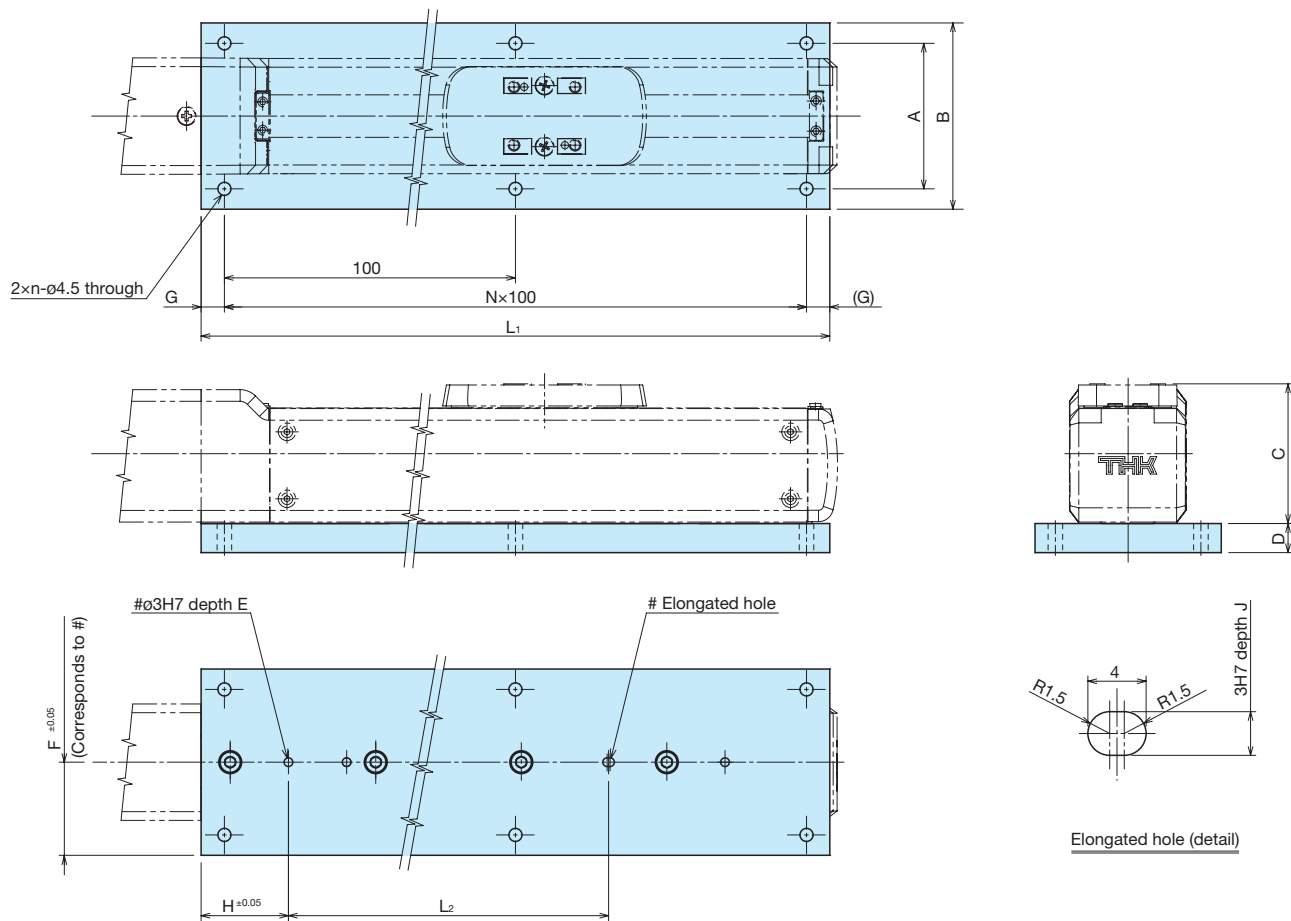
PCT/PC

Controller

ES Option

SB: Slider base (direct coupled specification)

THK provides a slider base for installing the ES main unit from the top face.
(Included with unit)



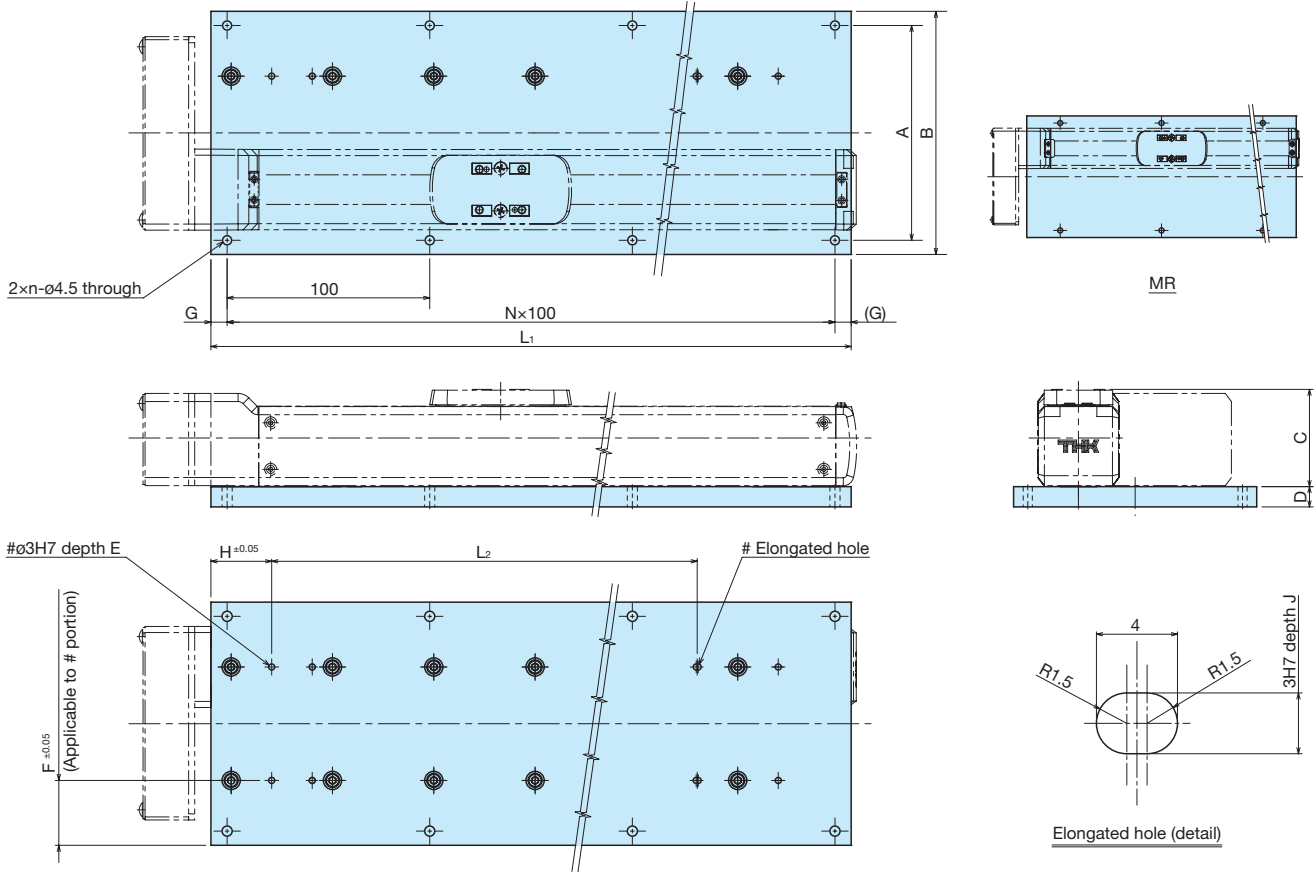
Model	A	B	C	D	E	F	H	J
ES3	42	56	40	8	8	28	40	8
ES4	50	64	48	10	10	32	30	10
ES5	70	84	57	10	10	42	45	10
ES6	70	84	62.5	10	10	42	45	10

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
ES3	L ₁ [mm]	156	206	256	306	356	406	-	-	-	-	-
	L ₂ [mm]	70	120	170	220	270	320	-	-	-	-	-
	n	2	2	3	3	4	4	-	-	-	-	-
	N	1	1	2	2	3	3	-	-	-	-	-
	G [mm]	28	53	28	53	28	53	-	-	-	-	-
ES4	L ₁ [mm]	166	216	266	316	366	416	466	516	-	-	-
	L ₂ [mm]	60	110	160	210	260	310	360	410	-	-	-
	n	2	3	3	4	4	5	5	6	-	-	-
	N	1	2	2	3	3	4	4	5	-	-	-
	G [mm]	33	8	33	8	33	8	33	8	-	-	-
ES5	L ₁ [mm]	174	224	274	324	374	424	474	524	574	624	-
	L ₂ [mm]	70	120	170	220	270	320	370	420	470	520	-
	n	2	3	3	4	4	5	5	6	6	7	-
	N	1	2	2	3	3	4	4	5	5	6	-
	G [mm]	37	12	37	12	37	12	37	12	37	12	-
ES6	L ₁ [mm]	174	224	274	324	374	424	474	524	574	624	674
	L ₂ [mm]	70	120	170	220	270	320	370	420	470	520	570
	n	2	3	3	4	4	5	5	6	6	7	8
	N	1	2	2	3	3	4	4	5	5	6	7
	G [mm]	37	12	37	12	37	12	37	12	37	12	37

ES Option

SB: Slider base (motor wrap configuration)

THK provides a slider base for installing the ES main unit from the top face.
(Included with unit)



Model	A	B	C	D	E	F		H	Unit: mm J
						MR	ML		
ES3	92	106	40	8	8	28	78	40	8
ES4	106	120	48	10	10	32	88	30	10
ES5	136	150	57	10	10	42	108	45	10
ES6	136	150	62.5	10	10	42	108	45	10

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
ES3	L ₁ [mm]	156	206	256	306	356	406	-	-	-	-	-
	L ₂ [mm]	70	120	170	220	270	320	-	-	-	-	-
	n	2	2	3	3	4	4	-	-	-	-	-
	N	1	1	2	2	3	3	-	-	-	-	-
	G [mm]	28	53	28	53	28	53	-	-	-	-	-
ES4	L ₁ [mm]	166	216	266	316	366	416	466	516	-	-	-
	L ₂ [mm]	60	110	160	210	260	310	360	410	-	-	-
	n	2	3	3	4	4	5	5	6	-	-	-
	N	1	2	2	3	3	4	4	5	-	-	-
	G [mm]	33	8	33	8	33	8	33	8	-	-	-
ES5	L ₁ [mm]	174	224	274	324	374	424	474	524	574	624	-
	L ₂ [mm]	70	120	170	220	270	320	370	420	470	520	-
	n	2	3	3	4	4	5	5	6	6	7	-
	N	1	2	2	3	3	4	4	5	5	6	-
	G [mm]	37	12	37	12	37	12	37	12	37	12	-
ES6	L ₁ [mm]	174	224	274	324	374	424	474	524	574	624	674
	L ₂ [mm]	70	120	170	220	270	320	370	420	470	520	570
	n	2	3	3	4	4	5	5	6	6	7	8
	N	1	2	2	3	3	4	4	5	5	6	7
	G [mm]	37	12	37	12	37	12	37	12	37	12	37

□₁□₂: Sensors

ES units can be equipped with optional proximity sensors and photo sensors. Sensor-equipped models also feature a dedicated sensor rail. The following precautions apply to sensor-equipped ES units.

1. The customer should provide a sensor target; a sensor target cannot be installed onto the actuator main unit.
2. When ordered, the sensor is included with the unit.
3. When motor wrap is selected, a sensor cannot be mounted on the same side as the folded direction of the motor.
4. When an optional sensor is used, the home position may differ from that indicated in this brochure.
5. When proximity sensors are placed too close to each other, they may not work properly. For closely grouped proximity sensors, the customer must provide sensors with variant frequencies (consult the respective manufacturer for sensor specifications).

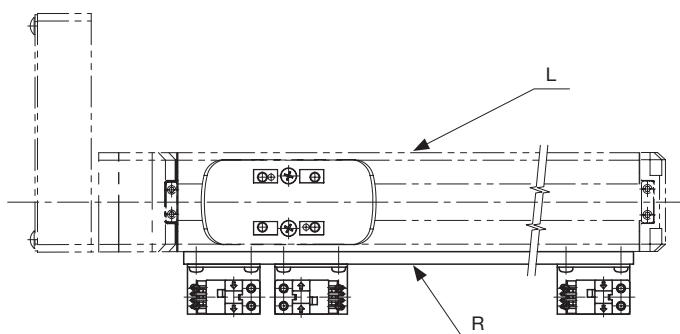
Description	Type	Accessory	Symbol	
			□ ₁	□ ₂
With sensor rail	-	-	L/R	1
Photo Sensor * [3 units]	EE-SX674 (OMRON Corporation)	Mounting screw, nuts, sensor rail (x1), mounting plates (x3), connectors (EE-1001, x3)	L/R	6
Sensor N.O. contact [x1] N.C. contact points [x2]	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor rail	L/R	J
Sensor N.O. contact [x1] (PNP output) N.C. contact points [x2] (PNP output)	GX-F12A-P (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B-P (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor rail	L/R	M

N.O. contact: Normally open contact point

N.C. contact: Normally closed contact point

* The photo sensors can be switched between ON when lit and ON when unlit.

Example: When a photo sensor is selected with motor wrap



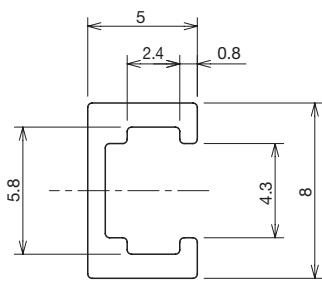
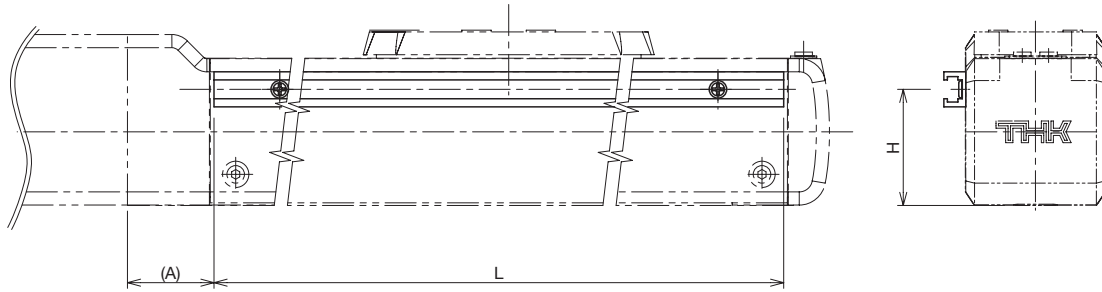
Sensor symbols

Symbol	
□ ₁	□ ₂
R	6

- ₁ represents the mounting position for sensor rail and sensor.
- ₂ represents the type of sensors.
- ₁ on the same side as the folded direction of the motor cannot be selected.
- L cannot be selected.

□₁□₂: Sensors

Symbol 1: Sensor rail

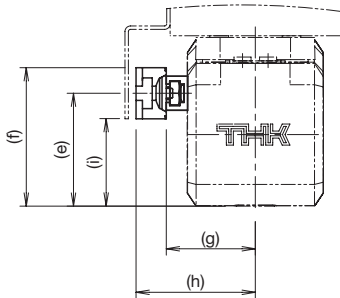


Sensor rail (detail)

Unit: mm

Model	H	A	L
ES3	26.5	19.8	Stroke +78
ES4	31.5	26.5	
ES5	38.1	27	
ES6	43.6	30	

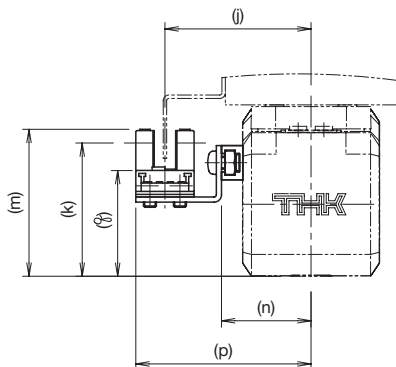
Symbols J, M: Proximity sensor GX-F12* (Panasonic Industrial Devices SUNX Co., Ltd.)



Unit: mm

Model	e	f	g	h	i
ES3	26.5	32.5	20.9	28	20.5
ES4	31.5	37.5	24.8	31.9	25.5
ES5	38.1	44.1	29.8	36.9	32.1
ES6	43.6	49.6	34.8	41.9	37.6

Symbol 6: Photo sensor EE-SX674 (OMRON Corporation)



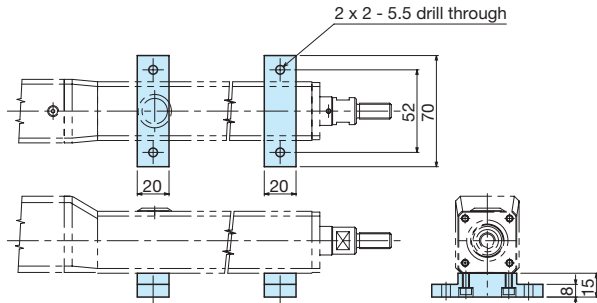
Unit: mm

Model	j	k	m	n	p	φ
ES3	31.4	28.6	31.8	20.9	38.4	22.2
ES4	35.3	33.6	36.8	24.8	42.3	27.2
ES5	40.3	40.2	43.4	29.8	47.3	33.8
ES6	45.3	45.7	48.9	34.8	52.3	39.3

EC Option

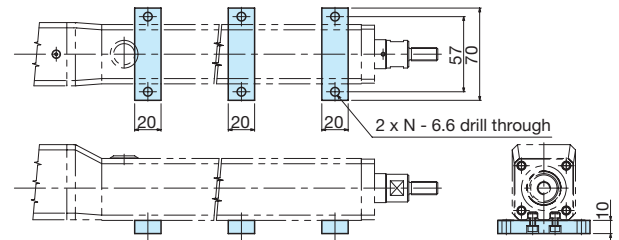
CB: Cylinder Base

EC3



(Included with unit)

EC4



Stroke	50	100	150	200	250	300
N	2	2	2	2	3	3

(Included with unit)

ES/EC

KRF

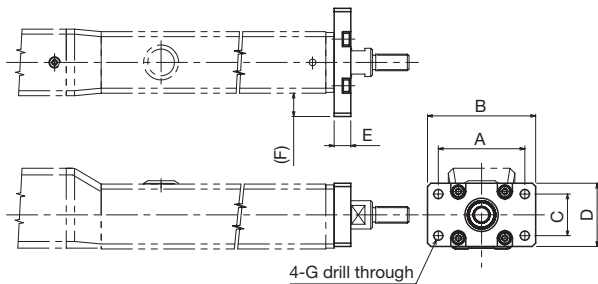
US/USW

PCT/PC

Controller

FL: Flange

EC3/4, EC3R/4R

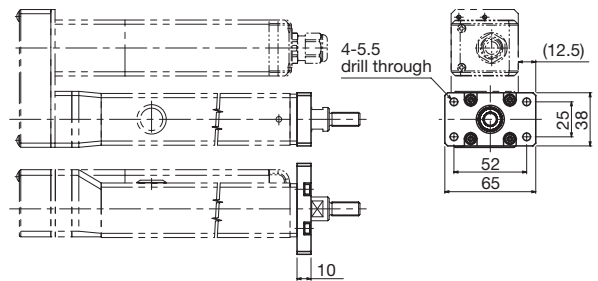


Unit: mm

Model	A	B	C	D	E	F	G
EC3/EC3R	52	65	25	38	10	14	5.5
EC4/EC4R	60	75	34	46	12	15	6.6

(Included with unit)

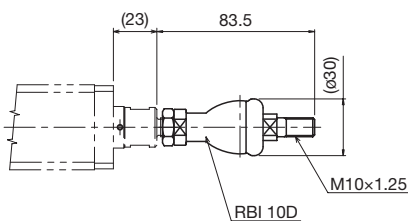
EC3R (When ST=50)



(Included with unit)

LB: Link Ball

EC3/4



(Included with unit)



Precautions on Use

● Application

- This product cannot be applied to any equipment or system that may be used under a life-threatening condition.
- When you consider using this product for special applications such as equipment/system for mobile vehicles, medical uses, aerospace, atomic energy and power plants, make sure to contact THK for applicability beforehand.

● Safety Precautions

- Before operation, please read thoroughly and obey "Manipulating industrial robots – Safety" (JIS B8433) and "Ordinance on Industrial Safety and Health" (Ministry of Health, Labor and Welfare).
- Read the manual carefully, understand the contents well, and strictly observe the safety precautions.
- Before performing installation, adjustment, checking, or services regarding the main actuator unit, controller and the relevant connected equipment, make sure to remove all power plugs from the outlet and apply locking or safety plugs so that nobody else can turn on the power. Also display a signboard showing that the work is ongoing at a prominent place.
- Do not touch the moving part of the actuator while it is energized. In addition, do not enter the operating area of the actuator while the product is operating or in the ready state.
- If two or more people are involved in the operation, confirm the procedures such as a sequence, signs and anomalies in advance, and appoint another person for monitoring the operation.
- Do not unnecessarily disassemble this product. Doing so may allow foreign materials to enter or deterioration of precision. Also this will cause the risk of electric shock from the controller.
- Take care not to drop or strike this product. Doing so may cause injury or damage the unit. If the product is dropped or impacted, functionality may be reduced even if there is no surface damage.
- Operation of the actuator over the permissible rotational speed may cause damage or an accident. Please keep the rotational speed within THK specifications.
- Prevent foreign material, such as dust or cutting chips, from entering the product. This could cause damage to ball recirculation components and loss of functionality.
- When planning to use the product in an environment where a coolant could penetrate the unit, contact THK.
- When there is any risk that the slider may collide with the stoppers attached to both ends of operable range, install some shock absorbing mechanism such as a shock absorber. The stoppers are not designed to absorb the impact generated by the collision of the slider. When the slider collides with a stopper during operation, it may cause damage or an accident.

● Environment

- An indoor location and ambient temperatures from 0 to 40°C, and humidity of 80%RH or below (no freezing or condensation).

Wrong environment can cause failures of the actuator and driver. The best place to use the product is as follows:

- A place free from corrosive gas and flammable gas.
- A place where vibration or impact is not transmitted to the unit.
- A place free from electrically conductive powder (such as iron powder), dust, oil mist, cutting fluid, moisture, salt, and organic solvent.
- A place free from direct sunlight and radiant heat.
- A place free from strong electric and magnetic fields.

- A place that is easily accessible for service and cleaning purposes.
- When using the product in locations exposed to constant vibrations or in special environments such as vacuum or abnormally high or low temperatures, contact THK in advance.

- **Mounting Surface**

- The surface should be the plane that has the precision of machining or the equivalent of that. Some products specify the required flatness. When you wish to use the product with QZ in a position other than horizontal (such as wall mount and vertical posture), contact THK.

- **Lubrication**

- In order to effectively use the actuator, lubrication is required. Insufficient lubrication may increase abrasion on the rolling part and cause early failure.
- Do not use a mix of lubricants with different physical properties. Note that encapsulated lubricant types vary depending on products.
- Please contact THK if using special lubricants.
- THK recommend the greasing interval to be approximately every 100km. However, it may vary depending on the usage conditions, so THK recommends determining a greasing interval during the initial inspection.
- If the product is to be used in a location exposed to vibrations or in a special environment such as vacuum, or abnormally high or low temperatures, or in a clean room, normal lubricants may not be used. Contact THK for details.
- When adopting oil lubrication method, contact THK.

- **Storage**

- When storing this actuator, enclose it in a package designated by THK and store it in a horizontal position away from abnormally high or low temperatures and high humidity.

- **Instruction Manual**

- Instruction Manuals can be downloaded from the website (a login process may be required). THK Technical Support site <https://tech.thk.com/>
"Economy series ES/EC Instruction Manual"
and other contents including CAD data and PC software (D-STEP) can also be downloaded.

Compact series

Model: **KRF**



**Corresponding
Controller**



Chapter 2

Features 2-003

Series Specifications 2-005

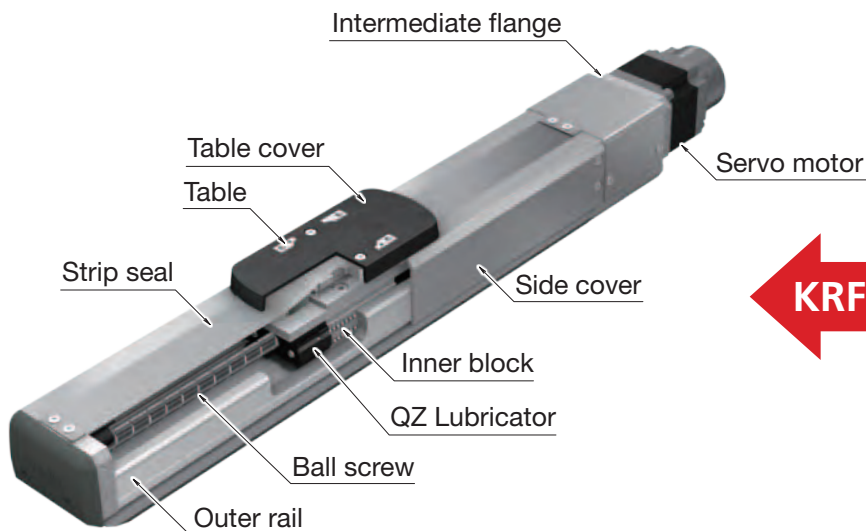
Model Configuration 2-007

Basic Specifications & Dimensions 2-009

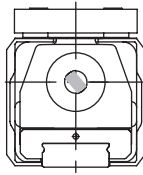
Options 2-029

Compact Series KRF

Fully enclosed actuator, designed for dedicated controller.

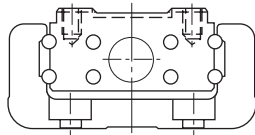


ES



Full-cover structure

KR/SKR



Equivalent load for four directions, with high rigidity

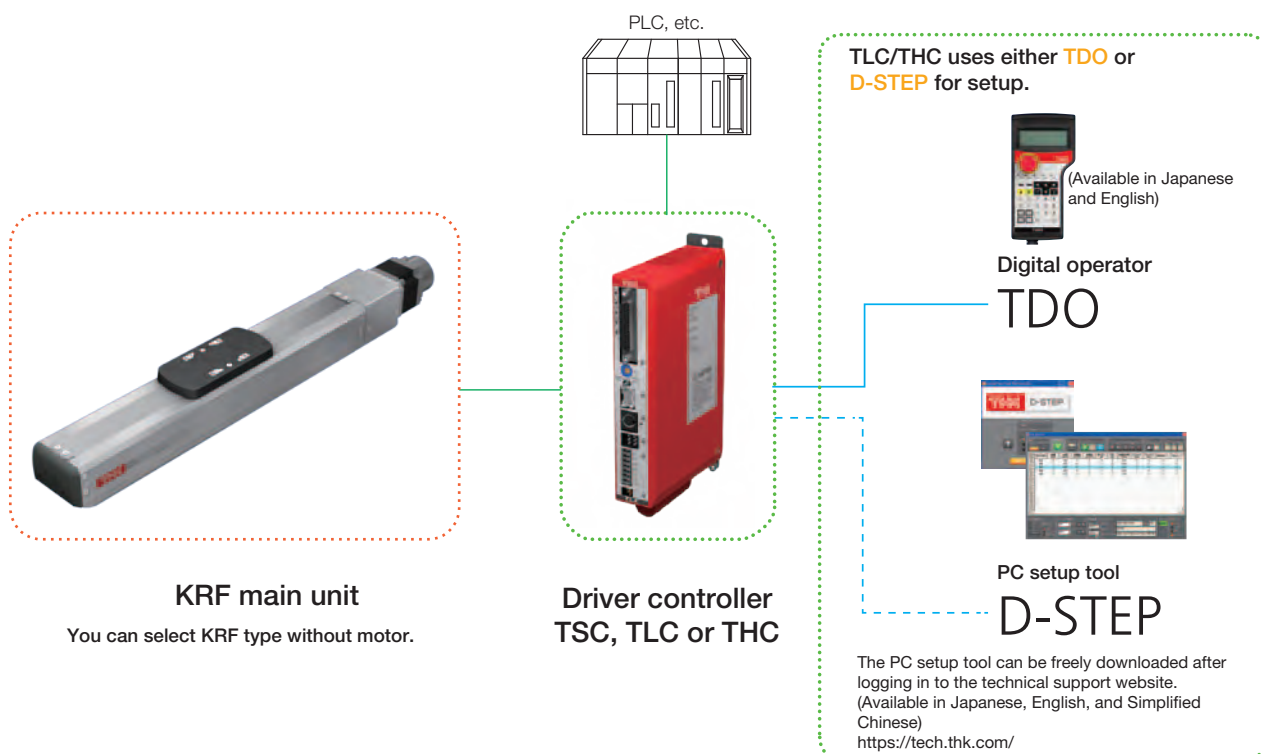


- √ Outer rail of KR/SKR with proven history adopted
- √ Single axis actuator with high moment rigidity

Supported size (guideline)

KR/SKR	15	20	26	33
KRF	3	4	5	6

System Configuration



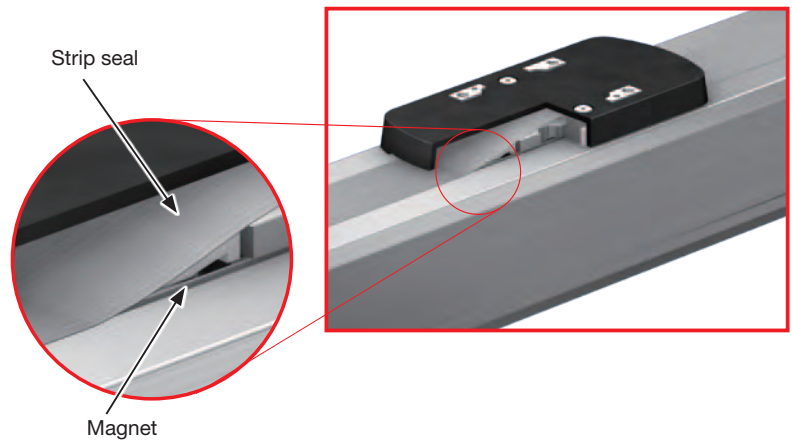
Features

1 Fully enclosed design

Strip seals on the side cover and upper surface using magnetic attraction method provide a fully enclosed structure.

It prevents any damage by entering of foreign materials from outside.

As well, the top surface of the strip seal is less likely to generate dust by avoiding the contact. (Excluding KRF3)

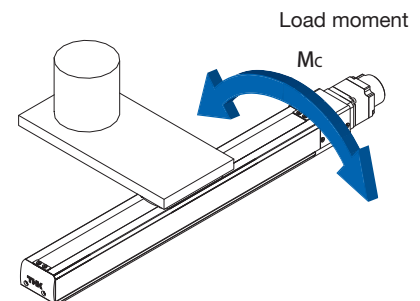
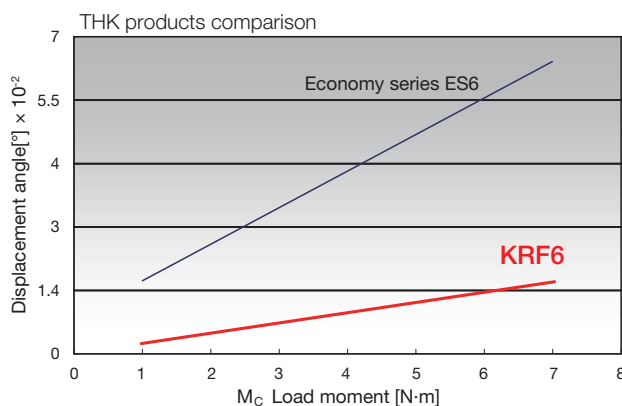


Magnetic attraction method

The magnet built in the side cover attracts the strip seal and prevents it from lifting, reducing the development of clearance.

2 High rigidity

The KRF series employs an outer rail with a U-shaped cross section, enabling it to accommodate a sizable moment load. The actuator body's high rigidity allows for a compact, space-saving design.



Layout example of cantilever configuration

3 Easy setup

Setup is easy by combining with dedicated driver controller.



Stepper
Driver controller
TSC



Servo
Driver controller
50W
TLC



Servo
Driver controller
100W
THC

Lineup List (Stepper Driver Controller TSC Specification)

ES/EC
KRF
US/USW
PCT/PC
Controller



Model	Ball screw lead [mm]	Stroke [mm]	Motor size	Maximum load capacity *1 [kg]		
				Horizontal	Wall mount	Vertical
KRF3	6	50 to 300	Stepper motor □28	3	3	1.5
KRF4	6	50 to 300	Stepper motor □35	6.5	6	4
KRF5	6	50 to 550	Stepper motor □42	20	14.5	7.5
	10	50 to 550		10	10	6

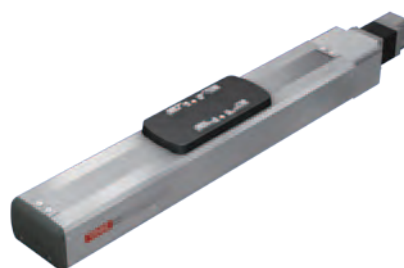
*1 Maximum load capacity and maximum speed vary dependent on usage conditions.
For details, see "Basic Specifications" and "Speed and Load Capacity: Relationship Diagram" of each model.

Series Specifications (Servo Driver Controller TLC/THC Specification)

[KRF4, 5]



[KRF6]



Model	Ball screw lead [mm]	Stroke [mm]	Rated speed *1 [mm/s]	Motor capacity [W]	Used driver controller	Maximum load capacity *2 [kg]		
						Horizontal	Wall mount	Vertical
KRF4	6	50 to 300	300	50	TLC	6	5.5	4
KRF5	6	50 to 550				500	19	14
	10		15	12.5	3.5			
KRF6	6	50 to 800	300	100	THC	35	24	10
	10		500			30	22	5

*1 Indicates the speed at the rated revolution of the motor (3,000 min⁻¹).
 *2 The maximum load capacity indicates the capacity at the rated speed under 0.5 G for horizontal and wall mount and 0.3 G for vertical.
 *3 The maximum speed indicates the speed at the revolution of the motor (3,000 min⁻¹) or the speed restricted by the permissible revolution of the ball screw.

Maximum speed for each stroke *1 [mm/s]																	
Stroke																	
50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800		
		300															
		300															
				300					250								
				500					430								



Maximum speed for each stroke *3 [mm/s]																	
Stroke [mm]																	
50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800		
		300															
				300					250								
				500					430								
				300						260	220	200	170	150			
				500						440	380	330	290	260			

Model Configuration



KRF (type with motor)

When combining with dedicated driver controller

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor size / motor rated output
KRF6R	06	0050	A	TH	MR-GR	M10
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KRF3	06: 6 mm	0050: 50 mm	A	TS: TSC	No symbol: None	28P : Stepper motor □28
KRF4	10: 10 mm	0100: 100 mm		TL: TLC	MR: Motor right return*	35P : Stepper motor □35
KRF5		0150: 150 mm		TH: THC	ML: Motor left return*	42P : Stepper motor □42
KRF6		0200: 200 mm			MD: Motor down return*	M05 : 50W
KRF4R		0250: 250 mm			GR: Gray cover	M10 : 100W
KRF5R		0300: 300 mm			SB: Slider base	28PB : Stepper motor □28 with brake
KRF6R		0350: 350 mm			□1□2: Sensor	35PB : Stepper motor □35 with brake
		0400: 400 mm				42PB : Stepper motor □42 with brake
		0450: 450 mm				M05B : 50W with brake
		0500: 500 mm				M10B : 100W with brake
		0550: 550 mm				
		0600: 600 mm				
		0650: 650 mm				
		0700: 700 mm				
		0750: 750 mm				
		0800: 800 mm				

R represents motor return.

KRF3, KRF4, and KRF4R have ball screw lead of 6mm only.

Control device you can select differ depending on models.
 KRF3 : TSC only
 KRF4 : TSC, TLC
 KRF5 : TSC, TLC
 KRF6 : THC
 KRF4/5R: TLC
 KRF6R : THC
 *Separate order for the control device is required.

Specify the option symbol by writing in the order of description from left adding "-".
 *This is valid only when selecting KRF□R for model (1).

Motors differ depending on models.
 KRF3 : "28P", "28PB"
 KRF4 : "35P", "35PB", "M05", "M05B"
 KRF5 : "42P", "42PB", "M05", "M05B"
 KRF6 : "M10", "M10B"
 KRF4R: "M05", "M05B"
 KRF5R: "M05", "M05B"
 KRF6R: "M10", "M10B"

Maximum stroke differs depending on models.
 KRF3: 300mm
 KRF4: 300mm
 KRF5: 550mm
 KRF6: 800mm

Change the cover color to gray
 You can change the color of housing cover to gray.
 Standard: red When GR is selected: gray

Sample model configuration

When combining with dedicated controller (TSC)	KRF4-06-0200A-TS-GR-SB-R6/35PD00S3
When combining with dedicated controller (TLC)	KRF4-06-0150A-TL-GR-SB-R6/M05BRD00F3
When combining with dedicated controller (THC)	KRF6-10-0800A-TH-GR-R6/M10RS02D1H3

Pages for detailed description

(6) Options	SB: With slider base → P. 2-029
	□1□2: Sensor → P. 2-030
	GR: Change the cover color to gray → P. 2-031

Motor cable orientation	Home position	Power supply voltage	Cable type and length
L (8)	D00 (9)	D1 (10)	F3 (11)

No symbol: When selecting TSC	D00 : Motor side R00 : Reverse motor side	No symbol: When selecting TSC or TLC	No symbol: None S3 : Standard 3 m S5 : Standard 5 m SA : Standard 10 m
R : Right	S02 : Motor side	D1 : 100 V	F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m
L : Left	S03 : Reverse motor side	D2 : 200 V	H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m
U : Up			
D : Down			

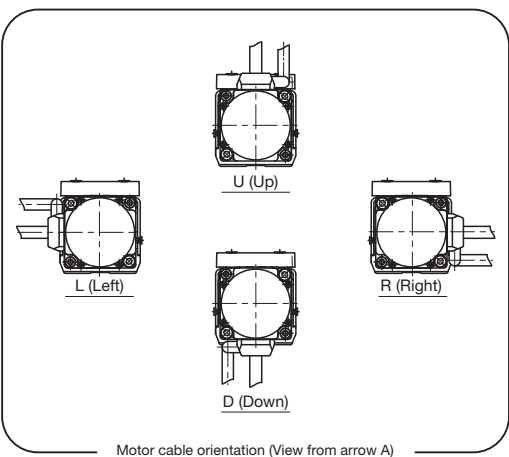
If you select "MR" as an option, "R" cannot be selected.
If you select "ML" as an option, "L" cannot be selected.
If you select "MD" as an option, "U" cannot be selected.

S0 * (external sensor specification) only when selecting THC.

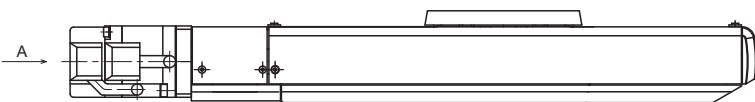
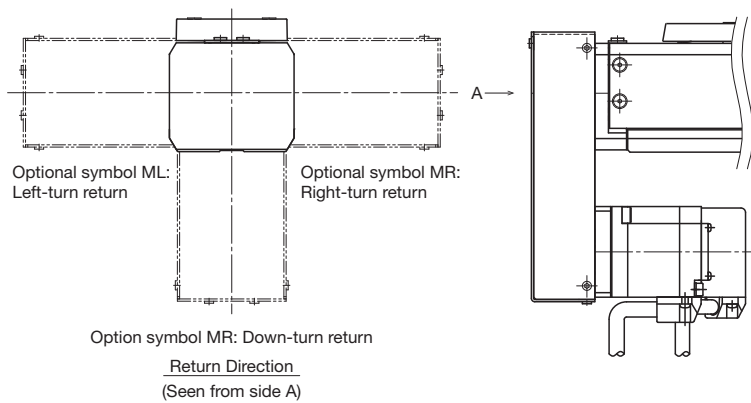
Only when selecting THC

Indicates the type and length of attached cables. Cables you can select differ depending on controllers.
TSC : "S *"
TLC : "F *", "H *"
THC : "F *", "H *"

Motor cable orientation



Folded direction



Compact series

KRF3 TSC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor size	Home position	Cable type and length
KRF3	06	0150	A	TS	GR-SB	28P	D00	S3
KRF3	06: 6 mm	0050: 50mm to 0300: 300 mm	A	TS: TSC	No symbol: None GR: Gray cover SB: Slider base □1□2: Sensor	28P : Stepper motor □28 28PB : Stepper motor □28 with brake	D00 : Motor side R00 : Reverse motor side	No symbol: None S3 : Standard 3 m S5 : Standard 5 m SA : Standard 10 m

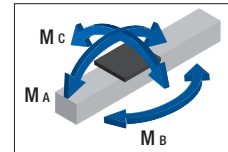
Basic Specifications

Control device type			TSC
Motor size			□28
Ball screw lead [mm]			6
Maximum load capacity [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Wall mount	0.3G
		Vertical mount	0.2G
Electromagnetic brake retention [N]			42
Running life *1 [km]	Horizontal/wall mount		10,000
	Vertical mount		5,000
Positioning repeatability [mm]			±0.020
Lost motion [mm]			0.1
Static permissible moment *2 [N·m]			MA: 12.1 Mb: 12.1 Mc: 32.3

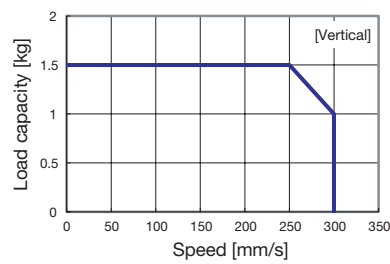
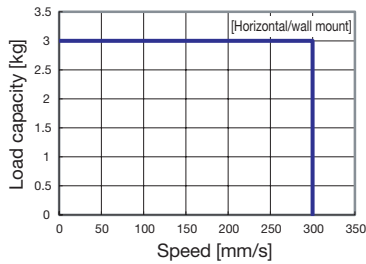
*1 Conditions for calculation of the values above:
Under maximum load capacity at permissible overhang length.
Stroke 75 mm

*2 Moment standards for MA and Mc are the top face of the table, and that for Mb is the center of the table.

Static Permissible Moment

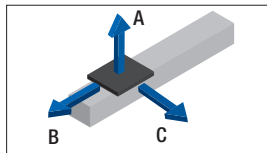


Speed and Load Capacity: Relationship Diagram

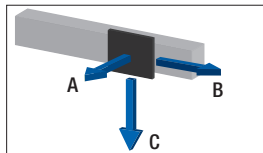


Permissible Overhang Length*

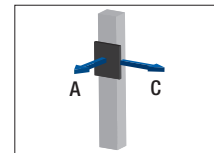
Horizontal use



Wall use



Vertical use



Ball screw lead [mm]	Load mass [kg]	A	B	C
6	1.5	290	50	150
	3	130	20	60

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	1.5	120	40	310
	3	40	10	100

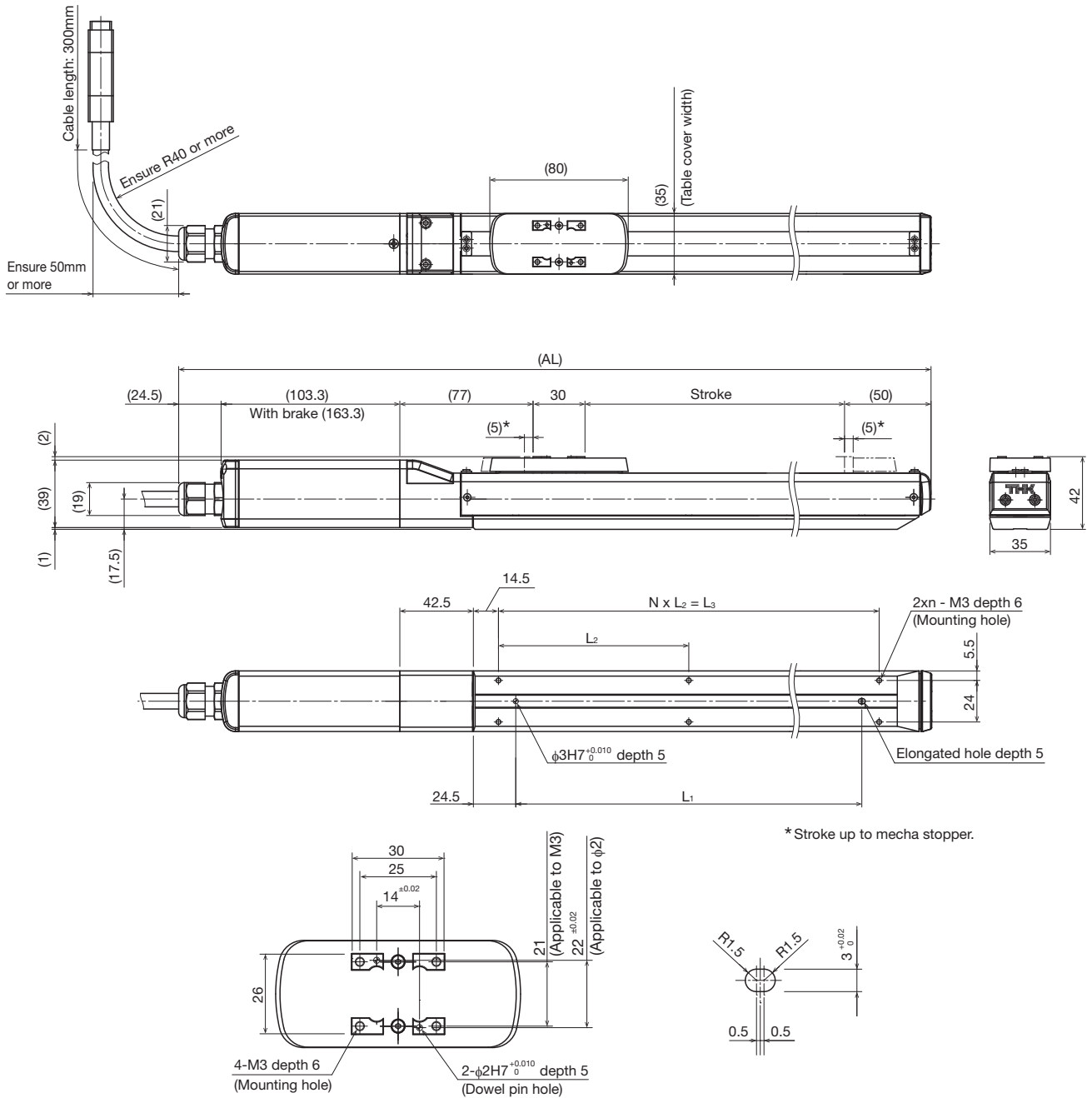
Ball screw lead [mm]	Load mass [kg]	A	C
6	0.5	110	110
	1.5	40	40

* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction.
A permissible value of the applied load in each direction.

KRF3 + TSC



Dimensions



Detailed Diagram: Table

Detailed Diagram: Elongated Hole

Stroke [mm] (Stroke between mecha stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed ^{*1, *2} [mm/s]	Ball screw lead: 6 mm	300					
Dimensions [mm]	AL ^{*3}	334.8(394.8)	384.8(444.8)	434.8(494.8)	484.8(544.8)	534.8(594.8)	584.8(644.8)
	L1	100	150	200	250	300	350
	L2	120	85	110	135	105	120
	L3	120	170	220	270	315	360
Mounting pitch count	N	1	2	2	2	3	3
Mounting hole count	n	2	3	3	3	4	4
Weight ^{*3} [kg]		1.1(1.3)	1.2(1.5)	1.3(1.6)	1.4(1.7)	1.5(1.8)	1.7(1.9)

^{*1} Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity: Relationship Diagram".

^{*2} Dependent on permissible rotational speed of ball screw.

^{*3} Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series

KRF4 TSC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor size	Home position	Cable type and length
KRF4	06	0150	A	TS	GR-SB	35P	D00	S3
KRF4	06: 6 mm	0050: 50mm to 0300: 300 mm	A	TS: TSC	No symbol: None GR: Gray cover SB: Slider base □1□2: Sensor	35P : Stepper motor □35 35PB : Stepper motor □35 with brake	D00 : Motor side R00 : Reverse motor side	No symbol: None S3 : Standard 3 m S5 : Standard 5 m SA : Standard 10 m

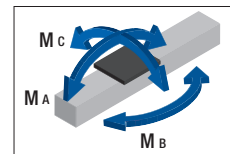
Basic Specifications

Control device type			TSC
Motor size			□35
Ball screw lead [mm]			6
Maximum load capacity [kg]	Acceleration and deceleration rate	Horizontal mount 0.3G	6.5
		Wall mount 0.2G	6
		Vertical mount 0.2G	4
Electromagnetic brake retention [N]			251
Running life *1 [km]	Horizontal/wall mount		10,000
	Vertical mount		5,000
Positioning repeatability [mm]			±0.020
Lost motion [mm]			0.1
Static permissible moment *2 [N-m]			MA: 31 MB: 21.2 MC: 52.7

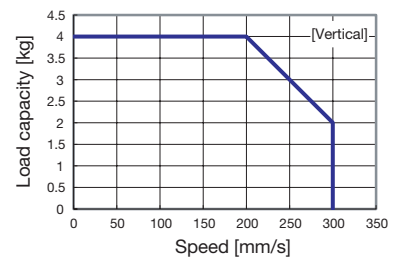
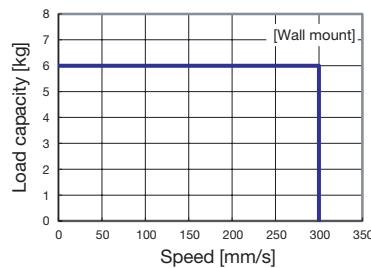
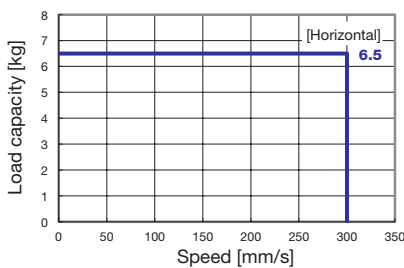
*1 Conditions for calculation of the values above:
Under maximum load capacity at permissible overhang length.
Stroke 75 mm

*2 Moment standards for MA and Mc are the top face of the table, and that for MB is the center of the table.

Static Permissible Moment

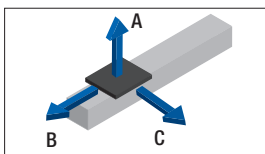


Speed and Load Capacity: Relationship Diagram

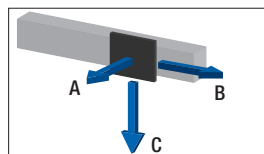


Permissible Overhang Length*

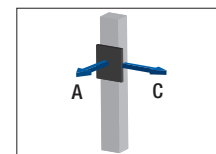
Horizontal use



Wall use



Vertical use



Horizontal mount		[mm]		
Ball screw lead [mm]	Load mass [kg]	A	B	C
6	3	330	60	160
	6.5	140	20	60

Wall mount		[mm]		
Ball screw lead [mm]	Load mass [kg]	A	B	C
6	3	140	50	380
	6	50	20	110

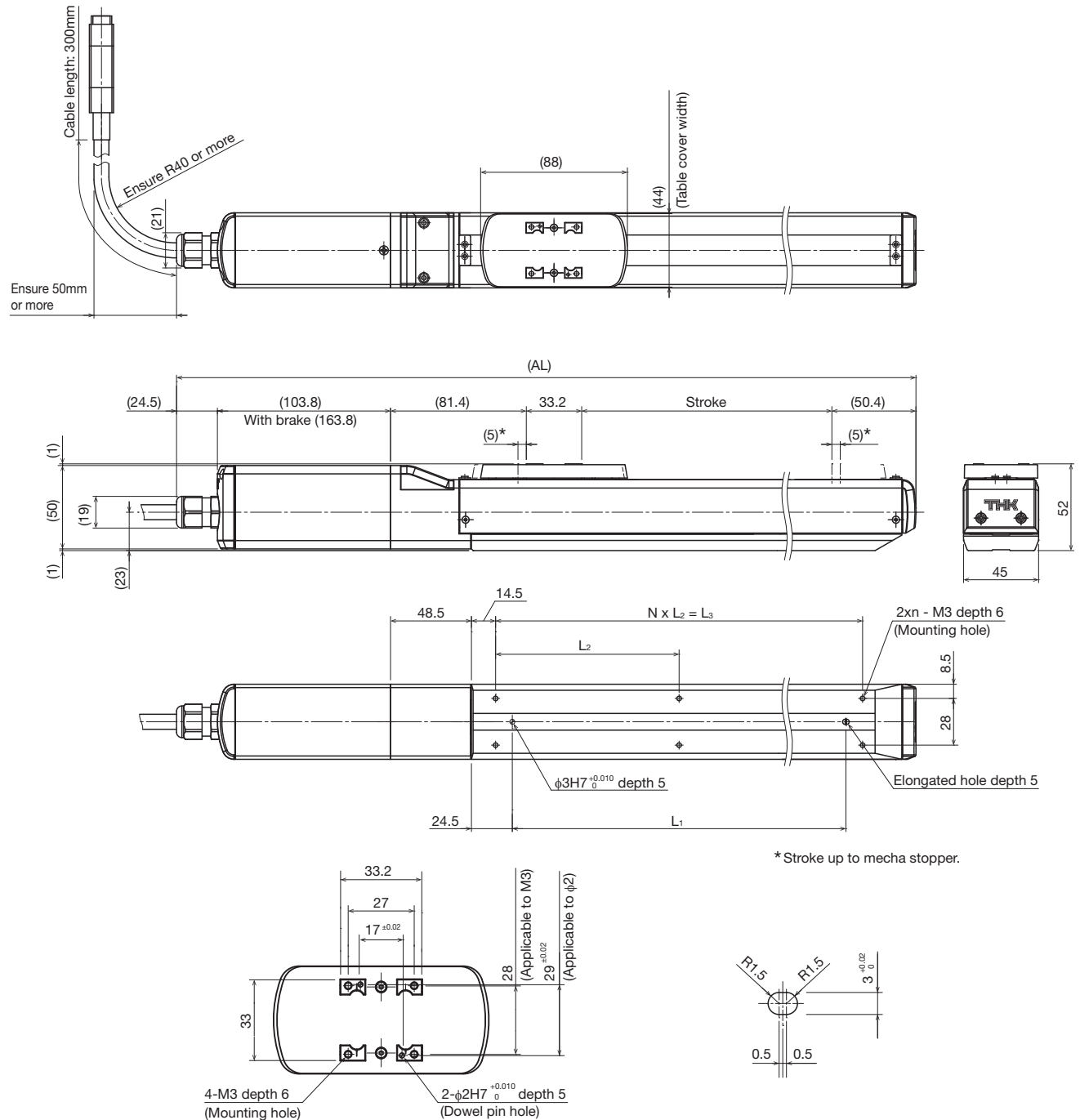
Vertical mount		[mm]	
Ball screw lead [mm]	Load mass [kg]	A	C
6	2	100	100
	4	30	30

* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction.
A permissible value of the applied load in each direction.

KRF4 + TSC



Dimensions



* Stroke up to mecha stopper.

Detailed Diagram: Table

Detailed Diagram: Elongated Hole

Stroke [mm]		50	100	150	200	250	300
(Stroke between mecha stoppers)		(60)	(110)	(160)	(210)	(260)	(310)
Maximum speed ^{*1, *2} [mm/s]	Ball screw lead: 6 mm	300					
Dimensions [mm]	AL ^{*3}	343.3(403.3)	393.3(453.3)	443.3(503.3)	493.3(553.3)	543.3(603.3)	593.3(653.3)
	L ₁	100	150	200	250	300	350
	L ₂	120	85	110	90	105	120
	L ₃	120	170	220	270	315	360
Mounting pitch count	N	1	2	2	3	3	3
Mounting hole count	n	2	3	3	4	4	4
Weight ^{*3} [kg]		1.7(2.1)	1.9(2.3)	2.1(2.5)	2.3(2.7)	2.5(3.0)	2.7(3.2)

^{*1} Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity: Relationship Diagram".

^{*2} Dependent on permissible rotational speed of ball screw.

^{*3} Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series

KRF5 TSC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor size	Home position	Cable type and length
KRF5	06	0150	A	TS	GR-SB	42P	D00	S3
KRF5	06: 6 mm 10: 10 mm	0050: 50mm to 0550: 550 mm	A	TS : TSC	No symbol: None GR : Gray cover SB : Slider base <input type="checkbox"/> 1 <input type="checkbox"/> 2: Sensor	42P : Stepper motor <input type="checkbox"/> 42 42PB : Stepper motor <input type="checkbox"/> 42 with brake	D00 : Motor side R00 : Reverse motor side	No symbol: None S3 : Standard 3 m S5 : Standard 5 m SA : Standard 10 m

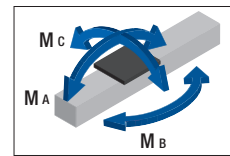
Basic Specifications

Control device type			TSC	
Motor size			<input type="checkbox"/> 42	
Ball screw lead [mm]			6	10
Maximum load capacity [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G	20
		Wall mount	0.3G	14.5
		Vertical mount	0.2G	7.5
Electromagnetic brake retention [N]			251	151
Running life *1 [km]		Horizontal/wall mount	10,000	
		Vertical mount	5,000	
Positioning repeatability [mm]			±0.020	
Lost motion [mm]			0.1	
Static permissible moment *2 [N·m]			MA: 84 MB: 48.4 MC: 105.8	

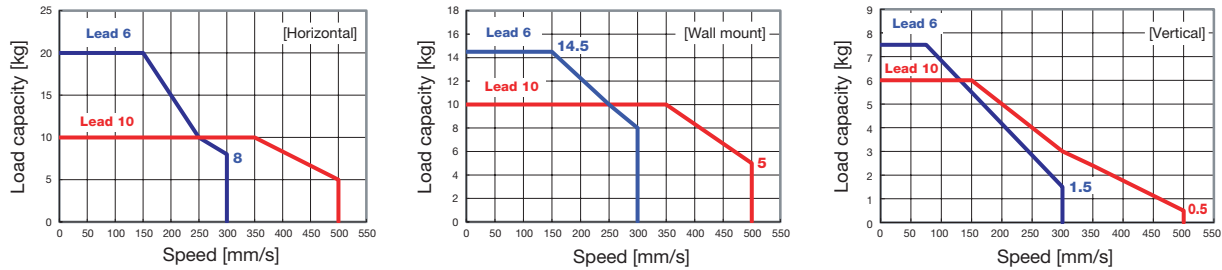
*1 Conditions for calculation of the values above:
Under maximum load capacity at permissible overhang length.
Stroke 275 mm

*2 Moment standards for MA and Mc are the top face of the table, and that for MB is the center of the table.

Static Permissible Moment

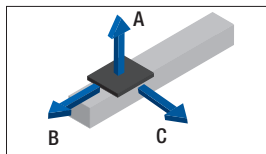


Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length*

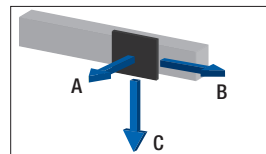
Horizontal use



Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	10	470	50	150
	20	210	20	60
10	5	700	110	280
	10	320	40	130

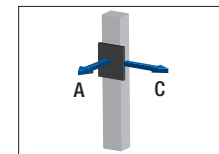
Wall use



Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	7	180	60	680
	14.5	60	20	150
	5	250	80	700
10	5	250	80	700
	10	100	20	210

Vertical use



Vertical mount [mm]

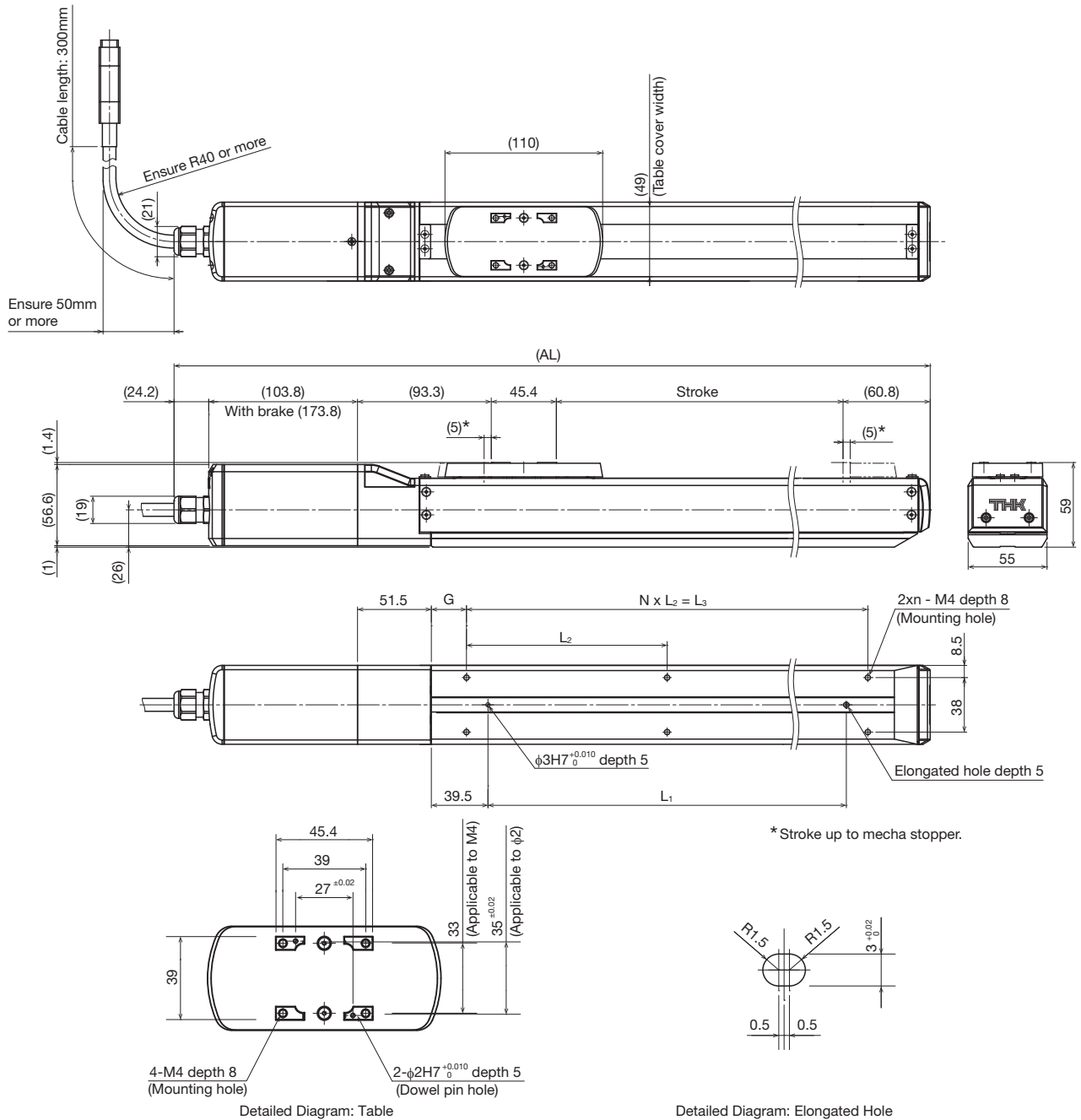
Ball screw lead [mm]	Load mass [kg]	A	C
6	3.5	160	160
	7.5	60	60
10	3	210	210
	6	90	90

* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction. A permissible value of the applied load in each direction.

