THK

ACTUATOR UNITS

NEW

Universal series

US/USW

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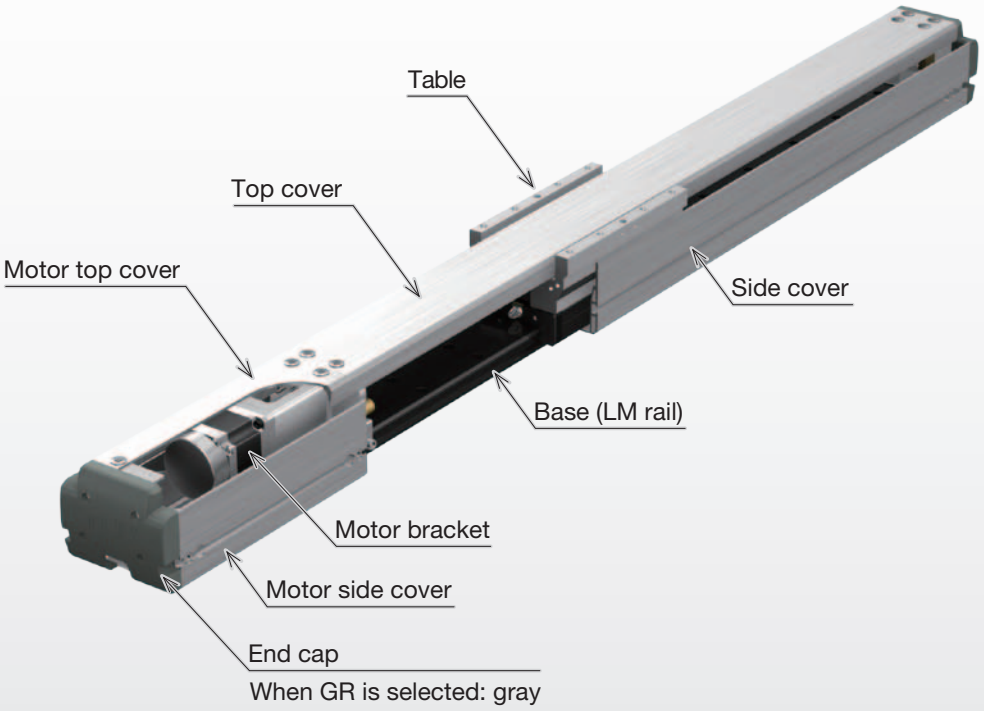
THK CO., LTD.
TOKYO, JAPAN

CATALOG No.377-5E

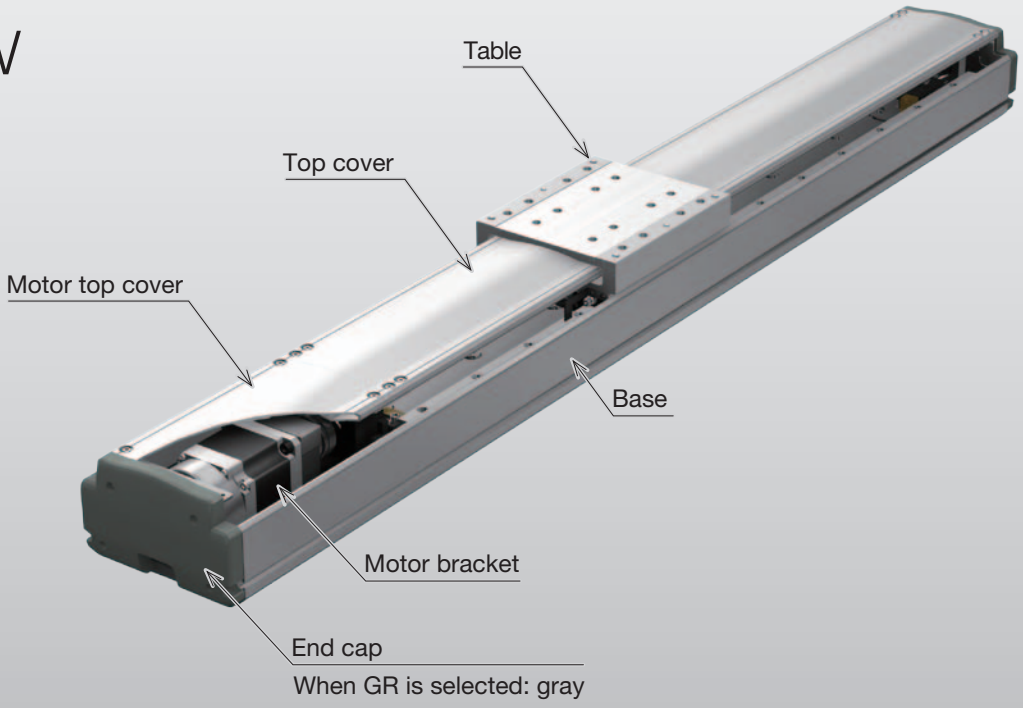
Electrical Actuator
Universal Series
US/USW

High Speed, High Load Capacity, Long Service Life

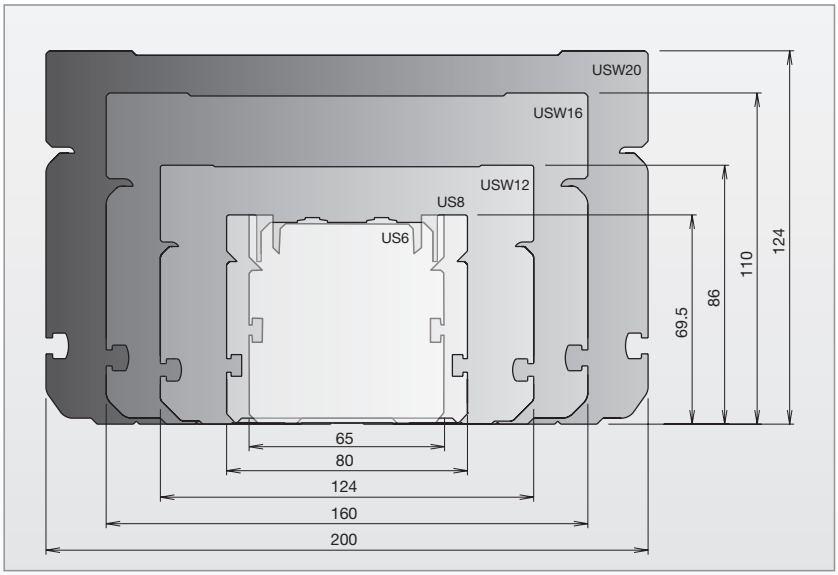
US



USW



Size range by model



Features

Long service life

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

Long-term maintenance-free operation

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

High speed

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

Smart structure

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

Easy assembly

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

Versatile lineup

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

Types and Models

[With ball screw]
Direct motor coupling type

Ball screw and motor are connected using a coupling.

[With ball screw]
Motor wrap type

Motor can be folded laterally to reduce the axial dimension.

Model	Ball screw lead [mm]	Stroke [mm]	Motor rated output [W]	100	200	300	400	500	600
US6	6	100 to 900	50			360			310
	12					720			630
	6		100			360			310
	12					720			630
US8	5	100 to 1100	100			300			
	10					600			
	20					1200			
	30					1800			
	10		150			600			
	20					1200			
	30					1800			
USW12	5	100 to 1100	200			300			
	10					600			580
	20					1200			1160
	30					1800			1700
USW16	10	100 to 1500	400			550			
	20					1100			
	40					2200			
USW20	20	200 to 1700	750			1100			
	40					2200			

*1 The maximum speed is the value restricted by the motor rotational speed (US6 to USW12: at 3,600 min^{-1}, USW16 to USW20: 3,300 min^{-1}), or by the permissible rotational speed of the ball screw.

Maximum speed [mm/s] *1 for each stroke [mm]																						Described on
Stroke [mm]																						
700		800		900		1000		1100		1200		1300		1400		1500		1600		1700		
270	240	210	180	160																		Page 7
550	480	420	370	330																		
270	240	210	180	160																		
550	480	420	370	330																		
290	250	220	200	180	160	150	130	120														Page 15
550	480	430	380	340	310	280	250	230														
1090	960	850	760	680	610	560	510	460														
1600	1410	1250	1120	1000	910	820	750	690														
550	480	430	380	340	310	280	250	230														
1090	960	850	760	680	610	560	510	460														
1600	1410	1250	1120	1000	910	820	750	690														
270	240	210	190	170	150	140	130	120														Page 23
510	450	400	360	320	290	260	240	220														
1020	900	800	720	640	580	530	480	440														
1490	1320	1180	1050	950	860	780	720	660														
		520	470	420	380	340	310	290	260	240	230	210	190	180	170	160						Page 31
			1040	930	840	760	700	640	590	540	500	460	430	400	380	350						
			1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690						
			1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270		Page 39
		2140	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530		

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
USW12RT –	05 –	0150	A	– 0	– 6	– SR	–
(1)	(2)	(3)	(4)	(5)	(6)	(7)	

(1)

- US6T
- US8T
- USW12T
- USW16T
- USW20T
- US6RT
- US8RT
- USW12RT
- USW16RT
- USW20RT

R represents motor wrap.

(2)

- 05: 5mm
- 06: 6mm
- 10: 10mm
- 12: 12mm
- 20: 20mm
- 30: 30mm
- 40: 40mm

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

(3)

- 0100: 100mm
- 0150: 150mm
- 0200: 200mm
- to
- 1700: 1700mm

US6 : 0100 - 0900
US8 : 0100 - 1100
USW12: 0100 - 1100
USW16: 0100 - 1500
USW20: 0200 - 1700

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

(4)

- A

(5)

- 0 : Without motor
- 0B: Without motor (With brake)
- 1 : With motor (Prepared by THK)
- 1B: With motor (Prepared by THK, with brake)

When 0 or 0B is selected:
Direct motor coupling type: A coupling is not provided.
Motor wrap type: Timing pulley and timing belt are provided.

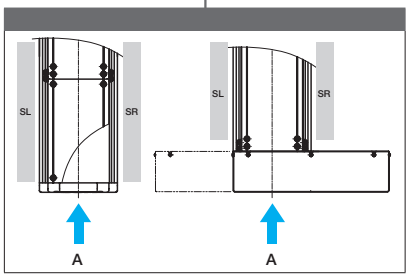
When 1 or 1B is selected:
Direct motor coupling type: Mounted parts: motor, coupling, power cable, encoder cable, electromagnetic brake cable.
Motor wrap type: Mounted parts: motor, timing belt, timing pulley
Accessories: power cable, encoder cable, electromagnetic brake cable.
The customer selects the desired motor, coupling, and cables. Recommended coupling is available; see the "Recommended Coupling" section.

(6)

- P
- Q
- N
- 6
- E
- J
- M

(7)

- No symbol: When selecting P, Q, or N
- SR: On right side as seen from side A
- SL: On left side as seen from side A



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

Pages for detailed description

Base mounting method	Motor bracket	Option
C –	A –	MR–GR
(8)	(9)	(10)

(8)

- T: From underside of base (tapped holes)
- C: From top of base (counter-bore holes)

For US6 and US8, you only can select "C".

(9)

- A
- B
- C

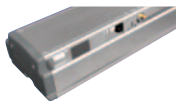
(10)

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

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

No symbol: red

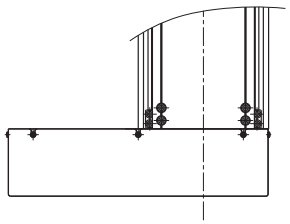
When GR is selected: gray



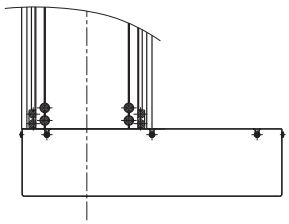
You can select a hanging jig only when selecting USW12, USW16 or USW20.

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

Folded direction



Option symbol ML: Left-turn return



Option symbol MR: Right-turn return

US6T Direct motor coupling

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
US6T	– 06	– 0150	A	– 0	– 6	– SR	–

US6T	06: 6mm 12: 12mm	0100: 100mm to 0900: 900mm	A

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

0 : Without motor
0B: Without motor (With brake)
1 : With motor (Prepared by THK)
1B: With motor (Prepared by THK, with brake)

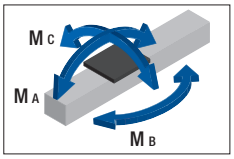
N
6
E
J
M

No symbol: When selecting N
SR
SL

Reference Basic Specifications

Motor rated output [W]				50		100	
Ball screw lead [mm]				6	12	6	12
Rated speed *1 [mm/s]				300	600	300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	30	15	70	30
		Vertical	0.3G	7	3	14	7
Rated thrust *3 [N]				134	67	268	134
Maximum thrust *4 [N]				402	201	795	398
Electromagnetic brake retention [N]				134	67	268	134
Running life *5 [km]				10,000			
Static permissible moment *6 [N·m]				M_A: 123, M_B: 127, M_C: 138			
Positioning repeatability [mm]				±0.020			
Backlash [mm]				0.05			

Static permissible moment



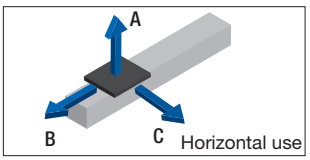
*1 At rated motor speed (3,000 min^{-1}).
*2 Load capacity and maximum speed are dependent on usage conditions.
*3 At rated motor torque.
*4 Dependent on maximum motor torque and permissible load.
*5 Conditions:
Stroke: 100mm
Acceleration and deceleration rate: 0.3G
Maximum speed: maximum speed or top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

US6T

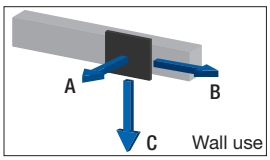
Base mounting method		Motor bracket		Option
C	–	A	–	GR

Base mounting method	Motor bracket	Option
C: From top of base (counter-base holes)	A	No symbol: Red end cap GR: Gray end cap

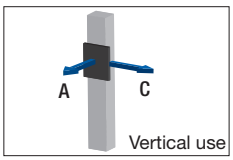
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	17	730	210	230
	35	350	100	110
	70	170	40	40
12	7	1110	470	420
	15	630	240	210
	30	330	110	100

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	7	460	410	1640
	15	210	180	940
	30	70	60	440
12	7	410	410	1000
	15	190	180	520
	30	60	60	220

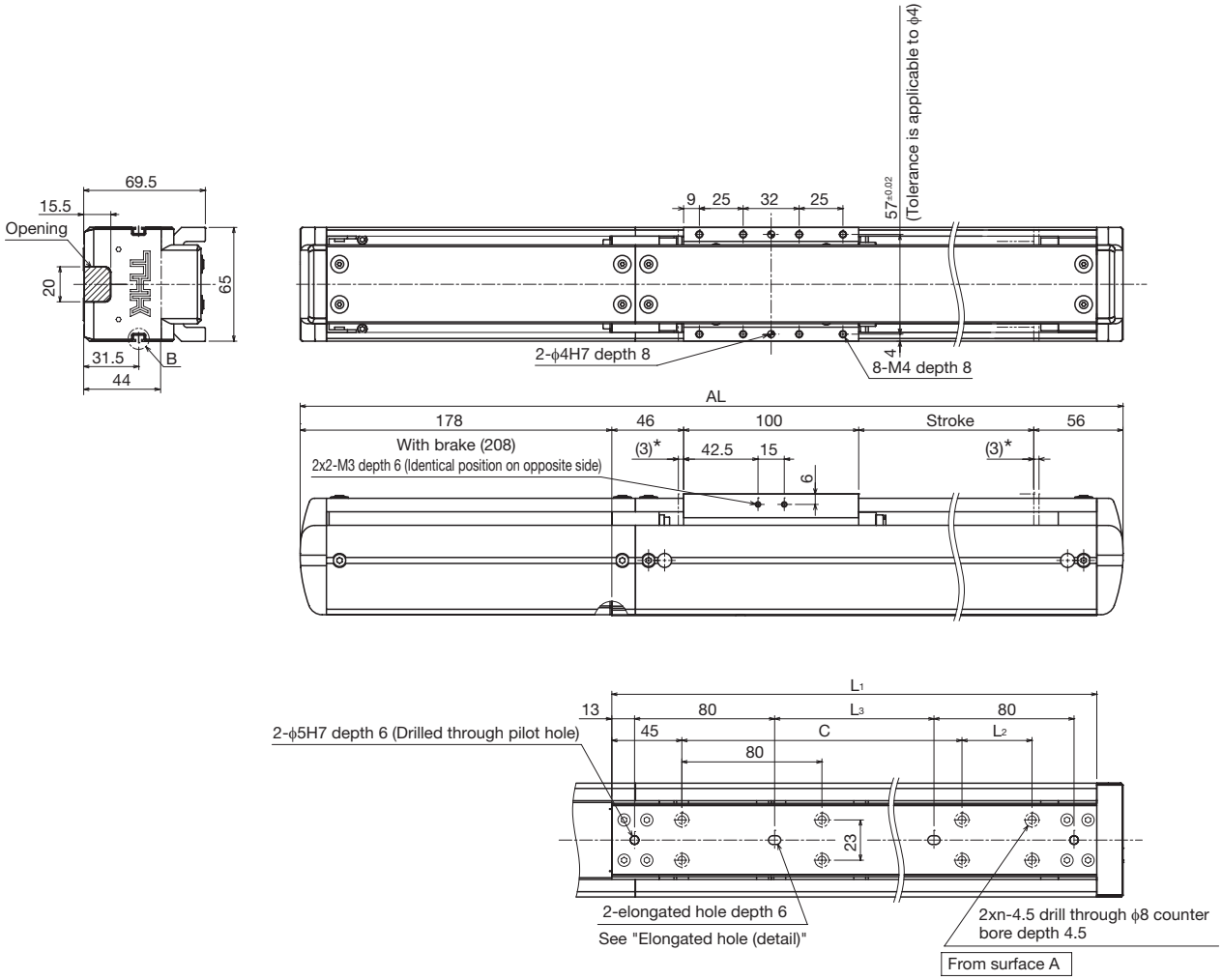
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	1	1550	1540
	7	450	440
	14	220	220
12	1	1440	1430
	4	630	620
	7	400	400

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

US6T Direct motor coupling

Dimensions

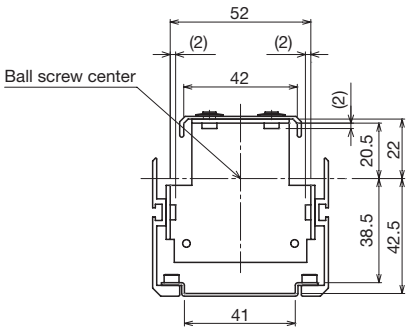


* This is a stroke between mechanical stoppers.

