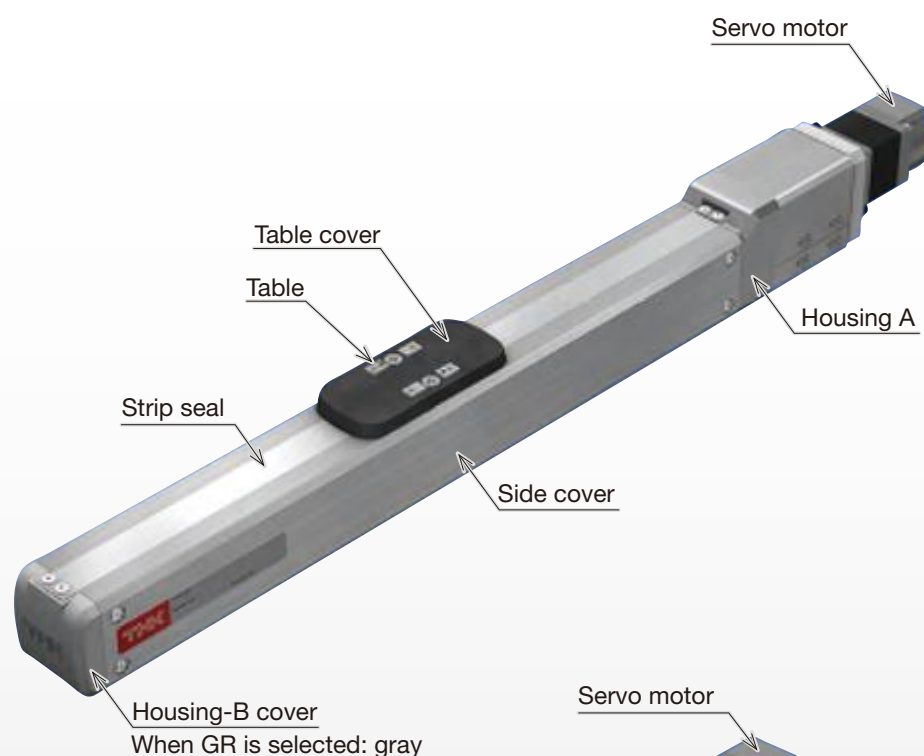


Electrical Actuator
Economy series
ES/EC

Lightweight, Compact

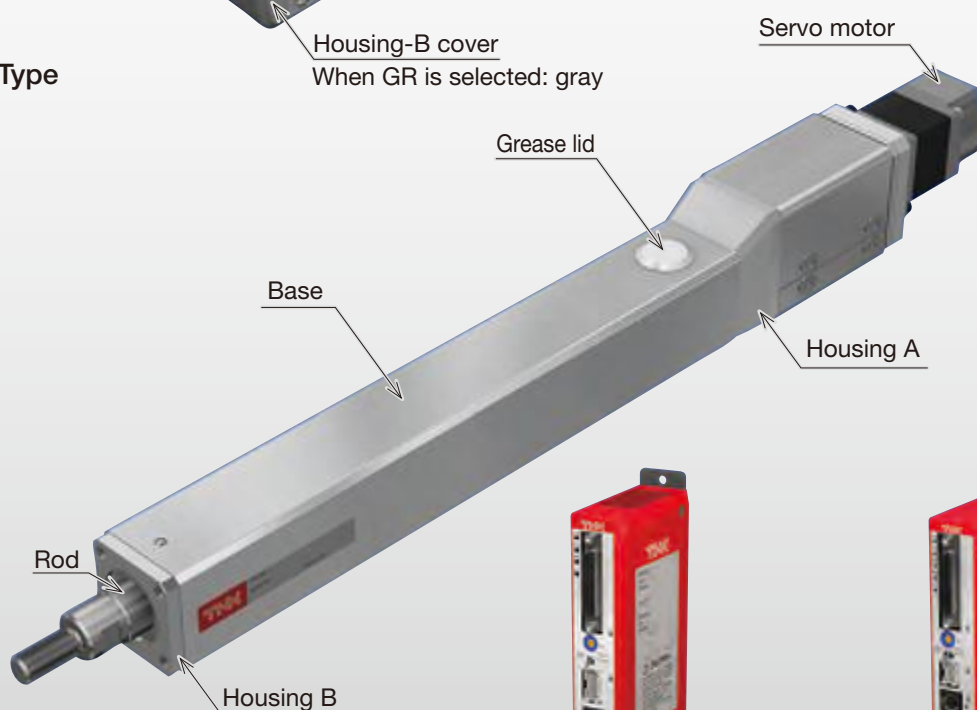
Slider Type

ES



Cylinder Type

EC



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.

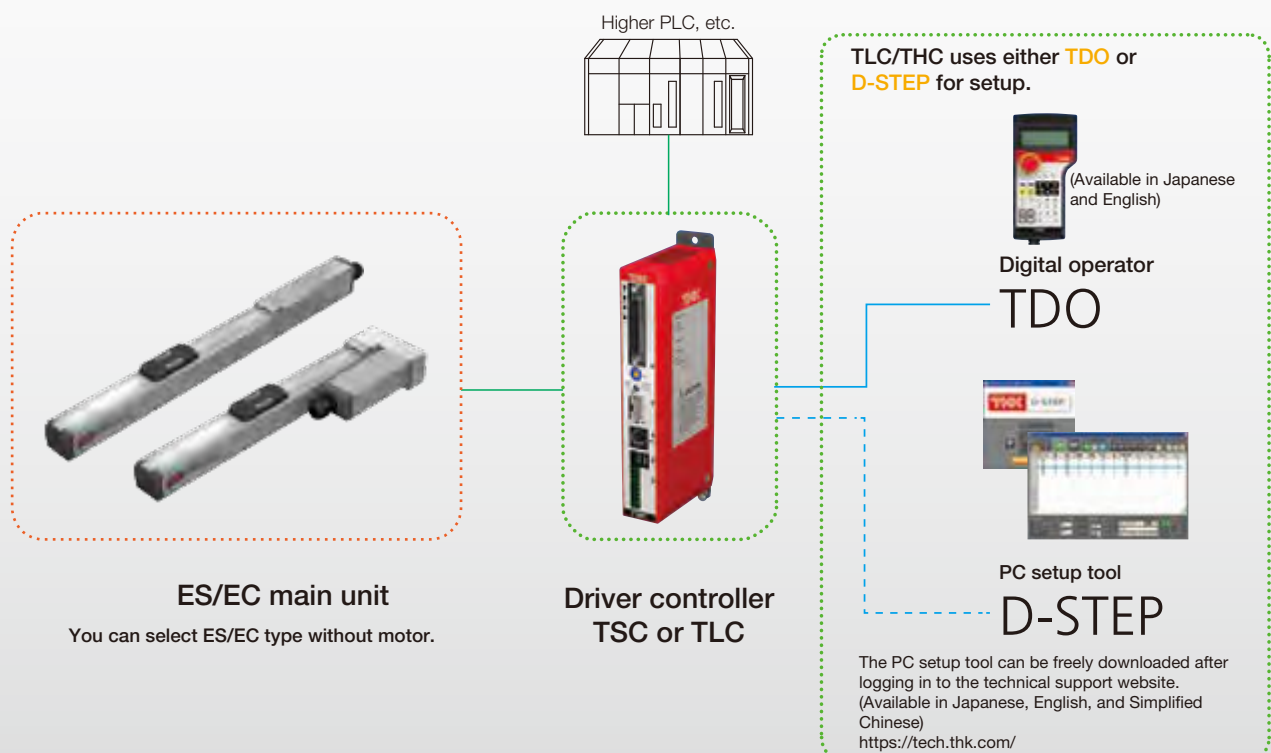
Long-term maintenance-free operation

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

Predictable running life

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

System



Lineup 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 to 300	Stepper motor □28	1	0.5	
ES4	6	50 to 400	Stepper motor □35	9	4	
	12			7.5	1.5	
ES5	6	50 to 500	Stepper motor □42	10	5	
	12			6	2	
ES6	6	50 to 600	Stepper motor □42	10	5	
	12			6	2	
ES3R	6	50 to 300	Stepper motor □28	1	0.5	
ES4R	6	50 to 400	Stepper motor □35	4	1.5	
	12			2	1	
ES5R	6	50 to 500	Stepper motor □42	8	2	
	12			6	1	
ES6R	6	50 to 600	Stepper motor □42	8	2	
	12			6	1	
EC3	6	50 to 200	Stepper motor □35	15	6	
EC4	6	50 to 300	Stepper motor □42	40	12	
	12			25	4.5	
EC3R	6	50 to 200	Stepper motor □35	15	3	
EC4R	6	50 to 300	Stepper motor □42	40	6	
	12			15	4	
EC3H	6	50 to 200	Stepper motor □35	15	6	
EC4H	6	50 to 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

Lineup 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 mount	Vertical mount	
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} At rated motor speed (3,000min⁻¹).

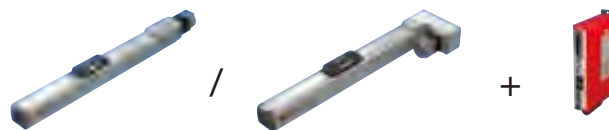
^{*2} Based on load capacity at rated speed with 0.3G acceleration and deceleration rate.

^{*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							

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	460	
300				230	170							
600				460	340							
300												
600												
300										270	230	
600										540	460	
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 size / motor rated output	Motor cable orientation	Homing method	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	No symbol: ES: Red cover : EC: None	28P: Stepper motor □28	No symbol: When selecting TSC	D00: Motor side	No symbol: None
ES4	12: 12mm	0100: 100mm		TL: Servo driver controller TLC	MR: Motor right wrap ^{*1}	35P: Stepper motor □35	R: Right	R00: Reverse motor side	S3: Standard 3m
ES5		0150: 150mm			ML: Motor left wrap ^{*1}	42P: Stepper motor □42	U: Up		S5: Standard 5m
ES6		0200: 200mm			GR: Change the cover color to gray ^{*2}	28PB: Stepper motor □28 with brake	L: Left		SA: Standard 10m [*]
ES3R		0250: 250mm			SB: With slider base ^{*2}	35PB: Stepper motor □35 with brake	D: Down		F3: Standard 3m
ES4R		0300: 300mm			CB: With cylinder base ^{*3}	42PB: Stepper motor □42 with brake			F5: Standard 5m
ES5R		0350: 350mm		Separate order is required.	FL: With flange ^{*3 *4}	M05: 50W			FA: Standard 10m
ES6R		0400: 400mm			LB: With link ball ^{*3 *4}	M05B: 50W with brake			H3: High flex 3m
EC3		0450: 450mm			□ ₁ □ ₂ : Sensor ^{*2}				H5: High flex 5m
EC4		0500: 500mm							HA: High flex 10m
EC3R		0550: 550mm							
EC4R		0600: 600mm							
EC3H									
EC4H									

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.

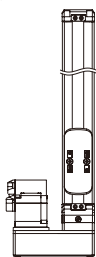
Indicates the type and length of attached cables. Cables you can select differ depending on controllers.
TSC: "S3", "S5", "SA"
TLC: "F3", "F5", "FA", "H3", "H5", "HA"
^{*} For control device (5) TSC, when using a 10m actuator cable, insert a noise filter to the TSC power supply. Recommended noise filter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

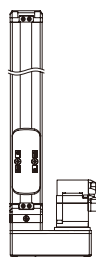
Motors you can select differ depending on models.
ES3: "28P", "28PB" EC3: "35P", "35PB"
ES4: "35P", "35PB" EC4: "42P", "42PB"
ES5: "42P", "42PB" "M05", "M05B"
ES6: "42P", "42PB" "M05", "M05B"

Motor wrap direction

Slider type ES

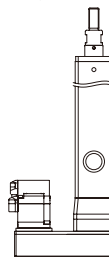


Option symbol ML: Motor left wrap

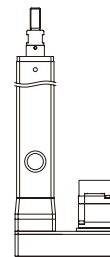


Option symbol MR: Motor right wrap

Cylinder type EC



Option symbol ML: Motor left wrap



Option symbol MR: Motor right wrap

Pages for detailed description

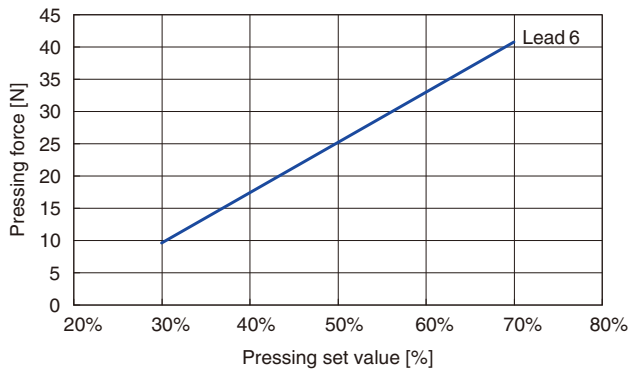
(6) Options

GR: Change the cover color to gray	P. 49
SB: With slider base	P. 50
CB: With cylinder base	P. 54
FL: With flange	P. 54
LB: With link ball	P. 54
□ ₁ □ ₂ : Sensor	P. 53

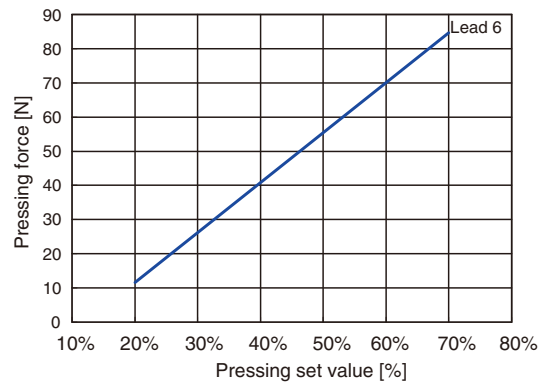
Pressing Force and Pressing Set Value: Relationship Diagram

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

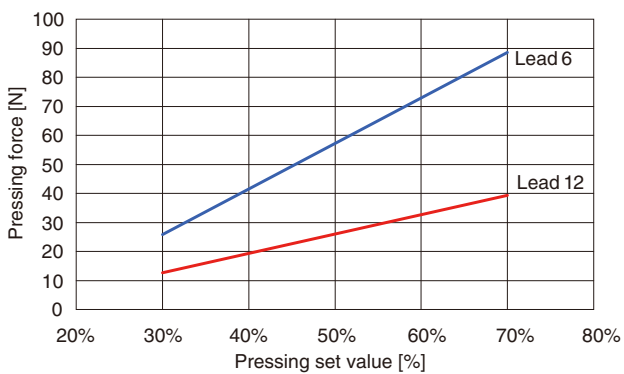
■ ES3/ES3R (TSC)



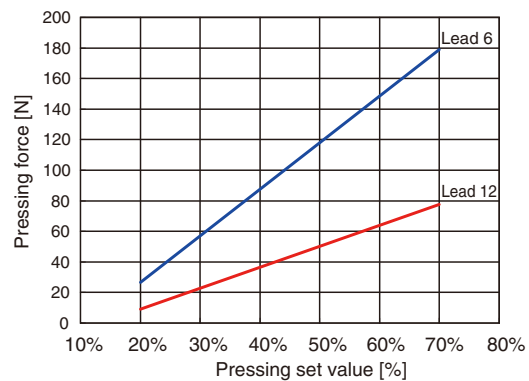
■ EC3/EC3R (TSC)



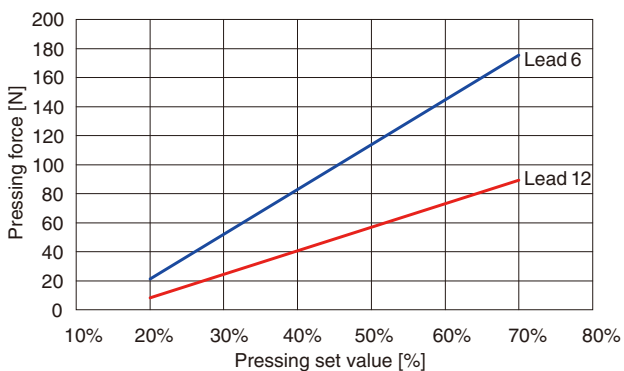
■ ES4/ES4R (TSC)



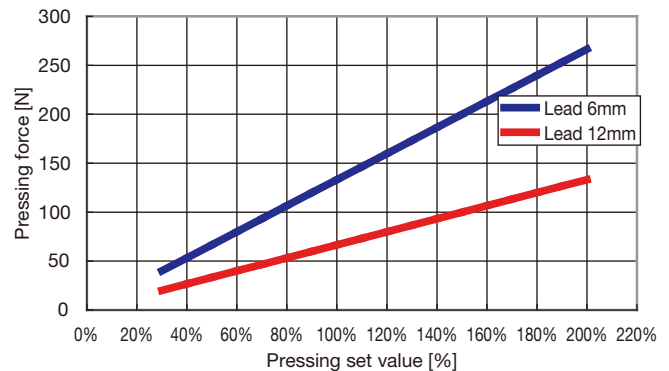
■ EC4/EC4R (TSC)



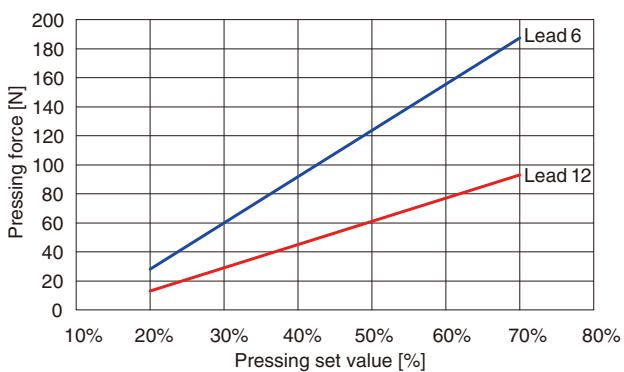
■ ES5/ES5R (TSC)



■ 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.

ES3

Slider type TSC specification Direct motor coupling



+

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 size		□28	
Ball screw lead [mm]		6	
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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	

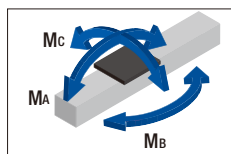
*1 Service life is based on below conditions.

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

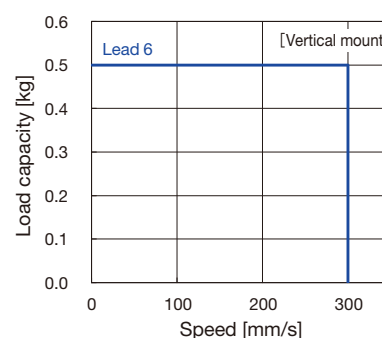
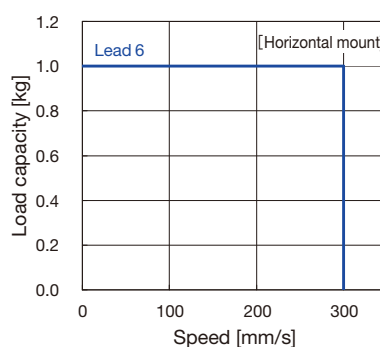
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_B is the center of the table.

