

# Quick Ship Program

## Linear Actuator



**KR**

**U.S. STOCK  
AVAILABLE!**

**Mechatronics**

**THK America, Inc.**



**ES/EC**

**U.S. STOCK AVAILABLE!\***

**FOUR-WAY EQUAL LOADING**

Mountable in any orientation

**COMPACT**

LM Guide, Ball Screw, and support unit into one structure

**HIGH ACCURACY**

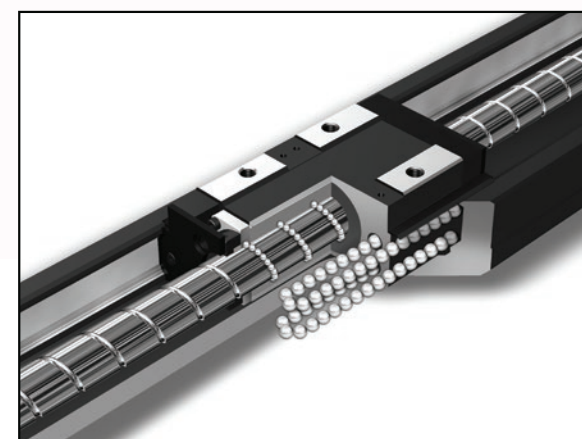
Circular-arc groove to allow a high accuracy feed

**ROBUST**

Easy to configure into a 2 or 3 axis system

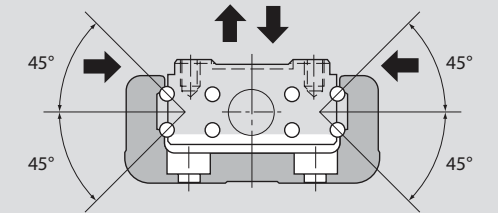


**Integrated Compact Design:**



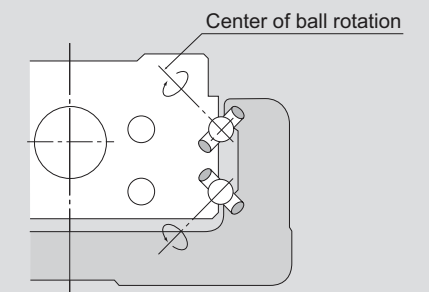
**Four Way Equal Loading:**

Can be used in any mounting orientation by adopting Double-Row 45 degree contact.



**High Accuracy:**

Circular-arc groove provides high accuracy and smooth motion.



**High Rigidity Design:**

U-shaped steel base allows for superior rigidity and makes it easy to configure KR actuators into 2 or 3 axis applications.



\* KR Actuators available for Quick-Ship are either in stock in U.S. or modified from in stock parts. Precautions on using KR actuator: Please refer to general catalog or 209E catalog. Inventory is subject to availability. Product spec is subject to change without notice.

# DETERMINE KR QUICK-SHIP PART NUMBER

: Choose Quick-Ship Option  
 : Standard/Only Quick-Ship Option

Step 1		Step 2		Step 3							
MODEL NUMBER	BALL SCREW LEAD	BLOCK TYPE		STROKE	ACCURACY	MOTOR OPTION		COVER	SENSOR	HOUSING	SAMPLE PART NUMBER
KR33	10	B	-	0325	P	0	-	1	J	A0	<b>KR3310B-0325-P0-1JA0</b>
*6mm = 06		A = Single Block B = Double Block		30 - 790 mm *100 mm = 0100	No Symbol = Standard P = Precision	0 = Standard, No Motor				A0 = Standard Housing	

## Step 1: Determine Model Number & Ball Screw Lead

LOAD CAPACITY CHART

MODEL	BALL SCREW LEAD (mm)	MAX PAYLOAD (kg)		MOTOR RATED OUTPUT (W)
		HORIZONTAL	VERTICAL	
KR20	01	10	3	50
	06	10	6	
KR26	02	22	14	50
	06	22	7	
KR33	06	35	19	100
	10	30	12	
KR46	10	77	17	200
	20	51	8	

\*Load Capacity is the value for single block type.  
 \*Load Capacity is at rated speed under .3G. (0.15G if lead 6mm or less).

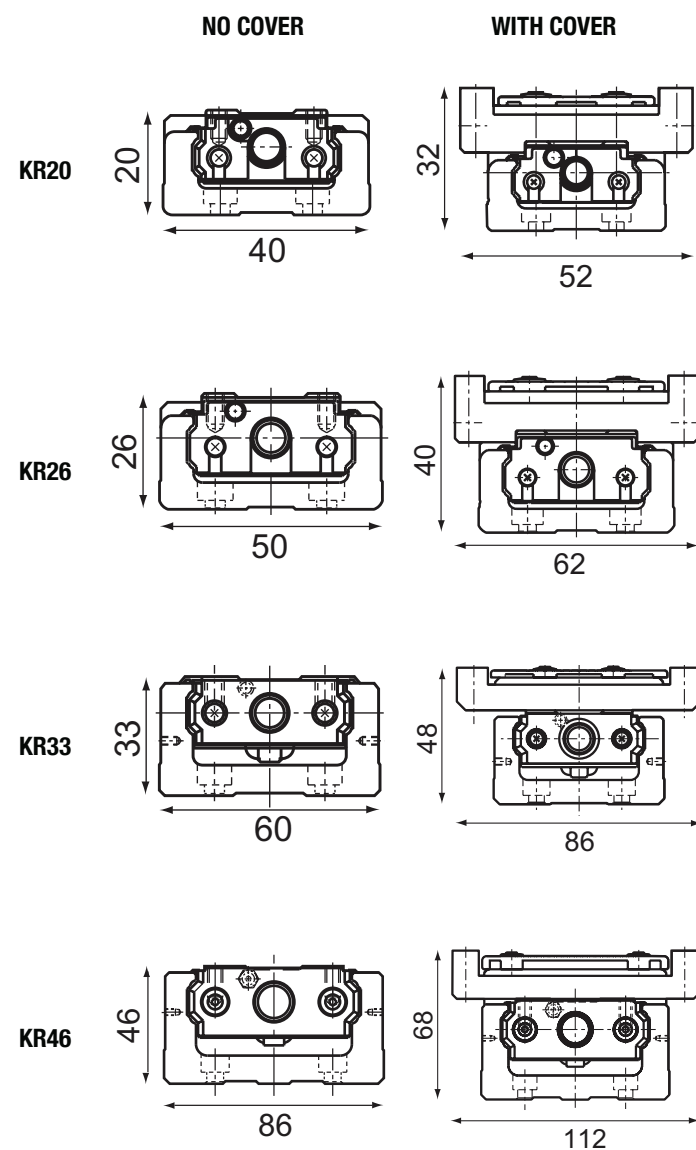
## Step 2: Determine Block Type

STATIC PERMISSIBLE MOMENT

MODEL	BLOCK	STATIC PERMISSIBLE MOMENT (Nm)		
		MA	MB	MC
KR20	A	31	31	83
	B	176	176	165
KR26	A	84	84	208
	B	480	480	416
KR33	A	166	166	428
	B	908	908	857
KR46	A	547	547	1400
	B	2,940	2,940	2,800

\*The values for double block are when blocks are in close contact.

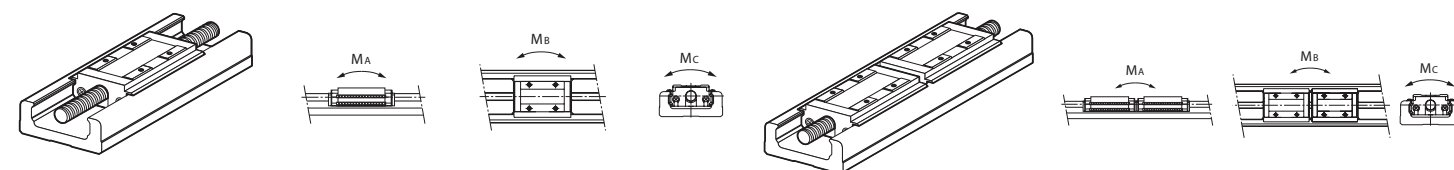
Cross Section (mm)



## Step 3: Determine Stroke & Other Options

SIZE	BALL SCREW LEAD (mm)	STROKE (mm)		ACCURACY				COVER	SENSOR		
		SINGLE BLOCK	DOUBLE BLOCK	MAX. SPEED (mm/S)		POSITIONING REPEATABILITY (mm)				BACKLASH (mm)	
				NORMAL	PRECISION	NORMAL	PRECISION			NORMAL	PRECISION
20	01	30	---	100	100	±0.01	±0.003	0.02	0.003		
		80	35								
		130	85								
	06	30	---	600	600						
		80	35								
		130	85								
26	02	60	---	200	200						
		110	45								
		160	95								
	06	60	---	590	600						
		110	45								
		160	95								
33	06	50	---	470	600						
		100	---								
		200	125								
		300	225								
		400	325								
		500	425								
	10	50	---	790	1000						
		100	---								
		200	125								
		300	225								
		400	325								
		500	425								
46	10	500	525	650	650						
		600	525								
		600	525			470	470				
		190	80								
		290	180								
		390	280								
	490	380									
	590	480									
	20	690	580	850	850						
		790	680								
		190	80			520	740				
		290	180								
390		280									
490		380									
590	480										
690	580										
790	680	1050	1480								
190	80										
290	180										
390	280										
490	380										
590	480										
690	580	850	850								
790	680										

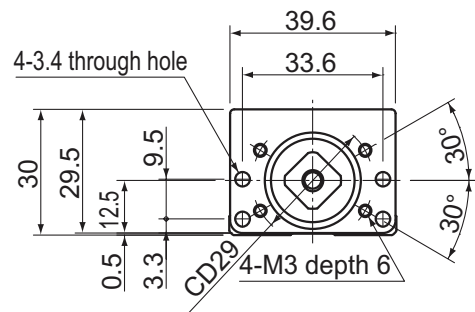
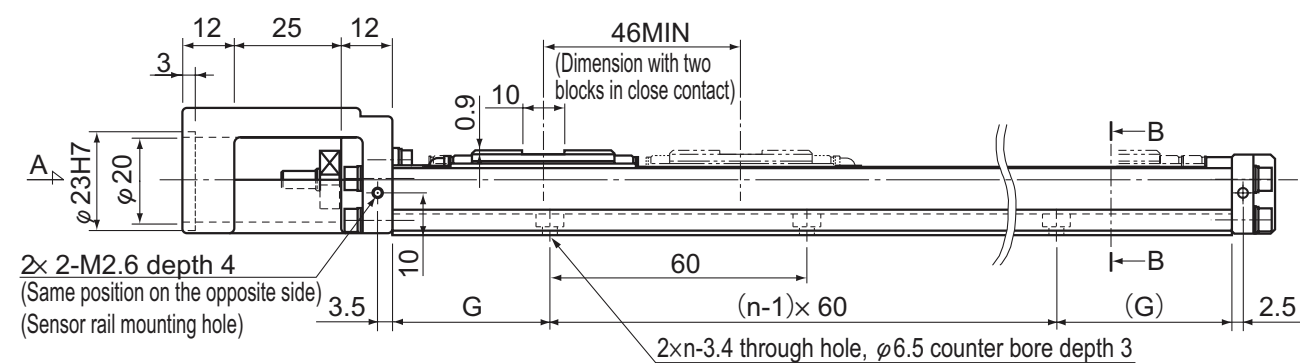
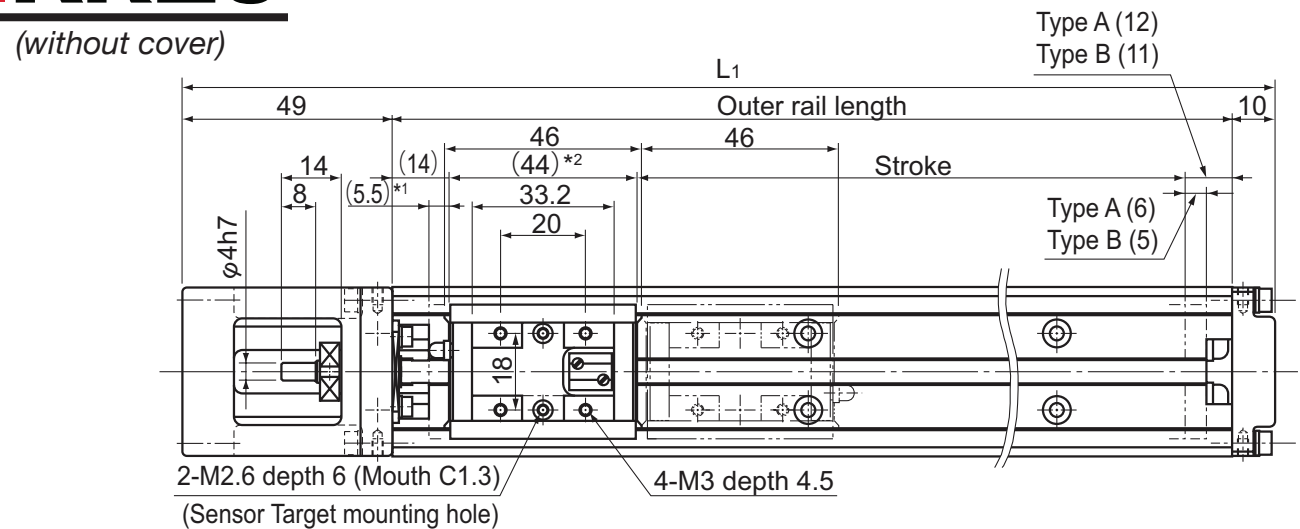
**0:** No Sensor  
**1:** Rail Sensor Only  
**2:** Photo Sensor  
 Three Units EE-SX674 (Omron)  
**J:** Proximity Sensor  
 N.O. Contact one unit GX-F12A  
 N.C. Contact two units GX-F12B (Panasonic)  
**M:** Proximity Sensor  
 N.O. Contact one unit GX-F12A-P  
 N.C. Contact two units GX-F12B-P (Panasonic)