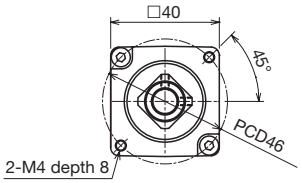
Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm	360							
	Ball screw lead: 12mm	720							
Dimensions [mm]	AL*3	480 (510)	530 (560)	580 (610)	630 (660)	680 (710)	730 (760)	780 (810)	
	L_1	287	337	387	437	487	537	587	
	L_2	40	-	40	40	-	40	-	
	L_3	101	151	201	251	301	351	401	
	C	160	240	240	320	400	400	480	
Mounting hole count	n	4	4	5	6	6	7	7	
Weight [kg]		3.0	3.2	3.4	3.6	3.8	4.1	4.3	

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.
*3 Values when a brake is installed are shown in parentheses.

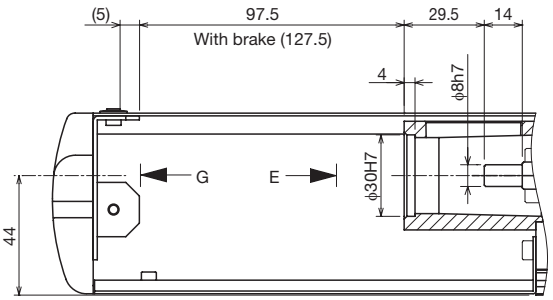
Detail



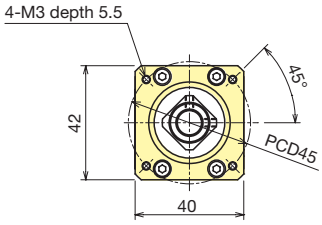
Arrow G view



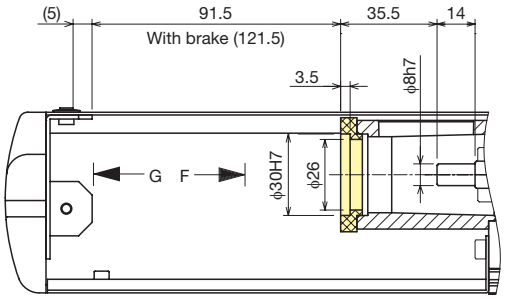
Arrow E view



Motor bracket (detail) (symbol: A)

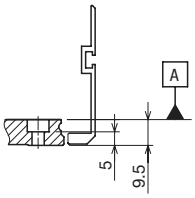


Arrow F view

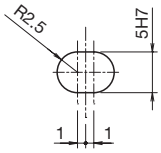


Motor bracket (detail) (symbol: B)

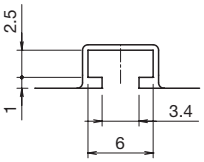
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
360					310	270	240	210	180	160
720					630	550	480	420	370	330
	830 (860)	880 (910)	930 (960)	980 (1010)	1030 (1060)	1080 (1110)	1130 (1160)	1180 (1210)	1230 (1260)	1280 (1310)
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.2	6.4

US6RT Motor wrap

Model Configuration

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
US6RT	– 06	– 0150	A	– 0	– 6	– SL	–

US6RT	06: 6mm 12: 12mm	0100: 100mm to 0900: 900mm	A

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

0 : Without motor
0B: Without motor (With brake)
1 : With motor (Prepared by THK)
1B: With motor (Prepared by THK, with brake)

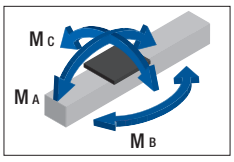
N
6
E
J
M

No symbol: When selecting N
SR
SL

Reference Basic Specifications

Motor rated output [W]				50		100	
Ball screw lead [mm]				6	12	6	12
Rated speed *1 [mm/s]				300	600	300	600
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	30	15	70	30
		Vertical	0.3G	7	3	14	7
Rated thrust *3 [N]				134	67	268	134
Maximum thrust *4 [N]				402	201	795	398
Electromagnetic brake retention [N]				134	67	268	134
Running life *5 [km]				10,000			
Static permissible moment *6 [N·m]				M_A: 123, M_B: 127, M_C: 138			
Positioning repeatability [mm]				±0.020			
Backlash [mm]				0.05			

Static permissible moment



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

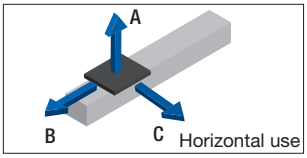
US6RT

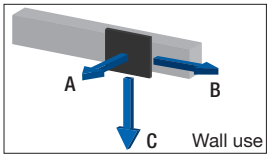
Base mounting method		Motor bracket		Option
C	–	A	–	MR–GR

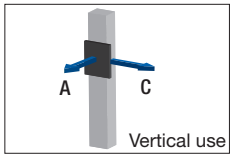
Base mounting method	Motor bracket	Option
C: From top of base (counter-base holes)	A	MR: Motor right-turn folded
	B	ML: Motor left-turn folded
		GR: Gray end cap

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

Reference Permissible Overhang Length*







Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	17	730	210	230
	35	350	100	110
	70	170	40	40
12	7	1110	470	420
	15	630	240	210
	30	330	110	100

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
6	7	460	410	1640
	15	210	180	940
	30	70	60	440
12	7	410	410	1000
	15	190	180	520
	30	60	60	220

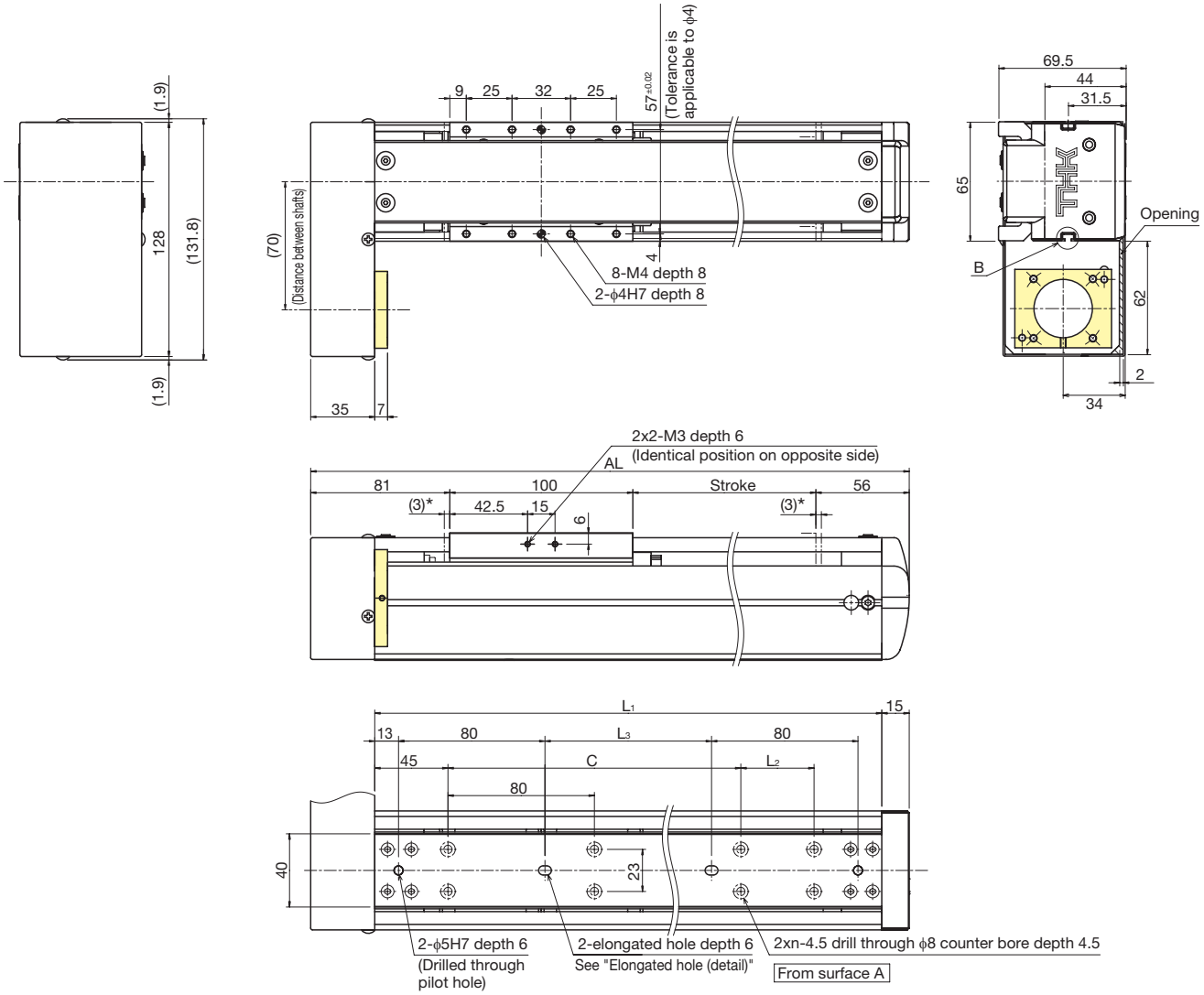
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
6	1	1550	1540
	7	450	440
	14	220	220
12	1	1440	1430
	4	630	620
	7	400	400

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

US6RT Motor wrap

Dimensions

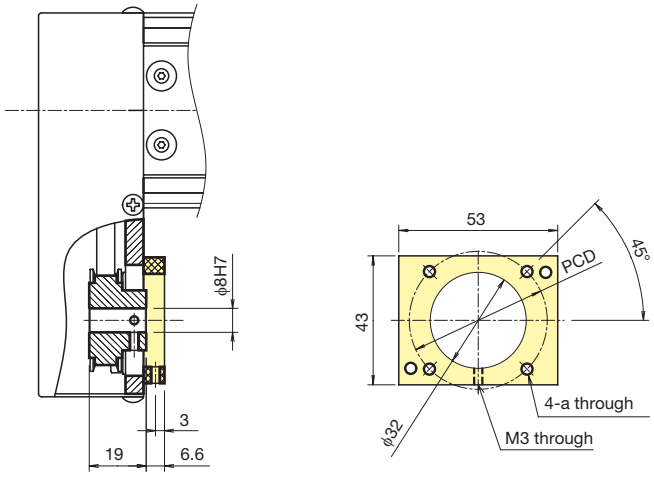


* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)		100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	
Maximum speed *1 *2 [mm/s]	Ball screw lead: 6mm	360							
	Ball screw lead: 12mm	720							
Dimensions [mm]	AL	337	387	437	487	537	587	637	
	L_1	287	337	387	437	487	537	587	
	L_2	40	-	40	40	-	40	-	
	L_3	101	151	201	251	301	351	401	
	C	160	240	240	320	400	400	480	
Mounting hole count	n	4	4	5	6	6	7	7	
Weight [kg]		3.0	3.2	3.4	3.6	3.8	4.0	4.2	

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.

Detail

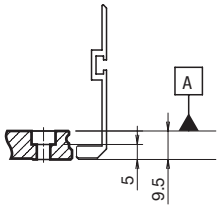


Motor bracket (detail) (symbol: A, B)

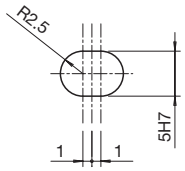
■Motor bracket specifications [mm]

Symbol	a	PCD
A	M4	46
B	M3	45

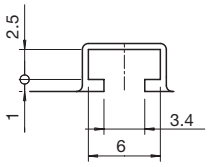
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	450 (456)	500 (506)	550 (556)	600 (606)	650 (656)	700 (706)	750 (756)	800 (806)	850 (856)	900 (906)
360					310	270	240	210	180	160
720					630	550	480	420	370	330
	687	737	787	837	887	937	987	1037	1087	1137
	637	687	737	787	837	887	937	987	1037	1087
	-	40	-	40	40	-	40	-	-	40
	451	501	551	601	651	701	751	801	851	901
	560	560	640	640	720	800	800	880	960	960
	8	9	9	10	11	11	12	12	13	14
	4.4	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3

US8T Direct motor coupling

Model Configuration

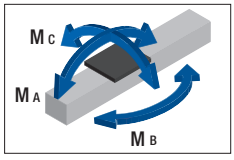
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
US8T	– 05	– 0150	A	– 0	– 6	– SR	–

US8T	05: 5mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	10: 10mm	to		0B: Without motor (With brake)	Q	SR
	20: 20mm	1100: 1100mm		1 : With motor (Prepared by THK)	N	SL
	30: 30mm			1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

Motor rated output [W]				100				150		
Ball screw lead [mm]				5	10	20	30	10	20	30
Rated speed *1 [mm/s]				250	500	1000	1500	500	1000	1500
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	80	40	20	8	60	30	12
		Vertical	0.3G	16*3	8	4	2	12	6	3
Rated thrust *4 [N]				322	161	80	54	240	120	80
Maximum thrust *5 [N]				955	478	239	159	719	359	240
Electromagnetic brake retention [N]				322	161	80	54	161	80	54
Running life *6 [km]				10,000						
Static permissible moment *7 [N·m]				M_A: 287, M_B: 235, M_C: 226						
Positioning repeatability [mm]				±0.020						
Backlash [mm]				0.05						

Static permissible moment



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

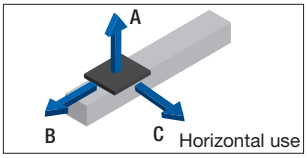
US8T

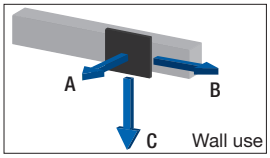
Base mounting method		Motor bracket		Option
C	–	A	–	GR

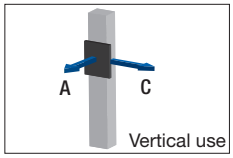
Base mounting method	Motor bracket	Option
C: From top of base (counter-base holes)	A	No symbol : Red end cap
	B	GR : Gray end cap

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

Reference Permissible Overhang Length*







Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	20	1610	370	340
	40	970	190	170
	80	520	80	70
10	20	1190	370	310
	40	680	190	150
	60	340	120	100
20	10	1860	660	560
	20	1190	370	310
	30	870	190	210
30	4	2000	1220	1070
	8	2000	780	670
	12	1670	570	490

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	20	280	310	1410
	40	120	120	750
	80	20	20	250
10	20	280	310	1010
	40	120	120	510
	60	50	60	290
20	10	550	590	1690
	20	280	310	1010
	30	170	190	700
30	4	1080	1150	2000
	8	660	710	1940
	12	470	510	1490