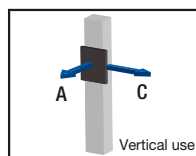
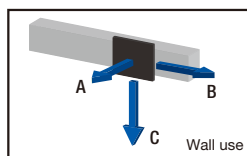
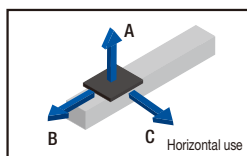
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



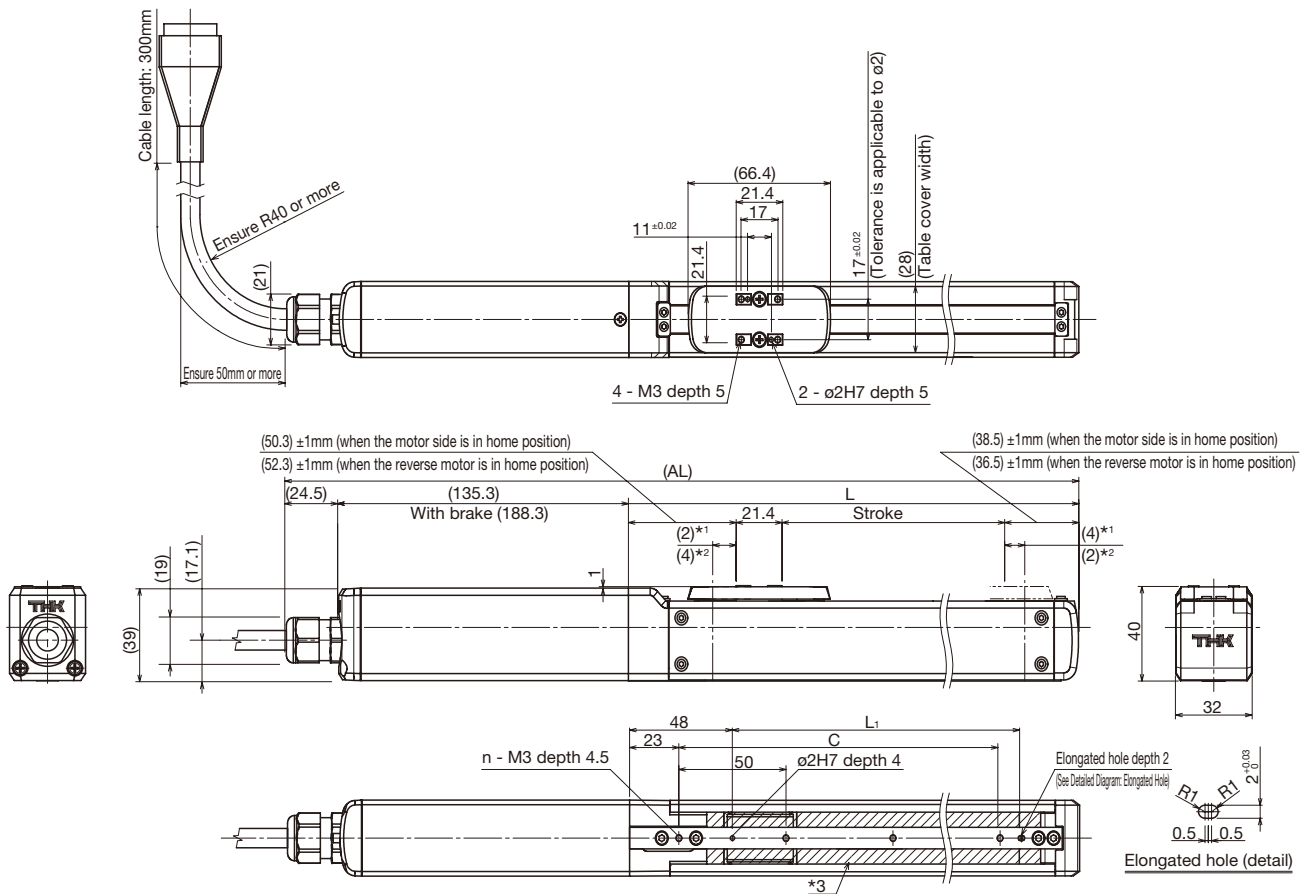
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	0.5	200	200	200	6	0.5	200	200	200	6	0.3	200	200	
	1	200	160	200		1	170	150	200		0.5	200	200	

* 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.

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
	C	100	150	200	250	300	350
Mounting hole count	n	3	4	5	6	7	8
Weight * ³ [kg]		1 (1.3)	1 (1.4)	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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES3R

Slider type TSC specification Motor wrap



+

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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 size		☐ 28
Ball screw lead [mm]		6
Maximum load Weight [kg]	Acceleration and deceleration rate	0.3G
	Horizontal mount	1
	Vertical mount	0.5
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

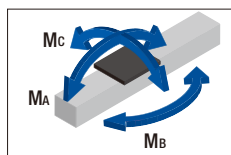
*1 Running life is based on below conditions.

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

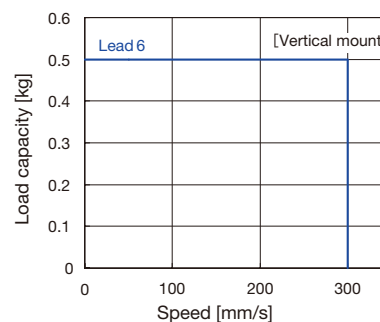
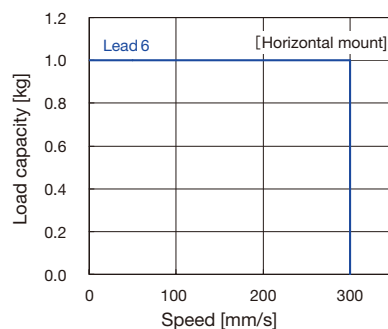
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_B is the center of the table.

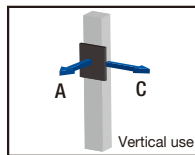
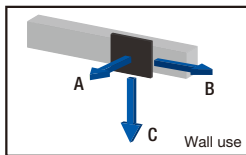
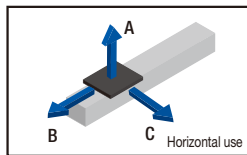
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



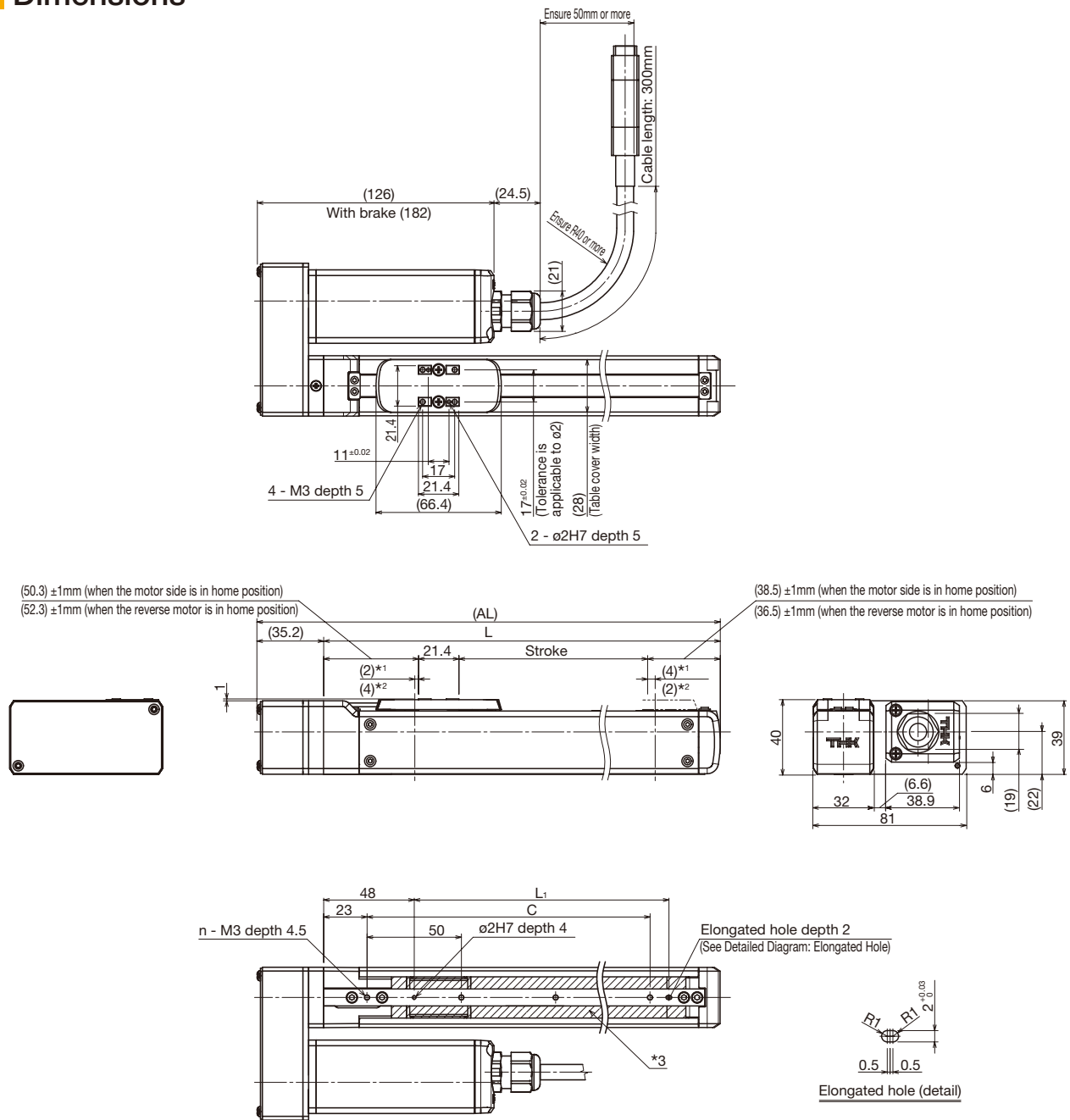
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	0.5	200	200	200	6	0.5	200	200	200	6	0.3	200	200	
	1	200	160	200		1	170	150	200		0.5	200	200	

* 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



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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES4

Slider type TSC specification Direct motor coupling



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 size	□35		
Ball screw lead [mm]	6	12	
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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 : 9.3, M _B : 13.5, M _C : 17.7		

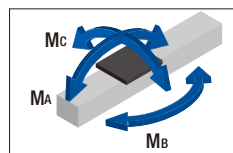
*¹ Running life is based on below conditions.

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

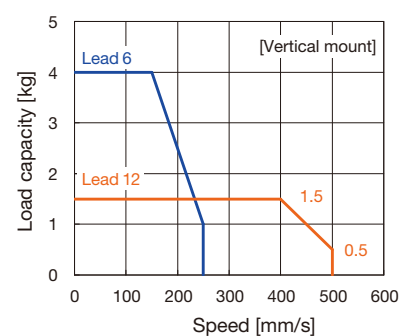
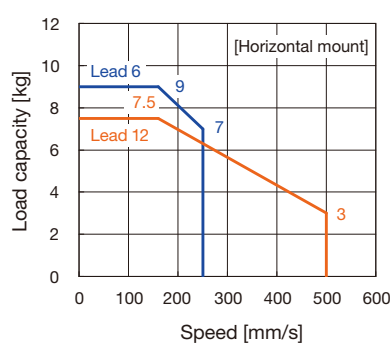
*² Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_B is the center of the table.

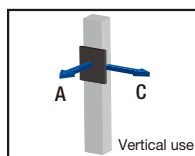
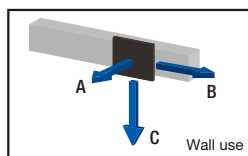
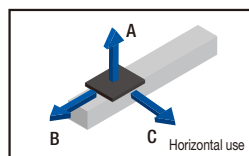
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



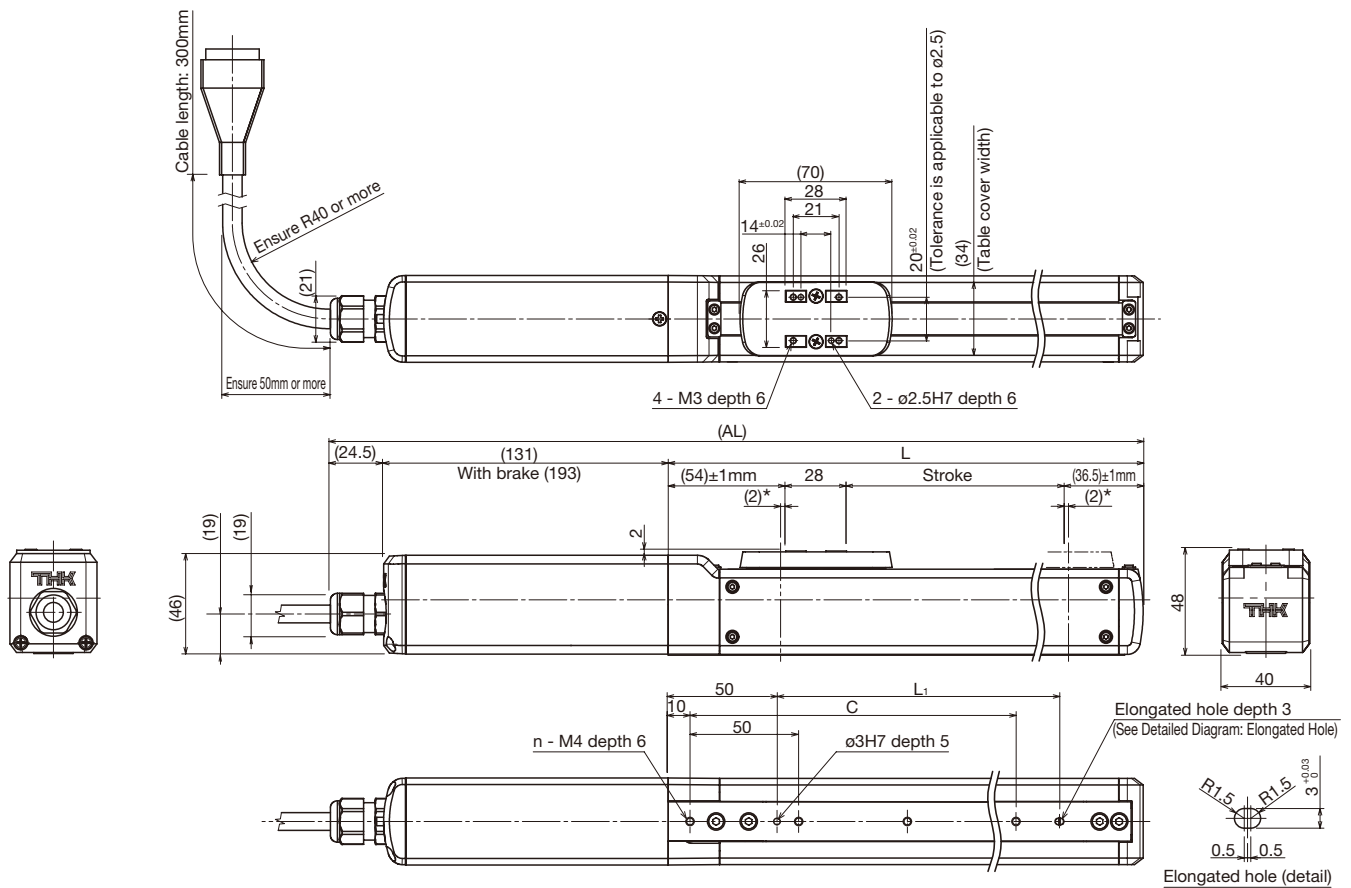
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	4.5	300	50	100	6	4.5	60	30	300	6	2	100	110	
	9	160	20	40		9	10	5	70		4	30	40	
12	3.8	260	60	100	12	3.8	70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



* Stroke up to mechanical stopper.

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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES4R

Slider type TSC specification Motor wrap



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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 size		☐ 35	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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 : 9.3, M _B : 13.5, M _C : 17.7	

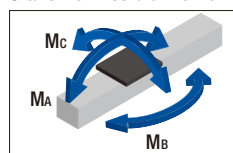
*1 Running life is based on below conditions.

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

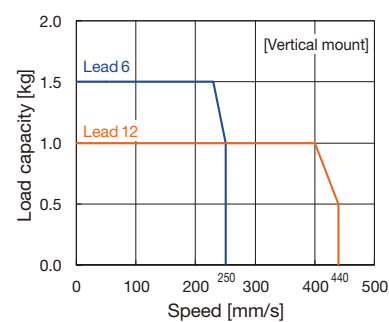
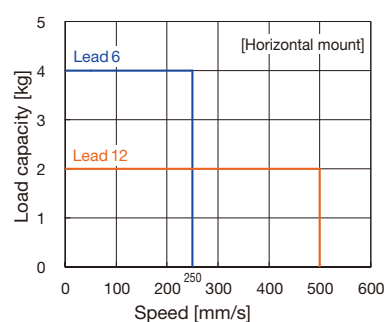
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_B is the center of the table.