KRF5 + TSC



Dimensions



Detailed Diagram: Table

Detailed Diagram: Elongated Hole

Stroke [mm] (Stroke between mecha stoppers)	50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)	350 (360)	400 (410)	450 (460)	500 (510)	550 (560)	
Maximum speed ^{*1, *2} [mm/s]	300										250	
	Ball screw lead: 6 mm										430	
	Ball screw lead: 10 mm										430	
Dimensions [mm]	AL ^{*3}	377.5 (447.5)	427.5 (497.5)	477.5 (547.5)	527.5 (597.5)	577.5 (647.5)	627.5 (697.5)	677.5 (747.5)	727.5 (797.5)	777.5 (847.5)	827.5 (897.5)	877.5 (947.5)
	L1	100	150	200	250	300	350	400	450	500	550	600
	L2	140	100	120	140	115	130	110	120	135	120	130
	L3	140	200	240	280	345	390	440	480	540	600	650
	G	19.5	14.5	19.5	24.5	17	19.5	19.5	24.5	19.5	14.5	14.5
Mounting pitch count	N	1	2	2	2	3	3	4	4	4	5	5
Mounting hole count	n	2	3	3	3	4	4	5	5	5	6	6
Weight ^{*3} [kg]		2.8 (3.3)	3.1 (3.6)	3.4 (3.9)	3.7 (4.2)	4.0 (4.5)	4.4 (4.8)	4.7 (5.1)	5.0 (5.4)	5.3 (5.7)	5.6 (6.1)	5.9 (6.4)

*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity: Relationship Diagram".

*2 Dependent on permissible rotational speed of ball screw.

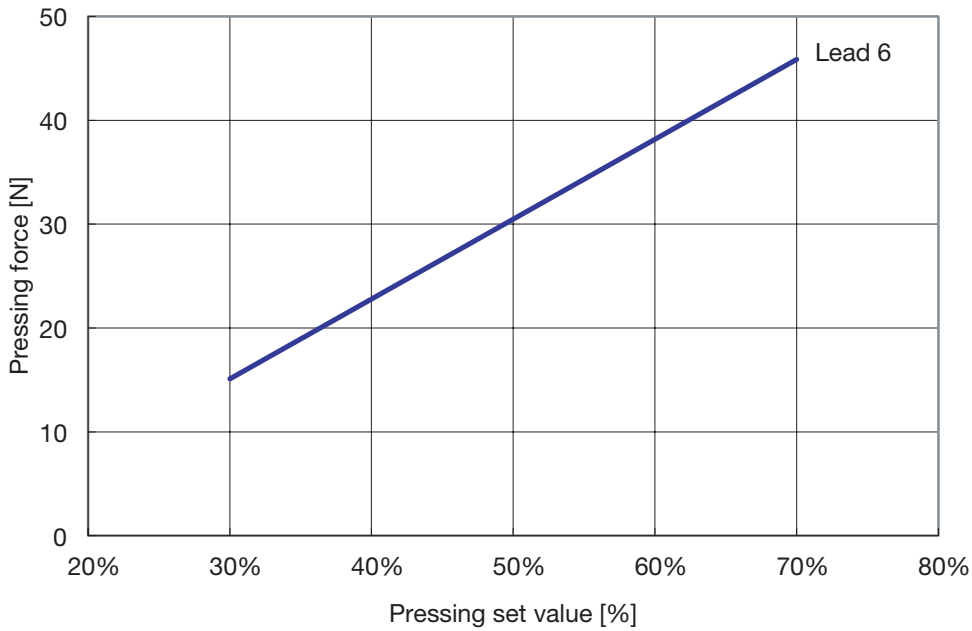
*3 Values when a brake is installed are shown in parentheses.

Pressing Force and Pressing Set Value for TSC specification: Relationship Diagram

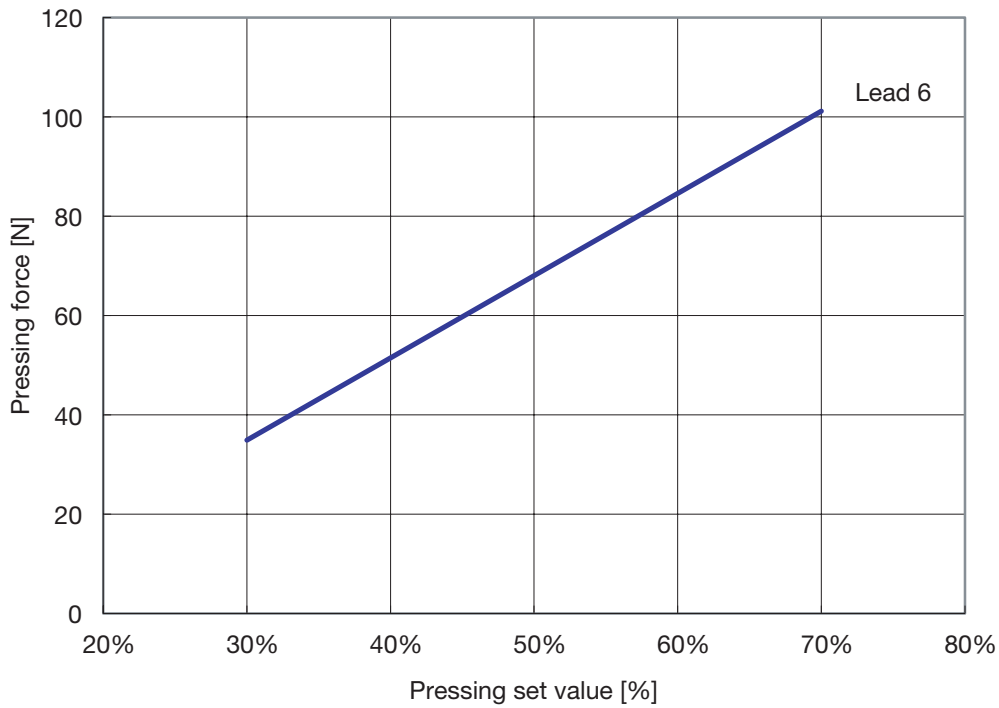
Pressing force may vary depending on the pressing set value. Refer to the relationship diagram below.

- ES/EC
- KRF
- US/USW
- PCT/PC
- Controller

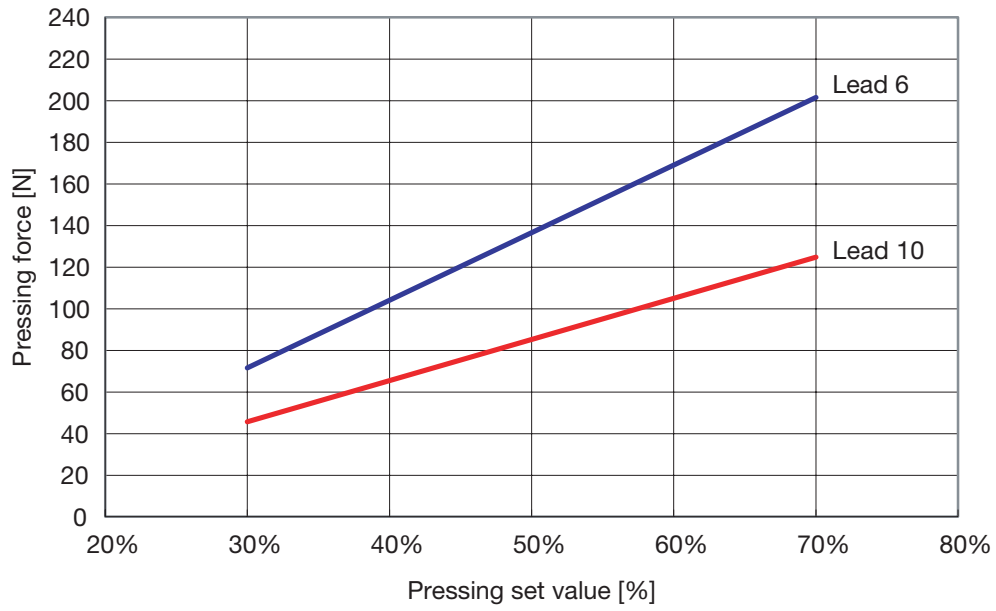
■ KRF3



■ KRF4



■ KRF5



ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series

KRF4 TLC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
KRF4	06	0150	A	TL	GR-SB-R6	M05	L	D00	F3
KRF4	06: 6 mm	0050: 50 mm to 0300: 300 mm	A	TL: TLC	No symbol: Red cover GR: Gray cover SB: Slider base □1□2: Sensor	M05 : 50W M05B : 50W with brake	R : Right L : Left U : Up D : Down	D00: Motor side R00: Reverse motor side	No symbol: None F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m

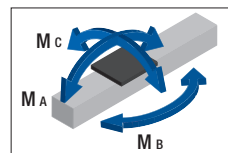
Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type		TLC	
Motor rated output [W]		50	
Ball screw lead [mm]		6	
Rated speed *1 [mm/s]		300	
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount	6
		Wall mount	5.5
		Vertical mount	4
Rated thrust *3 [N]		133	
Maximum thrust *4 [N]		241	
Electromagnetic brake retention [N]		268	
Running life *5 [km]	Horizontal and on wall		10,000
	Vertical		5,000
Positioning repeatability [mm]		±0.02	
Lost motion [mm]		0.1	
Static permissible moment *6 [N·m]		MA: 31 Mb: 21.2 Mc: 52.7	

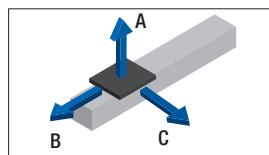
- *1 Based on rated motor speed (3,000 min⁻¹).
- *2 At rated speed.
- *3 At rated motor torque.
- *4 Dependent on maximum motor torque and permissible load.
- *5 The conditions for calculation are as follows:
Conditions: Under maximum load capacity at permissible overhang length
Stroke 75mm
- *6 Moment standards:
MA and Mc: top of table; Mb: center of table.

Static Permissible Moment

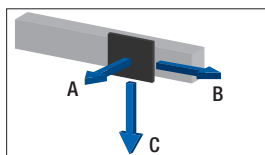


Permissible Overhang Length*

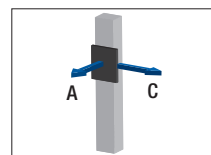
Horizontal use



Wall use



Vertical use



Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	3	250	60	160
	6	110	20	60

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	2.5	140	60	280
	5.5	50	20	100

Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	2	100	100
	4	30	30

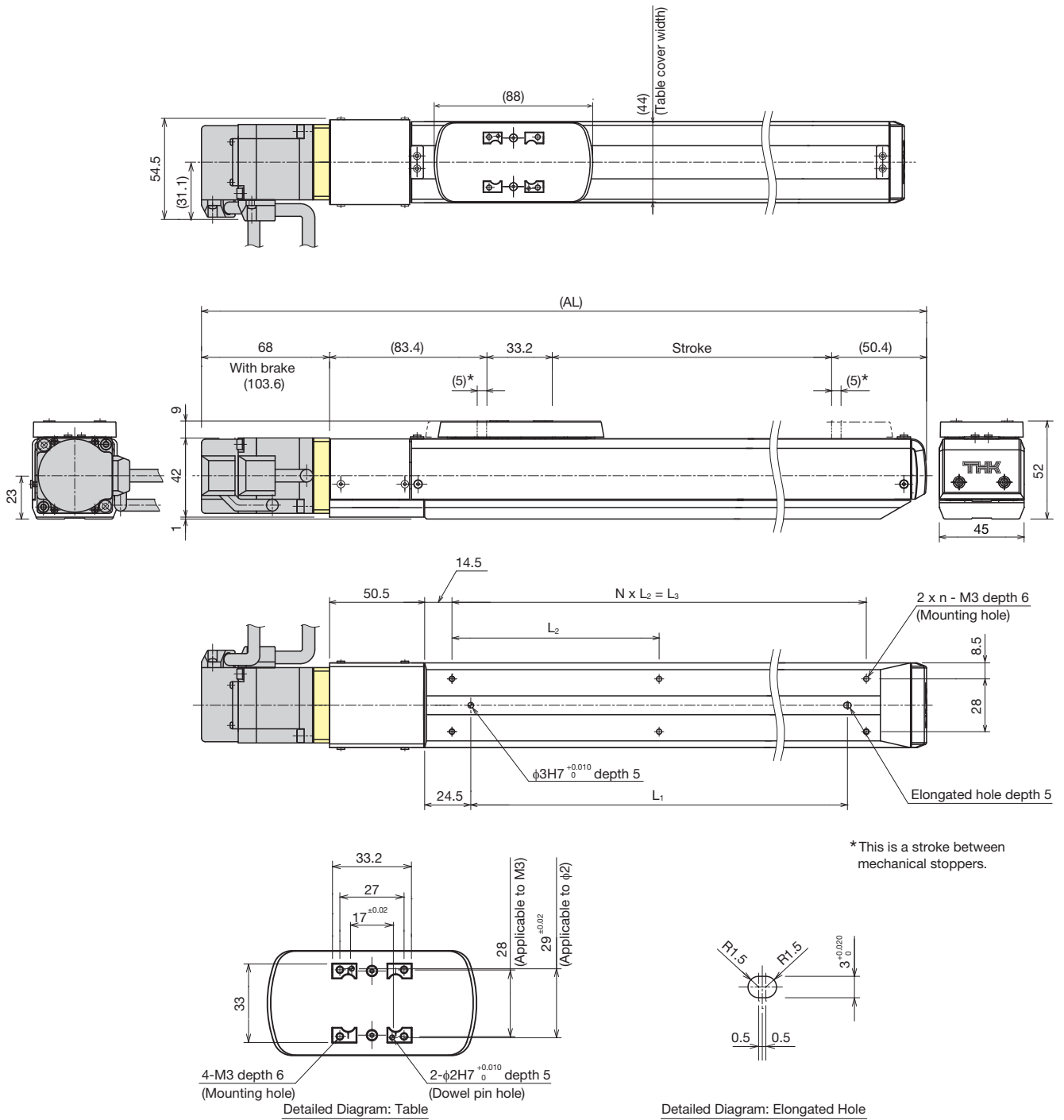
* This value is the overhang length whose running life is 10,000 km for horizontal and wall mount, and 5,000 km for vertical direction. A permissible value of the applied load in each direction.

KRF4 + TLC



Motor rated output
50W

Dimensions



Stroke [mm]		50	100	150	200	250	300
(Stroke between mechanical stoppers)		(60)	(110)	(160)	(210)	(260)	(310)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300					
Dimensions [mm]	AL *2	285(320.6)	335(370.6)	385(420.6)	435(470.6)	485(520.6)	535(570.6)
	L1	100	150	200	250	300	350
	L2	120	85	110	90	105	120
	L3	120	170	220	270	315	360
Mounting pitch count	N	1	2	2	3	3	3
Mounting hole count	n	2	3	3	4	4	4
Weight *2 [kg]		1.6(1.8)	1.8(2.0)	2.0(2.2)	2.2(2.4)	2.4(2.6)	2.7(2.9)

*1 Dependent on motor speed (3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series



KRF4R TLC specifications

ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
KRF4R	06	0150	A	TL	ML-GR	M05	R	D00	F3
KRF4R	06: 6 mm	0050: 50 mm to 0300: 300 mm	A	TL: TLC	No symbol: None MR: Motor right return ML: Motor left return MD: Motor down return GR: Gray cover SB: Slider base □1□2: Sensor	M05 : 50W M05B : 50W with brake	R : Right L : Left U : Up D : Down	D00: Motor side R00: Reverse motor side	No symbol: None F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m

Basic Specifications

Control device type				TL
Motor rated output [W]				50
Ball screw lead [mm]				6
Rated speed *1 [mm/s]				300
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.5G	6
		Wall mount	0.3G	5.5
		Vertical mount	0.3G	4
Rated thrust *3 [N]				133
Maximum thrust *4 [N]				241
Electromagnetic brake retention [N]				268
Running life *5 [km]	Horizontal/wall mount			10,000
	Vertical mount			5,000
Positioning repeatability [mm]				±0.02
Lost motion [mm]				0.1
Static permissible moment *6 [N·m]				MA: 31 MB: 21.2 Mc: 52.7

*1 Based on rated motor speed (3,000min⁻¹).

*2 At rated speed.

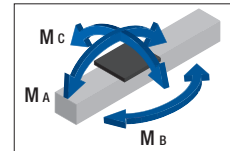
*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 The conditions for calculation are as follows:
Under maximum load capacity at permissible overhang length.
Stroke 75 mm

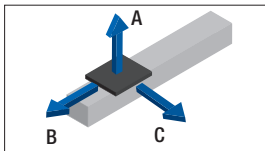
*6 Moment standards for MA and Mc are the top face of the table, and that for MB is the center of the table.

Static Permissible Moment

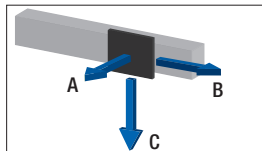


Permissible Overhang Length*

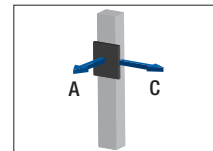
Horizontal use



Wall use



Vertical use



Horizontal mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	3	250	60	160
	6	110	20	60

Wall mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	2.5	140	60	280
	5.5	50	20	100

Vertical mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	2	100	100
	4	30	30

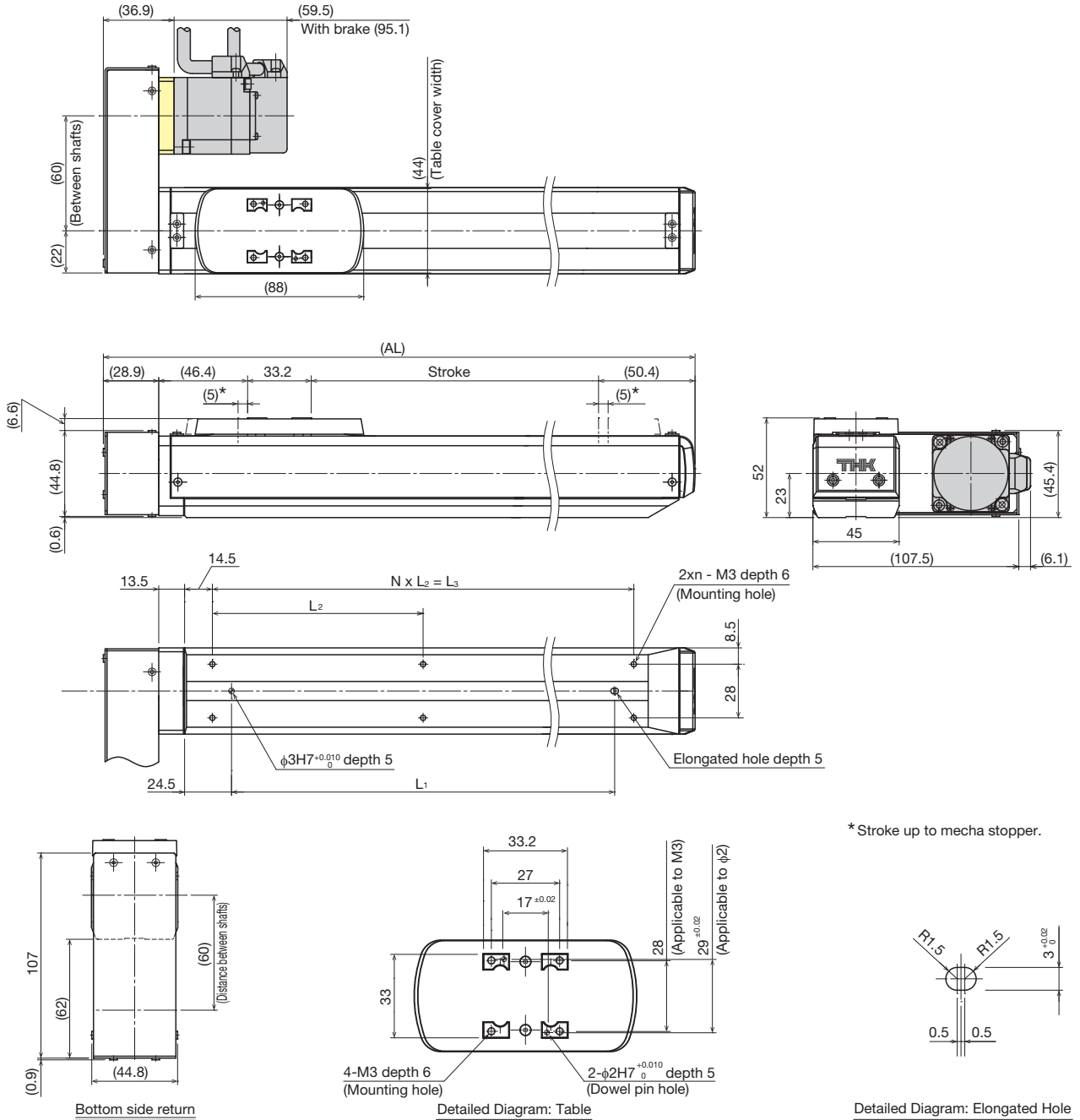
* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction.
A permissible value of the applied load in each direction.

KRF4R + TLC



Motor rated output
50W

Dimensions



* Stroke up to mecha stopper.

Stroke [mm]		50	100	150	200	250	300
(Stroke between mecha stoppers)		(60)	(110)	(160)	(210)	(260)	(310)
Maximum speed *1 [mm/s]	Ball screw lead: 6 mm	300					
Dimensions [mm]	AL *2	209	259	309	359	409	459
	L ₁	100	150	200	250	300	350
	L ₂	120	85	110	90	105	120
	L ₃	120	170	220	270	315	360
Mounting pitch count	N	1	2	2	3	3	3
Mounting hole count	n	2	3	3	4	4	4
Weight *2 [kg]		1.6(1.8)	1.8(2.0)	2.0(2.2)	2.3(2.5)	2.5(2.7)	2.7(2.9)

*1 The maximum speed is the value restricted by the motor rotational speed (at 3,000min⁻¹), or by the permissible rotational speed of the ball screw.

*2 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series

KRF5 TLC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
KRF5	06	0150	A	TL	GR-SB-R6	M05	L	D00	F3
KRF5	06: 6 mm 10: 10 mm	0050: 50 mm to 0550: 550 mm	A	TL : TLC	No symbol: Red cover GR : Gray cover SB : Slider base <input type="checkbox"/> 1 <input type="checkbox"/> 2: Sensor	M05 : 50W M05B : 50W with brake	R : Right L : Left U : Up D : Down	D00 : Motor side R00 : Reverse motor side	No symbol: None F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m

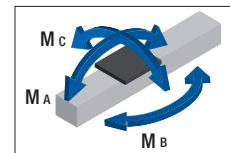
Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

Control device type				TLC	
Motor rated output [W]				50	
Ball screw lead [mm]				6	10
Rated speed *1 [mm/s]				300	500
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.5 G	19	15
		Wall mount		14	12.5
		Vertical mount		6	3.5
Rated thrust *3 [N]				133	80
Maximum thrust *4 [N]				402	241
Electromagnetic brake retention [N]				268	161
Running life *5 [km]		Horizontal and on wall		10,000	
		Vertical		5,000	
Positioning repeatability [mm]				±0.02	
Lost motion [mm]				0.1	
Static permissible moment *6 [N·m]				MA: 84 MB: 48.4 Mc: 105.8	

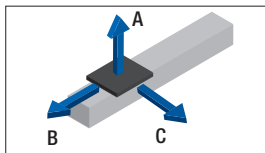
- *1 Based on rated motor speed (3,000 min⁻¹).
- *2 At rated speed.
- *3 At rated motor torque.
- *4 Dependent on maximum motor torque and permissible load.
- *5 The conditions for calculation are as follows:
Conditions: Under maximum load capacity at permissible overhang length
Stroke 275mm
- *6 Moment standards:
MA and MC: top of table; MB: center of table.

Static Permissible Moment

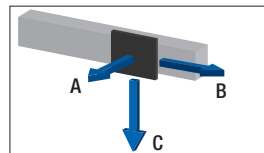


Permissible Overhang Length*

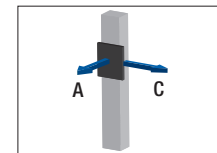
Horizontal use



Wall use



Vertical use



Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	9.5	350	50	150
	19	150	20	60
10	7.5	310	70	180
	15	130	20	60

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	7	180	60	500
	14	60	20	130
10	6	170	70	390
	12.5	60	20	120

Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	3	210	210
	6	90	90
10	1.5	390	390
	3.5	180	180

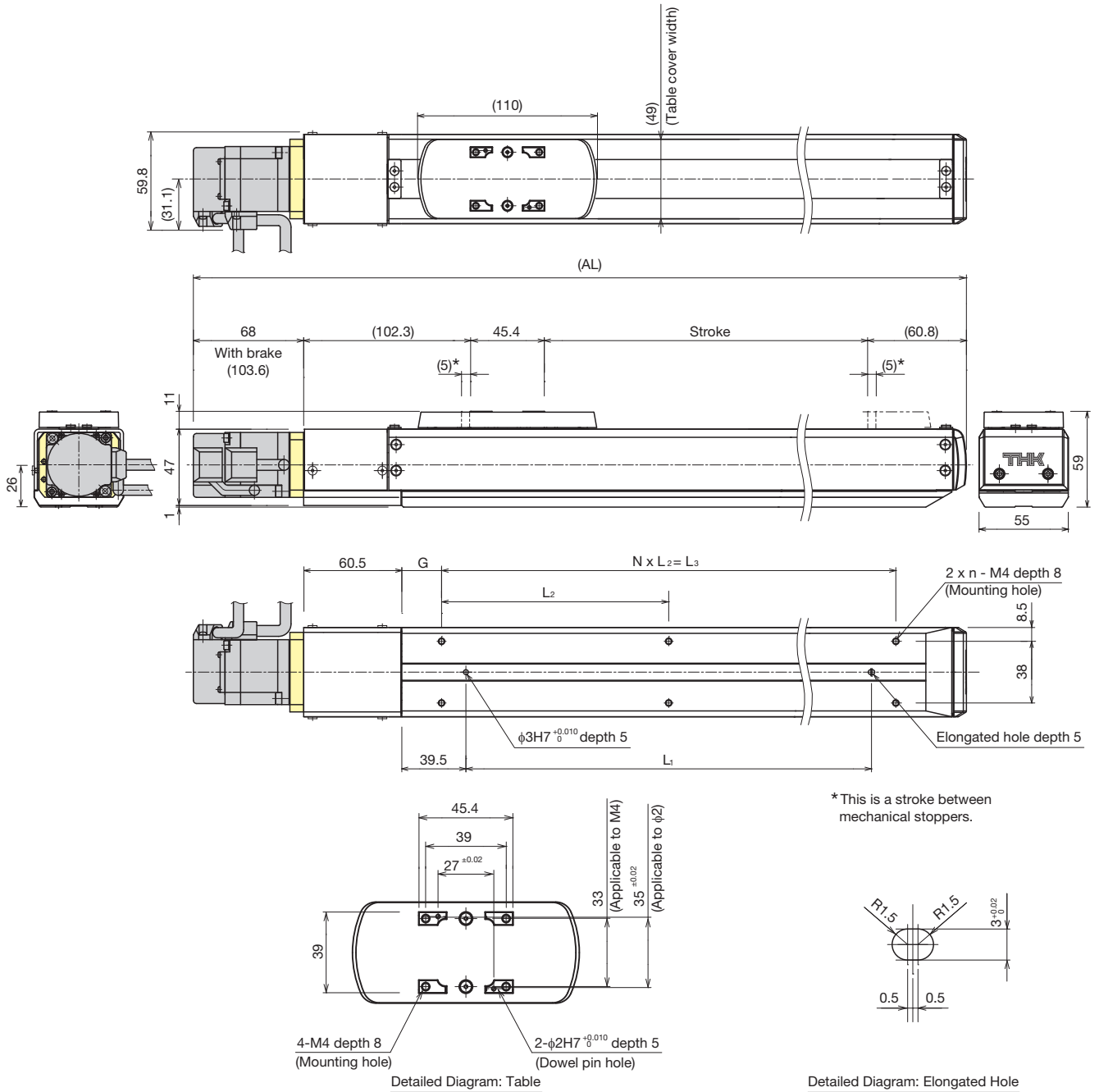
* This value is the overhang length whose running life is 10,000 km for horizontal and wall mount, and 5,000 km for vertical direction.
A permissible value of the applied load in each direction.

KRF5 + TLC



Motor rated output
50W

Dimensions



Stroke [mm] (Stroke between mechanical stoppers)	50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)	350 (360)	400 (410)	450 (460)	500 (510)	550 (560)	
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300										250
	Ball screw lead: 10mm	500										430
Dimensions [mm]	AL *2	326.5 (362.1)	376.5 (412.1)	426.5 (462.1)	476.5 (512.1)	526.5 (562.1)	576.5 (612.1)	626.5 (662.1)	676.5 (712.1)	726.5 (762.1)	776.5 (812.1)	826.5 (862.1)
	L1	100	150	200	250	300	350	400	450	500	550	600
	L2	140	100	120	140	115	130	110	120	135	120	130
	L3	140	200	240	280	345	390	440	480	540	600	650
Mounting pitch count	N	1	2	2	2	3	3	4	4	4	5	5
Mounting hole count	n	2	3	3	3	4	4	5	5	5	6	6
Weight *2 [kg]		2.6 (2.8)	2.9 (3.1)	3.2 (3.4)	3.5 (3.7)	3.8 (4.0)	4.1 (4.3)	4.4 (4.6)	4.7 (4.9)	5.0 (5.2)	5.3 (5.5)	5.6 (5.8)

*1 Dependent on motor speed (3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when a brake is installed are shown in parentheses.

Compact series

KRF5R TLC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

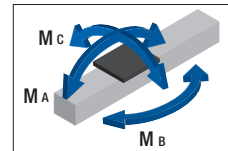
Model	Ball screw lead	Stroke	Design symbol	Control device	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
KRF5R	06	0150	A	TL	ML-GR	M05	R	D00	F3
KRF5R	06: 6 mm 10: 10 mm	0050: 50mm to 0550: 550 mm	A	TL : TLC	No symbol: None MR: Motor right return ML: Motor left return MD: Motor down return GR: Gray cover SB: Slider base □1□2: Sensor	M05 : 50W M05B : 50W with brake	R : Right L : Left U : Up D : Down	D00: Motor side R00: Reverse motor side	No symbol: None F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m

Basic Specifications

Control device type				TLC		
Motor rated output [W]				50		
Ball screw lead [mm]				6	10	
Rated speed *1 [mm/s]				300	500	
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.5 G	19	15	
		Wall mount		14	12.5	
		Vertical mount		6	3.5	
Rated thrust *3 [N]				133	80	
Maximum thrust *4 [N]				402	241	
Electromagnetic brake retention [N]				268	161	
Running life *5 [km]	Horizontal/wall mount		10,000			
	Vertical mount		5,000			
Positioning repeatability [mm]				±0.02		
Lost motion [mm]				0.1		
Static permissible moment *6 [N·m]				MA: 84	MB: 48.4	MC: 105.8

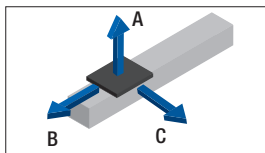
- *1 Based on rated motor speed (3,000min⁻¹).
- *2 At rated speed.
- *3 At rated motor torque.
- *4 Dependent on maximum motor torque and permissible load.
- *5 The conditions for calculation are as follows:
Under maximum load capacity at permissible overhang length.
Stroke 275 mm
- *6 Moment standards for MA and Mc are the top face of the table, and that for MB is the center of the table.

Static Permissible Moment

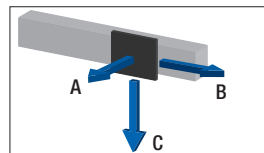


Permissible Overhang Length*

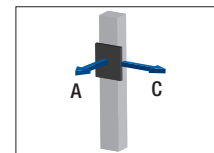
Horizontal use



Wall use



Vertical use



Horizontal mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	9.5	350	50	150
	19	150	20	60
10	7.5	310	70	180
	15	130	20	60

Wall mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	7	180	60	500
	14	60	20	130
10	6	170	70	390
	12.5	60	20	120

Vertical mount

[mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	3	210	210
	6	90	90
10	1.5	390	390
	3.5	180	180

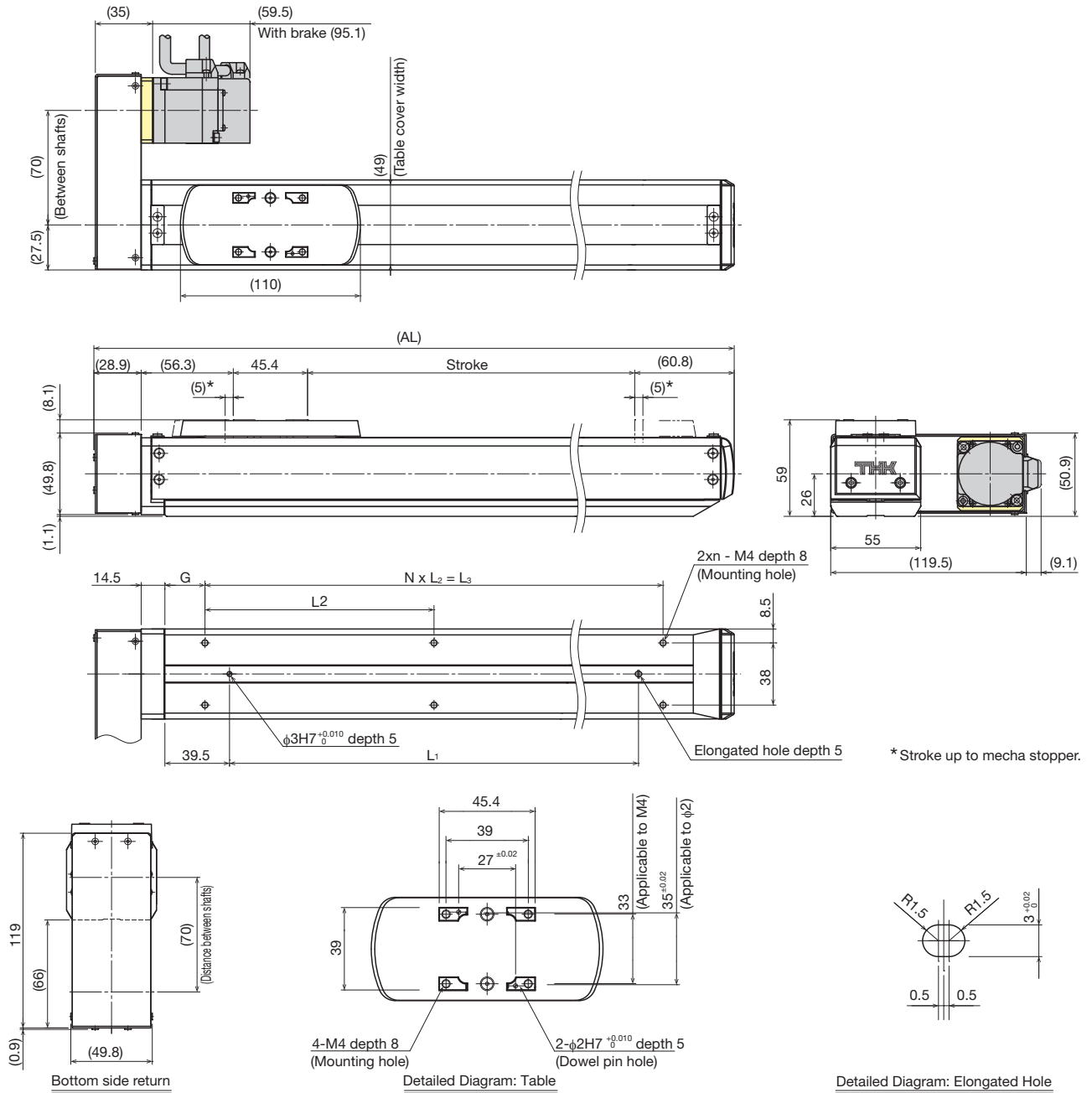
* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction. A permissible value of the applied load in each direction.

KRF5R + TLC



Motor rated output
50W

Dimensions



Stroke [mm] (Stroke between mecha stoppers)	50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)	350 (360)	400 (410)	450 (460)	500 (510)	550 (560)	
Maximum speed *1 [mm/s]	Ball screw lead: 6 mm 300										250	
	Ball screw lead: 10 mm 500										430	
Dimensions [mm]	AL	241.5	291.5	341.5	391.5	441.5	491.5	541.5	591.5	641.5	691.5	741.5
	L1	100	150	200	250	300	350	400	450	500	550	600
	L2	140	100	120	140	115	130	110	120	135	120	130
	L3	140	200	240	280	345	390	440	480	540	600	650
	G	19.5	14.5	19.5	24.5	17	19.5	19.5	24.5	19.5	14.5	14.5
Mounting pitch count	N	1	2	2	2	3	3	4	4	4	5	5
Mounting hole count	n	2	3	3	3	4	4	5	5	5	6	6
Weight *2 [kg]	2.5 (2.7)	2.8 (3.0)	3.1 (3.3)	3.5 (3.7)	3.8 (4.0)	4.1 (4.3)	4.4 (4.6)	4.7 (4.9)	5.0 (5.2)	5.3 (5.5)	5.6 (5.8)	

*1 The maximum speed is the value restricted by the motor rotational speed (at 3,000min⁻¹), or by the permissible rotational speed of the ball screw.
*2 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Compact series



KRF6

THC specifications

ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
KRF6	06	0150	A	TH	GR-SB-R6	M10	L	D00	D1	F3

KRF6	06: 6 mm	0050: 50 mm	A	TH: THC	No symbol: Red cover	M10 : 100W	R : Right	D00: Motor side	D1: 100 V	No symbol: None
	10: 10 mm	to			GR: Gray cover	M10B: 100W with brake	L : Left	R00: Reverse motor side	D2: 200 V	F3 : Standard 3 m
		0800: 800 mm			SB: Slider base		U : Up	S02: Motor side		FA : Standard 5 m
					□1□2: Sensor		D : Down	S03: Reverse motor side		HA : High flex 10 m

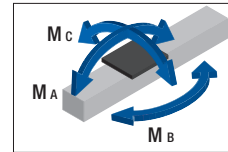
Note: If the GR is not included in the model configuration, cover will be red.

Basic Specifications

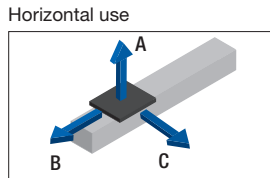
Control device type			THC		
Motor rated output [W]			100		
Ball screw lead [mm]			6 10		
Rated speed *1 [mm/s]			300 500		
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount	0.5 G	35	30
		Wall mount	0.3G	24	22
		Vertical mount	0.3G	10	5
Rated thrust *3 [N]			266 160		
Maximum thrust *4 [N]			796 478		
Electromagnetic brake retention [N]			268 161		
Running life *5 [km]	Horizontal and on wall		10,000		
	Vertical		5,000		
Positioning repeatability [mm]			±0.02		
Lost motion [mm]			0.1		
Static permissible moment *6 [N·m]			MA: 166 Mb: 103.8 Mc: 179.5		

- *1 Based on rated motor speed (3,000 min⁻¹).
- *2 At rated speed.
- *3 At rated motor torque.
- *4 Dependent on maximum motor torque and permissible load.
- *5 The conditions for calculation are as follows:
Conditions: Under maximum load capacity at permissible overhang length
Stroke 275mm
- *6 Moment standards:
MA and Mc: top of table; Mb: center of table.

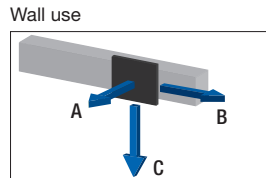
Static Permissible Moment



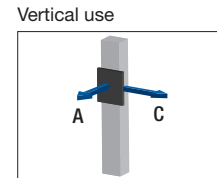
Permissible Overhang Length*



Ball screw Lead [mm]	Load mass [kg]	A	B	C
6	17.5	390	50	160
	35	170	10	60
10	15	320	60	170
	30	130	10	50



Ball screw Lead [mm]	Load mass [kg]	A	B	C
6	12	200	70	600
	24	70	20	140
	11	200	80	460
10	22	70	30	120



Ball screw Lead [mm]	Load mass [kg]	A	C
6	5	240	240
	10	100	100
10	2.5	510	510
	5	230	230

* This value is the overhang length whose running life is 10,000 km for horizontal and wall mount, and 5,000 km for vertical direction. A permissible value of the applied load in each direction.

Dimensions

Stroke [mm] (Stroke between mechanical stoppers)		50 (70)	100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300							
	Ball screw lead: 10mm	500							
Dimensions [mm]	AL *2	361 (396.6)	411 (446.6)	461 (496.6)	511 (546.6)	561 (596.6)	611 (646.6)	661 (696.6)	711 (746.6)
	L1	100	150	200	200	250	250	300	350
	L2	100	200	200	200	200	200	200	200
	L3	100	200	200	200	200	400	400	400
	L4	-	-	-	-	100	-	-	-
	G	50	25	50	75	50	25	50	75
Mounting pitch count	H	50	50	50	75	75	100	100	100
Mounting hole count	N	1	1	1	1	1	2	2	2
	n	2	2	2	2	3	3	3	3
	Weight *2 [kg]	3.2 (3.4)	3.6 (3.8)	4.0 (4.2)	4.5 (4.7)	4.9 (5.1)	5.3 (5.5)	5.7 (5.9)	6.1 (6.3)

*1 Dependent on motor speed (3,000min⁻¹) and permissible rotational speed of the ball screw.

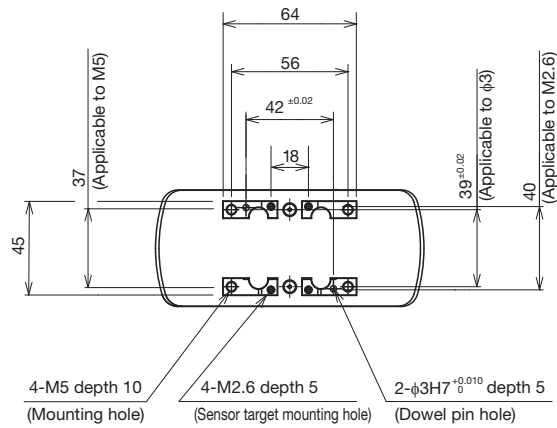
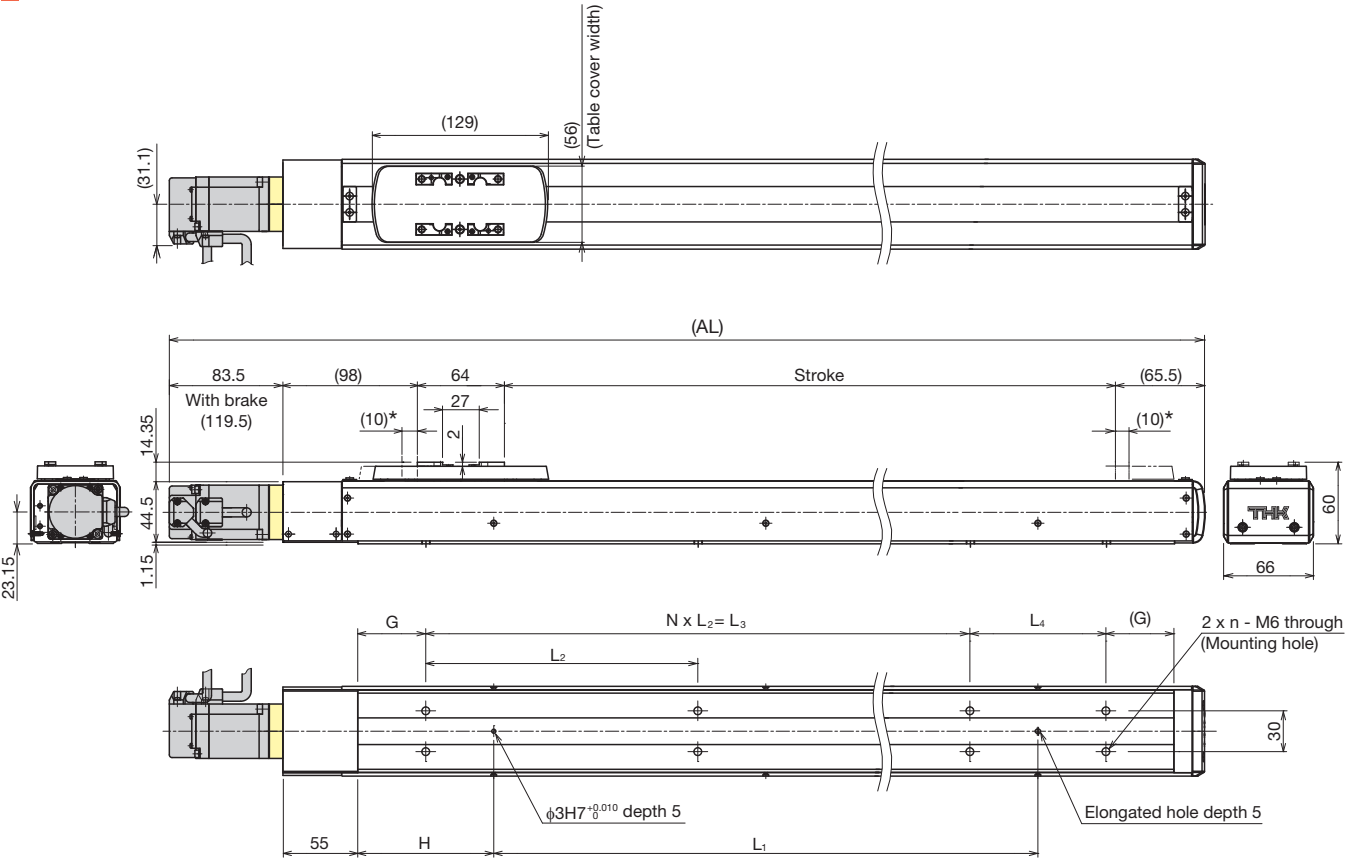
*2 Values when a brake is installed are shown in parentheses.

KRF6 + THC

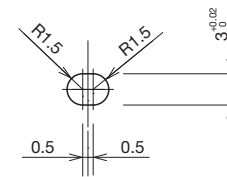


Motor rated output
100W

Dimensions



*This is a stroke between mechanical stoppers.



Detailed Diagram: Table

Detailed Diagram: Elongated Hole

Stroke [mm] (Stroke between mechanical stoppers)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300		260	220	200	170	150	
	Ball screw lead: 10mm	500		440	380	330	290	260	
Dimensions [mm]	AL *2	761(796.6)	811(846.6)	861(896.6)	911(946.6)	961(996.6)	1011(1046.6)	1061(1096.6)	1111(1146.6)
	L1	400	450	500	550	600	650	700	750
	L2	200	200	200	200	200	200	200	200
	L3	400	600	600	600	600	800	800	800
	L4	100	-	-	-	100	-	-	-
	G	50	25	50	75	50	25	50	75
H	100	100	100	100	100	100	100	100	
Mounting pitch count	N	2	3	3	3	4	4	4	
Mounting hole count	n	4	4	4	4	5	5	5	
Weight *2 [kg]	6.5 (6.7)	6.9 (7.1)	7.3 (7.5)	7.7 (7.9)	8.1 (8.3)	8.5 (8.7)	8.9 (9.1)	9.3 (9.5)	

*1 Dependent on motor speed (3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when a brake is installed are shown in parentheses.

Compact series

KRF6R

THC specifications



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

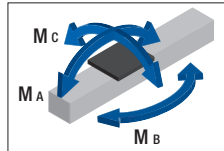
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
KRF6R	06	0150	A	TH	ML-GR	M10	R	D00	D1	F3
KRF6R	06: 6 mm 10: 10 mm	0050: 50 mm to 0800: 800 mm	A	TH : THC	No symbol : None MR : Motor right return ML : Motor left return MD : Motor down return GR : Gray cover SB : Slider base <input type="checkbox"/> 1 <input type="checkbox"/> 2: Sensor	M10 : 100W M10B : 100W with brake	R : Right L : Left U : Up D : Down	D00 : Motor side R00 : Reverse motor side S02 : Motor side S03 : Reverse motor side	D1 : 100 V D2 : 200 V	No symbol : None F3 : Standard 3 m F5 : Standard 5 m FA : Standard 10 m H3 : High flex 3 m H5 : High flex 5 m HA : High flex 10 m

Basic Specifications

Control device type		THC	
Motor rated output [W]		100	
Ball screw lead [mm]		6	10
Rated speed *1 [mm/s]		300	500
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal mount 0.5G	35
		Wall mount	24
		Vertical mount 0.3G	10
Rated thrust *3 [N]		266	160
Maximum thrust *4 [N]		796	478
Electromagnetic brake retention [N]		268	161
Running life *5 [km]	Horizontal/wall mount	10,000	
	Vertical mount	5,000	
Positioning repeatability [mm]		±0.02	
Lost motion [mm]		0.1	
Static permissible moment *6 [N·m]		MA: 166	MB: 103.8
		MC: 179.5	

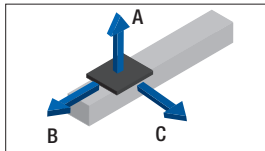
- *1 Based on rated motor speed (3,000min⁻¹).
- *2 At rated speed.
- *3 At rated motor torque.
- *4 Dependent on maximum motor torque and permissible load.
- *5 The conditions for calculation are as follows:
Under maximum load capacity at permissible overhang length.
Stroke 275 mm
- *6 Moment standards for MA and Mc are the top face of the table, and that for MB is the center of the table.

Static Permissible Moment



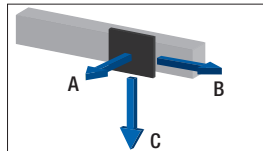
Permissible Overhang Length*

Horizontal use



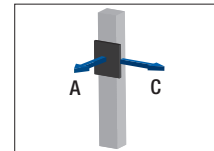
Ball screw lead [mm]	Load mass [kg]	Horizontal mount [mm]		
		A	B	C
6	17.5	390	50	160
	35	170	10	60
10	15	320	60	170
	30	130	10	50

Wall use



Ball screw lead [mm]	Load mass [kg]	Wall mount [mm]		
		A	B	C
6	12	200	70	600
	24	70	20	140
10	11	200	80	460
	22	70	30	120

Vertical use



Ball screw lead [mm]	Load mass [kg]	Vertical mount [mm]	
		A	C
6	5	240	240
	10	100	100
10	2.5	510	510
	5	230	230

* This value is the overhang length whose running life is 10,000 km for horizontal direction/wall mount and 5,000 km for vertical direction.
A permissible value of the applied load in each direction.

Dimensions

Stroke [mm] (Stroke between mecha stoppers)		50 (70)	100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)
Maximum speed *1 [mm/s]	Ball screw lead: 6 mm	300							
	Ball screw lead: 10 mm	500							
Dimensions [mm]	AL	276	326	376	426	476	526	576	626
	L1	100	150	200	200	250	250	300	350
	L2	100	200	200	200	200	200	200	200
	L3	100	200	200	200	200	400	400	400
	L4	-	-	-	-	100	-	-	-
	G	50	25	50	75	50	25	50	75
	H	50	50	50	75	75	100	100	100
Mounting pitch count	N	1	1	1	1	1	2	2	2
Mounting hole count	n	2	2	2	2	3	3	3	3
Weight *2 [kg]		4.0(4.2)	4.4(4.6)	4.8(5.0)	5.2(5.4)	5.6(5.8)	6.0(6.2)	6.4(6.6)	6.8(7.0)

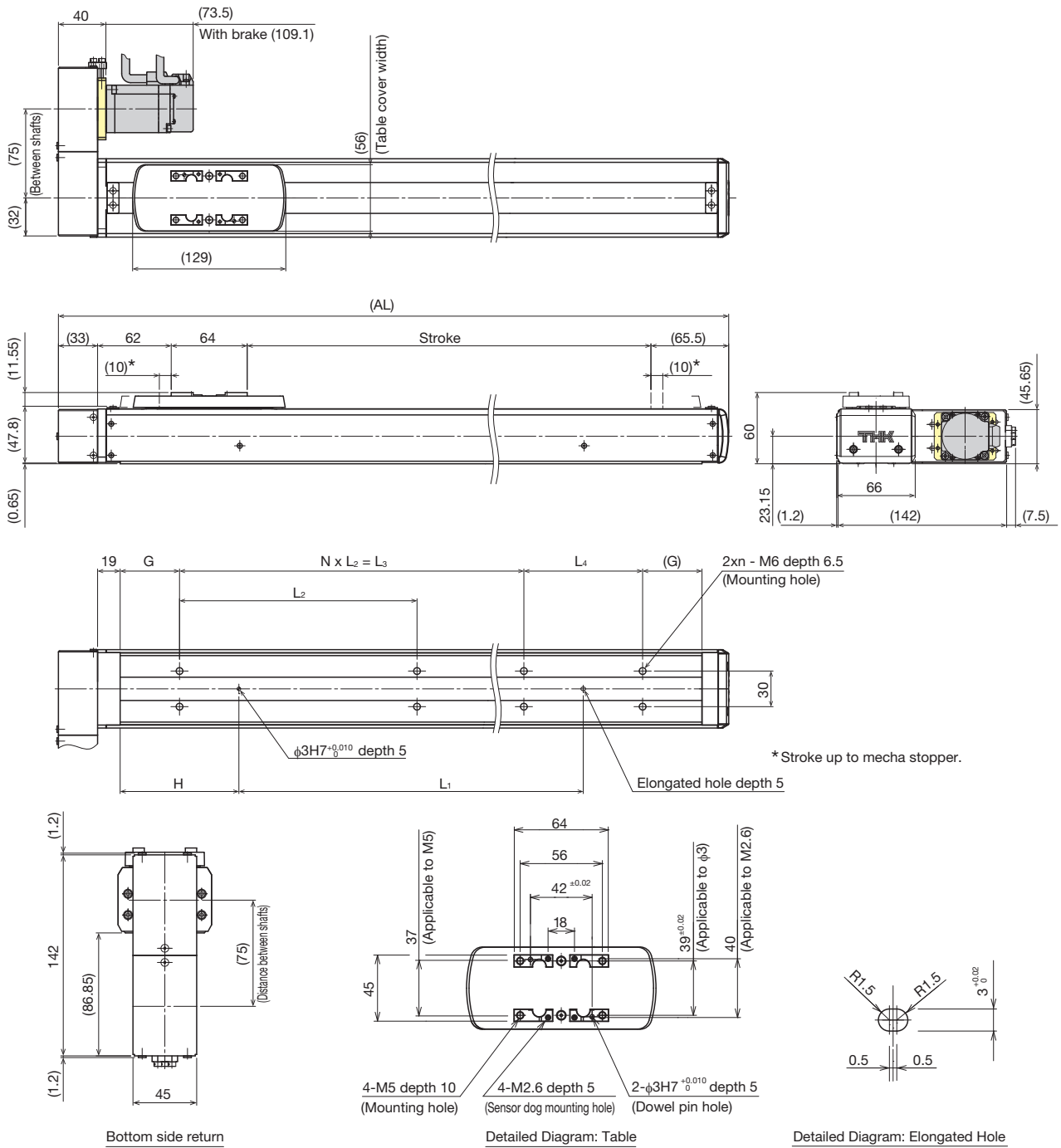
*1 The maximum speed is the value restricted by the motor rotational speed (at 3,000min⁻¹), or by the permissible rotational speed of the ball screw.
*2 Values when a brake is installed are shown in parentheses.

KRF6R + THC



Motor rated output
100W

Dimensions



Stroke [mm] (Stroke between mecha stoppers)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)
Maximum speed *1 [mm/s]	Ball screw lead: 6 mm 300		260		220	200	170	150
	Ball screw lead: 10mm 500		440		380	330	290	260
Dimensions [mm]	AL	676	726	776	826	876	926	1026
	L1	400	450	500	550	600	650	750
	L2	200	200	200	200	200	200	200
	L3	400	600	600	600	600	800	800
	L4	100	-	-	-	100	-	-
	G	50	25	50	75	50	25	50
H	100	100	100	100	100	100	100	100
Mounting pitch count	N	2	3	3	3	4	4	4
Mounting hole count	n	4	4	4	4	5	5	5
Weight *2 [kg]	7.2(7.4)	7.7(7.9)	8.0(8.3)	8.5(8.7)	8.9(9.1)	9.3(9.5)	9.7(9.9)	10.1(10.3)

*1 The maximum speed is the value restricted by the motor rotational speed (at 3,000min⁻¹), or by the permissible rotational speed of the ball screw.

*2 Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

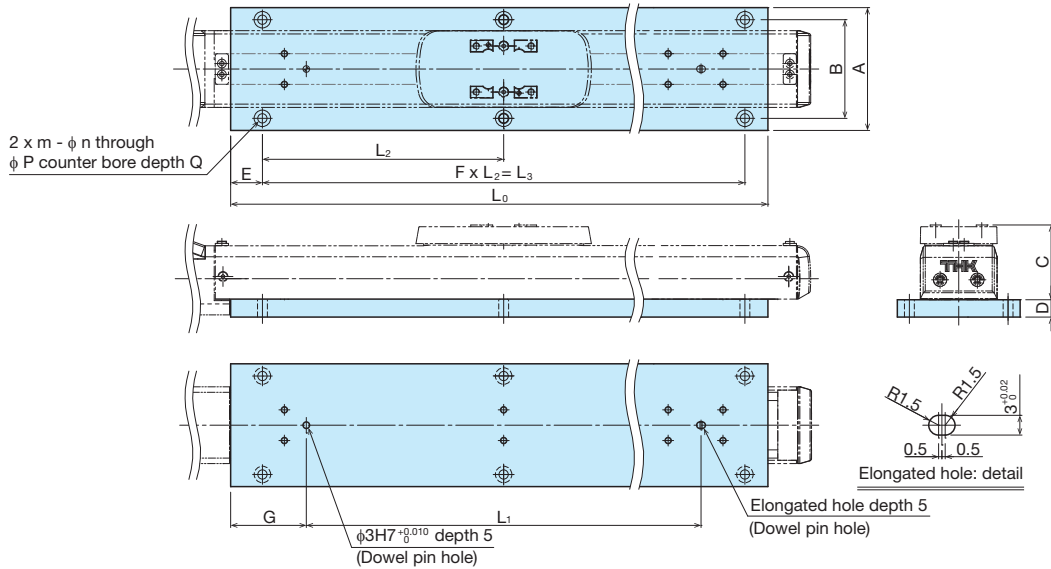
Controller

Options

SB: Slider base

THK provides slider bases for installing the KRF main unit from the top face.

* The product is shipped with this optional assembled.



Unit: mm

Model	A	B	C	D
KRF3	56	45	34.1	7.9
KRF4 / KRF4R	70	55	42.1	9.9
KRF5 / KRF5R	80	65	49.1	9.9
KRF6 / KRF6R	90	78	60	10

Note) When the slider base is mounted on KRF6, the height of KRF6 will be 10mm higher than the standard product due to the thickness of slider base.

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
KRF3	L ₀	145	195	245	295	345	395	-	-	-	-	-	-	-	-	-	
	L ₁	100	150	200	250	300	350	-	-	-	-	-	-	-	-	-	
	L ₂	120	85	110	135	105	120	-	-	-	-	-	-	-	-	-	
	L ₃	120	170	220	270	315	360	-	-	-	-	-	-	-	-	-	
	E	14.5						-	-	-	-	-	-	-	-	-	
	F	1	2	2	2	3	3	-	-	-	-	-	-	-	-	-	
	G	24.5						-	-	-	-	-	-	-	-	-	
	m	2	3	3	3	4	4	-	-	-	-	-	-	-	-	-	
	n	4.5						-	-	-	-	-	-	-	-	-	
	P	8						-	-	-	-	-	-	-	-	-	
KRF4 KRF4R	Q	4.4						-	-	-	-	-	-	-	-	-	
	L ₀	142	192	242	292	342	392	-	-	-	-	-	-	-	-	-	
	L ₁	100	150	200	250	300	350	-	-	-	-	-	-	-	-	-	
	L ₂	120	85	110	90	105	120	-	-	-	-	-	-	-	-	-	
	L ₃	120	170	220	270	315	360	-	-	-	-	-	-	-	-	-	
	E	14.5						-	-	-	-	-	-	-	-	-	
	F	1	2	2	3	3	3	-	-	-	-	-	-	-	-	-	
	G	24.5						-	-	-	-	-	-	-	-	-	
	m	2	3	3	4	4	4	-	-	-	-	-	-	-	-	-	
	n	4.5						-	-	-	-	-	-	-	-	-	
KRF5 KRF5R	P	8						-	-	-	-	-	-	-	-	-	
	Q	4.4						-	-	-	-	-	-	-	-	-	
	L ₀	180	230	280	330	380	430	480	530	580	630	680	-	-	-	-	
	L ₁	100	150	200	250	300	350	400	450	500	550	600	-	-	-	-	
	L ₂	140	100	120	140	115	130	110	120	135	120	130	-	-	-	-	
	L ₃	140	200	240	280	345	390	440	480	540	600	650	-	-	-	-	
	E	19.5	15	19.5	24.5	17	19.5	19.5	24.5	19.5	14.5	14.5	-	-	-	-	
	F	1	2	2	2	3	3	4	4	4	5	5	-	-	-	-	
	G	39.5						-	-	-	-	-	-	-	-	-	
	m	2	3	3	3	4	4	5	5	5	6	6	-	-	-	-	
KRF6 KRF6R	n	4.5						-	-	-	-	-	-	-	-	-	
	P	8						-	-	-	-	-	-	-	-	-	
	Q	4.4						-	-	-	-	-	-	-	-	-	
	L ₀	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
	L ₁	100	150	200	200	250	250	300	350	400	450	500	550	600	650	700	750
	L ₂	100	200	130	150	170	140	150	160	170	140	160	170	180	150	170	180
	L ₃	100	200	260	300	340	420	450	480	510	560	640	680	720	750	850	900
	E	50	25	20	25	30	15	25	35	45	45	30	35	40	50	25	25
	F	1	1	2	2	2	3	3	3	3	4	4	4	4	5	5	5
	G	50	50	50	75	75	100	100	100	100	100	100	100	100	100	100	100
m	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	6	
n							5.5										
P							9.5										
Q							5.4										

□1□2: Sensors

Optional proximity sensors and photo sensors are available for KRF. Models equipped with a sensor are also provided with a dedicated sensor rail. Please use the sensor with the following precautions (Notes 1 to 6) in mind.