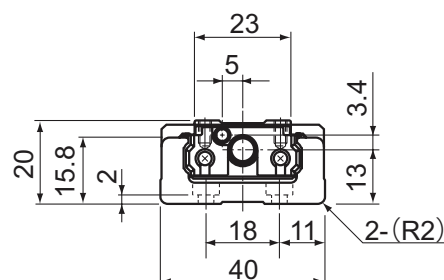
\* The rated speed is the value when revolution of the motor is 3000 rpm.  
 \* The maximum speed is the value restricted by the motor rotation (at 6,000 rpm), or by the rotation speed of the ball screw.

# KR20

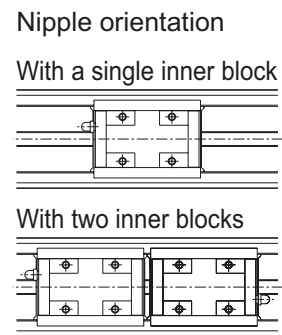
(without cover)



A arrow view



B-B cross section



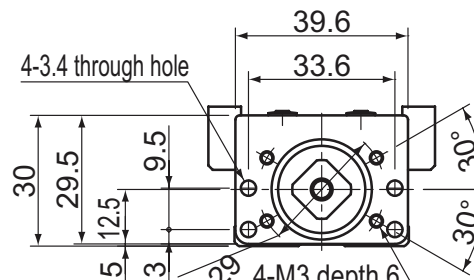
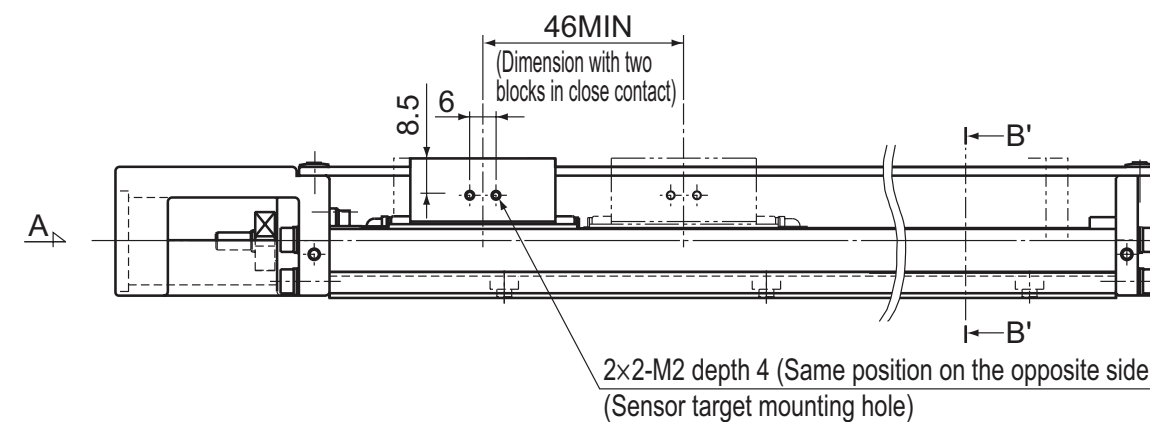
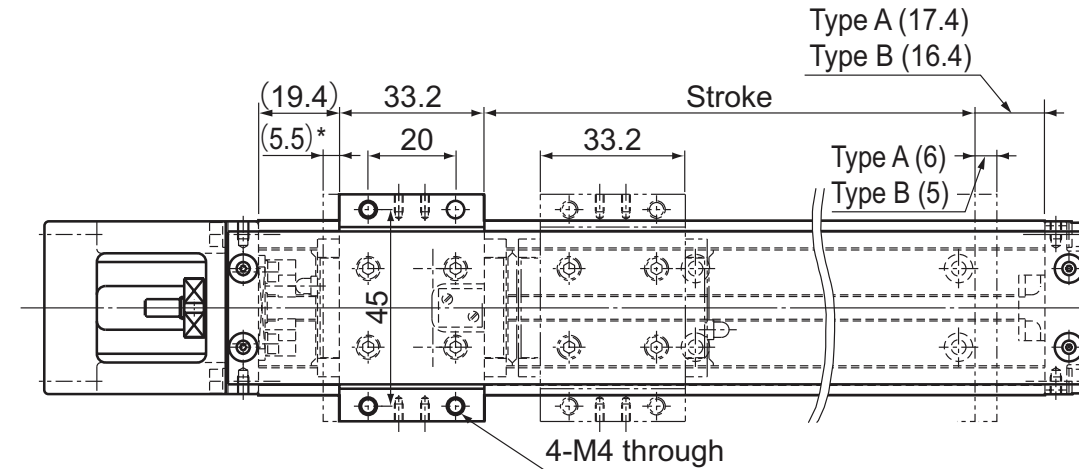
\*1 Distance between the mechanical stopper and the stroke starting position.  
\*2 Indicates the inner block length when calculating the available stroke range.  
The length in model KR-B (with two long-type inner blocks) is 90 mm.

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	G (mm)	n	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*					TYPE A	TYPE B
30(41.5)	—	159	100	20	2	0.45	—
80(91.5)	35(45.5)	209	150	15	3	0.58	0.655
130(141.5)	85(95.5)	259	200	40	3	0.72	0.795

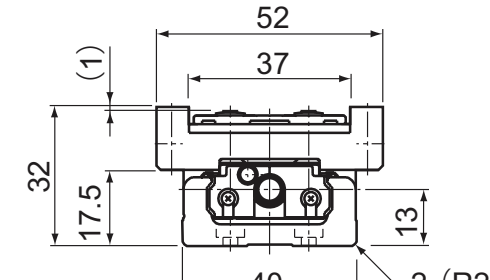
\*Indicates a value when two inner blocks are in close contact with each other.

# KR20

(with cover)



A arrow view



B'-B' cross section

\* Distance between the mechanical stopper and the stroke starting position.

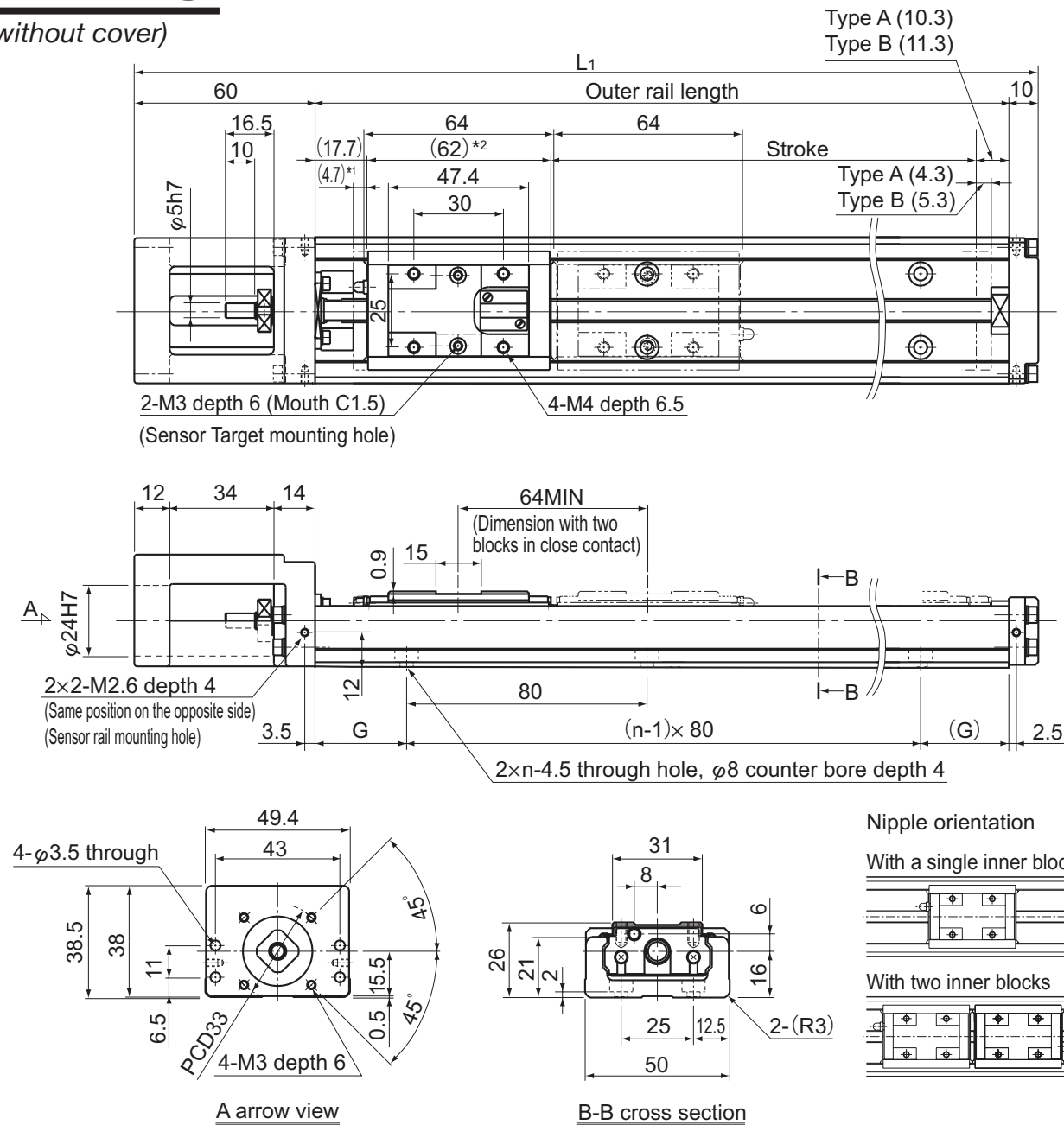
STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*			TYPE A	TYPE B
30(41.5)	—	159	100	0.51	—
80(91.5)	35(45.5)	209	150	0.66	0.78
130(141.5)	85(95.5)	259	200	0.8	0.92

\*Indicates a value when two inner blocks are in close contact with each other.

REFER TO PAGES 3-4 TO DETERMINE KR PART NO.