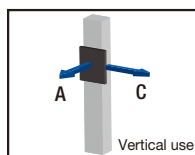
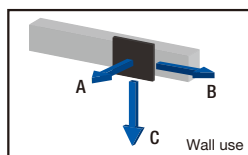
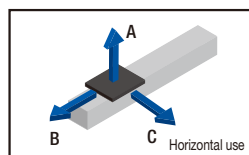
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



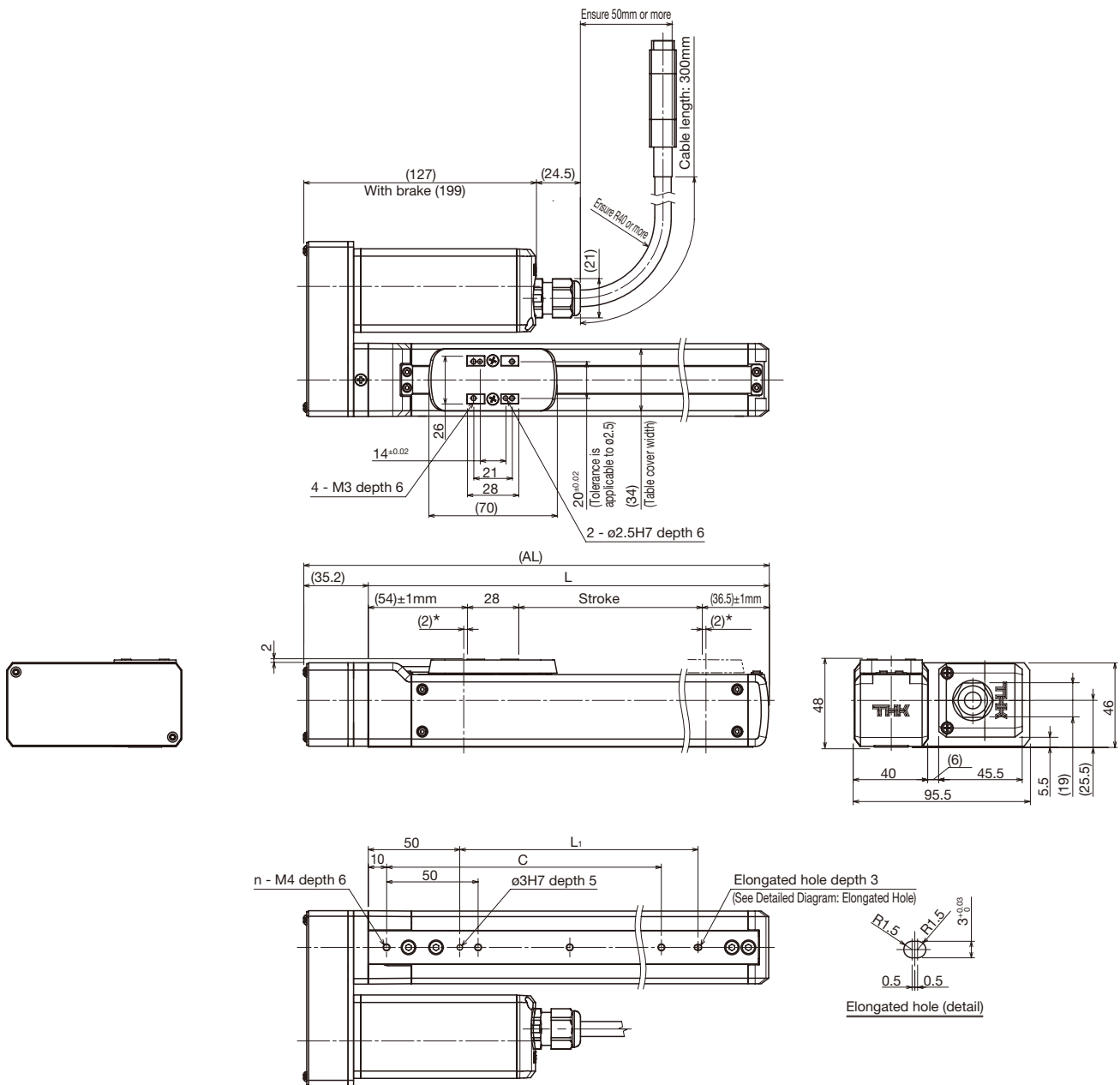
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	2	300	120	240	6	2	210	110	300	6	0.8	280	300	
	4	300	50	110		4	80	40	300		1.5	140	160	
12	1	300	240	300	12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



* Stroke up to mechanical stopper.

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	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} The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES5

Slider type TSC specification Direct motor coupling



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 size		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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	

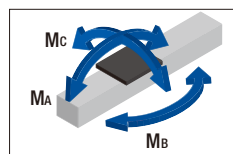
*1 Running life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=10mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

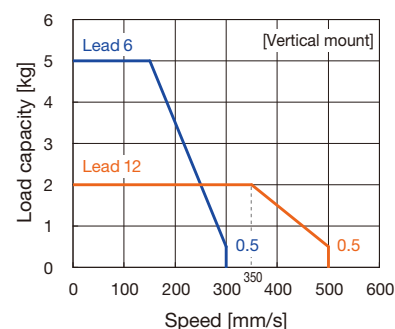
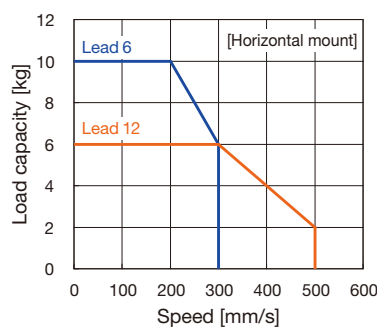
*2 Static maximum permissible moment when unit is stationary.

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.

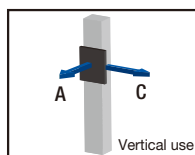
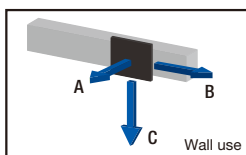
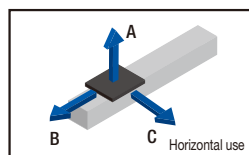
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



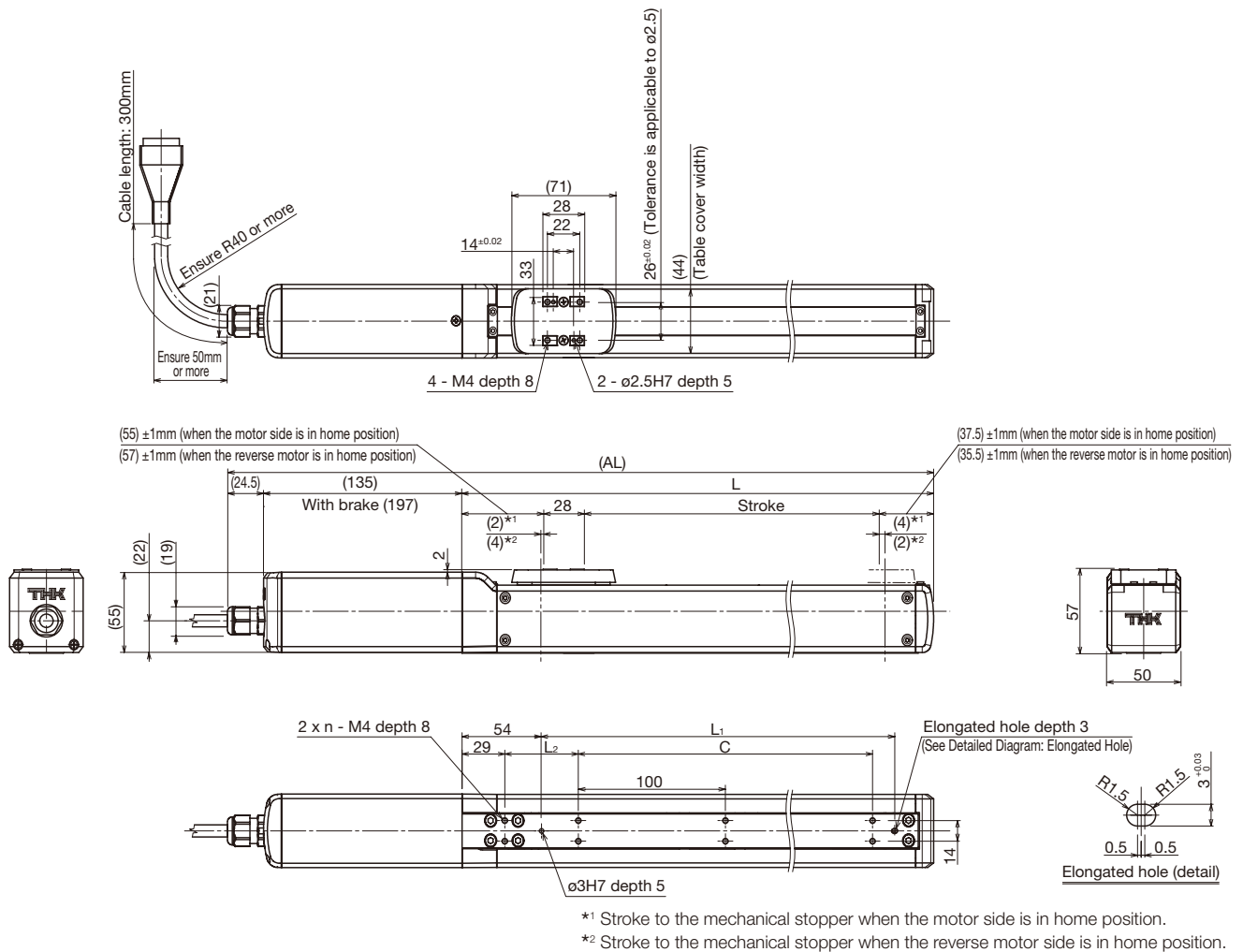
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	5	400	90	200	6	5	160	70	400	6	2.5	160	160	
	10	270	40	90		10	50	20	220		5	70	70	
	3	400	160	280		3	260	130	400		1	400	400	
12	6	320	70	130	12	6	100	50	250	12	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 [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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES5R

Slider type TSC specification Motor wrap



+



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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 size		☐ 42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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	

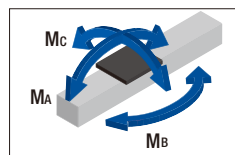
*1 Running life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=10mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

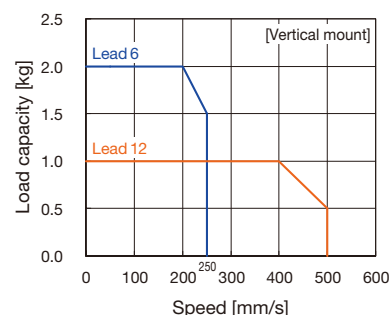
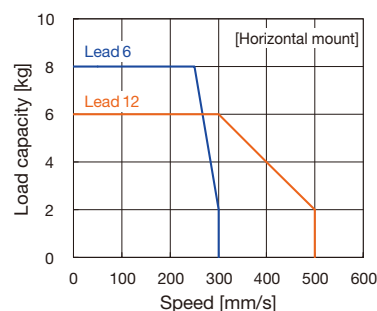
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for Ma and Mb are the top face of the table, and that for Mb is the center of the table.

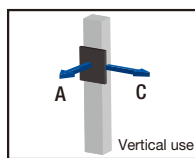
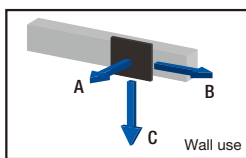
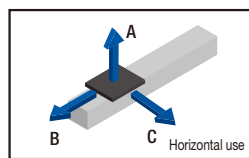
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



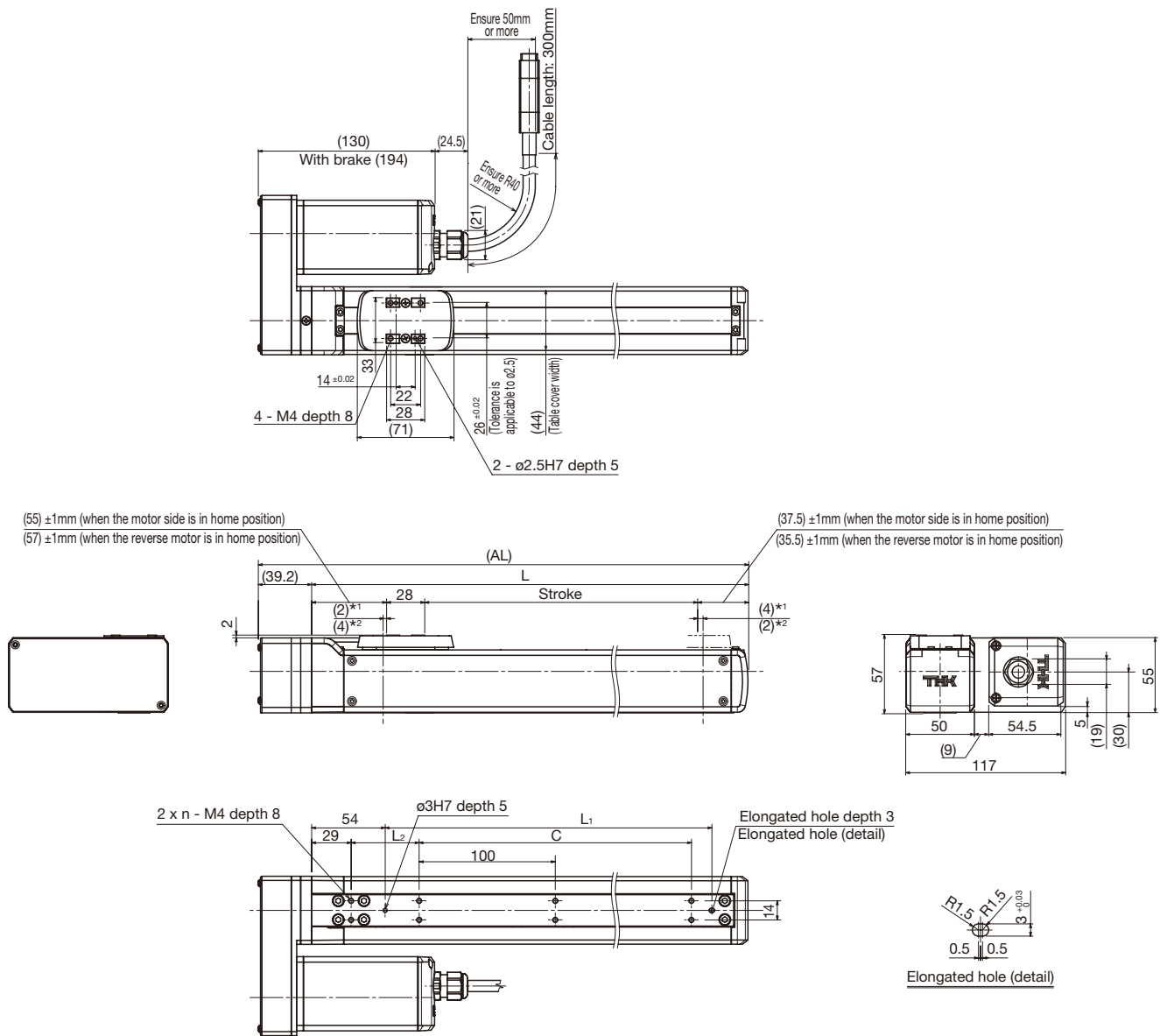
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	4	400	110	260	6	4	220	90	400	6	1	400	400	
	8	340	50	120		8	80	30	320		2	210	210	
12	3	400	160	280	12	3	260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

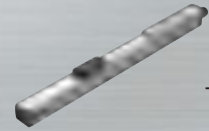
*1 Load capacity and maximum speed vary dependent on usage conditions. For details, see "Speed and Load Capacity".

*2 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES6

Slider type TSC specification Direct motor coupling



+



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 size		□42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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 : 10.5, M _B : 22, M _C : 22.1	

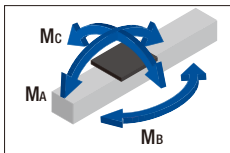
*1 Running life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=10mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

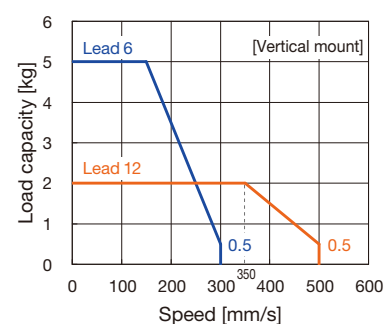
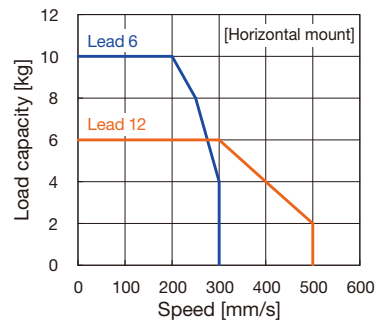
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_B is the center of the table.

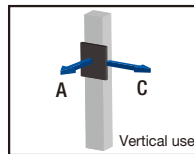
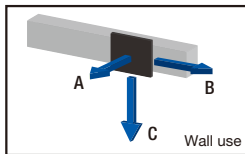
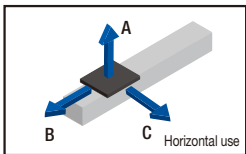
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



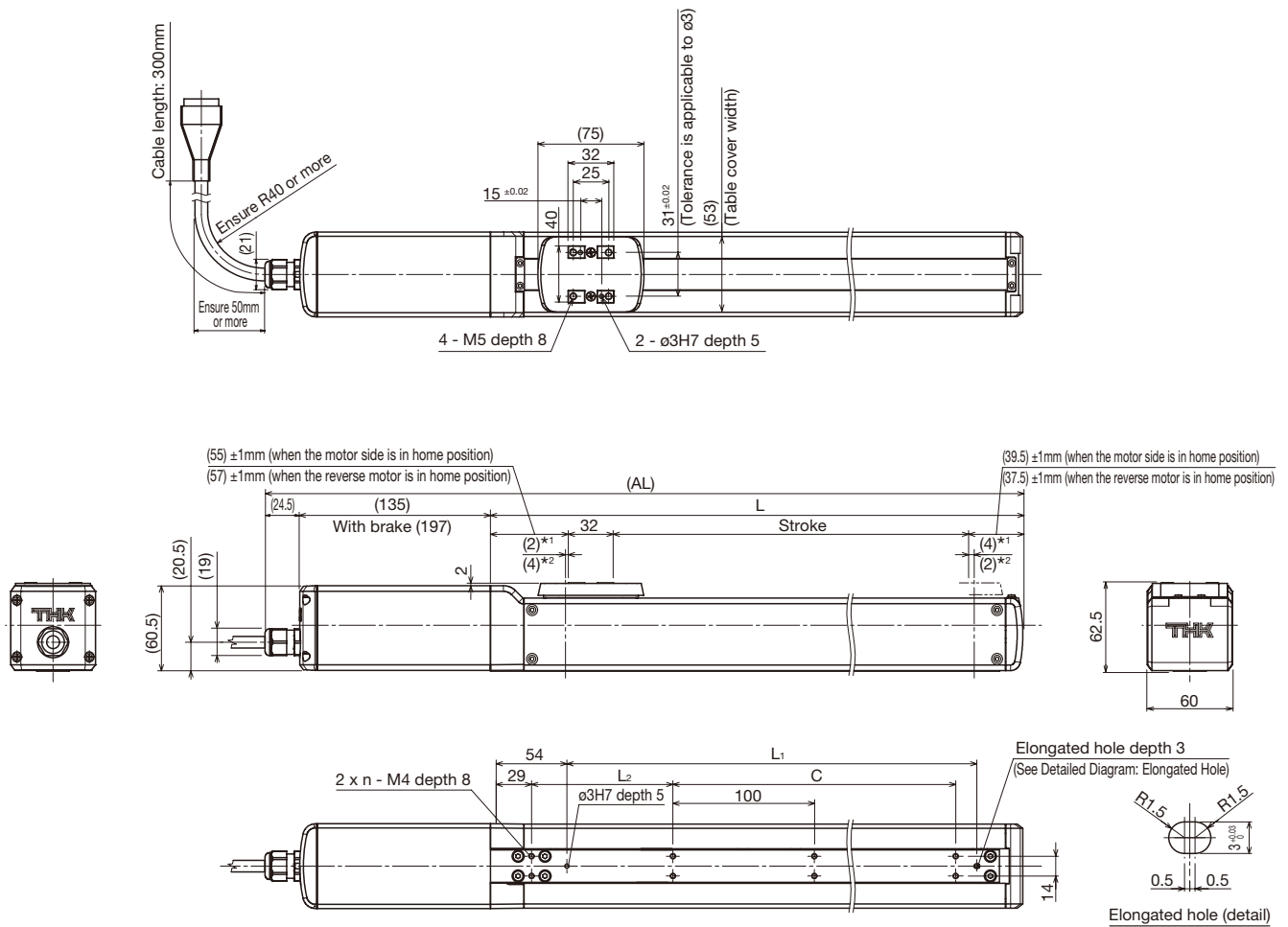
Horizontal mount [mm]					Wall mount [mm]					Vertical mount [mm]				
Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	B	C	Ball screw lead [mm]	Load mass [kg]	A	C	
6	5	500	90	200	6	5	160	70	500	6	2.5	160	160	
	10	260	40	90		10	40	20	210		5	60	60	
	3	500	160	280		3	250	130	500		1	420	420	
12	6	320	70	130	12	6	90	50	240	12	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, 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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

ES6R

Slider type TSC specification Motor wrap



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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 size		☐ 42	
Ball screw lead [mm]		6	12
Maximum load Weight [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	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 : 10.5, M _S : 22, M _C : 22.1	

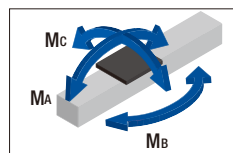
*1 Running life is based on below conditions.

Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=10mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm

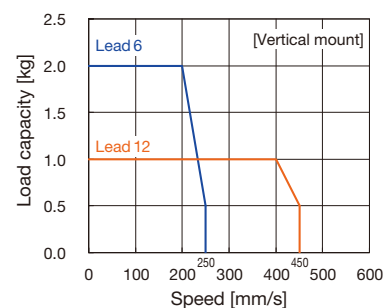
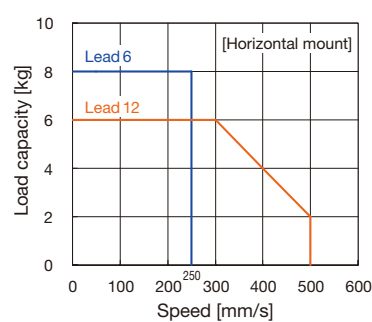
*2 Static maximum permissible moment when unit is stationary.

Applied point of moment load for M_A and M_C are the top face of the table, and that for M_S is the center of the table.

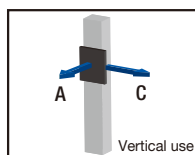
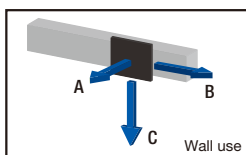
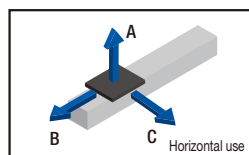
Static Permissible Moment



Speed and Load Capacity: Relationship Diagram



Permissible Overhang Length *



Horizontal mount		[mm]		
Ball screw lead [mm]	Load mass [kg]	A	B	C
6	4	500	110	260
	8	340	50	120
12	3	500	160	280
	6	320	70	130

Wall mount		[mm]		
Ball screw lead [mm]	Load mass [kg]	A	B	C
6	4	210	90	500
	8	70	30	300
12	3	250	130	500
	6	90	50	240

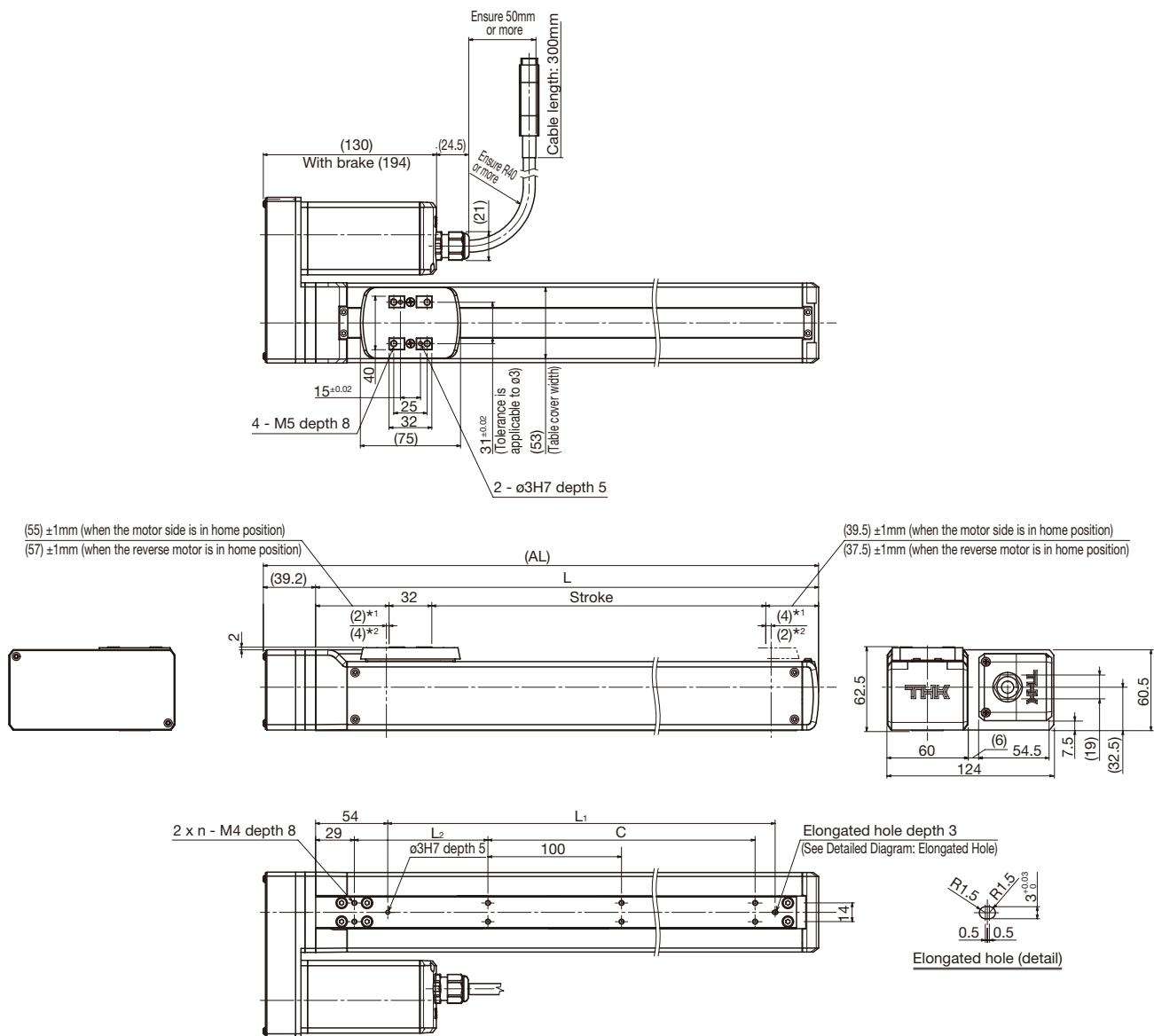
Vertical mount		[mm]	
Ball screw lead [mm]	Load mass [kg]	A	C
6	1	450	450
	2	210	210
12	0.5	500	500
	1	420	420

* 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 ^{*1 *2} [mm/s]	Ball screw lead: 6mm	250											230
	Ball screw lead: 12mm	Horizontal: 500, Vertical: 450											★4
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
	C	0	100	100	200	200	300	300	400	400	500	500	600
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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

*4 Horizontal: 460, Vertical: 450

EC3

Cylinder type TSC specification Direct motor coupling



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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

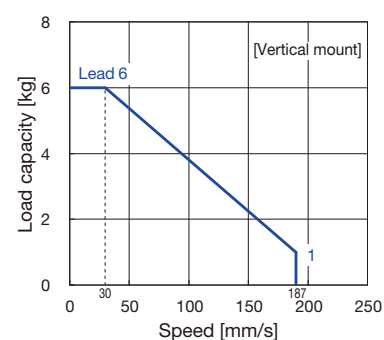
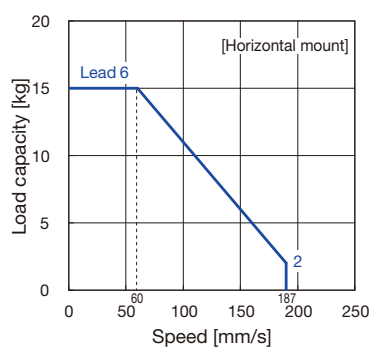
Control device type		TSC
Motor size		□35
Ball screw lead [mm]		6
Maximum load Weight*1 [kg]	Acceleration and deceleration rate	
	Horizontal mount	0.3G
Maximum load Weight*1 [kg]	Vertical mount	0.2G
		15
Running life*2 [km]		5000
Positioning repeatability [mm]		±0.020
Lost motion [mm]		0.1
Rod non-rotational accuracy [°]		±1.5

*1 With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*2 Running life is based on below conditions.

Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

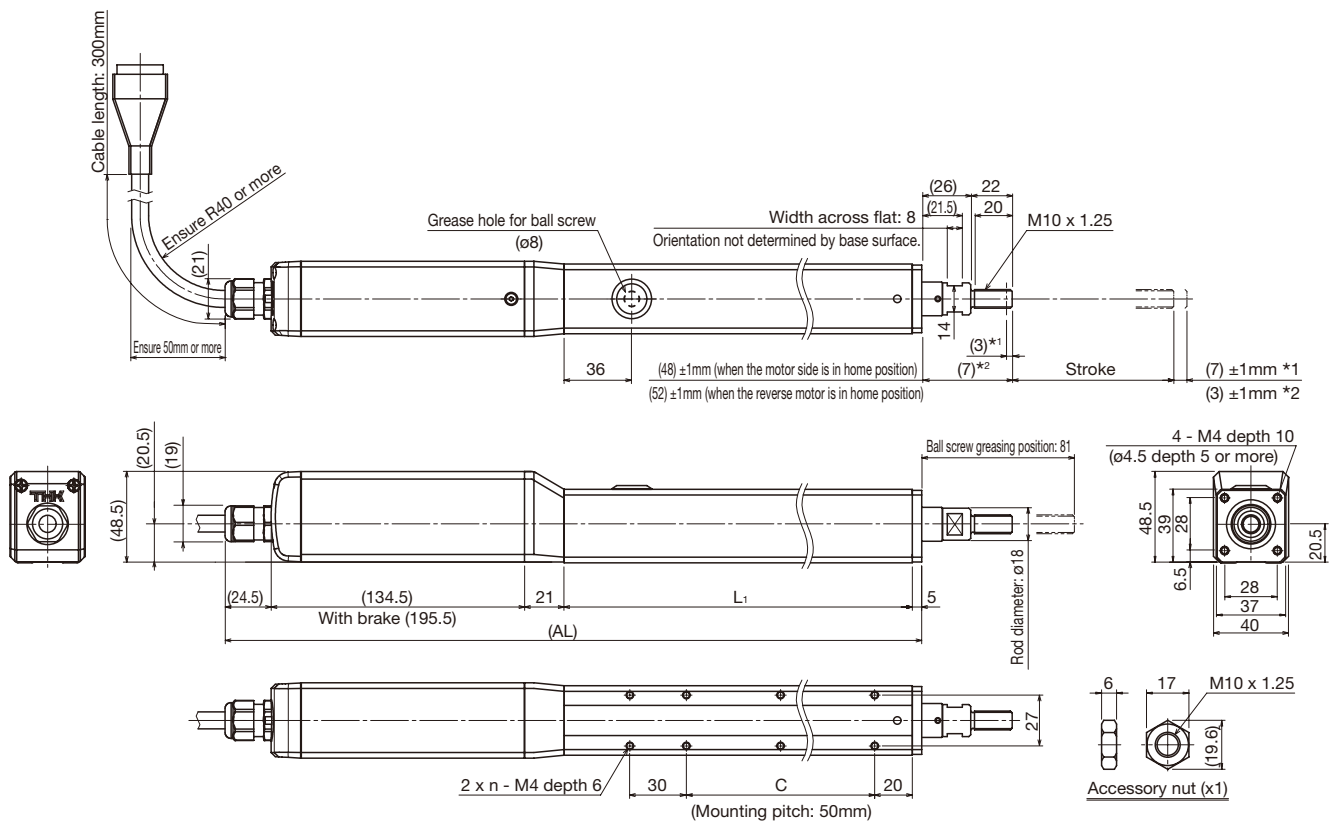
Speed and Load Capacity: Relationship Diagram



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
	C	50	100	150	200
Mounting hole count	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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

EC3R

Cylinder type TSC specification Motor wrap



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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

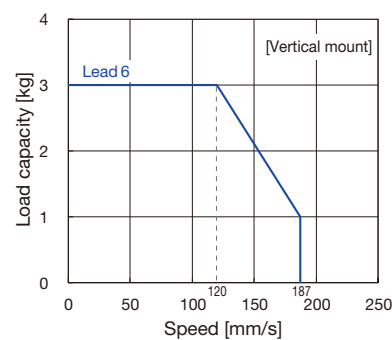
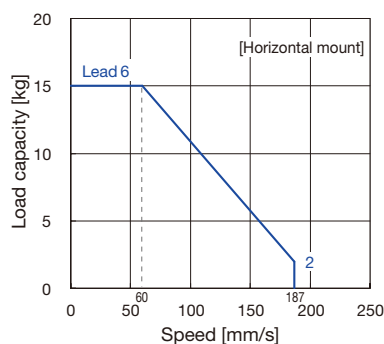
Control device type		TSC
Motor size		□35
Ball screw lead [mm]		6
Maximum load Weight *1 [kg]	Acceleration and deceleration rate	
	Horizontal mount	0.3G
Maximum load Weight *1 [kg]	Vertical mount	0.2G
	Vertical mount	0.2G
Running life *2 [km]		5000
Positioning repeatability [mm]		±0.020
Lost motion [mm]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

*1 With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*2 Running life is based on below conditions.

Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

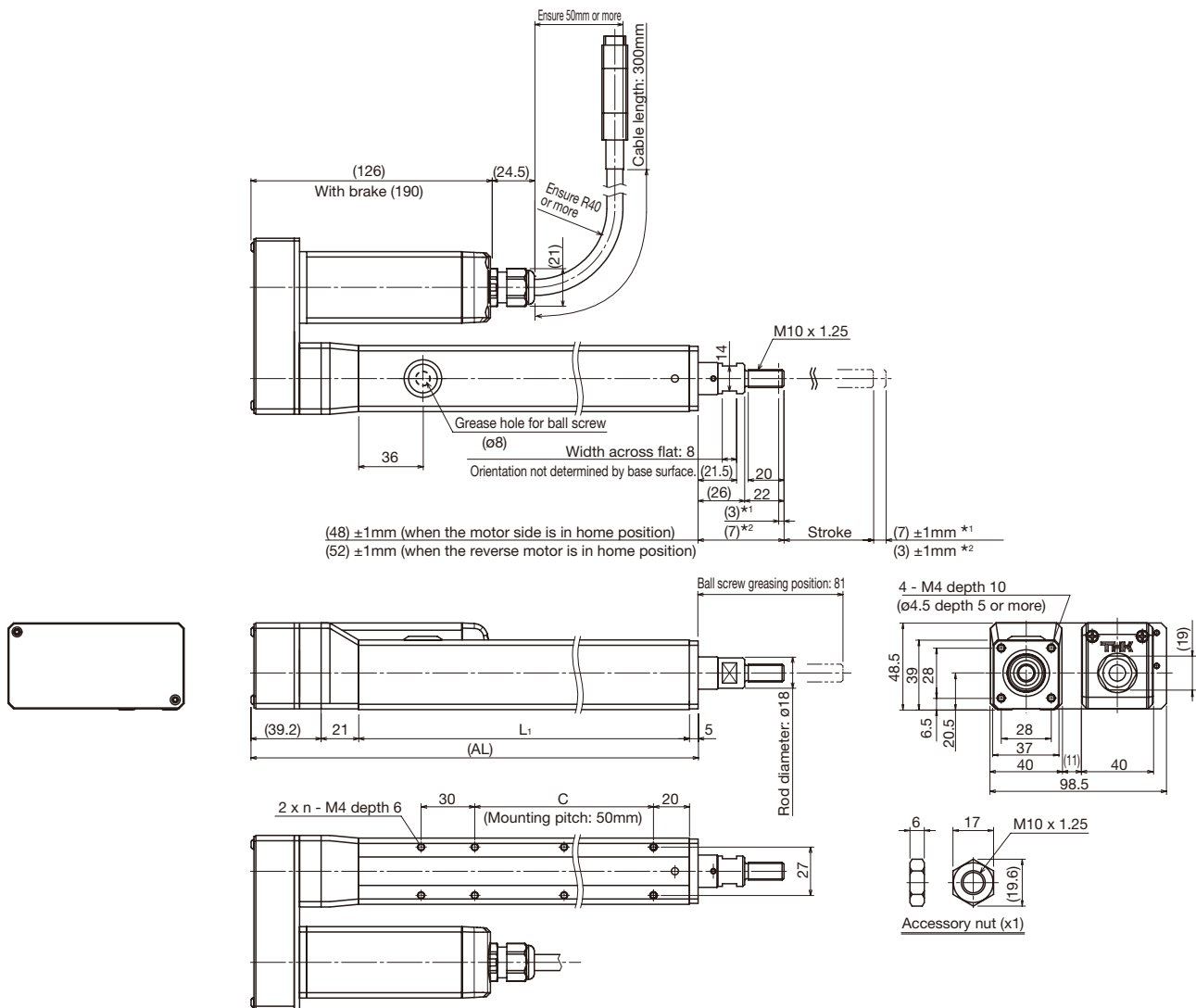
Speed and Load Capacity: Relationship Diagram



EC3R + TSC



Dimensions



*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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

EC3H

Cylinder type TSC specification Direct motor coupling/with linear bush



Model Configuration

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

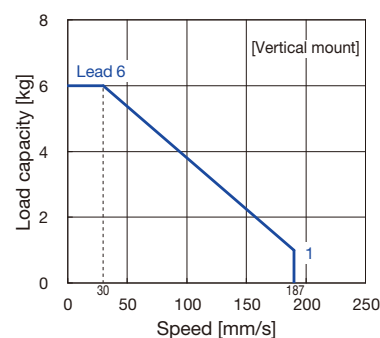
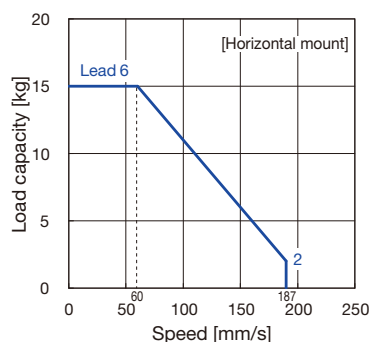
*1 With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*2 Load capacity and running life may vary without an LM guide. For details, see "End Load and Running Life".