- Note 1) The customer should provide a sensor target since it cannot be installed onto the actuator main unit. (Excluding KRF6)
- Note 2) Sensor target for KRF6 to be shipped loose.
- Note 3) Sensor rails are pre-mounted, and sensors are provided with the product.
- Note 4) When optional sensor is used, note the home position may differ from the position indicated by the dimension in this catalog, in considering using them.
- Note 5) Proximity sensors placed too close to each other may not work properly. In such a case, the customer should provide a different frequency type of sensor.
(For specifications, contact each manufacturer.)
- Note 6) Mount the sensor/sensor rail on both sides if the stroke is not more than 100 mm.

Description	Model	Accessory	Symbol	
			□1	□2
With sensor rail	-	-	L/R	1
Photo sensor * [3 units]	EE-SX674 (OMRON Corporation)	Mounting screw, nuts, sensor rail (x 1 or 2), mounting plates (x 3), connectors (EE-1001, x 3)	L/R	6
Sensor N.O. contact [x 1] N.C. contact [x 2]	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screw, nuts, sensor rail (x 1 or 2)	L/R	J
Sensor N.O. contact [x 1] (PNP output) N.C. contact [x 2] (PNP output)	GX-F12A-P (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B-P (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screw, nuts, sensor rail (x 1 or 2)	L/R	M

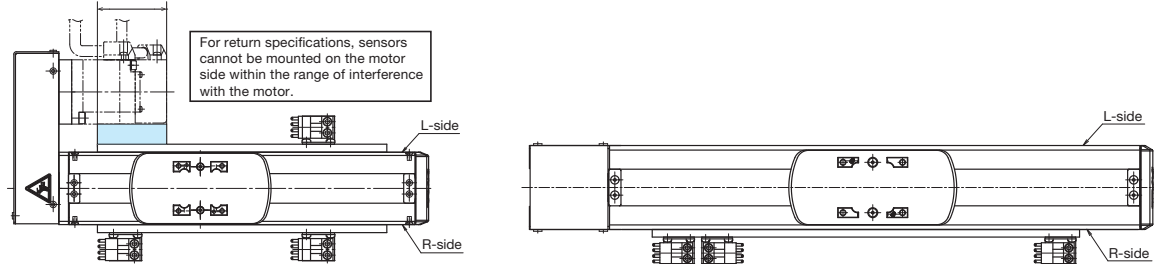
N.O. contact: Normally open contact point

N.C. contact: Normally closed contact point

Sensors marked with a symbol "M", if combined with our controller, cannot be used as a home position sensor.

* The photo sensors can be switched between ON when lit and ON when unlit.

The range of interference with the motor

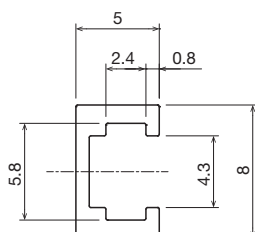
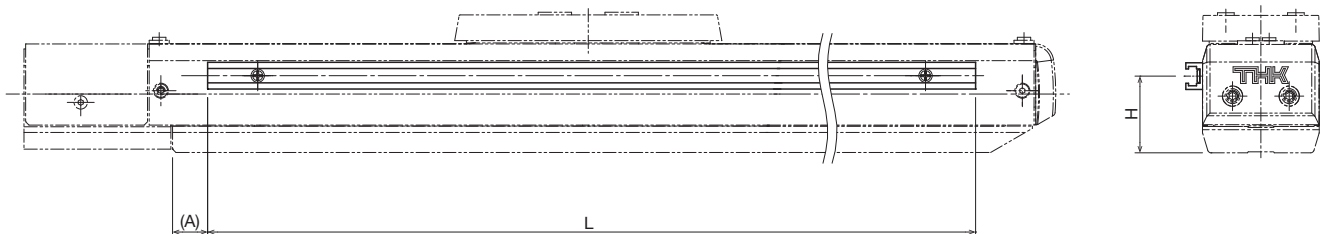


Optional: Sensor symbol

Symbol	
□1	□2
R	6

* Symbol □1 represents the mounting position for sensor rail and sensor. No symbol is given for the case of stroke 100mm or shorter.
Symbol □2 represents the types of sensors.

Symbol 1: Sensor rail

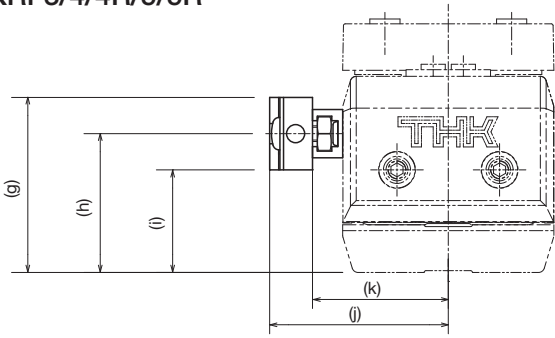


Model	H	(A)	L
KRF3	23	10.5	Stroke +80
KRF4/KRF4R	32.5	10.5	
KRF5/KRF5R	37.5	26	
KRF6/KRF6R	33.7	35	

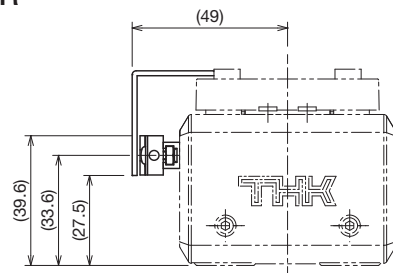
Unit: mm

Symbols J, M: Proximity sensor GX-F12* (Panasonic Industrial Devices SUNX Co., Ltd.)

KRF3/4/4R/5/5R



KRF6/6R



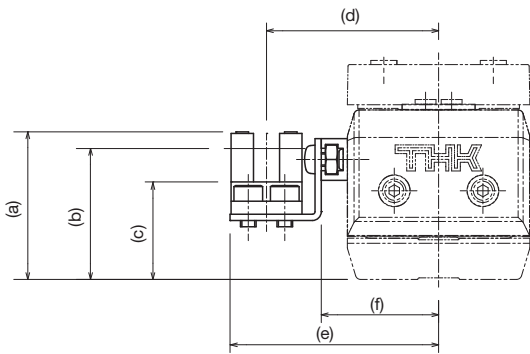
Sensor dog width: 26mm

Unit: mm

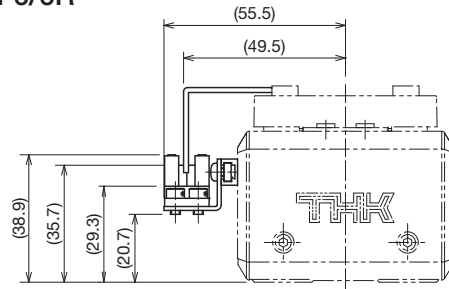
Model	g	h	i	j	k
KRF3	29	23	17	29.6	22.5
KRF4/KRF4R	38.5	32.5	26.5	34.6	27.5
KRF5/KRF5R	43.5	37.5	31.5	39.6	32.5

Symbol 6: Photo sensor EE-SX674 (OMRON Corporation)

KRF3/4/4R/5/5R



KRF6/6R



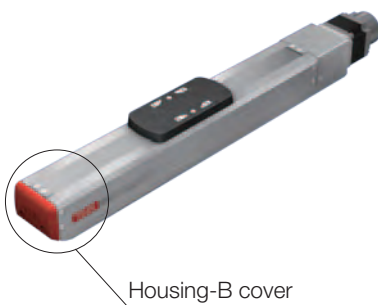
Sensor dog width: 26mm

Unit: mm

Model	a	b	c	d	e	f
KRF3	28.3	25.1	18.7	33	40	22.5
KRF4/KRF4R	37.8	34.6	28.2	38	45	27.5
KRF5/KRF5R	42.8	39.6	33.2	43	50	32.5

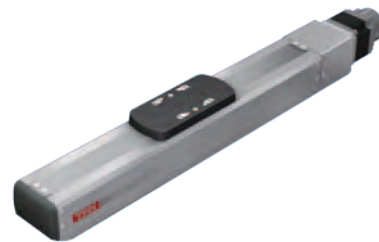
GR: Change the cover color to gray

As an option for KRF, the cover color can be changed from red to gray.



Housing-B cover

No symbol: red



When GR is selected: gray

If the GR is not included in the model configuration, cover will be red.

ES/EC

KRF

US/USW

PCT/PC

Controller



Precautions on Use

● Operation

- Do not unnecessarily disassemble the actuator or control device. Doing so may allow foreign objects to enter or reduce functionality.
- Do not drop or knock the actuator or control device. Doing so may cause injury or damage the unit. If the product is dropped or impacted, functionality may be reduced even if there is no surface damage.

● Environment

Wrong environment can cause failures of the actuator and control devices. The best place to use the product is as follows:

- Actuator: A place with an ambient temperature from 0 to 40°C and humidity of 80% RH or lower that will not expose the product to freezing or condensation.
- Controller: A place with an ambient temperature from 0 to 40°C and humidity of 90% RH or lower that will not expose the product to freezing or condensation.
- A place free from corrosive gas and flammable gas.
- A place free from electrically conductive powder (such as iron powder), dust, oil mist, cutting fluid, moisture, salt, and organic solvent.
- A place free from direct sunlight and radiant heat.
- A place free from strong electric and magnetic fields.
- A place where vibration or impact is not transmitted to the unit.
- A place that is easily accessible for service and cleaning purposes.

● Safety Precautions

- When the actuator is in motion or about to be in motion, do not touch any moving parts. Do not go near the actuator when it is in motion.
- Before performing installation, adjustment, checking, or services regarding and the connected peripherals, ensure that all power is disconnected. In addition, take countermeasures to prevent anyone other than the operator from turning on the power.
- If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.
- Before operation, please read thoroughly and obey "Manipulating industrial robots - Safety" (JIS B8433) and "Ordinance on Industrial Safety and Health" (Ministry of Health, Labor and Welfare).
- Operation of the actuator over the torque limit value leads to damage of parts or injury. Please keep the torque limit settings of parameters within THK specifications.
- Although a stopper is installed inside the product, it is intended to limit the stroke and therefore may be damaged in case of a hard collision.

● Lubrication

- Thoroughly remove anti-rust oil and feed lubricant before using the product.
- In order to effectively use the actuator, lubrication is required. Insufficient lubrication may increase abrasion on the rolling part and shorten service life.
- Do not use a mix of lubricants with different physical properties.
- Please contact THK if using special lubricants.
- When adopting oil lubrication, contact THK for details.
- The greasing interval may vary depending on the usage conditions, so THK recommends determining a greasing interval during the initial inspection.

- Storage

- When storing the actuator, enclose it in a package designated by THK and store it in a horizontal orientation while avoiding high temperature, low temperature and high humidity.
- When storing control devices, avoid abnormally high or low temperatures and high humidity.

Universal series

Model: **US/USW**



**Corresponding
Controller**



Chapter 3

Features 3-003

Series Specifications 3-005

Model Configuration 3-007

**US
Basic Specifications & Dimensions 3-009**

**USW
Basic Specifications & Dimensions 3-041**

Speed and Load Capacity 3-065

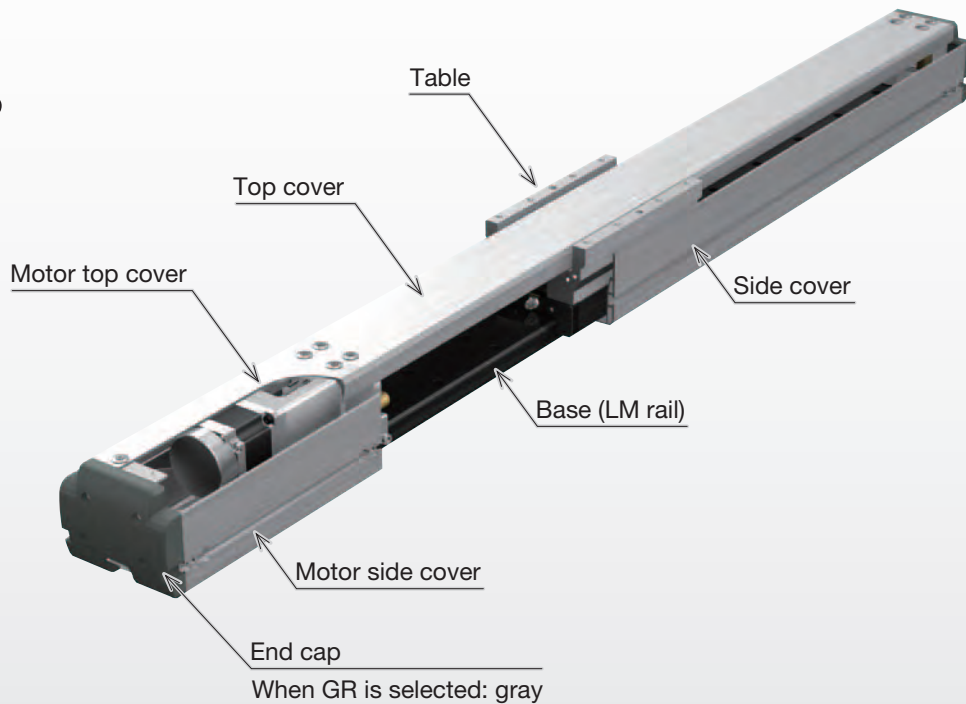
Options 3-071

Electrical Actuator
 Universal Series
 US/USW

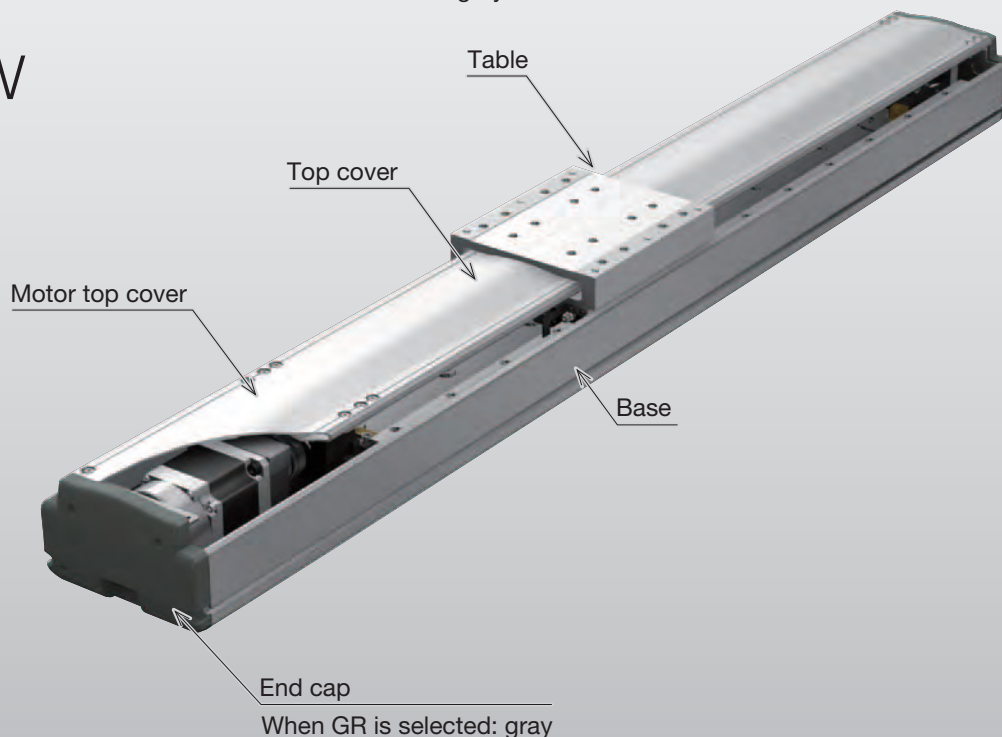
High Speed, High Load
 Capacity, Long Service Life

ES/EC
 KRF
 US/USW
 PCT/PC
 Controller

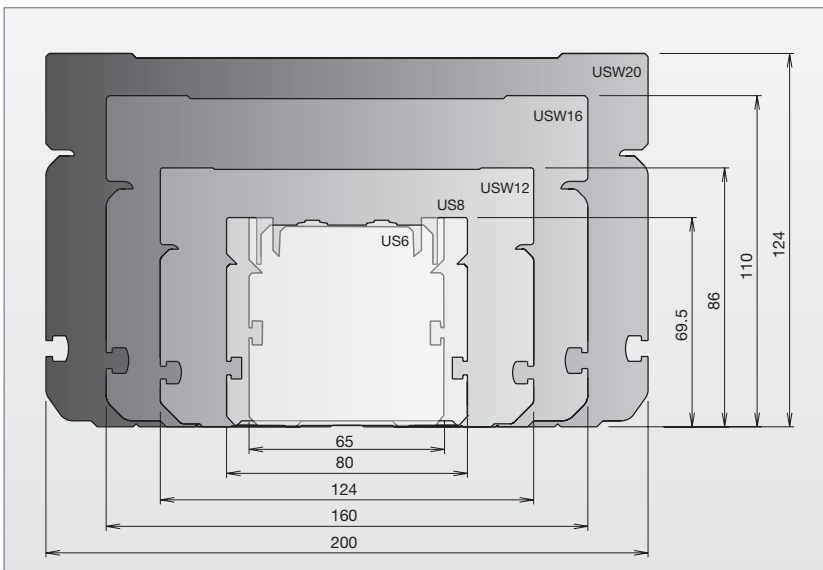
US



USW



Size range by model



Features

Long service life

Most US models have a running life of 20,000km with the maximum load capacity applied (10,000km for US6 and 8), which is the highest level of service life in the industry. LM Guide and ball screw running life can also be calculated based on usage conditions.

Long-term maintenance-free operation

Thanks to the use of Caged Ball LM Guide model SRS (US6), SHW (US8) and model SHS (USW12, 16, and 20) in a rectilinear guide, and Lubricator QZ, which supplies just the right amount of lubricant in the ball screw, this series provides long-term maintenance-free operation.

High speed

Most units in this series (US8 to USW20) accommodate twice as many types of leads for each ball screw shaft diameter. This reduces processing time and enables the device to operate at high speeds.

Smart structure

In most units the standard sensor is incorporated into the actuator, making the actuator highly compact (this does not apply to the US6). For other sensor options, the sensor is installed on the outside of the unit. US8: 1 sensor (home position); USW12, 16, and 20: 3 sensors (home position and ends).

Easy assembly

For the standard unit, both table and base have dowel pin holes, and the base has elongated holes. These facilitate installation and assembly, enabling the unit to be mounted easily. Either top face mounting or lower face mounting can be selected for the base (this applies to USW12, 16, and 20 only).

Versatile lineup

These units accommodate stroke lengths, specified in 50mm increments, ranging from 100mm to 1,700mm. Many types of ball screw leads are provided as well, enabling customers to select a unit ideally suited to their needs.

Types and Models

[With ball screw]

Direct motor coupling type



[With ball screw]

Motor wrap type



Ball screw and motor are connected using a coupling.

Motor can be folded laterally to reduce the axial dimension.

Model	Ball screw lead [mm]	Stroke [mm]	Rated speed *1 [mm/s]	Motor rated output [W]	Maximum load capacity *2 [kg]								
					Horizontal	Vertical	100	200	300	400	500	600	
US6	6	100 to 900	300	50	30	7	360						310
	12		600		15	3	720						630
	6		300	100	70	14	360						310
	12		600		30	7	720						630
US8	5	100 to 1100	250	100	80	16	300						
	10		500		40	8	600						
	20		1000		20	4	1200						
	30		1500	8	2	1800							
	10		500	150	60	12	600						
	20		1000		30	6	1200						
	30		1500		12	3	1800						
USW12	5	100 to 1100	250	200	100	30	300						
	10		500		80	20	600						580
	20		1000		40	8	1200						1160
	30		1500		25	5	1800						1700
USW16	10	100 to 1500	500	400	120	35	550						
	20		1000		80	15	1100						
	40		2000		40	9	2200						
USW20	20	200 to 1700	1000	750	130	45	1100						
	40		2000		70	20	2200						

*1 At rated motor speed (3,000min⁻¹).

*2 At rated speed with acceleration and deceleration rate of 0.3G. (Ball screw lead 5mm for US8, 0.2G vertical only.)

*3 Dependent on motor speed (US6~USW12: 3,600min⁻¹, USW16~USW20: 3,300min⁻¹) and permissible rotational speed of the ball screw. Motor speed is dependent on the controller used.

Maximum speed [mm/s] for each stroke [mm] *3																				Described on		
Stroke [mm]																						
700		800		900		1000		1100		1200		1300		1400		1500		1600			1700	
270	240	210	180	160																		Page 3-009
550	480	420	370	330																		
270	240	210	180	160																		
550	480	420	370	330																		
290	250	220	200	180	160	150	130	120														Page 3-025
550	480	430	380	340	310	280	250	230														
1090	960	850	760	680	610	560	510	460														
1600	1410	1250	1120	1000	910	820	750	690														
550	480	430	380	340	310	280	250	230														
1090	960	850	760	680	610	560	510	460														
1600	1410	1250	1120	1000	910	820	750	690														Page 3-041
270	240	210	190	170	150	140	130	120														
510	450	400	360	320	290	260	240	220														
1020	900	800	720	640	580	530	480	440														
1490	1320	1180	1050	950	860	780	720	660														Page 3-049
550	520	470	420	380	340	310	290	260	240	230	210	190	180	170	160							
1100		1040	930	840	760	700	640	590	540	500	460	430	400	380	350							
2200		1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690							Page 3-057
1100		1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270			
2200	2140	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530			

Model Configuration

ES/EC
KRF
US/USW
PCT/PC
Controller

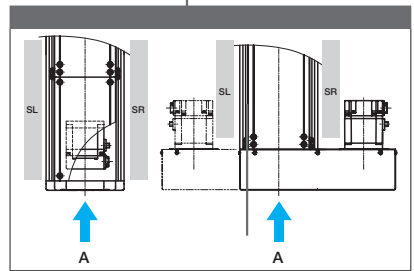
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW12RT	05	0150	A	TL	6	SR	C
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

US6T	05: 5mm	0100: 100mm	A	TL: Driver controller TLC	P	No symbol: When selecting P, Q, or N	T: From underside of base (tapped holes)
US8T	06: 6mm	0150: 150mm		TH: Driver controller THC	Q	SR: On right side as seen from side A	C: From top of base (counter-bore holes)
USW12T	10: 10mm	0200: 200mm			N	SL: On left side as seen from side A	
USW16T	12: 12mm	to			6		
USW20T	20: 20mm	1700: 1700mm			E		
US6RT	30: 30mm						For US6 and US8, you only can select "C".
US8RT	40: 40mm						

USW12RT	US6 : 0100 to 0900
USW16RT	US8 : 0100 to 1100
USW20RT	USW12 : 0100 to 1100
	USW16 : 0100 to 1500
	USW20 : 0200 to 1700

Note: For US6, the maximum stroke for horizontal and vertical types is 900mm; for wall mount type, 800mm.

R represents motor wrap.



Note: When motor wrap is selected, a sensor cannot be mounted on the same side as the folded direction of the motor.

Ball screw leads you can select differ depending on models.
 US6 : 06, 12
 US8 : 05, 10, 20, 30
 USW12: 05, 10, 20, 30
 USW16: 10, 20, 40
 USW20: 20, 40
 For US8 with 150W motor capacity, you cannot select the ball screw lead 05.

When TL or TH is selected:
 Direct motor coupling type: Mounted parts: motor, coupling
 Accessories: power cable, encoder cable, electromagnetic brake cable
 Motor wrap type: Mounted parts: motor, timing belt, timing pulley
 Accessories: power cable, encoder cable, electromagnetic brake cable
 A motor corresponding to each controller should be mounted.
 TL: TBL-III series (Tamagawa Seiki Co., Ltd.) 50W
 TH: TBL-III series (Tamagawa Seiki Co., Ltd.) 100 - 750W

When TL or TH is selected, a controller must be separately ordered.
 When TL or TH is selected, controllers are needed for each axis.
 You can select TL only when selecting US6T or US6RT for model (1).


Pages for detailed description

Motor bracket	Option	Attributes common to TLC and THC			THC only	TLC and THC
		Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M20	R	S02	D2	H5
(9)	(10)	(11)	(12)	(13)	(14)	(15)

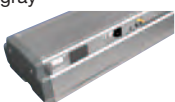
- A** **No symbol:** Red end cap
- MR:** Motor right-turn folded
- ML:** Motor left-turn folded
- GR:** Change the end cap color to gray
- HG:** Hanging jig

If you select motor wrap for model (1), select either MR or ML. Changing end cap color: You can change the color of an end cap to gray. However, for motor wrap, this change is only applied to an end cap on the reverse motor side.

No symbol: red



When GR is selected: gray

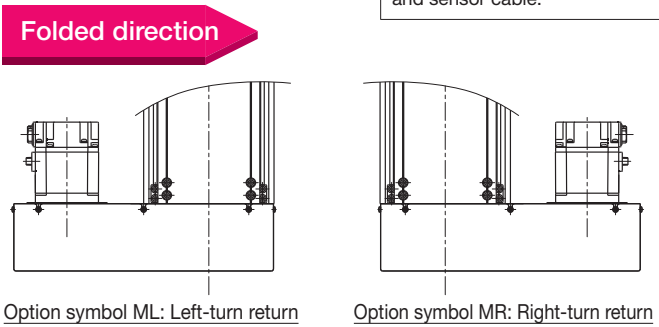


You can select a hanging jig only when selecting USW12, USW16 or USW20. If the GR is not included in the model configuration, cover will be red.

M05: 50W	No symbol: Direct motor coupling	No symbol: When selecting a sensor P or Q	No symbol	F3: Standard, 3m
M10: 100W	R: Right	S02: Motor side (Home position sensor)	D1: 100V	F5: Standard, 5m
M15: 150W	U: Up	S03: Opposite motor side (Home position sensor)	D2: 200V	FA: Standard, 10m
M20: 200W	L: Left	D00: Motor side (Mechanical home seeking)	D1 and D2 are attributes for the controller THC. When selecting TLC, specify "No symbol".	H3: High flex, 3m
M40: 400W	D: Down	R00: Opposite motor side (Mechanical home seeking)		H5: High flex, 5m
M75: 750W				HA: High flex, 10m
M05B: 50W with brake				
M10B: 100W with brake				
M15B: 150W with brake				
M20B: 200W with brake				
M40B: 400W with brake				
M75B: 750W with brake				

If you select MR as an option, R cannot be selected. If you select ML as an option, L cannot be selected. Note that the motor connector may be placed above the level of the top face of the slider when selecting U.

Lengths for motor cable, motor electromagnetic brake cable (only when selecting a motor with an electromagnetic cable), encoder cable, home position/limit sensor, and sensor cable.

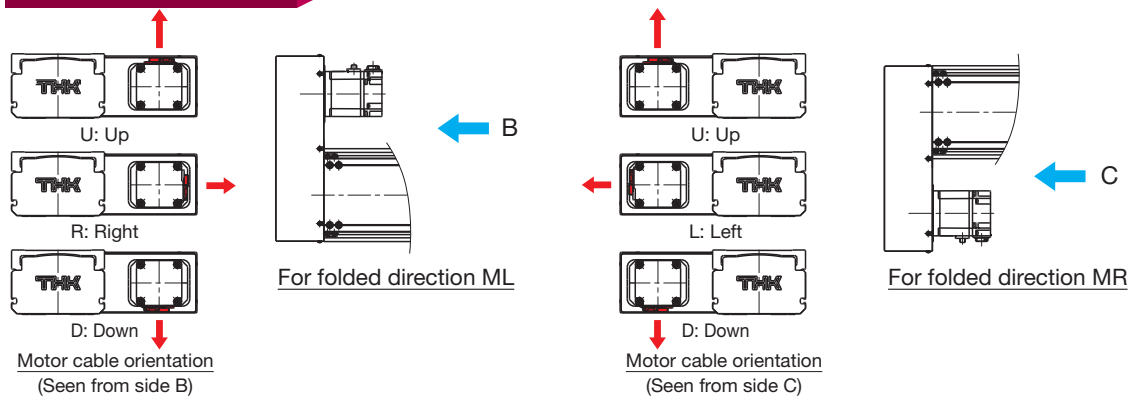


Combination of control device and sensor

The selection of a sensor depends on the control device. You only can select one of the combinations shown in the following table.

Model	Control device type	Sensor symbol	Home position method
US6	TLC	N	D00, R00
	THC	N	D00, R00
US8	THC	6, E	S02, S03
		P, Q	No symbol
		N	D00, R00
		6, E	S02, S03

Motor cable orientation



Universal series

US6T Direct motor coupling, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

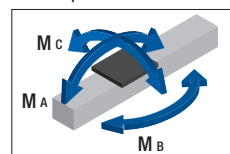
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US6T	06	0150	A	TL	N	SR	C
US6T	06: 6mm 12: 12mm	0100: 100mm to 0900: 900mm	A	TL: TLC	N	No symbol: When selecting N SR SL	C: From top of base (counter-base holes)

Note: For US6, the maximum stroke for horizontal and vertical types is 900mm; for a wall mount type, 800mm.

Basic Specifications

Control device type		TLC	
Motor rated output [W]		50	
Ball screw lead [mm]		6	12
Rated speed * ¹ [mm/s]		300	600
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	0.3G
		Vertical	0.3G
Rated thrust * ³ [N]		134	67
Maximum thrust * ⁴ [N]		402	201
Electromagnetic brake retention [N]		134	67
Running life * ⁵ [km]		10,000	
Static permissible moment * ⁶ [N·m]		M _A : 123, M _B : 127, M _C : 138	
Positioning repeatability [mm]		±0.020	
Backlash [mm]		0.05	

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).

*² Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."

*³ At rated motor torque.

*⁴ Dependent on maximum motor torque and permissible load.

*⁵ Conditions:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

Applied load: maximum load capacity

Center of gravity: center of top surface of table.

*⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US6T + TLC

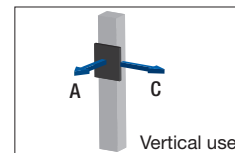
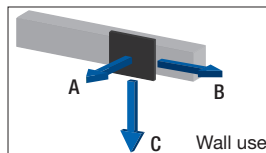
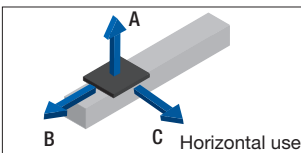


Motor rated output
50W

Motor bracket	Option	Motor rated output	Home position	Cable type and length
A	GR	M05	S02	H5

A No symbol: Red end cap GR: Gray end cap Note: If the GR is not included in the model configuration, cover will be red.	M05: 50W	D00: Motor side (Mechanical home seeking)	F3: Standard, 3m
	M05B: 50W with brake	R00: Opposite motor side (Mechanical home seeking)	F5: Standard, 5m
			FA: Standard, 10m
			H3: High flex, 3m
			H5: High flex, 5m
			HA: High flex, 10m

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	7	1790	470	510	6	7	460	410	1640	6	1	1550	1540
	15	830	240	260		15	210	180	940		3	830	830
	30	410	110	130		30	70	60	440		7	450	440
12	1	2000	1580	1470	12	1	1520	1520	2000	12	1	1440	1430
	7	1110	470	420		7	410	410	1000		2	990	980
	15	630	240	210		15	190	180	520		3	760	760

*Dependent on running life of LM guide (10,000km) and on static permissible moment.

Conditions for calculation of the values above:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

Applied load: maximum load capacity.

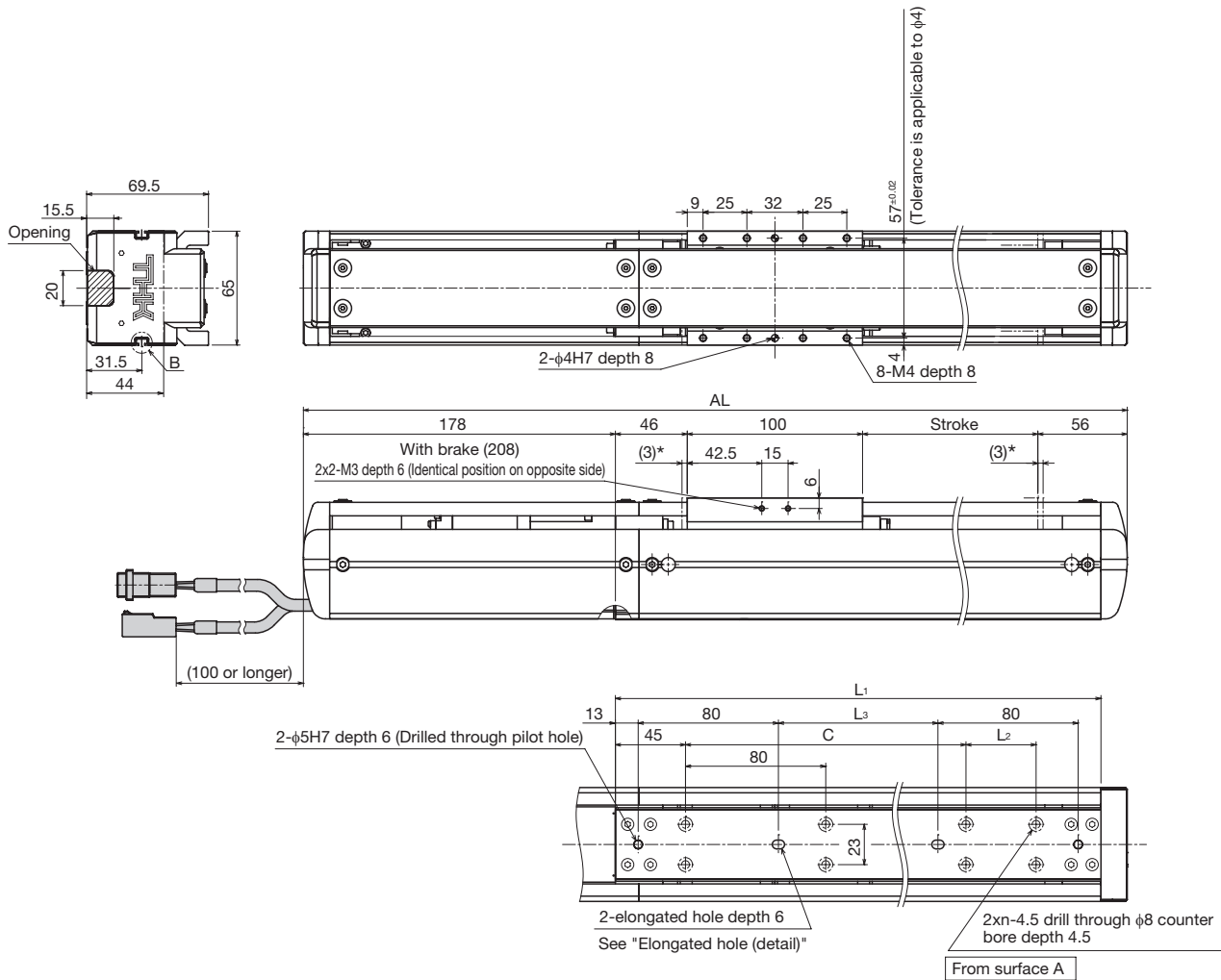
A, B, and C represent distances measured from the center of the top surface of the table.

ES/EC
KRF
US/USW
PCT/PC
Controller

US6T Direct motor coupling, 50W



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	360						
	Ball screw lead: 12mm	720						
Dimensions [mm]	AL ^{*3}	480 (510)	530 (560)	580 (610)	630 (660)	680 (710)	730 (760)	780 (810)
	L ₁	287	337	387	437	487	537	587
	L ₂	40	-	40	40	-	40	-
	L ₃	101	151	201	251	301	351	401
Mounting hole count	n	4	4	5	6	6	7	7
Weight ^{*3} [kg]		3.4 (3.6)	3.6 (3.8)	3.8 (4.0)	4.0 (4.2)	4.2 (4.4)	4.5 (4.7)	4.7 (4.9)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

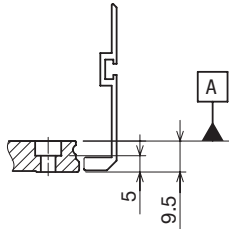
*3 Values when a brake is installed are shown in parentheses.

US6T + TLC

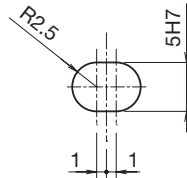


Motor rated output
50W

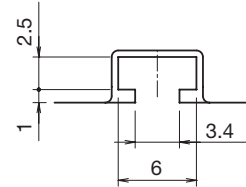
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
	360				310	270	240	210	180	160
	720				630	550	480	420	370	330
	830 (860)	880 (910)	930 (960)	980 (1010)	1030 (1060)	1080 (1110)	1130 (1160)	1180 (1210)	1230 (1260)	1280 (1310)
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	4.9 (5.1)	5.1 (5.3)	5.3 (5.5)	5.5 (5.7)	5.7 (5.9)	5.9 (6.1)	6.1 (6.3)	6.3 (6.5)	6.6 (6.8)	6.8 (7.0)

Universal series

US6RT Motor wrap, 50W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

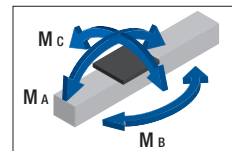
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US6RT	06	0150	A	TL	N	SL	C
US6RT	06: 6mm 12: 12mm	0100: 100mm to 0900: 900mm	A	TL: TLC	N	No symbol: When selecting N SR SL	C: From top of base (counter-base holes)

Note: For US6, the maximum stroke for horizontal and vertical types is 900mm; for a wall mount type, 800mm.

Basic Specifications

Control device type		TLC	
Motor rated output [W]		50	
Ball screw lead [mm]		6	12
Rated speed * ¹ [mm/s]		300	600
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	Vertical
	0.3G	0.3G	0.3G
Rated thrust * ³ [N]		134	67
Maximum thrust * ⁴ [N]		402	201
Electromagnetic brake retention [N]		134	67
Running life * ⁵ [km]		10,000	
Static permissible moment * ⁶ [N·m]		M _A : 123, M _B : 127, M _C : 138	
Positioning repeatability [mm]		±0.020	
Backlash [mm]		0.05	

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).
 *² Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."
 *³ At rated motor torque.
 *⁴ Dependent on maximum motor torque and permissible load.
 *⁵ Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US6RT + TLC



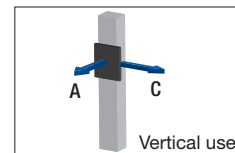
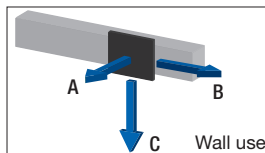
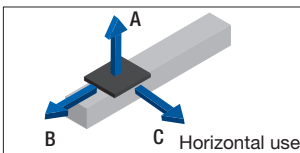
Motor rated output
50W

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Cable type and length
A	MR-GR	M05	L	S02	H5

A	MR: Motor right-turn folded	M05: 50W	R: Right	D00: Motor side (Mechanical home seeking)	F3: Standard, 3m
	ML: Motor left-turn folded	M05B: 50W with brake	U: Up	R00: Opposite motor side (Mechanical home seeking)	F5: Standard, 5m
	GR: Gray end cap		L: Left		FA: Standard, 10m
			D: Down		H3: High flex, 3m
					H5: High flex, 5m
					HA: High flex, 10m

Note: If the GR is not included in the model configuration, cover will be red.

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	7	1790	470	510	6	7	460	410	1640	6	1	1550	1540
	15	830	240	260		15	210	180	940		3	830	830
	30	410	110	130		30	70	60	440		7	450	440
12	1	2000	1580	1470	12	1	1520	1520	2000	12	1	1440	1430
	7	1110	470	420		7	410	410	1000		2	990	980
	15	630	240	210		15	190	180	520		3	760	760

*Dependent on running life of LM guide (10,000km) and on static permissible moment.

Conditions for calculation of the values above:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

Applied load: maximum load capacity.

A, B, and C represent distances measured from the center of the top surface of the table.

ES/EC

KRF

US/USW

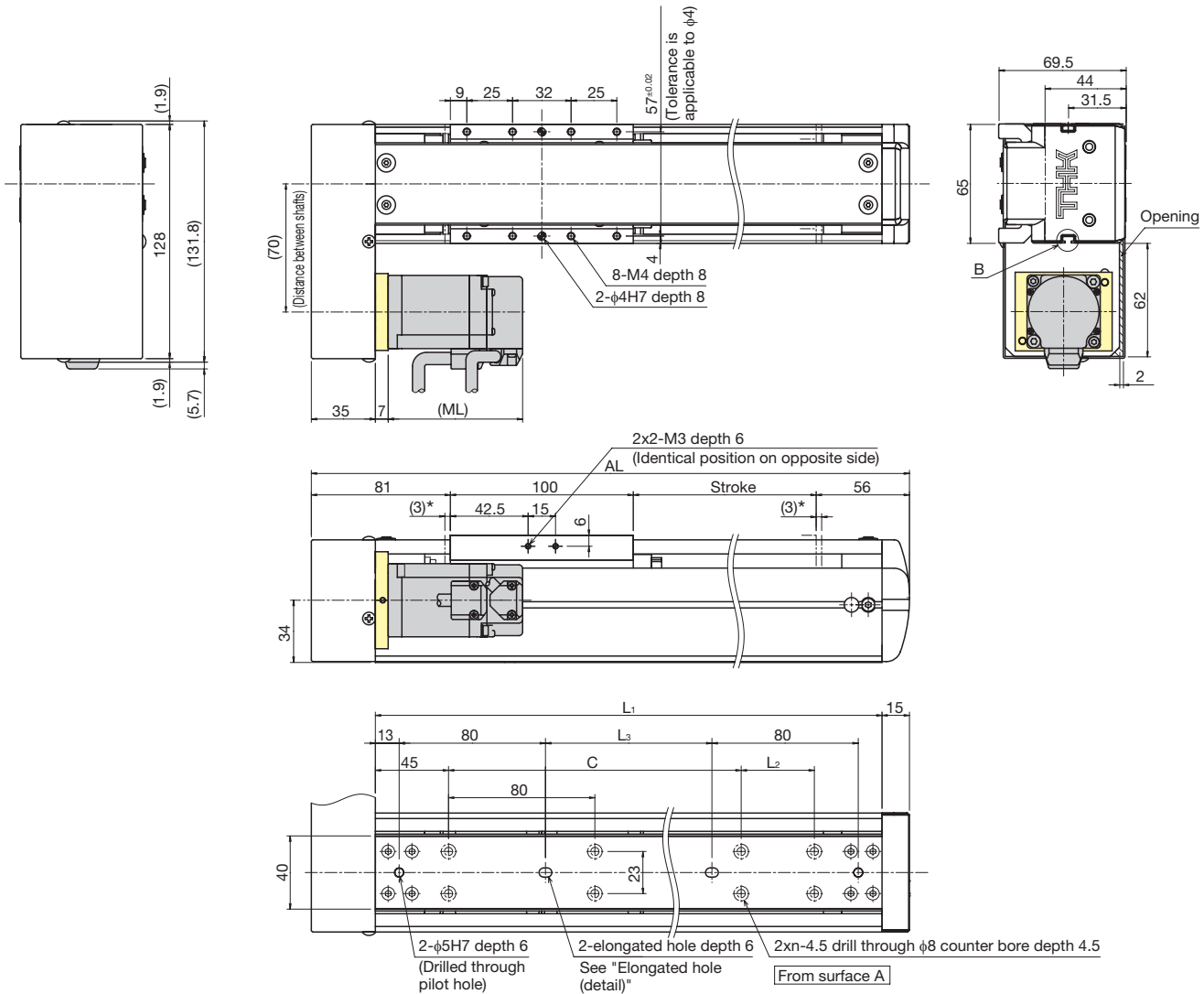
PCT/PC

Controller

US6RT Motor wrap, 50W



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm				360			
	Ball screw lead: 12mm				720			
Dimensions [mm]	AL	337	387	437	487	537	587	637
	ML				59.5			
	ML: With brake				95.1			
	L ₁	287	337	387	437	487	537	587
	L ₂	40	-	40	40	-	40	-
	L ₃	101	151	201	251	301	351	401
	C	160	240	240	320	400	400	480
Mounting hole count	n	4	4	5	6	6	7	7
Weight *3 [kg]		3.4 (3.6)	3.6 (3.8)	3.8 (4.0)	4.0 (4.2)	4.2 (4.4)	4.4 (4.6)	4.6 (4.8)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

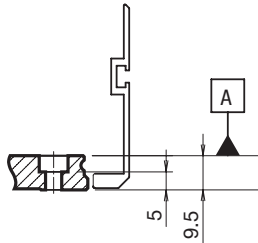
*3 Values when a brake is installed are shown in parentheses.

US6RT + TLC

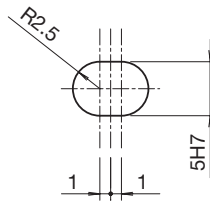


Motor rated output
50W

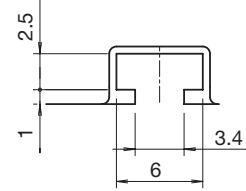
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
	360				310	270	240	210	180	160
	720				630	550	480	420	370	330
	687	737	787	837	887	937	987	1037	1087	1137
	59.5									
	95.1									
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	4.8 (5.0)	5.0 (5.2)	5.3 (5.5)	5.5 (5.7)	5.7 (5.9)	5.9 (6.1)	6.1 (6.3)	6.3 (6.5)	6.5 (6.7)	6.7 (6.9)

Universal series

US6T Direct motor coupling, 100W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

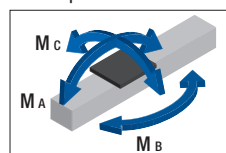
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US6T	06	0150	A	TH	6	SL	C
US6T	06: 6mm 12: 12mm	0100: 100mm to 0900: 900mm	A	TH: THC	N 6 E	No symbol: When selecting N SR SL	C: From top of base (counter-base holes)

Note: For US6, the maximum stroke for horizontal and vertical types is 900mm; for a wall mount type, 800mm.

Basic Specifications

Control device type		THC	
Motor rated output [W]		100	
Ball screw lead [mm]		6	12
Rated speed * ¹ [mm/s]		300	600
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	Vertical
	0.3G	0.3G	0.3G
Rated thrust * ³ [N]		70	30
Maximum thrust * ⁴ [N]		14	7
Electromagnetic brake retention [N]		268	134
Running life * ⁵ [km]		795	398
Static permissible moment * ⁶ [N·m]		268	134
Positioning repeatability [mm]		10,000	
Backlash [mm]		M _A : 123, M _B : 127, M _C : 138	
		±0.020	
		0.05	

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).
 *² Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."
 *³ At rated motor torque.
 *⁴ Dependent on maximum motor torque and permissible load.
 *⁵ Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US6T + THC

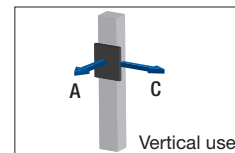
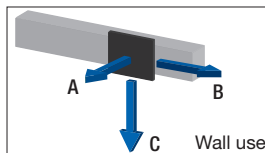
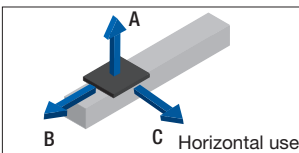


Motor rated output
100W

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M10	S02	D2	H5

A	No symbol: Red end cap	M10 : 100W	S02 : Motor side (Home position sensor)	D1 : 100V	F3 : Standard, 3m
	GR : Gray end cap	M10B : 100W with brake	S03 : Opposite motor side (Home position sensor)	D2 : 200V	F5 : Standard, 5m
	Note: If the GR is not included in the model configuration, cover will be red.		D00 : Motor side (Mechanical home seeking)		FA : Standard, 10m
			R00 : Opposite motor side (Mechanical home seeking)		H3 : High flex, 3m
					H5 : High flex, 5m
					HA : High flex, 10m

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	17	730	210	230	6	7	460	410	1640	6	1	1550	1540
	35	350	100	110		15	210	180	940		7	450	440
	70	170	40	40		30	70	60	440		14	220	220
12	7	1110	470	420	12	7	410	410	1000	12	1	1440	1430
	15	630	240	210		15	190	180	520		4	630	620
	30	330	110	100		30	60	60	220		7	400	400

*Dependent on running life of LM guide (10,000km) and on static permissible moment.

Conditions for calculation of the values above:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

Applied load: maximum load capacity.

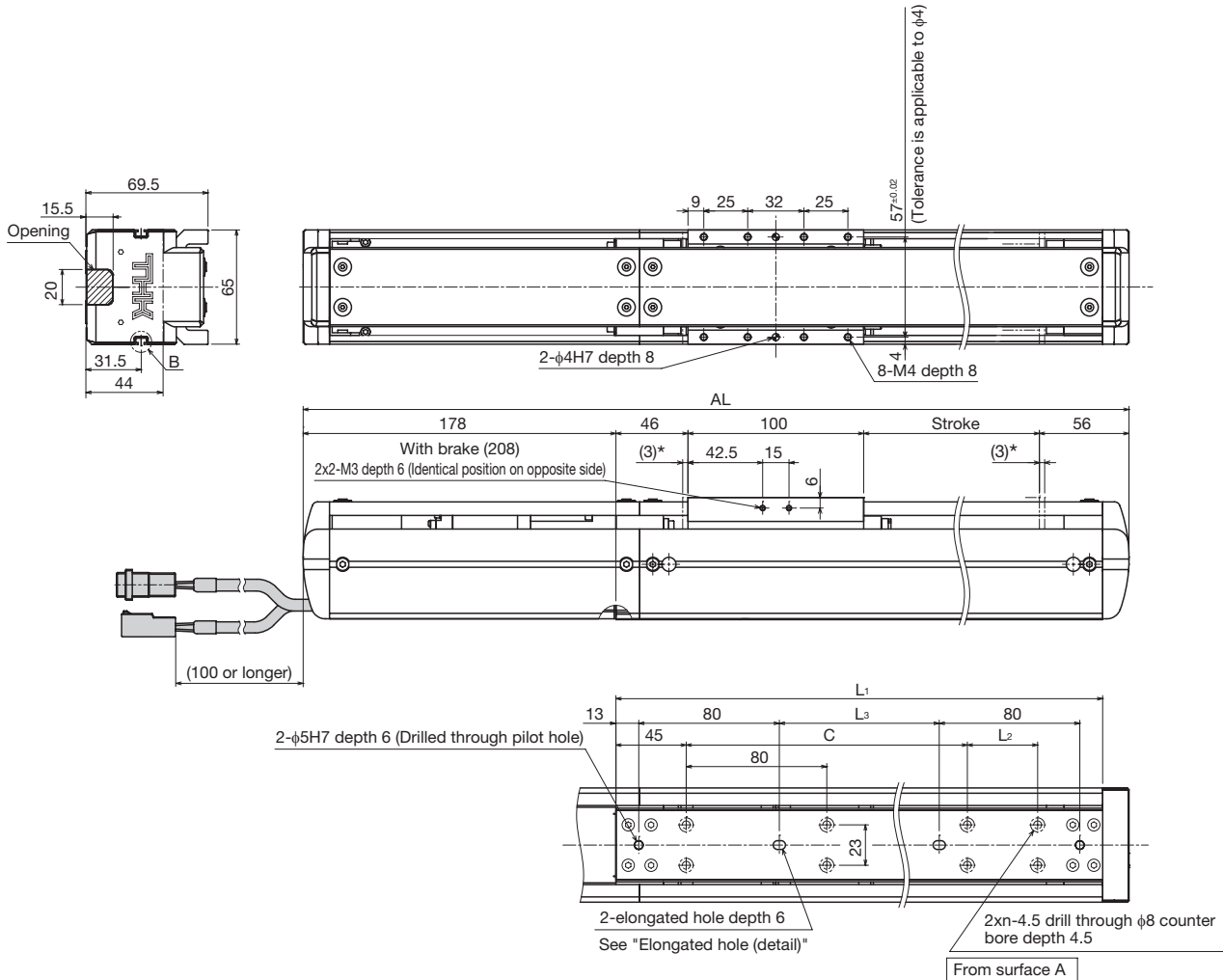
A, B, and C represent distances measured from the center of the top surface of the table.

ES/EC
KRF
US/USW
PCT/PC
Controller

US6T Direct motor coupling, 100W



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)
Maximum speed ^{*1 *2} [mm/s]	Ball screw lead: 6mm	360						
	Ball screw lead: 12mm	720						
Dimensions [mm]	AL ^{*3}	480 (510)	530 (560)	580 (610)	630 (660)	680 (710)	730 (760)	780 (810)
	L ₁	287	337	387	437	487	537	587
	L ₂	40	-	40	40	-	40	-
	L ₃	101	151	201	251	301	351	401
Mounting hole count	n	4	4	5	6	6	7	7
Weight ^{*3} [kg]		3.5 (3.7)	3.7 (3.9)	3.9 (4.1)	4.1 (4.3)	4.3 (4.5)	4.6 (4.8)	4.8 (5.0)

^{*1} Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."

^{*2} Dependent on permissible rotational speed of ball screw.

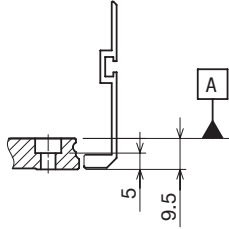
^{*3} Values when a brake is installed are shown in parentheses.

US6T + THC

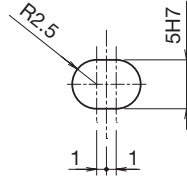


Motor rated output
100W

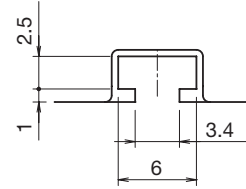
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
	360				310	270	240	210	180	160
	720				630	550	480	420	370	330
	830 (860)	880 (910)	930 (960)	980 (1010)	1030 (1060)	1080 (1110)	1130 (1160)	1180 (1210)	1230 (1260)	1280 (1310)
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	5.0 (5.2)	5.2 (5.4)	5.4 (5.6)	5.6 (5.8)	5.8 (6.0)	6.0 (6.2)	6.2 (6.4)	6.4 (6.6)	6.7 (6.9)	6.9 (7.1)

Universal series

US6RT Motor wrap, 100W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US6RT	06	0150	A	TH	6	SL	C

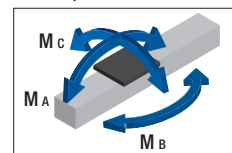
US6RT	06: 6mm	0100: 100mm	A	TH: THC	N	No symbol: When selecting N	C: From top of base (counter-base holes)
	12: 12mm	to			6	SR	
		0900: 900mm			E	SL	

Note: For US6, the maximum stroke for horizontal and vertical types is 900mm; for a wall mount type, 800mm.

Basic Specifications

Control device type		THC	
Motor rated output [W]		100	
Ball screw lead [mm]		6	12
Rated speed * ¹ [mm/s]		300	600
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	0.3G
		Vertical	0.3G
Rated thrust * ³ [N]		268	134
Maximum thrust * ⁴ [N]		795	398
Electromagnetic brake retention [N]		268	134
Running life * ⁵ [km]		10,000	
Static permissible moment * ⁶ [N·m]		M _A : 123, M _B : 127, M _C : 138	
Positioning repeatability [mm]		±0.020	
Backlash [mm]		0.05	

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).
 *² Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."
 *³ At rated motor torque.
 *⁴ Dependent on maximum motor torque and permissible load.
 *⁵ Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US6RT + THC



Motor rated output
100W

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M10	L	S02	D2	H5

A

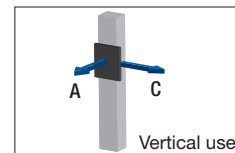
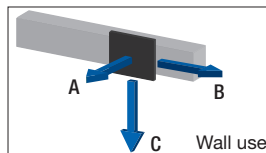
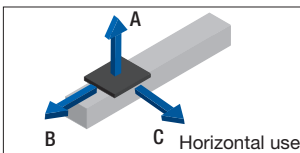
- MR**: Motor right-turn folded
- ML**: Motor left-turn folded
- GR**: Gray end cap

Note: If the GR is not included in the model configuration, cover will be red.

M10 : 100W	R : Right	S02 : Motor side (Home position sensor)	D1 : 100V	F3 : Standard, 3m
M10B : 100W with brake	U : Up	S03 : Opposite motor side (Home position sensor)	D2 : 200V	F5 : Standard, 5m
	L : Left	D00 : Motor side (Mechanical home seeking)		FA : Standard, 10m
	D : Down	R00 : Opposite motor side (Mechanical home seeking)		H3 : High flex, 3m
				H5 : High flex, 5m
				HA : High flex, 10m

ES/EC
KRF
US/USW
PCT/PC
Controller

Permissible Overhang Length*



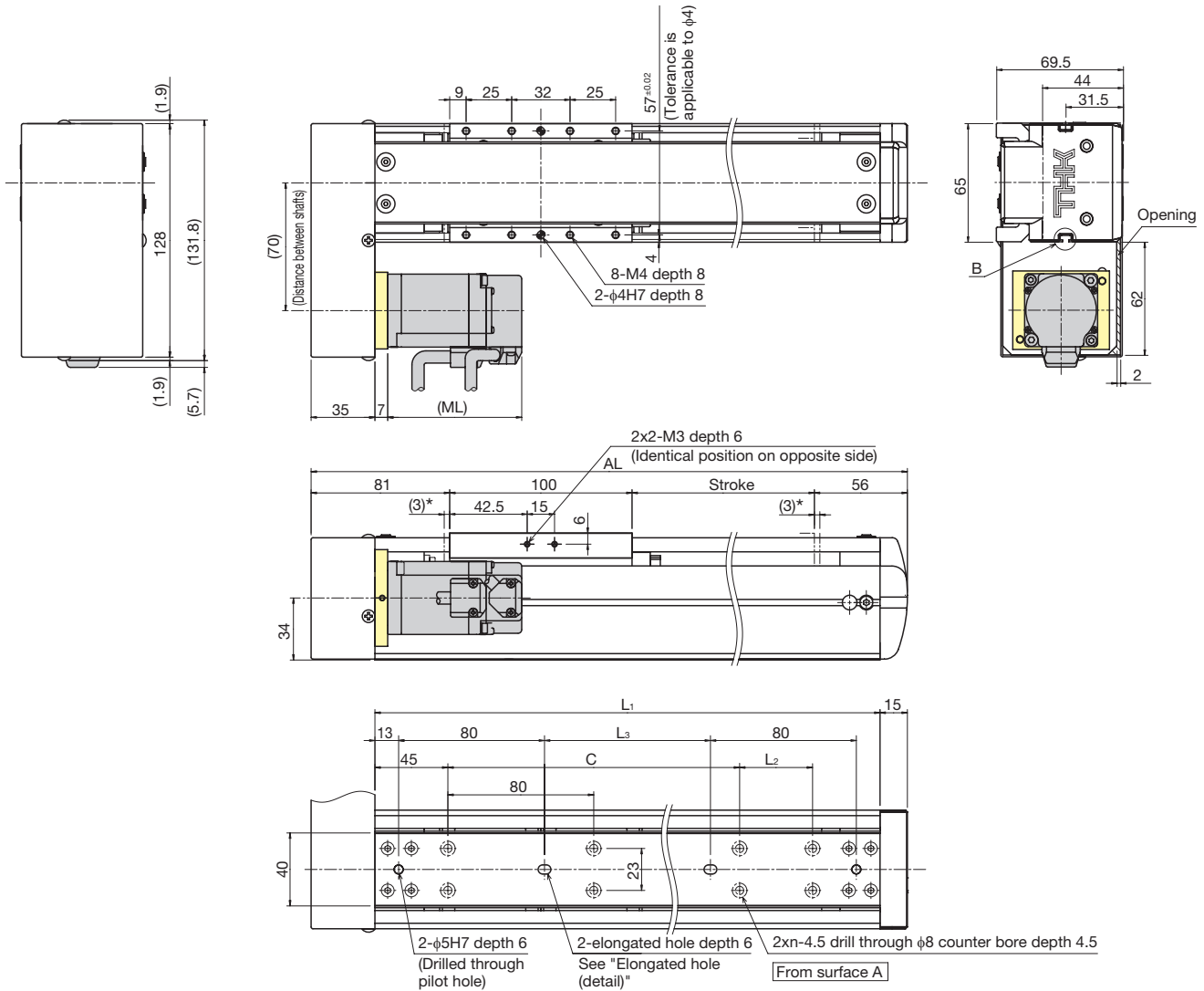
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
6	17	730	210	230	6	7	460	410	1640	6	1	1550	1540
	35	350	100	110		15	210	180	940		7	450	440
	70	170	40	40		30	70	60	440		14	220	220
12	7	1110	470	420		12	7	410	410		1000	12	1
	15	630	240	210	15		190	180	520	4	630		620
	30	330	110	100	30		60	60	220	7	400		400

*Dependent on running life of LM guide (10,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

US6RT Motor wrap, 100W



Dimensions



* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm				360			
	Ball screw lead: 12mm				720			
Dimensions [mm]	AL	337	387	437	487	537	587	637
	ML				73.5			
	ML: With brake				109.1			
	L ₁	287	337	387	437	487	537	587
	L ₂	40	-	40	40	-	40	-
	L ₃	101	151	201	251	301	351	401
	C	160	240	240	320	400	400	480
Mounting hole count	n	4	4	5	6	6	7	7
Weight *3 [kg]		3.5 (3.7)	3.7 (3.9)	3.9 (4.1)	4.1 (4.3)	4.3 (4.5)	4.5 (4.7)	4.7 (4.9)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-065, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

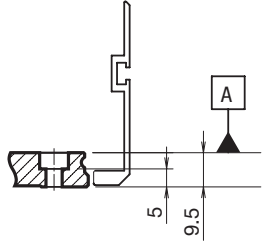
*3 Values when a brake is installed are shown in parentheses.