# KR26

(without cover)



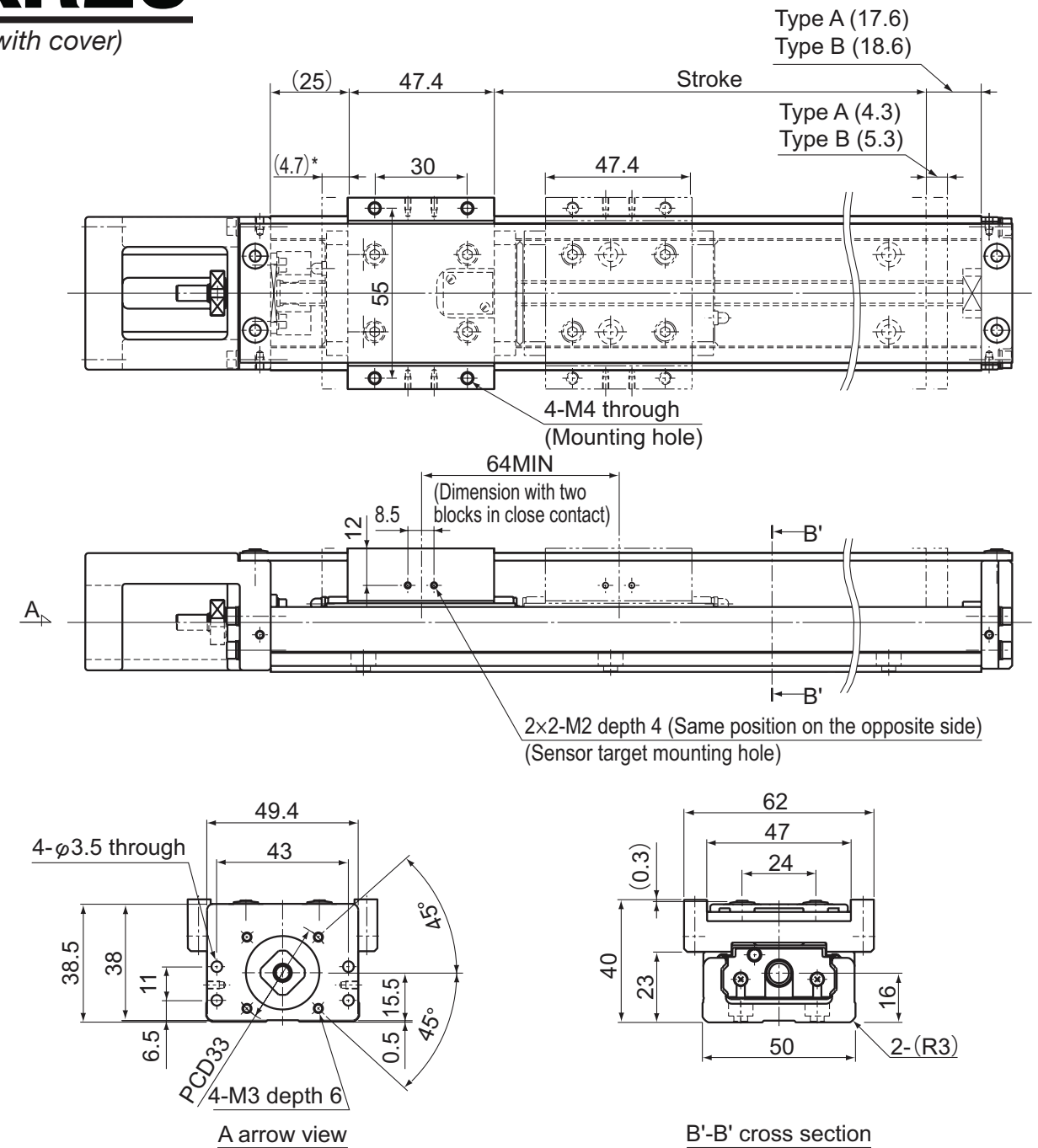
\*1 Distance between the mechanical stopper and the stroke starting position.  
 \*2 Indicates the inner block length when calculating the available stroke range.  
 The length in model KR-B (with two long-type inner blocks) is 126 mm.

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	G (mm)	n	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*					TYPE A	TYPE B
60(69)	—	220	150	35	2	0.99	—
110(119)	45(55)	270	200	20	3	1.2	1.38
160(169)	95(105)	320	250	45	3	1.41	1.59
210(219)	145(155)	370	300	30	4	1.62	1.8

\*Indicates a value when two inner blocks are in close contact with each other.

# KR26

(with cover)



\* Distance between the mechanical stopper and the stroke starting position.

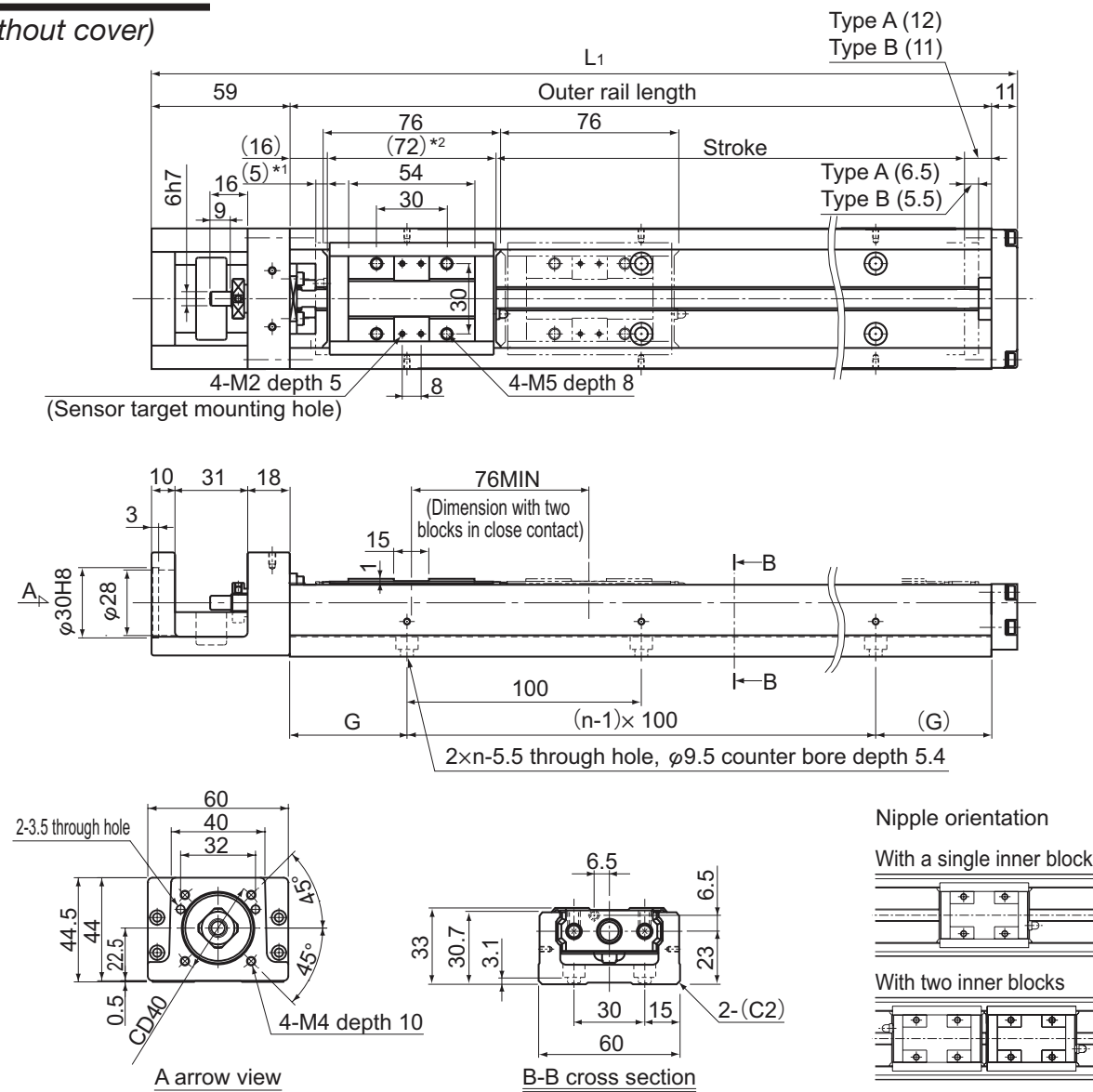
STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*			TYPE A	TYPE B
60(69)	—	220	150	1.12	—
110(119)	45(55)	270	200	1.34	1.605
160(169)	95(105)	320	250	1.56	1.825
210(219)	145(155)	370	300	1.78	2.045

\*Indicates a value when two inner blocks are in close contact with each other.

REFER TO PAGES 3-4 TO  
DETERMINE KR PART NO.

# KR33

(without cover)



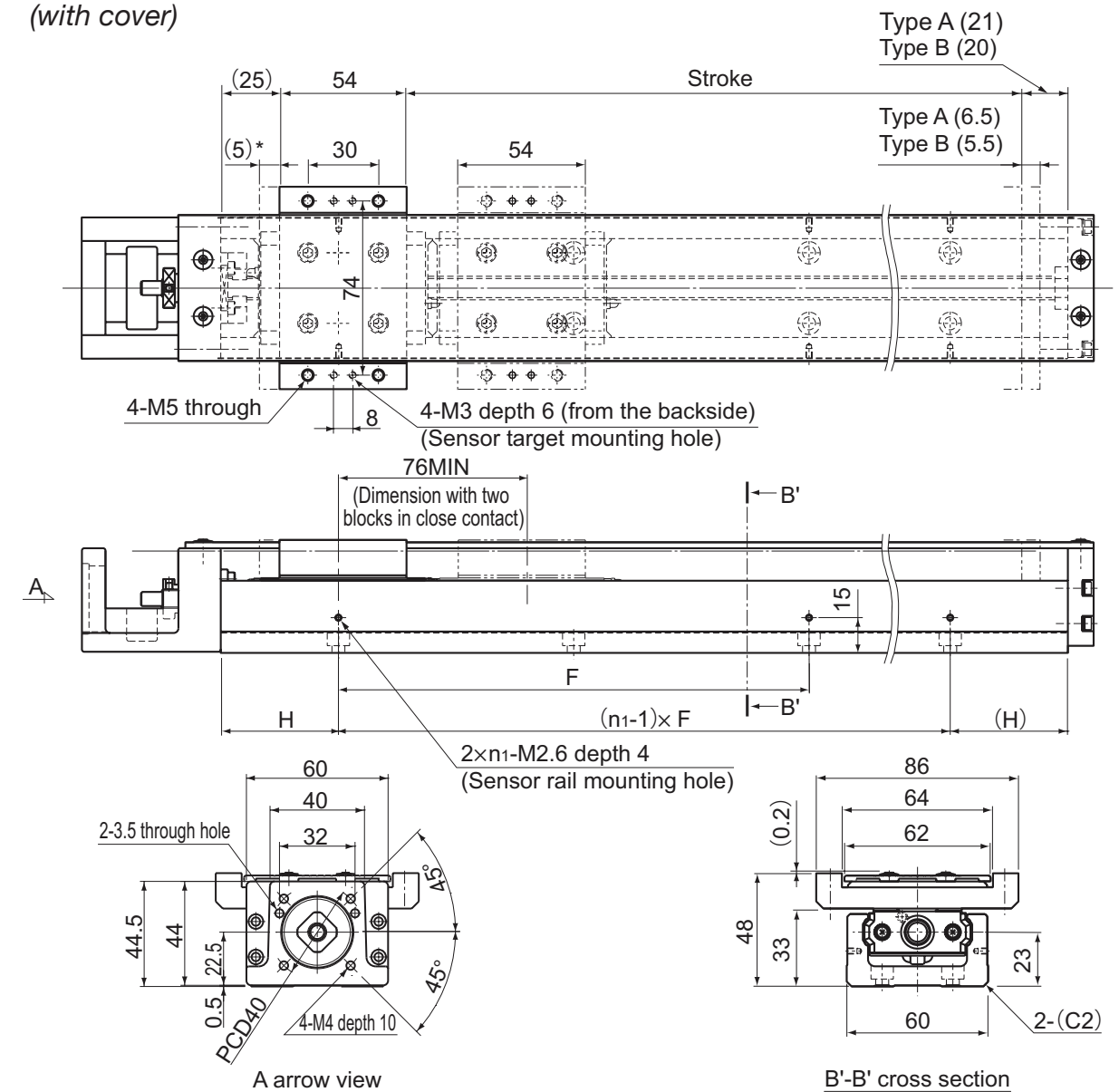
\*1 Distance between the mechanical stopper and the stroke starting position.  
\*2 Indicates the inner block length when calculating the available stroke range. The length in model KR-B (with two long-type inner blocks) is 148 mm.