*3 Running life is based on below conditions.

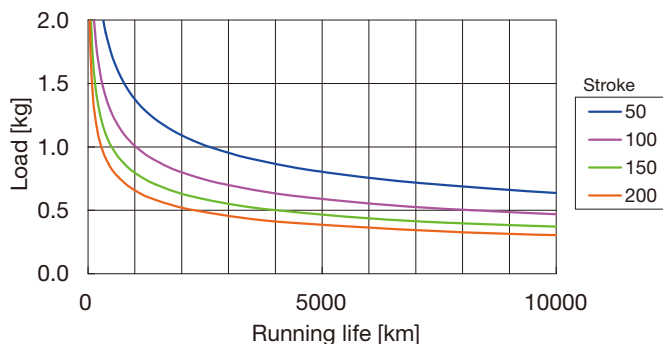
Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

Speed and Load Capacity: Relationship Diagram



Reference End Load and Running Life

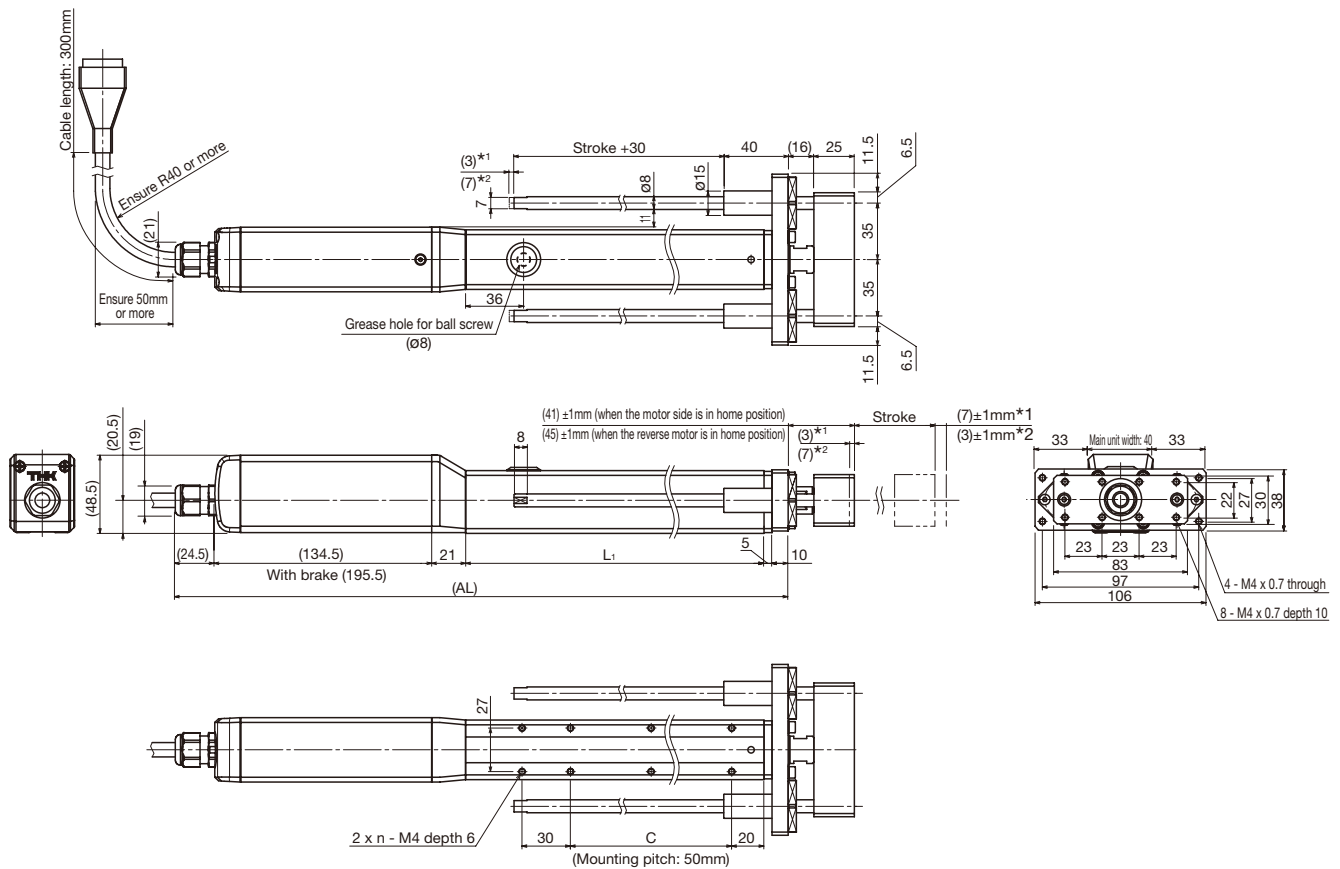
Running life varies when a load is applied to the end of the unit without using an LM Guide, as shown below.



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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

EC4 Cylinder type TSC specification Direct motor coupling



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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

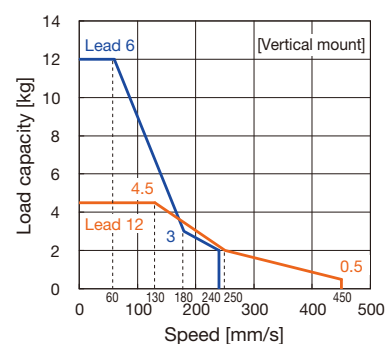
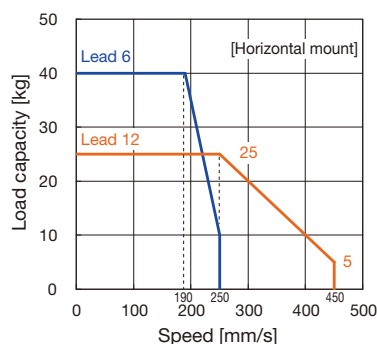
Control device type		TSC	
Motor size		□42	
Ball screw lead [mm]		6	12
Maximum load Weight *1 [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	0.2G
Running life *2 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]	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

*1 With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*2 Running life is based on below conditions.

Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

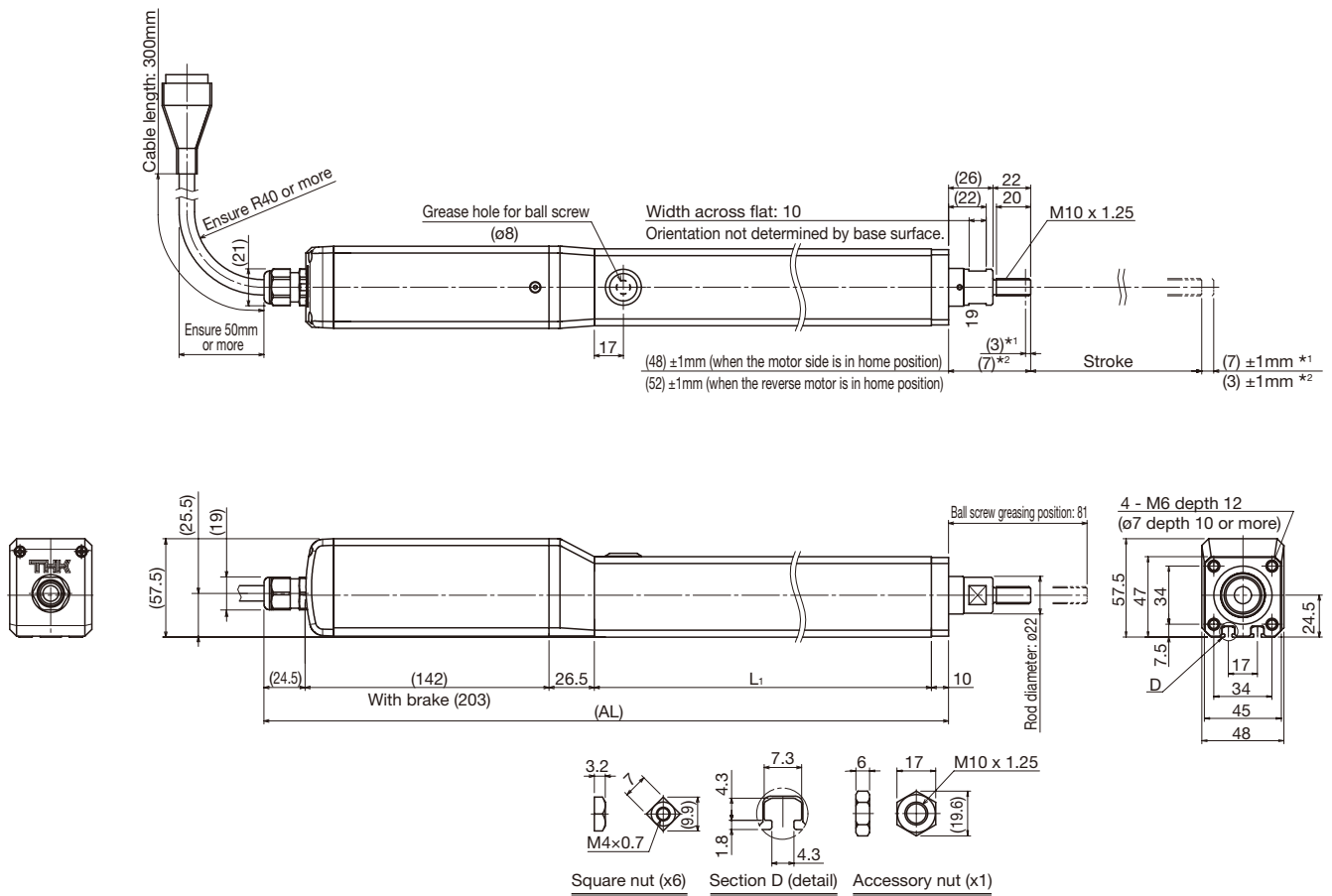
Speed and Load Capacity: Relationship Diagram



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 * ¹ * ² [mm/s]	Horizontal: 250, Vertical: 240					170
Ball screw lead: 6mm	450					340
Ball screw lead: 12mm						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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

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

EC4R

Cylinder type TSC specification Motor wrap



+



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 wrap ML: Motor left wrap 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 size		□42	
Ball screw lead [mm]		6	12
Maximum load Weight *1 [kg]	Acceleration and deceleration rate	Horizontal mount	0.3G
		Vertical mount	0.2G
Running life *2 [km]		5000	
Positioning repeatability [mm]		±0.020	
Lost motion [mm]		0.1	
Rod non-rotational accuracy [°]		±1.5	

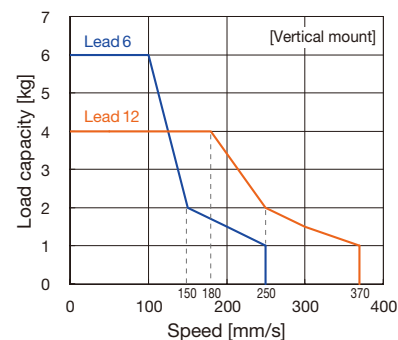
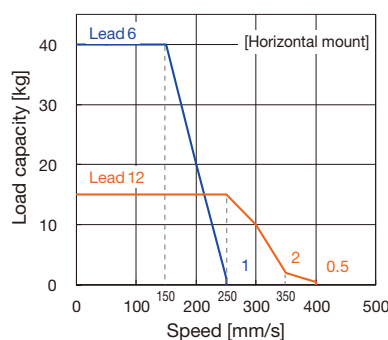
*1 With EC, only an axial load is permissible.

With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*2 Running life is based on below conditions.

Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

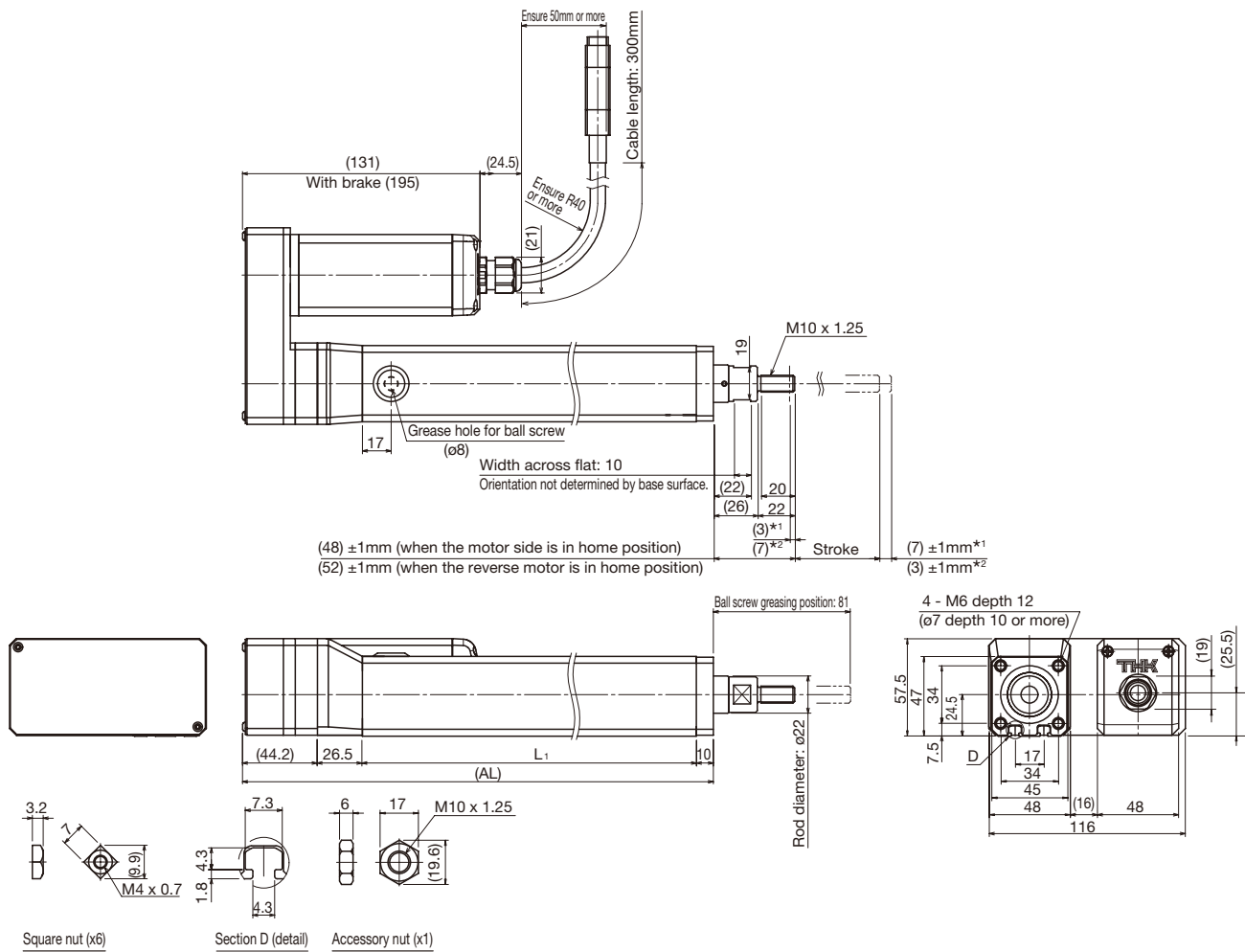
Speed and Load Capacity: Relationship Diagram



EC4R + TSC



Dimensions



*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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

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

EC4H

Cylinder type TSC specification Direct motor coupling/with linear bush



+

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device Type	Option	Motor size	Homing method	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 size	□42	
Ball screw lead [mm]	6	12
Maximum load Weight ^{*1*2} [kg]	Horizontal mount	0.3G
	Vertical mount	0.2G
Acceleration and deceleration rate	40	25
Running life ^{*2*3} [km]	12	4.5
Positioning repeatability [mm]	±0.020	
Lost motion [mm]	0.1	
Rod non-rotational accuracy [°]	±0.05	

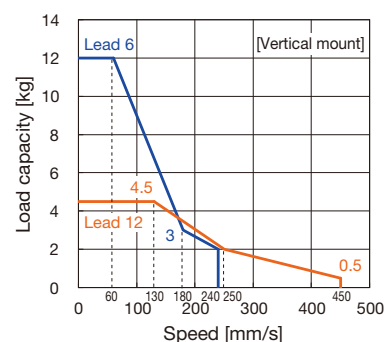
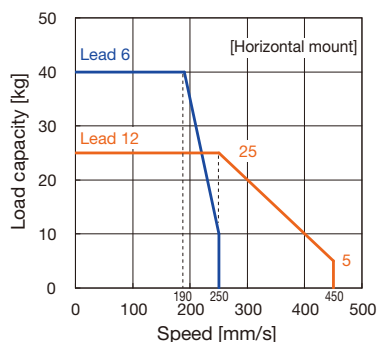
*¹ With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide. Take into account the sliding resistance of LM Guide when making selection.

*² Load capacity and running life may vary without an LM guide. For details, see "End Load and Running Life".

*³ Running life is based on below conditions.