US6RT + THC

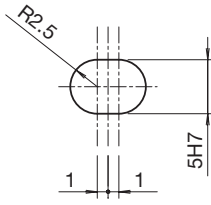


Motor rated output
100W

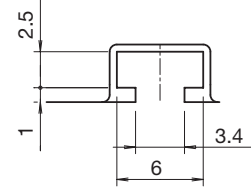
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
	360				310	270	240	210	180	160
	720				630	550	480	420	370	330
	687	737	787	837	887	937	987	1037	1087	1137
	73.5									
	109.1									
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	4.9 (5.1)	5.1 (5.3)	5.4 (5.6)	5.6 (5.8)	5.8 (6.0)	6.0 (6.2)	6.2 (6.4)	6.4 (6.6)	6.6 (6.8)	6.8 (7.0)

Universal series

US8T Direct motor coupling, 100W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

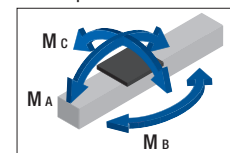
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US8T	05	0150	A	TH	6	SR	C

US8T	05: 5mm	0100: 100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	C: From top of base (counter-base holes)
	10: 10mm	to					
	20: 20mm	1100: 1100mm					
	30: 30mm						

Basic Specifications

Control device type		THC				
Motor rated output [W]		100				
Ball screw lead [mm]		5	10	20	30	
Rated speed * ¹ [mm/s]		250	500	1000	1500	
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal 0.3G	80	40	20	8
	Vertical 0.3G	16* ³	8	4	2	
Rated thrust * ⁴ [N]		322	161	80	54	
Maximum thrust * ⁵ [N]		955	478	239	159	
Electromagnetic brake retention [N]		322	161	80	54	
Running life * ⁶ [km]		10,000				
Static permissible moment * ⁷ [N·m]		M _A : 287, M _B : 235, M _C : 226				
Positioning repeatability [mm]		±0.020				
Backlash [mm]		0.05				

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).
 *² Load capacity and maximum speed are dependent on usage conditions. See page 3-066, "Speed and Load Capacity."
 *³ When acceleration and deceleration rate is 0.2G.
 *⁴ At rated motor torque.
 *⁵ Dependent on maximum motor torque and permissible load.
 *⁶ Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *⁷ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US8T + THC



Motor rated output
100W

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M10	S02	D2	H5

A

No symbol: Red end cap

GR: Gray end cap

Note: If the GR is not included in the model configuration, cover will be red.

M10: 100W	No symbol: When selecting P or Q	D1: 100V	F3: Standard, 3m
M10B: 100W with brake	S02 : Motor side (Home position sensor)	D2: 200V	F5: Standard, 5m
	S03 : Opposite motor side (Home position sensor)		FA: Standard, 10m
	D00: Motor side (Mechanical home seeking)		H3: High flex, 3m
	R00: Opposite motor side (Mechanical home seeking)		H5: High flex, 5m
			HA: High flex, 10m

ES/EC

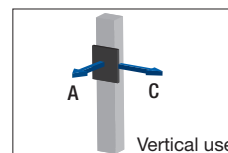
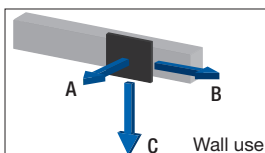
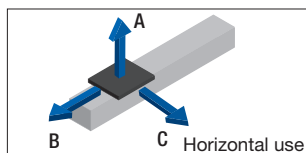
KRF

US/USW

PCT/PC

Controller

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
5	20	1610	370	340	5	20	280	310	1410	5	4	1190	1180
	40	970	190	170		40	120	120	750		8	760	750
	80	520	80	70		80	20	20	250		16	440	430
10	10	1860	660	560	10	10	550	590	1690	10	2	1690	1680
	20	1190	370	310		20	280	310	1010		4	1150	1140
	40	680	190	150		40	120	120	510		8	720	720
20	5	2000	1060	930	20	5	930	1000	2000	20	1	2000	2000
	10	1860	660	560		10	550	590	1690		2	1690	1680
	20	1190	370	310		20	180	310	1010		4	1150	1140
30	2	2000	1780	1580	30	2	1610	1710	2000	30	0.5	2000	2000
	4	2000	1220	1070		4	1080	1150	2000		1	2000	2000
	8	2000	780	670		8	660	710	1910		2	1690	1680

*Dependent on running life of LM guide (10,000km) and on static permissible moment.

Conditions for calculation of the values above:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

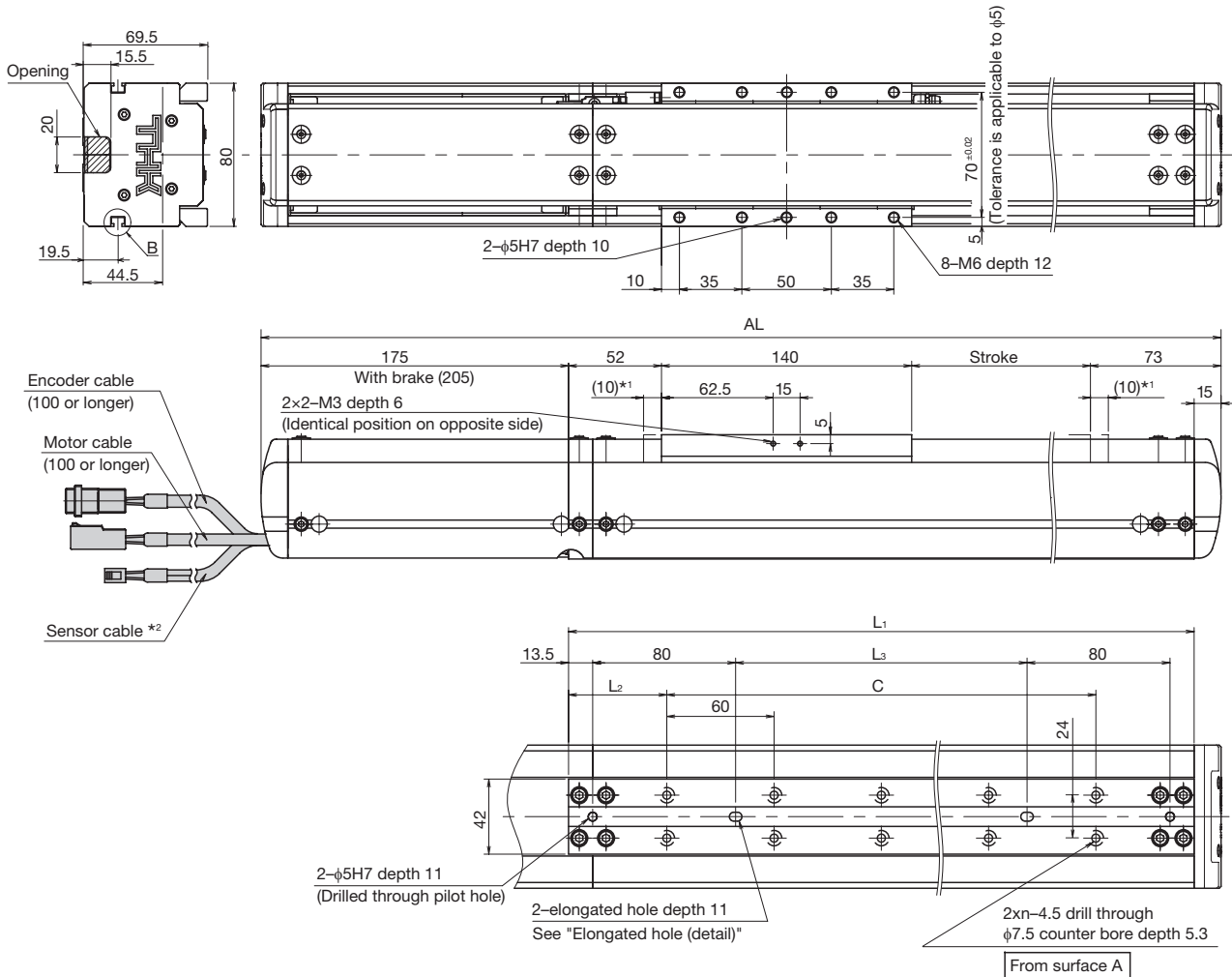
Applied load: maximum load capacity.

A, B, and C represent distances measured from the center of the top surface of the table.

US8T Direct motor coupling, 100W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	
Maximum speed [mm/s] *1 *2	Ball screw lead	5mm									300
		10mm									600
		20mm									1200
		30mm									1800
Dimensions [mm]	AL*3	540 (570)	590 (620)	640 (670)	690 (720)	740 (770)	790 (820)	840 (870)	890 (920)	940 (970)	
	L ₁	350	400	450	500	550	600	650	700	750	
	L ₂	55	50	45	40	35	60	55	50	45	
	L ₃	163	213	263	313	363	413	463	513	563	
Mounting hole count	n	5	6	7	8	9	9	10	11	12	
		Weight *3 [kg]		6.1 (6.4)	6.4 (6.7)	6.7 (7.0)	7.0 (7.3)	7.3 (7.6)	7.5 (7.8)	7.8 (8.1)	8.1 (8.4)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-066, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

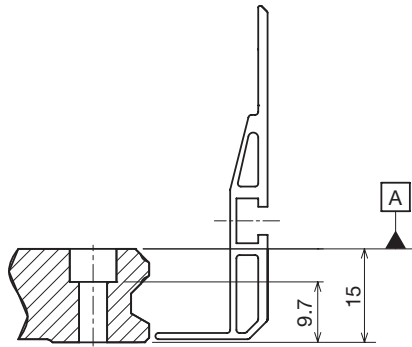
*3 Values when a brake is installed are shown in parentheses.

US8T + THC

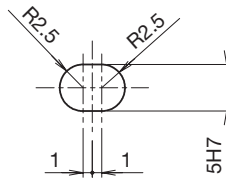


Motor rated output
100W

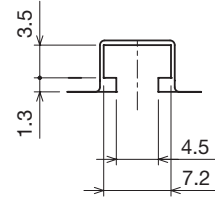
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
	300			290	250	220	200	180	160	150	130	120
	600			550	480	430	380	340	310	280	250	230
	1200			1090	960	850	760	680	610	560	510	460
	1800			1600	1410	1250	1120	1000	910	820	750	690
	990 (1020)	1040 (1070)	1090 (1120)	1140 (1170)	1190 (1220)	1240 (1270)	1290 (1320)	1340 (1370)	1390 (1420)	1440 (1470)	1490 (1520)	1540 (1570)
	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
	40	35	60	55	50	45	40	35	60	55	50	45
	613	663	713	763	813	863	913	963	1013	1063	1113	1163
	720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
	13	14	14	15	16	17	18	19	19	20	21	22
	8.7 (9.0)	8.9 (9.2)	9.2 (9.5)	9.4 (9.7)	9.7 (10.0)	9.9 (10.2)	10.2 (10.5)	10.5 (10.8)	10.7 (11.0)	11.0 (11.3)	11.2 (11.5)	11.5 (11.8)

Universal series

US8RT Motor wrap, 100W



ES/EC

KRF

US/USW

PCT/PC

Controller

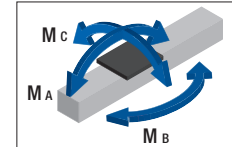
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US8RT	05	0150	A	TH	6	SL	C
US8RT	05: 5mm 10: 10mm 20: 20mm 30: 30mm	0100: 100mm to 1100: 1100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	C: From top of base (counter-base holes)

Basic Specifications

Control device type				THC			
Motor rated output [W]				100			
Ball screw lead [mm]				5	10	20	30
Rated speed *1 [mm/s]				250	500	1000	1500
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	80	40	20	8
		Vertical	0.3G	16*3	8	4	2
Rated thrust *4 [N]				322	161	80	54
Maximum thrust *5 [N]				955	478	239	159
Electromagnetic brake retention [N]				322	161	80	54
Running life *6 [km]				10,000			
Static permissible moment *7 [N·m]				M _A : 287, M _B : 235, M _C : 226			
Positioning repeatability [mm]				±0.020			
Backlash [mm]				0.05			

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-066, "Speed and Load Capacity."
 *3 When acceleration and deceleration rate is 0.2G.
 *4 At rated motor torque.
 *5 Dependent on maximum motor torque and permissible load.
 *6 Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *7 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US8RT + THC



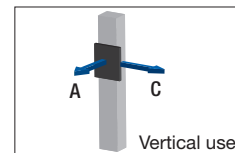
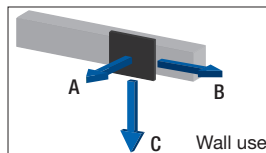
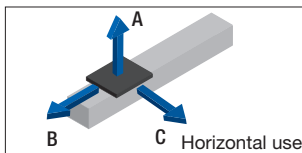
Motor rated output
100W

ES/EC
KRF
US/USW
PCT/PC
Controller

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M10	L	S02	D2	H5

A	MR: Motor right-turn folded	M10: 100W	R: Right	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	ML: Motor left-turn folded	M10B: 100W with brake	U: Up	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	GR: Gray end cap		L : Left	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	Note: If the GR is not included in the model configuration, cover will be red.		D: Down	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
			R00 : Opposite motor side (Mechanical home seeking)			H5 : High flex, 5m
						HA: High flex, 10m

Permissible Overhang Length*



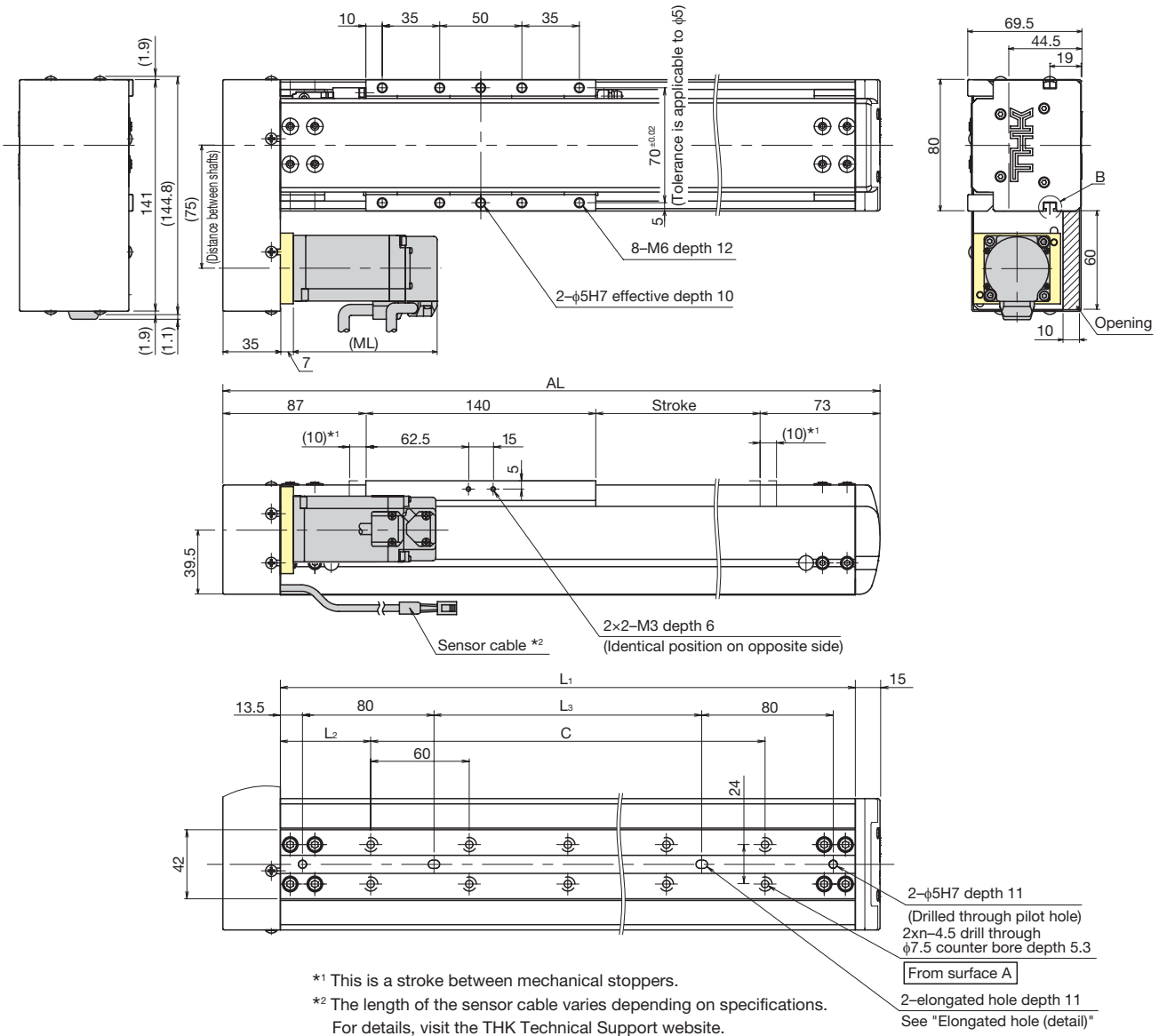
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
5	20	1610	370	340	5	20	280	310	1410	5	4	1190	1180
	40	970	190	170		40	120	120	750		8	760	750
	80	520	80	70		80	20	20	250		16	440	430
10	10	1860	660	560	10	10	550	590	1690	10	2	1690	1680
	20	1190	370	310		20	280	310	1010		4	1150	1140
	40	680	190	150		40	120	120	510		8	720	720
20	5	2000	1060	930	20	5	930	1000	2000	20	1	2000	2000
	10	1860	660	560		10	550	590	1690		2	1690	1680
	20	1190	370	310		20	180	310	1010		4	1150	1140
30	2	2000	1780	1580	30	2	1610	1710	2000	30	0.5	2000	2000
	4	2000	1220	1070		4	1080	1150	2000		1	2000	2000
	8	2000	780	670		8	660	710	1910		2	1690	1680

*Dependent on running life of LM guide (10,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

US8RT Motor wrap, 100W



Dimensions



Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	
Maximum speed *1 *2 [mm/s]	Ball screw lead	5mm	300								
		10mm	600								
		20mm	1200								
		30mm	1800								
Dimensions [mm]	AL	400	450	500	550	600	650	700	750	800	
	ML	73.5									
	ML: With brake	109.1									
	L ₁	350	400	450	500	550	600	650	700	750	
	L ₂	55	50	45	40	35	60	55	50	45	
	L ₃	163	213	263	313	363	413	463	513	563	
C	240	300	360	420	480	480	540	600	660		
Mounting hole count	n	5	6	7	8	9	9	10	11	12	
Weight *3 [kg]		6.3 (6.6)	6.6 (6.9)	6.9 (7.2)	7.2 (7.5)	7.5 (7.8)	7.7 (8.0)	8.0 (8.3)	8.3 (8.6)	8.6 (8.9)	

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-066, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

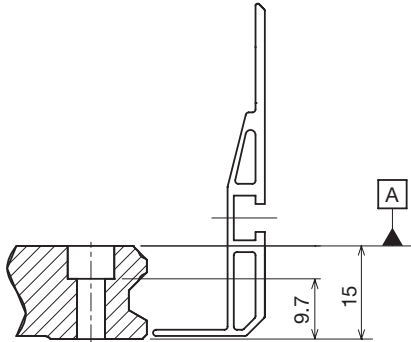
*3 Values when a brake is installed are shown in parentheses.

US8RT + THC

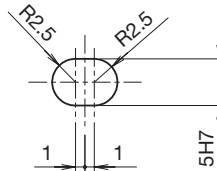


Motor rated output
100W

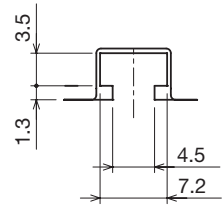
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
		300		290	250	220	200	180	160	150	130	120
		600		550	480	430	380	340	310	280	250	230
		1200		1090	960	850	760	680	610	560	510	460
		1800		1600	1410	1250	1120	1000	910	820	750	690
	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400
	73.5											
	109.1											
	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
	40	35	60	55	50	45	40	35	60	55	50	45
	613	663	713	763	813	863	913	963	1013	1063	1113	1163
	720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
	13	14	14	15	16	17	18	19	19	20	21	22
	8.9 (9.2)	9.1 (9.4)	9.4 (9.7)	9.6 (9.9)	9.9 (10.2)	10.1 (10.4)	10.4 (10.7)	10.7 (11.0)	10.9 (11.2)	11.2 (11.5)	11.4 (11.7)	11.7 (12.0)

Universal series

US8T Direct motor coupling, 150W



ES/EC

KRF

US/USW

PCT/PC

Controller

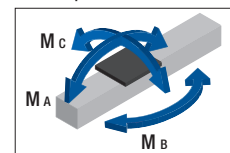
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US8T	10	0150	A	TH	6	SR	C
US8T	10: 10mm 20: 20mm 30: 30mm	0100: 100mm to 1100: 1100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	C: From top of base (counter-base holes)

Basic Specifications

Control device type		THC				
Motor rated output [W]		150				
Ball screw lead [mm]		10	20	30		
Rated speed *1 [mm/s]		500	1000	1500		
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	60	30	12
	Vertical	0.3G	12	6	3	
Rated thrust *3 [N]		240	120	80		
Maximum thrust *4 [N]		719	359	240		
Electromagnetic brake retention [N]		161	80	54		
Running life *5 [km]		10,000				
Static permissible moment *6 [N·m]		M _A : 287, M _B : 235, M _C : 226				
Positioning repeatability [mm]		±0.020				
Backlash [mm]		0.05				

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-067, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US8T + THC



Motor rated output
150W

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M15	S02	D2	H5

A

No symbol: Red end cap
GR: Gray end cap

Note: If the GR is not included in the model configuration, cover will be red.

M15: 150W	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
M15B: 150W with brake	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
	R00: Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
			HA: High flex, 10m

ES/EC

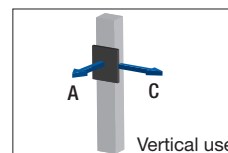
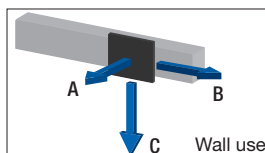
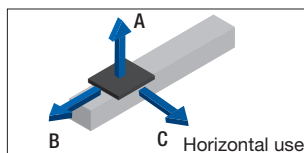
KRF

US/USW

PCT/PC

Controller

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
10	20	1190	370	310	10	20	280	310	1010	10	4	1150	1140
	40	680	190	150		40	120	120	510		8	720	720
	60	340	120	100		60	50	60	290		12	530	520
20	10	1860	660	560	20	10	550	590	1690	20	2	1690	1680
	20	1190	370	310		20	280	310	1010		4	1150	1140
	30	870	190	210		30	170	190	700		6	890	880
30	4	2000	1220	1070	30	4	1080	1150	2000	30	1	2000	2000
	8	2000	780	670		8	660	710	1940		2	1690	1680
	12	1670	570	490		12	470	510	1490		3	1360	1350

*Dependent on running life of LM guide (10,000km) and on static permissible moment.

Conditions for calculation of the values above:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

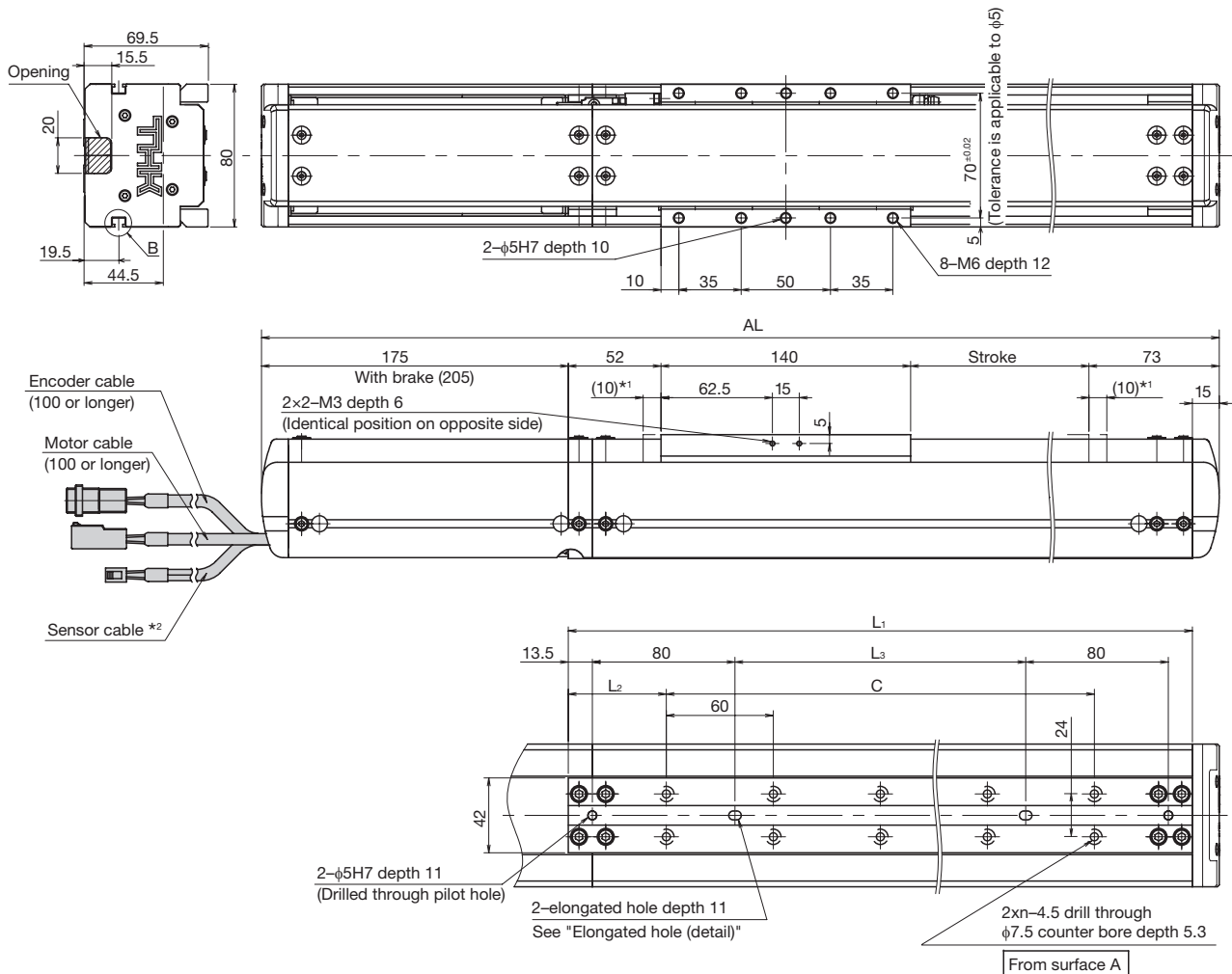
Applied load: maximum load capacity.

A, B, and C represent distances measured from the center of the top surface of the table.

US8T Direct motor coupling, 150W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	
Maximum speed *1 *2 [mm/s]	Ball screw lead										
	10mm	600									
	20mm	1200									
Dimensions [mm]	AL*3	540 (570)	590 (620)	640 (670)	690 (720)	740 (770)	790 (820)	840 (870)	890 (920)	940 (970)	
	L ₁	350	400	450	500	550	600	650	700	750	
	L ₂	55	50	45	40	35	60	55	50	45	
	L ₃	163	213	263	313	363	413	463	513	563	
Mounting hole count	n	5	6	7	8	9	9	10	11	12	
	Weight *3 [kg]	6.2 (6.4)	6.4 (6.6)	6.7 (6.9)	7 (7.2)	7.3 (7.5)	7.6 (7.8)	7.9 (8.1)	8.2 (8.4)	8.4 (8.6)	

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-067, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

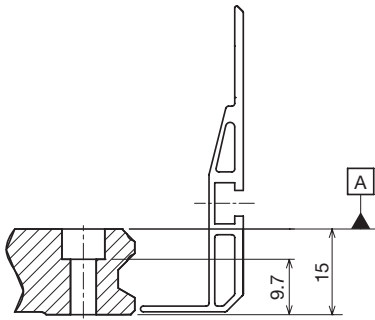
*3 Values when a brake is installed are shown in parentheses.

US8T + THC

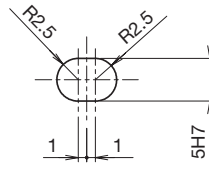


Motor rated output
150W

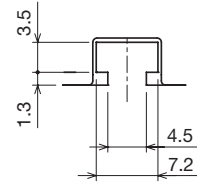
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
	600			550	480	430	380	340	310	280	250	230
	1200			1090	960	850	760	680	610	560	510	460
	1800			1600	1410	1250	1120	1000	910	820	750	690
	990 (1020)	1040 (1070)	1090 (1120)	1140 (1170)	1190 (1220)	1240 (1270)	1290 (1320)	1340 (1370)	1390 (1420)	1440 (1470)	1490 (1520)	1540 (1570)
	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
	40	35	60	55	50	45	40	35	60	55	50	45
	613	663	713	763	813	863	913	963	1013	1063	1113	1163
	720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
	13	14	14	15	16	17	18	19	19	20	21	22
	8.7 (8.9)	9 (9.2)	9.2 (9.4)	9.5 (9.7)	9.7 (9.9)	10 (10.2)	10.2 (10.4)	10.5 (10.7)	10.8 (11)	11 (11.2)	11.3 (11.5)	11.5 (11.7)

Universal series

US8RT Motor wrap, 150W



ES/EC

KRF

US/USW

PCT/PC

Controller

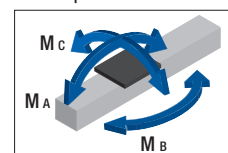
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
US8RT	10	0150	A	TH	6	SR	C
US8RT	10: 10mm 20: 20mm 30: 30mm	0100: 100mm to 1100: 1100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	C: From top of base (counter-base holes)

Basic Specifications

Control device type		THC				
Motor rated output [W]		150				
Ball screw lead [mm]		10	20	30		
Rated speed *1 [mm/s]		500	1000	1500		
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	60	30	12
	Vertical	0.3G	12	6	3	
Rated thrust *3 [N]		240	120	80		
Maximum thrust *4 [N]		719	359	240		
Electromagnetic brake retention [N]		161	80	54		
Running life *5 [km]		10,000				
Static permissible moment *6 [N·m]		M _A : 287, M _B : 235, M _C : 226				
Positioning repeatability [mm]		±0.020				
Backlash [mm]		0.05				

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).

*2 Load capacity and maximum speed are dependent on usage conditions. See page 3-067, "Speed and Load Capacity."

*3 At rated motor torque.

*4 Dependent on maximum motor torque and permissible load.

*5 Conditions:

Stroke: 100mm

Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)

Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate

Applied load: maximum load capacity

Center of gravity: center of top surface of table.

*6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

US8RT + THC

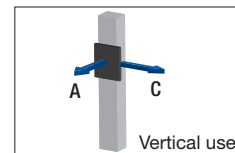
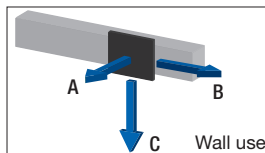
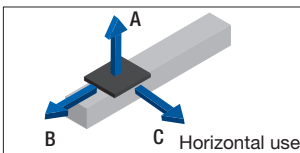


Motor rated output
150W

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M15	L	S02	D2	H5

A	MR: Motor right-turn folded	M15: 150W	R: Right	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	ML: Motor left-turn folded	M15B: 150W with brake	U: Up	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	GR: Gray end cap		L : Left	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	Note: If the GR is not included in the model configuration, cover will be red.		D: Down	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
				R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
						HA: High flex, 10m

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
10	20	1190	370	310	10	20	280	310	1010	10	4	1150	1140
	40	680	190	150		40	120	120	510		8	720	720
	60	340	120	100		60	50	60	290		12	530	520
20	10	1860	660	560	20	10	550	590	1690	20	2	1690	1680
	20	1190	370	310		20	280	310	1010		4	1150	1140
	30	870	190	210		30	170	190	700		6	890	880
30	4	2000	1220	1070	30	4	1080	1150	2000	30	1	2000	2000
	8	2000	780	670		8	660	710	1940		2	1690	1680
	12	1670	570	490		12	470	510	1490		3	1360	1350

*Dependent on running life of LM guide (10,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

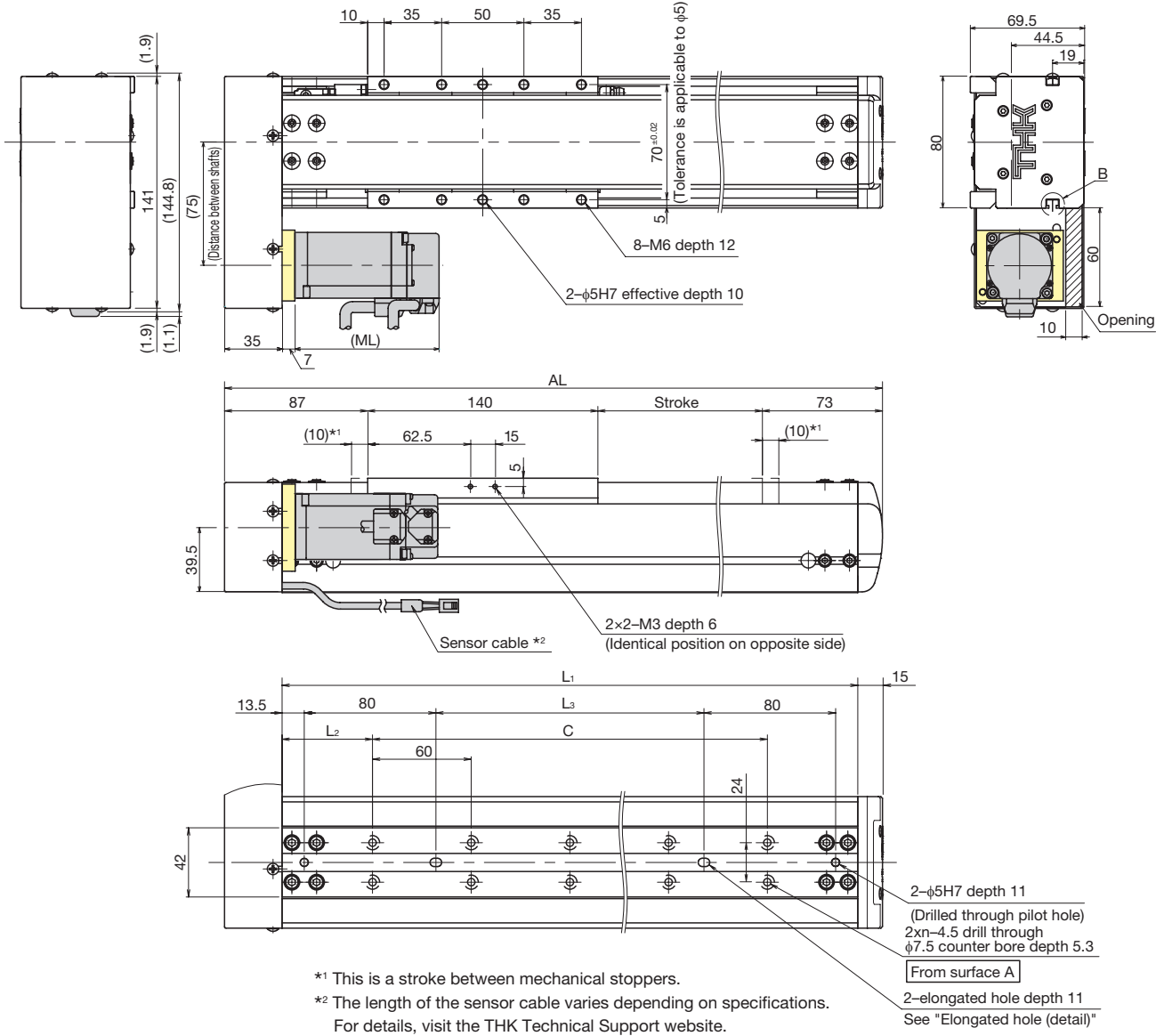
ES/EC
KRF
US/USW
PCT/PC
Controller

Universal series

US8RT Motor wrap, 150W



Dimensions



Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed [mm/s] * ¹ * ²	Ball screw lead									
	10mm	600								
	20mm	1200								
Dimensions [mm]	AL	400	450	500	550	600	650	700	750	800
	ML	87.5								
	ML: With brake	123.1								
	L ₁	350	400	450	500	550	600	650	700	750
	L ₂	55	50	45	40	35	60	55	50	45
	L ₃	163	213	263	313	363	413	463	513	563
C	240	300	360	420	480	480	540	600	660	
Mounting hole count	n	5	6	7	8	9	9	10	11	12
Weight * ³ [kg]		6.4 (6.6)	6.6 (6.8)	6.9 (7.1)	7.2 (7.4)	7.5 (7.7)	7.8 (8)	8.1 (8.3)	8.3 (8.5)	8.6 (8.8)

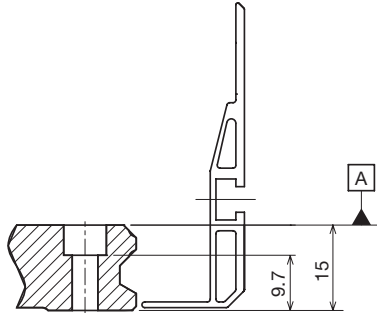
*¹ Load capacity and maximum speed are dependent on usage conditions. See page 3-067, "Speed and Load Capacity."
 *² Dependent on permissible rotational speed of ball screw.
 *³ Values when a brake is installed are shown in parentheses.

US8RT + THC

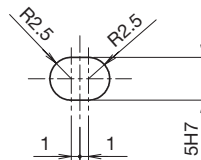


Motor rated output
150W

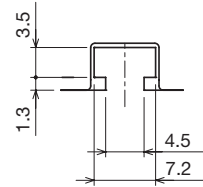
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
		600		550	480	430	380	340	310	280	250	230
		1200		1090	960	850	760	680	610	560	510	460
		1800		1600	1410	1250	1120	1000	910	820	750	690
	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400
	87.5											
	123.1											
	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
	40	35	60	55	50	45	40	35	60	55	50	45
	613	663	713	763	813	863	913	963	1013	1063	1113	1163
	720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
	13	14	14	15	16	17	18	19	19	20	21	22
	8.9 (9.1)	9.2 (9.4)	9.4 (9.6)	9.7 (9.9)	9.9 (10.1)	10.2 (10.4)	10.4 (10.6)	10.7 (10.9)	11 (11.2)	11.2 (11.4)	11.5 (11.7)	11.7 (11.9)

Universal series

USW12T Direct motor coupling, 200W



ES/EC

KRF

US/USW

PCT/PC

Controller

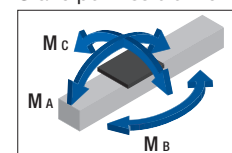
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW12T	05	0150	A	TH	6	SL	C
USW12T	05: 5mm 10: 10mm 20: 20mm 30: 30mm	0100: 100mm to 1100: 1100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)

Basic Specifications

Control device type		THC					
Motor rated output [W]		200					
Ball screw lead [mm]		5	10	20	30		
Rated speed *1 [mm/s]		250	500	1000	1500		
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	100	80	40	25
	Vertical	0.3G	30	20	8	5	
Rated thrust *3 [N]		643	322	161	107		
Maximum thrust *4 [N]		1910	965	482	322		
Electromagnetic brake retention [N]		1277	638	319	213		
Running life *5 *6 [km]		20,000 (10,000)					
Static permissible moment *7 [N·m]		M _A : 915, M _B : 317, M _C : 786					
Positioning repeatability [mm]		±0.020					
Backlash [mm]		0.05					

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-068, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 10,000 km with ball screw lead 5mm in vertical use.
 *7 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW12T + THC



Motor rated output
200W

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M20	S02	D2	H5

A	No symbol: Red end cap	M20: 200W	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	GR: Gray end cap	M20B: 200W with brake	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	HG: Hanging jig		S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
			D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
			R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
					HA: High flex, 10m

Note: If the GR is not included in the model configuration, cover will be red.

ES/EC

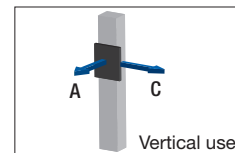
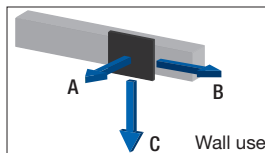
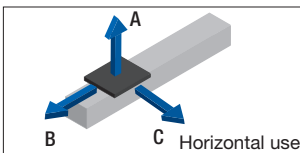
KRF

US/USW

PCT/PC

Controller

Permissible Overhang Length*



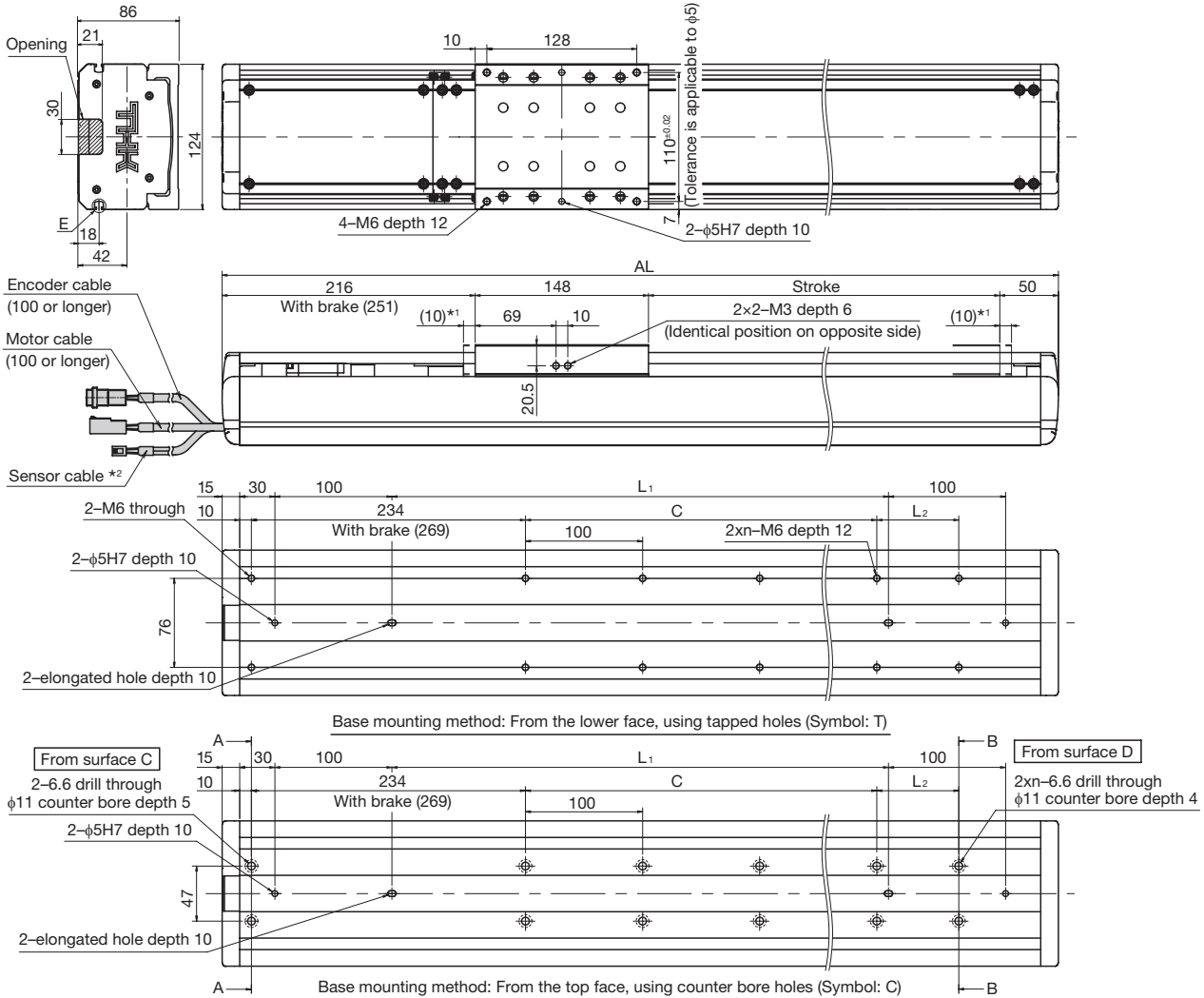
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
5	30	1870	450	570	5	30	530	420	1800	5	10	1020	1050
	60	1120	230	290		60	260	200	1030		20	600	620
	100	710	130	170		100	130	90	600		30	420	430
10	20	1790	630	710	10	20	710	600	1750	10	5	1520	1550
	40	1090	340	390		40	370	310	1020		10	980	1000
	80	580	160	190		80	160	130	500		20	570	590
20	10	2000	1060	1170	20	10	1180	1030	2000	20	2	2000	2000
	20	1790	630	710		20	710	600	1750		4	1720	1760
	40	1090	340	370		40	370	310	1050		8	1140	1170
30	5	2000	1620	1770	30	5	1800	1600	2000	30	1	2000	2000
	15	2000	790	880		15	890	770	2000		3	2000	2000
	25	1540	520	590		25	580	500	1490		5	1520	1550

*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

USW12T Direct motor coupling, 200W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications.

For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed [mm/s]	Ball screw lead	5mm				300				
		10mm				600				
		20mm				1200				
		30mm				1800				
Dimensions [mm]	AL ^{*3}	514 (549)	564 (599)	614 (649)	664 (699)	714 (749)	764 (799)	814 (849)	864 (899)	914 (949)
	L ₁ ^{*3}	224 (259)	274 (309)	324 (359)	374 (409)	424 (459)	474 (509)	524 (559)	574 (609)	624 (659)
	L ₂	70	20	70	20	70	20	70	20	70
	C	100	200	200	300	300	400	400	500	500
Mounting hole count	n	3	4	4	5	5	6	6	7	7
Weight ^{*3} [kg]		7.5 (8)	8.1 (8.6)	8.7 (9.2)	9.3 (9.8)	9.9 (10.4)	10.5 (11)	11.1 (11.6)	11.7 (12.2)	12.2 (12.7)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-068, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

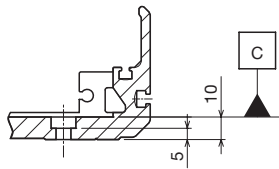
*3 Values when a brake is installed are shown in parentheses.

USW12T + THC

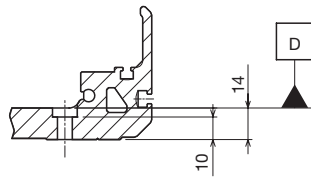


Motor rated output
200W

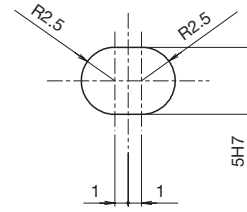
Detail



Cross section: A-A

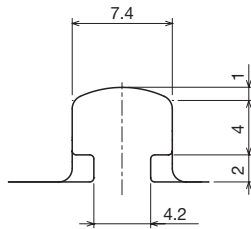


Cross section: B-B



Elongated hole (detail)

Counter-bore hole on base (detail)



Section E (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
	300			270	240	210	190	170	150	140	130	120
	600		580	510	450	400	360	320	290	260	240	220
	1200		1160	1020	900	800	720	640	580	530	480	440
	1800		1700	1490	1320	1180	1050	950	860	780	720	660
	964 (999)	1014 (1049)	1064 (1099)	1114 (1149)	1164 (1199)	1214 (1249)	1264 (1299)	1314 (1349)	1364 (1399)	1414 (1449)	1464 (1499)	1514 (1549)
	674 (709)	724 (759)	774 (809)	824 (859)	874 (909)	924 (959)	974 (1009)	1024 (1059)	1074 (1109)	1124 (1159)	1174 (1209)	1224 (1259)
	20	70	20	70	20	70	20	70	20	70	20	70
	600	600	700	700	800	800	900	900	1000	1000	1100	1100
	8	8	9	9	10	10	11	11	12	12	13	13
	12.9 (13.4)	13.4 (13.9)	14.1 (14.6)	14.6 (15.1)	15.3 (15.8)	15.8 (16.3)	16.5 (17)	17.1 (17.6)	17.7 (18.2)	18.3 (18.8)	18.9 (19.4)	19.5 (20)

Universal series

USW12RT Motor wrap, 200W



ES/EC

KRF

US/USW

PCT/PC

Controller

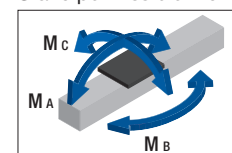
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW12RT	05	0150	A	TH	6	SL	C
USW12RT	05: 5mm 10: 10mm 20: 20mm 30: 30mm	0100: 100mm to 1100: 1100mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)

Basic Specifications

Control device type		THC					
Motor rated output [W]		200					
Ball screw lead [mm]		5	10	20	30		
Rated speed *1 [mm/s]		250	500	1000	1500		
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	100	80	40	25
	Vertical	0.3G	30	20	8	5	
Rated thrust *3 [N]		643	322	161	107		
Maximum thrust *4 [N]		1910	965	482	322		
Electromagnetic brake retention [N]		1277	638	319	213		
Running life *5 *6 [km]		20,000 (10,000)					
Static permissible moment *7 [N·m]		M _A : 915, M _B : 317, M _C : 786					
Positioning repeatability [mm]		±0.020					
Backlash [mm]		0.05					

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-068, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G (ball screw lead 5mm, 0.2G vertical only)
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 10,000 km with ball screw lead 5mm in vertical use.
 *7 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW12RT + THC



Motor rated output
200W

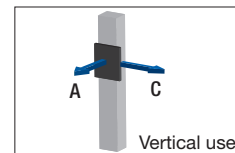
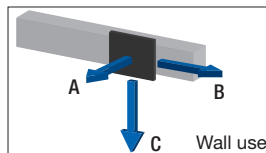
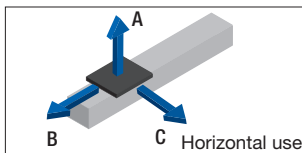
ES/EC
KRF
US/USW
PCT/PC
Controller

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M20	L	S02	D2	H5

A	MR: Motor right-turn folded	M20: 200W	R: Right	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	ML: Motor left-turn folded	M20B: 200W with brake	U: Up	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	GR: Gray end cap		L : Left	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	HG: Hanging jig		D: Down	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
				R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
						HA: High flex, 10m

Note: If the GR is not included in the model configuration, cover will be red.

Permissible Overhang Length*



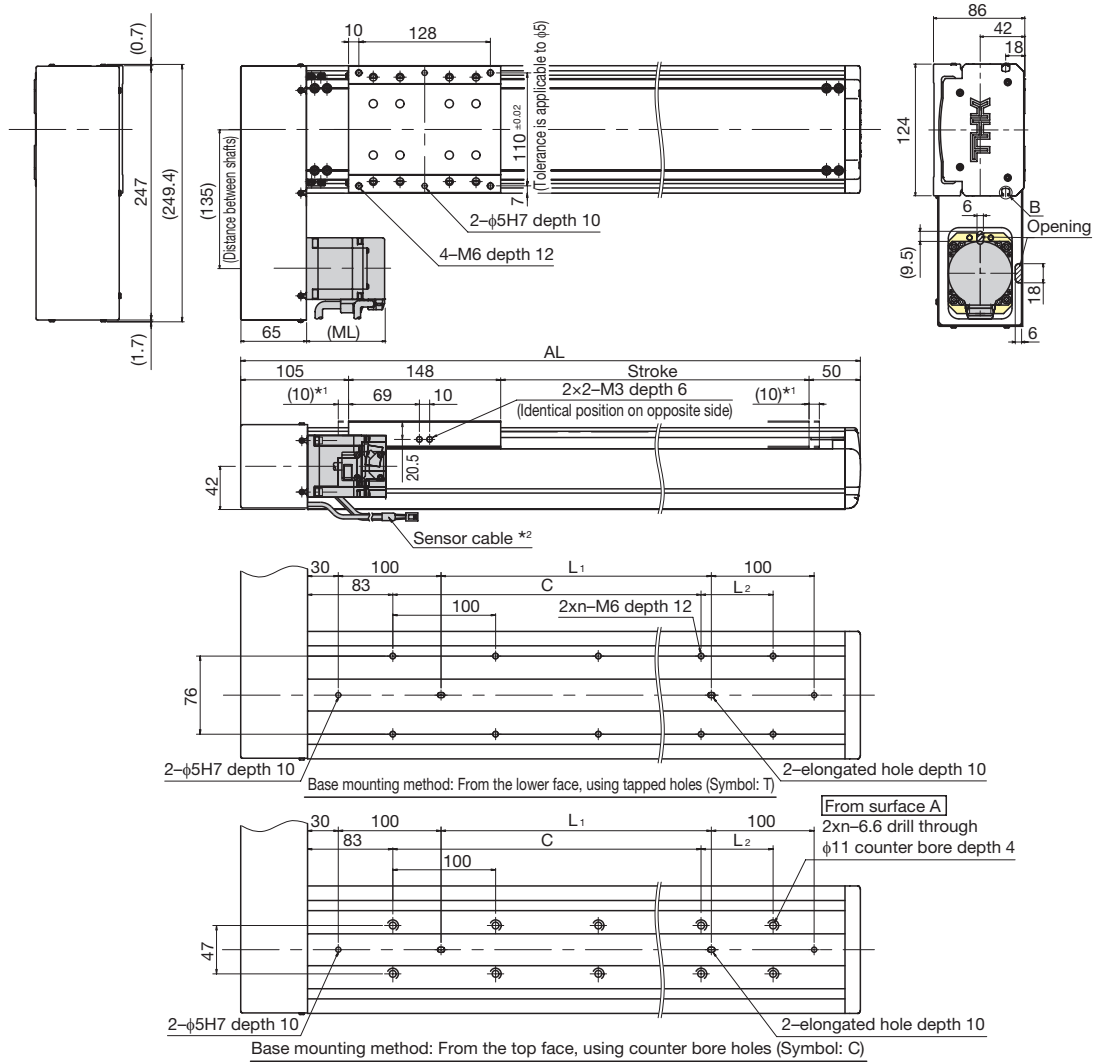
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
5	30	1870	450	570	5	30	530	420	1800	5	10	1020	1050
	60	1120	230	290		60	260	200	1030		20	600	620
	100	710	130	170		100	130	90	600		30	420	430
10	20	1790	630	710	10	20	710	600	1750	10	5	1520	1550
	40	1090	340	390		40	370	310	1020		10	980	1000
	80	580	160	190		80	160	130	500		20	570	590
20	10	2000	1060	1170	20	10	1180	1030	2000	20	2	2000	2000
	20	1790	630	710		20	710	600	1750		4	1720	1760
	40	1090	340	390		40	370	310	1020		8	1140	1170
30	5	2000	1620	1770	30	5	1800	1600	2000	30	1	2000	2000
	15	2000	790	880		15	890	770	2000		3	2000	2000
	25	1540	520	590		25	580	500	1490		5	1520	1550

*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

USW12RT Motor wrap, 200W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications.
For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed *1 *2 [mm/s]	Ball screw lead									
	5mm	300								
	10mm	600								
	20mm	1200								
Dimensions [mm]	30mm	1800								
	AL	403	453	503	553	603	653	703	753	803
	ML	76.1								
	ML: With brake	110.7								
	L ₁	63	113	163	213	263	313	363	413	463
Mounting hole count	L ₂	70	20	70	20	70	20	70	20	70
	C	100	200	200	300	300	400	400	500	500
	n	3	4	4	5	5	6	6	7	7
Weight *3 [kg]		8.9 (9.4)	9.5 (10)	10.1 (10.6)	10.7 (11.2)	11.3 (11.8)	11.9 (12.4)	12.5 (13)	13.1 (13.6)	13.7 (14.2)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-068, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

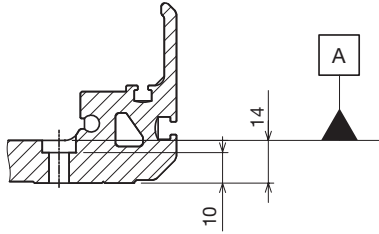
*3 Values when a brake is installed are shown in parentheses.

USW12RT + THC

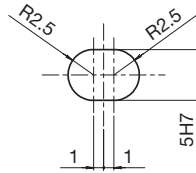


Motor rated output
200W

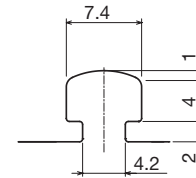
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
	300			270	240	210	190	170	150	140	130	120
	600		580	510	450	400	360	320	290	260	240	220
	1200		1160	1020	900	800	720	640	580	530	480	440
	1800		1700	1490	1320	1180	1050	950	860	780	720	660
	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403
	76.1											
	110.7											
	513	563	613	663	713	763	813	863	913	963	1012	1063
	20	70	20	70	20	70	20	70	20	70	20	70
	600	600	700	700	800	800	900	900	1000	1000	1100	1100
	8	8	9	9	10	10	11	11	12	12	13	13
	14.3 (14.8)	14.9 (15.4)	15.5 (16)	16.1 (16.6)	16.7 (17.2)	17.3 (17.8)	17.9 (18.4)	18.5 (19)	19.1 (19.6)	19.7 (20.2)	20.3 (20.8)	20.9 (21.4)

USW16T Direct motor coupling, 400W



ES/EC

KRF

US/USW

PCT/PC

Controller

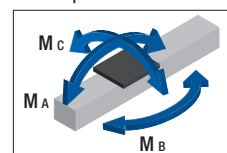
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW16T	10	0150	A	TH	6	SR	C
USW16T	10: 10mm 20: 20mm 40: 40mm	0100: 100mm to 1500: 1500mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)

Basic Specifications

Control device type		THC		
Motor rated output [W]		400		
Ball screw lead [mm]		10	20	40
Rated speed *1 [mm/s]		500	1000	2000
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	120
		Vertical	0.3G	35
Rated thrust *3 [N]		653	326	163
Maximum thrust *4 [N]		1910	965	482
Electromagnetic brake retention [N]		638	319	160
Running life *5 [km]		20,000		
Static permissible moment *6 [N·m]		M _A : 2161, M _B : 740, M _C : 1681		
Positioning repeatability [mm]		±0.020		
Backlash [mm]		0.05		

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-069, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW16T + THC

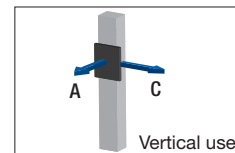
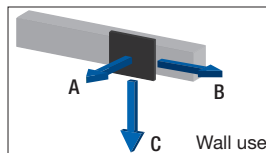
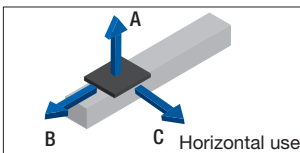


Motor rated output
400W

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M40	S02	D2	H5

A	No symbol: Red end cap	M40: 400W	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	GR: Gray end cap	M40B: 400W with brake	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	HG: Hanging jig		S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	Note: If the GR is not included in the model configuration, cover will be red.		D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
			R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
					HA: High flex, 10m

Permissible Overhang Length*



Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
10	40	2590	950	820	10	40	760	900	2480	10	10	2220	2270	
	80	1590	520	440		80	380	460	1450		20	1460	1500	
	120	1130	340	290		120	230	280	970		35	970	1000	
20	20	3000	1560	1380	20	20	1300	1520	3000	20	5	3000	3000	
	40	2590	950	820		40	760	900	2480		10	2220	2270	
	80	1590	520	440		80	380	460	1450		15	1750	1800	
40	10	3000	2360	2100	40	10	2020	2320	3000	40	3	3000	3000	
	20	3000	1560	1380		20	1300	1520	3000		6	2890	2960	
	40	2590	950	820		40	760	900	2480		9	2350	2410	

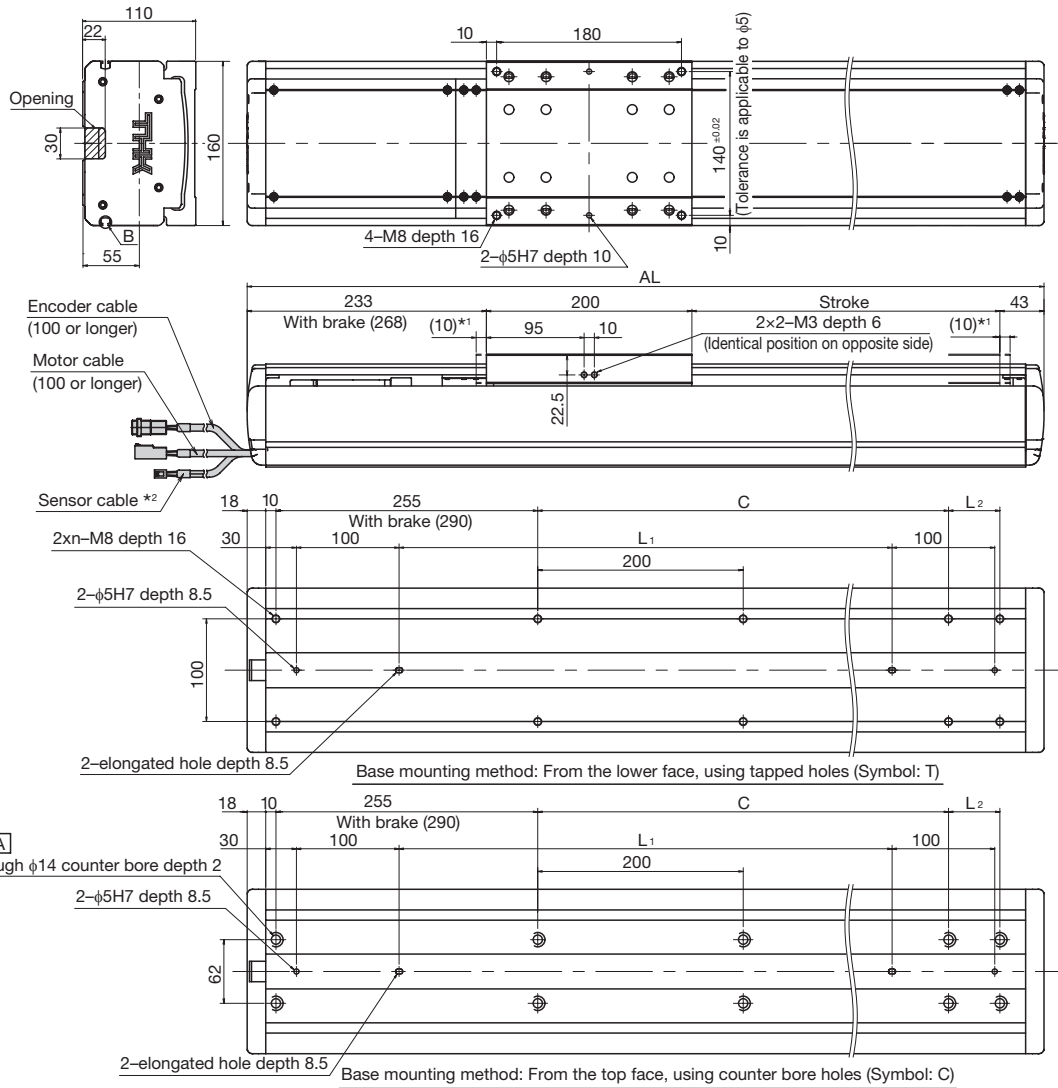
*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

ES/EC
KRF
US/USW
PCT/PC
Controller

USW16T Direct motor coupling, 400W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)
Maximum speed *1 *2 [mm/s]	Ball screw lead	550											
	10mm	1100											
	20mm	2200											
Dimensions [mm]	AL*3	576 (611)	626 (661)	676 (711)	726 (761)	776 (811)	826 (861)	876 (911)	926 (961)	976 (1011)	1026 (1061)	1076 (1111)	1126 (1161)
	L1*3	280 (315)	330 (365)	380 (415)	430 (465)	480 (515)	530 (565)	580 (615)	630 (665)	680 (715)	730 (765)	780 (815)	830 (865)
	L2	50	100	150	-	50	100	150	-	50	100	150	-
	C	200	200	200	400	400	400	400	600	600	600	600	800
Mounting hole count	n	4	4	4	4	5	5	5	5	6	6	6	6
Weight *3 [kg]		14.4 (14.9)	15.4 (15.9)	16.4 (16.9)	17.4 (17.9)	18.4 (18.9)	19.4 (19.9)	20.4 (20.9)	21.4 (21.9)	22.4 (22.9)	23.4 (23.9)	24.4 (24.9)	25.4 (25.9)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-069, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

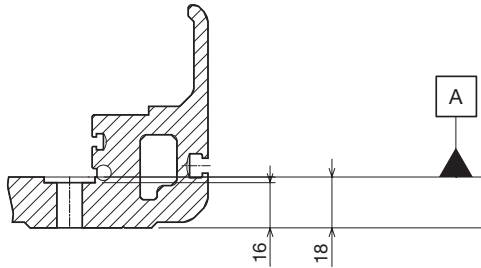
*3 Values when a brake is installed are shown in parentheses.