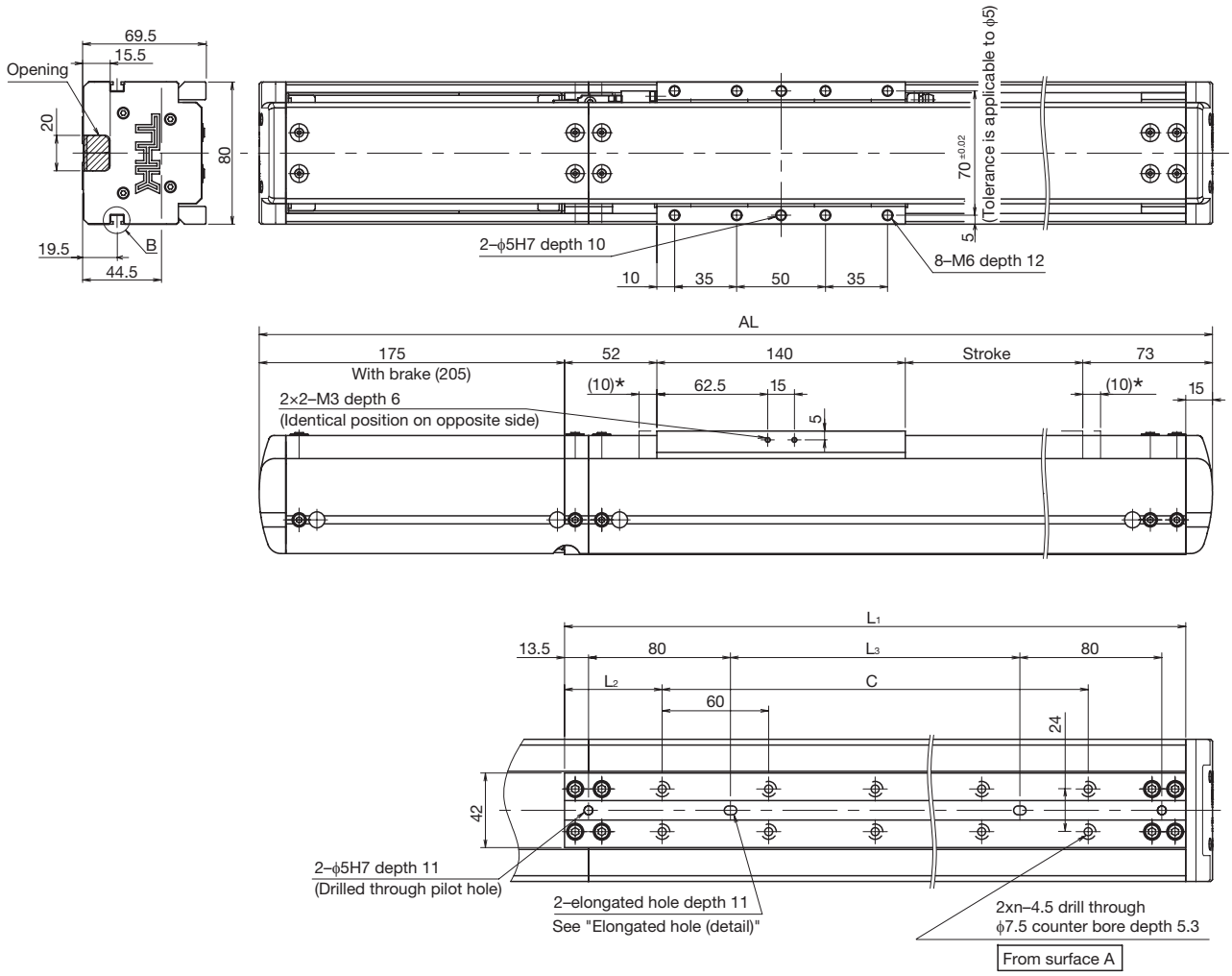
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
5	4	1190	1180
	8	760	750
	16	440	430
10	4	1150	1140
	8	720	720
	12	530	520
20	2	1690	1680
	4	1150	1140
	6	890	880
30	1	2000	2000
	2	1690	1680
	3	1360	1350

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

US8T Direct motor coupling

Dimensions

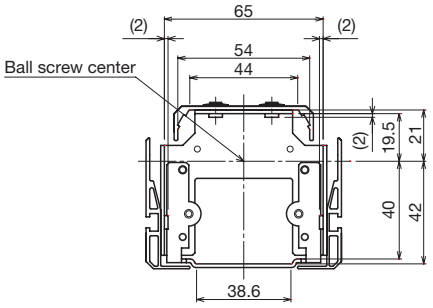


* This is a stroke between mechanical stoppers.

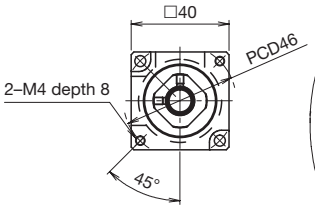
Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed *1 *2 [mm/s]	Ball screw lead	5mm	300								
		10mm	600								
		20mm	1200								
		30mm	1800								
Dimensions [mm]	AL*3		540 (570)	590 (620)	640 (670)	690 (720)	740 (770)	790 (820)	840 (870)	890 (920)	940 (970)
	L_1		350	400	450	500	550	600	650	700	750
	L_2		55	50	45	40	35	60	55	50	45
	L_3		163	213	263	313	363	413	463	513	563
	C		240	300	360	420	480	480	540	600	660
Mounting hole count	n		5	6	7	8	9	9	10	11	12
Weight [kg]			5.6	5.8	6.1	6.4	6.7	7	7.3	7.6	7.8

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.
*3 Values when a brake is installed are shown in parentheses.

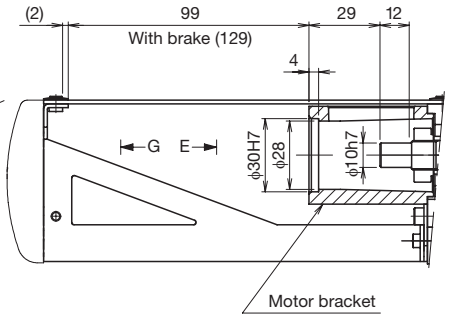
Detail



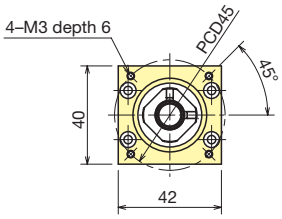
Arrow G view



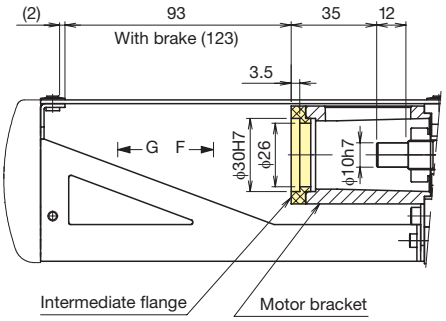
Arrow E view



Motor bracket (detail) (symbol: A)

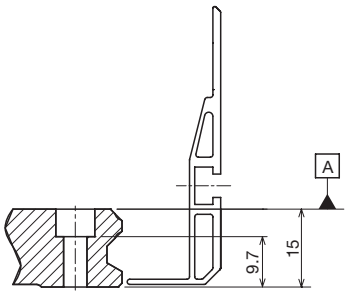


Arrow F view

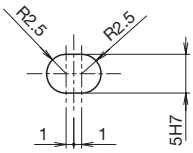


Motor bracket (detail) (symbol: B)

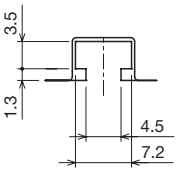
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
300			290	250	220	200	180	160	150	130	120
600			550	480	430	380	340	310	280	250	230
1200			1090	960	850	760	680	610	560	510	460
1800			1600	1410	1250	1120	1000	910	820	750	690
990 (1020)	1040 (1070)	1090 (1120)	1140 (1170)	1190 (1220)	1240 (1270)	1290 (1320)	1340 (1370)	1390 (1420)	1440 (1470)	1490 (1520)	1540 (1570)
800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
40	35	60	55	50	45	40	35	60	55	50	45
613	663	713	763	813	863	913	963	1013	1063	1113	1163
720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
13	14	14	15	16	17	18	19	19	20	21	22
8.1	8.4	8.6	8.9	9.1	9.4	9.6	9.9	10.2	10.4	10.7	10.9

US8RT Motor wrap

Model Configuration

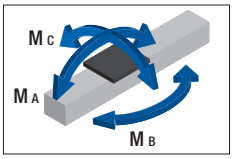
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
US8RT	– 05	– 0150	A	– 0	– 6	– SL	–

US8RT	05: 5mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	10: 10mm	to		0B: Without motor (With brake)	Q	SR
	20: 20mm	1100: 1100mm		1 : With motor (Prepared by THK)	N	SL
	30: 30mm			1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

Motor rated output [W]				100				150		
Ball screw lead [mm]				5	10	20	30	10	20	30
Rated speed *1 [mm/s]				250	500	1000	1500	500	1000	1500
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	80	40	20	8	60	30	12
		Vertical	0.3G	16*3	8	4	2	12	6	3
Rated thrust *4 [N]				322	161	80	54	240	120	80
Maximum thrust *5 [N]				955	478	239	159	719	359	240
Electromagnetic brake retention [N]				322	161	80	54	161	80	54
Running life *6 [km]				10,000						
Static permissible moment *7 [N·m]				M_A: 287, M_B: 235, M_C: 226						
Positioning repeatability [mm]				±0.020						
Backlash [mm]				0.05						

Static permissible moment



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

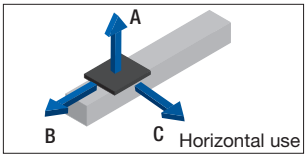
US8RT

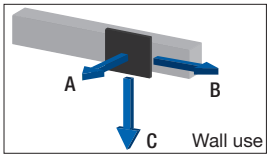
Base mounting method		Motor bracket		Option
C	–	A	–	MR–GR

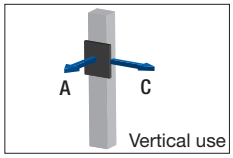
Base mounting method	Motor bracket	Option
C: From top of base (counter-base holes)	A	MR: Motor right-turn folded
	B	ML : Motor left-turn folded
		GR : Gray end cap

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

Reference Permissible Overhang Length*







Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	20	1610	370	340
	40	970	190	170
	80	520	80	70
10	20	1190	370	310
	40	680	190	150
	60	340	120	100
20	10	1860	660	560
	20	1190	370	310
	30	870	190	210
30	4	2000	1220	1070
	8	2000	780	670
	12	1670	570	490

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	20	280	310	1410
	40	120	120	750
	80	20	20	250
10	20	280	310	1010
	40	120	120	510
	60	50	60	290
20	10	550	590	1690
	20	280	310	1010
	30	170	190	700
30	4	1080	1150	2000
	8	660	710	1940
	12	470	510	1490

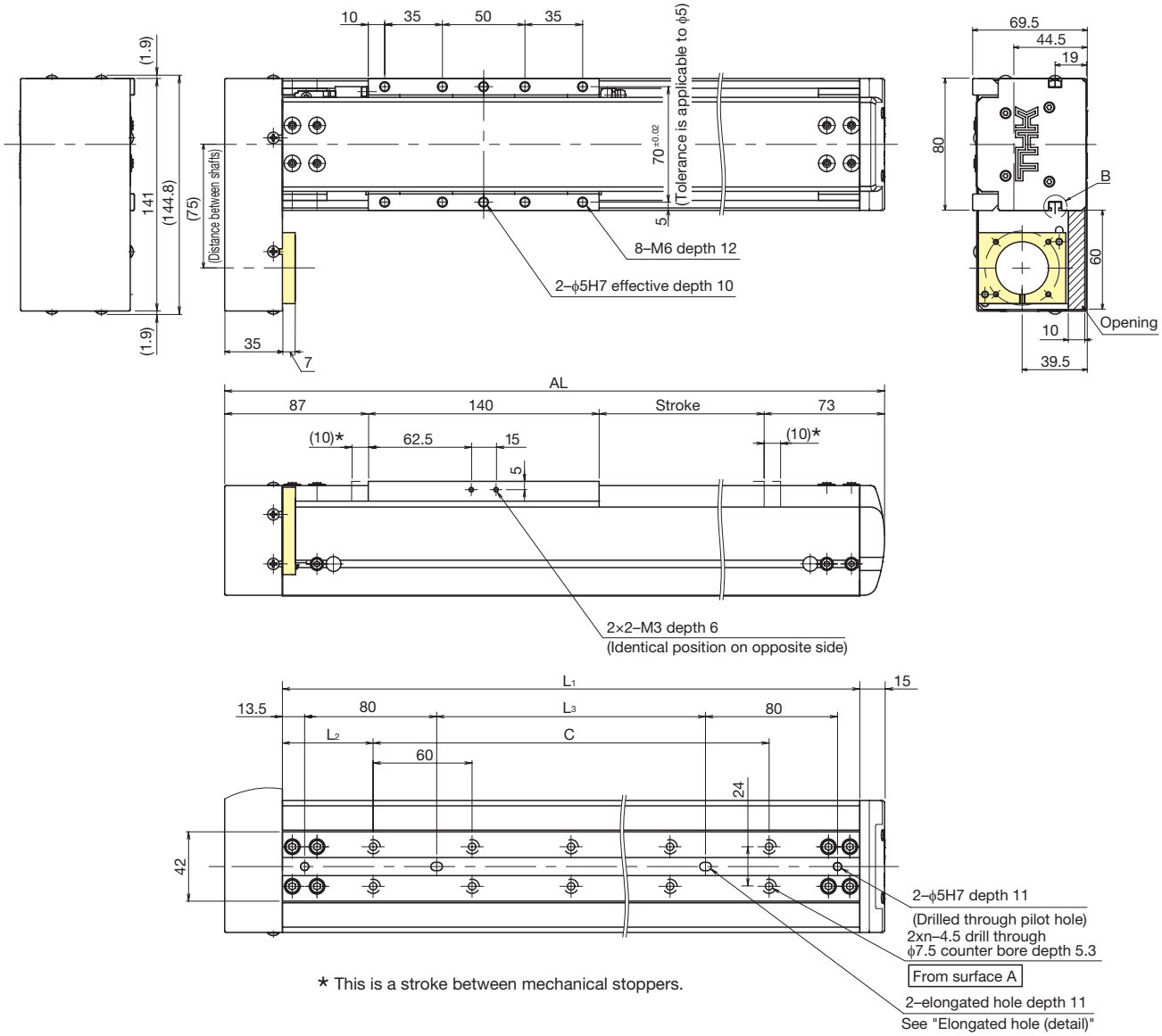
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
5	4	1190	1180
	8	760	750
	16	440	430
10	4	1150	1140
	8	720	720
	12	530	520
20	2	1690	1680
	4	1150	1140
	6	890	880
30	1	2000	2000
	2	1690	1680
	3	1360	1350

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

US8RT Motor wrap

Dimensions

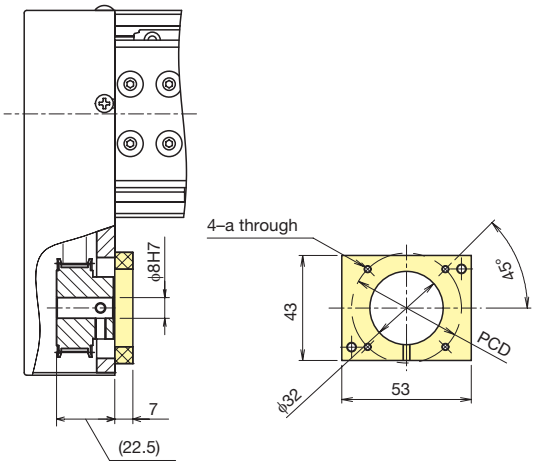


* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed *1 *2 [mm/s]	Ball screw lead	5mm	300								
		10mm	600								
		20mm	1200								
		30mm	1800								
Dimensions [mm]	AL		400	450	500	550	600	650	700	750	800
	L_1		350	400	450	500	550	600	650	700	750
	L_2		55	50	45	40	35	60	55	50	45
	L_3		163	213	263	313	363	413	463	513	563
	C		240	300	360	420	480	480	540	600	660
Mounting hole count	n		5	6	7	8	9	9	10	11	12
Weight [kg]			5.8	6	6.3	6.6	6.9	7.2	7.5	7.7	8

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.