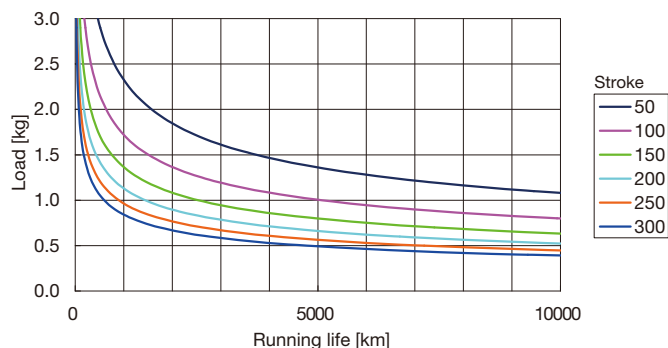
Conditions: Under the maximum load capacity (with LM guide), maximum speed, 0.3G for horizontal, 0.2G for vertical

Speed and Load Capacity: Relationship Diagram



Reference End Load and Running Life

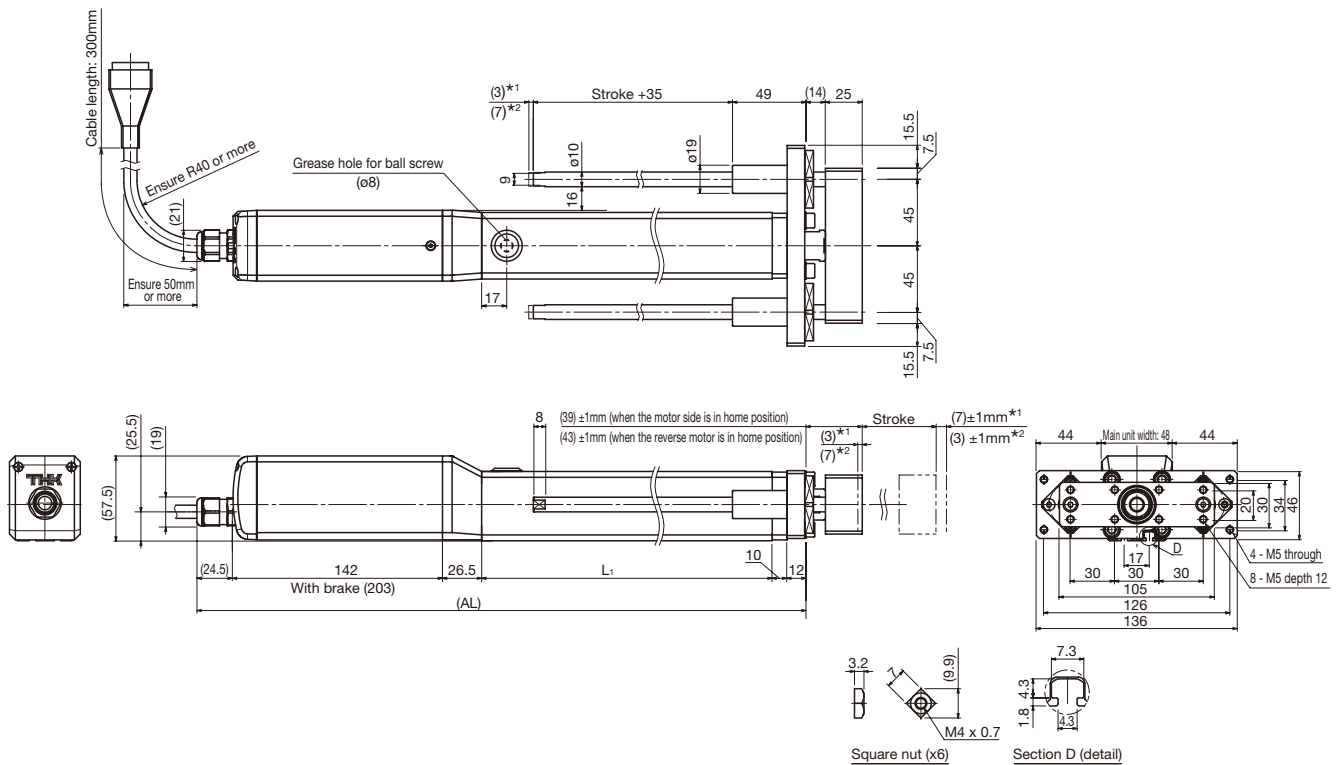
Running life varies when a load is applied to the end of the unit without using an LM Guide, as shown below.



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 *1 *2 [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 The maximum speed is the value restricted by the permissible rotational speed of the ball screw.

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

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

ES5

Slider type TLC specification Direct motor coupling, 50W



+



Model Configuration

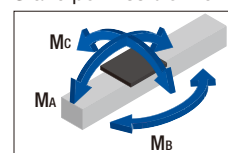
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	Cable type and length
ES5	06	0150	B	TL	GR-SB	M05	R	D00	F3
ES5	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TL: TLC	No symbol: None GR: Change the cover color to gray SB: With 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.

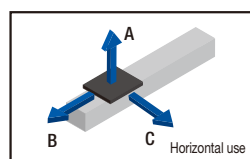
Basic Specifications

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 mount	0.3G	10	6
		Vertical mount	0.3G	5	2
Rated thrust ^{*3} [N]				134	67
Maximum thrust ^{*4} [N]				293	147
Electromagnetic brake retention [N]				268	134
Running life ^{*5} [km]				5000	
Static permissible moment ^{*6} [N·m]				MA: 10.5, Ma: 22, Mc: 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

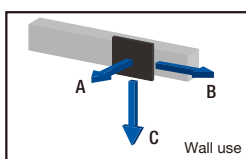
Static permissible moment

*¹ At rated motor speed (3,000 min⁻¹).*² At rated speed.*³ At rated motor torque.*⁴ Dependent on maximum peak torque and permissible load.*⁵ Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B and C: 0mm; stroke: 50mm.*⁶ Static 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.

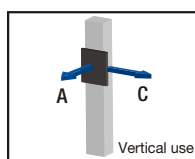
Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

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	

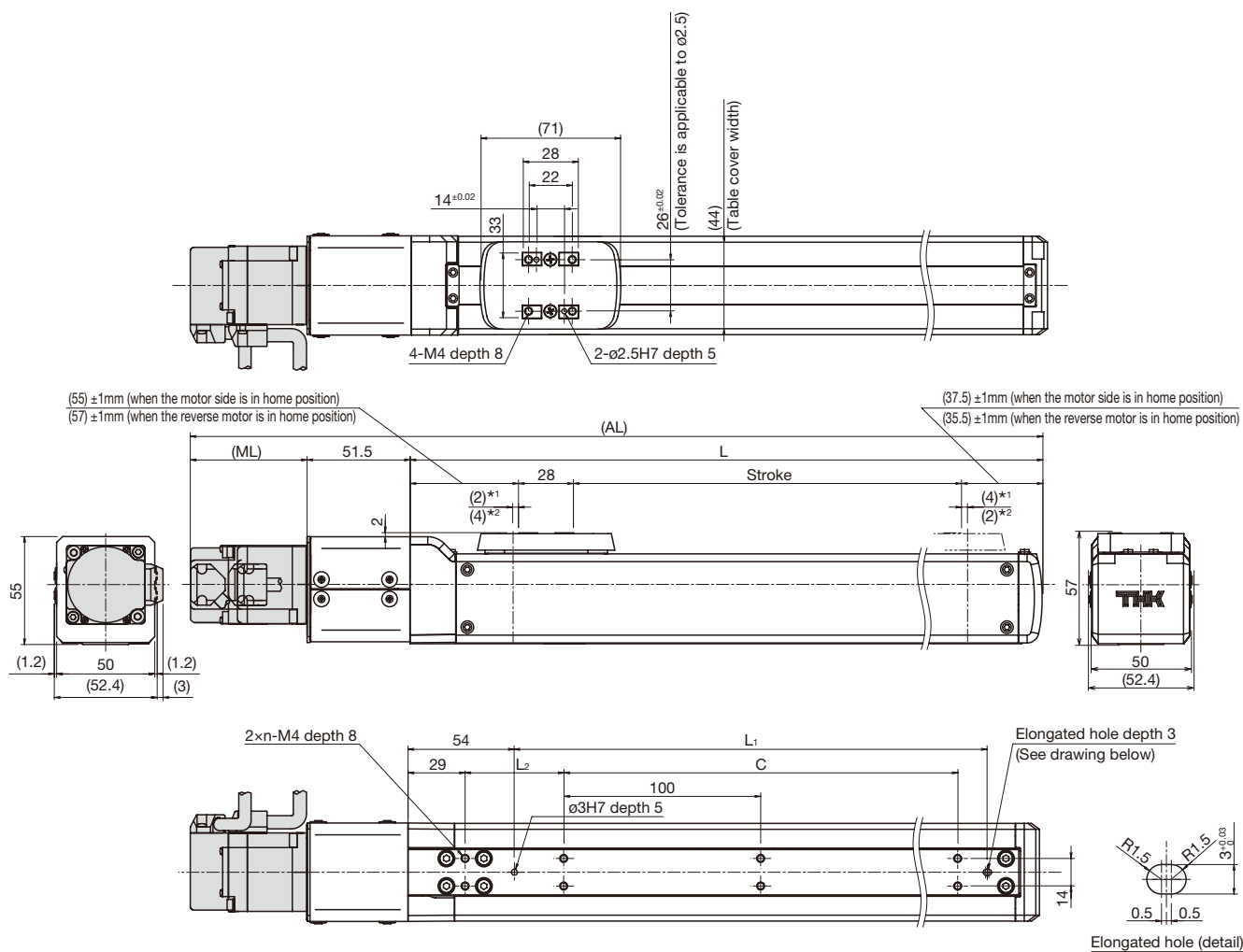
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

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
	L ₁	90	140	190	240	290	340	390	440	490	540
	L ₂	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.

ES5R

Slider type TLC specification Motor wrap, 50W



+



Model Configuration

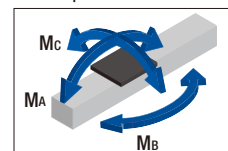
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	Cable type and length
ES5R	06	0150	B	TL	MR-GR	M05	L	D00	F3
ES5R	06: 6mm 12: 12mm	0050: 50mm to 0500: 500mm	B	TL: TLC	MR: Motor right wrap ML: Motor left wrap GR: Change the cover 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 mount	0.3G	8	6
		Vertical mount	0.3G	2	1
Rated thrust * ³ [N]				134	67
Maximum thrust * ⁴ [N]				134	67
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.

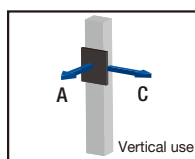
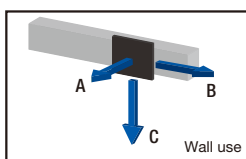
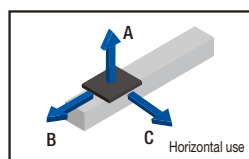
*³ At rated motor torque.

*⁴ Dependent on maximum peak torque and permissible load.

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

*⁶ Static 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.

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	

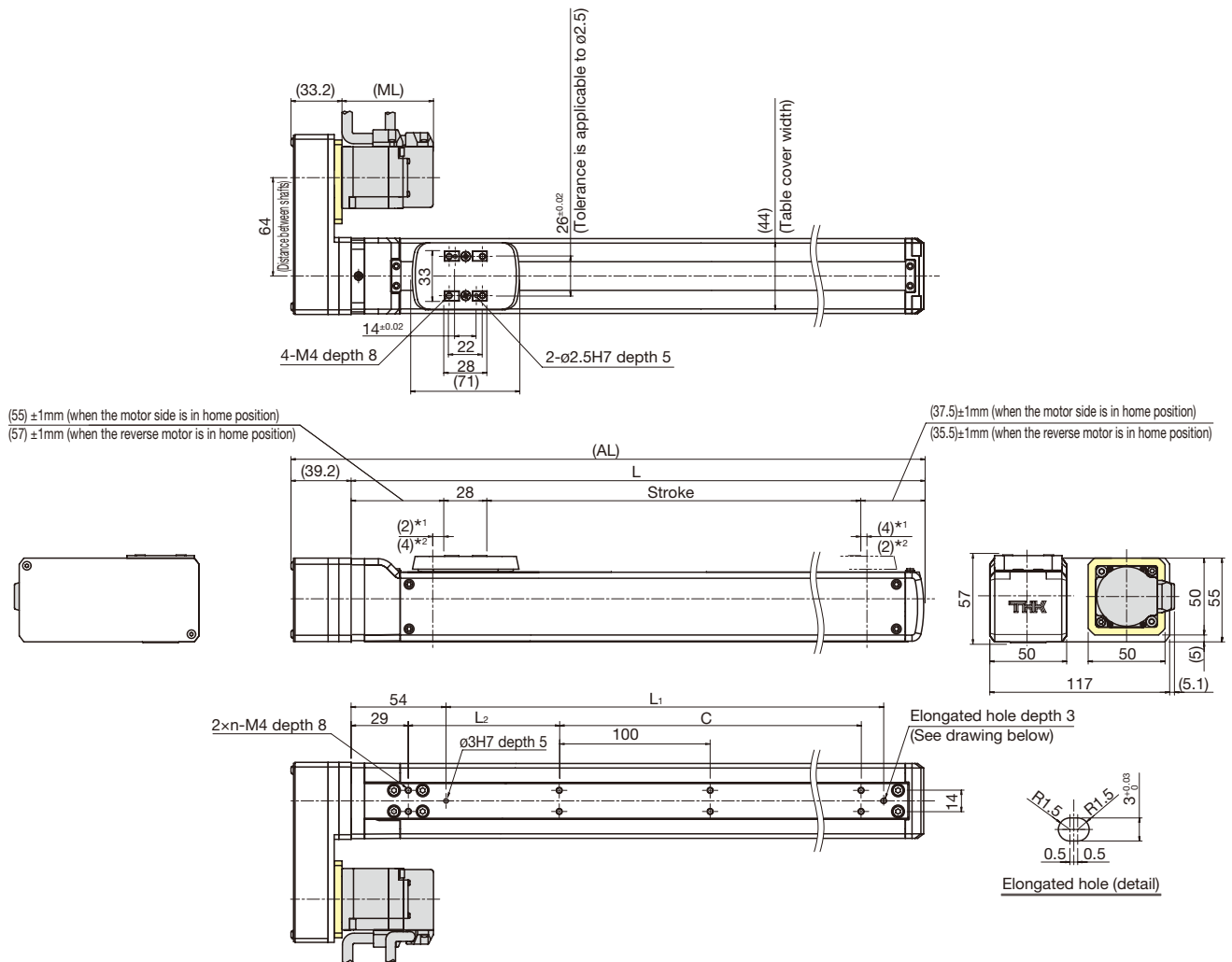
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

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.

ES6

Slider type TLC specification Direct motor coupling, 50W



+



Model Configuration

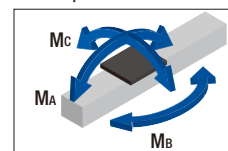
Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	Cable type and length
ES6	06	0150	B	TL	GR-SB	M05	R	D00	F3
ES6	06: 6mm 12: 12mm	0050: 50mm to 0600: 600mm	B	TL: TLC	No symbol: Red cover GR: Change the cover color to gray SB: 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.

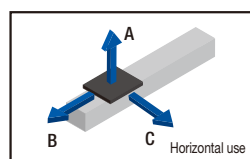
Basic Specifications

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 mount	0.3G	10	6
		Vertical mount	0.3G	5	2
Rated thrust * ³ [N]				134	67
Maximum thrust * ⁴ [N]				293	147
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	

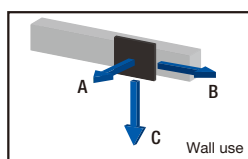
Static permissible moment

*¹ At rated motor speed (3,000 min⁻¹).*² At rated speed.*³ At rated motor torque.*⁴ Dependent on maximum peak torque and permissible load.*⁵ Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B and C: 0mm; stroke: 50mm.*⁶ Static 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.

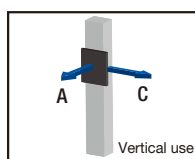
Permissible Overhang Length*



Horizontal use



Wall use



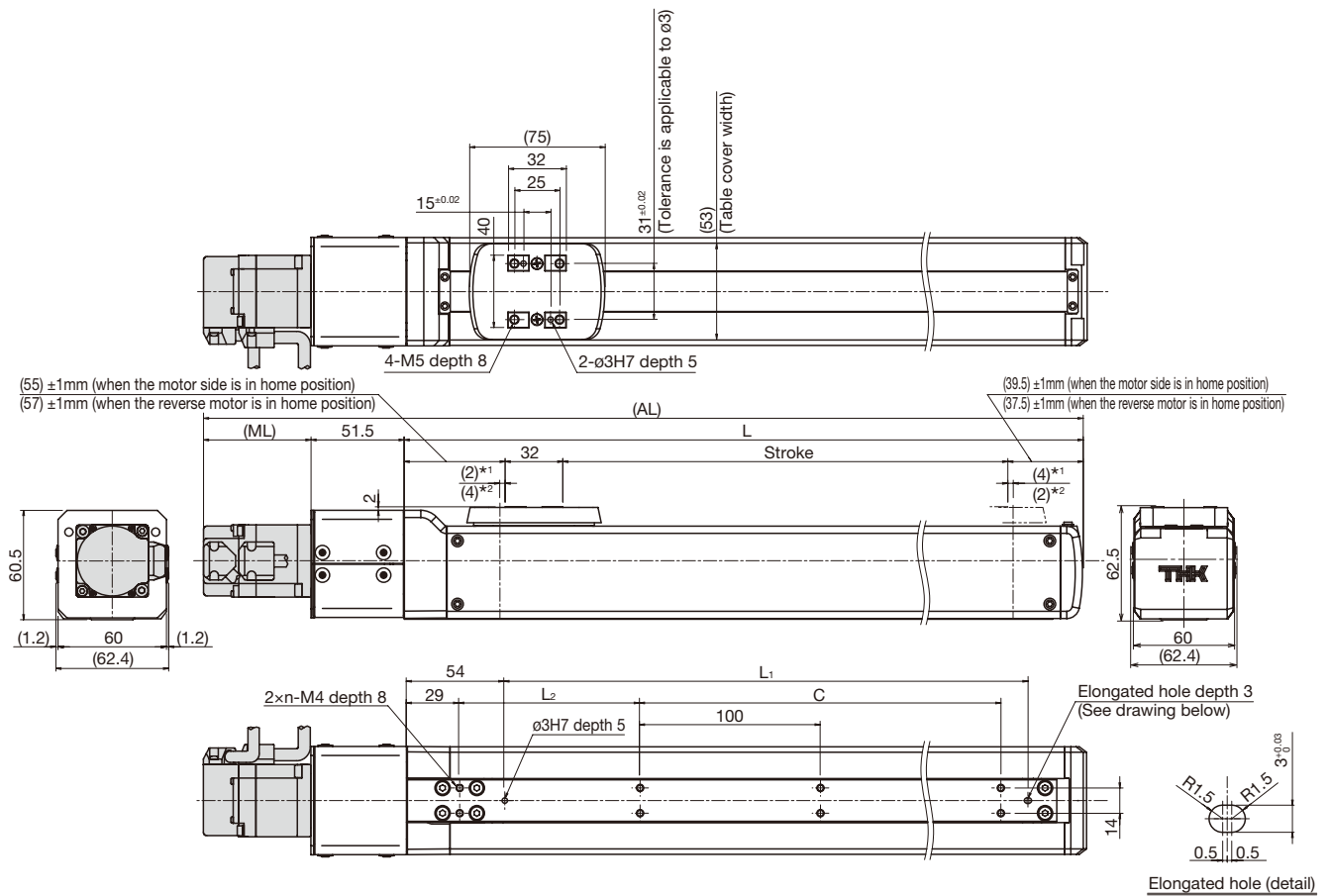
Vertical use

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	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
	C	0	100	100	200	200	300	300	400	400	500	500	600
Mounting hole count	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.

ES6R

Slider type TLC specification Motor wrap, 50W



+



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	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 wrap ML: Motor left wrap GR: Change the cover color to gray SB: With slider base ☐ ☐ ☐ : 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 mount	0.3G	8	6
		Vertical mount	0.3G	2	1
Rated thrust * ³ [N]				134	67
Maximum thrust * ⁴ [N]				134	67
Electromagnetic brake retention [N]				268	134
Running life * ⁵ [km]				5000	
Static permissible moment * ⁶ [N·m]				Ma: 10.5, Mb: 22, Mc: 22.1	
Positioning repeatability [mm]				±0.020	
Lost motion [mm]				0.1	

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

*² At rated speed.