USW16T + THC

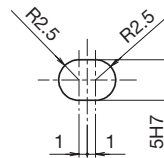


Motor rated output
400W

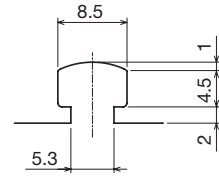
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)
	550		520	470	420	380	340	310	290	260	240	230	210	190	180	170	160
	1100			1040	930	840	760	700	640	590	540	500	460	430	400	380	350
	2200			1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690
	1176 (1211)	1226 (1261)	1276 (1311)	1326 (1361)	1376 (1411)	1426 (1461)	1476 (1511)	1526 (1561)	1576 (1611)	1626 (1661)	1676 (1711)	1726 (1761)	1776 (1811)	1826 (1861)	1876 (1911)	1926 (1961)	1976 (2011)
	880 (915)	930 (965)	980 (1015)	1030 (1065)	1080 (1115)	1130 (1165)	1180 (1215)	1230 (1265)	1280 (1315)	1330 (1365)	1380 (1415)	1430 (1465)	1480 (1515)	1530 (1565)	1580 (1615)	1630 (1665)	1680 (1715)
	50	100	150	-	50	100	150	-	50	100	150	-	50	100	150	-	50
	800	800	800	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600
	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
	26.4 (26.9)	27.4 (27.9)	28.4 (28.9)	29.4 (29.9)	30.4 (30.9)	31.4 (31.9)	32.4 (32.9)	33.4 (33.9)	34.4 (34.9)	35.4 (35.9)	36.4 (36.9)	37.4 (37.9)	38.4 (38.9)	39.4 (39.9)	40.4 (40.9)	41.4 (41.9)	42.4 (42.9)

Universal series

USW16RT Motor wrap, 400W



ES/EC
KRF
US/USW
PCT/PC
Controller

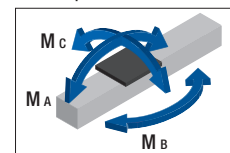
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW16RT	10	0150	A	TH	6	SL	C
USW16RT	10: 10mm 20: 20mm 40: 40mm	0100: 100mm to 1500: 1500mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)

Basic Specifications

Control device type		THC		
Motor rated output [W]		400		
Ball screw lead [mm]		10	20	40
Rated speed * ¹ [mm/s]		500	1000	2000
Maximum load capacity * ² [kg]	Acceleration and deceleration rate	Horizontal	0.3G	120
		Vertical	0.3G	35
Rated thrust * ³ [N]		653	326	163
Maximum thrust * ⁴ [N]		1910	965	482
Electromagnetic brake retention [N]		638	319	160
Running life * ⁵ [km]		20,000		
Static permissible moment * ⁶ [N·m]		M _A : 2161, M _B : 740, M _C : 1681		
Positioning repeatability [mm]		±0.020		
Backlash [mm]		0.05		

Static permissible moment



*¹ At rated motor speed (3,000 min⁻¹).
 *² Load capacity and maximum speed are dependent on usage conditions. See page 3-069, "Speed and Load Capacity."
 *³ At rated motor torque.
 *⁴ Dependent on maximum motor torque and permissible load.
 *⁵ Conditions:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *⁶ Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW16RT + THC



Motor rated output
400W

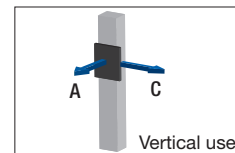
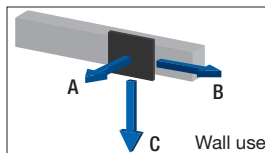
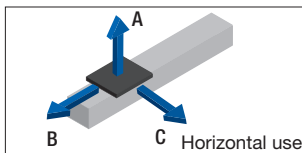
ES/EC
KRF
US/USW
PCT/PC
Controller

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M40	L	S02	D2	H5

A	MR: Motor right-turn folded	M40: 400W	R: Right	No symbol: When selecting P or Q	D1: 100V	F3 : Standard, 3m
	ML: Motor left-turn folded	M40B: 400W with brake	U: Up	S02 : Motor side (Home position sensor)	D2: 200V	F5 : Standard, 5m
	GR: Gray end cap		L : Left	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	HG: Hanging jig		D: Down	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
				R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
						HA: High flex, 10m

Note: If the GR is not included in the model configuration, cover will be red.

Permissible Overhang Length*



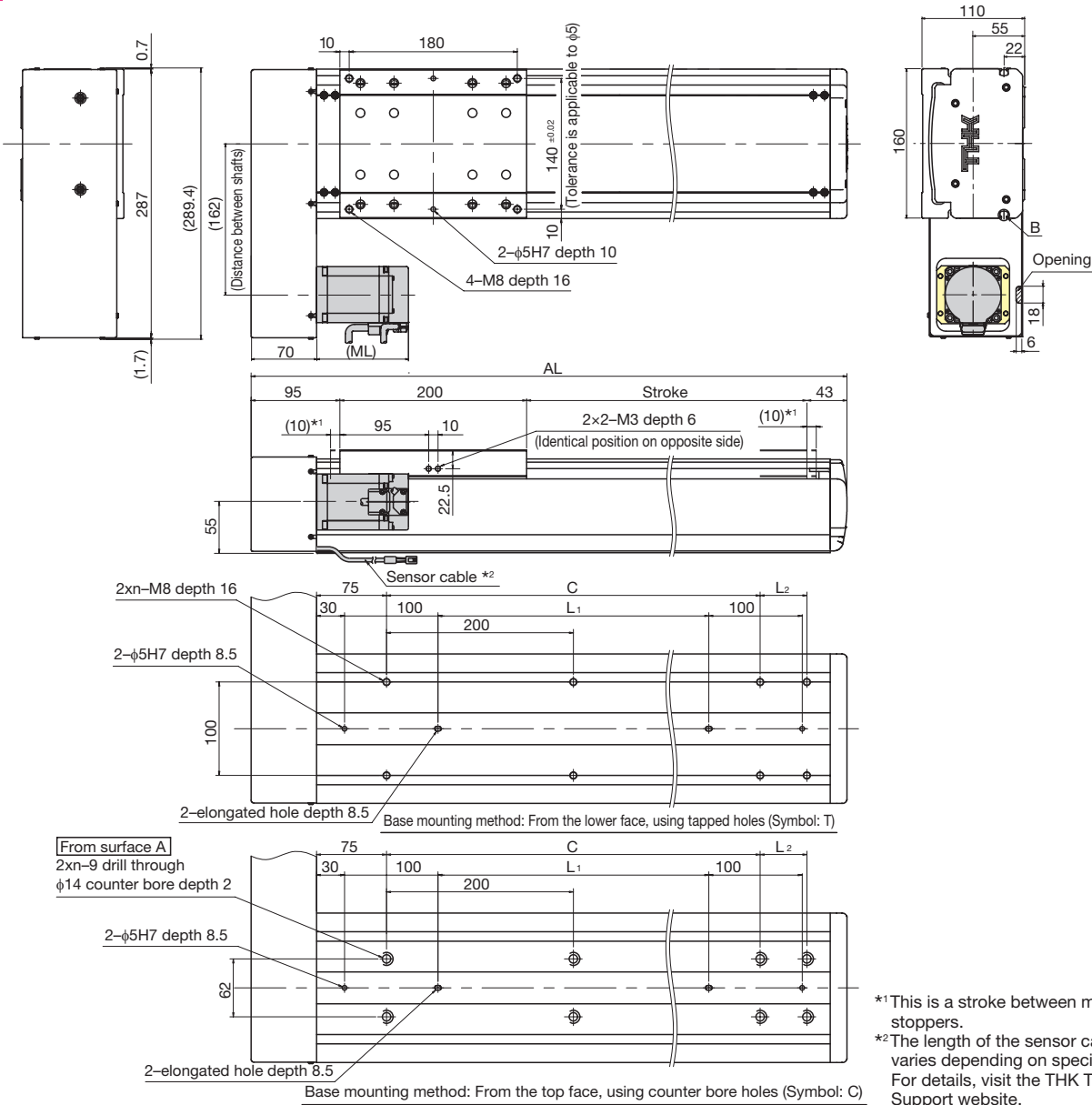
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
10	40	2590	950	820	10	40	760	900	2480	10	10	2220	2270
	80	1590	520	440		80	380	460	1450		20	1460	1500
	120	1130	340	290		120	230	280	970		35	970	1000
20	20	3000	1560	1380	20	20	1300	1520	3000	20	5	3000	3000
	40	2590	950	820		40	760	900	2480		10	2220	2270
	80	1590	520	440		80	380	460	1450		15	1750	1800
40	10	3000	2360	2100	40	10	2020	2320	3000	40	3	3000	3000
	20	3000	1560	1380		20	1300	1520	3000		6	2890	2960
	40	2590	950	820		40	760	900	2480		9	2350	2410

*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 100mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

USW16RT Motor wrap, 400W



Dimensions



*1 This is a stroke between mechanical stoppers.
 *2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)
Maximum speed *1 *2 [mm/s]	Ball screw lead	550											
	10mm	1100											
	20mm	2200											
Dimensions [mm]	AL	438	488	538	588	638	688	738	788	838	888	938	988
	ML	98.1											
	ML: With brake	132.7											
	L ₁	90	140	190	240	290	340	390	440	490	540	590	640
	L ₂	50	100	150	-	50	100	150	-	50	100	150	-
Mounting hole count	n	3	3	3	3	4	4	4	4	5	5	5	5
Weight *3 [kg]		14.7 (15.2)	15.7 (16.2)	16.7 (17.2)	17.7 (18.2)	18.7 (19.2)	19.7 (20.2)	20.7 (21.2)	21.7 (22.2)	22.7 (23.2)	23.7 (24.2)	24.7 (25.2)	25.7 (26.2)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-069, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

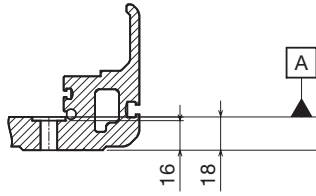
*3 Values when a brake is installed are shown in parentheses.

USW16RT + THC

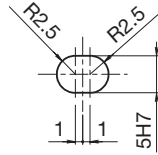


Motor rated output
400W

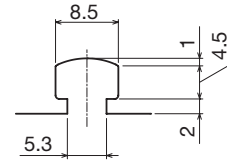
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)
	550		520	470	420	380	340	310	290	260	240	230	210	190	180	170	160
	1100			1040	930	840	760	700	640	590	540	500	460	430	400	380	350
	2200			1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690
	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838
	98.1																
	132.7																
	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490
	50	100	150	-	50	100	150	-	50	100	150	-	50	100	150	-	50
	800	800	800	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600
	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10
	26.7 (27.2)	27.7 (28.2)	28.7 (29.2)	29.7 (30.2)	30.7 (31.2)	31.7 (32.2)	32.7 (33.2)	33.7 (34.2)	34.7 (35.2)	35.7 (36.2)	36.7 (37.2)	37.7 (38.2)	38.7 (39.2)	39.7 (40.2)	40.7 (41.2)	41.7 (42.2)	42.7 (43.2)

Universal series

USW20T

Direct motor coupling, 750W



ES/EC

KRF

US/USW

PCT/PC

Controller

Model Configuration

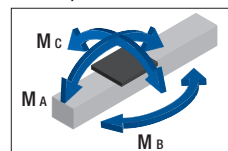
Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW20T	20	0300	A	TH	6	SR	C

USW20T	20: 20mm	0200: 200mm	A	TH: THC	P	No symbol: When selecting P, Q, or N	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)
	40: 40mm	to			Q		
		1700: 1700mm	N				
			6				
					E		

Basic Specifications

Control device type				THC	
Motor rated output [W]				750	
Ball screw lead [mm]				20	40
Rated speed *1 [mm/s]				1000	2000
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	130	70
		Vertical	0.3G	45	20
Rated thrust *3 [N]				603	302
Maximum thrust *4 [N]				1810	905
Electromagnetic brake retention [N]				603	302
Running life *5*6 [km]				20,000 (10,000)	
Static permissible moment *7 [N·m]				M _A : 1921, M _B : 793, M _C : 2221	
Positioning repeatability [mm]				±0.020	
Backlash [mm]				0.05	

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-070, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 200mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 10,000 km with ball screw lead 20 mm in vertical use.
 *7 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW20T + THC



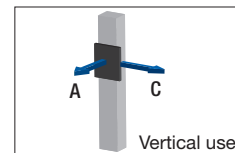
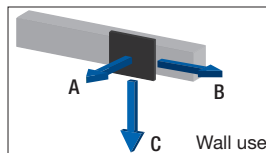
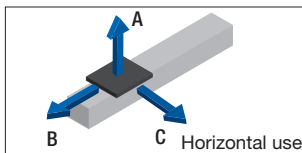
Motor rated output
750W

ES/EC
KRF
US/USW
PCT/PC
Controller

Motor bracket	Option	Motor rated output	Home position	Power supply voltage	Cable type and length
A	GR	M75	S02	D2	H5

A	No symbol: Red end cap	M75: 750W	No symbol: When selecting P or Q	D2: 200V	F3 : Standard, 3m
	GR: Gray end cap	M75B: 750W with brake	S02 : Motor side (Home position sensor)		F5 : Standard, 5m
	HG: Hanging jig		S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	Note: If the GR is not included in the model configuration, cover will be red.		D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
			R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
					HA: High flex, 10m

Permissible Overhang Length*



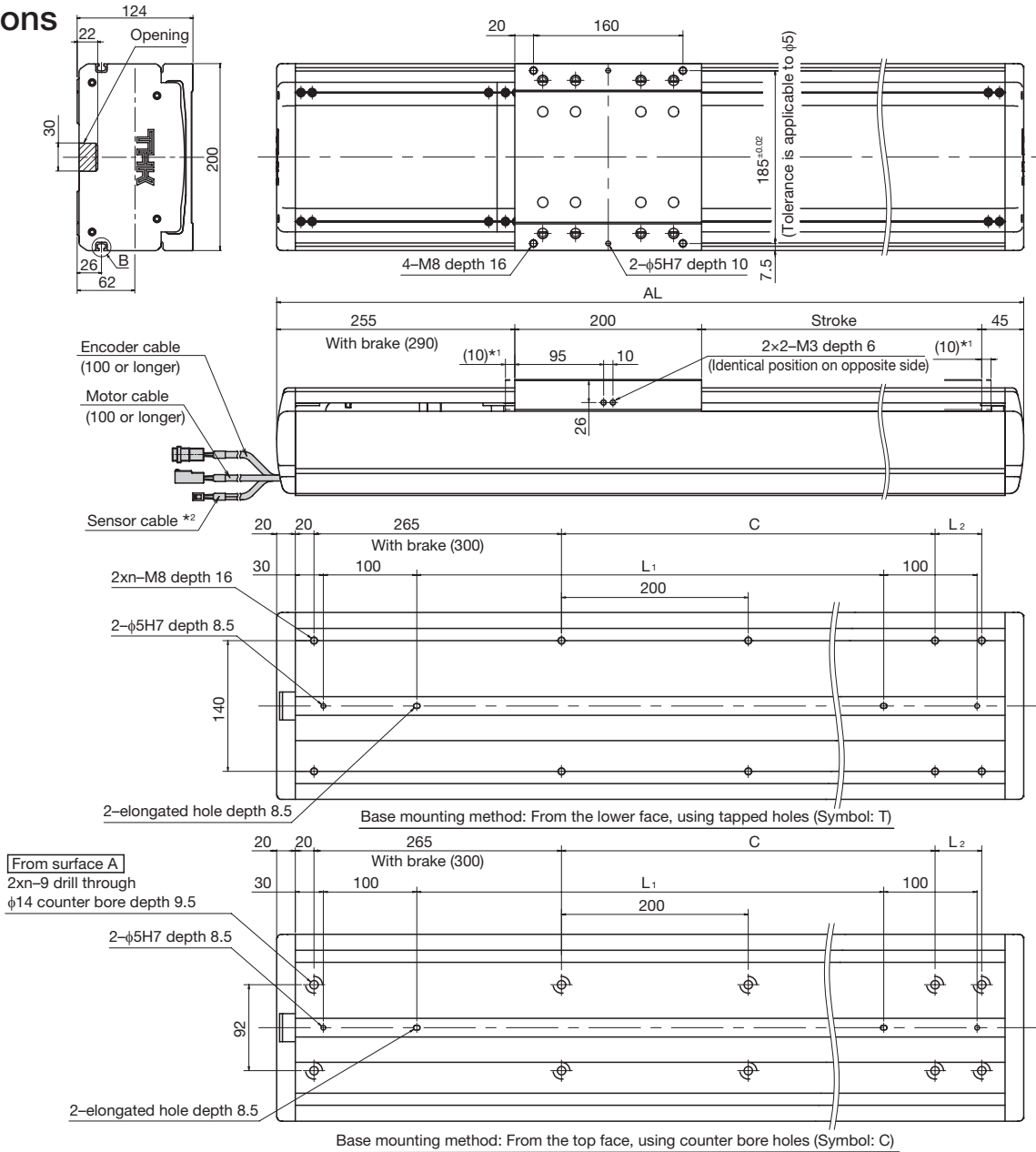
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
20	40	2640	950	1260	20	40	1180	920	2630	20	15	1700	1770
	80	1640	530	720		80	650	490	1590		30	1060	1100
	130	1100	320	450		130	390	290	1030		45	770	800
40	25	3000	1340	1750	40	25	1660	1320	3000	40	5	3000	3000
	50	2290	790	1070		50	990	770	2270		10	2160	2240
	70	1810	590	810		70	740	560	1770		20	1410	1470

*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 200mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

USW20T Direct motor coupling, 750W



Dimensions



*1 This is a stroke between mechanical stoppers.

*2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)
Maximum speed *1 *2 [mm/s]	Ball screw lead	1100												
	20mm	2200												
Dimensions [mm]	AL *3	700 (735)	750 (785)	800 (835)	850 (885)	900 (935)	950 (985)	1000 (1035)	1050 (1085)	1100 (1135)	1150 (1185)	1200 (1235)	1250 (1285)	1300 (1335)
	L1 *3	400 (435)	450 (485)	500 (535)	550 (585)	600 (635)	650 (685)	700 (735)	750 (785)	800 (835)	850 (885)	900 (935)	950 (985)	1000 (1035)
	L2	150	-	50	100	150	-	50	100	150	-	50	100	150
	C	200	400	400	400	400	600	600	600	600	800	800	800	800
Mounting hole count	n	4	4	5	5	5	5	6	6	6	6	7	7	7
Weight *3 [kg]		25.1 (26)	26.4 (27.3)	27.8 (28.7)	29.2 (30.1)	30.6 (31.5)	32.1 (33)	33.4 (34.3)	34.8 (35.7)	36.2 (37.1)	37.6 (38.5)	39.1 (40)	40.4 (41.3)	41.8 (42.7)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-070, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

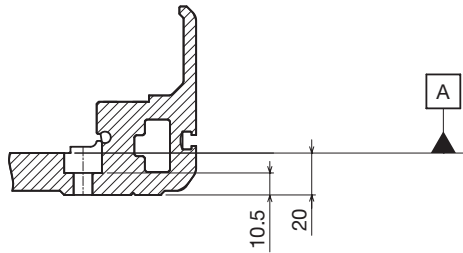
*3 Values when a brake is installed are shown in parentheses.

USW20T + THC

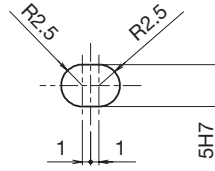


Motor rated output
750W

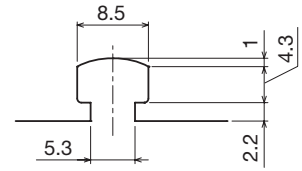
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)	1550 (1570)	1600 (1620)	1650 (1670)	1700 (1720)
	1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270
	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530
	1350 (1385)	1400 (1435)	1450 (1485)	1500 (1535)	1550 (1585)	1600 (1635)	1650 (1685)	1700 (1735)	1750 (1785)	1800 (1835)	1850 (1885)	1900 (1935)	1950 (1985)	2000 (2035)	2050 (2085)	2100 (2135)	2150 (2185)	2200 (2235)
	1050 (1085)	1100 (1135)	1150 (1185)	1200 (1235)	1250 (1285)	1300 (1335)	1350 (1385)	1400 (1435)	1450 (1485)	1500 (1535)	1550 (1585)	1600 (1635)	1650 (1685)	1700 (1735)	1750 (1785)	1800 (1835)	1850 (1885)	1900 (1935)
	-	50	100	150	-	50	100	150	-	50	100	150	-	50	100	150	-	50
	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800
	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12
	43.2 (44.1)	44.6 (45.5)	45.8 (46.7)	47.4 (48.3)	48.8 (49.7)	50.2 (51.1)	51.6 (52.5)	53.1 (54)	54.4 (55.3)	55.8 (56.7)	57.2 (58.1)	58.6 (59.5)	60.1 (61)	61.4 (62.3)	62.8 (63.7)	64.2 (65.1)	65.6 (66.5)	67.1 (68)

Universal series

USW20RT Motor wrap, 750W



ES/EC

KRF

US/USW

PCT/PC

Controller

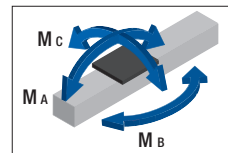
Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Sensor	Sensor mounting position	Base mounting method
USW20RT	20	0300	A	TH	6	SL	C
USW20RT	20: 20mm 40: 40mm	0200: 200mm to 1700: 1700mm	A	TH: THC	P Q N 6 E	No symbol: When selecting P, Q, or N SR SL	T: From underside of base (tapped holes) C: From top of base (counter-bore holes)

Basic Specifications

Control device type				THC	
Motor rated output [W]				750	
Ball screw lead [mm]				20	40
Rated speed *1 [mm/s]				1000	2000
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	130	70
		Vertical	0.3G	45	20
Rated thrust *3 [N]				603	302
Maximum thrust *4 [N]				1810	905
Electromagnetic brake retention [N]				603	302
Running life *5*6 [km]				20,000 (10,000)	
Static permissible moment *7 [N·m]				M _A : 1921, M _B : 793, M _C : 2221	
Positioning repeatability [mm]				±0.020	
Backlash [mm]				0.05	

Static permissible moment



*1 At rated motor speed (3,000 min⁻¹).
 *2 Load capacity and maximum speed are dependent on usage conditions. See page 3-070, "Speed and Load Capacity."
 *3 At rated motor torque.
 *4 Dependent on maximum motor torque and permissible load.
 *5 Conditions:
 Stroke: 200mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity
 Center of gravity: center of top surface of table.
 *6 10,000 km with ball screw lead 20 mm in vertical use.
 *7 Maximum permissible moment when unit is stationary. Moment standards: M_A and M_C: top of table; M_B: center of table.

USW20RT + THC



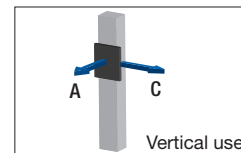
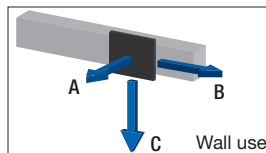
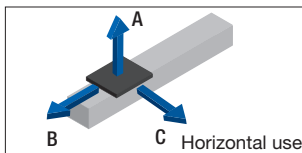
Motor rated output
750W

ES/EC
KRF
US/USW
PCT/PC
Controller

Motor bracket	Option	Motor rated output	Motor cable orientation	Home position	Power supply voltage	Cable type and length
A	MR-GR	M75	L	S02	D2	H5

A	MR: Motor right-turn folded	M75: 750W	R: Right	No symbol: When selecting P or Q	D2: 200V	F3 : Standard, 3m
	ML: Motor left-turn folded	M75B: 750W with brake	U: Up	S02 : Motor side (Home position sensor)		F5 : Standard, 5m
	GR: Gray end cap		L : Left	S03 : Opposite motor side (Home position sensor)		FA : Standard, 10m
	HG: Hanging jig		D: Down	D00: Motor side (Mechanical home seeking)		H3 : High flex, 3m
Note: If the GR is not included in the model configuration, cover will be red.				R00 : Opposite motor side (Mechanical home seeking)		H5 : High flex, 5m
						HA: High flex, 10m

Permissible Overhang Length*



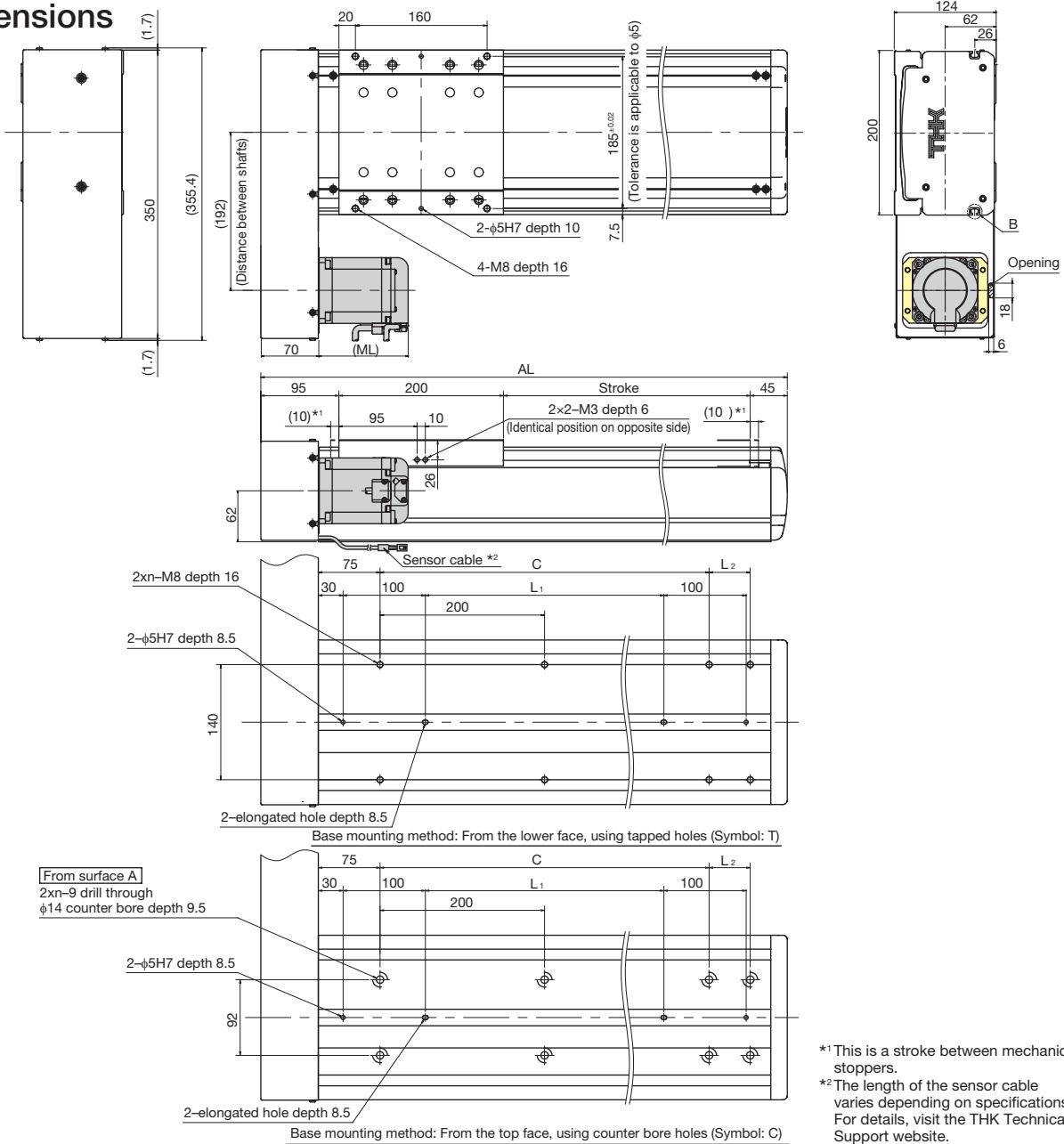
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]			
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C
20	40	2640	950	1260	20	40	1180	920	2630	20	15	1700	1770
	80	1640	530	720		80	650	490	1590		30	1060	1100
	130	1100	320	450		130	390	290	1030		45	770	800
40	25	3000	1340	1750	40	25	1660	1320	3000	40	5	3000	3000
	50	2290	790	1070		50	990	770	2270		10	2160	2240
	70	1810	590	810		70	740	560	1770		20	1410	1470

*Dependent on running life of LM guide (20,000km) and on static permissible moment.
 Conditions for calculation of the values above:
 Stroke: 200mm
 Acceleration and deceleration rate: 0.3G
 Maximum speed: maximum speed or top speed for stroke length and acceleration and deceleration rate
 Applied load: maximum load capacity.
 A, B, and C represent distances measured from the center of the top surface of the table.

USW20RT Motor wrap, 750W



Dimensions



*1 This is a stroke between mechanical stoppers.
 *2 The length of the sensor cable varies depending on specifications. For details, visit the THK Technical Support website.

Stroke [mm] (Stroke between mechanical stoppers)		200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)
Maximum speed *1 *2 [mm/s]	Ball screw lead	1100												
	20mm	2200												
Dimensions [mm]	AL	540	590	640	690	740	790	840	890	940	990	1040	1090	1140
	ML	108.7												
	ML: With brake	145.3												
	L ₁	190	240	290	340	390	440	490	540	590	640	690	740	790
	L ₂	150	-	50	100	150	-	50	100	150	-	50	100	150
Mounting hole count	C	200	400	400	400	400	600	600	600	600	800	800	800	800
	n	3	3	4	4	4	4	5	5	5	5	6	6	6
Weight *3 [kg]		27.3 (28.2)	28.6 (29.5)	29.9 (30.8)	31.3 (32.2)	32.7 (33.6)	34.1 (35)	35.4 (36.3)	36.7 (37.6)	38.1 (39)	39.4 (40.3)	40.8 (41.7)	42.1 (43)	43.5 (44.6)

*1 Load capacity and maximum speed are dependent on usage conditions. See page 3-070, "Speed and Load Capacity."

*2 Dependent on permissible rotational speed of ball screw.

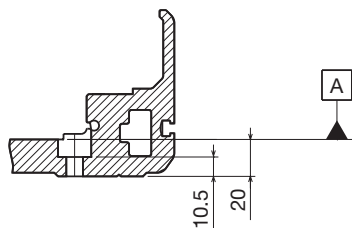
*3 Values when a brake is installed are shown in parentheses.

USW20RT + THC

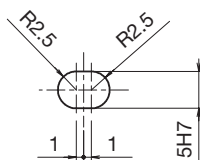


Motor rated output
750W

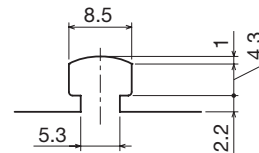
Detail



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

ES/EC

KRF

US/USW

PCT/PC

Controller

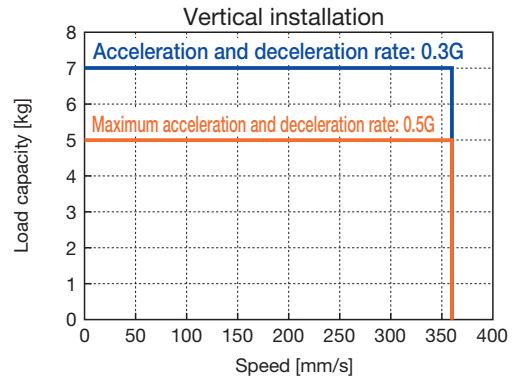
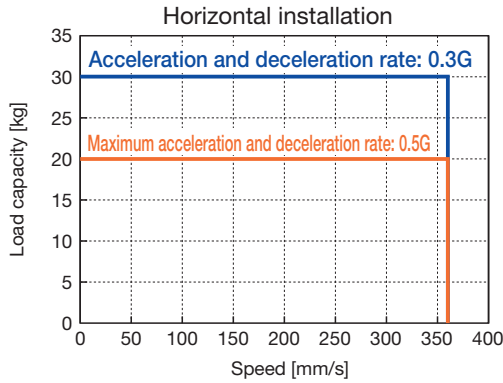
	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)	1550 (1570)	1600 (1620)	1650 (1670)	1700 (1720)
	1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270
	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530
	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690	1740	1790	1840	1890	1940	1990	2040
	108.7																	
	145.3																	
	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690
	-	50	100	150	-	50	100	150	-	50	100	150	-	50	100	150	-	50
	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800
	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
	44.8 (45.7)	46.2 (47.1)	47.6 (48.5)	48.9 (49.8)	50.2 (51.1)	51.6 (52.5)	52.9 (53.8)	54.3 (55.2)	55.6 (56.5)	56.9 (57.8)	58.3 (59.2)	59.7 (60.6)	61.1 (62)	62.4 (63.3)	63.7 (64.6)	65.1 (66)	66.4 (67.3)	67.8 (68.7)

Speed and Load Capacity

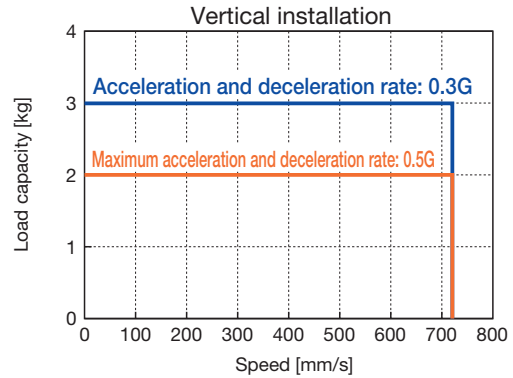
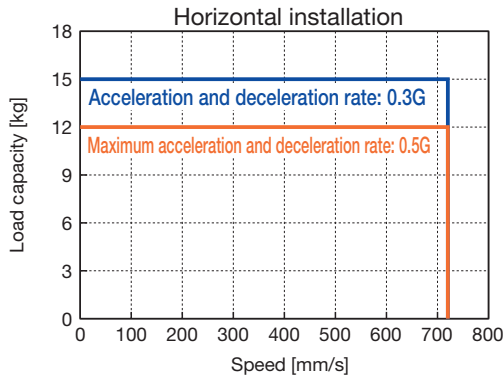
Load capacity and maximum speed vary depending on usage conditions. Conditions must be within the ranges shown below.

US6 (50W) with controller TLC

■ Lead 6mm

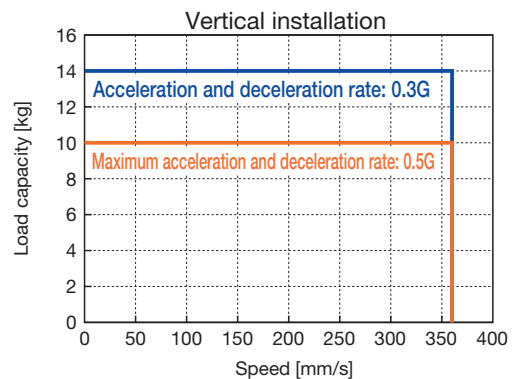
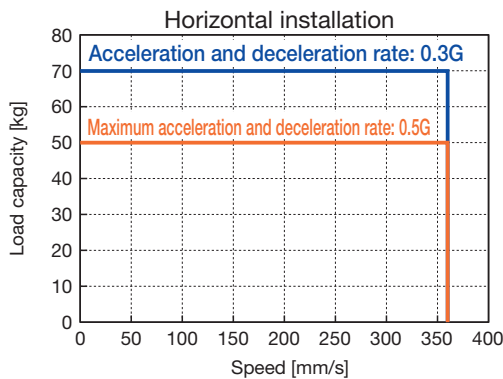


■ Lead 12mm

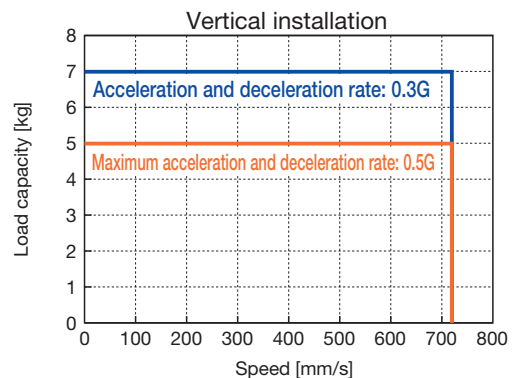
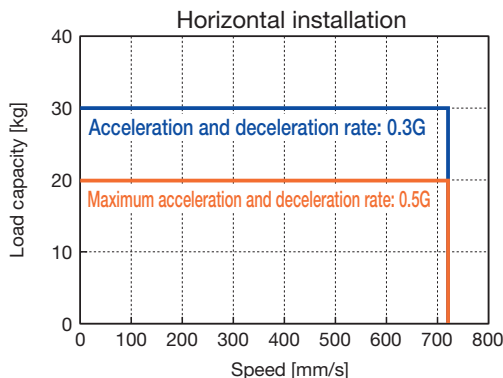


US6 (100W) with controller THC

■ Lead 6mm



■ Lead 12mm

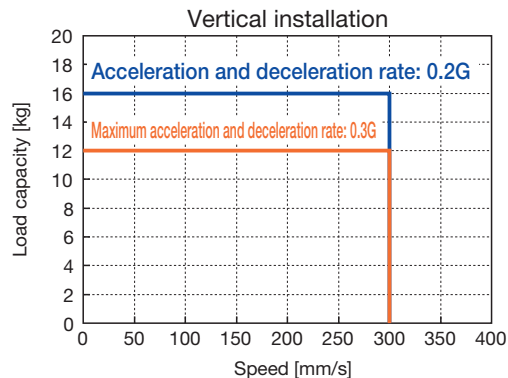
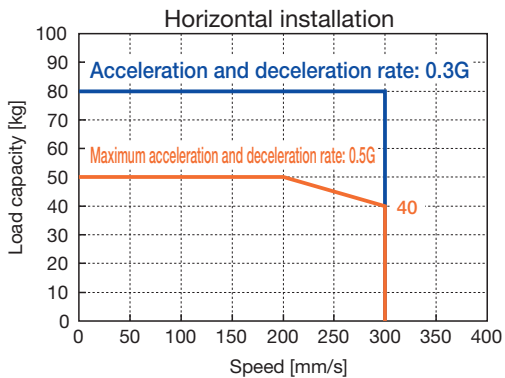


Load capacity and maximum speed vary depending on usage conditions. Conditions must be within the ranges shown below.

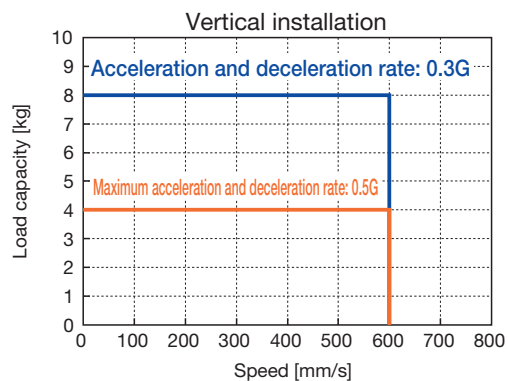
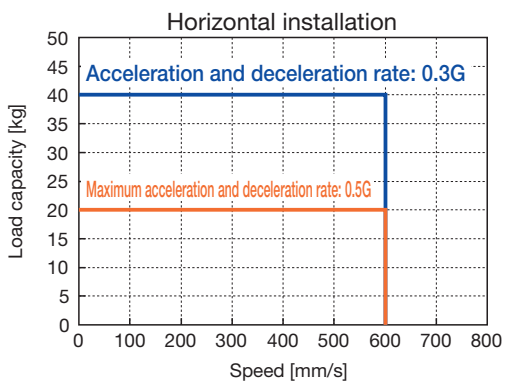
US8 (100W) with controller THC



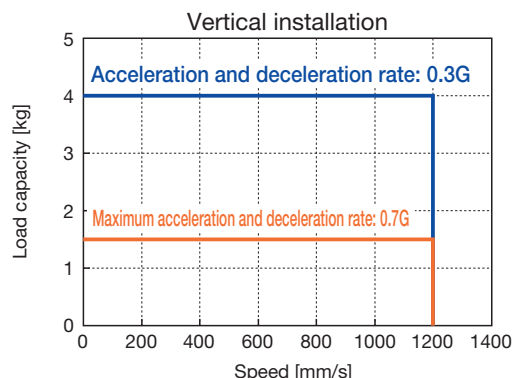
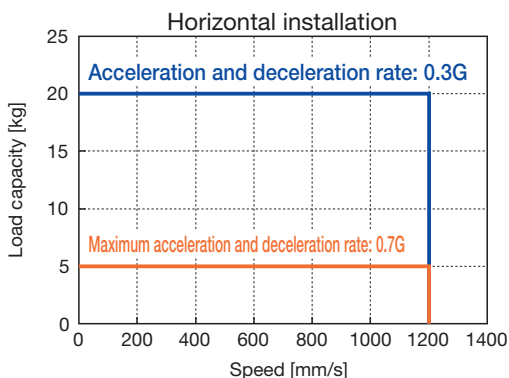
Lead 5mm



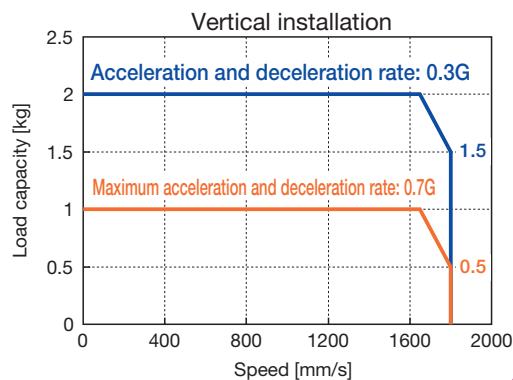
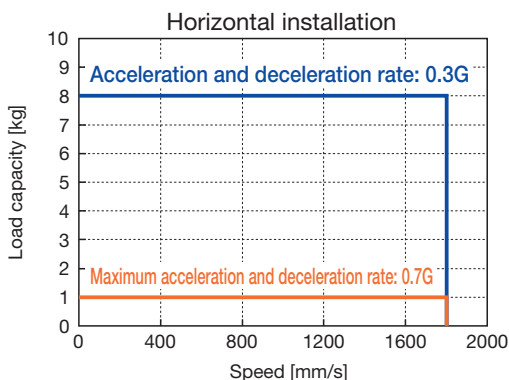
Lead 10mm



Lead 20mm



Lead 30mm

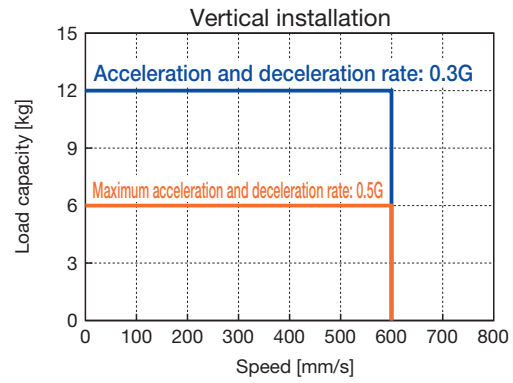
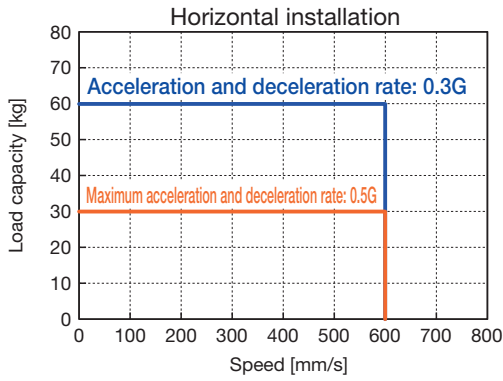


Load capacity and maximum speed vary depending on usage conditions.
Conditions must be within the ranges shown below.

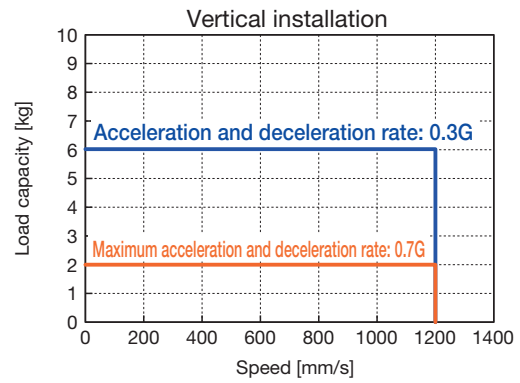
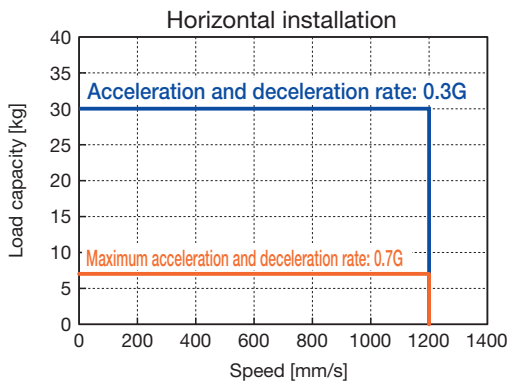
US8 (150W) with controller THC



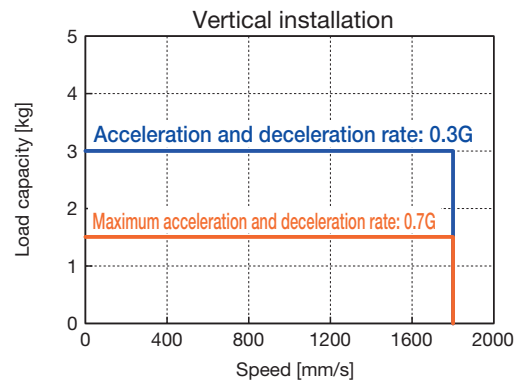
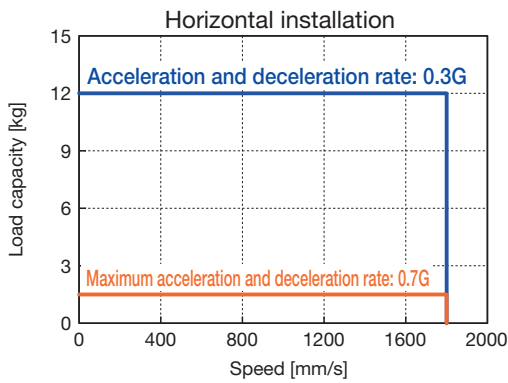
■ Lead 10mm



■ Lead 20mm



■ Lead 30mm



ES/EC

KRF

US/USW

PCT/PC

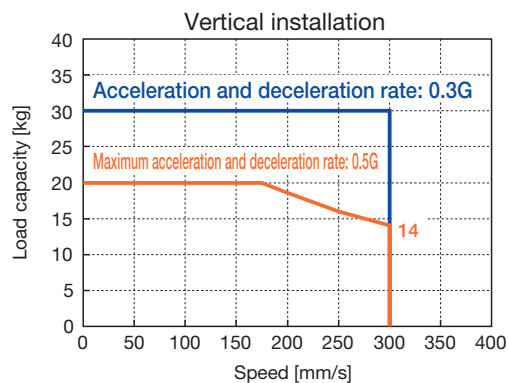
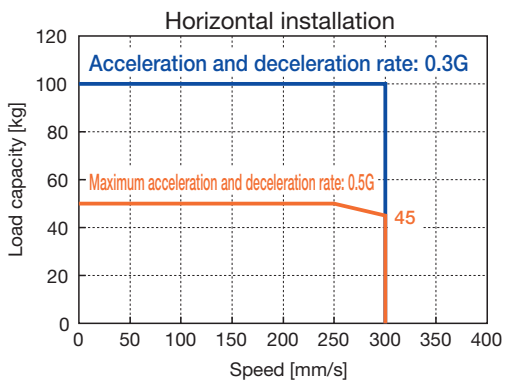
Controller

Load capacity and maximum speed vary depending on usage conditions. Conditions must be within the ranges shown below.

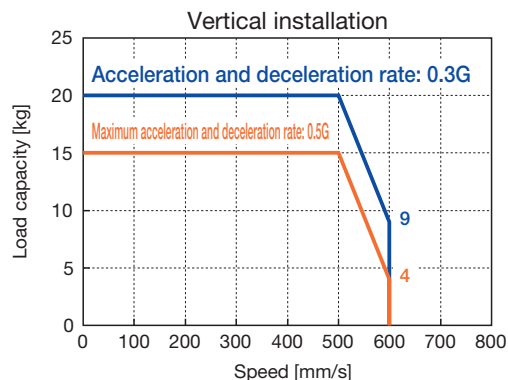
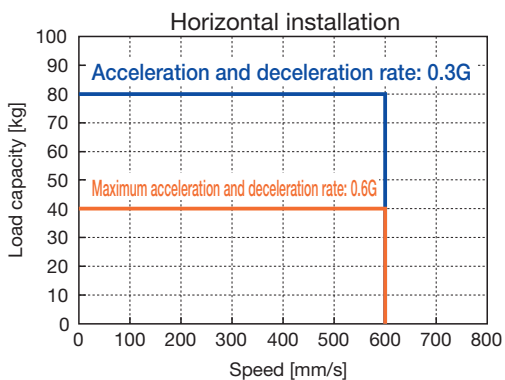
USW12 with controller THC



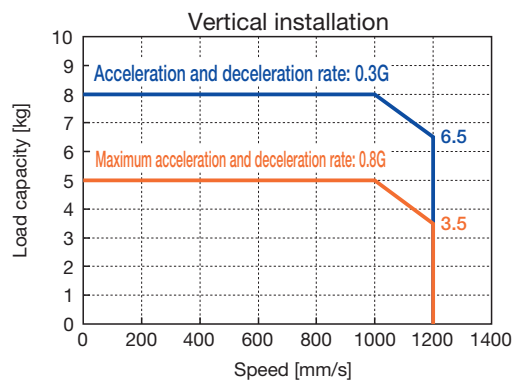
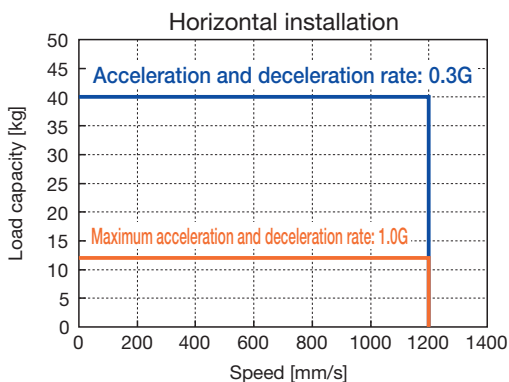
Lead 5mm



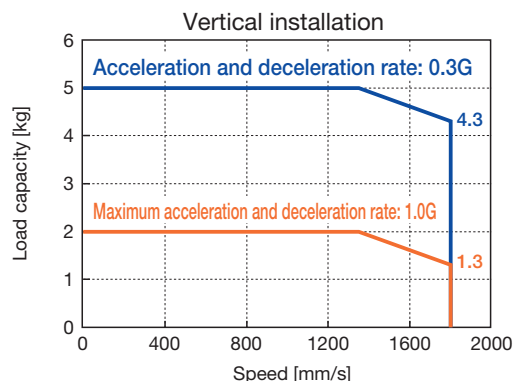
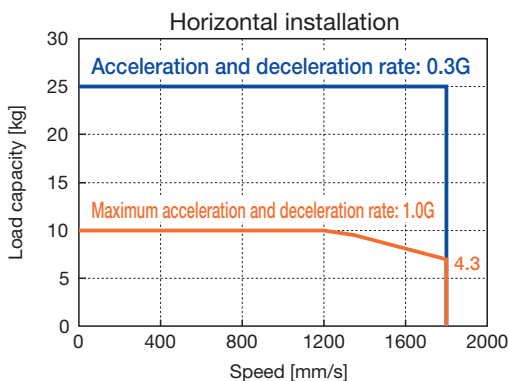
Lead 10mm



Lead 20mm



Lead 30mm

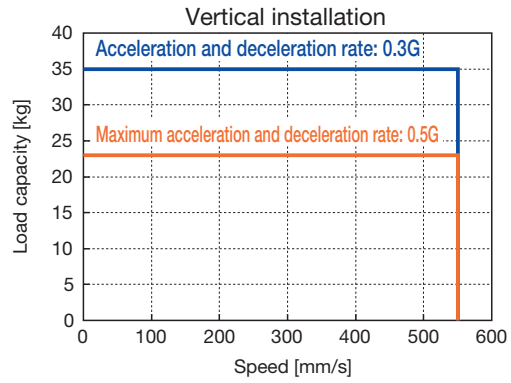
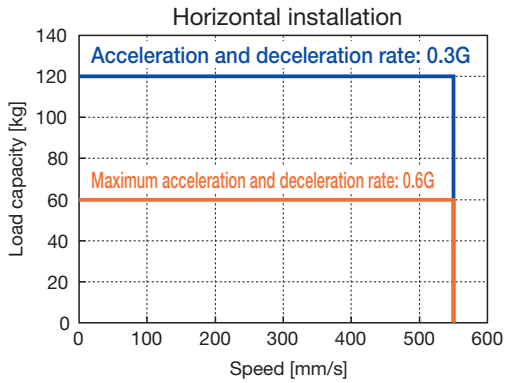


Load capacity and maximum speed vary depending on usage conditions.
Conditions must be within the ranges shown below.

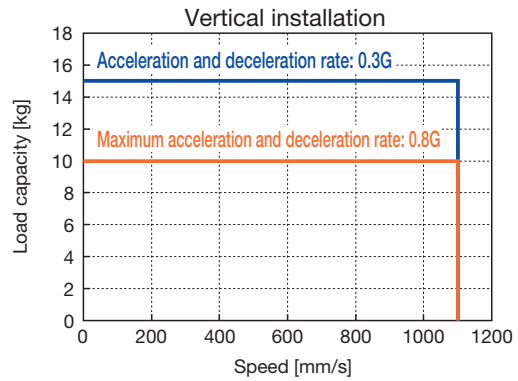
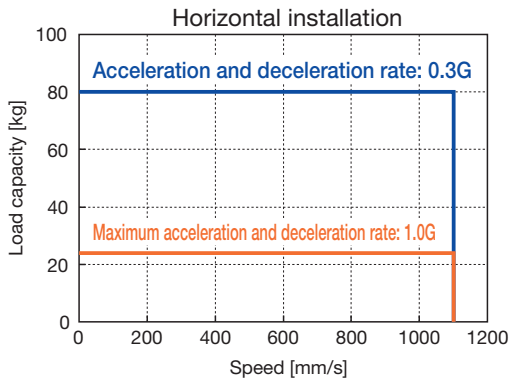
USW16 with controller THC



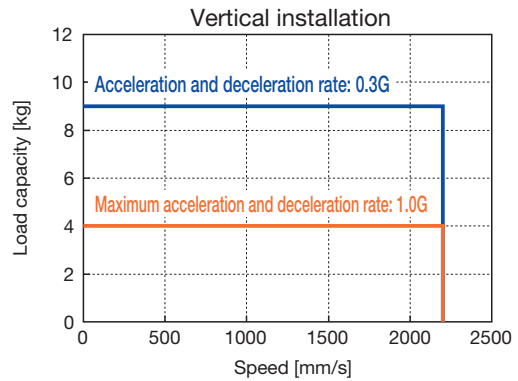
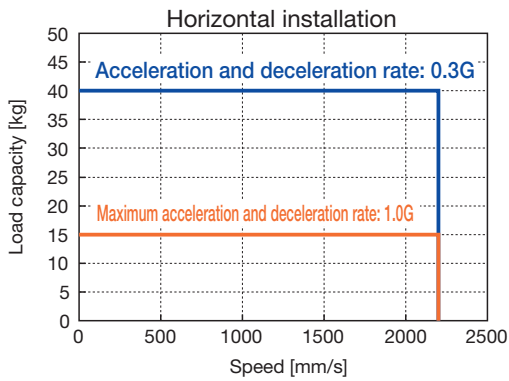
■ Lead 10mm



■ Lead 20mm



■ Lead 40mm



ES/EC

KRF

US/USW

PCT/PC

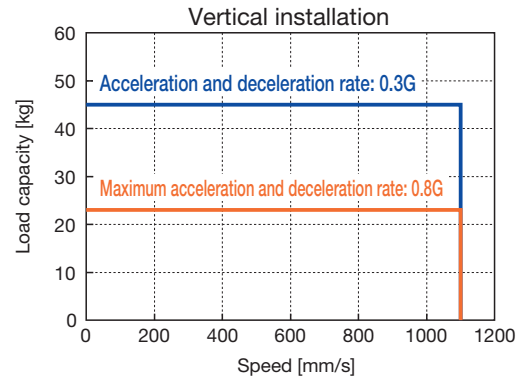
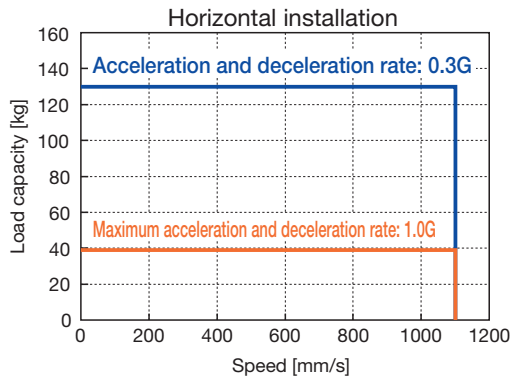
Controller

Load capacity and maximum speed vary depending on usage conditions.
Conditions must be within the ranges shown below.

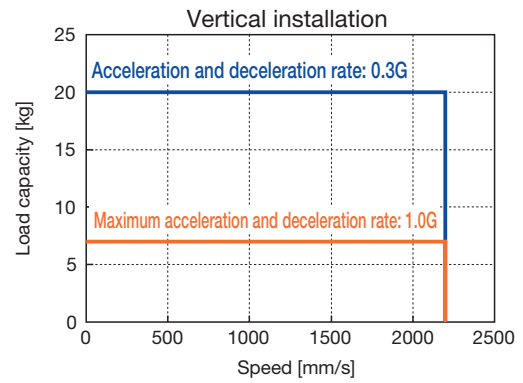
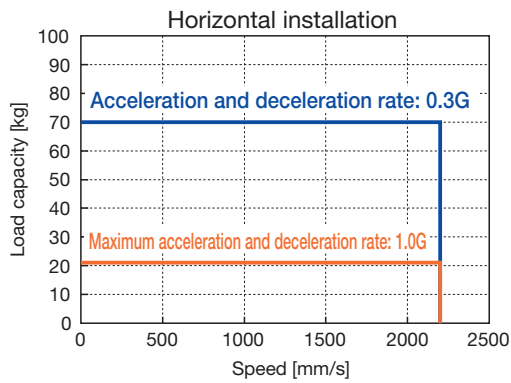
USW20 with controller THC



■ Lead 20mm



■ Lead 40mm



ES/EC

KRF

US/USW

PCT/PC

Controller

Sensors

Various types of sensors can be mounted using a T slot on the side surface of the base. Select a sensor by specifying the appropriate option symbol. The standard sensor is mounted inside the actuator.

Description	Type	Symbol
Standard US8 [x 1], USW12/16/20 [x 3] (Home position on motor side)	US8: APM-D3A1 (Azbil Corp.) USW12/16/20: EE-SX674 (Omron Corp.)	P
Standard US8 [x 1], USW12/16/20 [x 3] (Home position opposite motor side)	US8: APM-D3A1 (Azbil Corp.) USW12/16/20: EE-SX674 (Omron Corp.)	Q
None	-	N
Photo sensor [x 3], Connector [x 3]	EE-SX674 (Omron Corp.), EE-1001 (Omron Corp.)	6
Sensor N.O. contact [x 1] N.C. contact [x 2]	APM-D3A1 (Azbil Corp.) APM-D3B1 (Azbil Corp.)	E

N.O. contact: Normally open contact point

N.C. contact: Normally closed contact point

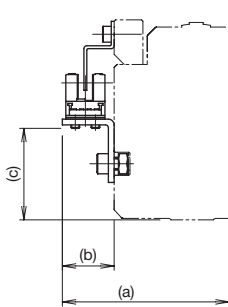
* The photo sensors can be switched between ON when lit and ON when unlit.

Notes:

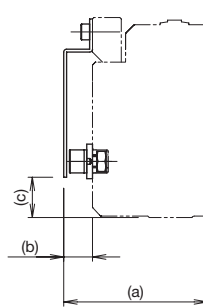
1. The standard sensor for US8 is APM-D3A1 (Azbil Corp.); the standard sensor for USW12/16/20 is EE-SX674 (Omron Corp.).
2. Non-standard sensors (symbol: 6, E) are mounted outside the cover.
3. When motor wrap is selected, a sensor cannot be mounted on the same side as the folded direction of the motor.
4. For closely grouped proximity sensors, the customer must provide sensors with variant frequencies (consult the respective manufacturer for sensor specifications).
5. The unit is shipped with sensors, mounting screws, detecting plates, and connectors mounted.
6. The standard sensor will not be mounted if a different sensor option is selected.

Sensor-mounting positions: dimensions

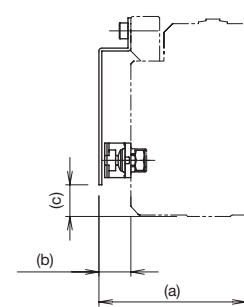
■US6/8



Symbol 6: EE-SX674 (Omron Corp.)

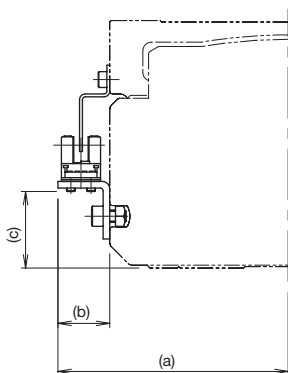


Symbol E: APM-D3** (Azbil Corp.)