Detail

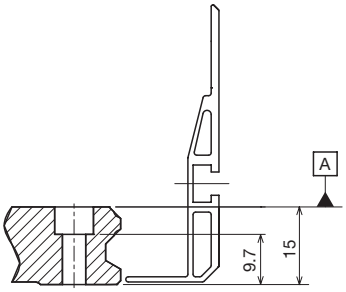


Motor bracket (detail) (symbol: A, B)

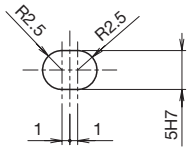
■Motor bracket specifications [mm]

Symbol	a	PCD
A	M4	46
B	M3	45

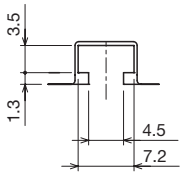
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
		300		290	250	220	200	180	160	150	130	120
		600		550	480	430	380	340	310	280	250	230
		1200		1090	960	850	760	680	610	560	510	460
		1800		1600	1410	1250	1120	1000	910	820	750	690
	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400
	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
	40	35	60	55	50	45	40	35	60	55	50	45
	613	663	713	763	813	863	913	963	1013	1063	1113	1163
	720	780	780	840	900	960	1020	1080	1080	1140	1200	1260
	13	14	14	15	16	17	18	19	19	20	21	22
	8.3	8.6	8.8	9.1	9.3	9.6	9.8	10.1	10.4	10.6	10.9	11.1

USW12T Motor coupling

Model Configuration

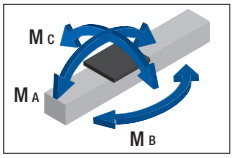
Model	Ball screw lead		Stroke	Design symbol		With/without motor		Sensor		Sensor mounting position	
USW12T	– 05	–	0150	A	–	0	–	6	–	SL	–

USW12T	05: 5mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	10: 10mm	to		0B: Without motor (With brake)	Q	SR
	20: 20mm	1100: 1100mm		1 : With motor (Prepared by THK)	N	SL
	30: 30mm			1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

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

Static permissible moment



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

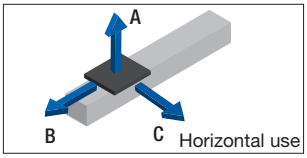
USW12T

Base mounting method		Motor bracket		Option
C	–	A	–	GR

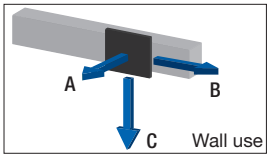
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	No symbol:Red end cap
C: From top of base (counter-bore holes)	B	GR: Gray end cap
		HG: Hanging jig

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

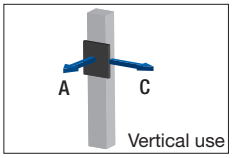
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	30	1870	450	570
	60	1120	230	290
	100	710	130	170
10	20	1790	630	710
	40	1090	340	390
	80	580	160	190
20	10	2000	1060	1170
	20	1790	630	710
	40	1090	340	370
30	5	2000	1620	1770
	15	2000	790	880
	25	1540	520	590

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	30	530	420	1800
	60	260	200	1030
	100	130	90	600
10	20	710	600	1750
	40	370	310	1020
	80	160	130	500
20	10	1180	1030	2000
	20	710	600	1750
	40	370	310	1050
30	5	1800	1600	2000
	15	890	770	2000
	25	580	500	1490

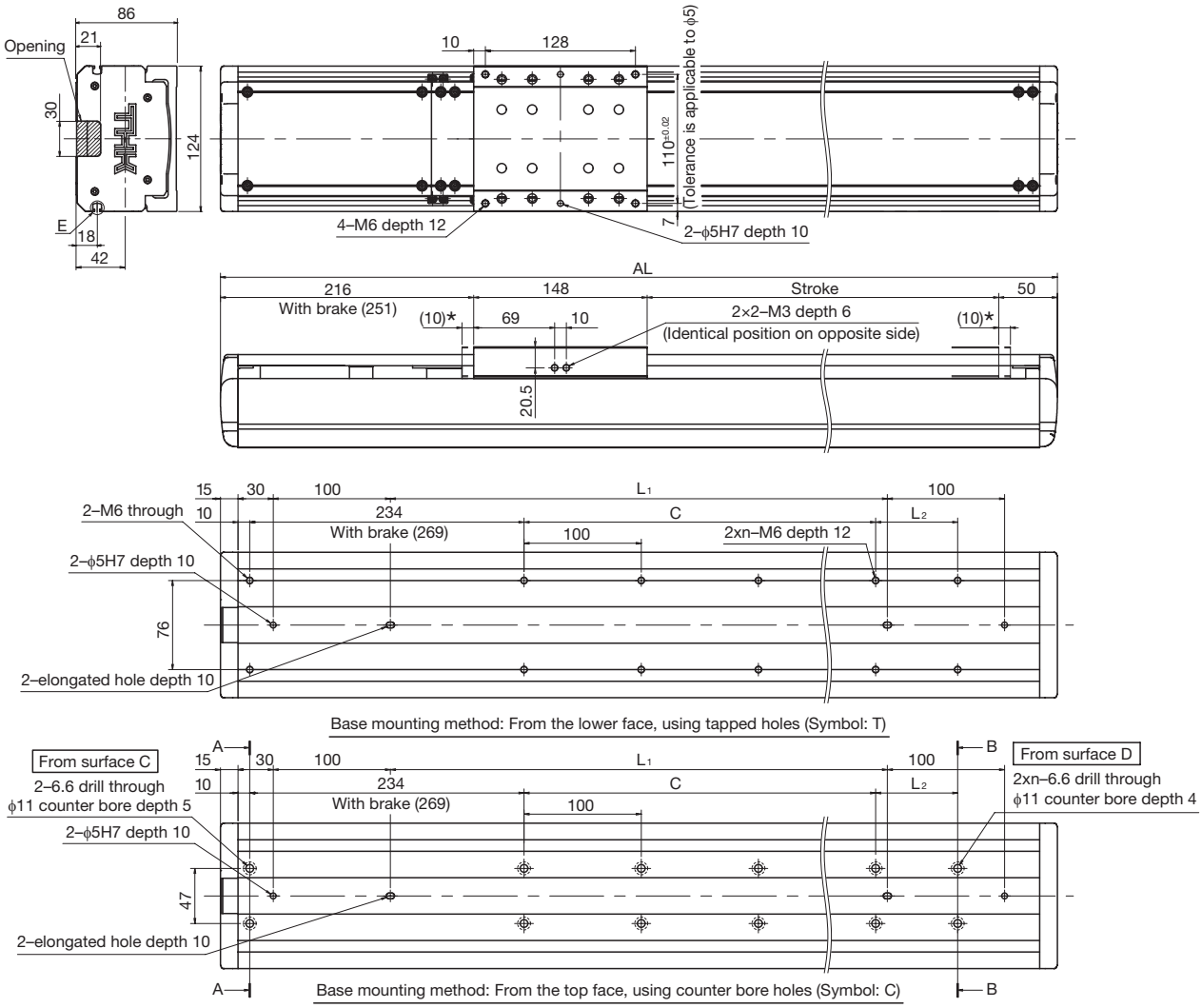
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
5	10	1020	1050
	20	600	620
	30	420	430
10	5	1520	1550
	10	980	1000
	20	570	590
20	2	2000	2000
	4	1720	1760
	8	1140	1170
30	1	2000	2000
	3	2000	2000
	5	1520	1550

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

USW12T Motor coupling

Dimensions



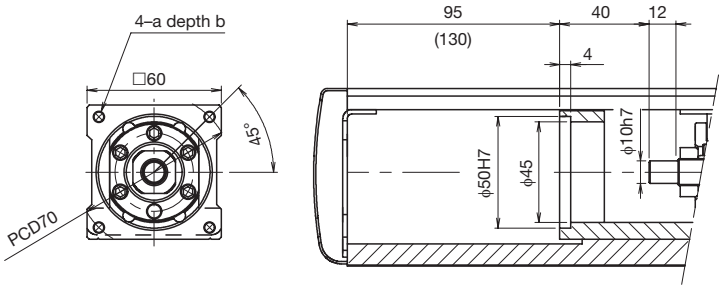
* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed *1 *2 [mm/s]	Ball screw lead	5mm	300								
		10mm	600								
		20mm	1200								
		30mm	1800								
Dimensions [mm]	AL*3		514 (549)	564 (599)	614 (649)	664 (699)	714 (749)	764 (799)	814 (849)	864 (899)	914 (949)
	L_1*3		224 (259)	274 (309)	324 (359)	374 (409)	424 (459)	474 (509)	524 (559)	574 (609)	624 (659)
	L_2		70	20	70	20	70	20	70	20	70
	C		100	200	200	300	300	400	400	500	500
Mounting hole count	n		3	4	4	5	5	6	6	7	7
Weight [kg]			6.6	7.2	7.8	8.4	9	9.6	10.2	10.8	11.3

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.
*3 Values when a brake is installed are shown in parentheses.

USW12T

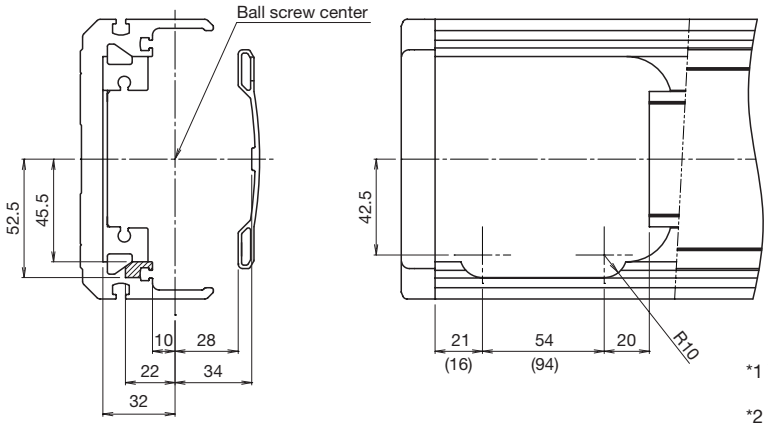
Detail



Motor bracket (detail) (symbol: A, B)

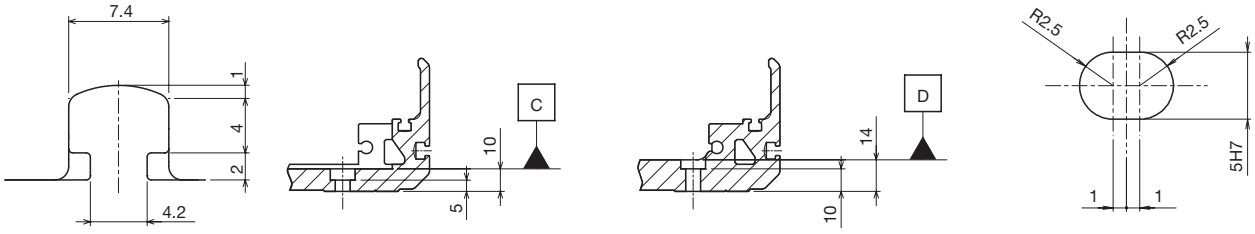
■Motor bracket specifications [mm]

Symbol	a	b
A	M5	10
B	M4	8



*1 Values when a brake is installed are shown in parentheses.
*2 See page 48, "Motor Brackets," for a list of applicable motors.

Detailed Diagram: Motor Mounting Part



Section E (detail) A-A (cross section) B-B (cross section) Elongated hole (detail)

Counter-bore hole in base (detail)

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
	300			270	240	210	190	170	150	140	130	120
	600		580	510	450	400	360	320	290	260	240	220
	1200		1160	1020	900	800	720	640	580	530	480	440
	1800		1700	1490	1320	1180	1050	950	860	780	720	660
	964 (999)	1014 (1049)	1064 (1099)	1114 (1149)	1164 (1199)	1214 (1249)	1264 (1299)	1314 (1349)	1364 (1399)	1414 (1449)	1464 (1499)	1514 (1549)
	674 (709)	724 (759)	774 (809)	824 (859)	874 (909)	924 (959)	974 (1009)	1024 (1059)	1074 (1109)	1124 (1159)	1174 (1209)	1224 (1259)
	20	70	20	70	20	70	20	70	20	70	20	70
	600	600	700	700	800	800	900	900	1000	1000	1100	1100
	8	8	9	9	10	10	11	11	12	12	13	13
	12	12.5	13.2	13.7	14.4	14.9	15.6	16.2	16.8	17.4	18	18.6

USW12RT Motor wrap

Model Configuration

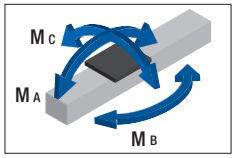
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
USW12RT –	05	– 0150	A	– 0	– 6	– SL	–

USW12RT	05: 5mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	10: 10mm	to		0B : Without motor (With brake)	Q	SR
	20: 20mm	1100: 1100mm		1 : With motor (Prepared by THK)	N	SL
	30: 30mm			1B : With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

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

Static permissible moment



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

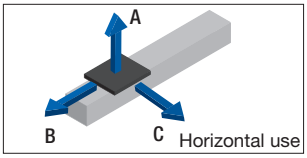
USW12RT

Base mounting method		Motor bracket		Option
C	–	A	–	MR–GR

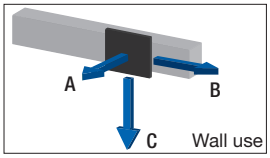
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	MR: Motor right-turn folded
C: From top of base (counter-bore holes)	B	ML: Motor left-turn folded
	C	GR: Gray end cap
		HG: Hanging jig

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

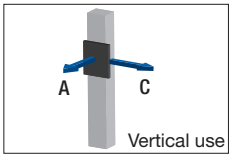
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	30	1870	450	570
	60	1120	230	290
	100	710	130	170
10	20	1790	630	710
	40	1090	340	390
	80	580	160	190
20	10	2000	1060	1170
	20	1790	630	710
	40	1090	340	390
30	5	2000	1620	1770
	15	2000	790	880
	25	1540	520	590

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
5	30	530	420	1800
	60	260	200	1030
	100	130	90	600
10	20	710	600	1750
	40	370	310	1020
	80	160	130	500
20	10	1180	1030	2000
	20	710	600	1750
	40	370	310	1020
30	5	1800	1600	2000
	15	890	770	2000
	25	580	500	1490

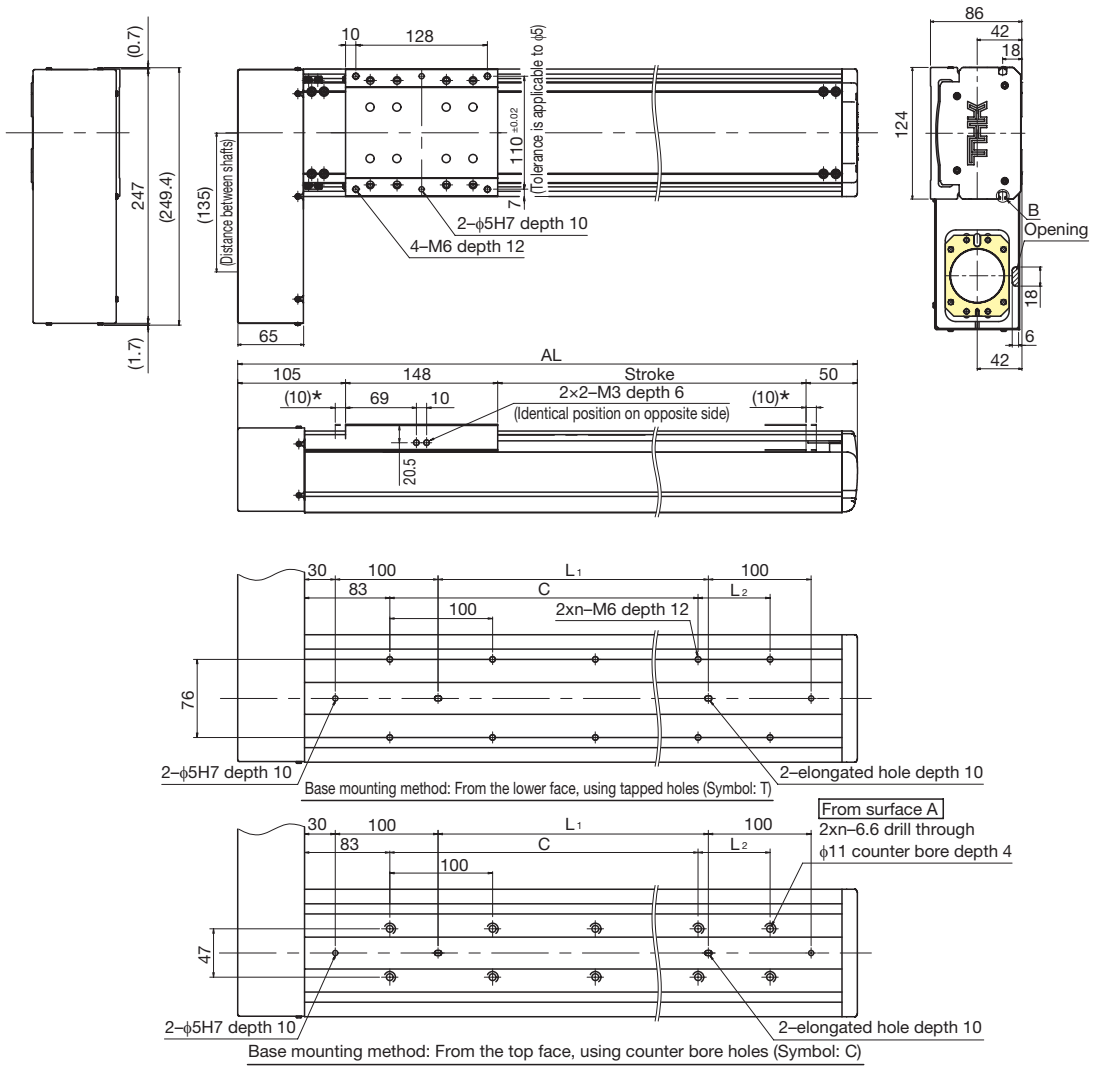
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
5	10	1020	1050
	20	600	620
	30	420	430
10	5	1520	1550
	10	980	1000
	20	570	590
20	2	2000	2000
	4	1720	1760
	8	1140	1170
30	1	2000	2000
	3	2000	2000
	5	1520	1550

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

USW12RT Motor wrap

Dimensions



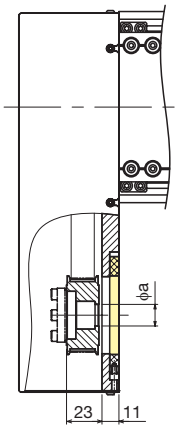
* This is a stroke between mechanical stoppers.