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH $L_1$ (mm)	OUTER RAIL LENGTH (mm)	G (mm)	n	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*					TYPE A	TYPE B
50(61.5)	—	220	150	25	2	1.7	—
100(110.5)	—	270	200	50	2	2	—
200(211.5)	125(135.5)	370	300	50	3	2.6	2.95
300(311.5)	225(235.5)	470	400	50	4	3.2	3.55
400(411.5)	325(335.5)	570	500	50	5	3.9	4.25
500(511.5)	425(435.5)	670	600	50	6	4.5	4.85
600(611.5)	525(535.5)	770	700	50	7	5.5	5.85

\*Indicates a value when two inner blocks are in close contact with each other.

# KR33

(with cover)



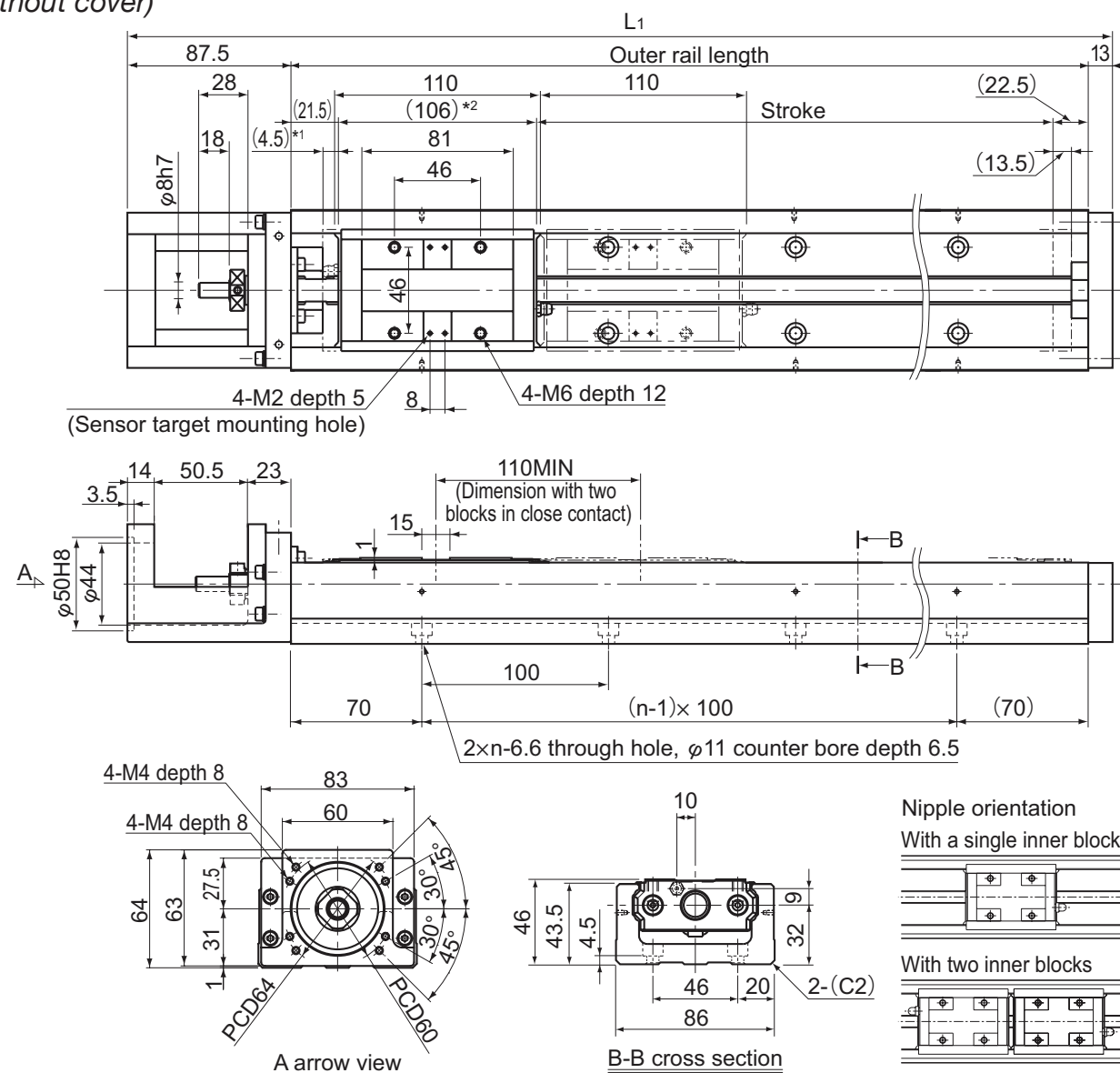
\* Distance between the mechanical stopper and the stroke starting position.

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH $L_1$ (mm)	OUTER RAIL LENGTH (mm)	H (mm)	F (mm)	$n_1$	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*						TYPE A	TYPE B
50(61.5)	—	220	150	25	100	2	1.9	—
100(110.5)	—	270	200	50	100	2	2.2	—
200(211.5)	125(135.5)	370	300	50	200	2	2.8	3.28
300(311.5)	225(235.5)	470	400	100	200	2	3.5	3.98
400(411.5)	325(335.5)	570	500	50	200	3	4.2	4.68
500(511.5)	425(435.5)	670	600	100	200	3	4.8	5.28
600(611.5)	525(535.5)	770	700	50	200	4	5.9	6.38

\*Indicates a value when two inner blocks are in close contact with each other.  
Note - It must be noted that the cover-mounting bolt is 0.2mm higher than the top face of the sub table.

# KR46

(without cover)



\*1 Distance between the mechanical stopper and the stroke starting position.  
 \*2 Indicates the inner block length when calculating the available stroke range.  
 The length in model KR-B (with two long-type inner blocks) is 216 mm.

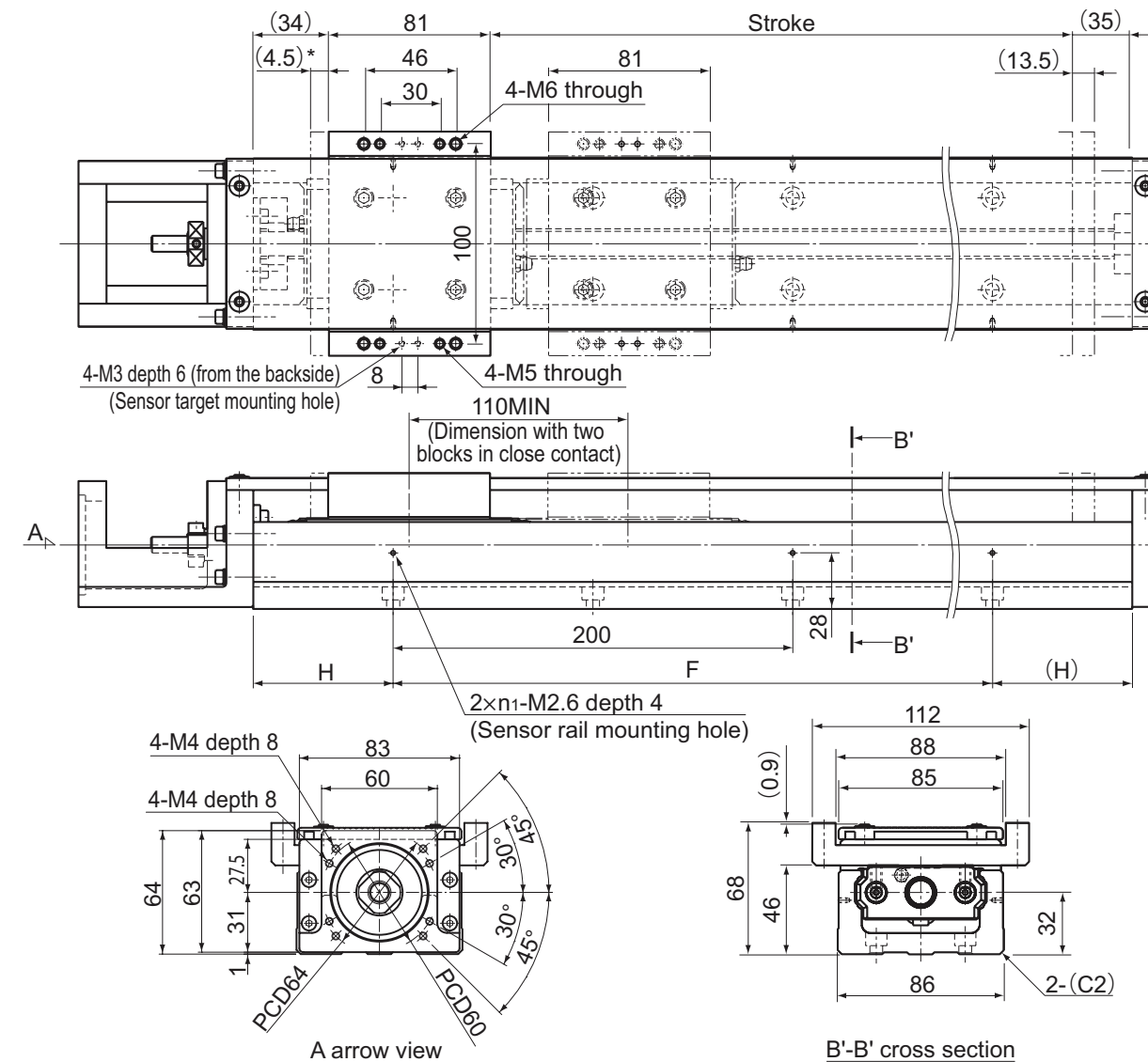
STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	n	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*				TYPE A	TYPE B
190(208)	80(98)	440.5	340	3	7.7	8.9
290(308)	180(198)	540.5	440	4	9	10.2
390(408)	280(298)	640.5	540	5	10.3	11.5
490(508)	380(398)	740.5	640	6	11.6	12.8
590(608)	480(498)	840.5	740	7	12.8	14
690(708)	580(598)	940.5	840	8	14.1	15.3
790(808)	680(698)	1040.5	940	9	15.3	16.5

\*Indicates a value when two inner blocks are in close contact with each other.

REFER TO PAGES 3-4 TO  
DETERMINE KR PART NO.

# KR46

(with cover)



\* Distance between the mechanical stopper and the stroke starting position.

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		OVERALL LENGTH L <sub>1</sub> (mm)	OUTER RAIL LENGTH (mm)	H (mm)	F (mm)	n <sub>1</sub>	OVERALL MAIN UNIT MASS (kg)	
TYPE A	TYPE B*						TYPE A	TYPE B
190(208)	80(98)	440.5	340	70	200	2	8.3	9.79
290(308)	180(198)	540.5	440	20	400	3	9.7	11.19
390(408)	280(298)	640.5	540	70	400	3	11	12.49
490(508)	380(398)	740.5	640	20	600	4	12.4	13.89
590(608)	480(498)	840.5	740	70	600	4	13.7	15.19
690(708)	580(598)	940.5	840	20	800	5	15	16.49
790(808)	680(698)	1040.5	940	70	800	5	16.3	17.79

\*Indicates a value when two inner blocks are in close contact with each other.  
 Note - It must be noted that the cover-mounting bolt is 0.2mm higher than the top face of the sub table.

# INTERMEDIATE FLANGES

Intermediate flanges are also in stock for varieties of motors.

THK's intermediate flanges are provided with surface coating that provides excellent corrosion resistance.

Refer to the corresponding chart to determine Part No. and Product Code.