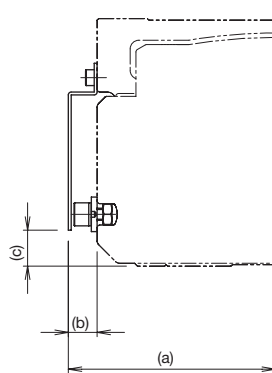


Symbol J, M: GX-F12*
(Panasonic Industrial Devices SUNX Co., Ltd.)

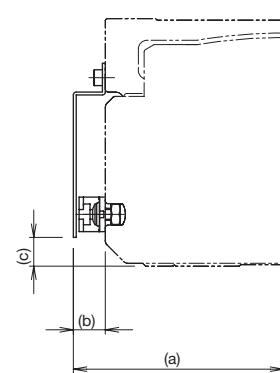
■USW12/16/20



Symbol 6: EE-SX674 (Omron Corp.)



Symbol E: APM-D3** (Azbil Corp.)



Symbol J, M: GX-F12*
(Panasonic Industrial Devices SUNX Co., Ltd.)

Model	a [mm]	b [mm]	c [mm]
US6	50.5	18	36.6
US8	58	18	31.8
USW12	80	18	26.6
USW16	98	18	30.6
USW20	118	18	34.6

Model	a [mm]	b [mm]	c [mm]
US6	43.5	11	23
US8	50	10	14
USW12	72	10	12.5
USW16	91	11	25.5
USW20	111	11	31

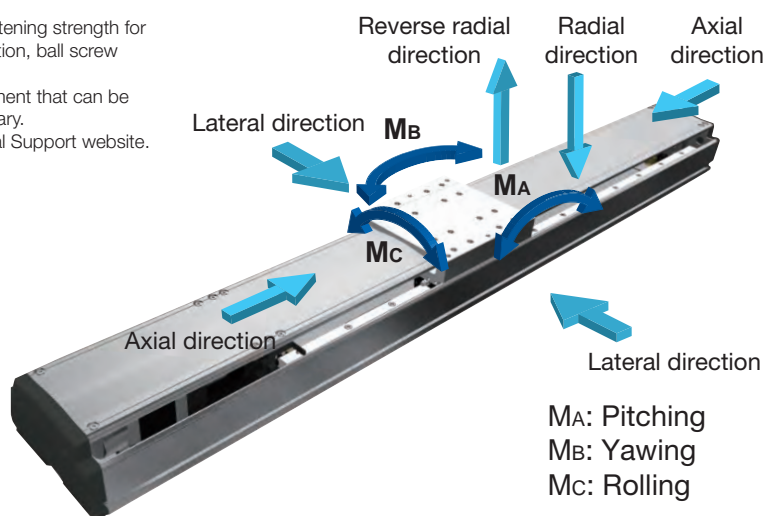
Model	a [mm]	b [mm]	c [mm]
US6	43.5	11	23
US8	51.1	11.1	11
USW12	73	11	10
USW16	92	12	29
USW20	112	12	33

Static Permissible Load and Static Permissible Moment

Model		US6	US8	USW12	USW16	USW20	
Static permissible load * ¹ [N]	Radial direction	17100	45400	96800	153600	209600	
	Reverse radial direction	16753	28599	14300	24007	24007	
	Lateral direction	3651	7520	3760	6488	6488	
	Axial direction	1740 (Direct motor coupling)	2095 (100W, direct motor coupling)		3330	3760	2571
			2689 (100W, motor wrap)				
1288 (Motor wrap)		1047 (150W, direct motor coupling)					
	1345 (150W, motor wrap)						
Static permissible moment * ² [N·m]	M _A	123	287	915	2161	1921	
	M _B	127	235	317	740	793	
	M _C	138	226	786	1681	2221	

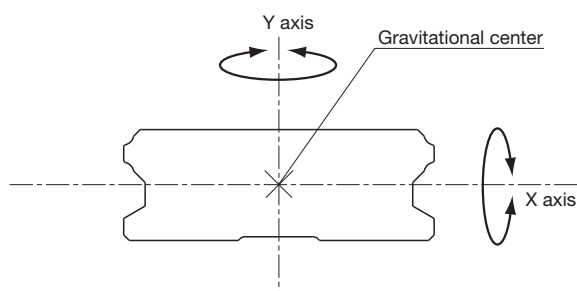
*¹ The static permissible load is determined by the tightening strength for bolts and the static load ratings of the LM guide portion, ball screw portion, and support bearing.

*² The static permissible moment is the maximum moment that can be applied in each direction while the product is stationary. For details on the nominal life, visit the THK Technical Support website.

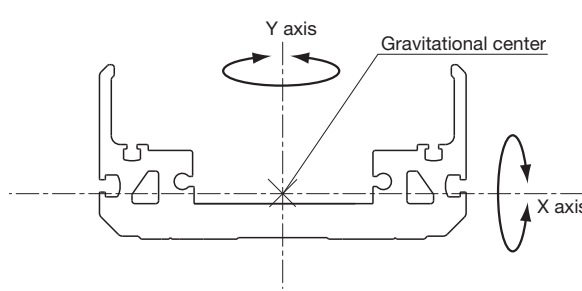


Geometrical Moment of Inertia

■ US6/8



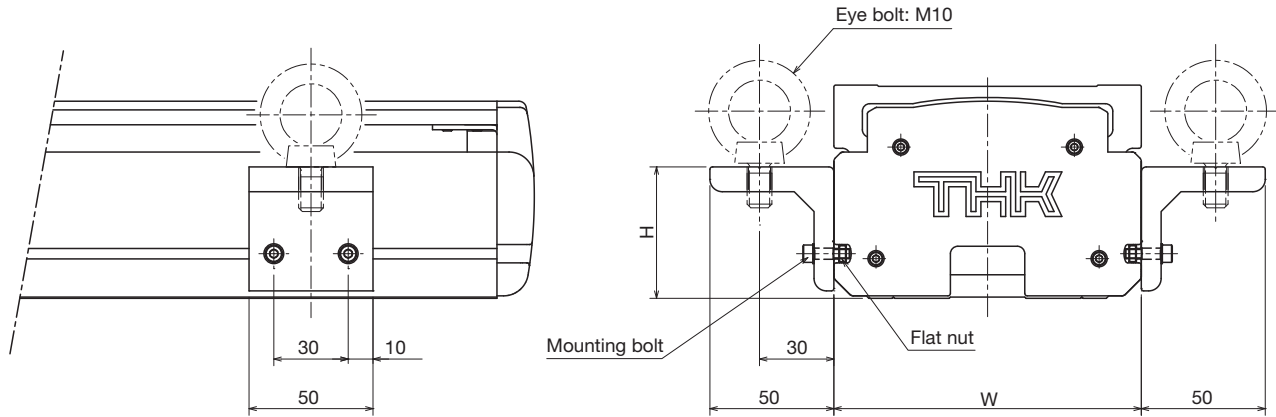
■ USW12/16/20



Model	I _x [mm ⁴]	I _y [mm ⁴]	Weight [kg/m]
US6	2.80×10 ³	5.20×10 ⁴	2.97
US8	1.11×10 ⁴	7.74×10 ⁴	4.61
USW12	4.07×10 ⁵	4.62×10 ⁶	6.67
USW16	1.27×10 ⁶	1.22×10 ⁷	11.55
USW20	2.19×10 ⁶	2.67×10 ⁷	16.06

Hanging Jig

ES/EC
KRF
US/USW
PCT/PC
Controller



[mm]

Model	W	H
USW12	124	53
USW16	160	52
USW20	200	56

Notes:

1. THK recommends using hanging jigs when the weight of the main actuator unit exceeds 20kg.
2. Hanging jigs are suitable for use with models USW12/16/20.
3. When the unit is shipped with hanging jigs mounted to the actuator, the customer must provide four M10 eyebolts (JIS B 1169 equivalent).
4. When the 6 E sensor option has been selected and the unit is shipped with hanging jigs mounted to the actuator, the sensor should be mounted at the end of the base on the motor side.
5. Hanging jigs can be ordered a separate item: Model USW __ -HANG (4 hanging jigs and 4 flat nuts). The customer must provide eight mounting bolts and four eyebolts.

Model	Recommended mounting bolt
USW12	Hexagonal-socket-head type bolt, M4-15L
USW16	Hexagonal-socket-head type bolt, M5-15L
USW20	Hexagonal-socket-head type bolt, M5-15L

ES/EC

KRF

US/USW

PCT/PC

Controller



Precautions on Use

● Application

- This product cannot be applied to any equipment or system that may be used under a life-threatening condition.
- When you consider using this product for special applications such as equipment/system for mobile vehicles, medical uses, aerospace, atomic energy and power plants, make sure to contact THK for applicability beforehand.

● Safety Precautions

- Before operation, please read thoroughly and obey "Manipulating industrial robots – Safety" (JIS B8433) and "Ordinance on Industrial Safety and Health" (Ministry of Health, Labor and Welfare).
- Read the manual carefully, understand the contents well, and strictly observe the safety precautions.
- Before performing installation, adjustment, checking, or services regarding the main actuator unit, controller and the relevant connected equipment, make sure to remove all power plugs from the outlet and apply locking or safety plugs so that nobody else can turn on the power. Also display a signboard showing that the work is ongoing at a prominent place.
- Do not touch the moving part of the actuator while it is energized. In addition, do not enter the operating area of the actuator while the product is operating or in the ready state.
- If two or more people are involved in the operation, confirm the procedures such as a sequence, signs and anomalies in advance, and appoint another person for monitoring the operation.
- Do not unnecessarily disassemble this product. Doing so may allow foreign materials to enter or deterioration of precision. Also this will cause the risk of electric shock from the controller.
- Take care not to drop or strike this product. Doing so may cause injury or damage the unit. If the product is dropped or impacted, functionality may be reduced even if there is no surface damage.
- Operation of the actuator over the permissible rotational speed may cause damage or an accident. Please keep the rotational speed within THK specifications.
- Prevent foreign material, such as dust or cutting chips, from entering the product. This could cause damage to ball recirculation components and loss of functionality.
- When planning to use the product in an environment where a coolant could penetrate the unit, contact THK.
- When there is any risk that the slider may collide with the stoppers attached to both ends of operable range, install some shock absorbing mechanism such as a shock absorber. The stoppers are not designed to absorb the impact generated by the collision of the slider. When the slider collides with a stopper during operation, it may cause damage or an accident.

● Environment

- An indoor location and ambient temperatures from 0 to 40°C, and humidity of 80%RH or below (no freezing or condensation).

Wrong environment can cause failures of the actuator and driver. The best place to use the product is as follows:

- A place free from corrosive gas and flammable gas.
- A place where vibration or impact is not transmitted to the unit.
- A place free from electrically conductive powder (such as iron powder), dust, oil mist, cutting fluid, moisture, salt, and organic solvent.
- A place free from direct sunlight and radiant heat.

- A place free from strong electric and magnetic fields.
- A place that is easily accessible for service and cleaning purposes.
- When using the product in locations exposed to constant vibrations or in special environments such as vacuum or abnormally high or low temperatures, contact THK in advance.

● Mounting Surface

- The surface should be the plane that has the precision of machining or the equivalent of that. Some products specify the required flatness.
When you wish to use the product with QZ in a position other than horizontal (such as wall mount and vertical posture), contact THK.

● Lubrication

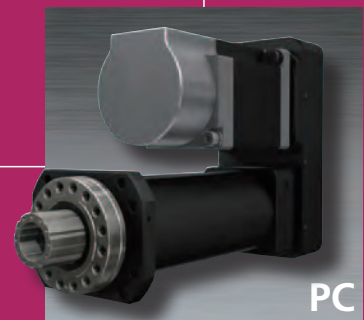
- In order to effectively use the actuator, lubrication is required. Insufficient lubrication may increase abrasion on the rolling part and cause early failure.
- Do not use a mix of lubricants with different physical properties. Note that encapsulated lubricant types vary depending on products.
- Please contact THK if using special lubricants.
- THK recommend the greasing interval to be approximately every 100km. However, it may vary depending on the usage conditions, so THK recommends determining a greasing interval during the initial inspection.
- If the product is to be used in a location exposed to vibrations or in a special environment such as vacuum, or abnormally high or low temperatures, or in a clean room, normal lubricants may not be used. Contact THK for details.
- When adopting oil lubrication method, contact THK.

● Storage

- When storing this actuator, enclose it in a package designated by THK and store it in a horizontal position away from abnormally high or low temperatures and high humidity.

Press series

Model: PCT/PC



**Corresponding
Controller**



Chapter 4

Features	4-003
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Series Specifications	4-007
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Model Configuration	4-009
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PCT Basic Specifications & Dimensions	4-011
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PC Basic Specifications & Dimensions	4-017
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Electrical Actuator
Press Series

PCT

Cylinder-type Actuator with Ball Screw

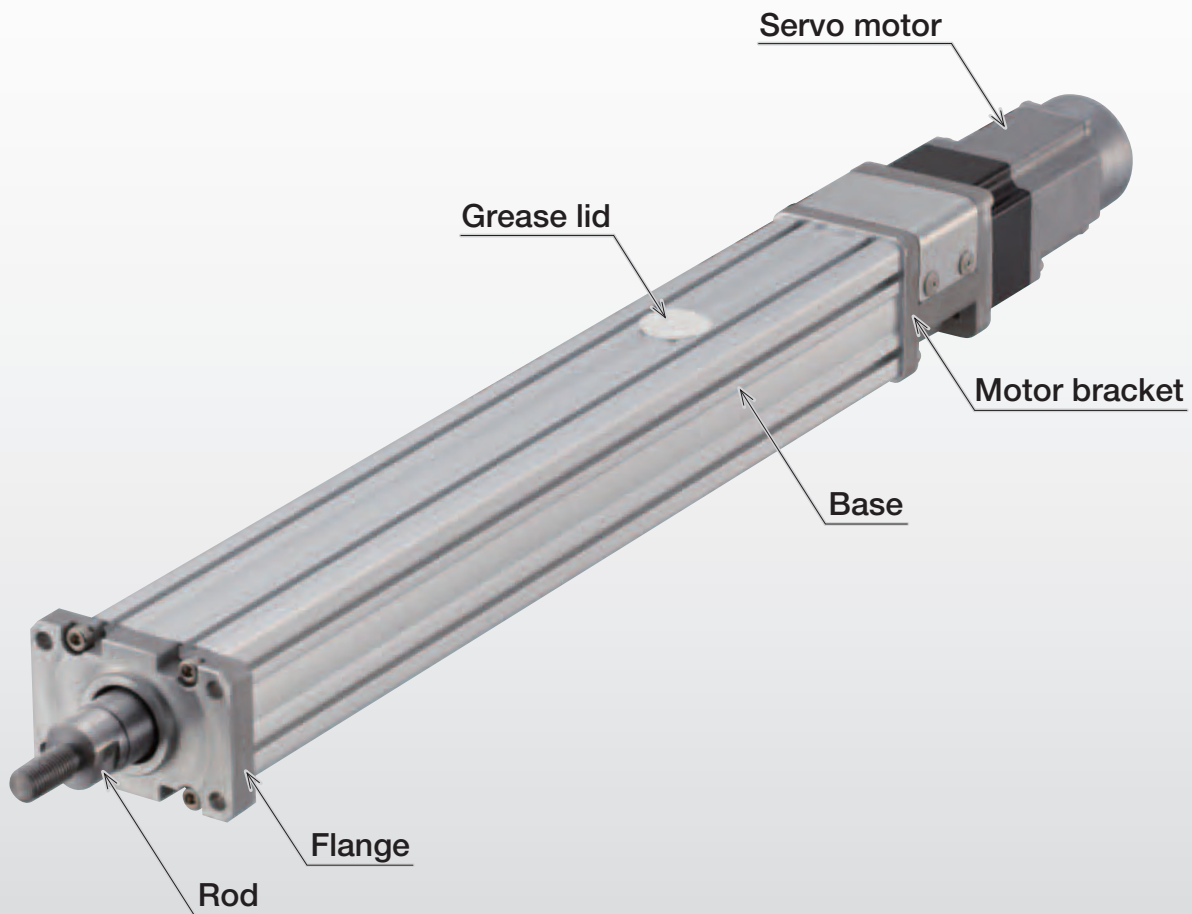
ES/EC

KRF

US/USW

PCT/PC

Controller



Features

Press actuator

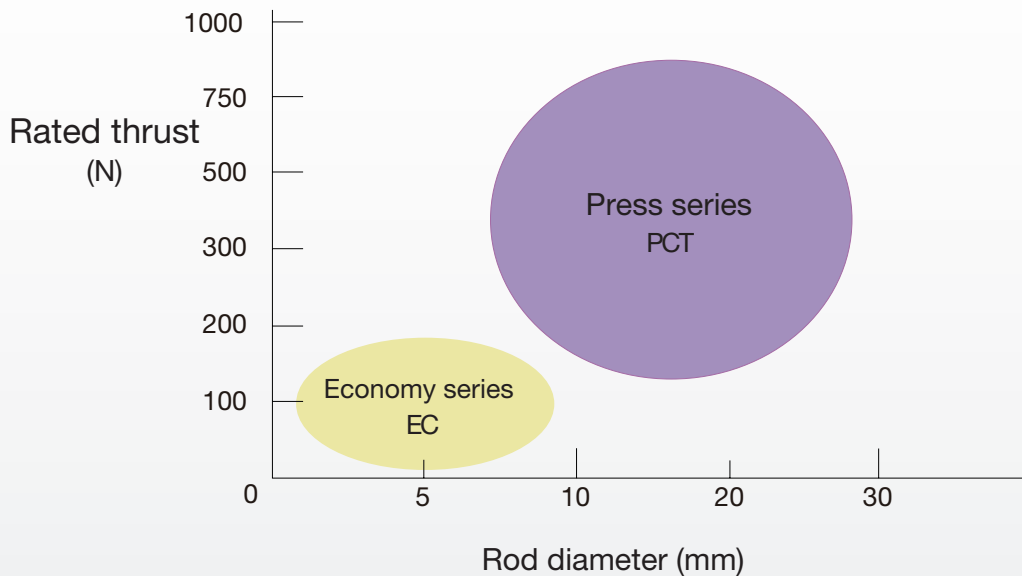
This actuator offers superior axial load rigidity and thus available for use in a small press fitting and caulking machine.

Motorized

A motorized mechanism is employed instead of an air cylinder, reducing process time, increasing accuracy, and providing multi-point positioning, for improved productivity.

Many possible variations

A combination of ball screw lead and motor capacity allows you to select products suited to your needs from five types of variations with rated thrusts ranging from about 100 to 800N.

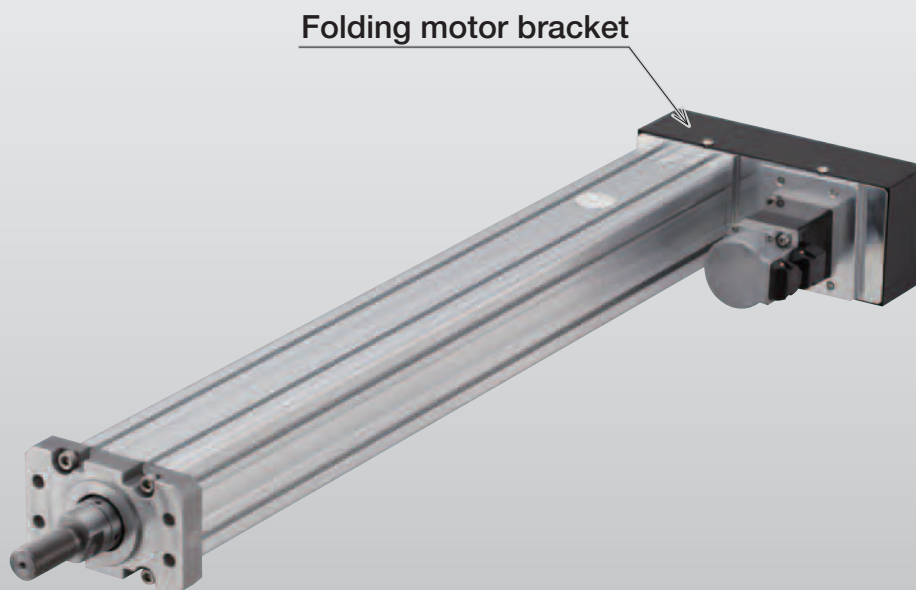


Flexible device design

PCT can support any installation direction through the use of a flange or T slot on the main unit.

Motor installation is also possible by direct coupling or return.

(When a radial load and moment load are applied to the rod, a guide must be installed separately.)



Motor Wrap-type Unit

Electrical Actuator
Press Series

PC

Compact, High-precision, High-rigidity Servo Press Actuator

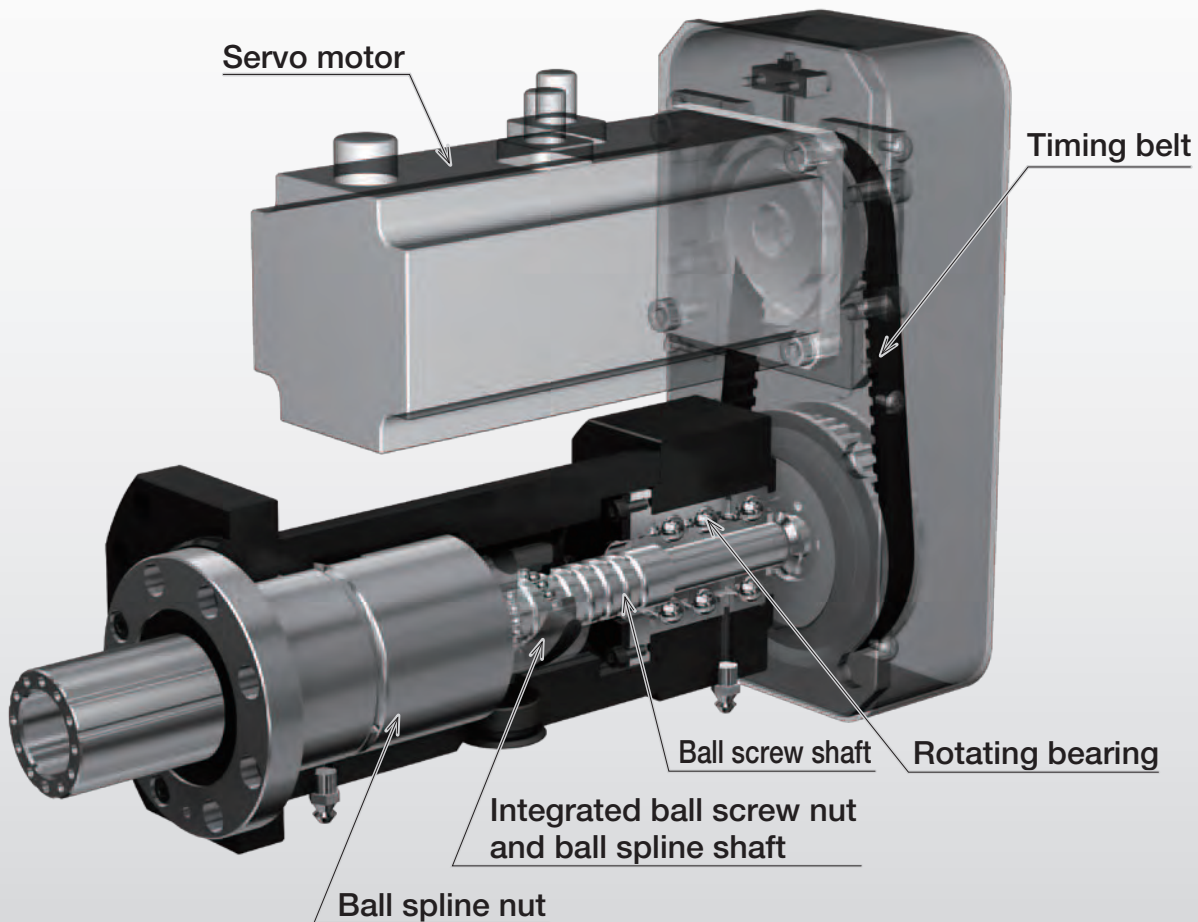
ES/EC

KRF

US/USW

PCT/PC

Controller

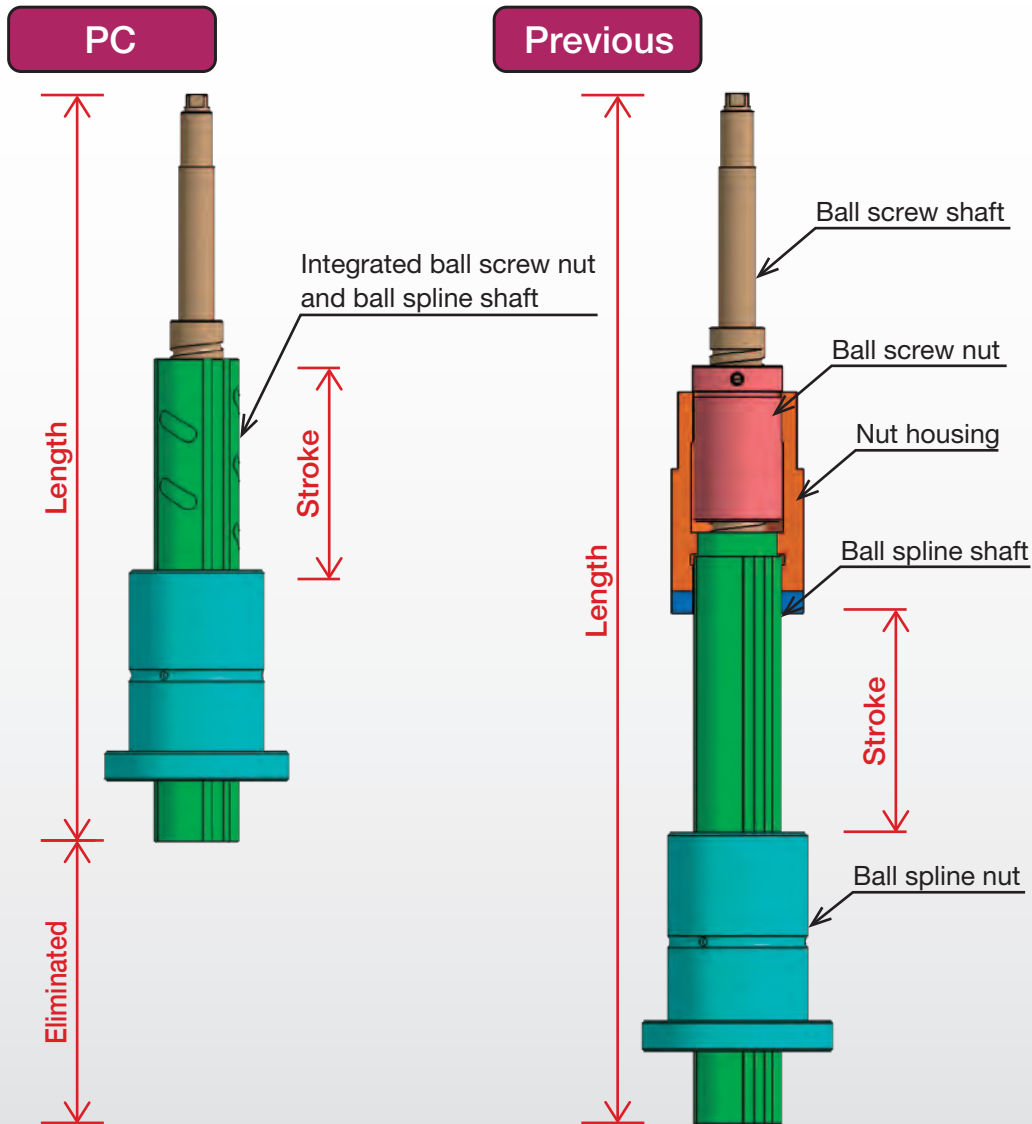


A servo press actuator with a new structure incorporating a precision ball screw nut and ball spline shaft, providing a compact unit that delivers high thrust.

Features

Compact structure

The new integrated structure, incorporating a precision ball screw nut and ball spline shaft, significantly reduces the product length, making the unit much more compact.



30% less length (when stroke is 50mm)
(Compared to our previous product)

Designed to withstand compressive loads

The bearing arrangement provides high resistance against compressive loads.

High load capacity

The ball screw shaft diameter and loaded circuitry have been maximized to enable high load capacity.

High rigidity

The Ball Spline Model LF enables smooth movement without clearance, providing a guide with high rigidity.

High feed precision

The feed mechanism employs a precision ball screw, providing superior feed precision.

Controllers

TLC



Operation method	Position
Step data count *1	512
Input power supply	24VDC
Network *2	-

*1 Varies depending on function mode.
*2 For information on network support, visit the THK Technical Support website: <https://tech.thk.com/>.

THC



Operation method		Position
Step data count *1		512
Input power supply *2	Main circuit	100VAC single-phase 200VAC single-phase
	Control circuit	100VAC single-phase 200VAC single-phase
Network *3		-

*1 Varies depending on function mode.
*2 When 750W is selected for the motor rated output, specification for power supply voltage is limited to 200V type.
*3 For information on network support, visit the THK Technical Support website: <https://tech.thk.com/>.

Series Models

Model	PCT20(R)	PCT25(R)		PC30	PC40
Combined control device	TLC	THC			
Motor rated output	50W	100W	200W	400W	750W
Operation method	Position (pressing operation)				
Control axis count	1				
Input power supply	24VDC	100VAC or 200VAC			200VAC
Encoder method	Absolute (incremental)				
Control axis count	1				
Step data count *1	512				

- Selectable function modes
- Up to 50 alarms in alarm history (including power ON)
- Absolute supported

*1 Varies depending on function mode.

Function Modes

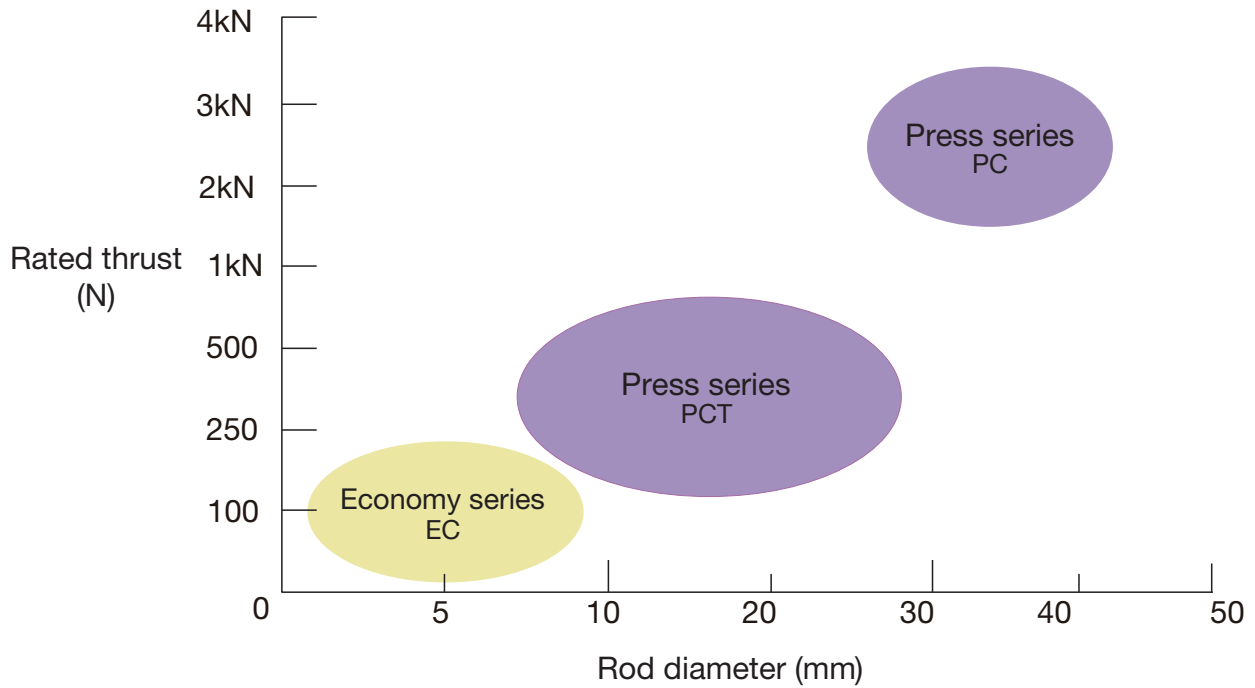
Six modes are provided to support various requirements and purposes.

Function mode		Overview	Step data count	Pressing operation
Multi-point positioning	0: 64-position	Multi-point positioning operation with 64 points With area output, with P area output	64	○
	1: External unit input instruction	Multi-point positioning operation with 64 points I/O-based external unit instruction mode Without area output, with P area output	64	-
	2: 256-position	Multi-point positioning operation with 256 points Without area output, with P area output	256	○
	3: 512-position	Multi-point positioning operation with 512 points Without area output, without P area output	512	○
Electromagnetic valve	4: Solenoid mode 1	Multi-point positioning operation with 7 points Direct move command input With area output, with P area output	7	○
	5: Solenoid mode 2	Multi-point positioning operation with 3 points Direct move command input With position sensor auto-switch output, area output, and P area output	3	-

For information on network support, visit the THK Technical Support website: <https://tech.thk.com/>.

Specifications

Cylinder-type Products



ES/EC

KRF

US/USW

PCT/PC

Controller

PCT

Model	Motor rated output [W]	Rated thrust [N]	Maximum speed [mm/s]	Maximum stroke [mm]	Generated thrust [N]						
					0	100	250	500	1000	1500	2500
PCT20-06N	50	133	300	200							
PCT20R-06N											
PCT25-06N	100	266	300	300							
PCT25R-06N											
PCT25-04N		400	200	300							
PCT25R-04N											
PCT25-06N	200	536	300	300							
PCT25R-06N											
PCT25-04N		804	200	300							
PCT25R-04N											

Rated thrust

Instantaneous maximum thrust

Note: Contact THK before attempting a pressing operation with generated thrust above the rated thrust and below the instantaneous maximum thrust.

PC

Model	Motor rated output [kW]	Rated thrust [kN]	Maximum speed [mm/s]	Maximum stroke [mm]	Generated thrust [kN]										
					0	1	2	3	7.5	10	15	20	30	40	
PC30-06A	0.4	1.6	210	250											
PC40-06B	0.75	3.2	200												

Rated thrust

Instantaneous maximum thrust

Note: Contact THK before attempting a pressing operation with generated thrust above the rated thrust and below the instantaneous maximum thrust.

Model Configuration with Servo Driver Controller TLC/THC

Model	Lead, reduction ratio	Stroke	Options	Control device	Motor cable orientation
PCT25R	06N	0300	R	TH	R
(1)	(2)	(3)	(4)	(5)	(6)
PCT20	04N	0050: 50mm	N: Direct coupling	TL: TLC	U: Up
PCT25	06N	0100: 100mm	D: Down	TH: THC	D: Down
PCT20R	06A	0150: 150mm	L: Left		L: Left
PCT25R	06B	0200: 200mm	R: Right		R: Right
PC30		0250: 250mm			
PC40		0300: 300mm			

R for PCT represents motor wrap.

These symbols represent lead and reduction ratio. For PCT, folded motor configuration is limited to reduction ratio 1/1. Select from the table below.

Select options from the table below. PCT: Select either direct motor coupling or motor wrap. PC: Select greasing position.

Select cable orientation from the table on page 4-010.

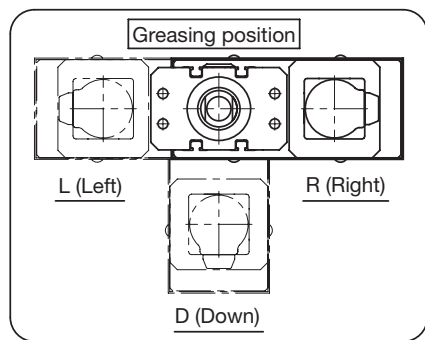
Combinations

Model (1)	Lead, reduction ratio (2)	Stroke (3)	Control device (5)	Motor rated output (7)		Home position method (8)	Power supply voltage (9)
PCT20 PCT20R	06N	0050-0200	TL: TLC	M05 M05B	50W	D00: Motor side or R00: Reverse motor side	DC: 24VDC
PCT25 PCT25R	06N or 04N	0050-0300	TH: THC	M10 M10B	100W		D1: 100V or D2: 200V
PC30	06A	0050-0250	TH: THC	M40 M40B	400W	D00: Motor side	D1: 100V or D2: 200V
PC40	06B			M75 M75B	750W		D2: 200V

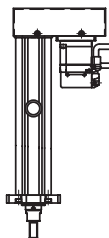
Options: Motor folded direction or greasing position

PCT: Select folded direction

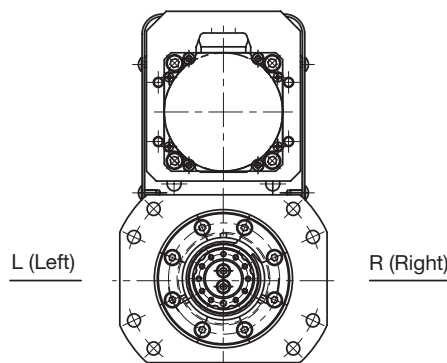
PC: Select greasing position



(Seen from side A)



A

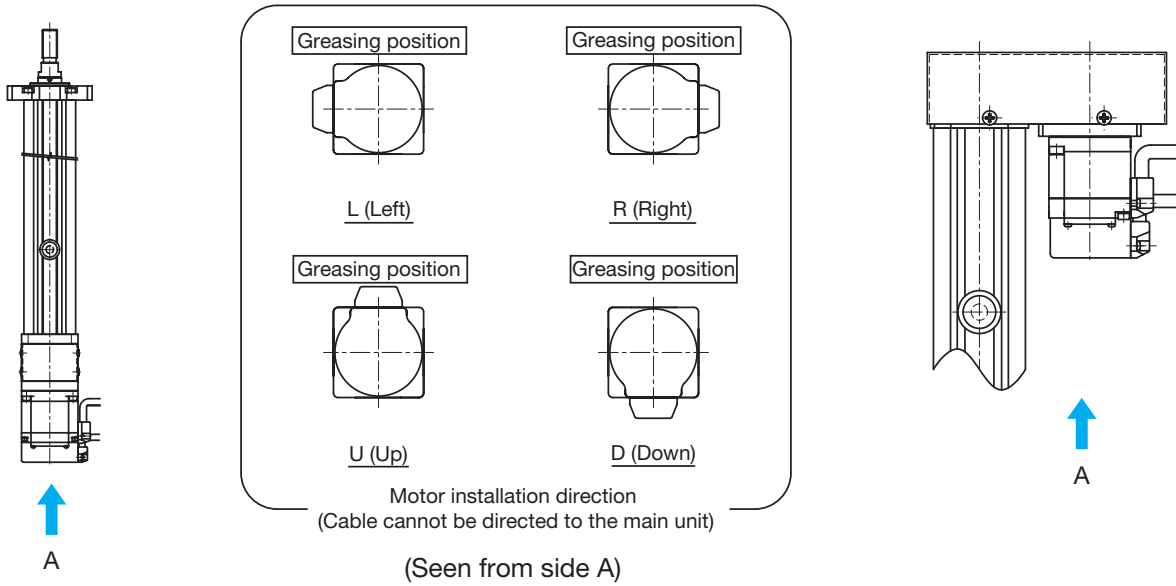


D (Down)

Motor rated output	Home position method	Power supply voltage	Cable type and length
M20B (7)	D00 (8)	D2 (9)	F3 (10)
M05 : 50W M10 : 100W M20 : 200W M40 : 400W M75 : 750W M05B : 50W with brake M10B : 100W with brake M20B : 200W with brake M40B : 400W with brake M75B : 750W with brake	D00: Motor side R00: Reverse motor side	DC: 24VDC D1 : 100V D2 : 200V	F3 : Standard, 3m F5 : Standard, 5m FA : Standard, 10m H3 : High flex, 3m H5 : High flex, 5m HA : High flex, 10m
Select motor rated output, home position method, and power supply voltage from the Combinations table.			
Select a type and length of motor, encoder, and brake cable.			

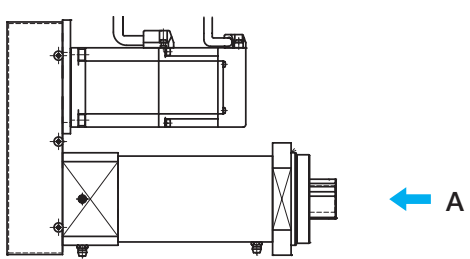
Motor cable orientation when directly coupled (PCT)

Motor cable orientation when folded (PCT)



Motor cable orientation (PC)

Motor cable orientation	Up	Left	Right
Symbol	U	L	R
Motor cable orientation (Seen from side A)			



ES/EC
KRF
US/USW
PCT/PC
Controller

PCT20

Press series

Rod diameter: 20mm, Direct motor coupling, 50W type

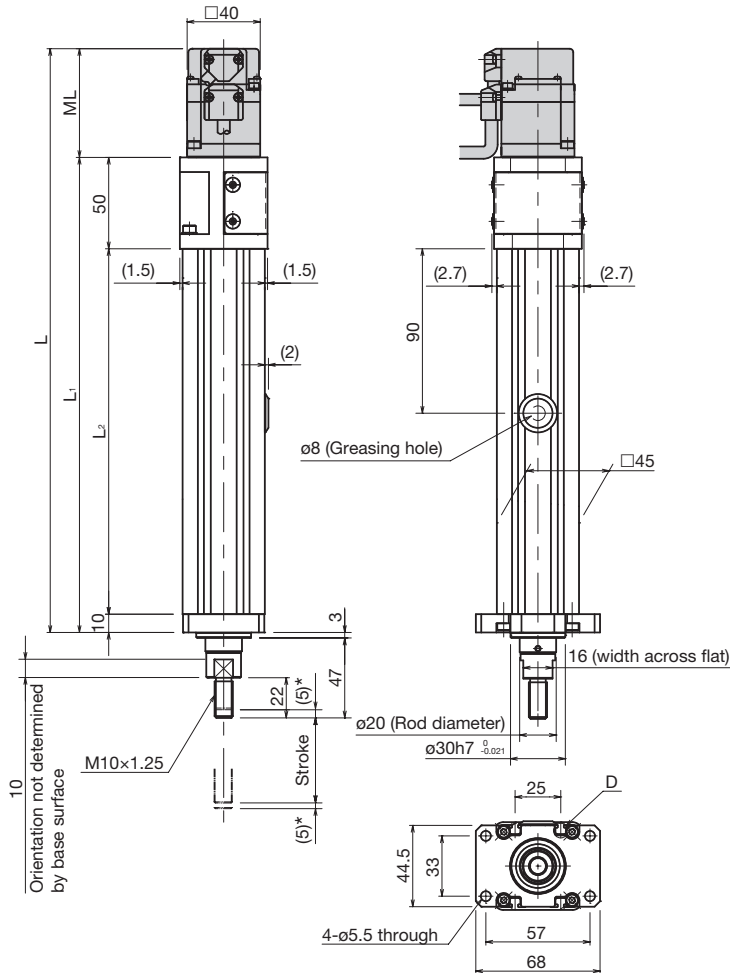


Specifications

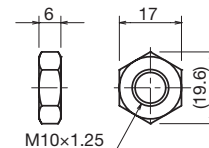
Motor rated output [W]	50	
Ball screw lead [mm]	6	
Rated thrust *1 [N]	133	
Instantaneous maximum thrust *2 [N]	402	
Brake retention [N]	133	
Rated speed *3 [mm/s]	300	
Positioning repeatability [mm]	±0.010	
Lost motion [mm]	0.1	
Rod non-rotational accuracy [°]	±1	
Maximum load capacity *4 [kg]	Acceleration and deceleration rate Horizontal 0.3G	20
	Vertical 0.3G	5
Running life *5 [km]	5000	

- *1 At rated motor torque.
- *2 Dependent on permissible axial load.
- *3 At rated motor speed.
- *4 At rated speed.
- *5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

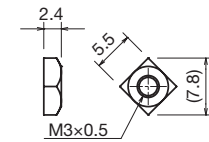
Dimensions



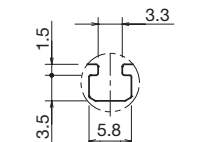
Direct motor coupling type with motor cable orientation right (R).



Hexagonal Nut (x1)



Square Nut (x8)



Section D (detail)

* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300		230	
Dimensions *2 [mm]	L	319.5 (355.1)	369.5 (405.1)	419.5 (455.1)	469.5 (505.1)
	L ₁	260	310	360	410
	L ₂	200	250	300	350
	ML	59.5 (95.1)			
Weight *2 [kg]	With motor	1.9 (2.1)	2.1 (2.3)	2.3 (2.5)	2.5 (2.7)

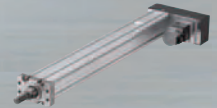
*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when brake is installed are shown in parentheses.

PCT20R

Press series

Rod diameter: 20mm, Motor wrap, 50W type

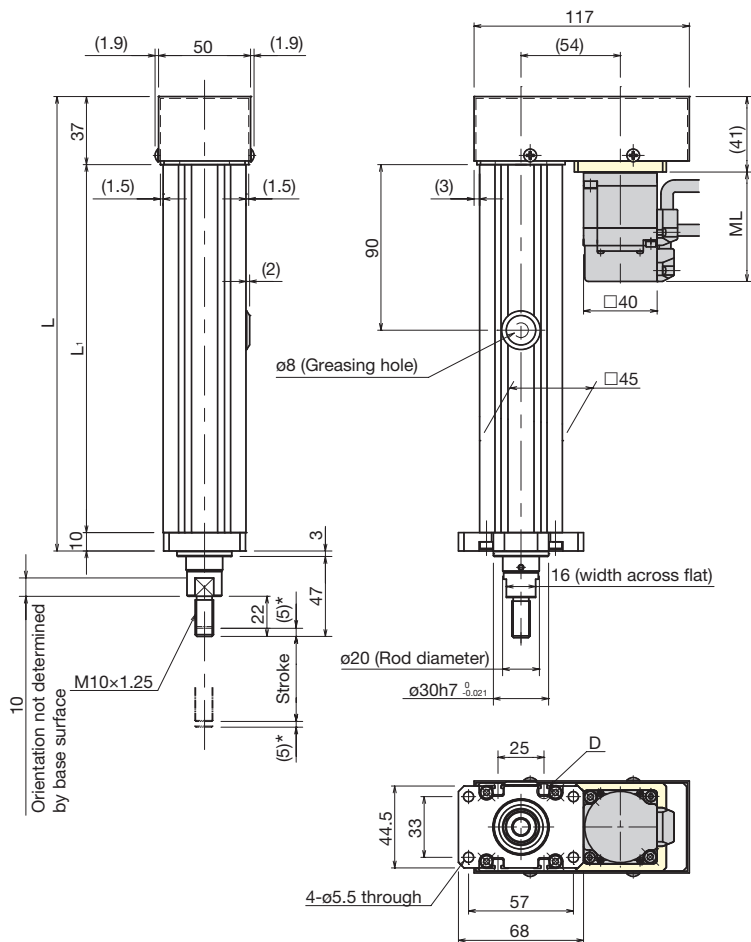


Specifications

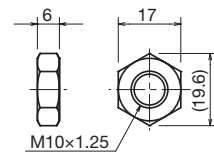
Motor rated output [W]	50		
Ball screw lead [mm]	6		
Rated thrust *1 [N]	133		
Instantaneous maximum thrust *2 [N]	402		
Brake retention [N]	133		
Rated speed *3 [mm/s]	300		
Positioning repeatability [mm]	±0.010		
Lost motion [mm]	0.1		
Rod non-rotational accuracy [°]	±1		
Maximum load capacity *4 [kg]	Acceleration and deceleration rate Horizontal	0.3G	20
	Vertical	0.3G	5
Running life *5 [km]	5000		

- *1 At rated motor torque.
- *2 Dependent on permissible axial load.
- *3 At rated motor speed.
- *4 At rated speed.
- *5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

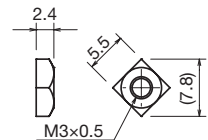
Dimensions



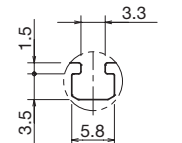
Motor wrap type with motor cable orientation right (R).



Hexagonal Nut (x1)



Square Nut (x8)



Section D (detail)

* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm		300		230
Dimensions *2 [mm]	L	247	297	347	397
	L ₁	200	250	300	350
	ML	59.5 (95.1)			
Weight *2 [kg]	With motor	2.0 (2.2)	2.2 (2.4)	2.4 (2.6)	2.6 (2.8)

*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.
 *2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

PCT25

Press series

Rod diameter: 25mm, Direct motor coupling, 100W type



Specifications

Motor rated output [W]	100			
Ball screw lead [mm]	6	4		
Rated thrust *1 [N]	266	400		
Instantaneous maximum thrust *2 [N]	796	1194		
Brake retention [N]	266	400		
Rated speed *3 [mm/s]	300	200		
Positioning repeatability [mm]	±0.010			
Lost motion [mm]	0.1			
Rod non-rotational accuracy [°]	±1			
Maximum load capacity *4 [kg]	Acceleration and deceleration rate	Horizontal 0.3G	35	40
		Vertical 0.3G	10	10
Running life *5 [km]	5000			

*1 At rated motor torque.

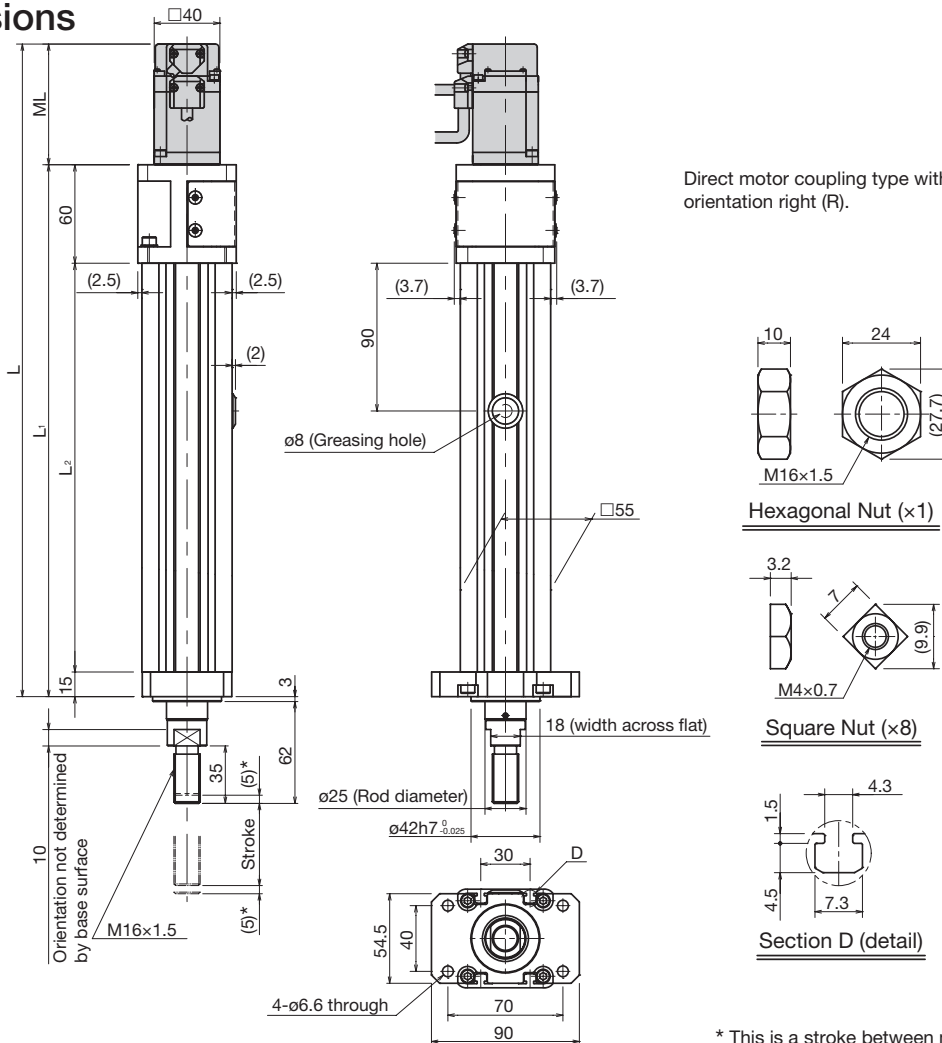
*2 Dependent on permissible axial load.

*3 At rated motor speed.

*4 At rated speed.

*5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

Dimensions



Stroke [mm]		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
(Stroke between mechanical stoppers)							
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300			260	200	160
	Ball screw lead: 4mm	200				160	130
Dimensions *2 [mm]	L	397.5 (433.1)	447.5 (483.1)	497.5 (533.1)	547.5 (583.1)	597.5 (633.1)	647.5 (683.1)
	L ₁	324	374	424	474	524	574
	L ₂	249	299	349	399	449	499
	ML	73.5 (109.1)					
Weight *2 [kg]	With motor	3.4 (3.6)	3.7 (3.9)	4.0 (4.2)	4.4 (4.6)	4.7 (4.9)	5.0 (5.2)

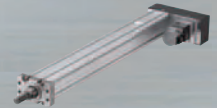
*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when brake is installed are shown in parentheses.

PCT25R

Press series

Rod diameter: 25mm, Motor wrap, 100W type



Specifications

Motor rated output [W]	100	
Ball screw lead [mm]	6	4
Rated thrust *1 [N]	266	400
Instantaneous maximum thrust *2 [N]	796	1194
Brake retention [N]	266	400
Rated speed *3 [mm/s]	300	200
Positioning repeatability [mm]	±0.010	
Lost motion [mm]	0.1	
Rod non-rotational accuracy [°]	±1	
Maximum load capacity *4 [kg]	Acceleration and deceleration rate	Horizontal 0.3G
		Vertical 0.3G
Running life *5 [km]	5000	

*1 At rated motor torque.

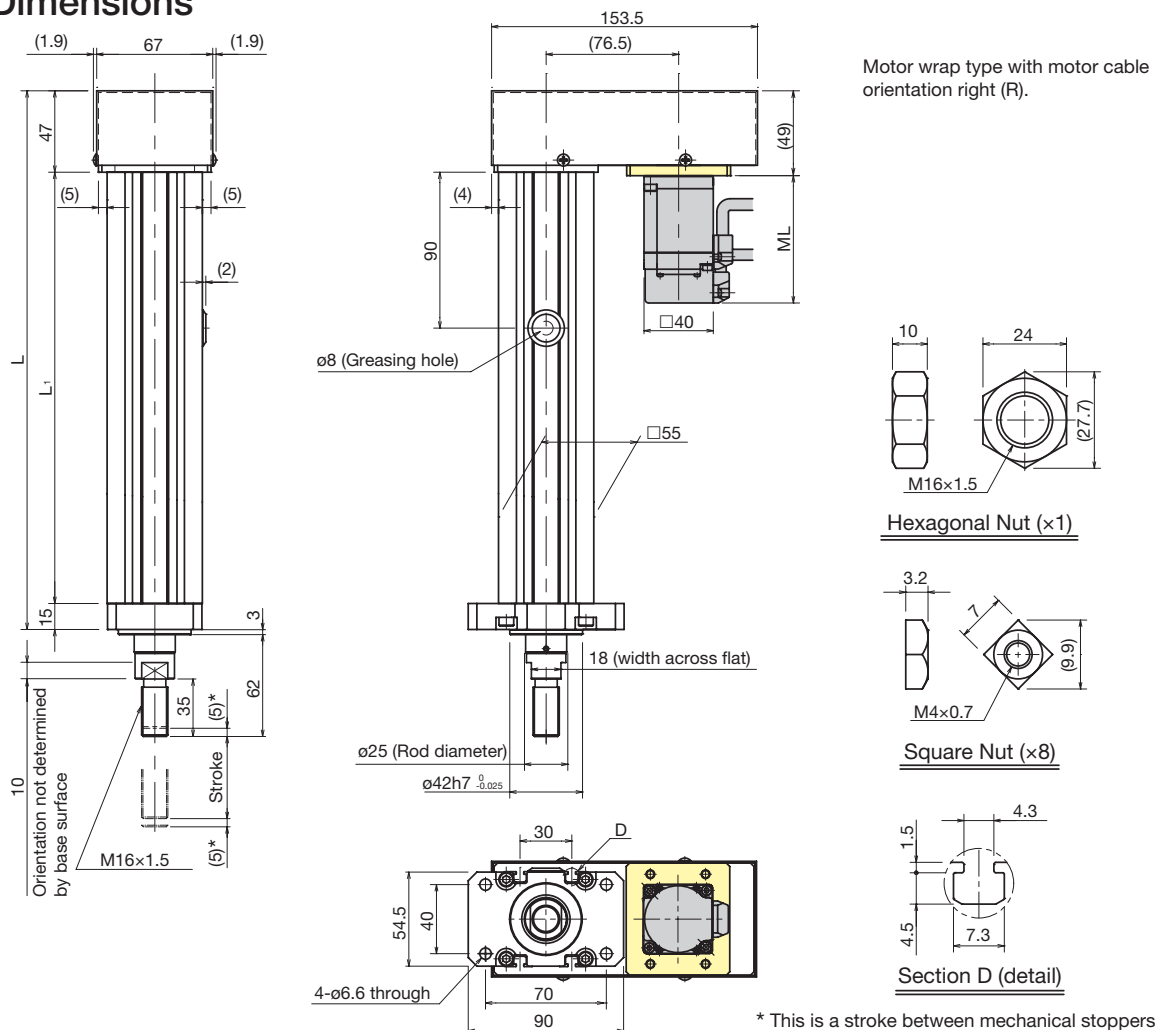
*2 Dependent on permissible axial load.

*3 At rated motor speed.

*4 At rated speed.

*5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

Dimensions



Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300			260	200	160
	Ball screw lead: 4mm	200				160	130
Dimensions *2 [mm]	L	311	361	411	461	511	561
	L ₁	249	299	349	399	449	499
	ML	73.5 (109.1)					
Weight *2 [kg]	With motor	3.6 (3.8)	3.9 (4.1)	4.3 (4.5)	4.6 (4.8)	4.9 (5.1)	5.2 (5.4)

*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

PCT25

Press series

Rod diameter: 25mm, Direct motor coupling, 200W type

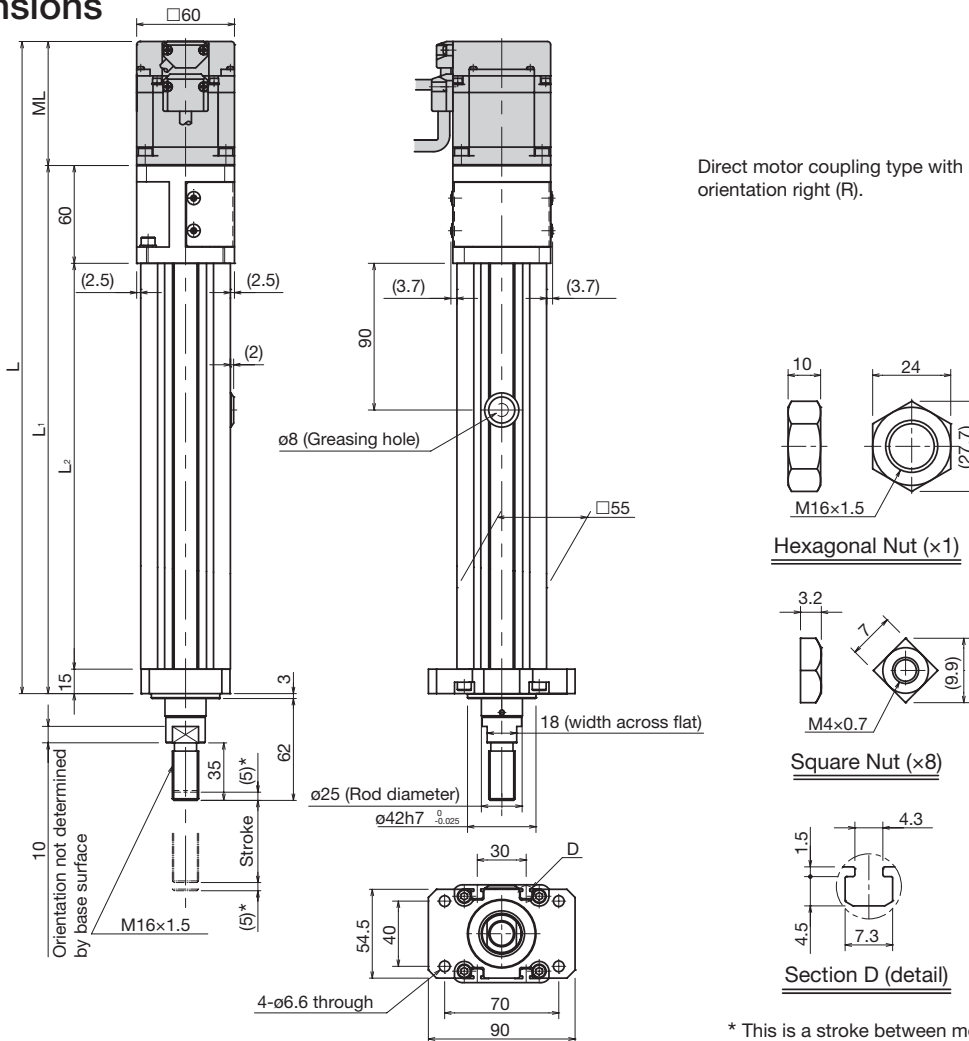


Specifications

Motor rated output [W]	200	
Ball screw lead [mm]	6	4
Rated thrust *1 [N]	536	804
Instantaneous maximum thrust *2 [N]	1600	2400
Brake retention [N]	536	804
Rated speed *3 [mm/s]	300	200
Positioning repeatability [mm]	±0.010	
Lost motion [mm]	0.1	
Rod non-rotational accuracy [°]	±1	
Maximum load capacity *4 [kg]	Acceleration and deceleration rate	Horizontal 0.3G
		Vertical 0.3G
Running life *5 [km]	5000	

- *1 At rated motor torque.
- *2 Dependent on permissible axial load.
- *3 At rated motor speed.
- *4 At rated speed.
- *5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

Dimensions



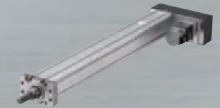
Stroke [mm]		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
(Stroke between mechanical stoppers)							
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300			260	200	160
	Ball screw lead: 4mm	200				160	130
Dimensions *2 [mm]	L	400.1 (434.7)	450.1 (484.7)	500.1 (534.7)	550.1 (584.7)	600.1 (634.7)	650.1 (684.7)
	L ₁	324	374	424	474	524	574
	L ₂	249	299	349	399	449	499
	ML	76.1 (110.7)					
Weight *2 [kg]	With motor	3.8 (4.3)	4.1 (4.6)	4.5 (5.0)	4.8 (5.3)	5.1 (5.6)	5.4 (5.9)

*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.
 *2 Values when brake is installed are shown in parentheses.