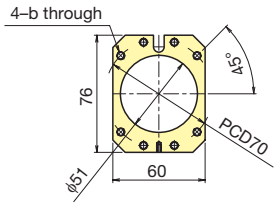
Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)
Maximum speed *1 *2 [mm/s]	Ball screw lead	5mm	300								
		10mm	600								
		20mm	1200								
		30mm	1800								
Dimensions [mm]	AL		403	453	503	553	603	653	703	753	803
	L_1		63	113	163	213	263	313	363	413	463
	L_2		70	20	70	20	70	20	70	20	70
	C		100	200	200	300	300	400	400	500	500
Mounting hole count	n		3	4	4	5	5	6	6	7	7
Weight [kg]			8	8.6	9.2	9.8	10.4	11	11.6	12.2	12.8

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.

USW12RT

Detail



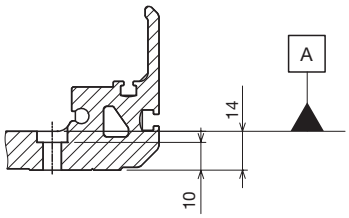


Motor bracket (detail) (symbol: A, B, C)

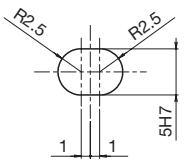
■Motor bracket specifications [mm]

Symbol	a	b
A	14H7	M5
B	14H7	M4
C	11H7	M4

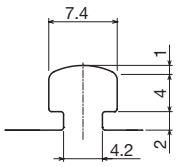
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)
		300		270	240	210	190	170	150	140	130	120
		600	580	510	450	400	360	320	290	260	240	220
		1200	1160	1020	900	800	720	640	580	530	480	440
		1800	1700	1490	1320	1180	1050	950	860	780	720	660
	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403
	513	563	613	663	713	763	813	863	913	963	1012	1063
	20	70	20	70	20	70	20	70	20	70	20	70
	600	600	700	700	800	800	900	900	1000	1000	1100	1100
	8	8	9	9	10	10	11	11	12	12	13	13
	13.4	14	14.6	15.2	15.8	16.4	17	17.6	18.2	18.8	19.4	20

USW16T Motor coupling

Model Configuration

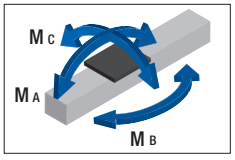
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
USW16T –	10	– 0150	A	– 0	– 6	– SR	–

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position
USW16T	10: 10mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	20: 20mm	to		0B: Without motor (With brake)	Q	SR
	40: 40mm	1500: 1500mm		1 : With motor (Prepared by THK)	N	SL
				1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

Motor rated output [W]				400		
Ball screw lead [mm]				10	20	40
Rated speed *1 [mm/s]				500	1000	2000
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	120	80	40
		Vertical	0.3G	35	15	9
Rated thrust *3 [N]				653	326	163
Maximum thrust *4 [N]				1910	965	482
Electromagnetic brake retention [N]				638	319	160
Running life *5 [km]				20,000		
Static permissible moment *6 [N·m]				M_A: 2161, M_B: 740, M_C: 1681		
Positioning repeatability [mm]				±0.020		
Backlash [mm]				0.05		

Static permissible moment



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

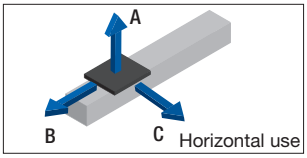
USW16T

Base mounting method		Motor bracket		Option
C	–	A	–	GR

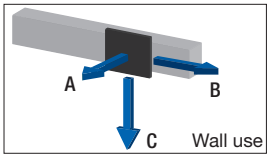
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	No symbol: Red end cap
C: From top of base (counter-bore holes)	B	GR: Gray end cap
		HG: Hanging jig

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

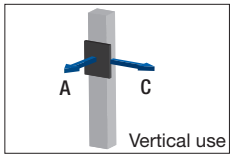
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
10	40	2590	950	820
	80	1590	520	440
	120	1130	340	290
20	20	3000	1560	1380
	40	2590	950	820
	80	1590	520	440
40	10	3000	2360	2100
	20	3000	1560	1380
	40	2590	950	820

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
10	40	760	900	2480
	80	380	460	1450
	120	230	280	970
20	20	1300	1520	3000
	40	760	900	2480
	80	380	460	1450
40	10	2020	2320	3000
	20	1300	1520	3000
	40	760	900	2480

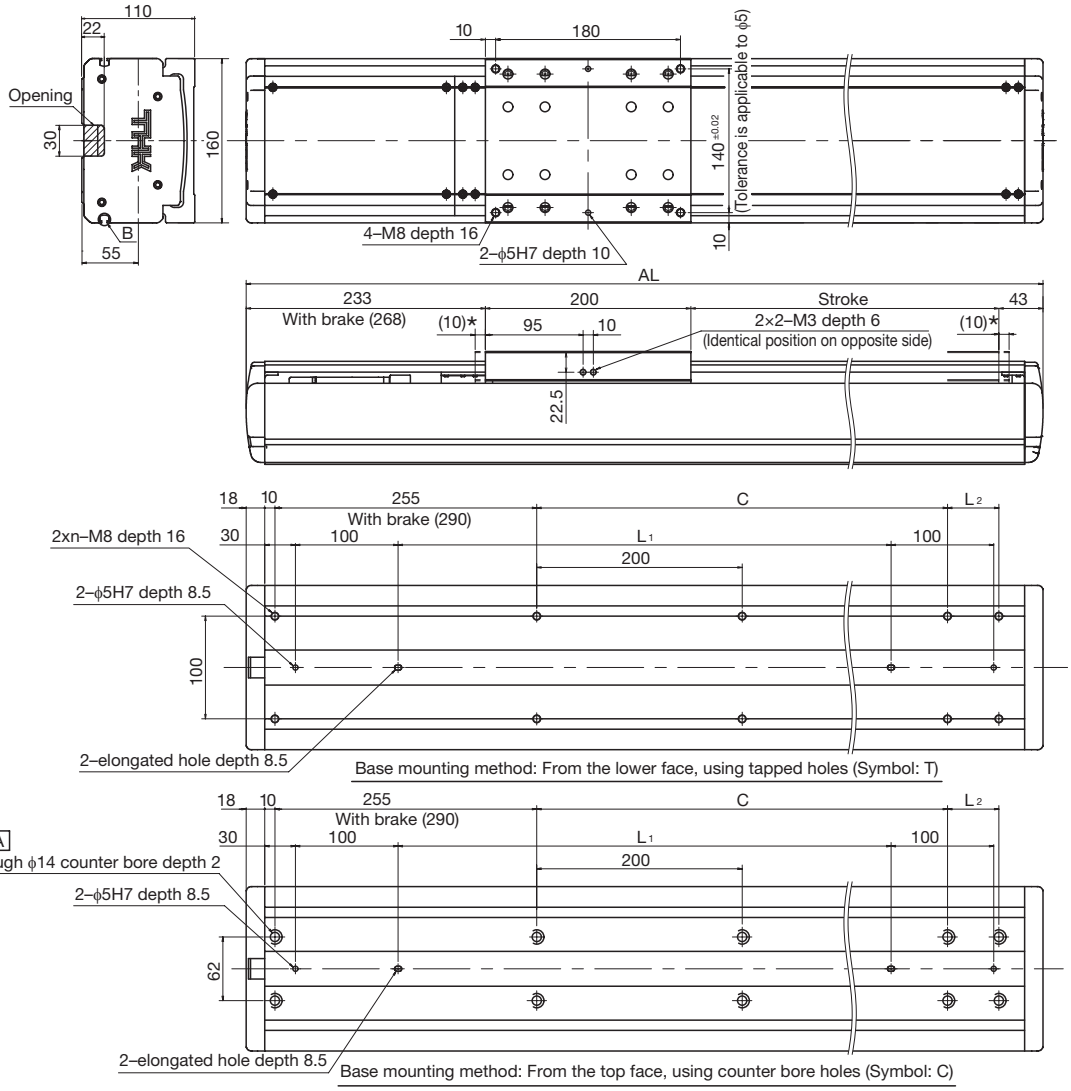
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
10	10	2220	2270
	20	1460	1500
	35	970	1000
20	5	3000	3000
	10	2220	2270
	15	1750	1800
40	3	3000	3000
	6	2890	2960
	9	2350	2410

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

USW16T Motor coupling

Dimensions



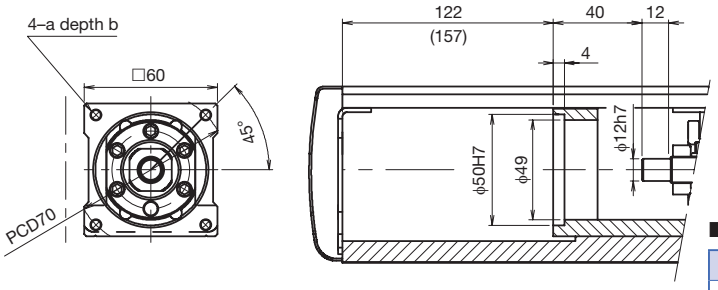
* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)
Maximum speed *1 *2 [mm/s]	Ball screw lead	10mm	550											
		20mm	1100											
		40mm	2200											
Dimensions [mm]	AL*3		576 (611)	626 (661)	676 (711)	726 (761)	776 (811)	826 (861)	876 (911)	926 (961)	976 (1011)	1026 (1061)	1076 (1111)	1126 (1161)
	L_1*3		280 (315)	330 (365)	380 (415)	430 (465)	480 (515)	530 (565)	580 (615)	630 (665)	680 (715)	730 (765)	780 (815)	830 (865)
	L_2		50	100	150	–	50	100	150	–	50	100	150	–
	C		200	200	200	400	400	400	400	600	600	600	600	800
Mounting hole count	n		4	4	4	4	5	5	5	5	6	6	6	6
Weight [kg]			13.1	14.1	15.1	16.1	17.1	18.1	19.1	20.1	21.1	22.1	23.1	24.1

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.
*3 Values when a brake is installed are shown in parentheses.

USW16T

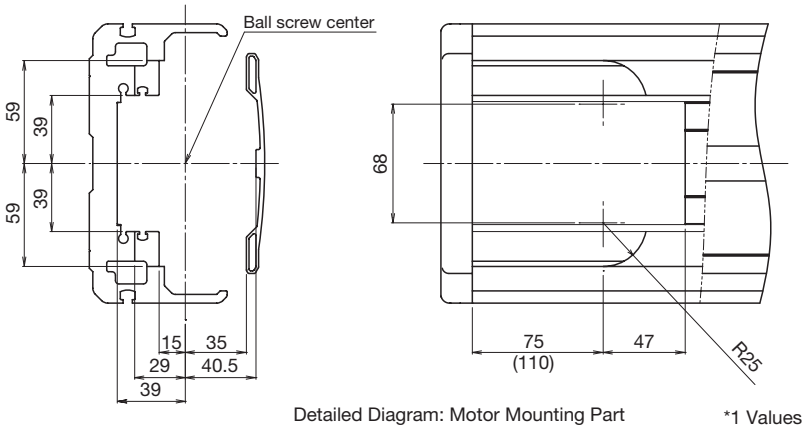
Detail



Motor bracket (detail) (symbol: A, B)

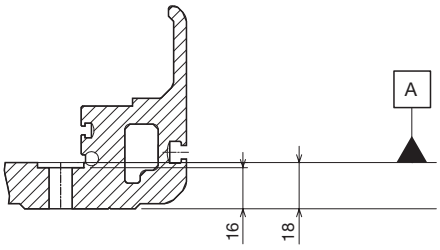
■Motor bracket specifications [mm]

Symbol	a	b
A	M5	10
B	M4	8

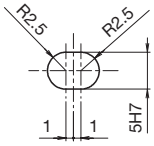


Detailed Diagram: Motor Mounting Part

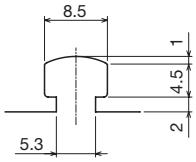
*1 Values when a brake is installed are shown in parentheses.
*2 See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)
	550		520	470	420	380	340	310	290	260	240	230	210	190	180	170	160
	1100			1040	930	840	760	700	640	590	540	500	460	430	400	380	350
	2200			1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690
	1176 (1211)	1226 (1261)	1276 (1311)	1326 (1361)	1376 (1411)	1426 (1461)	1476 (1511)	1526 (1561)	1576 (1611)	1626 (1661)	1676 (1711)	1726 (1761)	1776 (1811)	1826 (1861)	1876 (1911)	1926 (1961)	1976 (2011)
	880 (915)	930 (965)	980 (1015)	1030 (1065)	1080 (1115)	1130 (1165)	1180 (1215)	1230 (1265)	1280 (1315)	1330 (1365)	1380 (1415)	1430 (1465)	1480 (1515)	1530 (1565)	1580 (1615)	1630 (1665)	1680 (1715)
	50	100	150	–	50	100	150	–	50	100	150	–	50	100	150	–	50
	800	800	800	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600
	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
	25.1	26.1	27.1	28.1	29.1	30.1	31.1	32.1	33.1	34.1	35.1	36.1	37.1	38.1	39.1	40.1	41.1

USW16RT Motor wrap

Model Configuration

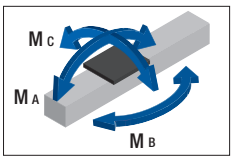
Model	Ball screw lead		Stroke	Design symbol		With/without motor		Sensor		Sensor mounting position	
USW16RT	– 10	–	0150	A	–	0	–	6	–	SL	–

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position
USW16RT	10: 10mm	0100: 100mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	20: 20mm	to		0B: Without motor (With brake)	Q	SR
	40: 40mm	1500: 1500mm		1 : With motor (Prepared by THK)	N	SL
				1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

Motor rated output [W]				400		
Ball screw lead [mm]				10	20	40
Rated speed *1 [mm/s]				500	1000	2000
Maximum load capacity *2 [kg]	Acceleration and deceleration rate	Horizontal	0.3G	120	80	40
		Vertical	0.3G	35	15	9
Rated thrust *3 [N]				653	326	163
Maximum thrust *4 [N]				1910	965	482
Electromagnetic brake retention [N]				638	319	160
Running life *5 [km]				20,000		
Static permissible moment *6 [N·m]				M_A: 2161, M_B: 740, M_C: 1681		
Positioning repeatability [mm]				±0.020		
Backlash [mm]				0.05		

Static permissible moment



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

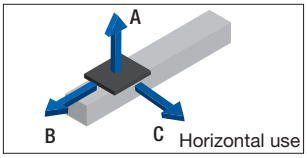
USW16RT

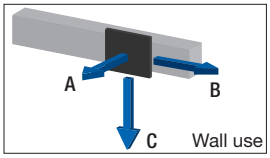
Base mounting method		Motor bracket		Option
C	–	A	–	MR–GR

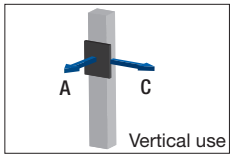
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	MR: Motor right-turn folded
C: From top of base (counter-bore holes)	B	ML: Motor left-turn folded
		GR: Gray end cap
		HG: Hanging jig

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

Reference Permissible Overhang Length*







Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
10	40	2590	950	820
	80	1590	520	440
	120	1130	340	290
20	20	3000	1560	1380
	40	2590	950	820
	80	1590	520	440
40	10	3000	2360	2100
	20	3000	1560	1380
	40	2590	950	820

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
10	40	760	900	2480
	80	380	460	1450
	120	230	280	970
20	20	1300	1520	3000
	40	760	900	2480
	80	380	460	1450
40	10	2020	2320	3000
	20	1300	1520	3000
	40	760	900	2480