KR SIZE	SYMBOL	THK PART NO.	PRODUCT CODE	KR SIZE	SYMBOL	THK PART NO.	PRODUCT CODE
20	M20	KR/SKR20 INT-FLNG F20-M	652171120130001	26	M26	KR/SKR26 INT-FLNG F26-M	652171126130001
	N20	KR/SKR20 INT-FLNG F20-N	652171120140001		N26	KR/SKR26 INT-FLNG F26-N	652171126140001
	Q20	KR/SKR20 INT-FLNG F20-Q	652171120160000		Q26	KR/SKR26 INT-FLNG F26-Q	652171126160000
	R20	KR/SKR20 INT-FLNG F20-R	652171120170000		R26	KR/SKR26 INT-FLNG F26-R	652171126170000
	S20	KR/SKR20 INT-FLNG F20-S	652171120180000		S26	KR/SKR26 INT-FLNG F26-S	652171126180000
	X20A	KR/SKR20 INT-FLNG F20-TA000	75210001630A000		X26A	KR26 INT-FLNG F26-T000	75210001099A000
				X26B	KR26 INT-FLNG MPL15X0	75210001178A010	
33	Q33	KR30/33/SKR33 INT-FLNG F33-Q	652171130160000	46	Q46	KR45/46/SKR46 INT-FLNG F46-Q	652171145160000
	R33	KR30/33/SKR33 INT-FLNG F33-R	652171130170000		U46	KR45/46/SKR46 INT-FLNG F46-U	652171145200000
	T33	KR30/33/SKR33 INT-FLNG F33-T	652171130190000		V46	KR45/46/SKR46 INT-FLNG F46-V	652171145210000
	U33	KR30/33/SKR33 INT-FLNG F33-U	652171130200000		X46A	KR45/46/SKR46 INT-FLNG F46-TA000	75210001639A001
	X33A	KR30H/33/SKR33 INT-FLNG F33-TA009	75210001651A090		X46B	KR45/46/SKR46 INT-FLNG F46-TA001	75210001639A010
	X33B	KR33 INT-FLNG F33-TA001	75210001636A010		X46C	KR45/46/SKR46 INT-FLNG F46-TA009	75210001639A090
	X33C	KR33 INT-FLNG F33-TA014	75210001636A140		X46D	KR45/46/SKR46 INT-FLNG F46-TA014	75210001639A140
	X33D	KR33 INT-FLNG F33-TA028	75210001636A280		X46E	KR45/46/SKR46 INT-FLNG F46-TA109	75210001639AA90
	X33E	KR33 INT-FLNG F33-TA109	75210001636AA90		Y46	KR45/46/SKR46 INT-FLNG F46-Y	652171145220000

MAX INPUT TORQUE [Nm]					0.207	0.622	1.244	2.707	
MOTOR TYPE		WATTAGE (W)	PEAK TORQUE (Nm)	FLANGE SIZE (mm)	KR20	KR26	KR33	KR46	
					SYMBOL	SYMBOL	SYMBOL	SYMBOL	
ALLEN BRADLEY	MPL	MPL-A/B 1510V	160	0.77	55	---	X26B	X33E	X46C
		MPL-A/B 1520U	270	1.58	55	---	X26B	X33E	X46C
		MPL-A/B 1530U	390	2.80	55	---	X26B	X33E	X46C
		MPL-A/B210V	370	1.50	70	---	---	X33C	X46D
		MPL-A/B220T	620	4.74	70	---	---	X33C	X46D
		MPL-A/B230P	860	8.20	70	---	---	X33C	X46D
TLY	TLY/TL-A110 (-AA, METRIC)	41	0.2	40	Q20	Q26	Q33	Q46	
	TLY/TL-A120 (-AA, METRIC)	86	0.36	40	Q20	Q26	Q33	Q46	
	TLY/TL-A130 (-AA, METRIC)	140	0.76	40	Q20	Q26	Q33	Q46	
	TLY/TL-A220 (-AA, METRIC)	350	1.48	60	---	---	X33D	V46	
	TLY/TL-A230 (-AA, METRIC)	440	3.05	60	---	---	X33D	V46	
VPL	VPL-A/B0631	280	1.3	55	---	X26B	X33E	X46C	
	VPL-A/B0632	390	2.7	55	---	X26B	X33E	X46C	
	VPL-A/B0633	440	4.1	55	---	X26B	---	X46C	
	VPL-A/B0751	500	2.3	70	---	---	X33C	X46D	
	VPL-A/B0752	660	4.4	70	---	---	X33C	X46D	
	VPL-A/B0753	800	7.4	70	---	---	X33C	---	

MAX INPUT TORQUE [Nm]					0.207	0.622	1.244	2.707		
MOTOR TYPE		WATTAGE (W)	PEAK TORQUE (Nm)	FLANGE SIZE (mm)	KR20	KR26	KR33	KR46		
					SYMBOL	SYMBOL	SYMBOL	SYMBOL		
KOLLOMORGEN	AKM1AN	AKM11B	140	0.62	40	Q20	Q26	Q33	Q46	
		AKM12C	230	1.08	40	Q20	Q26	Q33	Q46	
		AKM13C	300	1.46	40	Q20	Q26	Q33	Q46	
	AKM2AN	AKM21C	320	1.48	58	---	---	X33A	X46E	
		AKM22C	290	2.73	58	---	---	X33A	X46E	
		AKM23D	530	3.89	58	---	---	X33A	X46E	
		AKM24D	540	4.84	58	---	---	X33A	X46E	
	AKM3AN	AKM31C	290	3.87	70	---	---	X33C	X46D	
		AKM32H	1060	6.22	70	---	---	X33C	X46D	
AKM33E		550	8.95	70	---	---	X33C	X46D		
YASKAWA ELECTRIC	Σ-MINI	SGMM-A1	10	0.096	25	N20	N26	---	---	
		SGMM-A2	20	0.191	25	N20	N26	---	---	
		SGMM-A3	30	0.289	25	N20	N26	---	---	
	Σ-V	SGMJV-A5	50	0.557	40	Q20	Q26	Q33	Q46	
		SGMAV-A5	50	0.477	40	Q20	Q26	Q33	Q46	
		SGMJV-01	100	1.11	40	Q20	Q26	Q33	Q46	
		SGMAV-01	100	0.96	40	Q20	Q26	Q33	Q46	
		SGMAV-C2	150	1.43	40	---	---	Q33	Q46	
		SGMJV-02	200	2.23	60	---	---	---	V46	
		SGMAV-02	200	1.91	60	---	---	---	V46	
		SGMJV-04	400	4.46	60	---	---	---	V46	
		SGMAV-04	400	3.82	60	---	---	---	V46	
		Σ-III	SGMAS-A5	50	0.477	40	Q20	Q26	Q33	Q46
	SGMAS-01		100	0.96	40	Q20	Q26	Q33	Q46	
	SGMPS-01		100	0.96	40	Q20	Q26	Q33	Q46	
SGMAS-02	200		1.91	60	---	---	---	V46		
SGMAS-04	400		3.82	60	---	---	---	V46		
OMRON	OMNUC G5		R88M-K05030	50	0.48	40	Q20	Q26	Q33	Q46
			R88M-K10030	100	0.95	40	---	Q26	Q33	Q46
		R88M-K20030	200	1.91	60	---	---	---	Y46	
	OMNUC G	R88M-K40030	400	3.8	60	---	---	---	Y46	
		R88M-G05030	50	0.45	40	Q20	Q26	Q33	Q46	
		R88M-G10030	100	0.93	40	---	Q26	Q33	Q46	
		R88M-GP10030	100	0.84	60	---	---	---	Y46	
R88M-G20030	200	1.78	60	---	---	---	Y46			
R88M-G40030	400	3.6	60	---	---	---	Y46			
NEMA	NEMA SIZE	NEMA 11	--	--	28.2	S20	S26	---	---	
		NEMA 14	--	--	35.3	---	---	---	---	
		NEMA 17	--	--	42	R20	R26	R33	---	
		NEMA 23	--	--	57.15	X20A	X26A	T33	X46A	
		NEMA 34	--	--	86.1	---	---	X33B	X46B	

: May Require Torque Limit  
 : Contact THK



MAX INPUT TORQUE [Nm]						0.207	0.622	1.244	2.707
MOTOR TYPE		WATTAGE (W)	PEAK TORQUE (Nm)	FLANGE SIZE (mm)	KR20	KR26	KR33	KR46	
					SYMBOL	SYMBOL	SYMBOL	SYMBOL	
MITSUBISHI ELECTRIC	J2-Jr	HC-AQ013	10	0.0955	28	M20	M26	---	---
		HC-AQ023	20	0.191	28	M20	M26	---	---
		HC-AQ033	30	0.287	28	M20	M26	---	---
	J4	HG-KR053	50	0.560	40	Q20	Q26	Q33	Q46
		HG-MR053	50	0.480	40	Q20	Q26	Q33	Q46
		HG-KR13	100	1.100	40	---	---	Q33	Q46
		HG-MR13	100	0.950	40	---	---	Q33	Q46
		HG-KR23	200	2.200	60	---	---	---	V46
		HG-MR23	200	1.900	60	---	---	---	V46
		HG-KR43	400	4.500	60	---	---	---	V46
	HG-MR43	400	3.800	60	---	---	---	V46	
	J3	HG-AK0136	10	0.095	25	N20	N26	---	---
		HG-AK0236	20	0.191	25	N20	N26	---	---
		HG-AK0336	30	0.286	25	N20	N26	---	---
		HF-MP053	50	0.480	40	Q20	Q26	Q33	Q46
		HF-KP053	50	0.480	40	Q20	Q26	Q33	Q46
		HF-MP13	100	0.950	40	---	---	Q33	Q46
		HF-KP13	100	0.950	40	---	---	Q33	Q46
HF-MP23		200	1.900	60	---	---	---	V46	
HF-KP23		200	1.900	60	---	---	---	V46	
HF-MP43		400	3.800	60	---	---	---	V46	
HF-KP43	400	3.800	60	---	---	---	V46		
ORIENTAL MOTOR	α Step	ASC3*	--	0.055-0.12	28	S20	S26	---	---
		AR/ARL46	--	0.30	42	R20	R26	R33	---
		AS/ASC46	--	0.30	42	R20	R26	R33	---
		AR6*	--	1-2	60	---	---	U33	U46
		ARL6*	--	1.2-2	60	---	---	U33	U46
		AS/ASC6*	--	1.2-2	60	---	---	U33	U46
	5 phase	CRK52*	--	0.042-0.09	28	S20	S26	---	---
		CRK54*	--	0.24-0.42	42	R20	R26	R33	---
		CRK56*	--	0.78-2.3	60	---	---	U33	U46
		CSK52*	--	0.033-0.06	28	S20	S26	---	---
		CSK54*	--	0.13-0.42	42	R20	R26	R33	---
		CSK56*	--	0.42-1.66	60	---	---	U33	U46
		RKS54*	--	0.14-0.27	42	R20	R26	R33	---
		RKS56*	--	0.52-1.77	60	---	---	U33	U46
		RK54*	--	0.13-0.24	42	R20	R26	R33	---
		RK56*	--	0.42-1.66	60	---	---	U33	U46
	2 phase	UMK24*	--	0.16-0.32	42	R20	R26	R33	---
		UMK26*	--	0.39-1.35	56.4	---	---	T33	---
CSK24*		--	0.16-0.32	42	R20	R26	R33	---	
CSK26*		--	0.39-1.35	56.4	---	---	T33	---	

: May Require Torque Limit  
 : Contact THK

## More KR Options:

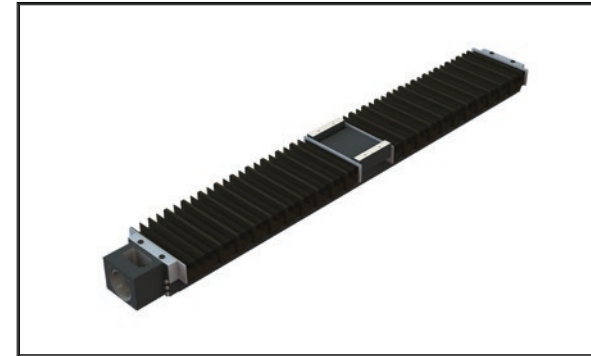
Contact THK or refer to KR Catalog No. 209E for details