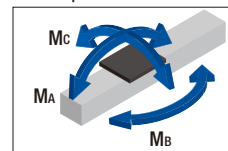
*³ At rated motor torque.

*⁴ Dependent on maximum peak torque and permissible load.

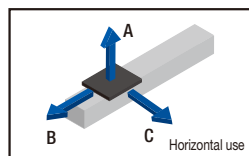
*⁵ Conditions: horizontal or vertical, 0.3G; under maximum load capacity; overhang length A: 10mm, B and C: 0mm; stroke: 50mm.

*⁶ Static 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.

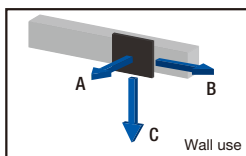
Static permissible moment



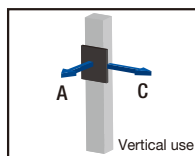
Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

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	

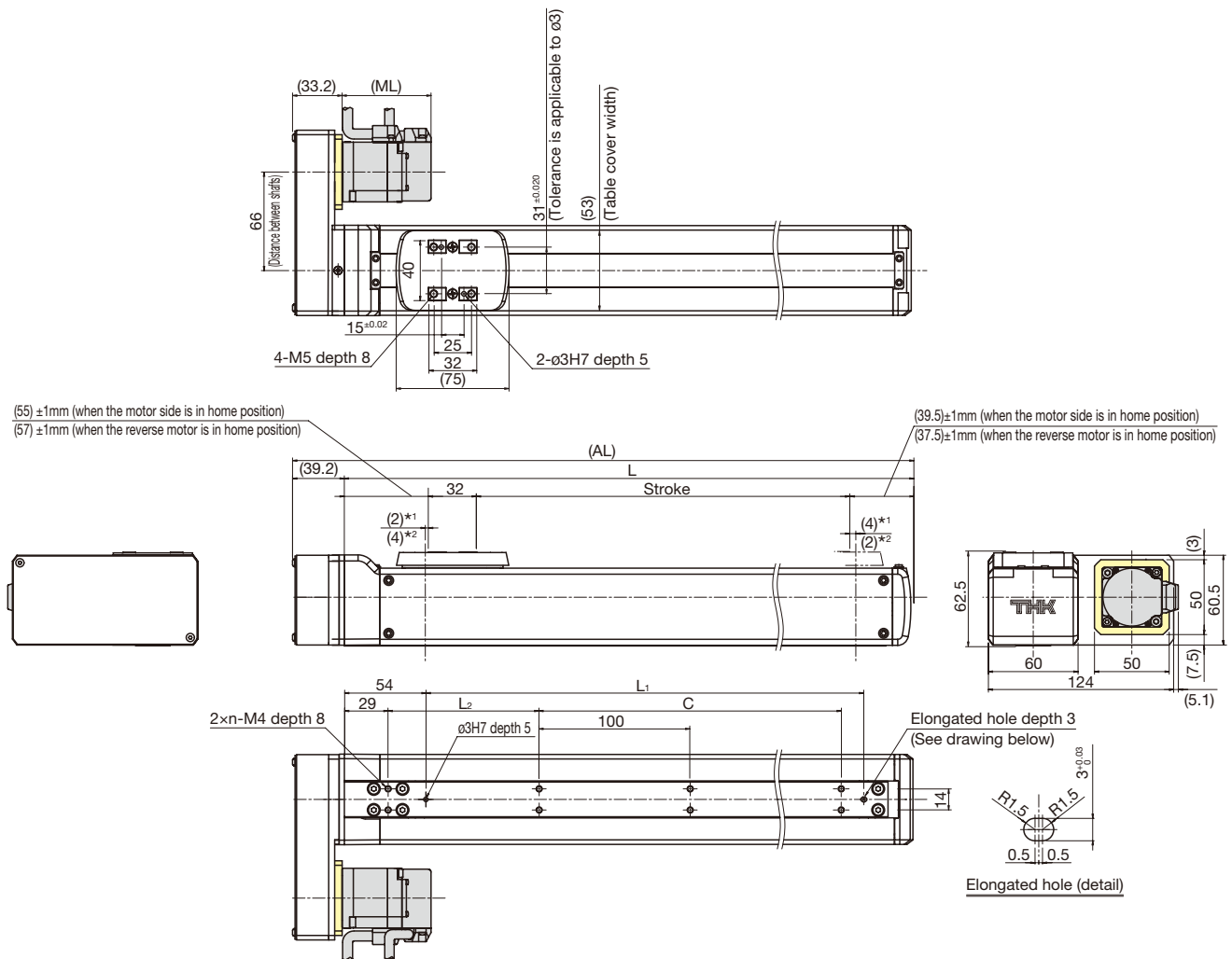
* Distance from the center of the top face of the table to the load center of gravity position under the following conditions: 5,000km running life, single-direction load, 0.3G horizontal or vertical, 150mm stroke.

ES6R + TLC



Motor rated output
50W

Dimensions



*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	300										270	230
	Ball screw lead: 12mm	600										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	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.

EC4

Cylinder type TLC specification Direct motor coupling



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	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: None 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 mount	0.3G	14	7
		Vertical mount	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				293	147
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.

With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide.

Take into account the sliding resistance of LM Guide when making selection.

*3 At rated motor torque.

*4 Dependent on maximum peak torque and permissible load.

*5 Service life is based on below conditions.

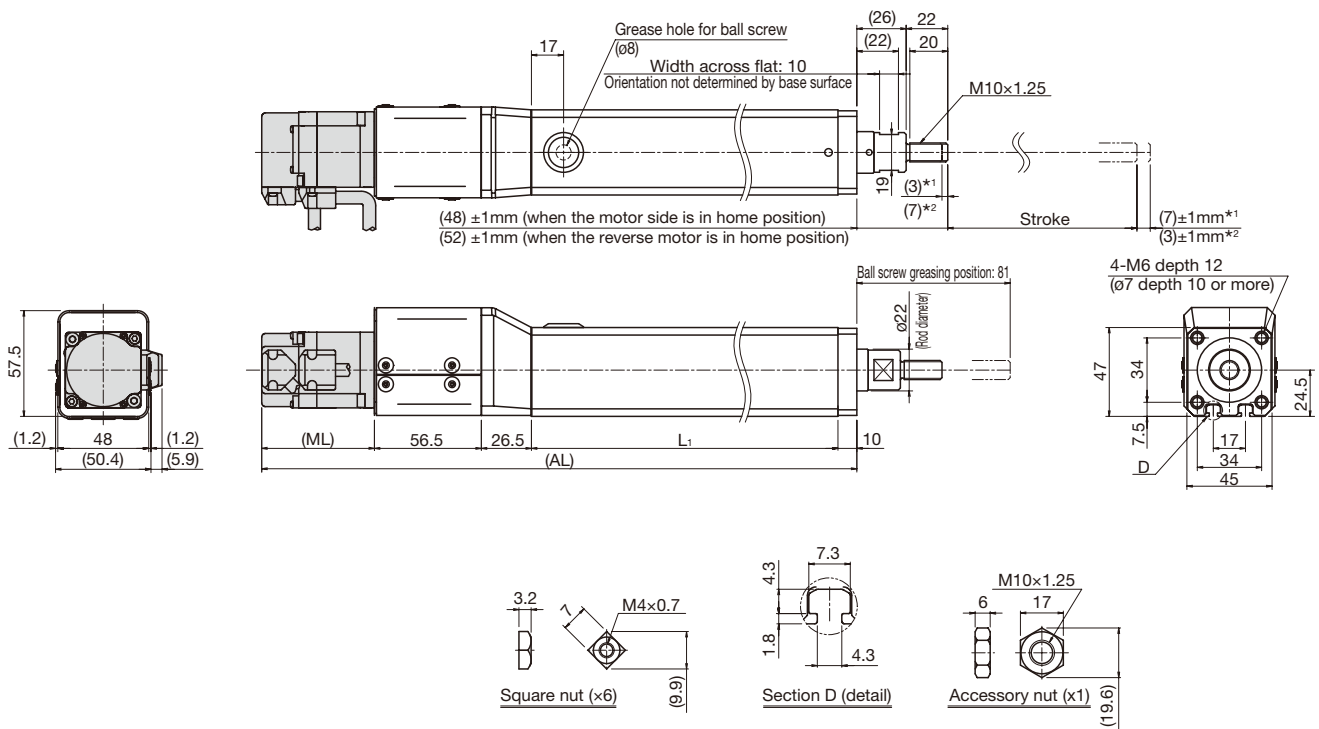
Conditions: Under maximum load capacity (with LM guide), maximum speed, 0.3G horizontal or vertical

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 ^{*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.

EC4R

Cylinder type TLC specification Motor wrap



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	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 wrap ML: Motor left wrap 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 mount	0.3G	14	7
		Vertical mount	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				134	67
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.

With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide.

Take into account the sliding resistance of LM Guide when making selection.

*3 At rated motor torque.

*4 Dependent on maximum peak torque and permissible load.

*5 Service life is based on below conditions.

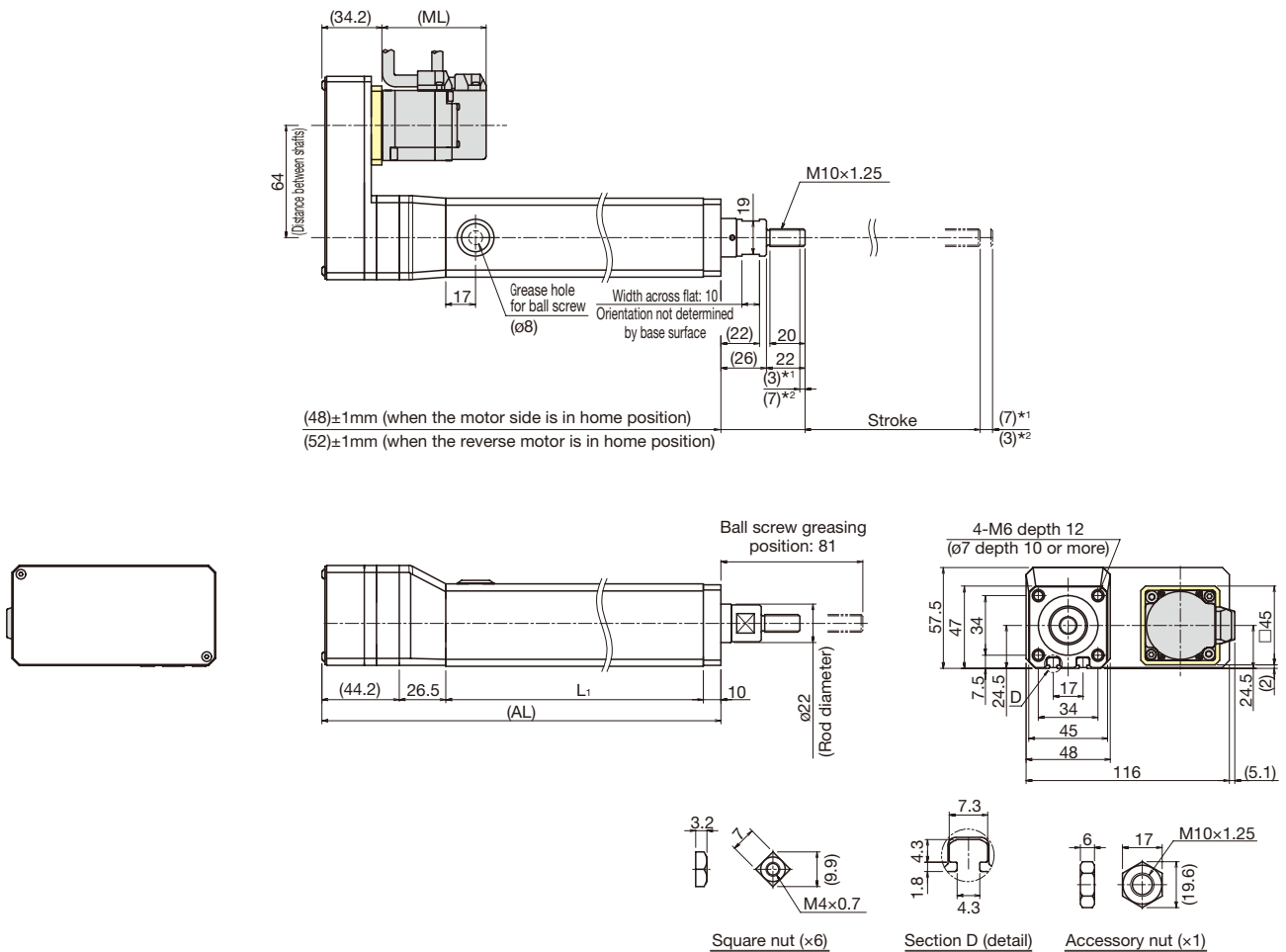
Conditions: Under maximum load capacity (with LM guide), maximum speed, 0.3G horizontal or vertical

EC4R + 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	227.7	277.7	327.7	377.7	427.7	477.7
	ML *2	59.5 (95.1)					
	L _i *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 L_i.

EC4H

Cylinder type TLC specification Direct motor coupling/with linear bush



Model Configuration

Model	Ball screw lead	Stroke	Design symbol	Control device type	Option	Motor rated output	Motor cable orientation	Homing method	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 mount	0.3G	14	7
		Vertical mount	0.3G	6	3
Rated thrust *3 [N]				134	67
Maximum thrust *4 [N]				293	147
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.

With EC, only an axial load is permissible; do not apply any other type of load to the rod using an LM Guide.

Take into account the sliding resistance of LM Guide when making selection.

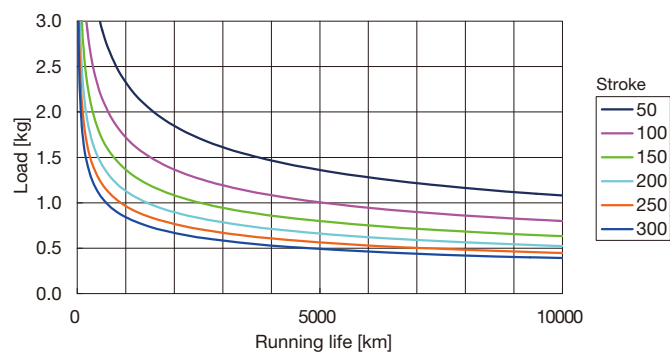
*3 At rated motor torque.

*4 Dependent on maximum peak torque and permissible load.

*5 Load capacity and running life may vary without an LM guide. For details, see "End Load and Running Life".

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.

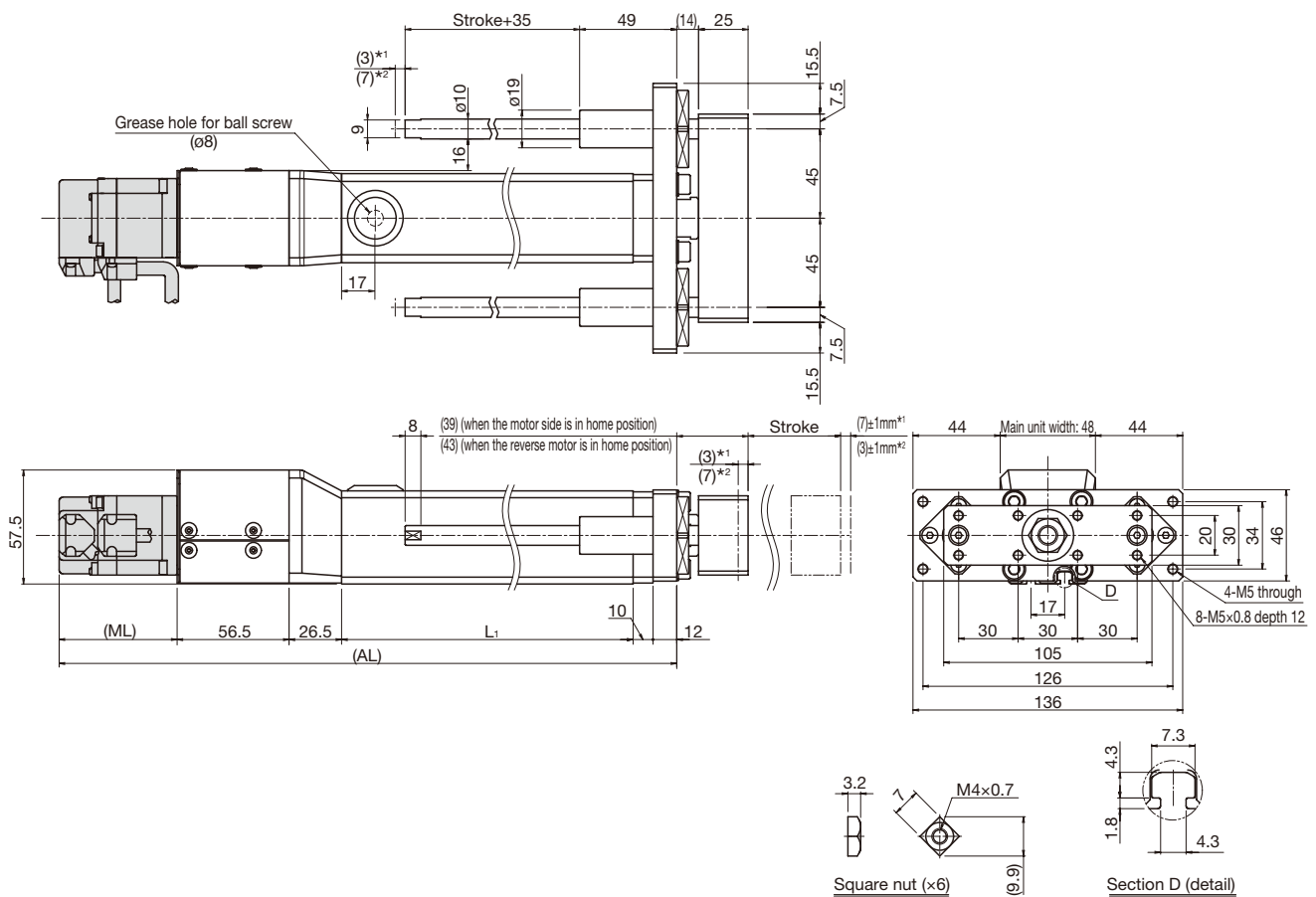


EC4H + TLC



Motor rated output
50W

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 ₁ * 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.

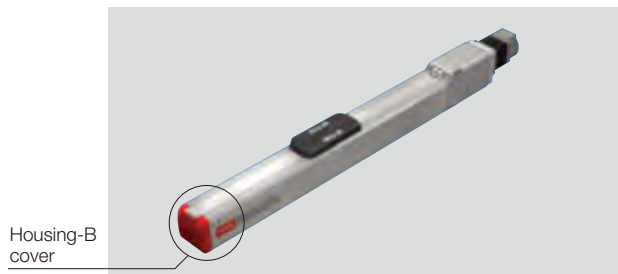
*² Values when brake is installed are shown in parentheses.