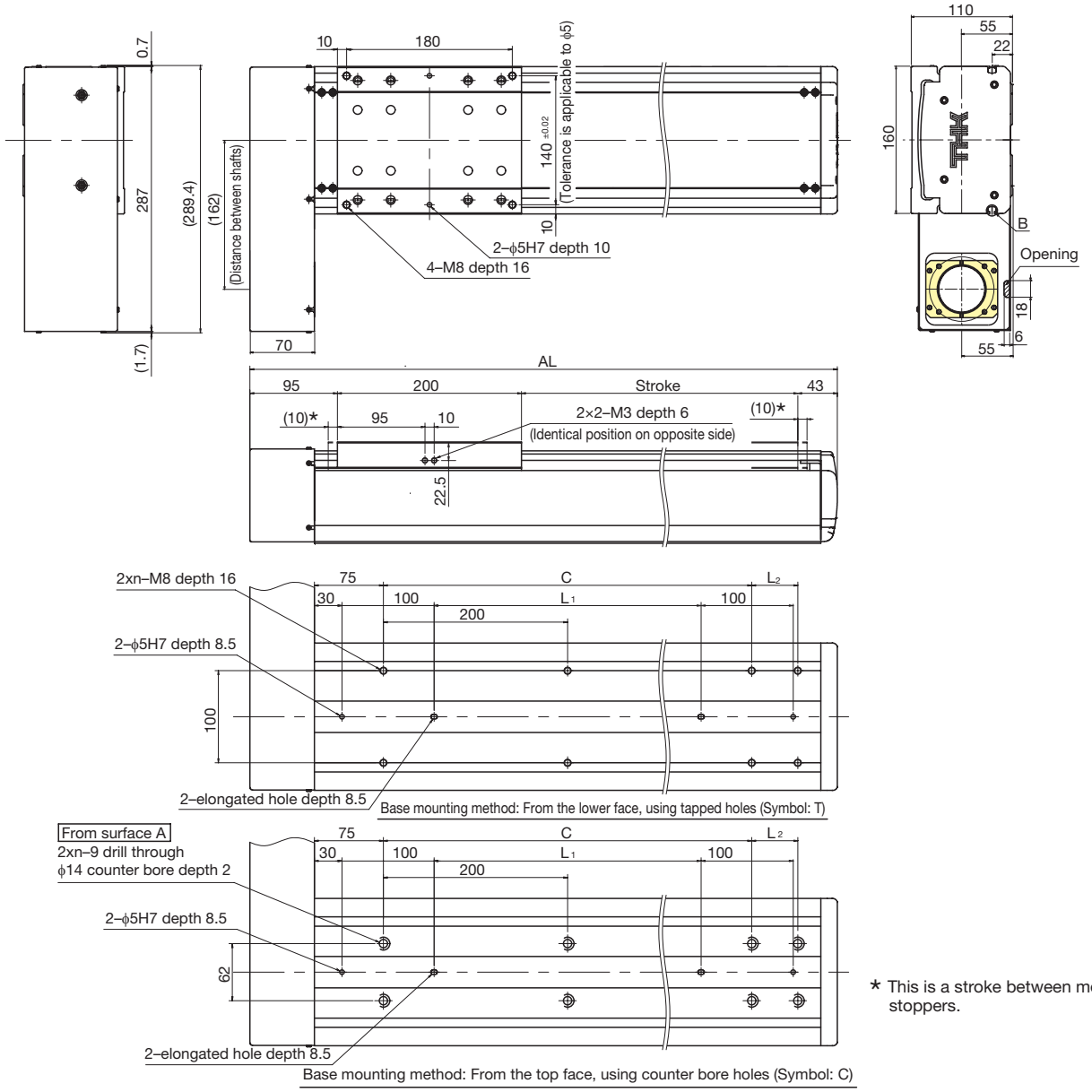
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
10	10	2220	2270
	20	1460	1500
	35	970	1000
20	5	3000	3000
	10	2220	2270
	15	1750	1800
40	3	3000	3000
	6	2890	2960
	9	2350	2410

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

USW16RT Motor wrap

Dimensions



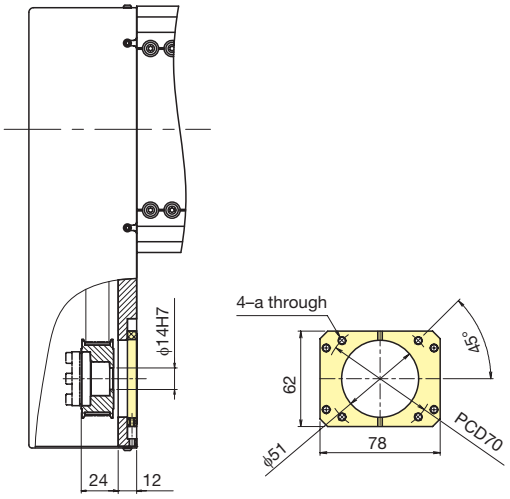
* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			100 (120)	150 (170)	200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)
Maximum speed *1 *2 [mm/s]	Ball screw lead	10mm	550											
		20mm	1100											
		40mm	2200											
Dimensions [mm]	AL		438	488	538	588	638	688	738	788	838	888	938	988
	L_1		90	140	190	240	290	340	390	440	490	540	590	640
	L_2		50	100	150	–	50	100	150	–	50	100	150	–
	C		200	200	200	400	400	400	400	600	600	600	600	800
Mounting hole count	n		3	3	3	3	4	4	4	4	5	5	5	5
Weight [kg]			13.4	14.4	15.4	16.4	17.4	18.4	19.4	20.4	21.4	22.4	23.4	24.4

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.

USW16RT

Detail

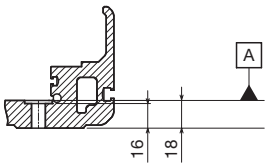


Motor bracket (detail) (symbol: A, B)

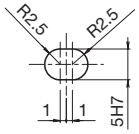
■Motor bracket specifications

Symbol	a
A	M5
B	M4

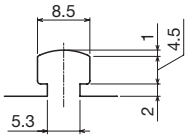
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	700 (720)	750 (770)	800 (820)	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)
	550		520	470	420	380	340	310	290	260	240	230	210	190	180	170	160
	1100			1040	930	840	760	700	640	590	540	500	460	430	400	380	350
	2200			1970	1780	1610	1470	1340	1230	1130	1050	970	900	840	780	730	690
	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838
	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490
	50	100	150	–	50	100	150	–	50	100	150	–	50	100	150	–	50
	800	800	800	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600
	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10
	25.4	26.4	27.4	28.4	29.4	30.4	31.4	32.4	33.4	34.4	35.4	36.4	37.4	38.4	39.4	40.4	41.4

USW20T Motor coupling

Model Configuration

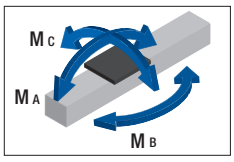
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
USW20T –	20	– 0300	A	– 0	– N	– SR	–

Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position
USW20T	20: 20mm 40: 40mm	0200: 200mm to 1700: 1700mm	A	0 : Without motor 0B: Without motor (With brake) 1 : With motor (Prepared by THK) 1B: With motor (Prepared by THK, with brake)	P Q N 6 E J M	No symbol: When selecting P, Q, or N SR SL

Reference Basic Specifications

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

Static permissible moment



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

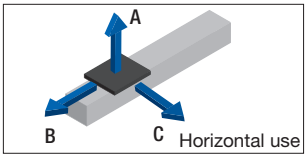
USW20T

Base mounting method		Motor bracket		Option
C	–	A	–	GR

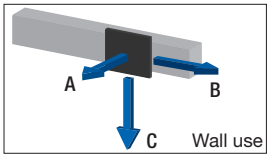
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	No symbol: Red end cap
C: From top of base (counter-bore holes)	B	GR: Gray end cap
		HG: Hanging jig

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

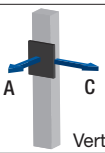
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
20	40	2640	950	1260
	80	1640	530	720
	130	1100	320	450
40	25	3000	1340	1750
	50	2290	790	1070
	70	1810	590	810

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
20	40	1180	920	2630
	80	650	490	1590
	130	390	290	1030
40	25	1660	1320	3000
	50	990	770	2270
	70	740	560	1770

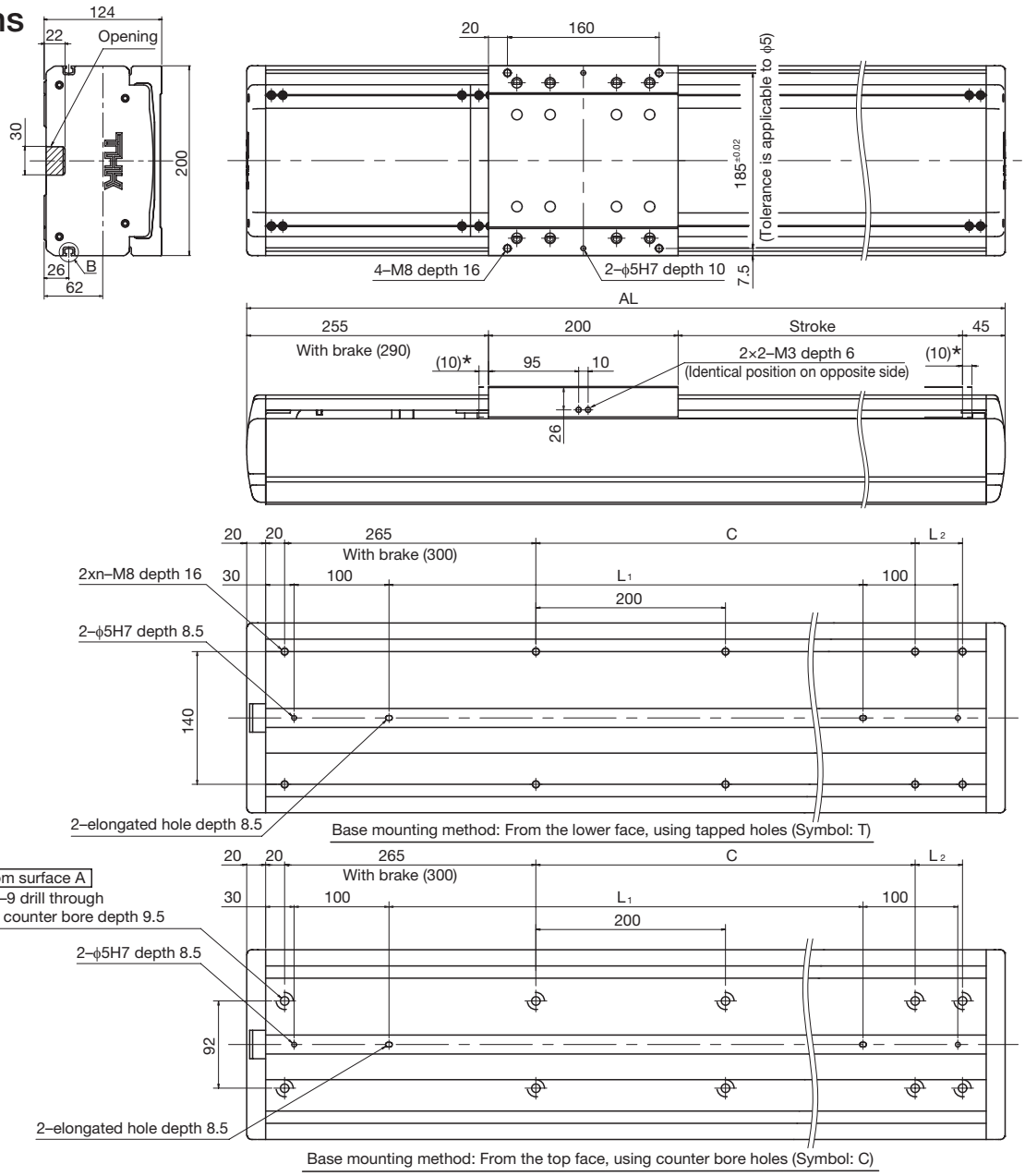
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
20	15	1700	1770
	30	1060	1100
	45	770	800
40	5	3000	3000
	10	2160	2240
	20	1410	1470

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

USW20T Motor coupling

Dimensions



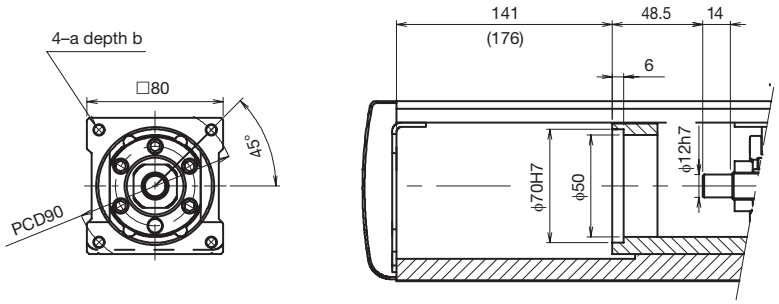
* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)
Maximum speed *1 *2 [mm/s]	Ball screw lead	20mm	1100												
		40mm	2200												2140
Dimensions [mm]	AL*3		700 (735)	750 (785)	800 (835)	850 (885)	900 (935)	950 (985)	1000 (1035)	1050 (1085)	1100 (1135)	1150 (1185)	1200 (1235)	1250 (1285)	1300 (1335)
	L1*3		400 (435)	450 (485)	500 (535)	550 (585)	600 (635)	650 (685)	700 (735)	750 (785)	800 (835)	850 (885)	900 (935)	950 (985)	1000 (1035)
	L2		150	–	50	100	150	–	50	100	150	–	50	100	150
	C		200	400	400	400	400	600	600	600	600	800	800	800	800
Mounting hole count	n		4	4	5	5	5	5	6	6	6	6	7	7	7
Weight [kg]	Without motor		22.6	23.9	25.3	26.7	28.1	29.6	30.9	32.3	33.7	35.1	36.6	37.9	39.3

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.
*3 Values when a brake is installed are shown in parentheses.

USW20T

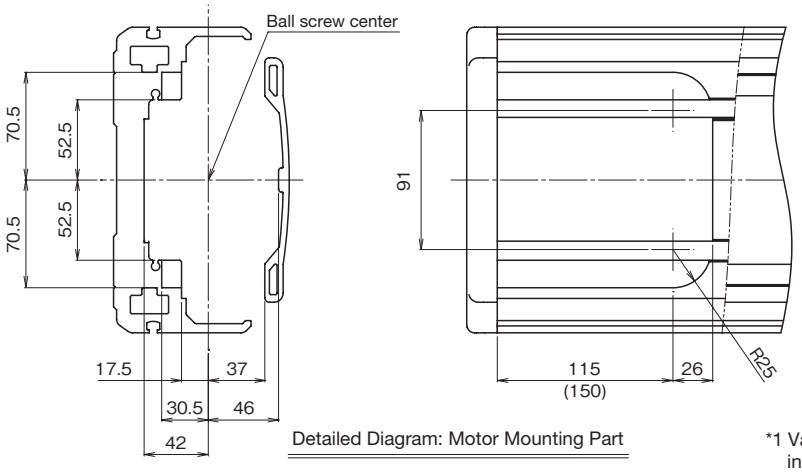
Detail



Motor bracket (detail) (symbol: A, B)

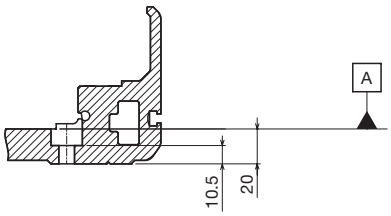
■Motor bracket specifications [mm]

Symbol	a	b
A	M6	12
B	M5	10

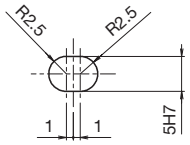


Detailed Diagram: Motor Mounting Part

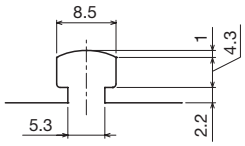
*1 Values when a brake is installed are shown in parentheses.
*2 See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)	1550 (1570)	1600 (1620)	1650 (1670)	1700 (1720)
	1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270
	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530
	1350 (1385)	1400 (1435)	1450 (1485)	1500 (1535)	1550 (1585)	1600 (1635)	1650 (1685)	1700 (1735)	1750 (1785)	1800 (1835)	1850 (1885)	1900 (1935)	1950 (1985)	2000 (2035)	2050 (2085)	2100 (2135)	2150 (2185)	2200 (2235)
	1050 (1085)	1100 (1135)	1150 (1185)	1200 (1235)	1250 (1285)	1300 (1335)	1350 (1385)	1400 (1435)	1450 (1485)	1500 (1535)	1550 (1585)	1600 (1635)	1650 (1685)	1700 (1735)	1750 (1785)	1800 (1835)	1850 (1885)	1900 (1935)
	–	50	100	150	–	50	100	150	–	50	100	150	–	50	100	150	–	50
	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800
	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12
	40.7	42.1	43.3	44.9	46.3	47.7	49.1	50.6	51.9	53.3	54.7	56.1	57.6	58.9	60.3	61.7	63.1	64.6