Motor Wrap



Short Block: Single/Double



Bellows

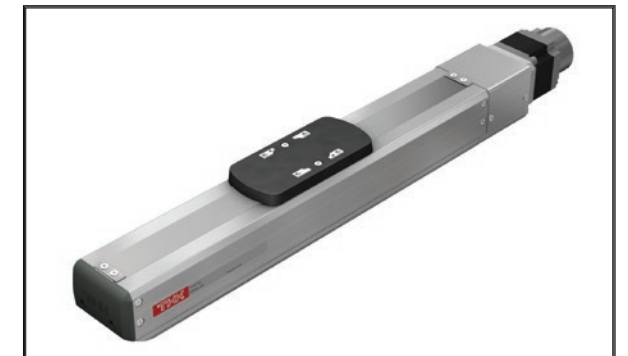


Other Sizes: 15, 55, 65

## KR Families:



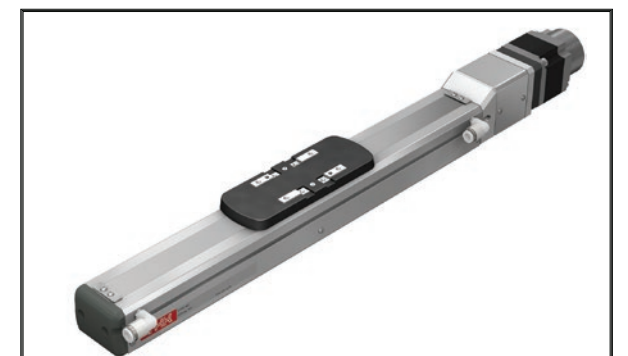
SKR: Caged Ball Type



KRF: Full Enclosed Type



KSF: Full Enclosed + High Speed



CKRF/CKSF: Clean Room Type of KRF/KSF

# ELECTRIC ACTUATORS

Stepper Motor & Drive

## COMPACT & LIGHTWEIGHT

Simple structure with aluminum frame

## LONG-TERM MAINTENANCE FREE

Utilization of Caged Ball LM Guides and QZ Lubricators

## COST EFFECTIVE

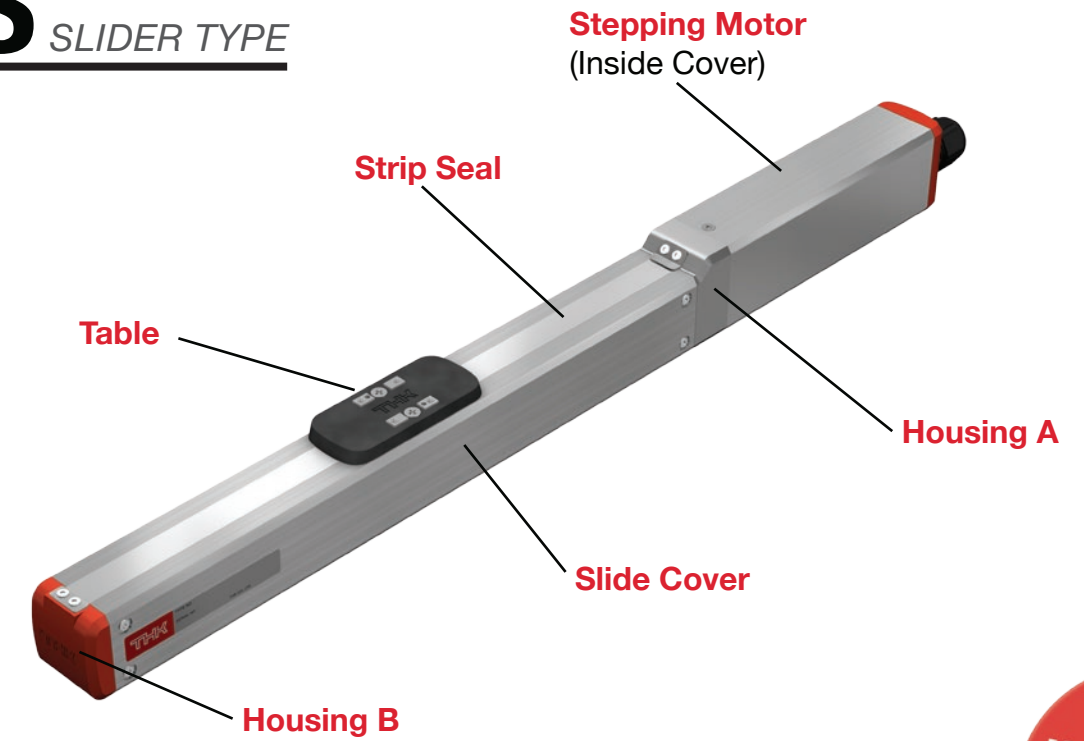
Less components necessary

## FULLY ENCLOSED

Protection from outside elements with Strip seal (ES) and LaCS seal (EC)

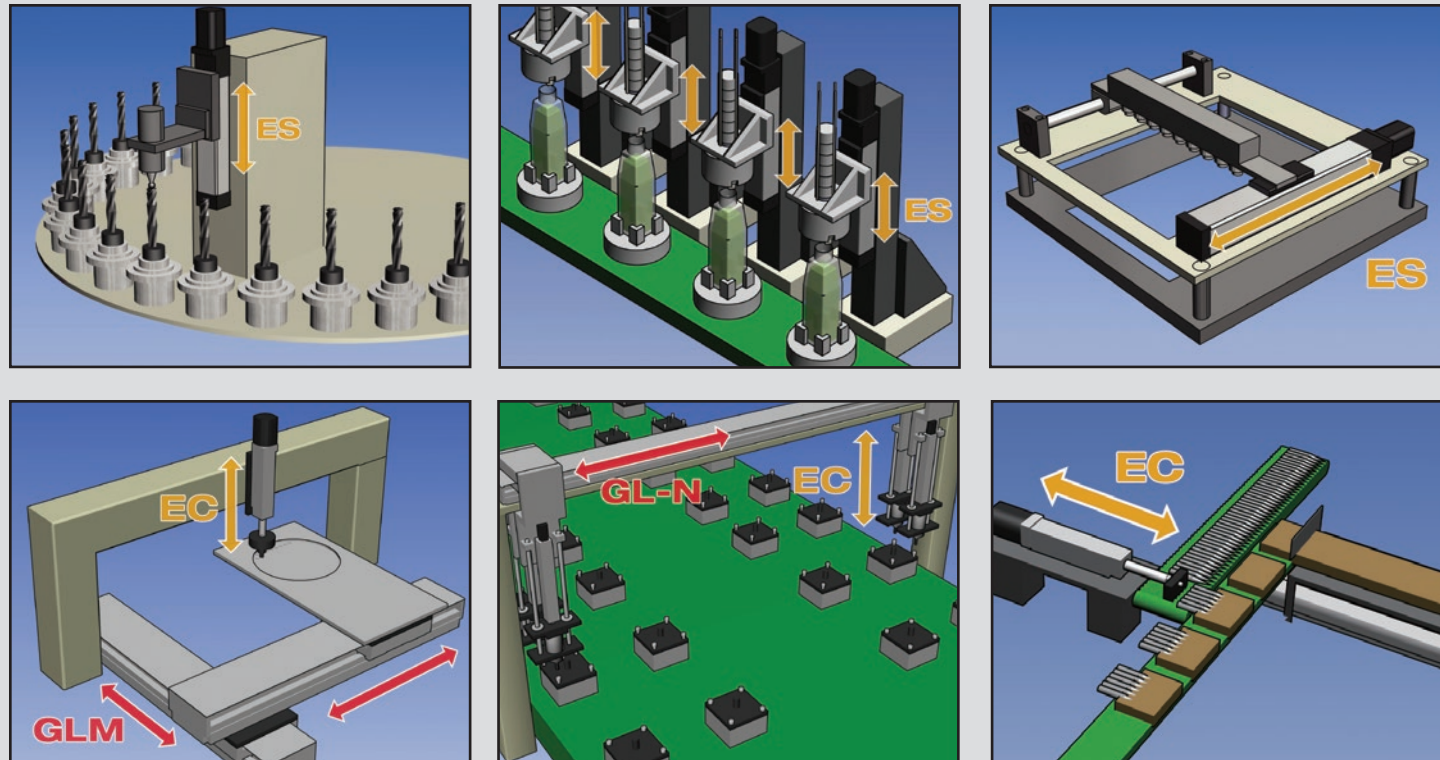


# ES SLIDER TYPE

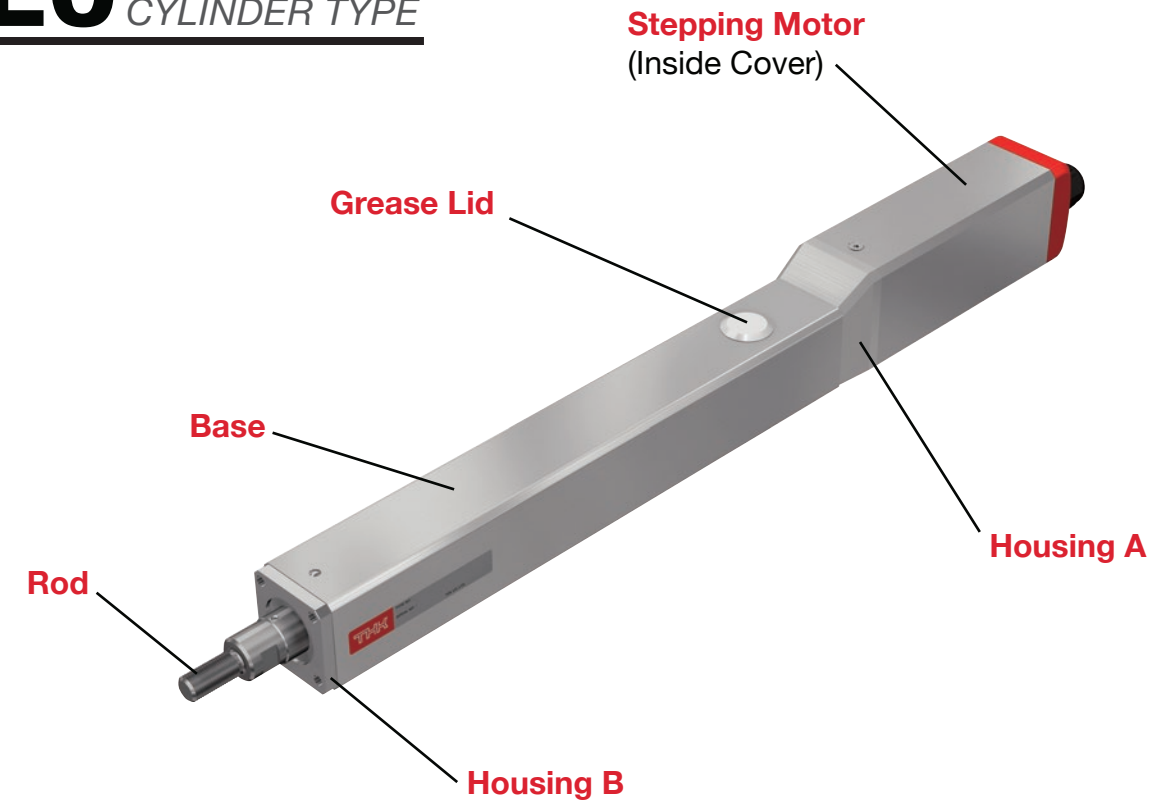


**U.S. STOCK AVAILABLE!**

## Application Examples:

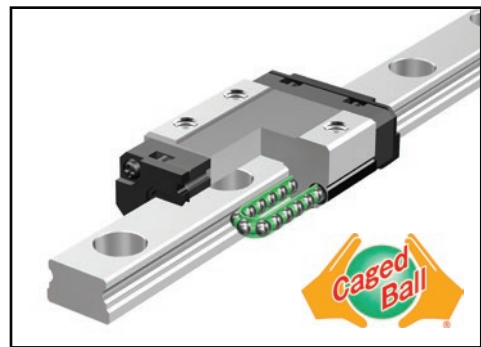


# EC CYLINDER TYPE

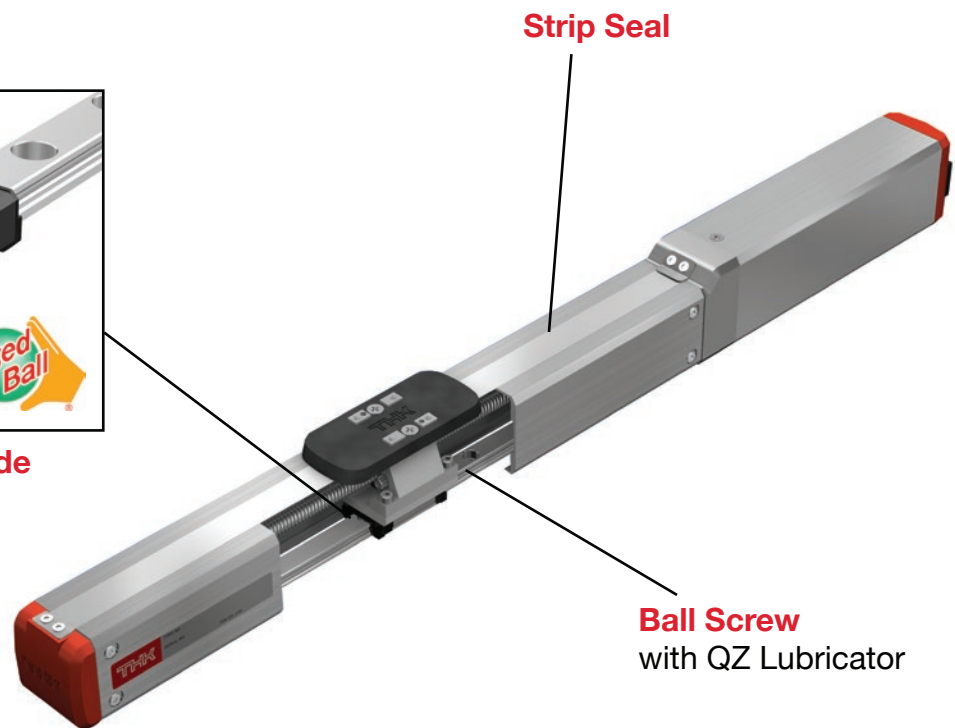


Precautions on using ES/EC actuator: Please refer to 660E Catalog.  
Inventory is subject to availability. Product spec is subject to change without notice.