PCT25R

Press series

Rod diameter: 25mm, Motor wrap, 200W type



Specifications

Motor rated output [W]	200				
Ball screw lead [mm]	6	4			
Rated thrust *1 [N]	536	804			
Instantaneous maximum thrust *2 [N]	1600	2400			
Brake retention [N]	536	804			
Rated speed *3 [mm/s]	300	200			
Positioning repeatability [mm]	±0.010				
Lost motion [mm]	0.1				
Rod non-rotational accuracy [°]	±1				
Maximum load capacity *4 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	50	55
		Vertical	0.3G	20	20
Running life *5 [km]	5000				

*1 At rated motor torque.

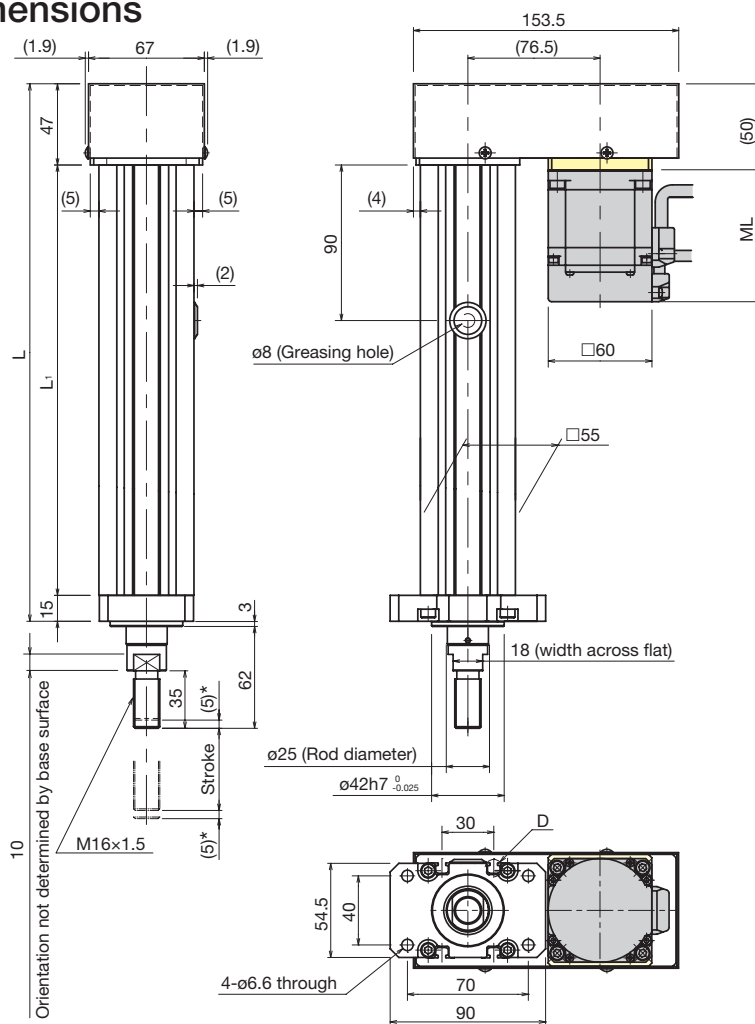
*2 Dependent on permissible axial load.

*3 At rated motor speed.

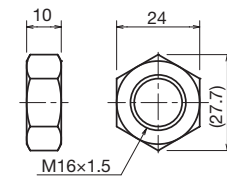
*4 At rated speed.

*5 Conditions: Under maximum load capacity (with LM guide), at rated speed, 0.3G acceleration and deceleration rate.

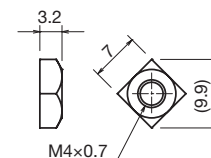
Dimensions



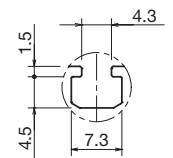
Motor wrap type with motor cable orientation right (R).



Hexagonal Nut (x1)



Square Nut (x8)



Section D (detail)

* This is a stroke between mechanical stoppers.

Stroke [mm]		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
(Stroke between mechanical stoppers)							
Maximum speed *1 [mm/s]	Ball screw lead: 6mm	300			260	200	160
	Ball screw lead: 4mm	200				160	130
Dimensions *2 [mm]	L	311	361	411	461	511	561
	L ₁	249	299	349	399	449	499
	ML	76.1 (110.7)					
Weight *2 [kg]	With motor	4.0 (4.5)	4.3 (4.8)	4.7 (5.2)	5.0 (5.5)	5.3 (5.8)	5.7 (6.2)

*1 Dependent on motor speed (at 3,000min⁻¹) and permissible rotational speed of the ball screw.

*2 Values when brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

PC30-06A

Press series

Rod outer diameter: 30mm, Rated thrust: 1.6kN

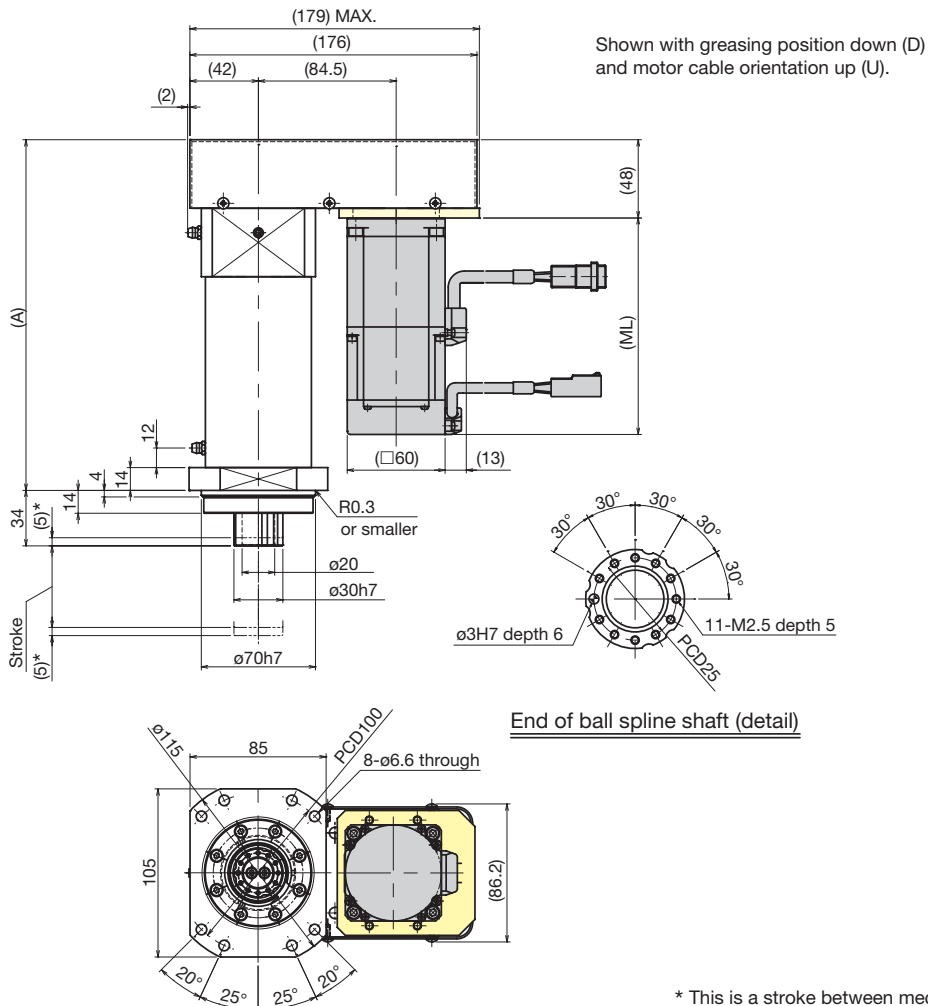


Specifications

Motor rated output [W]	400	
Ball screw lead [mm]	6	
Reduction ratio	28/40	
Rated thrust *1 [kN]	1.6	
Instantaneous maximum thrust *2 [kN]	3.3	
Maximum speed *3 [mm/s]	210	
Acceleration and deceleration rate *4 [G]	0.3	
Permissible axial load *5 [kN]	Pressing direction	3.3
	Tensile direction	1.6
Positioning repeatability [mm]	±0.005	
Backlash [mm]	0.020	
Permissible input torque *6 [N·m]	2.6	
Maximum load capacity *7 [kg]	15	
Operating life *8	15,000,000 times	

- *1 At rated motor torque.
- *2 Dependent on permissible axial load.
- *3 At rated motor speed.
- *4 When maximum load capacity is applied.
- *5 Load that can be applied to actuator when static.
- *6 To prevent mechanical damage, motor must be operated within this limit.
- *7 When actuator is positioned vertically with rod reaching lower end.
- *8 Conditions: actuator is positioned vertically with rod reaching lower end; pressing load: rated thrust; pressing direction: compressing direction; pressing distance: 15mm; payload: maximum load capacity.

Dimensions



Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)
Dimensions [mm]	A	215	265	315	365	415
	ML *1	98.1 (132.7)				
Weight [kg]	With motor *1	8.6 (9.1)	9.7 (10.2)	10.8 (11.3)	11.9 (12.4)	13.1 (13.6)

*1 Values when a brake is installed are shown in parentheses.

PC40-06B

Press series

Rod outer diameter: 40mm, Rated thrust: 3.2kN

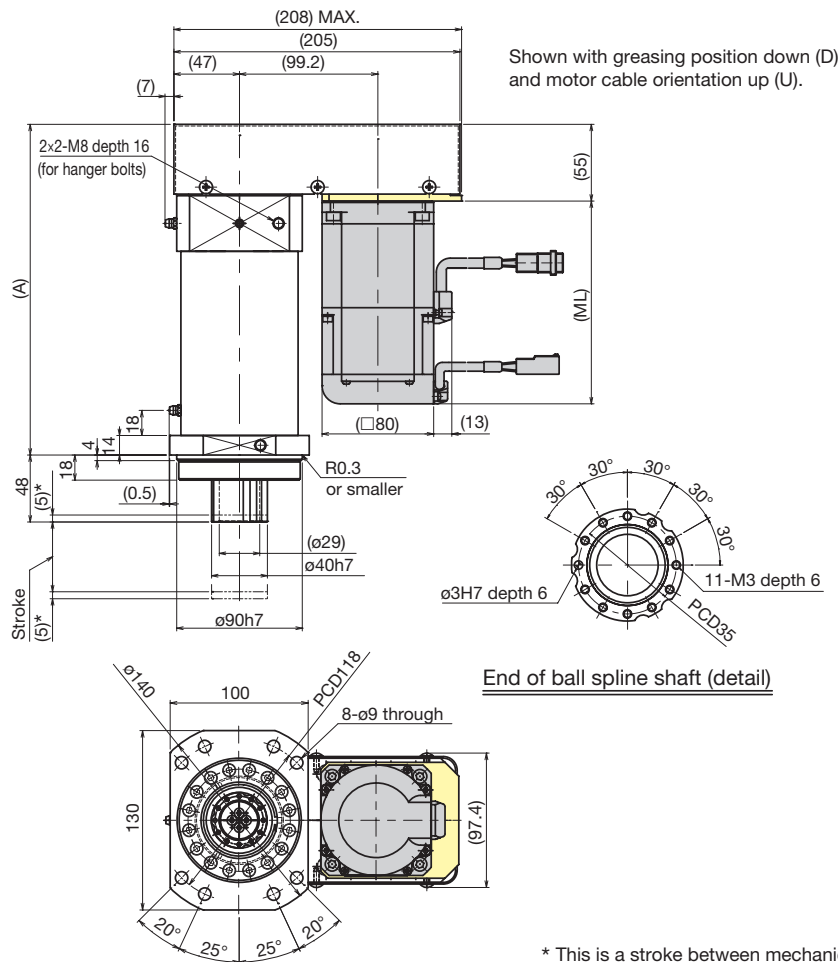


Specifications

Motor rated output [W]	750	
Ball screw lead [mm]	6	
Reduction ratio	32/48	
Rated thrust * ¹ [kN]	3.2	
Instantaneous maximum thrust * ² [kN]	6.4	
Maximum speed * ³ [mm/s]	200	
Acceleration and deceleration rate * ⁴ [G]	0.3	
Permissible axial load * ⁵ [kN]	Pressing direction	6.4
	Tensile direction	3.2
Positioning repeatability [mm]	±0.005	
Backlash [mm]	0.020	
Permissible input torque * ⁶ [N·m]	4.8	
Maximum load capacity * ⁷ [kg]	25	
Operating life * ⁸	15,000,000 times	

- *¹ At rated motor torque.
- *² Dependent on permissible axial load.
- *³ At rated motor speed.
- *⁴ When maximum load capacity is applied.
- *⁵ Load that can be applied to actuator when static.
- *⁶ To prevent mechanical damage, motor must be operated within this limit.
- *⁷ When actuator is positioned vertically with rod reaching lower end.
- *⁸ Conditions: actuator is positioned vertically with rod reaching lower end; pressing load: rated thrust; pressing direction: compressing direction; pressing distance: 15mm; payload: maximum load capacity.

Dimensions



Stroke [mm] (Stroke between mechanical stoppers)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)
Dimensions [mm]	A	237	287	337	387	437
	ML * ¹	108.7 (145.3)				
Weight [kg]	With motor * ¹	14 (14.9)	15.6 (16.5)	17.1 (18)	18.6 (19.5)	20.1 (21)

*¹ Values when a brake is installed are shown in parentheses.

ES/EC

KRF

US/USW

PCT/PC

Controller

Maintenance

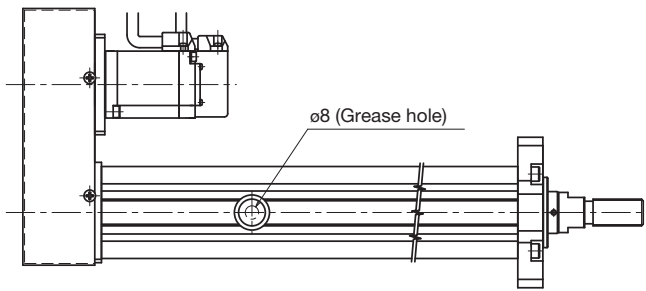
To maximize the performance of the actuator, periodic greasing is required.
THK cylinder-type actuators have a grease hole.

For details of greasing procedures, refer to the Instruction Manual.

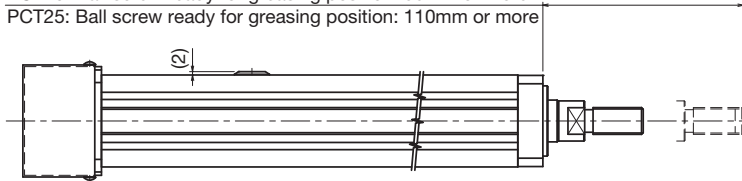
PCT

Standard grease: AFB-LF

To grease the ball screw portion, remove the plug and apply the grease directly to the ball screw shaft.



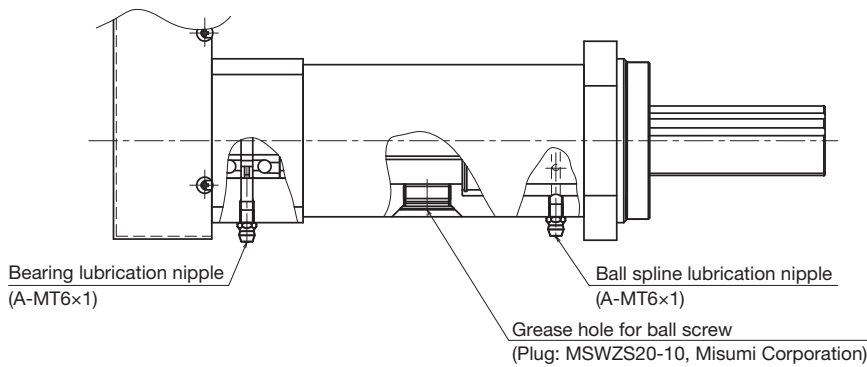
PCT20: Ball screw ready for greasing position: 95mm or more
PCT25: Ball screw ready for greasing position: 110mm or more



PC

Standard grease: FS2 (Lube Corporation)

To grease the ball screw portion, remove the plug and apply the grease directly to the ball screw shaft.



ES/EC

KRF

US/USW

PCT/PC

Controller



Precautions on Use

● Operation

- Do not unnecessarily disassemble the actuator or control devices. Doing so may allow foreign objects to enter or reduce functionality.
- Do not drop or knock the actuator or control devices. Doing so may cause injury or damage the unit. If the product is dropped or impacted, functionality may be reduced even if there is no surface damage.

● Environment

Wrong environment can cause failures of the actuator and control devices. The best place to use the product is as follows:

- Actuator: A place with an ambient temperature from 0 to 40°C and humidity of from 20% to 80% RH that will not expose the product to freezing or condensation.
- Controller: A place with an ambient temperature from 0 to 40°C and humidity of no more than 90% RH that will not expose the product to freezing or condensation.
- A place free from corrosive gas and flammable gas.
- A place free from electrically conductive powder (such as iron powder), dust, oil mist, moisture, salt, and organic solvent.
- A place free from direct sunlight and radiant heat.
- A place free from strong electric and magnetic fields
- A place where vibration or impact is not transmitted to the unit.
- A place that is easily accessible for service and cleaning purposes.

● Safety Precautions

- When the actuator is in motion or about to be in motion, do not touch any moving parts. Do not go near the actuator when it is in motion.
- Before performing installation, adjustment, checking, or services regarding the actuator and the connected peripherals, ensure that all power is disconnected. In addition, take countermeasures to prevent anyone other than the operator from turning on the power.
- If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.
- Before operation, please read thoroughly and obey "Manipulating industrial robots Safety" (JIS B8433) and "Ordinance on Industrial Safety and Health" (Ministry of Health, Labor and Welfare).
- Operation of the actuator over the torque limit value leads to damage of parts or injury. Please keep the torque limit settings of parameters within THK specifications.
- For folding type of PCT and PC, this product does not include a safety device to protect users when the timing belt is broken. The customer must provide a safety device.
- Although a stopper is installed inside the product, it is intended to limit the stroke and therefore may be damaged in case of a hard collision.
- PC is designed to accommodate load in the pressing direction. Applying a load in the tensile direction may shorten product life.
- With PCT, only an axial load is permissible.
- Please contact THK if a rotational torque or moment load is applied to the PC rod.
- The total weight of PC exceeds 20kg. When moving the product, use hanger bolts to raise and move the product. Do not use a hanger belt alone to raise the product. When moving the product vertically, such as for installation, use two bolts at the motor side and the rod side. When moving it horizontally, use two or four bolts at the motor side and the rod side. Some models may tilt when raised, due to unbalanced center of gravity.

- Storage

When storing the actuator, enclose it in a package designated by THK and store it in a horizontal position away from abnormally high or low temperatures and high humidity.

- When storing the control devices, avoid abnormally high or low temperatures and high humidity.

- Lubrication

In order to effectively use the actuator, lubrication is required. Insufficient lubrication may increase abrasion on moving parts and shorten service life.

- Do not use a mix of lubricants with different physical properties.
- Please contact THK if using special lubricants.
- The greasing interval may vary depending on the usage conditions, so THK recommends determining a greasing interval during the initial inspection.

Controller series

Model: **TSC** Stepper driver controller

TLC Low-capacity servo driver controller

THC High-capacity servo driver controller

TNU Network unit





TNU



THC

Chapter 5

TSC	5-003
-----	-------

TLC	5-010
-----	-------

THC	5-019
-----	-------

TNU	5-030
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TSC



For single shaft/Position type

Features

Ready to use by simplified setup.

Simple Operation

Use PC setup tool D-STEP or digital operator TDO to access many useful functions.

Functions

- Selectable function modes
(64-position, external unit input instruction, 256-position, 512-position, Solenoid mode 1, and Solenoid mode 2)
- Step data count: Up to 512 (depending on function mode)
- Alarm history: Up to 50 (including power ON history)
- Switching between Auto/Manual, brake release switch
- Selectable control methods (positioning or pressing)

Changes on the new version (design symbol B)

TSC is now updated to a new version that specified with “B” in design symbol.

Differences from conventional version, design symbol “A” are shown below.

- Behavior at Servo-On

	Design symbol A	Design symbol B
Motion	Moves several millimeters	Standstill

- Compatibility
Driver controller TSC, and actuator cable does not have compatibility between A and B.

* To use a 10m actuator cable, insert a noise filter to the TSC power supply.

Model Configuration

● Stepper driver controller *Separate order required.

Model	Current	Design symbol	Type	Combined Actuator	Combined actuator ball screw lead	Home position	Brake
TSC	015	B	MOD	ES6	06	D	B
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TSC	015: 1.5A	B	MOD: Mode switching type	ES3	06: 6mm	D: Motor side	No symbol: Without brake
				ES4	12: 12mm	R: Reverse motor side	B: With brake
				ES5			
				ES6			
				ES3R			
				ES4R			
				ES5R			
				ES6R			
				EC3*1			
				EC4*1			
				EC3R			
				EC4R			
				KRF3			
				KRF4			
				KRF5			

*1 Select "EC3" for EC3H and "EC4" for EC4H.

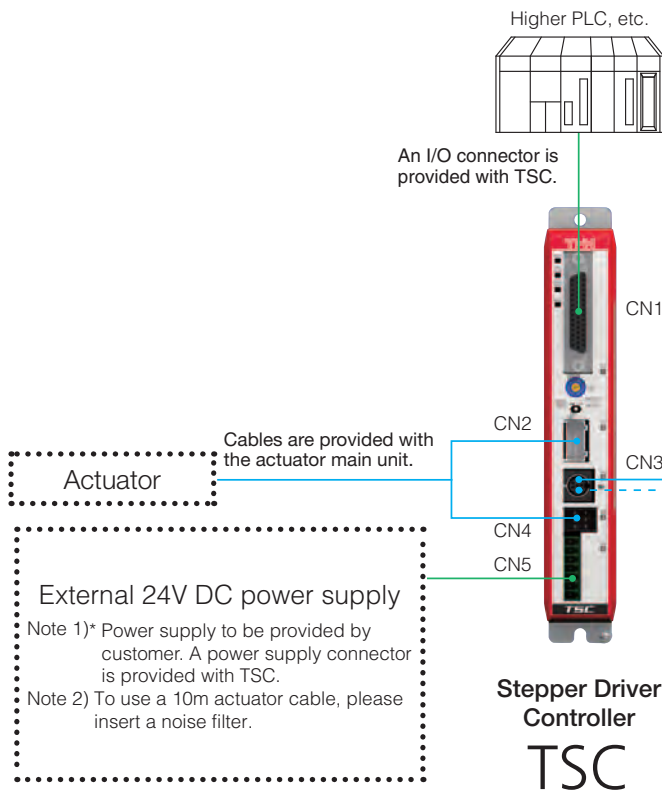
ES/EC
KRF
US/USW
PCT/PC
Controller

Basic Specifications

Basic Specifications	Input power supply	24V DC ±10% (Up to 2.5A)					
Control	Control axis	Single shaft					
	Motor type	Stepper motor (□28mm, □35mm, □42mm)					
	Control method	Feedback control (Semi-closed loop)					
	Position detection method	Incremental					
	Acceleration/deceleration method	Trapezoid acceleration					
Program	Function mode	64-position	External unit input	256-position	512-position	Solenoid mode 1	Solenoid mode 2
	Step data count	64 points	64 points	256 points	512 points	7 points	3 points
	Data input/output method	PC setup tool D-STEP or Digital operator TDO					
Input/output	Dedicated input/output	Input point	16 points (Start, Return to home position, Pause, Reset, Servo ON, Specify step number, etc.)*				
		Output point	16 points (Return to home position completed, In position, Servo ready, Alarm, Battery alarm, etc.)*				
	Input/output power supply	24V DC ±10% (This should be prepared by yourself.)					
Communication	Serial communication	Connected device	PC setup tool D-STEP or Digital operator TDO				
		Communication method	RS-485				
		Port count	Mini DIN × 1				
Usage conditions	Usage conditions	0 to 40°C (No freezing)/-20 to 85°C (No freezing)					
	Operating humidity/Storage humidity	90% RH or below (No condensation)					
	Ambient condition	Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)					
General specifications	Protective function	Overload, overvoltage, excessive position deviation, software limit over error, etc.					
	Accessories	Power supply connector × 1 I/O connector × 1					
	Options (sold separately)	Digital operator TDO (Cable length 5 m) I/O cable 3m, 5m, 7m, and 10m PC communication cable (Mini DIN ↔ USB)					
	Outer dimensions	32mm (W) × 192.2mm (H) × 77.6mm (D)					
	Weight	300g or less					

* Varies depending on function mode.

System Configuration



TSC needs either **TDO** or **D-STEP** for setting.

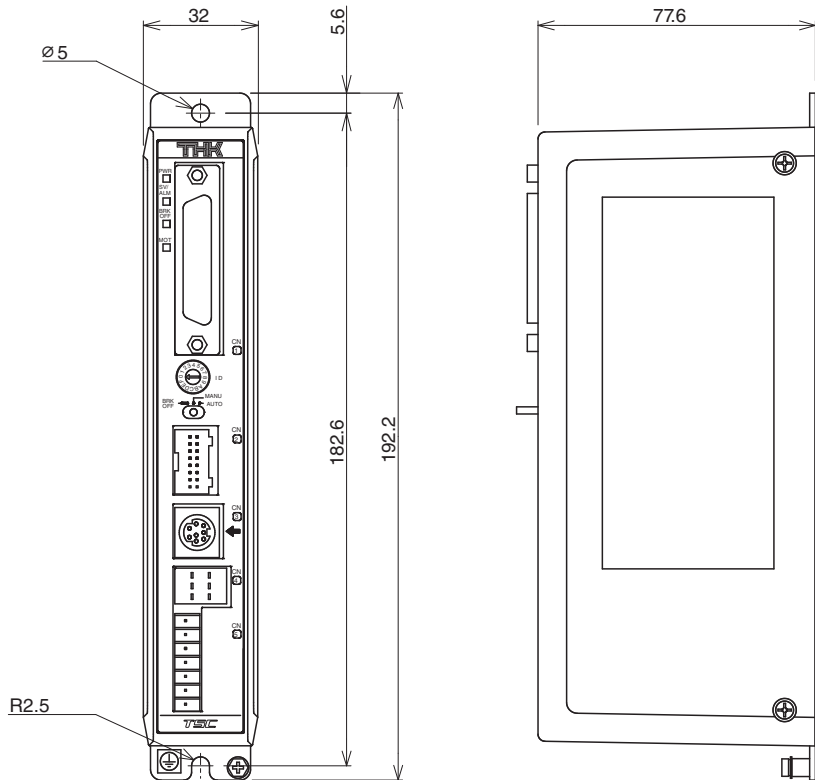
Digital operator
TDO
(Available in Japanese and English)

PC setup tool
D-STEP

The PC setup tool can be freely downloaded after logging in to the technical support website.
(Available in Japanese, English, and Simplified Chinese)
<http://www.ea-thk.com/>

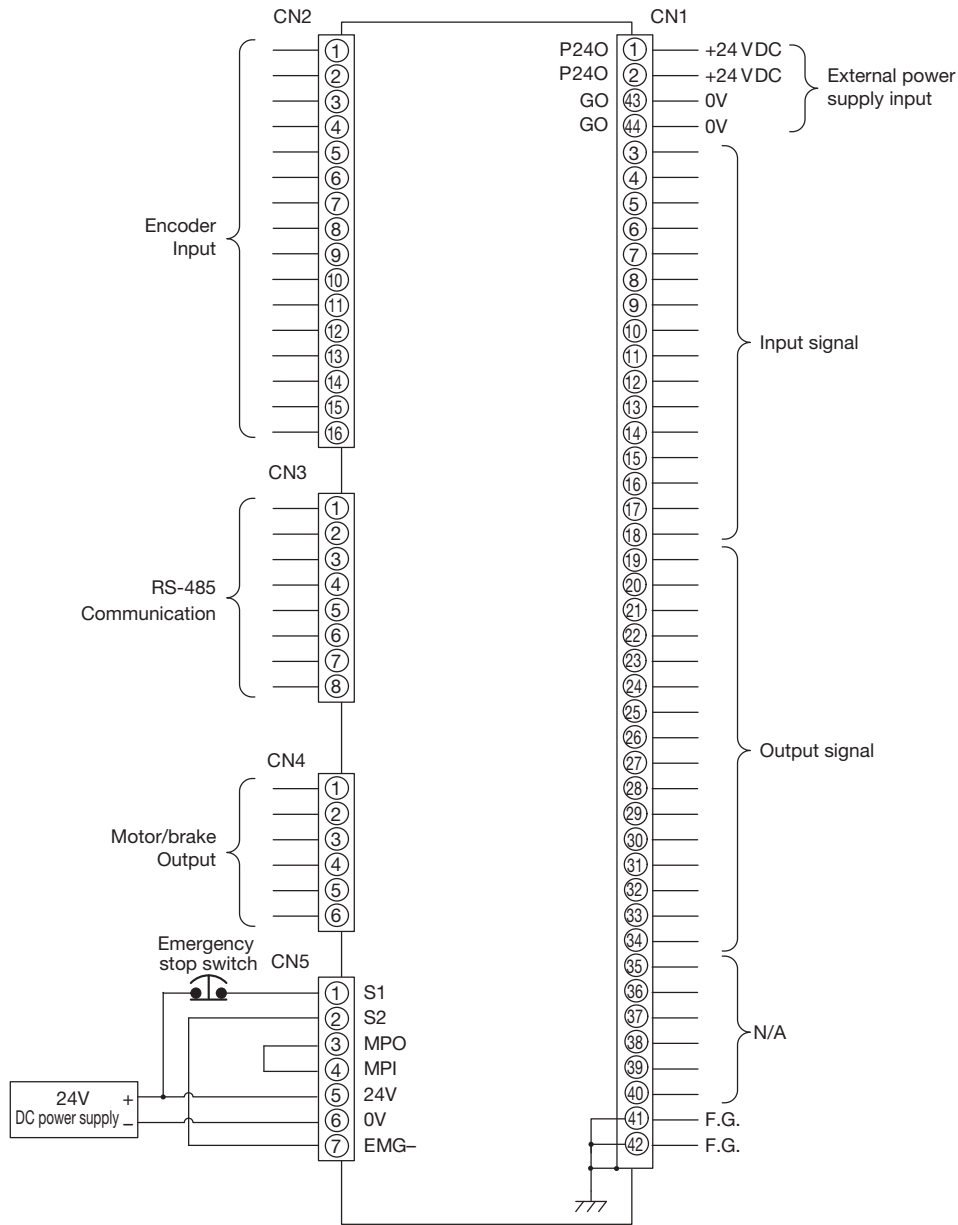
- Wiring to be provided by customer.
- - - Separate order required.
- Cables provided with product.

Dimensional Drawing of Controller



* For details of the dimensional drawing, please contact THK.

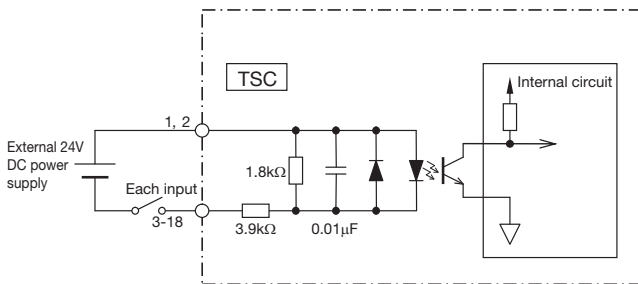
TSC Pin Configuration



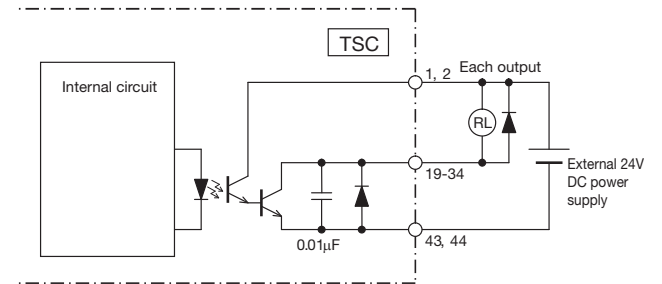
For attached I/O connector pin numbers, see P.5-008.
Customer provides 24V DC power supply for input/output circuitry.

Input/Output Circuitry for TSC (CN1)

Input circuit



Output circuit



ES/EC

KRF

US/USW

PCT/PC

Controller

TSC Function Modes

TSC provides six modes to support various requirements and purposes.

Function mode		Overview	Step data count	Pressing operation
Multi-point positioning	0: 64-position	Multi-point positioning operation with 64 points With area output, with P area output	64	○
	1: External unit input instruction	Multi-point positioning operation with 64 points I/O-based external unit instruction mode Without area output, with P area output	64	-
	2: 256-position	Multi-point positioning operation with 256 points Without area output, with P area output	256	○
	3: 512-position	Multi-point positioning operation with 512 points Without area output, without P area output	512	○
Electromagnetic valve	4: Solenoid mode 1	Multi-point positioning operation with 7 points Direct move command input With area output, with P area output	7	○
	5: Solenoid mode 2	Multi-point positioning operation with 3 points Direct move command input With position sensor auto-switch output, area output and P area output	3	-

Pin Configuration by Function Mode

I/O	CN1 pin number	Signal name						
		Function mode 0 64-position	Function mode 1 External unit input	Function mode 2 256-position	Function mode 3 512-position	Function mode 4 Solenoid mode 1	Function mode 5 Solenoid mode 2	
Input	3	PI 0	PI 0	PI 0	PI 0	ST 0	ST 0	
	4	PI 1	PI 1	PI 1	PI 1	ST 1	ST 1	
	5	PI 2	PI 2	PI 2	PI 2	ST 2	ST 2	
	6	PI 3	PI 3	PI 3	PI 3	ST 3	-	
	7	PI 4	PI 4	PI 4	PI 4	ST 4	-	
	8	PI 5	PI 5	PI 5	PI 5	ST 5	-	
	9	-	MODE	PI 6	PI 6	ST 6	-	
	10	-	JOG/INCHING	PI 7	PI 7	-	-	
	11	-	JOG P	-	PI 8	-	-	
	12	BKRL	JOG N	BKRL	BKRL	BKRL	BKRL	
	13	STRT	STRT/PWRT	STRT	STRT	-	-	
	14	MANU	MANU	MANU	MANU	MANU	MANU	
	15	HOME	HOME	HOME	HOME	HOME	HOME	
	16	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	
	17	REST	REST	REST	REST	REST	REST	
	18	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	
	Output	19	PO 0	PO 0	PO 0	PO 0	PE 0	LS 0
		20	PO 1	PO 1	PO 1	PO 1	PE 1	LS 1
21		PO 2	PO 2	PO 2	PO 2	PE 2	LS 2	
22		PO 3	PO 3	PO 3	PO 3	PE 3	-	
23		PO 4	PO 4	PO 4	PO 4	PE 4	-	
24		PO 5	PO 5	PO 5	PO 5	PE 5	-	
25		MOVE	MOVE	PO 6	PO 6	PE 6	-	
26		AREA	MODES	PO 7	PO 7	AREA	AREA	
27		P AREA	P AREA	P AREA	PO 8	P AREA	P AREA	
28		MANU S	MANU S	MANU S	MANU S	MANU S	MANU S	
29		HEND	HEND	HEND	HEND	HEND	HEND	
30		INPS	INPS	INPS	INPS	INPS	-	
31		LOAD/TRQS	WEND	LOAD/TRQS	LOAD/TRQS	LOAD/TRQS	-	
32		SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	
33		EMGS	EMGS	EMGS	EMGS	EMGS	EMGS	
34		ALM	ALM	ALM	ALM	ALM	ALM	

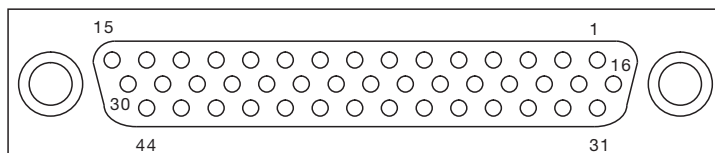
Input Signal Functions

Input		
Signal name	Description	Remarks
MANU	Operation mode	Switches AUTO/MANUAL from I/O. MANUAL when signal is on, and AUTO when it is off.
STRT	Start	Start signal of program step. Program starts when signal is on.
PI0 - PI8	Instruction position number	Input for specifying position numbers. Specifies programs at each signal level. Selects a program step and starts a program with "STRT" signal.
PAUSE	Pause	Temporarily interrupts the operation. PAUSE input status when signal is off. (N.C. connection specification)
HOME	Return to home position	Starts the return to home position operation. Returning to home position is started when signal is on. It stops when it is off.
SV-ON	Servo on	Turns the servo ON and OFF. Servo ON when signal is on, and servo OFF when signal is off.
REST	Alarm reset	Resets alarm. Resets remaining travel distance during pause. Resets when it is on.
BKRL	Brake release	Forcibly releases brake. Releases brake when it is on.
MODE	External unit input instruction mode	Enters the instruction mode when signal is on. Instruction mode when signal is on.
PWRT	Current position write with external unit input instruction	During the instruction mode, the position is written when this signal is greater than 20ms with the position for writing specified.
JOG/INCHING	Manual operation switch with external unit input instruction	Switching of manual operation during the instruction mode. Selects inching operation when it is on, and jog operation when it is off.
JOG P	Moving direction + with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in + direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
JOG N	Moving direction - with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in - direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
ST0 - 6	Cylinder type START	Program start signal for position numbers from ST0 to ST6. Can select either Level or Edge for signal using parameter 13 "move" command. Note that when more than two positions are on at the same time, the lowest-number signal takes precedence.

Output Signal Functions

Output		
Signal name	Description	Remarks
MANU S	Operation mode status	Operation mode status outputs (AUTO/MANUAL). MANUAL when signal is on, AUTO when off.
PO1 - PO8	End position number	Outputs the position number arrived after positioning is completed (binary outputs).
MOVE	Moving	Outputs signal during motor operation.
INPS	Positioning completed	Outputs when motor comes within the positioning completed width.
SVRDY	Operation preparations completed	Outputs signal when servo is on.
ALM	Alarm	Alarm output signal.
MODES	Operation mode status	Output signal for judging instruction mode or regular operation mode. Instruction mode when signal is on. Regular operation mode when it is off.
WEND	Writing completed	Signal is off after switching to the regular mode, and it is on for 30ms when writing of the PWRT signal is completed.
HEND	Return to home position completed	Outputs signal when returning to home position is completed.
AREA	Upper/lower area limit	On when the current position of actuator is within a range specified by the parameter.
P AREA	Position area	On when the current position of actuator is within a range specified by the program step.
EMGS	Emergency stop status	Outputs judgment for input of emergency stop. On during normal operation, and off when emergency stop circuit is shut off.
LOAD	Load output judgment status	On when a directive torque exceeds the threshold over a certain period within a judgment range.
TRQS	Torque level status	On when the load threshold is reached while moving. Off while the load remains under the threshold.
PE0 - PE6	Cylinder type arrival completed output	Signal generated after operation for position number is completed.
LS0 - LS2	Cylinder type position detection output	Outputs when the current position comes within the positioning width for each of the three points.

I/O Connector Pin Numbers



Controller connector port view

Actuator Cable

ES/EC

TSC actuator cable: CBL-TSC-AC-** *-B (Standard)

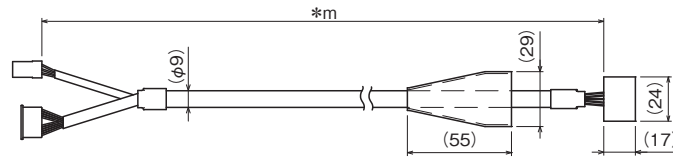
** indicates cable length: 03 (3m), 05 (5m), or 10 (10m).

KRF

US/USW

PCT/PC

Controller



* To use a 10m actuator cable, insert a noise filter to the TSC power supply.
Recommended noise filter is "RSAN-2003 (TDK-Lambda Corporation)".

TLC

Servo driver controller for single axis



ES/EC

KRF

US/USW

PCT/PC

Controller

Features

Ready to use, simplified setup.

Simple Operation

Use PC setup tool D-Step or digital operator TDO to access many useful functions.

Functions

- Selectable function modes
(64-position, external unit input instruction, 256-position, 512-position, Solenoid mode 1, and Solenoid mode 2)
- Step data count: Up to 512 (depending on function mode)
- Alarm history: Up to 50 (including power ON history)
- Switching between Auto/Manual, brake release switch
- Selectable control methods (positioning or pressing)
- Absolute supported

Combined Control Device Model Configuration (TLC)

● Economy series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke
TLC	005	024DC	MOD	A	ES6	12	D	B	0050
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TLC	005: 50W	024DC: 24VDC	MOD: Mode switching type	A: Absolute	Direct coupling ES5 ES6 EC4*	06: 6mm 12: 12mm	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0050: 50mm
					Motor wrap ES5R ES6R EC4R				

* Select "EC4" for EC4H.

● Compact series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke
TLC	005	024DC	MOD	A	KRF4	06	D	B	0050
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TLC	005: 50W	024DC: 24VDC	MOD: Mode switching type	A: Absolute	KRF4 KRF5	06: 6mm 10: 10mm	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0050: 50mm

● Universal series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke
TLC	005	024DC	MOD	A	US6T	12	D	B	0100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TLC	005: 50W	024DC: 24VDC	MOD: Mode switching type	A: Absolute	Direct coupling US6T Motor wrap US6RT	06: 6mm 12: 12mm	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0100: 100mm

● Press series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke
TLC	005	024DC	MOD	A	PCT20	06N	D	B	0050
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TLC	005: 50W	024DC: 24VDC	MOD: Mode switching type	A: Absolute	Direct coupling PCT20 Motor wrap PCT20R	06N	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	0050: 50mm 0100: 100mm 0150: 150mm 0200: 200mm

ES/EC

KRF

US/USW

PCT/PC

Controller

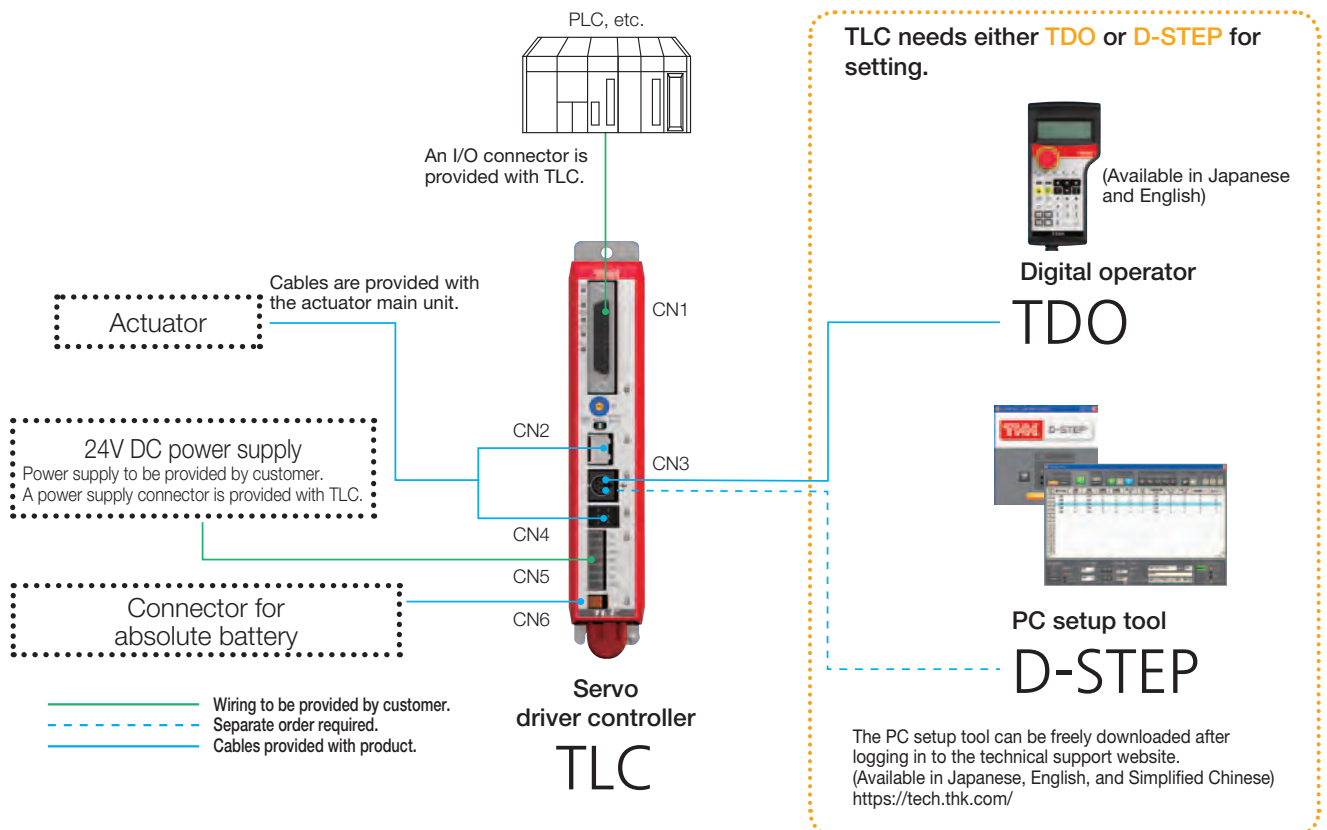
TLC Specifications

Type of machine	Model		TLC					
	Capacity		50W					
Input power supply	Main circuit		24VDC±10%					
	Control circuit		Rated 6A (Max 16A)					
	Power supply [A]		Single axis					
Control	Control axis		AC servo motor					
	Motor		Feedback control (Semi-closed loop)					
	Control		Absolute					
	Position detection		Trapezoid acceleration, S-shape acceleration					
	Acceleration/deceleration		64-position External unit input 256-position 512-position Solenoid mode 1 Solenoid mode 2					
Program	Function mode		64 points	64 points	256 points	512 points	7 points	3 points
	Step data count		PC setup tool D-STEP or Digital operator TDO					
	Data input/output		16 points (Start, Return to home position, Pause, Reset, Servo ON, Specify step number, etc.) *					
Input/output	Dedicated input/output	Input points	16 points (Return to home position completed, In position, Servo ready, Alarm, Battery alarm, etc.) *					
		Output points	24VDC ±10% (This should be prepared by yourself.)					
Input/output power supply		Digital operator or PC software						
Communication	Serial communication	Device	RS-485					
		Method	Mini DIN × 1					
		Ports	0 to 40°C (No freezing) / -20 to 85°C (No freezing)					
Usage conditions	Operating/storage temperature		90% RH or below (No condensation)					
	Operating/storage humidity		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)					
	Ambient condition		Overload, overvoltage, excessive position deviation, software limit over error, etc.					
General specifications	Protective function		Power supply connector × 1 I/O connector × 1					
	Accessories		Digital operator TDO (Cable length 5m) I/O cable 3m, 5m, 7m, and 10m Communication cable (Mini DIN↔USB)					
	Options (sold separately)		36.4mm (W)×199.2mm (H)×112.6mm (D)					
	External dimensions [mm]		0.4kg or less					
	Weight (not including battery)							

* This count varies depending on function mode.

ES/EC
KRF
US/USW
PCT/PC
Controller

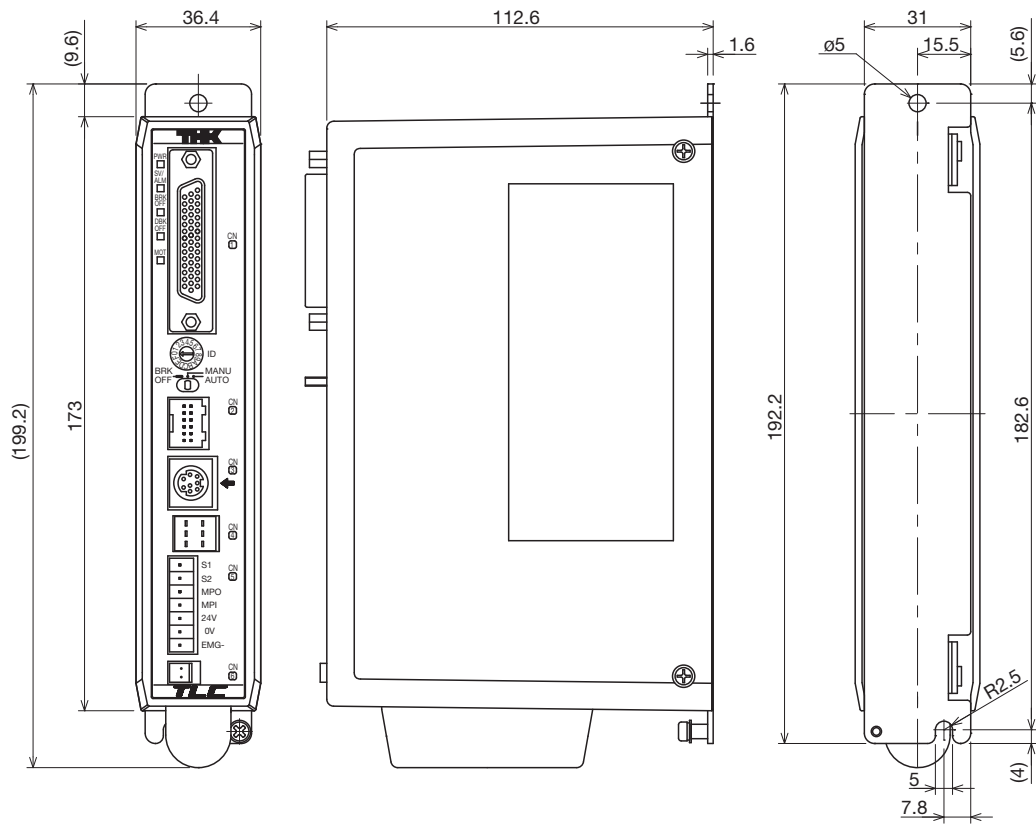
System Configuration



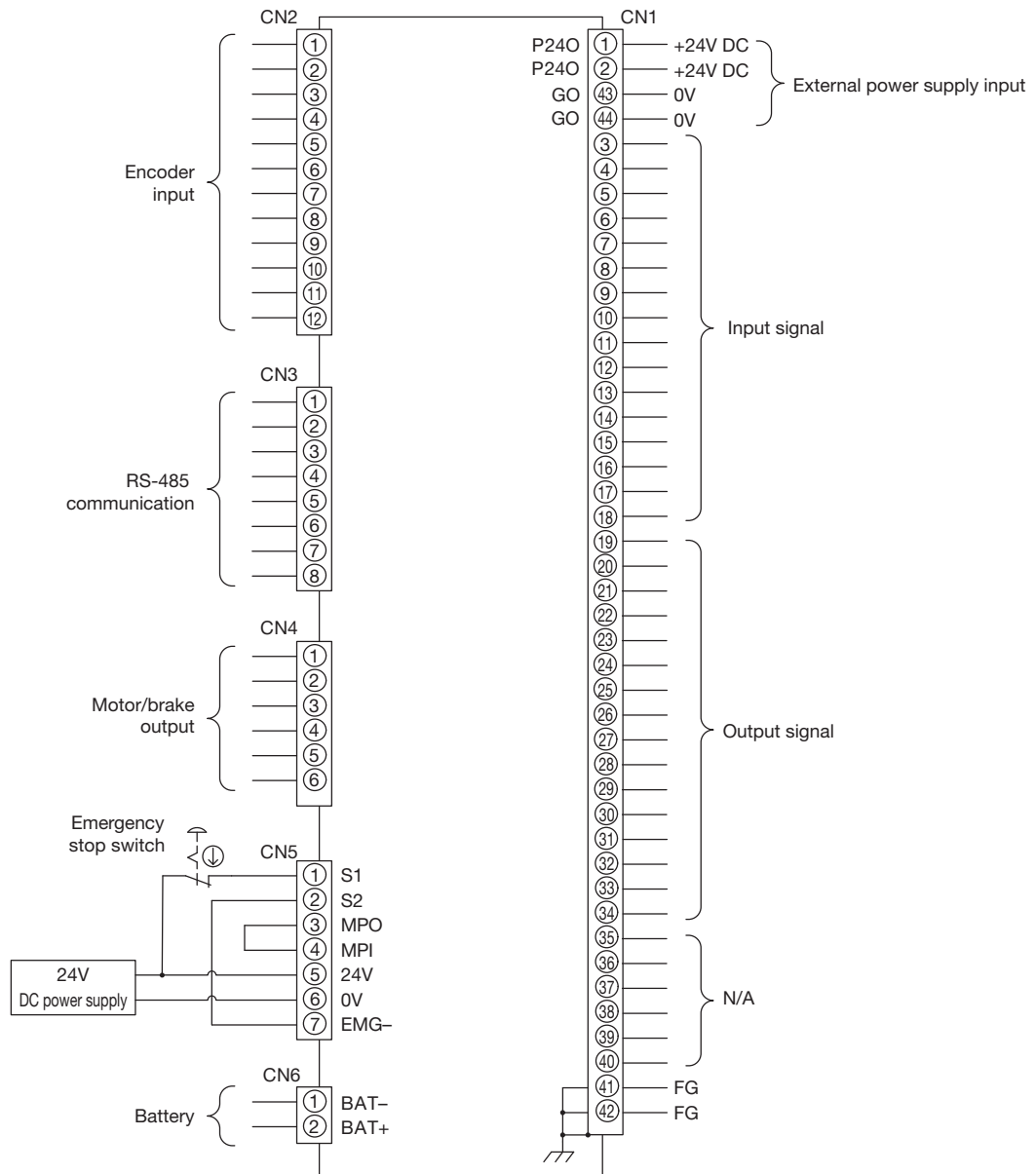
Controller

- ES/EC
- KRF
- US/USW
- PCT/PC
- Controller

TLC



TLC Pin Configuration

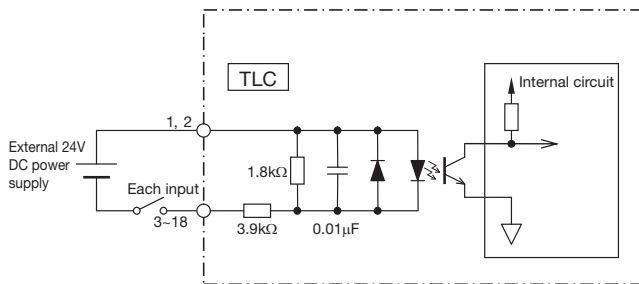


For attached I/O connector pin numbers, see P.5-016.
Customer provides 24V DC power supply for input/output circuitry.

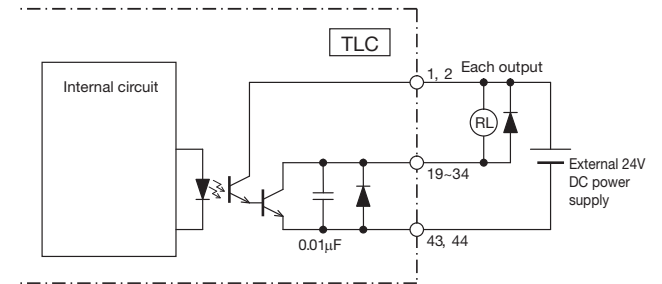
ES/EC
KRF
US/USW
PCT/PC
Controller

Input/Output Circuitry for TLC (CN1)

Input circuit



Output circuit



TLC Function Modes

TLC provides six modes to support various requirements and purposes.

Function mode		Overview	Step data count	Pressing operation
Multi-point positioning	0: 64-position	Multi-point positioning operation with 64 points With area output, with P area output	64	○
	1: External unit input instruction	Multi-point positioning operation with 64 points I/O-based external unit instruction mode Without area output, with P area output	64	-
	2: 256-position	Multi-point positioning operation with 256 points Without area output, with P area output	256	○
	3: 512-position	Multi-point positioning operation with 512 points Without area output, without P area output	512	○
Electromagnetic valve	4: Solenoid mode 1	Multi-point positioning operation with 7 points Direct move command input With area output, with P area output	7	○
	5: Solenoid mode 2	Multi-point positioning operation with 3 points Direct move command input With position sensor auto-switch output, area output and P area output	3	-

Pin Configuration by Function Mode

I/O	CN1 pin number	Signal name						
		Function mode 0 64-position	Function mode 1 External unit input	Function mode 2 256-position	Function mode 3 512-position	Function mode 4 Solenoid mode 1	Function mode 5 Solenoid mode 2	
Input	3	PI 0	PI 0	PI 0	PI 0	ST 0	ST 0	
	4	PI 1	PI 1	PI 1	PI 1	ST 1	ST 1	
	5	PI 2	PI 2	PI 2	PI 2	ST 2	ST 2	
	6	PI 3	PI 3	PI 3	PI 3	ST 3	-	
	7	PI 4	PI 4	PI 4	PI 4	ST 4	-	
	8	PI 5	PI 5	PI 5	PI 5	ST 5	-	
	9	-	MODE	PI 6	PI 6	ST 6	-	
	10	-	JOG/INCHING	PI 7	PI 7	-	-	
	11	-	JOG P	-	PI 8	-	-	
	12	BKRL	JOG N	BKRL	BKRL	BKRL	BKRL	
	13	STRT	STRT/PWRT	STRT	STRT	-	-	
	14	MANU	MANU	MANU	MANU	MANU	MANU	
	15	HOME	HOME	HOME	HOME	HOME	HOME	
	16	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	
	17	REST	REST	REST	REST	REST	REST	
	18	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	
	Output	19	PO 0	PO 0	PO 0	PO 0	PE 0	LS 0
		20	PO 1	PO 1	PO 1	PO 1	PE 1	LS 1
21		PO 2	PO 2	PO 2	PO 2	PE 2	LS 2	
22		PO 3	PO 3	PO 3	PO 3	PE 3	-	
23		PO 4	PO 4	PO 4	PO 4	PE 4	-	
24		PO 5	PO 5	PO 5	PO 5	PE 5	-	
25		MOVE	MOVE	PO 6	PO 6	PE 6	-	
26		AREA	MODES	PO 7	PO 7	AREA	AREA	
27		P AREA	P AREA	P AREA	PO 8	P AREA	P AREA	
28		MANU S	MANU S	MANU S	MANU S	MANU S	MANU S	
29		HEND	HEND	HEND	HEND	HEND	HEND	
30		INPS	INPS	INPS	INPS	INPS	-	
31		LOAD/TRQS	WEND	LOAD/TRQS	LOAD/TRQS	LOAD/TRQS	-	
32		SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	
33		BALM	BALM	BALM	BALM	BALM	BALM	
34		ALM	ALM	ALM	ALM	ALM	ALM	

Input Signal Functions

Input		
Signal name	Description	Remarks
MANU	Operation mode	Switches AUTO/MANUAL from I/O. MANUAL when signal is on, and AUTO when it is off.
STRT	Start	Start signal of program step. Program starts when signal is on.
PI0 - PI8	Instruction position number	Input for specifying position numbers. Specifies programs at each signal level. Selects a program step and starts a program with "STRT" signal.
PAUSE	Pause	Temporarily interrupts the operation. PAUSE input status when signal is off. (N.C. connection specification)
HOME	Return to home position	Starts the return to home position operation. Returning to home position is started when signal is on. It stops when it is off.
SV-ON	Servo on	Turns the servo ON and OFF. Servo ON when signal is on, and servo OFF when signal is off.
REST	Alarm reset	Resets alarm. Resets remaining travel distance during pause. Resets when it is on.
BKRL	Brake release	Forcibly releases brake. Releases brake when it is on.
MODE	External unit input instruction mode	Enters the instruction mode when signal is on. Instruction mode when signal is on.
PWRT	Current position write with external unit input instruction	During the instruction mode, the position is written when this signal is greater than 20ms with the position for writing specified.
JOG/INCHING	Manual operation switch with external unit input instruction	Switching of manual operation during the instruction mode. Selects inching operation when it is on, and jog operation when it is off.
JOG P	Moving direction + with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in + direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
JOG N	Moving direction - with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in - direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
ST0 - 6	Cylinder type START	Program start signal for position numbers from ST0 to ST6. Can select either Level or Edge for signal using parameter 13 "move" command. Note that when more than two positions are on at the same time, the lowest-number signal takes precedence.

ES/EC

KRF

US/USW

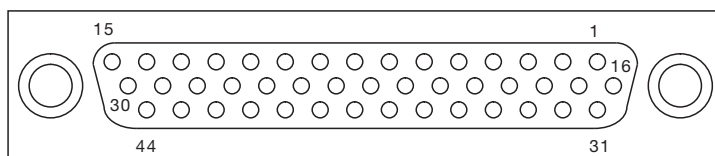
PCT/PC

Controller

Output Signal Functions

Output		
Signal name	Description	Remarks
MANU S	Operation mode status	Operation mode status outputs (AUTO/MANUAL). MANUAL when signal is on, AUTO when off.
PO1 - PO8	End position number	Outputs the position number arrived after positioning is completed (binary outputs).
MOVE	Moving	Outputs signal during motor operation.
INPS	Positioning completed	Outputs when motor comes within the positioning completed width.
SVRDY	Operation preparations completed	Outputs signal when servo is on.
ALM	Alarm	Alarm output signal.
MODES	Operation mode status	Output signal for judging instruction mode or regular operation mode. Instruction mode when signal is on. Regular operation mode when it is off.
WEND	Writing completed	Signal is off after switching to the regular mode, and it is on for 30ms when writing of the PWRT signal is completed.
HEND	Return to home position completed	Outputs signal when returning to home position is completed.
AREA	Upper/lower area limit	On when the current position of actuator is within a range specified by the parameter.
P AREA	Position area	On when the current position of actuator is within a range specified by the program step.
BALM	Voltage reduction in battery	Off when the battery voltage decreases.
LOAD	Load output judgment status	On when a directive torque exceeds the threshold over a certain period within a judgment range.
TRQS	Torque level status	On when the load threshold is reached while moving. Off while the load remains under the threshold.
PE0 - PE6	Cylinder type arrival completed output	Signal generated after operation for positioning is completed.
LS0 - LS2	Cylinder type position detection output	Outputs when the current position comes within the positioning width for each of the three points.