USW20RT Motor wrap

Model Configuration

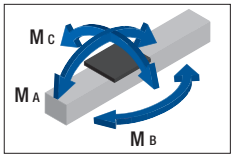
Model	Ball screw lead	Stroke	Design symbol	With/without motor	Sensor	Sensor mounting position	
USW20RT –	20 –	0300	A	– 0	– N	– SL	–

USW20RT	20: 20mm	0200: 200mm	A	0 : Without motor	P	No symbol: When selecting P, Q, or N
	40: 40mm	to		0B: Without motor (With brake)	Q	SR
		1700: 1700mm		1 : With motor (Prepared by THK)	N	SL
				1B: With motor (Prepared by THK, with brake)	6	
					E	
					J	
					M	

Reference Basic Specifications

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

Static permissible moment



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

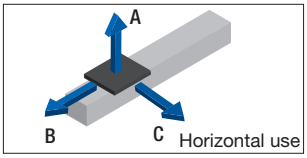
USW20RT

Base mounting method		Motor bracket		Option
C	–	A	–	MR–GR

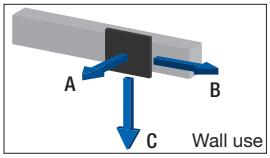
Base mounting method	Motor bracket	Option
T: From underside of base (tapped holes)	A	MR: Motor right-turn folded
C: From top of base (counter-bore holes)	B	ML: Motor left-turn folded
		GR : Gray end cap
		HG: Hanging jig

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

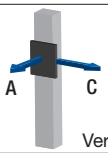
Reference Permissible Overhang Length*



Horizontal use



Wall use



Vertical use

Horizontal mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
20	40	2640	950	1260
	80	1640	530	720
	130	1100	320	450
40	25	3000	1340	1750
	50	2290	790	1070
	70	1810	590	810

Wall mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	B	C
20	40	1180	920	2630
	80	650	490	1590
	130	390	290	1030
40	25	1660	1320	3000
	50	990	770	2270
	70	740	560	1770

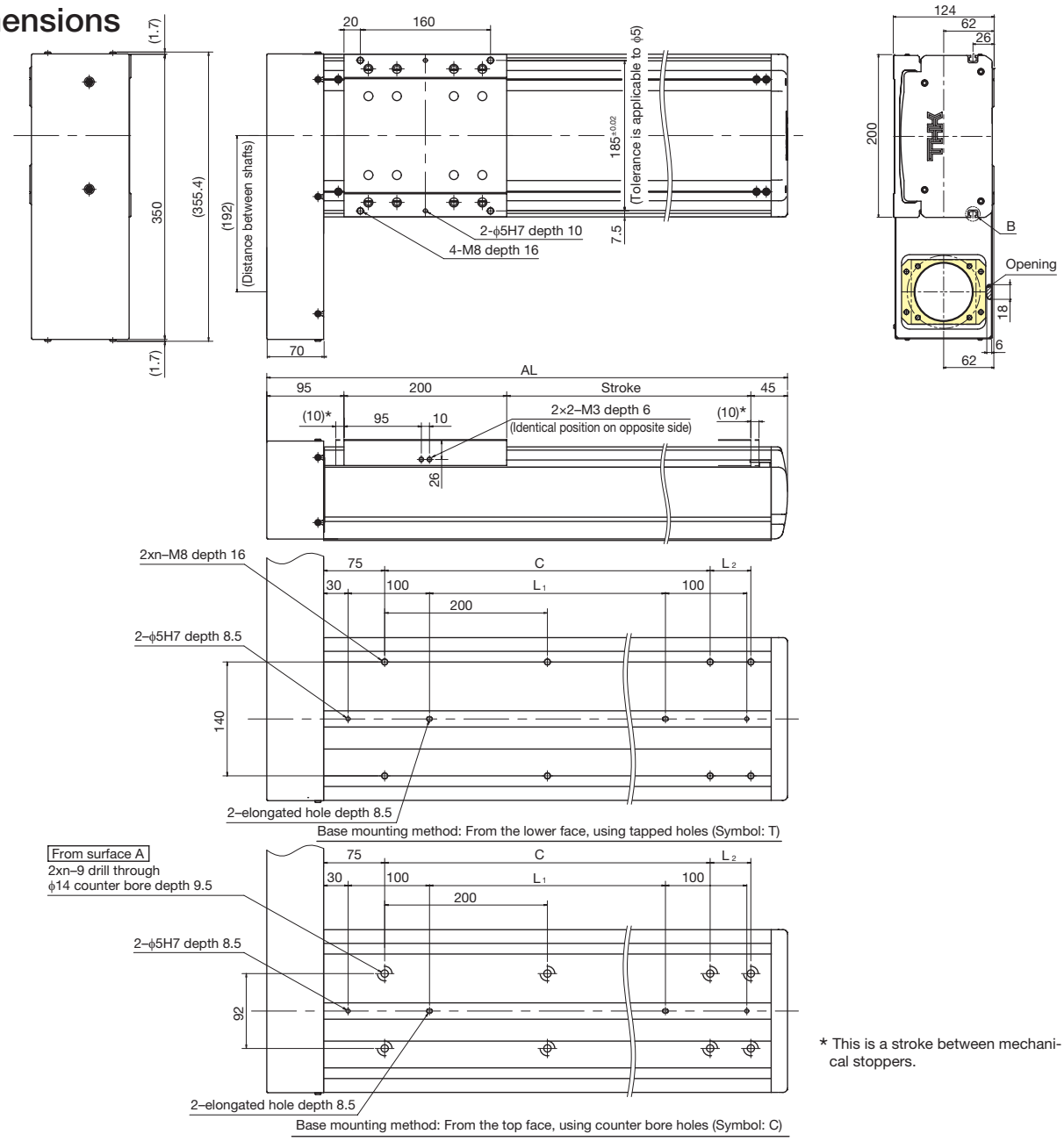
Vertical mount [mm]

Ball screw lead [mm]	Load mass [kg]	A	C
20	15	1700	1770
	30	1060	1100
	45	770	800
40	5	3000	3000
	10	2160	2240
	20	1410	1470

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

USW20RT Motor wrap

Dimensions



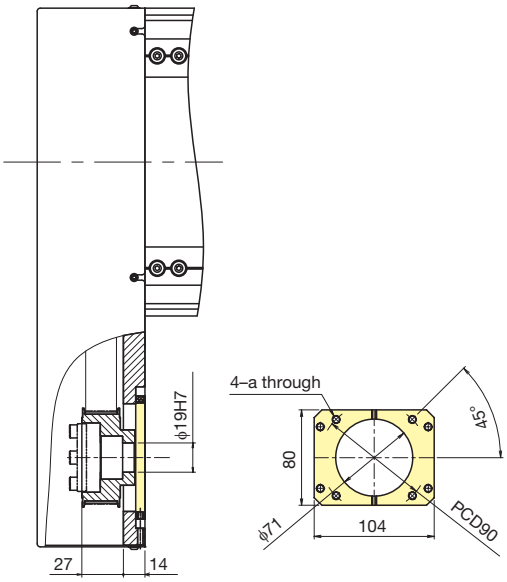
* This is a stroke between mechanical stoppers.

Stroke [mm] (Stroke between mechanical stoppers)			200 (220)	250 (270)	300 (320)	350 (370)	400 (420)	450 (470)	500 (520)	550 (570)	600 (620)	650 (670)	700 (720)	750 (770)	800 (820)
Maximum speed *1 *2 [mm/s]	Ball screw lead	20mm	1100												
		40mm	2200												2140
Dimensions [mm]	AL		540	590	640	690	740	790	840	890	940	990	1040	1090	1140
	L_1		190	240	290	340	390	440	490	540	590	640	690	740	790
	L_2		150	–	50	100	150	–	50	100	150	–	50	100	150
	C		200	400	400	400	400	600	600	600	600	800	800	800	800
Mounting hole count	n		3	3	4	4	4	4	5	5	5	5	6	6	6
Weight [kg]			24.8	26.1	27.4	28.8	30.2	31.6	32.9	34.2	35.6	36.9	38.3	39.6	41

*1 Load capacity and maximum speed vary.
*2 Dependent on permissible rotational speed of ball screw.

USW20RT

Detail

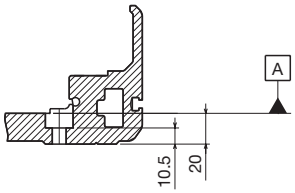


Motor bracket (detail)

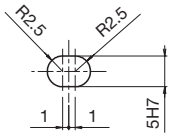
■Motor bracket specifications

Symbol	a
A	M6
B	M5

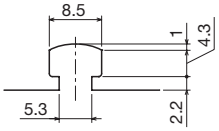
See page 48, "Motor Brackets," for a list of applicable motors.



Counter-bore hole on base (detail)



Elongated hole (detail)



Section B (detail)

	850 (870)	900 (920)	950 (970)	1000 (1020)	1050 (1070)	1100 (1120)	1150 (1170)	1200 (1220)	1250 (1270)	1300 (1320)	1350 (1370)	1400 (1420)	1450 (1470)	1500 (1520)	1550 (1570)	1600 (1620)	1650 (1670)	1700 (1720)
	1010	910	820	750	680	620	570	530	490	460	420	400	370	350	330	310	290	270
	1920	1730	1570	1430	1310	1210	1110	1030	950	890	830	770	720	680	640	600	570	530
	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690	1740	1790	1840	1890	1940	1990	2040
	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690
	–	50	100	150	–	50	100	150	–	50	100	150	–	50	100	150	–	50
	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800
	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
	42.3	43.7	45.1	46.4	47.7	49.1	50.4	51.8	53.1	54.4	55.9	57.2	58.6	59.9	61.2	62.6	63.9	65.3

Sensors

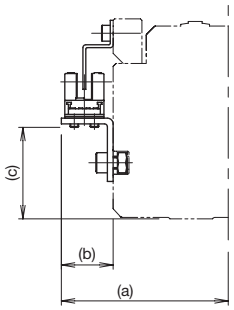
Various types of sensors can be mounted using a T slot on the side surface of the base. Select a sensor by specifying the appropriate option symbol. The standard sensor is mounted inside the actuator.

Description	Type	Symbol
Standard US8 [x 1], USW12/16/20 [x 3] (Home position on motor side)	US8: APM-D3A1 (Azbil Corp.) USW12/16/20: EE-SX674 (Omron Corp.)	P
Standard US8 [x 1], USW12/16/20 [x 3] (Home position opposite motor side)	US8: APM-D3A1 (Azbil Corp.) USW12/16/20: EE-SX674 (Omron Corp.)	Q
None	–	N
Photo sensor * [x 3], Connector [x 3]	EE-SX674 (Omron Corp.), EE-1001 (Omron Corp.)	6
Sensor N.O. contact [x 1] N.C. contact [x 2]	APM-D3A1 (Azbil Corp.) APM-D3B1 (Azbil Corp.)	E
Sensor N.O. contact [x 1] N.C. contact [x 2]	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	J
Sensor N.O. contact [x 1] (PNP output) N.C. contact [x 2] (PNP output)	GX-F12A-P (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B-P (Panasonic Industrial Devices SUNX Co., Ltd.)	M

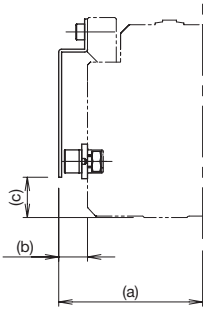
N.O. contact: Normally open contact point
N.C. contact: Normally closed contact point
* The photo sensors can be switched between ON when lit and ON when unlit.
Notes:
1. The standard sensor for US8 is APM-D3A1 (Azbil Corp.); the standard sensor for USW12/16/20 is EE-SX674 (Omron Corp.).
2. Non-standard sensors (symbol: 6-M) are mounted outside the cover.
3. When motor wrap is selected, a sensor cannot be mounted on the same side as the folded direction of the motor.
4. For closely grouped proximity sensors, the customer must provide sensors with variant frequencies (consult the respective manufacturer for sensor specifications).
5. The unit is shipped with sensors, mounting screws, detecting plates, and connectors mounted.
6. The standard sensor will not be mounted if a different sensor option is selected.

Sensor-mounting positions: dimensions

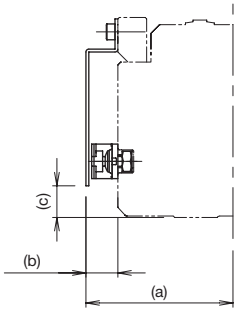
■US6/8



Symbol 6: EE-SX674 (Omron Corp.)

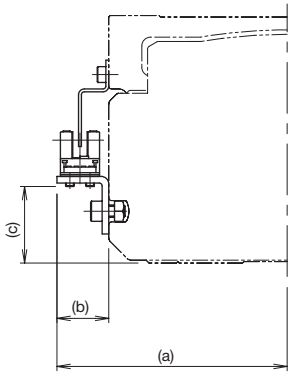


Symbol E: APM-D3** (Azbil Corp.)

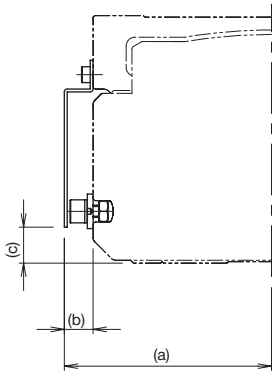


Symbol J, M: GX-F12*
(Panasonic Industrial Devices SUNX Co., Ltd.)

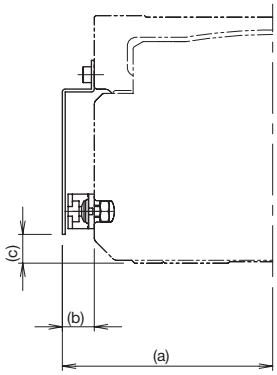
■USW12/16/20



Symbol 6: EE-SX674 (Omron Corp.)



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



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

[mm]

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

[mm]

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

[mm]

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

Motor Bracket

Several types of motor brackets for mounting motors are available. Specify a motor bracket that matches the motor used.

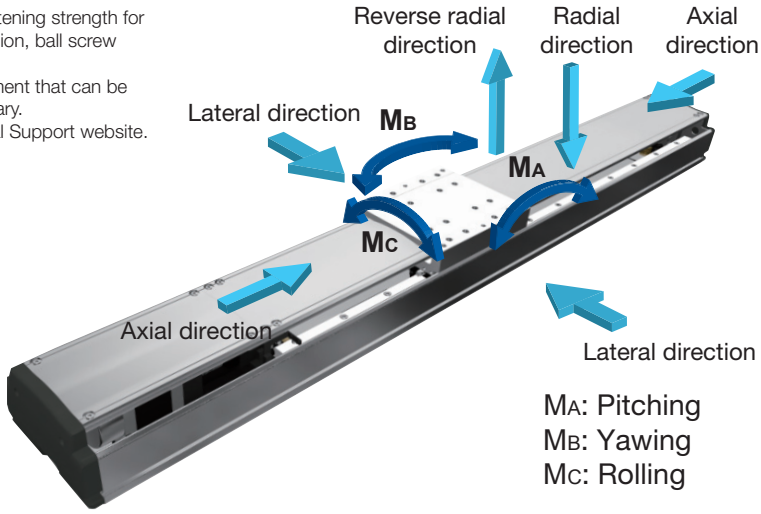
Motor						US6		US8		USW12		USW16		USW20	
	Manufacturer	Series	Type	Rated output	Flange angle	Direct motor coupling	Motor wrap	Direct motor coupling	Motor wrap	Direct motor coupling	Motor wrap	Direct motor coupling	Motor wrap	Direct motor coupling	Motor wrap
AC servo motor	Yaskawa Electric Corporation	Σ-V	SGMAV–A5	50W	□40	A	A	–	–	–	–	–	–	–	–
			SGMJV–A5												
			SGMAV–01	100W	□40			A	A						
			SGMJV–01												
			SGMAV–C2	150W	□40	–	–								
			SGMJV–C2												
			SGMAV–02	200W	□60	–	–	–	–	A	A	–	–	–	–
			SGMJV–02												
			SGMAV–04	400W	□60					–	–	A	A		
			SGMJV–04												
			SGMAV–08	750W	□80							–	–	A	A
			SGMJV–08												
	Mitsubishi Electric Corporation	J4	HG–KR053	50W	□40	A	A	–	–	–	–	–	–	–	–
			HG–KR13	100W	□40			A	A						
			HG–KR23	200W	□60	–	–	–	–	A	A	–	–	–	–
			HG–KR43	400W	□60					–	–	A	A		
			HG–KR73	750W	□80							–	–	A	A
		J3	HF–KP053	50W	□40	A	A	–	–	–	–	–	–	–	–
			HF–KP13	100W	□40			A	A						
			HF–KP23	200W	□60	–	–	–	–	A	A	–	–	–	–
			HF–KP43	400W	□60					–	–	A	A		
			HF–KP73	750W	□80							–	–	A	A
	Panasonic Corporation	A5	MSMD5A	50W	□38	B	B	–	–	–	–	–	–	–	–
			MSMD01	100W	□38			B	B						
			MSMD02	200W	□60	–	–	–	–	B	C	–	–	–	–
			MSME02								B				
			MSMD04	400W	□60					–	–	B	B		
			MSME04												
			MSMD08	750W	□80							–	–	B	B
			MSME08												
		A4	MSMD5A	50W	□38	B	B	–	–	–	–	–	–	–	–
			MSMD01	100W	□38			B	B						
			MSMD02	200W	□60	–	–	–	–	B	C	–	–	–	–
			MSMD04	400W	□60					–	–	B	B		
			MSMD08	750W	□80							–	–	B	B
	Tamagawa Seiki Co., Ltd.	TBL–iII	TS4602	50W	□40	A	A	–	–	–	–	–	–	–	–
			TS4603	100W				A	A						
			TS4604	150W		–	–								
			TS4607	200W	□60	–	–	–	–	A	A	–	–	–	–
			TS4609	400W						–	–	A	A		
			TS4614	750W	□80							–	–	A	A

Notes:
1. Consult THK before installing a motor other than those listed above.
2. For US6 and 8 with motor wrap type, use a two-surface D-cut motor output shaft. Note that Mitsubishi motors support only one-surface D-cut output shafts; consult the manufacturer for further details.
3. For USW12, 16, and 20 with motor wrap type, use a straight motor output shaft.