# ES SLIDER TYPE



Caged-Ball LM Guide



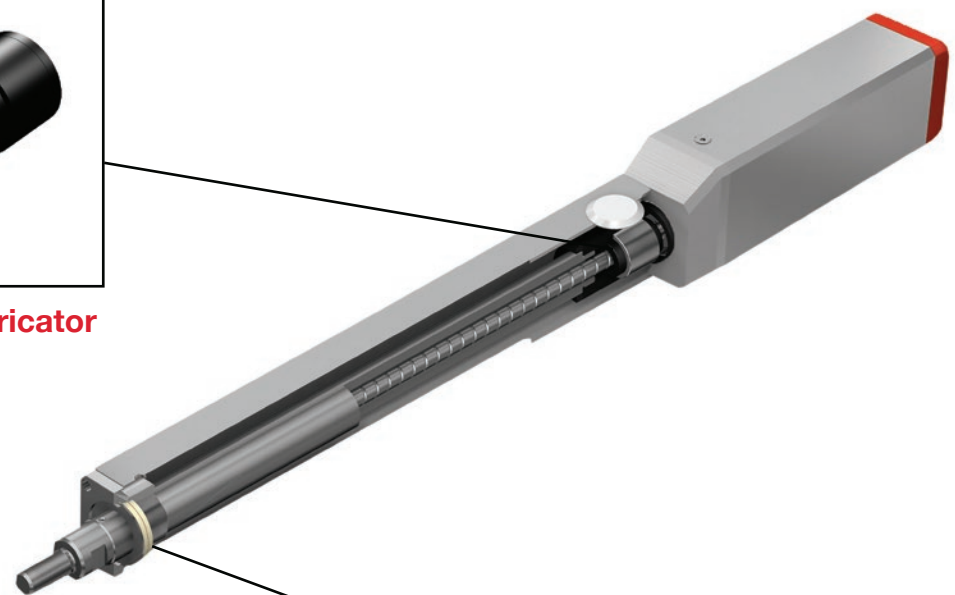
Strip Seal

Ball Screw with QZ Lubricator

# EC CYLINDER TYPE



Ball Screw with QZ Lubricator



LaCS Seal  
(Laminated Contact Scraper)

# TSC STEPPER DRIVER CONTROLLER

For Single Axis / Position Type

TSC needs either **TDO** or **D-STEP** for setting



(Available in English and Japanese)

**TDO**  
Digital Operator

(Available in Japanese or English)



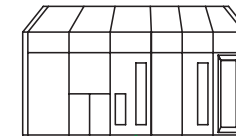
**D-STEP**  
PC Setup Tool

The PC Setup tool can be freely downloaded after logging into the technical support website.

(Available in Japanese, English and Simplified Chinese)

<http://www.thk.com/us/dstep>

Higher PLC, etc.



An I/O connector is provided with TSC



**STEPPER DRIVER CONTROLLER**  
**TSC**

Cables provided with actuator main unit

**Actuator**

**External 24V DC Power Supply**

Note 1)\* Power supply to be provided by customer. A power supply connector is provided with TSC.

Note 2) To use a 10m actuator cable, please insert noise filter.

- Wiring provided by customer
- - - Separate order required
- Wiring provided with product

# DETERMINE ES-EC QUICK-SHIP PART NUMBER

: Choose Quick-Ship Option  
 : Standard/Only Quick Ship Option

Step 1		Step 2		Step 3		Step 4				SAMPLE PART NUMBER					
MODEL NUMBER		BALL SCREW LEAD		STROKE	DESIGN SYMBOL		CONTROL DEVICE		MOTOR SPEC			HOME POSITION		CABLE LENGTH	
ES4	-	12	-	0300	B	-	TS	/	28P	-	D00	-	S3	<b>ES4-12-0300B-TS/28P-D00-S3</b>	
		*6mm = 06		50 - 600 mm *100 mm = 0100		B = Standard		TS = Stepper Driver Controller TSC		28P = ES3 35P = ES4/EC3 42P = ES5/ES6/EC4		D00 = Standard, Motor Slide		S3 = Standard, 3m	

## Step 1-3: Determine Model Number, Ball Screw Lead, Stroke and Motor Spec

MODEL	BALL SCREW LEAD (mm)	STROKE (mm)	MOTOR TYPE	MAXIMUM LOAD CAPACITY <sup>*1 *2</sup> (kg)		MAXIMUM SPEED FOR EACH STROKE <sup>*1 *2</sup> (mm/s)											
				HORIZONTAL MOUNT	VERTICAL MOUNT	STROKE (mm)											
						50	100	150	200	250	300	350	400	450	500	550	600
ES3	06	50 - 300	Stepper Motor □28	1	0.5	300											
ES4	06	50 - 400	Stepper Motor □35	9	4	250											
	12			7.5	1.5	500											
ES5	06	50 - 500	Stepper Motor □42	10	5	300											
	12			6	2	500											
ES6	06	50 - 600	Stepper Motor □42	10	5	300								270	230		
	12			6	2	500									460		
EC3	06	50 - 200	Stepper Motor □35	15	6	187											
EC4	06	50 - 300	Stepper Motor □42	40	12	Horizontal: 250, Vertical: 240		230	170								
	12			25	4.5	450			340								

\*1 This specification shows the value when combining with stepper driver controller TSC.  
\*2 Load capacity and maximum speed vary depending on use conditions. For details, see "Speed and Load Capacity".

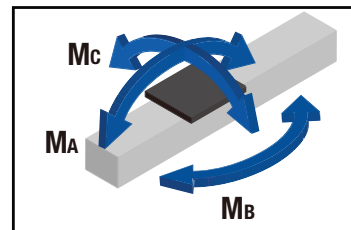
## Basic Specifications:

CONTROL DEVICE TYPE		TSC		
MOTOR		□28		
BALL SCREW LEAD (mm)		6		
MAX. LOAD WEIGHT	ACCELERATION/ DECELERATION RATE	HORIZONTAL MOUNT	0.3G	1
		VERTICAL MOUNT	0.2G	0.5
RUNNING LIFE *1 (km)		5000		
POSITIONING REPEATABILITY (mm)		±0.020		
LOST MOTION (mm)		0.1		
STATIC PERMISSIBLE MOMENT *2 (N-m)		MA: 6.0, MB: 7.5, MC: 5.9		

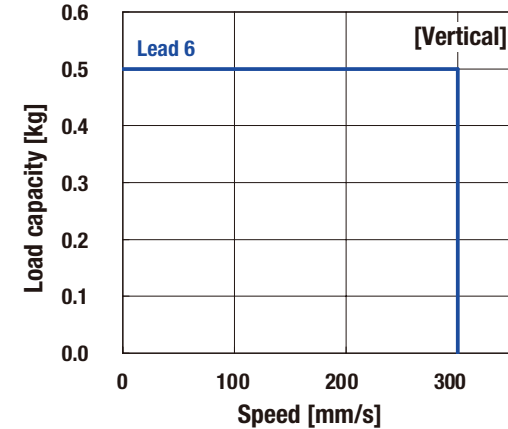
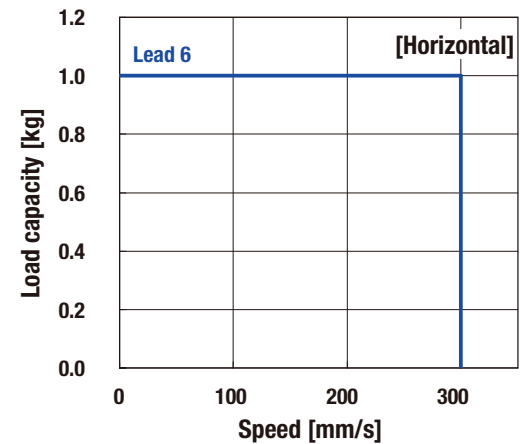
\*1 Service life is based on below conditions.  
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm.

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

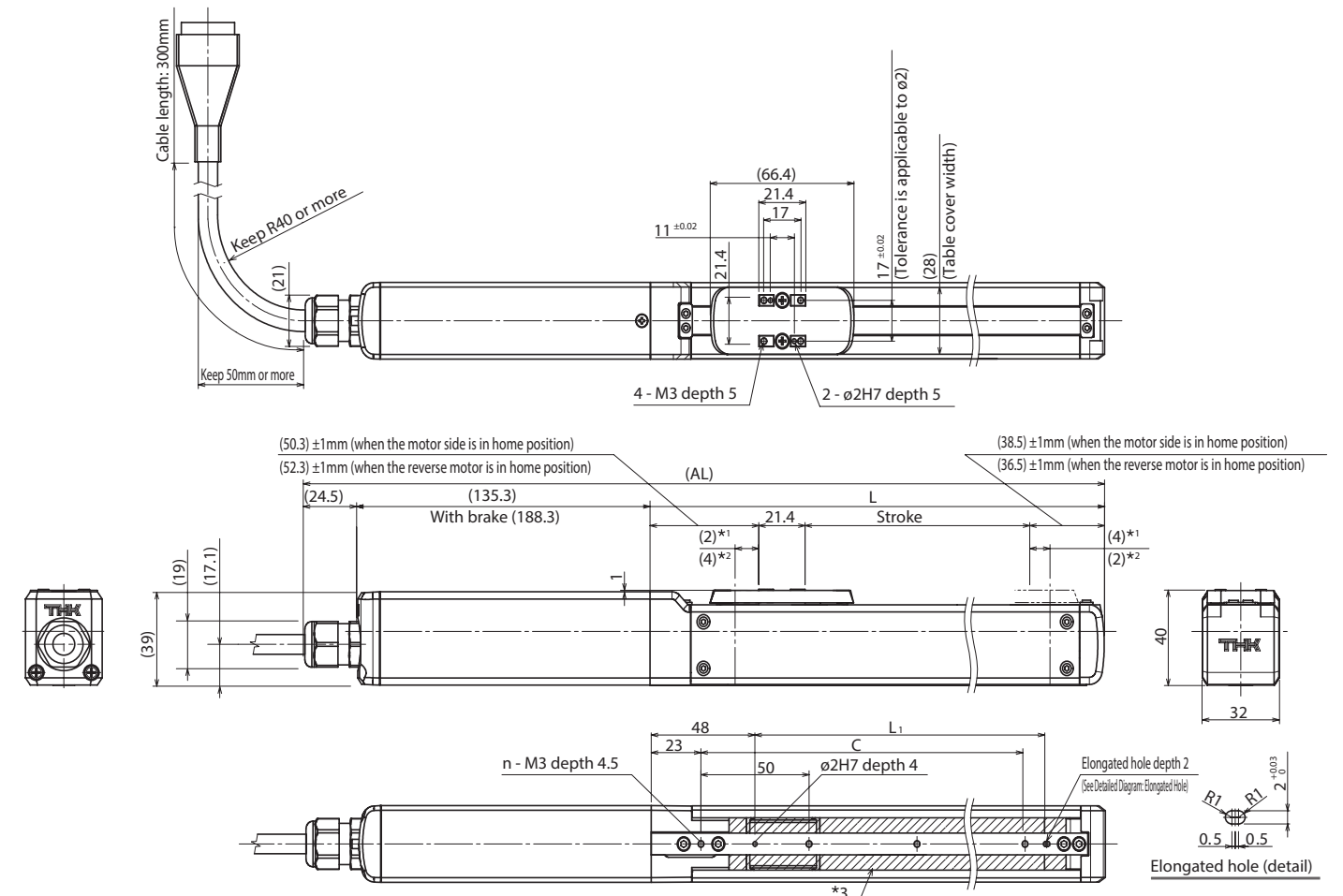
### Static Permissible Moment



## Speed & Load Capacity Comparison:



## Dimensions:



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

## Permissible Overhang Length\*:

Horizontal Use					Wall use					Vertical use			
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C	BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C	BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	C
6	0.5	200	200	200	6	0.5	200	200	200	6	0.3	200	200
	1	200	160	200			1	170	150			200	0.5