*³ T slot milling in the range of L₁.

■ ES Option

GR: Change the cover color to gray

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



No symbol: red cover



When GR is selected: gray cover

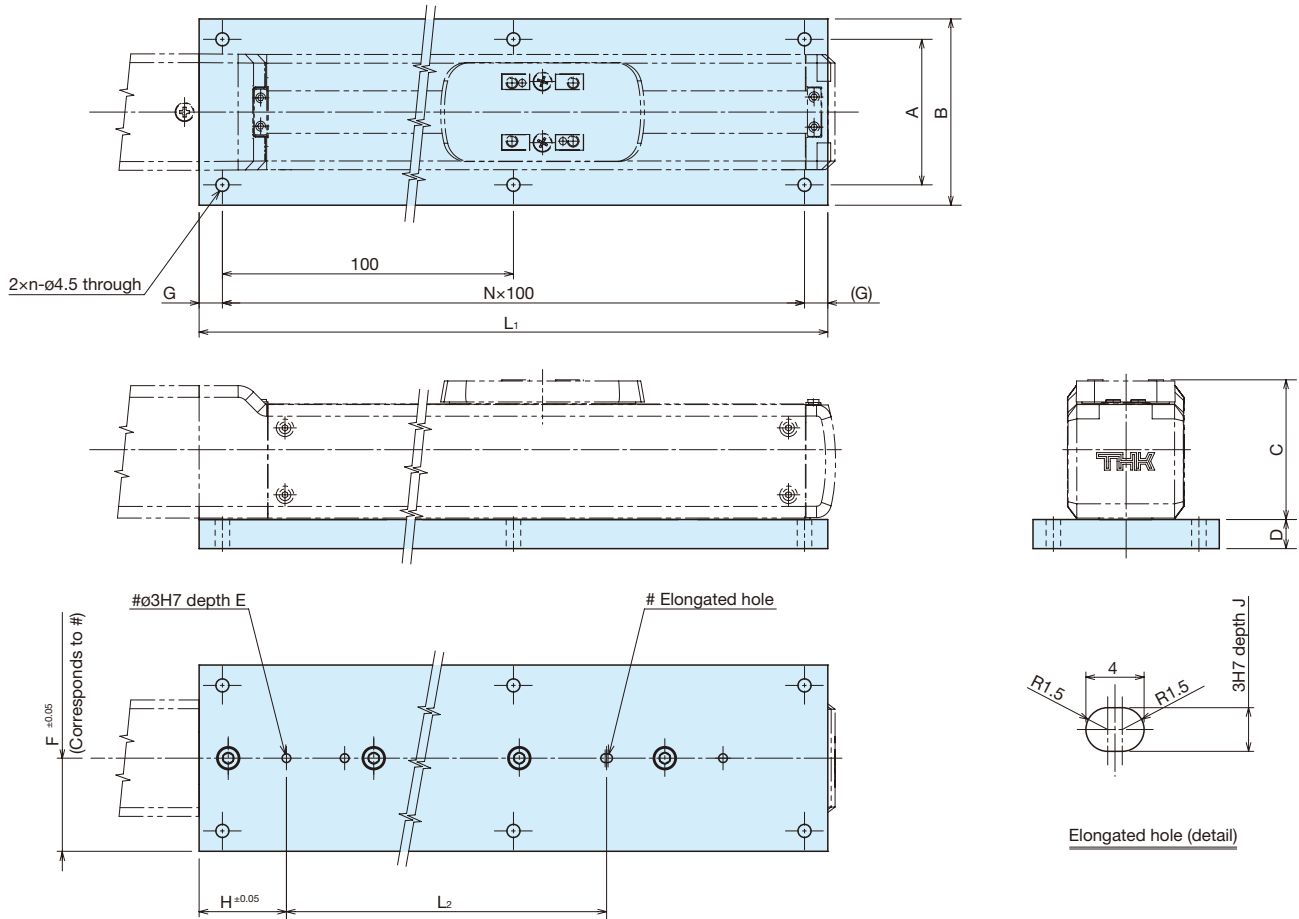
If the GR is not included in the model configuration, cover will be red.

ES Option

SB: Slider base (direct coupled type)

THK provides a slider base for installing the ES main unit from the top face.

* Included with unit



Unit: mm

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

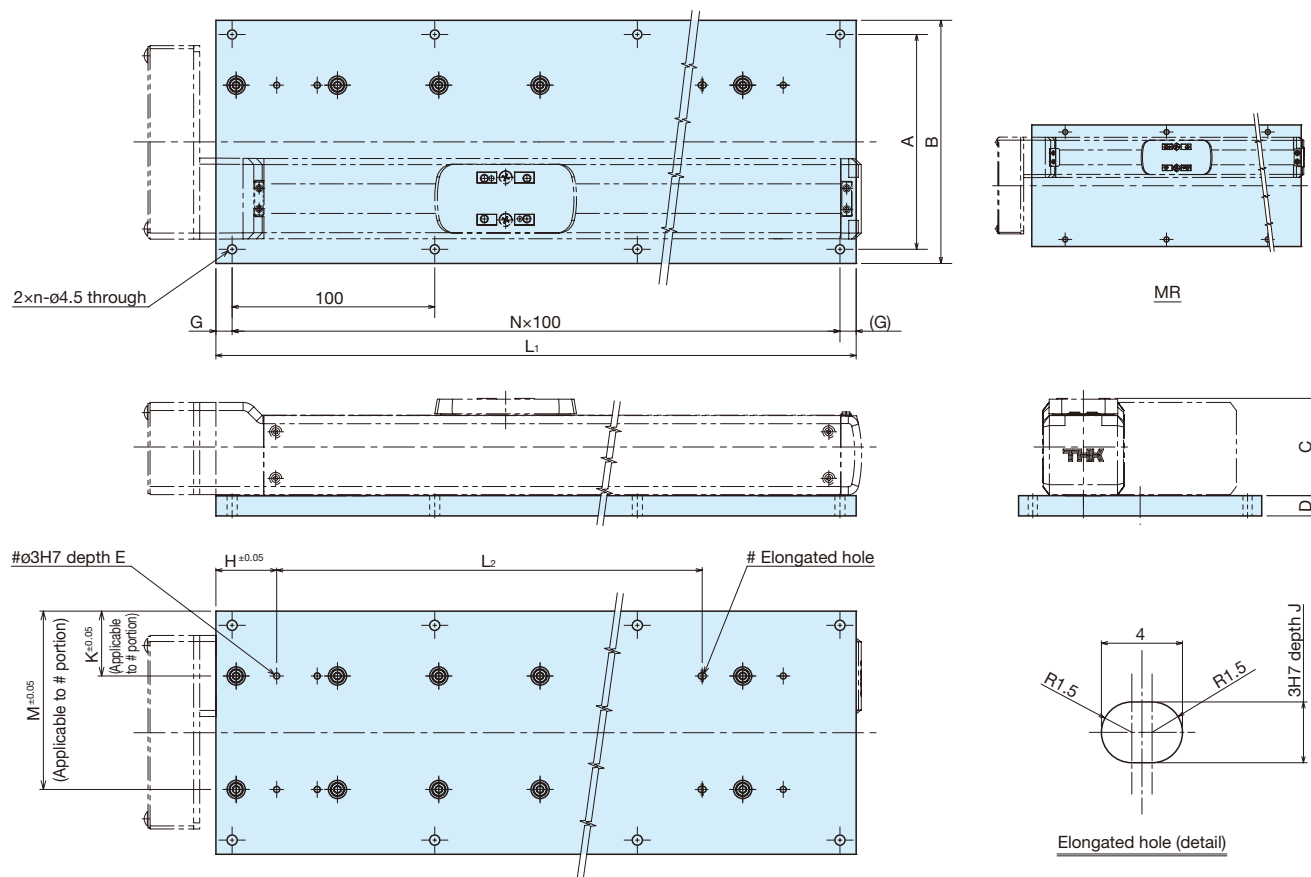
Stroke	50	100	150	200	250	300	350	400	450	500	550	600
ES3	L ₁ [mm]	156	206	256	306	356	406	-	-	-	-	-
	L ₂ [mm]	70	120	170	220	270	320	-	-	-	-	-
	n	2	2	3	3	4	4	-	-	-	-	-
	N	1	1	2	2	3	3	-	-	-	-	-
	G [mm]	28	53	28	53	28	53	-	-	-	-	-
ES4	L ₁ [mm]	166	216	266	316	366	416	466	516	-	-	-
	L ₂ [mm]	60	110	160	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 type)

THK provides a slider base for installing the ES main unit from the top face.

* Included with unit



Unit: mm

Model	A	B	C	D	E	H	J	K	M
ES3	92	106	40	8	8	40	8	28	78
ES4	106	120	48	10	10	30	10	32	88
ES5	136	150	57	10	10	45	10	42	108
ES6	136	150	62.5	10	10	45	10	42	108

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 dog; a sensor dog 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 wrap direction of the motor.
4. When an optional sensor is used, the home position may differ from that indicated in this brochure.
5. If proximity sensors are placed too close to each other, they may not work properly. In this case, the customer must provide sensors with variant frequencies. (For specifications, contact each manufacturer.)

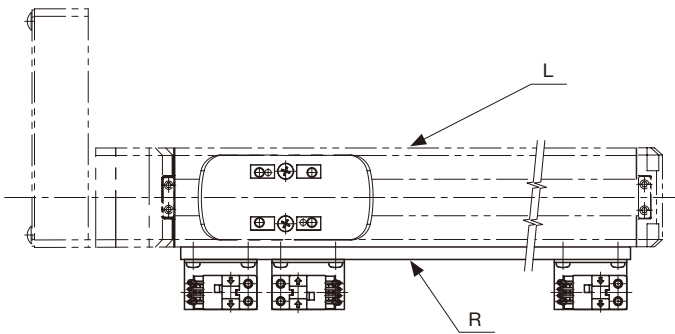
Description	Type	Accessory	Symbol	
			□ ₁	□ ₂
With sensor rail	—	—	L/R	1
Photo Sensor * [x3]	EE-SX674 (OMRON Corporation)	Mounting screw, nuts, sensor rail (x1), mounting plates (x3), connectors (EE-1001, x3)	L/R	6
Sensor N.O. contact [x1] N.C. contact points [x2]	GX-F12A (Panasonic Industrial Devices 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



Option: Sensor symbols

Symbol	
□ ₁	□ ₂
R	6

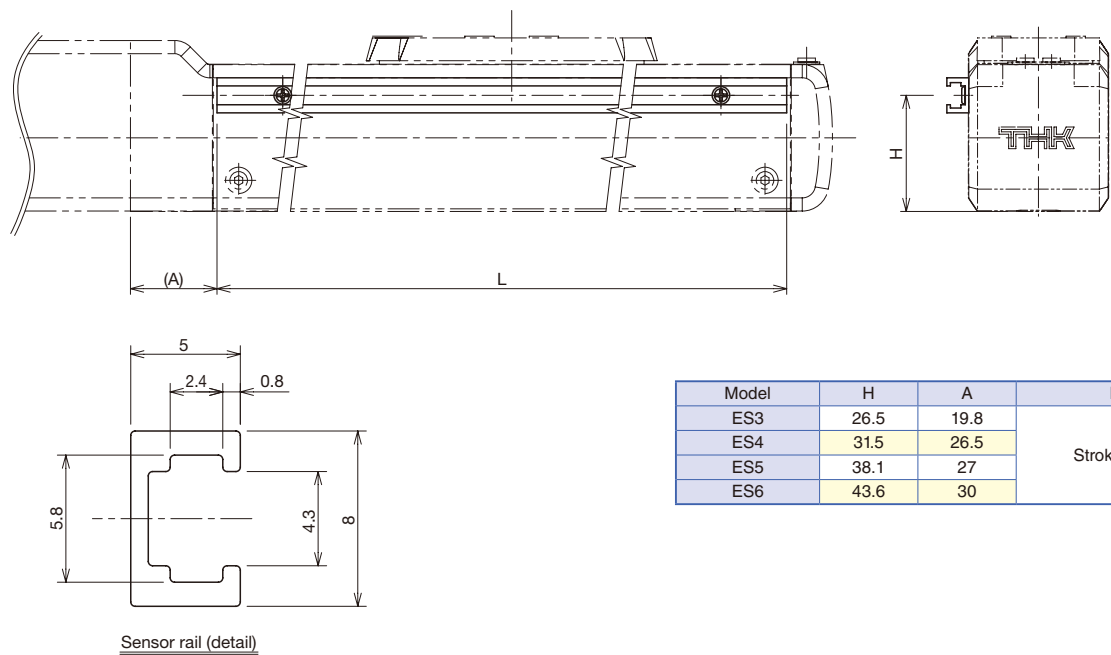
* □₁ represents the mounting position for sensor rail and sensor.

□₂ represents the type of sensors.

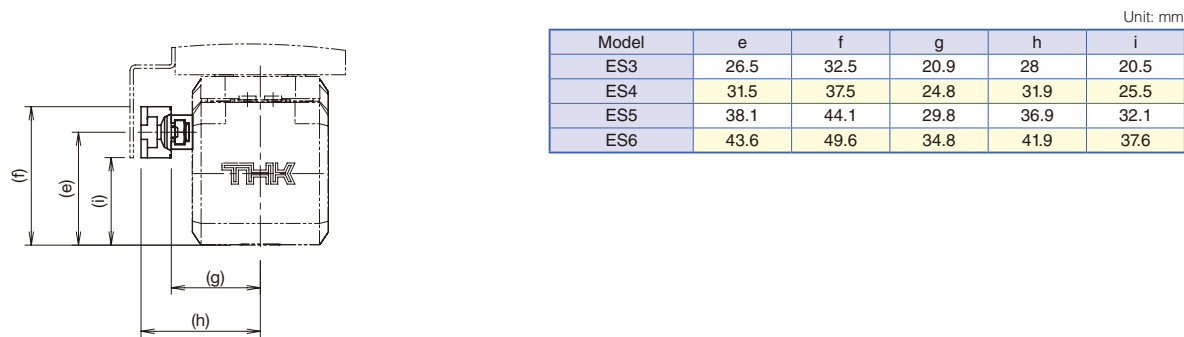
* □₁ on the same side as the wrap direction of the motor cannot be selected. L cannot be selected.

□₁□₂: Sensor

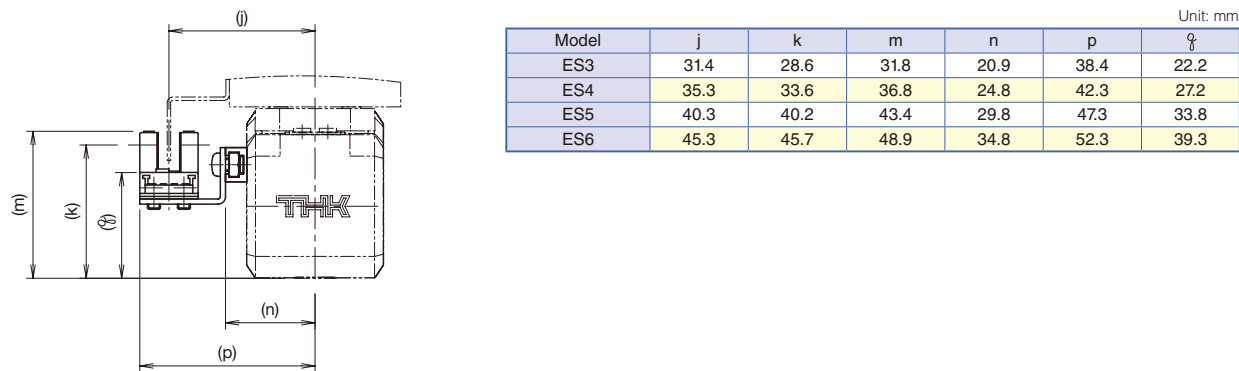
Symbol 1: Sensor rail



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



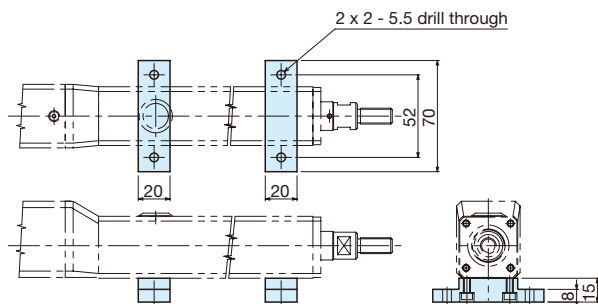
Symbol 6: Photo sensor EE-SX674 (OMRON Corporation)



EC Option

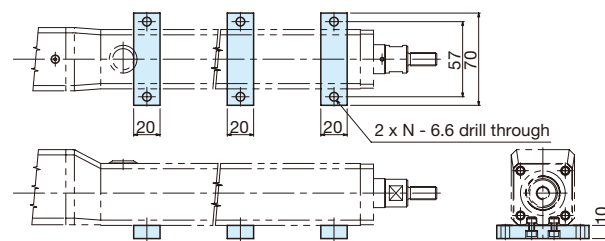
CB: Cylinder Base

EC3



* Included with unit

EC4

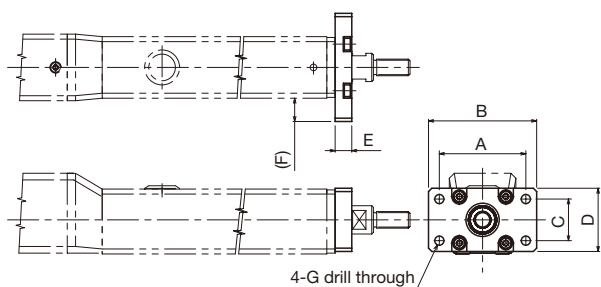


Stroke	50	100	150	200	250	300
N	2	2	2	2	3	3

* Included with unit

FL: Flange

EC3/4, EC3R/4R

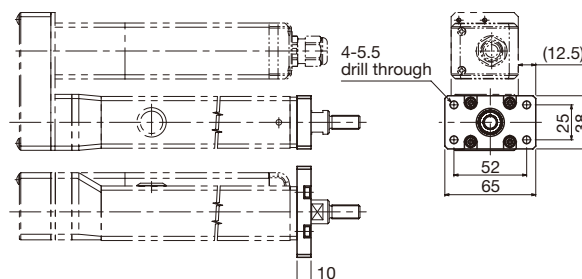


Unit: mm

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

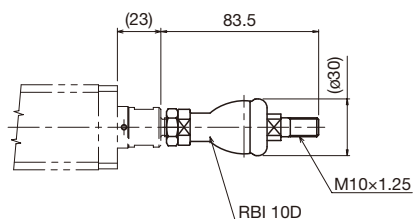
EC3R (When ST=50)



* Included with unit

LB: Link Ball

EC3/4



* Included with unit