Static Permissible Load and Static Permissible Moment

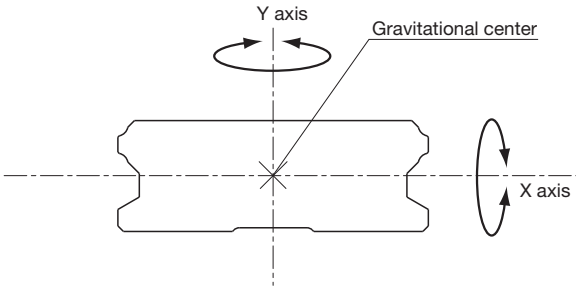
Model		US6	US8	USW12	USW16	USW20
Static permissible load *1 [N]	Radial direction	17100	45400	96800	153600	209600
	Reverse radial direction	16753	28599	14300	24007	24007
	Lateral direction	3651	7520	3760	6488	6488
	Axial direction	1740 (Direct motor coupling)	2095 (100W, direct motor coupling)	3330	3760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

*1 The static permissible load is determined by the tightening strength for bolts and the static load ratings of the LM guide portion, ball screw portion, and support bearing.
*2 The static permissible moment is the maximum moment that can be applied in each direction while the product is stationary.
For details on the nominal life, visit the THK Technical Support website.

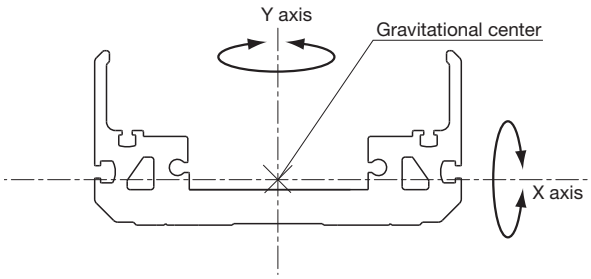


Geometrical Moment of Inertia

■US6/8



■USW12/16/20



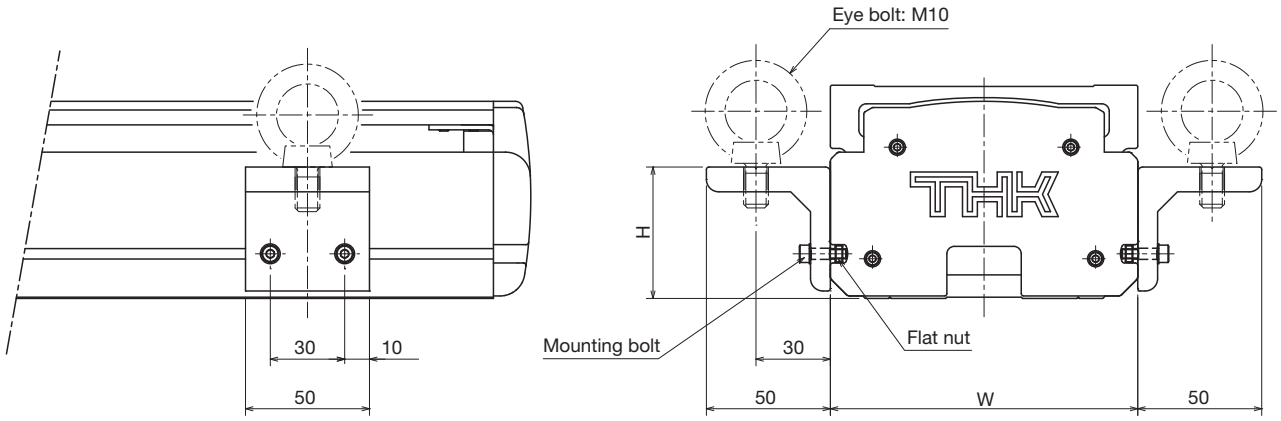
Model	Ix [mm⁴]	Iy [mm⁴]	Weight [kg/m]
US6	2.80×10^{3}	5.20×10^{4}	2.97
US8	1.11×10^{4}	7.74×10^{4}	4.61
USW12	4.07×10^{5}	4.62×10^{6}	6.67
USW16	1.27×10^{6}	1.22×10^{7}	11.55
USW20	2.19×10^{6}	2.67×10^{7}	16.06

Recommended Coupling

The recommended couplings for the US universal series are shown below.

Actuator model	Standard coupling			Recommended coupling (1)			Recommended coupling (2)		
	Model	Manufacturer	Inertial moment [kg·cm^2]	Model	Manufacturer	Inertial moment [kg·cm^2]	Model	Manufacturer	Inertial moment [kg·cm^2]
US6	NES20W–N8C×N8C	TSUBAKI E & M CO.	0.034	SFC–020DA2_C	Miki Pulley Co., LTD.	0.034	XBW–25C2	Nabeya Bi-tech Kaisha	0.023
US8	NES20W–N8C×N10C	TSUBAKI E & M CO.	0.034	SFC–020DA2_C		0.034	XBW–25C2		0.023
USW12	SDWA31C–10×14	SUN GIL	0.075	SFC–030DA2_C		0.095	XBW–34C3		0.090
USW16	SDWA31C–12×14	SUN GIL	0.075	SFC–035DA2_C		0.271	XBW–34C3		0.090
USW20	SDWC47C–12×19	SUN GIL	0.550	SFC–040DA2_B		0.363	XBW–39C2		0.210

Hanging Jig



[mm]

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

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

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

Motor Selection

Consult the table below when selecting a motor for use with a US/USW. For motor specifications and guidance on selecting a motor, contact the motor manufacturer.

Actuator		Ball screw				
Model	Stroke *1 [mm]	Lead [mm]	Model	Shaft diameter [mm]	Shaft length *2 [mm]	Outer diameter of shaft end [mm]
US6	100	06	WHF1206–3.2	12	315 (328)	ϕ8h7
	900				1115 (1128)	
	100	12	WHF1212–1.45	12	315 (328)	ϕ8h7
	900				1115 (1128)	
US8	100	05	DK1605–3	16	378.5 (384.5)	ϕ10h7
	1100				1378.5 (1384.5)	
	100	10	BLK1510–2.8	15	378.5 (384.5)	ϕ10h7
	1100				1378.5 (1384.5)	
	100	20	WTF1520–1.5	15	378.5 (384.5)	ϕ10h7
	1100				1378.5 (1384.5)	
	100	30	WTF1530–1.5	15	378.5 (384.5)	ϕ10h7
	1100				1378.5 (1384.5)	
USW12	100	05	DK1605–3	16	358 (394)	ϕ10h7
	1100				1358 (1394)	
	100	10	BLK1510–2.8	15	358 (394)	ϕ10h7
	1100				1358 (1394)	
	100	20	WTF1520–1.5	15	358 (394)	ϕ10h7
	1100				1358 (1394)	
	100	30	WTF1530–1.5	15	358 (394)	ϕ10h7
	1100				1358 (1394)	
USW16	100	10	SBN2010XS–2.5	20	387 (424)	ϕ12h7
	1500				1787 (1824)	
	100	20	BLK2020–1.8	20	387 (424)	ϕ12h7
	1500				1787 (1824)	
	100	40	WTF2040–1.7	20	387 (424)	ϕ12h7
	1500				1787 (1824)	
USW20	200	20	BLK2020–1.8	20	478 (526)	ϕ12h7
	1700				1978 (2026)	
	200	40	WTF2040–1.7	20	478 (526)	ϕ12h7
	1700				1978 (2026)	

*1 For further information on stroke, see the specifications for each model.
*2 Ball screw shaft length. Shaft lengths for motor wrap type are shown in parentheses.

Actuator model	LM Guide model	Weight of moving element [kg]	Sliding resistance [N]
US6	SRS15W	1.0	10.0
US8	SHW27CR	2.0	23.0
USW12	SHS15V	2.5	27.4
USW16	SHS20V	4.7	40.1
USW20	SHS25V	6.0	54.2

Permissible input torque		
Actuator model	Direct motor coupling [N·m]	Motor wrap [N·m]
US6	1.67	1.23
US8	1.67	2.14
USW12	1.69	1.69
USW16	3.75	3.75
USW20	4.77	4.77

Coupling	
Actuator model	Inertial moment [kg·cm^2]
US6	0.034
US8	0.034
USW12	0.075
USW16	0.075
USW20	0.550

Timing pulley	
Actuator model	Inertial moment [kg·cm^2]
US6RT	0.06
US8RT	0.20
USW12RT	0.66
USW16RT	0.68
USW20RT	1.30

For further details on timing pulleys, contact THK.

Precautions on Use

● Application

· This product cannot be applied to any equipment or system that may be used under a life-threatening condition.
· If you are considering using this product for special applications such as mobile vehicles, medical uses, aerospace, or thermonuclear power generation or a power plant, make sure to contact THK for applicability beforehand.

● Handling

· Do not disassemble this product unless absolutely necessary. This will cause dust to enter the product resulting in loss of functionality.
· Take care not to drop or strike this product. This could cause injury or product damage or impair the product's function even if the product looks intact.
· Exceeding the maximum recommended speed could damage components or cause an accident. Be sure to use the product within the specification range designated by THK.
· Foreign material entering the product will cause damage to the ball circulation components and loss of functionality. Prevent foreign material, such as dust or cutting chips, from entering the system.
· Using the product in an environment where coolant can penetrate the inner block could cause malfunction, depending on the type of the coolant. Contact THK for details.
· The service temperature range of this product is 0 to 40°C (no freezing or condensation). Consult THK before attempting to use the product outside this temperature range.
· Contact THK before attempting to use the product in a location exposed to vibration or abnormally high or low temperatures, or in a vacuum or clean room.
· When the product is operating or in the ready state, never touch a moving part. In addition, do not enter the operating area.
· If two or more people are involved in the operation, confirm the procedures in advance, and appoint another person to monitor the operation.

● Environment

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

Wrong environment can cause failures of the actuator and driver. The best place to use the product is as follows:
· A place free from corrosive gas and flammable gas.
· A place where vibration or impact is not transmitted to the unit.
· A place free from electrically conductive powder (such as iron powder), dust, oil mist, cutting fluid, moisture, salt, and organic solvent.
· A place free from direct sunlight and radiant heat.
· A place free from strong electric and magnetic fields.
· A place that is easily accessible for service and cleaning purposes.
· When using the product in locations exposed to constant vibrations or in special environments such as vacuum or abnormally high or low temperatures, contact THK in advance.

● Mounting Surface

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

Lubrication

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

Storage

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

Instruction Manual

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

THK ACTUATOR UNITS Universal Series US/USW

THK CO., LTD.

Head Office 3-11-6 Nishigotanda, Shinagawa-ku, Tokyo 141-8503 JAPAN
International Sales Department Phone:+81-3-5434-0351 Fax:+81-3-5434-0353
Global site : http://www.thk.com/

NORTH AMERICA
THK America,Inc.
●HEADQUARTERS
Phone:+1-847-310-1111 Fax:+1-847-310-1271
●CHICAGO OFFICE
Phone:+1-847-310-1111 Fax:+1-847-310-1182
●NORTH EAST OFFICE
Phone:+1-631-244-1565 Fax:+1-631-244-1565
●ATLANTA OFFICE
Phone:+1-770-840-7990 Fax:+1-770-840-7897
●LOS ANGELES OFFICE
Phone:+1-949-955-3145 Fax:+1-949-955-3149
●SAN FRANCISCO OFFICE
Phone:+1-925-455-8948 Fax:+1-925-455-8965
●DETROIT OFFICE
Phone:+1-248-858-9330 Fax:+1-248-858-9455
●TORONTO OFFICE
Phone:+1-905-820-7800 Fax:+1-905-820-7811

SOUTH AMERICA
THK BRAZIL INDUSTRIA E COMERCIO LTDA.
Phone:+55-11-3767-0100 Fax:+55-11-3767-0101

EUROPE
THK GmbH
●EUROPEAN HEADQUARTERS
Phone:+49-2102-7425-555 Fax:+49-2102-7425-556
●DÜSSELDORF OFFICE
Phone:+49-2102-7425-0 Fax:+49-2102-7425-299
●STUTTGART OFFICE
Phone:+49-7141-4988-500 Fax:+49-7141-4988-888
●U.K. OFFICE
Phone:+44-1384-47-1550 Fax:+44-1384-47-1551
●ITALY OFFICE
Phone:+39-02-9901-1801 Fax:+39-02-9901-1881
●SWEDEN OFFICE
Phone:+46-8-445-7630 Fax:+46-8-445-7639
●AUSTRIA OFFICE
Phone:+43-7229-51400 Fax:+43-7229-51400-79
●SPAIN OFFICE
Phone:+34-93-652-5740 Fax:+34-93-652-5746
●TURKEY OFFICE
Phone:+90-216-362-4050 Fax:+90-216-569-7150
●PRAGUE OFFICE
Phone:+420-2-41025-100 Fax:+420-2-41025-199
●MOSCOW OFFICE
Phone:+7-495-649-80-47 Fax:+7-495-649-80-44
THK Europe B.V.
●EINDHOVEN OFFICE
Phone:+31-040-290-9500 Fax:+31-040-290-9599
THK France S.A.S.
●PARIS OFFICE
Phone:+33-1-7425-3800 Fax:+33-1-7425-3799

CHINA
THK (CHINA) CO.,LTD.
●HEADQUARTERS
Phone:+86-411-8733-7111 Fax:+86-411-8733-7000
●SHANGHAI OFFICE
Phone:+86-21-6219-3000 Fax:+86-21-6219-9890
●BEIJING OFFICE
Phone:+86-10-8441-7277 Fax:+86-10-6590-3557
●CHENGDU OFFICE
Phone:+86-28-8526-8025 Fax:+86-28-8525-6357
●GUANGZHOU OFFICE
Phone:+86-20-8523-8418 Fax:+86-20-3801-0456
●SHENZHEN OFFICE
Phone:+86-755-2642-9587 Fax:+86-755-2642-9604
●XIAN OFFICE
Phone:+86-29-8834-1712 Fax:+86-29-8834-1710
THK (SHANGHAI) CO.,LTD.
Phone:+86-21-6275-5280 Fax:+86-21-6219-9890

TAIWAN
THK TAIWAN CO.,LTD.
●TAIPEI HEAD OFFICE
Phone:+886-2-2888-3818 Fax:+886-2-2888-3819
●TAICHUNG OFFICE
Phone:+886-4-2359-1505 Fax:+886-4-2359-1506
●TAINAN OFFICE
Phone:+886-6-289-7668 Fax:+886-6-289-7669

KOREA
SEOUL REPRESENTATIVE OFFICE
Phone:+82-2-3468-4351 Fax:+82-2-3468-4353

SINGAPORE
THK LM System Pte. Ltd.
Phone:+65-6884-5500 Fax:+65-6884-5550

THAILAND
THK RHYTHM(THAILAND) CO., LTD. LM System Division
●Bangkok Branch
Phone:+66-2751-3001 Fax:+66-2751-3003

INDIA
THK India Pvt. Ltd.
●HEADQUARTERS & Bangalore Branch
Phone:+91-80-2340-9934 Fax:+91-80-2340-9937
●Pune Branch
Phone:+91-20-4120-8742

201502 E24 Printed in Japan