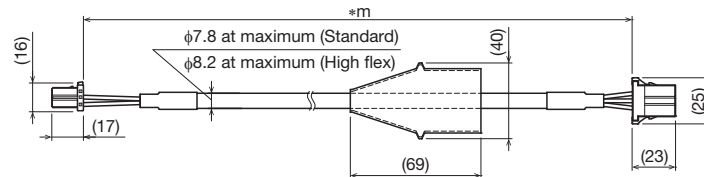
I/O Connector Pin Numbers



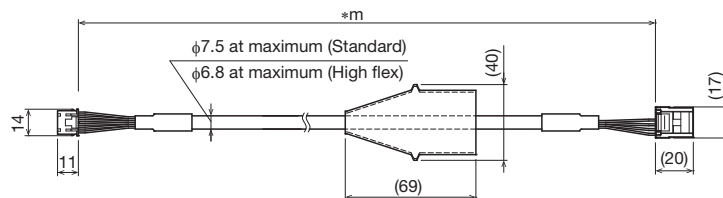
Controller connector port view

Actuator Cable

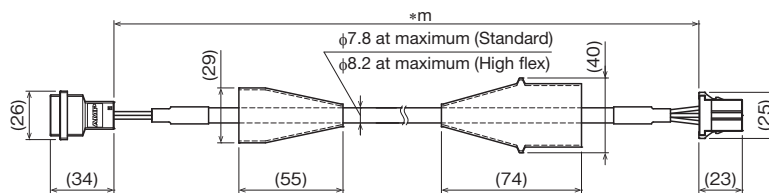
Motor brake cable for TLC: CBL-TLC-ACP-** F (Standard)
 CBL-TLC-ACP-** R (High flex)
 ** indicates cable length: 03 (3m), 05 (5m), or 10 (10m)



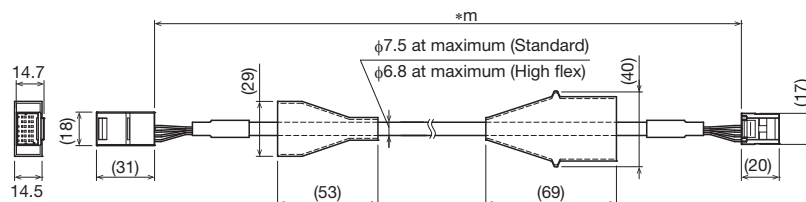
Encoder cable for TLC: CBL-TLC-ACS-** F (Standard)
 CBL-TLC-ACS-** R (High flex)
 ** indicates cable length: 03 (3m), 05 (5m), or 10 (10m)



Motor brake extension cable for TLC/THC: CBL-ACP-EXT01-** F (Standard)
 CBL-ACP-EXT01-** R (High flex)
 ** indicates cable length: 01 (1m), 03 (3m), or 05 (5m)



Extension encoder cable for TLC: CBL-ACS-EXT01-** F (Standard)
 CBL-ACS-EXT01-** R (High flex)
 ** indicates cable length: 01 (1m), 03 (3m), or 05 (5m)



Note 1) For use involving moving elements, select high flex type. The recommended bending radius at the core of cable is R95 or greater.
 (For use involving other than moving elements, R50 or greater is recommended.)
 Note 2) When using the TLC servo driver controller, motor brake cable and encoder cable should be no longer than 11m.
 Up to two extension cables can be connected.

Option

Lithium ion battery (for maintenance)

ER6V C4 (Toshiba Home Appliances Corporation)

- This is required for the absolute system.
- When replacing the battery, order the above.

ES/EC

KRF

US/USW

PCT/PC

Controller

THC

Servo driver controller for single axis



Features

Ready to use, simplified setup.

Simple Operation

Use PC setup tool D-Step or digital operator TDO to access many useful functions.

Functions

- Selectable function modes
(64-position, external unit input instruction, 256-position, 512-position, Solenoid mode 1, and Solenoid mode 2)
- Step data count: Up to 512 (depending on function mode)
- Alarm history: Up to 50 (including power ON history)
- Switching between Auto/Manual, brake release switch
- Selectable control methods (positioning or pressing)
- Absolute supported

Combined Control Device Model Configuration (THC)

● Compact series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke	Sensor
THC	010	100AC	MOD	A	KRF6	06	D	B	0050	1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
THC	010: 100W	100AC: 100VAC 200AC: 200VAC	MOD: Mode switching type	A: Absolute	KRF6	06: 6mm 10: 10mm	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0050: 50m	No symbol: None 1: With sensor

● Universal series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke	Sensor
THC	020	100AC	MOD	A	USW12T	10	D	B	0100	1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
THC	010: 100W 020: 200W 040: 400W 075: 750W	100AC: 100VAC 200AC: 200VAC	MOD: Mode switching type	A: Absolute	Direct coupling US6T US8T USW12T USW16T USW20T Motor wrap US6RT US8RT USW12RT USW16RT USW20RT	05: 5mm 06: 6mm 10: 10mm 12: 12mm 20: 20mm 30: 30mm 40: 40mm	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0100: 100m	No symbol: None 1: With sensor Internal sensor 2: With sensor External sensor

When the capacity is 750W, you only can select 200V AC.

When using motor rated output of 150W, select the capacity 020.

Page 3-007 Model Configuration
When "P" and "Q" is selected in (5) sensor, select "1".
When "6" and "E" is selected in (5) sensor, select "2".

● Press series

Control device model	Capacity	Power supply voltage	Type	Encoder type	Actuator model	Lead	Home position	Brake	Stroke
THC	010	100AC	MOD	A	PCT25	04N	D	B	0050
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
THC	010: 100W 020: 200W 040: 400W 075: 750W	100AC: 100VAC 200AC: 200VAC	MOD: Mode switching type	A: Absolute	Direct coupling PCT25 Motor wrap PCT25R PC30 PC40	04N 06N 06A 06B	D: Motor side R: Reverse motor side	No symbol: Without brake B: With brake	Enter the stroke of the actuator model (6) Example) 0050: 50mm

ES/EC

KRF

US/USW

PCT/PC

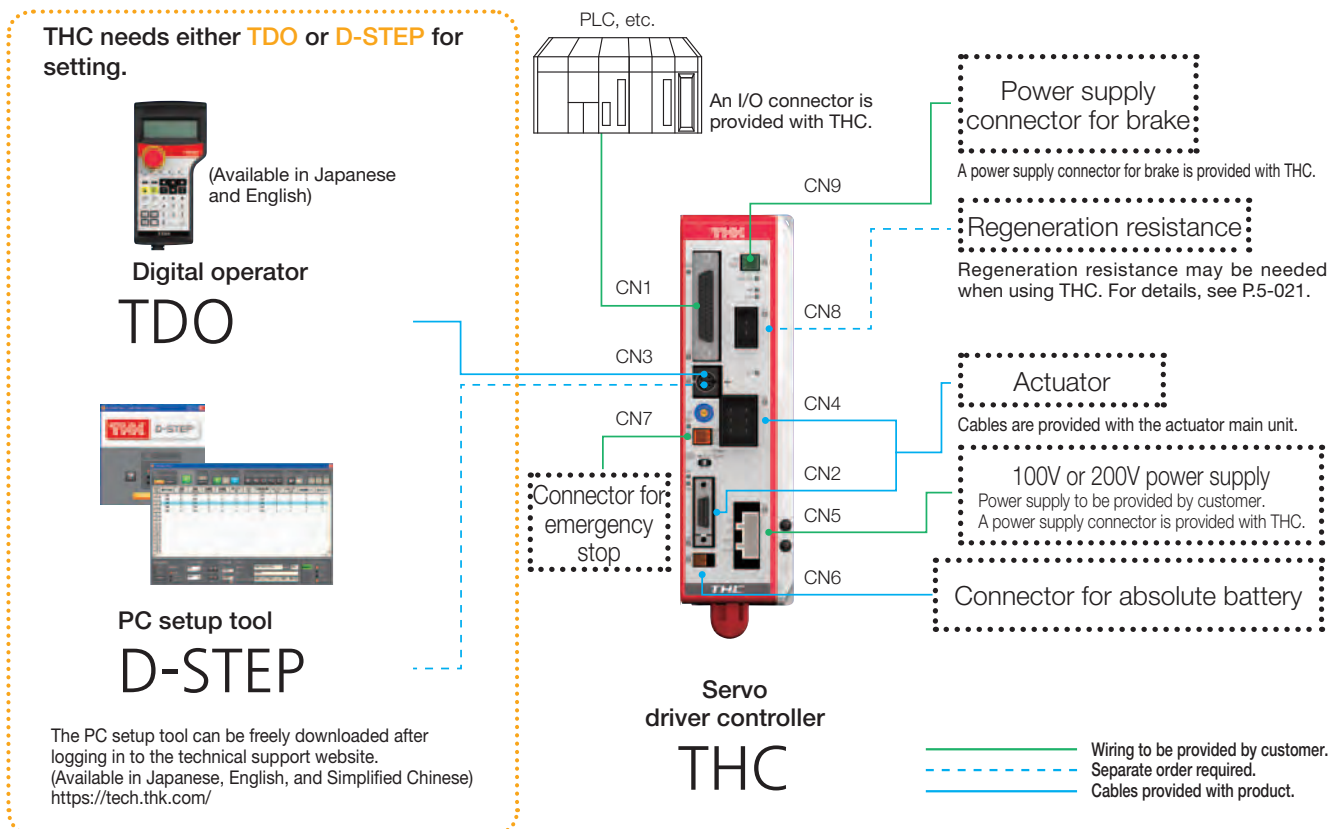
Controller

THC Specifications

Type of machine	Model		THC						
	Capacity		100V AC			200V AC			
			100W	200W	400W	100W	200W	400W	750W
Input power supply	Main circuit		100V AC single-phase, 50/60Hz (Permissible voltage: 90 to 120V)			200V AC single-phase, 50/60Hz (Permissible voltage: 170 to 250V)			
	Control circuit		100V AC single-phase, 50/60Hz (Permissible voltage: 90 to 120V)			200V AC single-phase, 50/60Hz (Permissible voltage: 170 to 250V)			
	Power supply [kVA]		0.5	0.9	1.3	0.5	0.9	1.6	2.4
Control	Control axis		Single axis						
	Motor		AC servo motor						
	Control		Feedback control (Semi-closed loop)						
	Position detection		Absolute						
Program	Acceleration/deceleration		Trapezoid acceleration, S-shape acceleration						
	Function mode		64-position	External unit input	256-position	512-position	Solenoid mode 1	Solenoid mode 2	
	Step data count		64 points	64 points	256 points	512 points	7 points	3 points	
Input/output	Data input/output		PC setup tool D-STEP or Digital operator TDO						
	Dedicated input/output	Input points	16 points (Start, Return to home position, Pause, Reset, Servo ON, Specify step number, etc.)						
	Output points	16 points (Return to home position completed, In position, Servo ready, Alarm, Battery alarm, etc.)							
Communication	Input/output power supply		24VDC ±10% (This should be prepared by yourself.)						
	Serial communication	Device	Digital operator or PC software						
		Method	RS-485						
Usage conditions	Ports		Mini DIN × 1						
	Operating/storage temperature		0 to 40°C (No freezing)/-20 to 85°C (No freezing)						
	Operating/storage humidity		90% RH or below (No condensation)						
General specifications	Ambient condition		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)						
	Protective function		Overload, overvoltage, excessive position deviation, software limit over error, etc.						
	Accessories		Power supply connector × 1 I/O connector × 1						
Options (sold separately)	Options (sold separately)		Digital operator TDO (Cable length 5m) I/O cable 3m, 5m, 7m, and 10m Communication cable (Mini DIN↔USB)						
	External dimensions [mm]		200W or lower: 58mm (W) × 208.6mm (H) × 120mm (D) 400W or higher: 67.5mm (W) × 208.6mm (H) × 120mm (D)						
	Weight (not including battery)		1.3kg or less	1.3kg or less	1.3kg or less	1.3kg or less	1.3kg or less	1.3kg or less	1.5kg or less

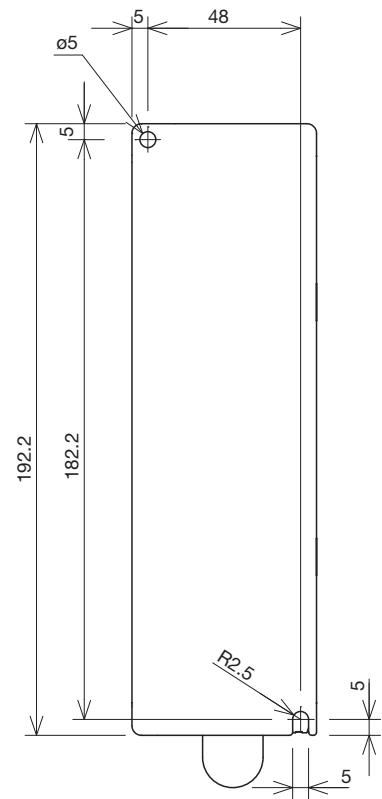
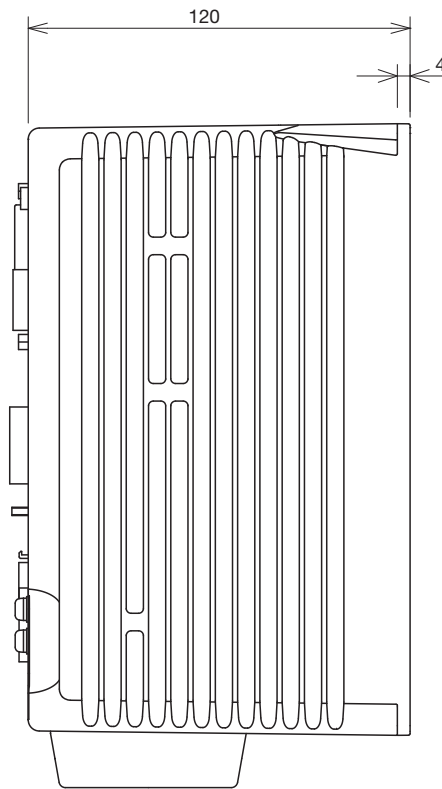
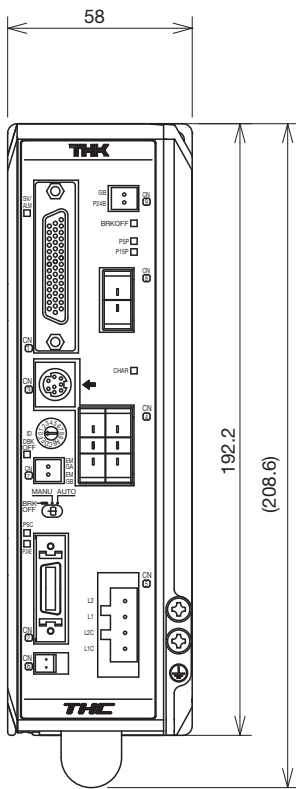
* This count varies depending on function mode.

System Configuration

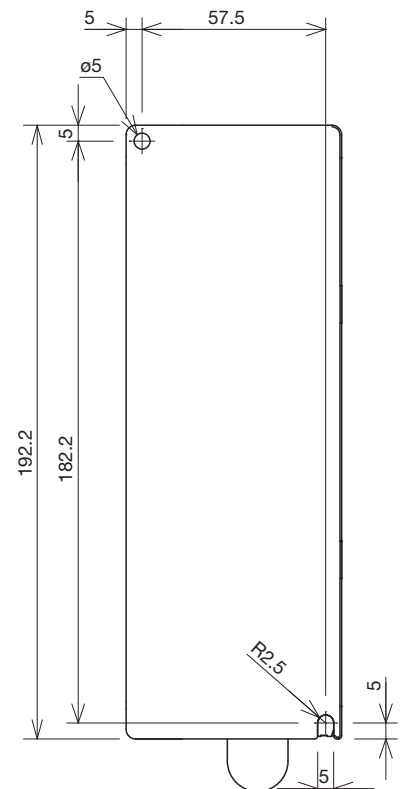
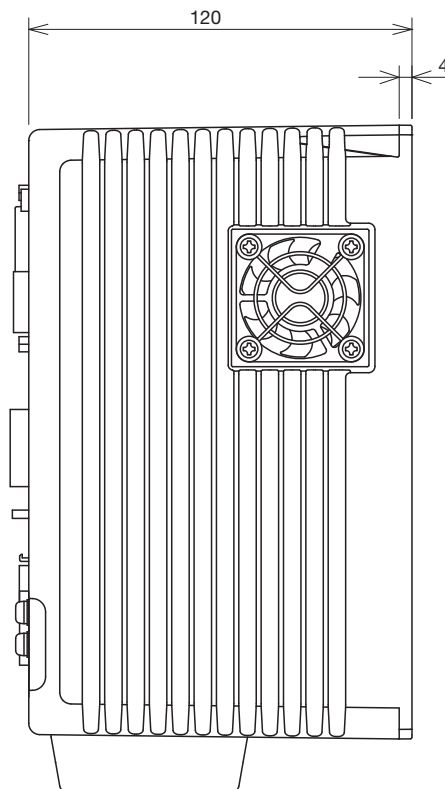
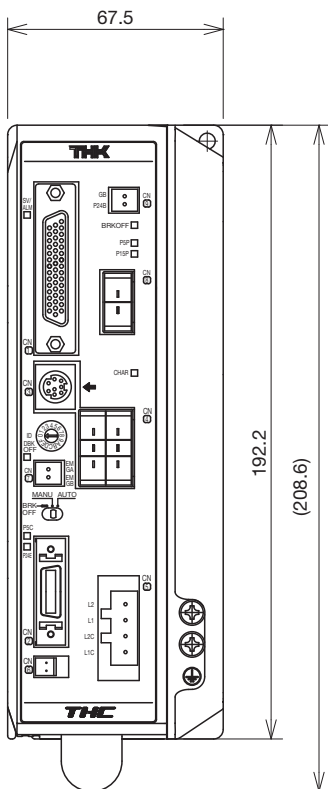


Controller

THC (100-200W)



THC (400W & 750W)



ES/EC

KRF

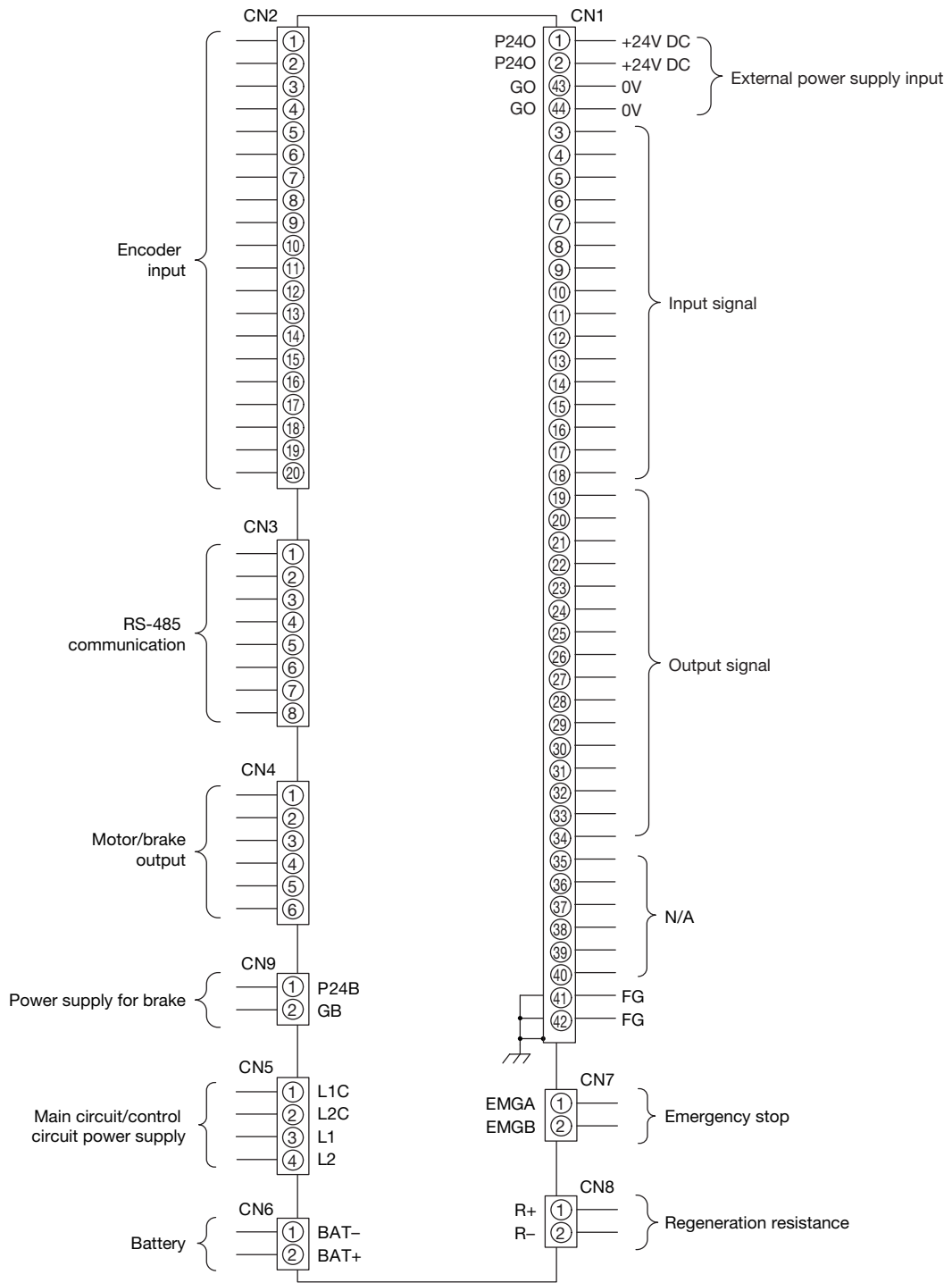
US/USW

PCT/PC

Controller

THC Pin Configuration

ES/EC
KRF
US/USW
PCT/PC
Controller

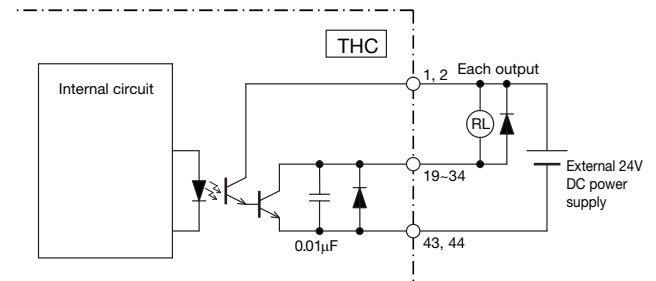
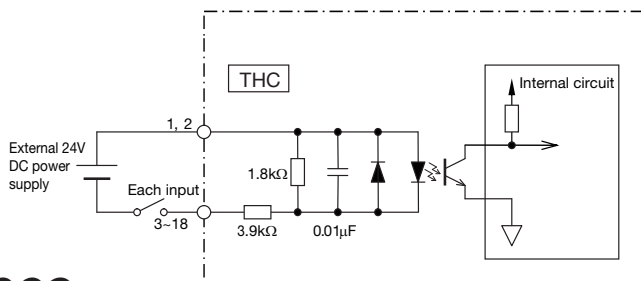


For attached I/O connector pin numbers, see P.5-025.
Customer provides 24V DC power supply for input/output circuitry.

Input/Output Circuitry for THC (CN1)

Input circuit

Output circuit



THC Function Modes

THC provides six modes to support various requirements and purposes.

Function mode		Overview	Step data count	Pressing operation
Multi-point positioning	0: 64-position	Multi-point positioning operation with 64 points With area output, with P area output	64	○
	1: External unit input instruction	Multi-point positioning operation with 64 points I/O-based external unit instruction mode Without area output, with P area output	64	–
	2: 256-position	Multi-point positioning operation with 256 points Without area output, with P area output	256	○
	3: 512-position	Multi-point positioning operation with 512 points Without area output, without P area output	512	○
Electromagnetic valve	4: Solenoid mode 1	Multi-point positioning operation with 7 points Direct move command input With area output, with P area output	7	○
	5: Solenoid mode 2	Multi-point positioning operation with 3 points Direct move command input With position sensor auto-switch output, area output and P area output	3	–

Pin Configuration by Function Mode

I/O	CN1 pin number	Signal name						
		Function mode 0 64-position	Function mode 1 External unit input	Function mode 2 256-position	Function mode 3 512-position	Function mode 4 Solenoid mode 1	Function mode 5 Solenoid mode 2	
Input	3	PI 0	PI 0	PI 0	PI 0	ST 0	ST 0	
	4	PI 1	PI 1	PI 1	PI 1	ST 1	ST 1	
	5	PI 2	PI 2	PI 2	PI 2	ST 2	ST 2	
	6	PI 3	PI 3	PI 3	PI 3	ST 3	–	
	7	PI 4	PI 4	PI 4	PI 4	ST 4	–	
	8	PI 5	PI 5	PI 5	PI 5	ST 5	–	
	9	–	MODE	PI 6	PI 6	ST 6	–	
	10	–	JOG/INCHING	PI 7	PI 7	–	–	
	11	–	JOG P	–	PI 8	–	–	
	12	BKRL	JOG N	BKRL	BKRL	BKRL	BKRL	
	13	STRT	STRT/PWRT	STRT	STRT	–	–	
	14	MANU	MANU	MANU	MANU	MANU	MANU	
	15	HOME	HOME	HOME	HOME	HOME	HOME	
	16	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	PAUSE	
	17	REST	REST	REST	REST	REST	REST	
	18	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	SV-ON	
	Output	19	PO 0	PO 0	PO 0	PO 0	PE 0	LS 0
		20	PO 1	PO 1	PO 1	PO 1	PE 1	LS 1
21		PO 2	PO 2	PO 2	PO 2	PE 2	LS 2	
22		PO 3	PO 3	PO 3	PO 3	PE 3	–	
23		PO 4	PO 4	PO 4	PO 4	PE 4	–	
24		PO 5	PO 5	PO 5	PO 5	PE 5	–	
25		MOVE	MOVE	PO 6	PO 6	PE 6	–	
26		AREA	MODES	PO 7	PO 7	AREA	AREA	
27		P AREA	P AREA	P AREA	PO 8	P AREA	P AREA	
28		MANU S	MANU S	MANU S	MANU S	MANU S	MANU S	
29		HEND	HEND	HEND	HEND	HEND	HEND	
30		INPS	INPS	INPS	INPS	INPS	–	
31		LOAD/TRQS	WEND	LOAD/TRQS	LOAD/TRQS	LOAD/TRQS	–	
32		SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	SVRDY	
33		BALM	BALM	BALM	BALM	BALM	BALM	
34		ALM	ALM	ALM	ALM	ALM	ALM	

ES/EC

KRF

US/USW

PCT/PC

Controller

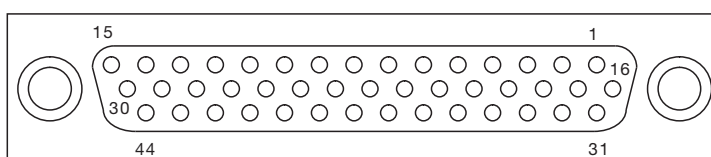
Input Signal Functions

Input		
Signal name	Description	Remarks
MANU	Operation mode	Switches AUTO/MANUAL from I/O. MANUAL when signal is on, and AUTO when it is off.
STRT	Start	Start signal of program step. Program starts when signal is on.
PI0 - PI8	Instruction position number	Input for specifying position numbers. Specifies programs at each signal level. Selects a program step and starts a program with "STRT" signal.
PAUSE	Pause	Temporarily interrupts the operation. PAUSE input status when signal is off. (N.C. connection specification)
HOME	Return to home position	Starts the return to home position operation. Returning to home position is started when signal is on. It stops when it is off.
SV-ON	Servo on	Turns the servo ON and OFF. Servo ON when signal is on, and servo OFF when signal is off.
REST	Alarm reset	Resets alarm. Resets remaining travel distance during pause. Resets when it is on.
BKRL	Brake release	Forcibly releases brake. Releases brake when it is on.
MODE	External unit input instruction mode	Enters the instruction mode when signal is on. Instruction mode when signal is on.
PWRT	Current position write with external unit input instruction	During the instruction mode, the position is written when this signal is greater than 20ms with the position for writing specified.
JOG/INCHING	Manual operation switch with external unit input instruction	Switching of manual operation during the instruction mode. Selects inching operation when it is on, and jog operation when it is off.
JOG P	Moving direction + with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in + direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
JOG N	Moving direction - with external unit input instruction	Operating direction and operation start signal during the instruction mode. Moves in - direction to the soft limit when signal is on. Decelerates and stops when it is off while moving.
ST0 - 6	Cylinder type START	Program start signal for position numbers from ST0 to ST6. Can select either Level or Edge for signal using parameter 13 "move" command. Note that when more than two positions are on at the same time, the lowest-number signal takes precedence.

Output Signal Functions

Output		
Signal name	Description	Remarks
MANU S	Operation mode status	Operation mode status outputs (AUTO/MANUAL). MANUAL when signal is on, AUTO when off.
PO1 - PO8	End position number	Outputs the position number arrived after positioning is completed (binary outputs).
MOVE	Moving	Outputs signal during motor operation.
INPS	Positioning completed	Outputs when motor comes within the positioning completed width.
SVRDY	Operation preparations completed	Outputs signal when servo is on.
ALM	Alarm	Alarm output signal.
MODES	Operation mode status	Output signal for judging instruction mode or regular operation mode. Instruction mode when signal is on. Regular operation mode when it is off.
WEND	Writing completed	Signal is off after switching to the regular mode, and it is on for 30ms when writing of the PWRT signal is completed.
HEND	Return to home position completed	Outputs signal when returning to home position is completed.
AREA	Upper/lower area limit	On when the current position of actuator is within a range specified by the parameter.
P AREA	Position area	On when the current position of actuator is within a range specified by the program step.
BALM	Voltage reduction in battery	Off when the battery voltage decreases.
LOAD	Load output judgment status	On when a directive torque exceeds the threshold over a certain period within a judgment range.
TRQS	Torque level status	On when the load threshold is reached while moving. Off while the load remains under the threshold.
PE0 - PE6	Cylinder type arrival completed output	Signal generated after operation for positioning is completed.
LS0 - LS2	Cylinder type position detection output	Outputs when the current position comes within the positioning width for each of the three points.

I/O Connector Pin Numbers



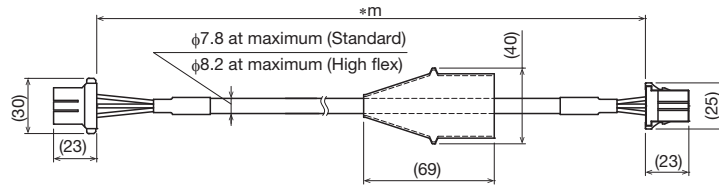
Controller connector port view

Actuator Cable

Motor brake cable for THC: CBL-THC-ACP-** F (Standard)

CBL-THC-ACP-** R (High flex)

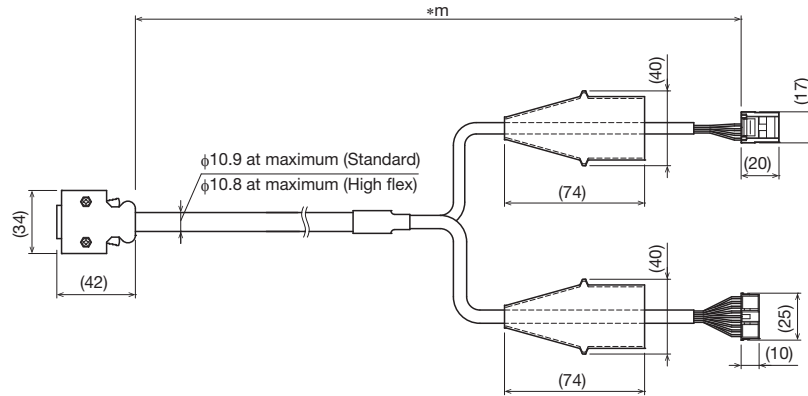
** indicates cable length: 03 (3m), 05 (5m), or 10 (10m)



Encoder sensor cable for THC: CBL-THC-ACS-** F (Standard)

CBL-THC-ACS-** R (High flex)

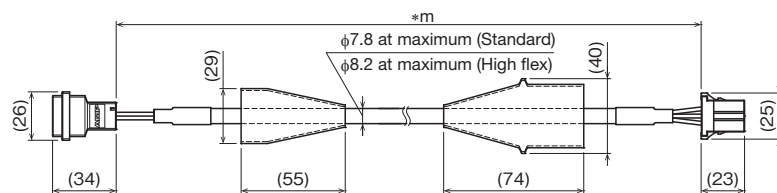
** indicates cable length: 03 (3m), 05 (5m), or 10 (10m)



Motor brake extension cable for TLC/THC: CBL-ACP-EXT01-** F (Standard)

CBL-ACP-EXT01-** R (High flex)

** indicates cable length: 01 (1m), 03 (3m), or 05 (5m)



ES/EC

KRF

US/USW

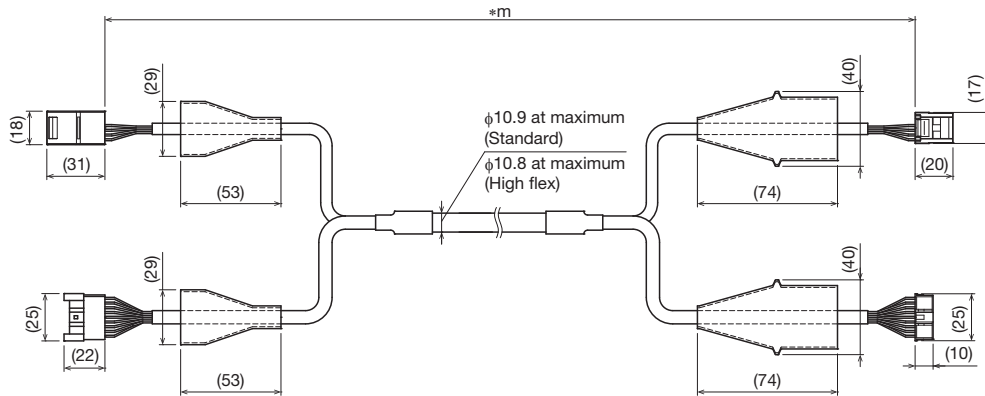
PCT/PC

Controller

Encoder sensor extension cable for THC: CBL-ACS-EXT02-** F (Standard)

CBL-ACS-EXT02-** R (High flex)

** indicates cable length: 01 (1m), 03 (3m), or 05 (5m)



Note 1) For use involving moving elements, select high flex type. The recommended bending radius at the core of cable is R95 or greater.
(For use involving other than moving elements, R50 or greater is recommended.)

Note 2) When using the THC servo driver controller, motor brake cable and encoder sensor cable should be no longer than 16m.
Up to two extension cables can be connected.

Note 3) When using the THC servo driver controller, the lengths of motor brake cable and encoder sensor cable should be no longer than 16m.
Up to two extension cables can be connected.

Option

Lithium ion battery (for maintenance)

ER6V C4 (Toshiba Home Appliances Corporation)

- This is required for the absolute system.
- When replacing the battery, order the above.

Optional (Regeneration Resistance)

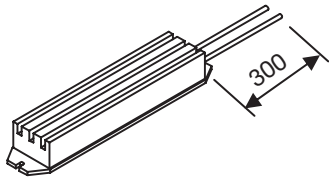
Regeneration resistance

To make electrical actuator operate via the THC controller series, a regeneration resistance may be necessary depending on the operating conditions. The following table lists the required number of regeneration resistances just for reference. The customer should provide the required number of them.

It is recommended that you use regeneration resistances manufactured by Iwaki Musen Kenkyusho Co.,LTD.

THK supplies regeneration resistance connection cables. The customer can order them separately as necessary.

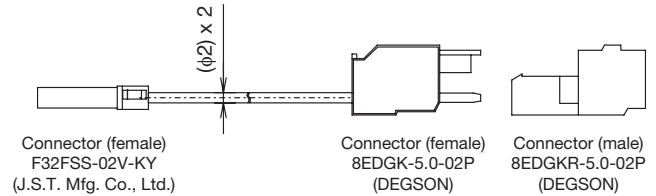
■ Regeneration resistance (Power-type cement resistor)



	Name of item	Manufacturer
A	RH150 100Ω J	Iwaki Musen
B	RH150 50Ω J	Kenkyusho Co.,LTD.

THC capacity	Orientation	
	Horizontal mount	Vertical mount
100W	A x 1	A x 1
200W	A x 1	A x 1
400W	B x 2	B x 2
750W	B x 2	B x 2

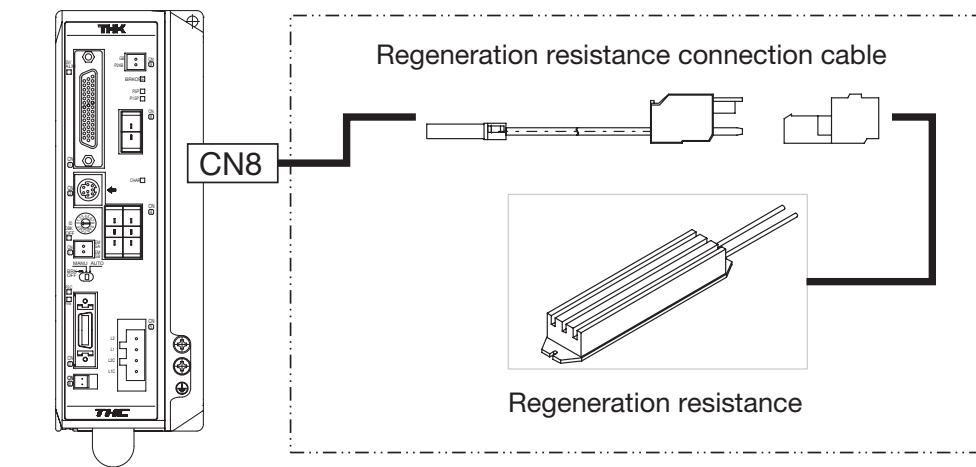
■ Regeneration resistance connection cable (CBL-REG00-01F)



* Cable insertion jig (DG010-01P-19-00AH) is provided.
(The customer does not have to provide special tools)

	Model	Length	Manufacturer
1	CBL-REG00-01F	1m	THK Co., Ltd.

Configuration Diagram



Controller series THC

* There is no polarity in wiring.

ES/EC

KRF

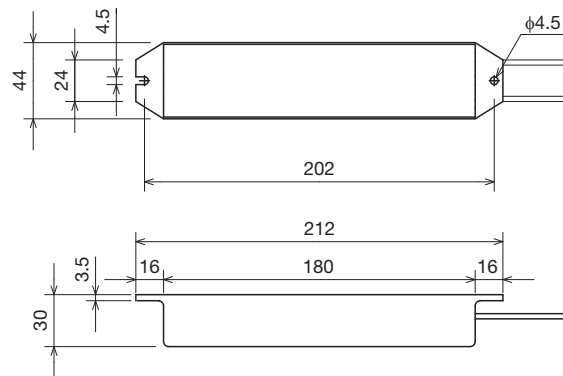
US/USW

PCT/PC

Controller

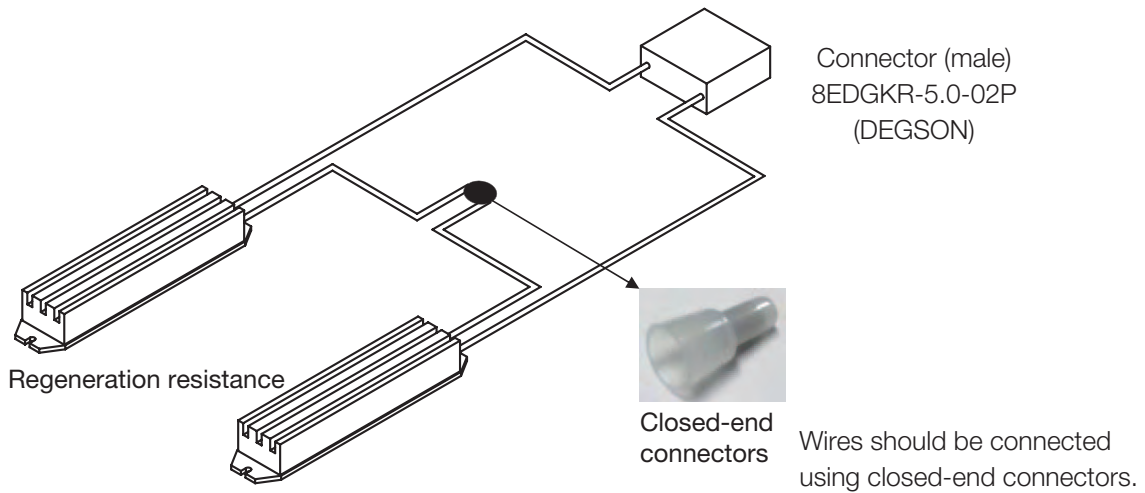
Regeneration Resistance External Drawing

RH150 (90W, 100Ω) (90W, 50Ω) common to all



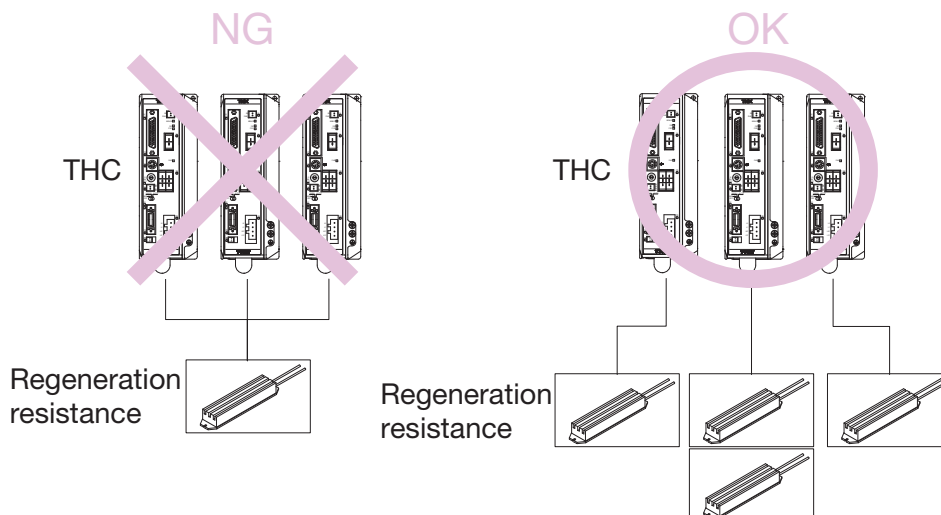
Wiring Example (Using Two Regeneration Resistances)

When you use two regeneration resistances, connect them in series.



Precautions on Selecting Resistance

The customer should provide the required number of regeneration resistances for each THC.



TNU/TJU

Multiple-axis connection fieldbus compatible



ES/EC

KRF

US/USW

PCT/PC

Controller

Less Wiring Required

Connecting to a PLC through a fieldbus network requires less wiring than an I/O cable connection. In addition, the network unit and each driver controller can be connected with a single dedicated cable.



Up to 16 Axes Can Be Connected

Up to 16 axes of mixed THK driver controllers (TSC, TLC, and THC) can be connected using one TNU and TJU (branch unit) in combination.

Direct Numerical Control Supported (Version 1.2 or later)

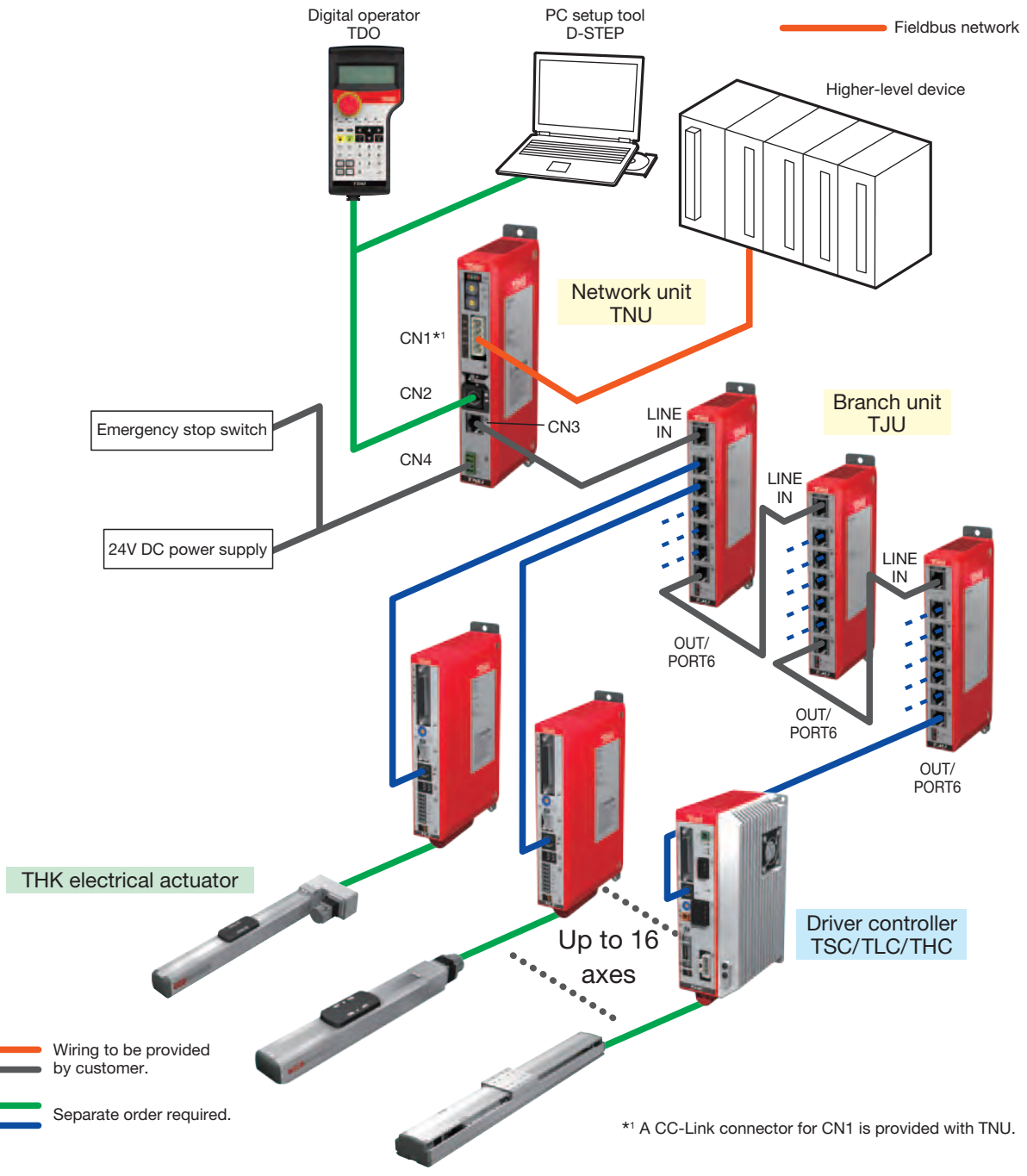
Position, speed, and acceleration commands can be made directly from the PLC. As well, information such as the current position can be monitored.

* TSC is supported with Version 1.22, TLC/THC with Version 1.07 or later.

* For TNU-EC support, contact THK.

System Configuration

- ES/EC
- KRF
- US/USW
- PCT/PC
- Controller



Model Configuration

● Network unit

Model	Network type
TNU	CC
(1)	(2)
TNU	CC:CC-Link
	EC:EtherCAT
	EP:EtherNet/IP

● Branch unit

Model
TJU
(1)
TJU

● TACnet cable (between TJU and driver controller)

Model	Type	Cable length
CBL	NW	01
(1)	(2)	(3)
CBL	NW	01:1m
		03:3m

Use an industrial Ethernet cable between TNU and TJU, and between TJUs.

Specifications

Model		TNU-CC		TNU-EC	TNU-EP
Fieldbus	Communication standard	CC-Link Ver1.10	CC-Link Ver2.00	EtherCAT	EtherNet/IP
	Communication speed	10Mbps/5Mbps/2.5Mbps/625kbps/156kbps 100M 10M/100M		100M	10M/100M
	Number of occupied stations	Remote device stations 4 stations	Remote device stations 1 station, 2 stations, 3 stations, 4 stations	—	—
Applicable controller		TSC/TLC/THC			
THK network	Transmission channel type	RS-485			
	Communication speed [bps]	38.4k/57.6k/115.2k			
	Communication method	Half duplex			
	Maximum trunk length [m]	20			
	Maximum number of connectable axes	16			
Input power supply		24V DC \pm 10%, up to 0.3A			
Operating/storage temperature		0 to 55°C (No freezing)/-20 to 85°C (No freezing)			
Ambient condition		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist)			
Protective function		Higher-level network communication error, communication error, system error			
Weight [g]		240(TJU:220)			

ES/EC

KRF

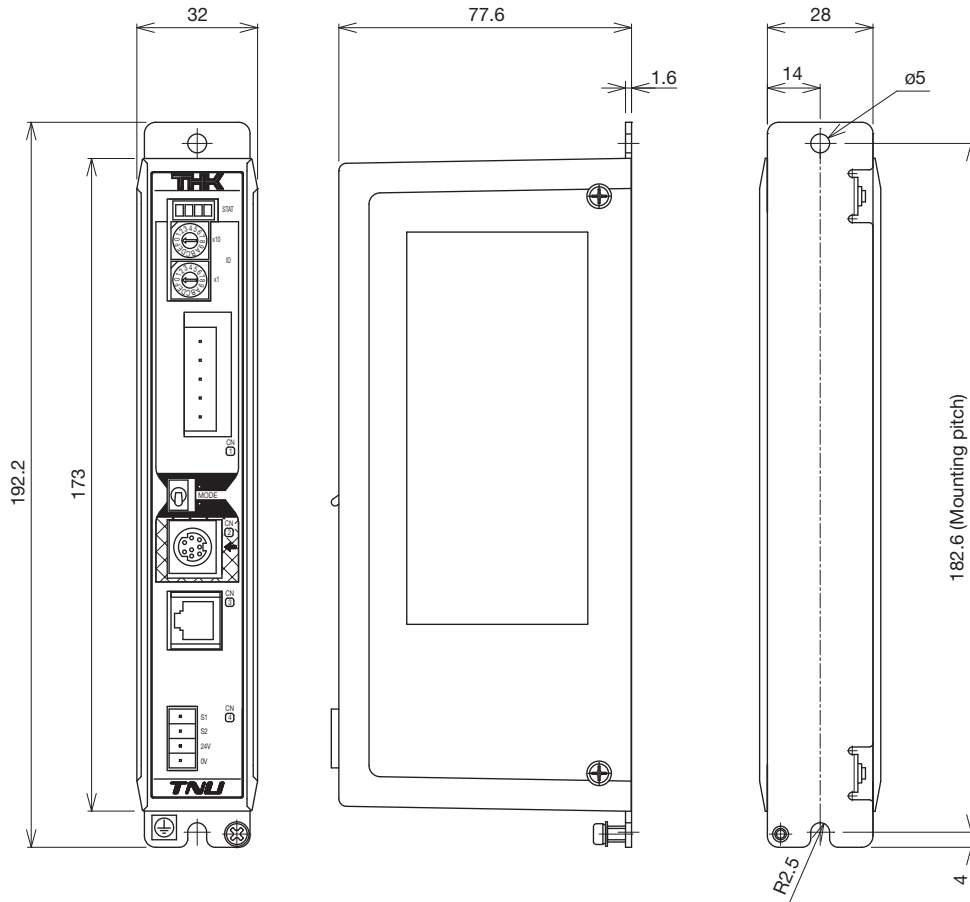
US/USW

PCT/PC

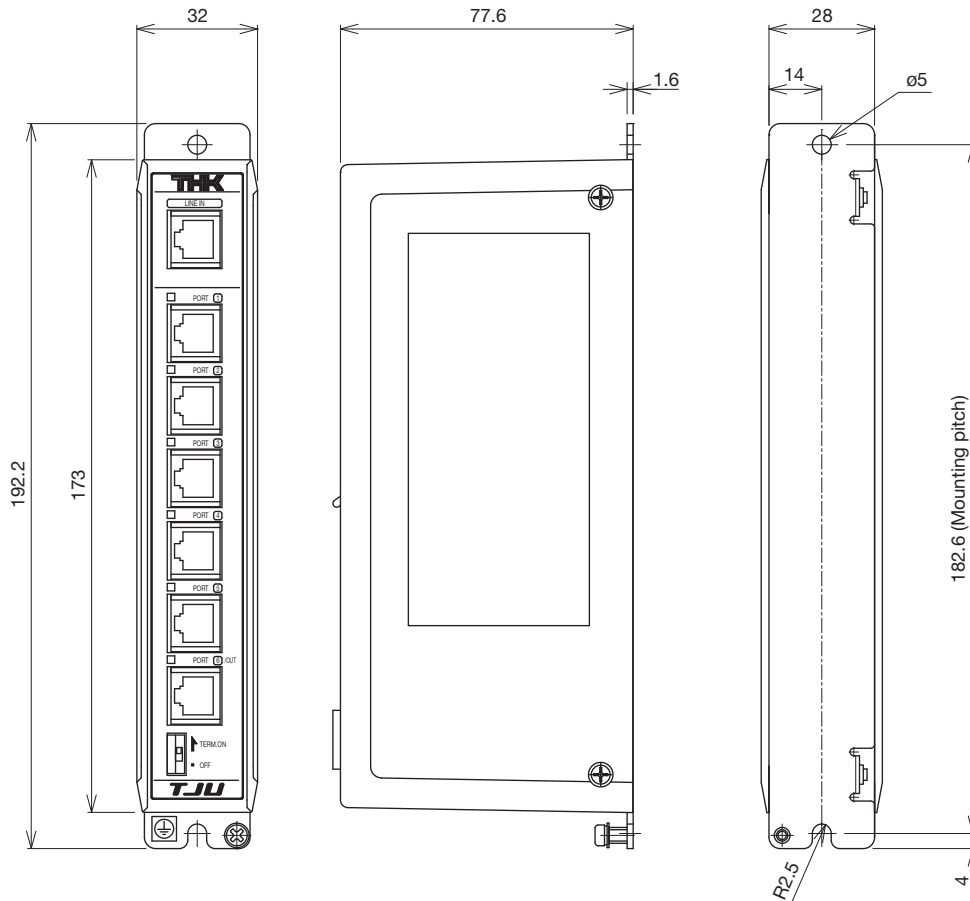
Controller

Dimensions

● TNU



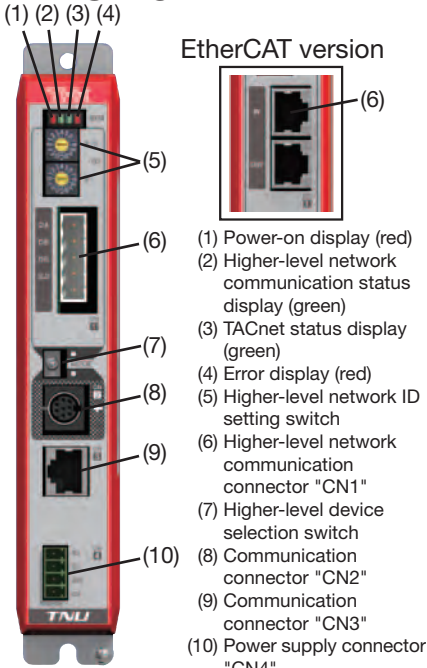
● TJU



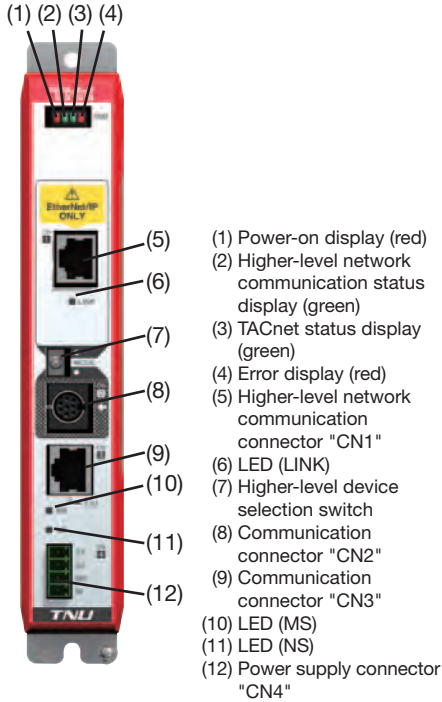
The external dimensions and mounting dimensions of TNU and TJU are the same.

Components

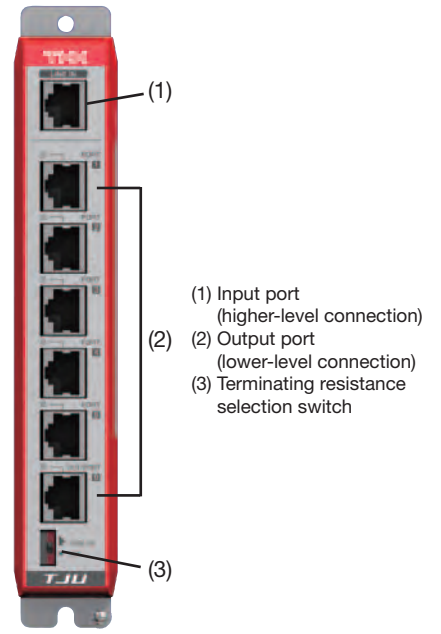
- TNU-CC
- TNU-EC



- TNU-EP



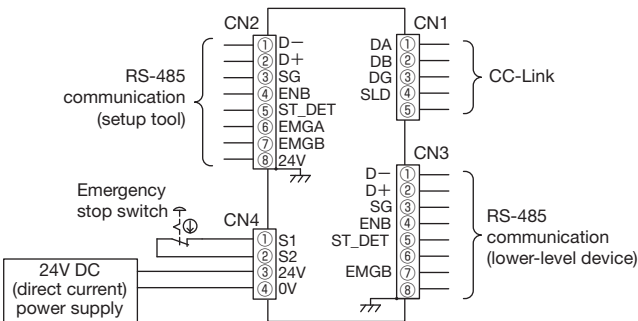
- TJU



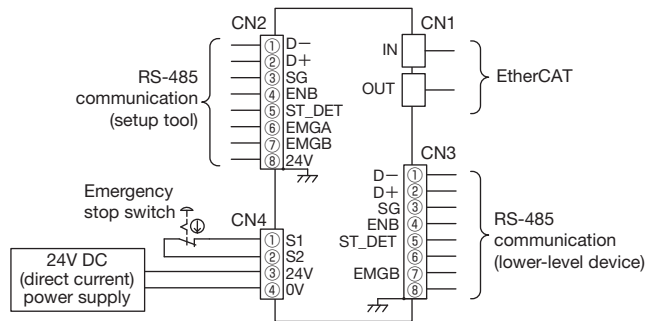
ES/EC
 KRF
 US/USW
 PCT/PC
 Controller

External Device Connection (TNU)

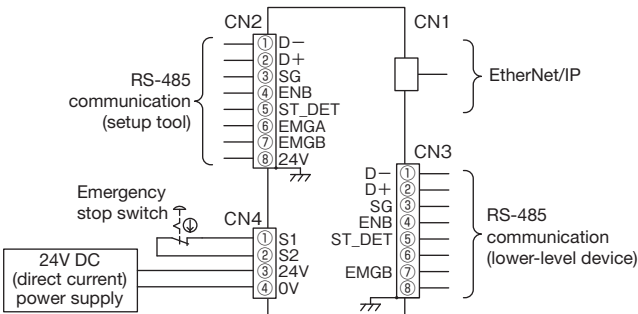
- CC-Link



- EtherCAT



- EtherNet/IP



Note: The emergency stop terminals (CN4-S1 and S2) are not used for power shutdown of TNU, but used for an emergency stop of the lower-level device (THK driver controller).

TDO Digital operator (separate order required)



ES/EC

KRF

US/USW

PCT/PC

Controller

Features

Simple, quick operations and settings of TSC, TLC and THC are possible without using a PC.

Simple Operation

Key sheet with a straightforward design,
LC with backlight (20 digits × 4 lines).

Functions

- Checking and editing step data and parameters
 - Operation of actuator
(Return to home position, Jog operation, Inching operation, Program execution, Servo ON/OFF, Electromagnetic brake ON/OFF)
 - Monitor (I/O, Current position, Position command, Current command, Version display)
 - Alarm (History display, Clear history, Interrupt display on occurrence, Alarm reset)
 - Settings (Backlight luminance, LCD contrast, Beep tone, Automatic turn off of backlight)
 - Enable switch (3 positions) - Protection structure IP54 (excluding cable connectors) - Display language (Japanese/English)
- External dimensions: 110mm (W) × 218.3mm (H) × 66.6mm (D) (excluding crests)
Main unit weight: 400g (excluding cables) Cable length: 5m
TLC/THC is supported with Version 1.03 or later.
TNU is supported with Version 1.10 or later.

Model Configuration

Model	Type
TDO	N
(1)	(2)
TDO	N: Category 2* compliant type
	* ISO 13849-1

D-STEP PC setup tool



Three languages supported



User-friendly interface

Features

Supports multifunctional TSC/TLC/THC with user-friendly interface.

Simple Operation

Operations and settings of TSC, TLC and THC are possible using a PC.
Equipped with functions useful for maintenance, such as backing up data or logging operating states.

Functions

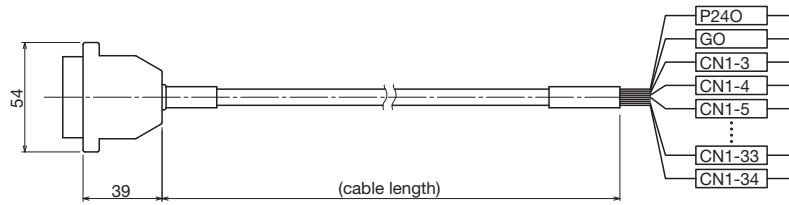
- Checking, editing, backing up, or offline-editing of step data
 - Checking, editing, backing up, or offline-editing of parameters
 - Operations of actuator (Return to home position, Jog operation, Inching operation, Program execution, Servo ON/OFF)
 - Monitor (I/O, Current position, Position command, Current command) - Logging (Speed and current waveform display)
 - Alarm (History display, Clear history, Alarm reset) - Display language (Japanese/English/Simplified Chinese)
- Supported OS: Windows XP/Windows Vista/Windows 7
D-STEP can be freely downloaded from the THK technical support website (<https://tech.thk.com/>).
TLC/THC/TNU is supported with Version 1.10 or later.

Cable

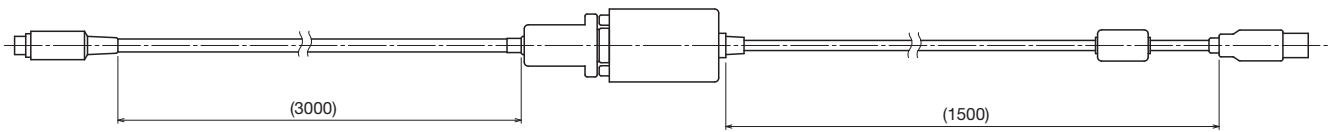
I/O cable: CBL-TSC-IO-** (optional)

** indicates cable length: 03 (3m), 05 (5m), 07 (7m), or 10 (10m).

Cables are shipped with the discrete wire side terminals unprocessed.
Cables are used for TSC/TLC/THC.



PC communications cable: CBL-COM-03 (optional)



ES/EC

KRF

US/USW

PCT/PC

Controller

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