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

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)
MAX SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	300					
DIMENSIONS (mm)	AL *3	320 (373)	370 (423)	420 (473)	470 (523)	520 (573)	570
	L	160.2	210.2	260.2	310.2	360.2	410.2
	L <sub>1</sub>	85	135	185	235	285	335
	C	100	150	200	250	300	350
MOUNTING HOLE	n	3	4	5	6	7	8
WEIGHT *3 (kg)		1 (1.3)	1 (1.4)	1.1 (1.4)	1.1 (1.5)	1.3 (1.5)	1.3 (1.6)

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

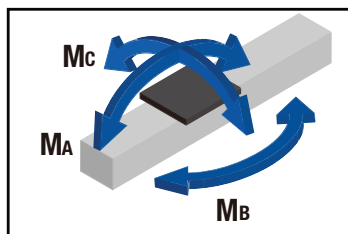
## Basic Specifications:

CONTROL DEVICE TYPE				TSC	
MOTOR				□35	
BALL SCREW LEAD (mm)				6	12
MAX. LOAD WEIGHT	ACCELERATION/ DECELERATION RATE	HORIZONTAL MOUNT	0.3G	9	7.5
		VERTICAL MOUNT	0.2G	4	1.5
RUNNING LIFE *1 (km)				5000	
POSITIONING REPEATABILITY (mm)				±0.020	
LOST MOTION (mm)				0.1	
STATIC PERMISSIBLE MOMENT *2 (N-m)				MA: 9.3, MB: 13.5, MC: 17.7	

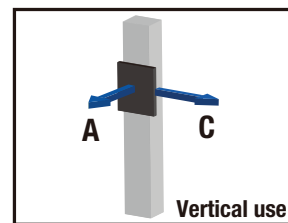
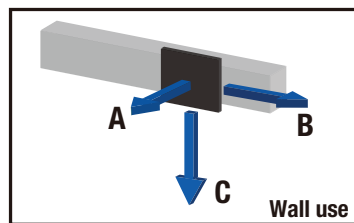
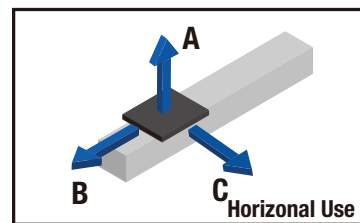
\*1 Service life is based on below conditions.  
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm.

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

### Static Permissible Moment



## Permissible Overhang Length\*:



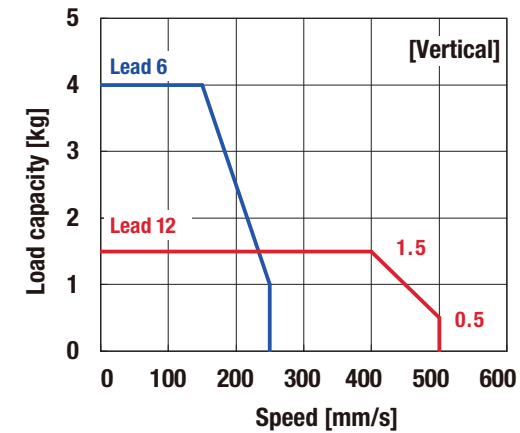
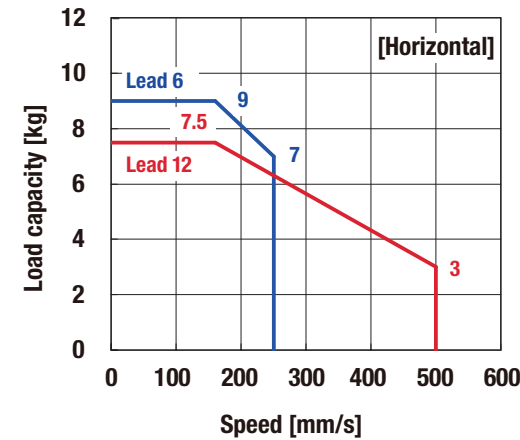
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	4.5	300	50	100
	9	160	20	40
12	3.8	260	60	100
	7.5	110	20	40

BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	4.5	60	30	300
	9	10	5	70
12	3.8	70	40	220
	7.5	10	10	50

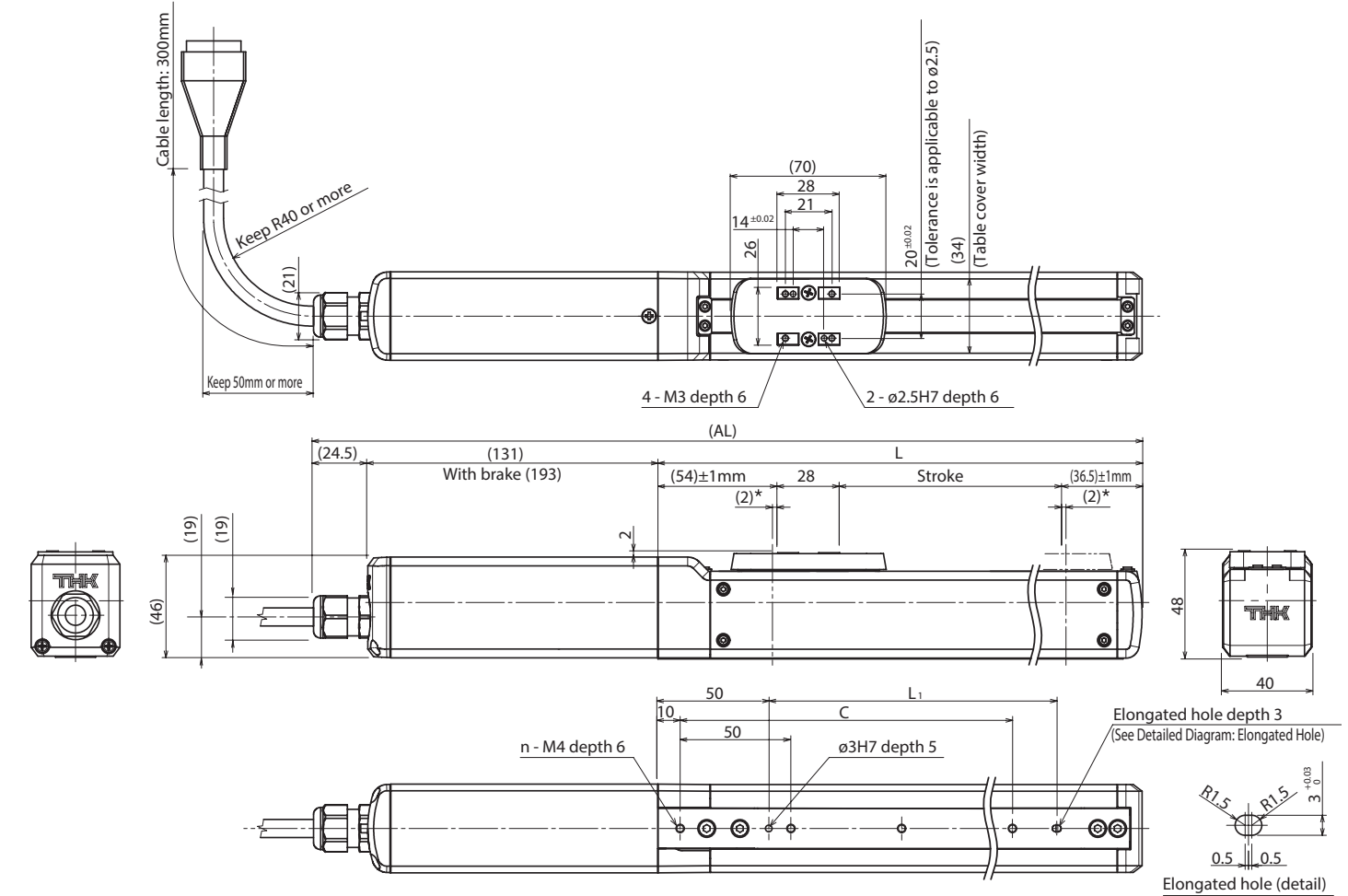
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	C
6	2	100	110
	4	30	40
12	0.8	260	300
	1.5	130	150

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

## Speed & Load Capacity Comparison:



## Dimensions:



\* This is a stroke between mechanical stoppers.

Stroke in **Blue**: Stock Available for 6mm ball screw lead  
 Stroke in **Red**: Stock Available for 12mm ball screw lead

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (54)	100 (104)	150 (154)	200 (204)	250 (254)	300 (304)	350 (354)	400 (404)
MAX SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	250							
	BALL SCREW LEAD: 12mm	500							
DIMENSIONS (mm)	AL*3	324 (386)	374 (436)	424 (486)	474 (536)	524 (586)	574 (636)	624 (686)	674 (736)
	L	168.5	218.5	268.5	318.5	368.5	418.5	468.5	518.5
	L <sub>1</sub>	80	130	180	230	280	330	380	430
MOUNTING HOLE	C	100	150	200	250	300	350	400	450
	n	3	4	5	6	7	8	9	10
WEIGHT *3 (kg)		1.5 (1.9)	1.6 (2.1)	1.7 (2.2)	1.8 (2.3)	1.9 (2.4)	2 (2.5)	2.1 (2.6)	2.2 (2.7)

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

\*2 Dependent on permissible rotational speed of ball screw.

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

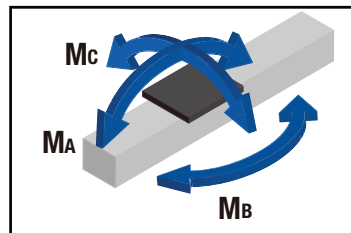
## Basic Specifications:

CONTROL DEVICE TYPE				TSC	
MOTOR				□42	
BALL SCREW LEAD (mm)				6	12
MAX. LOAD WEIGHT	ACCELERATION/ DECELERATION RATE	HORIZONTAL MOUNT	0.3G	10	6
		VERTICAL MOUNT	0.2G	5	2
RUNNING LIFE *1 (km)				5000	
POSITIONING REPEATABILITY (mm)				±0.020	
LOST MOTION (mm)				0.1	
STATIC PERMISSIBLE MOMENT *2 (N-m)				MA: 10.5, MB: 22, Mc: 22.1	

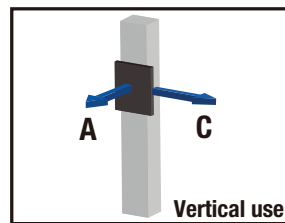
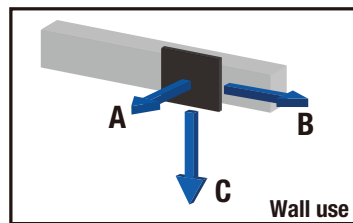
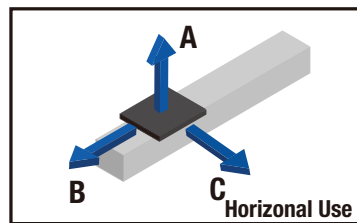
\*1 Service life is based on below conditions.  
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm.

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

### Static Permissible Moment



## Permissible Overhang Length\*:



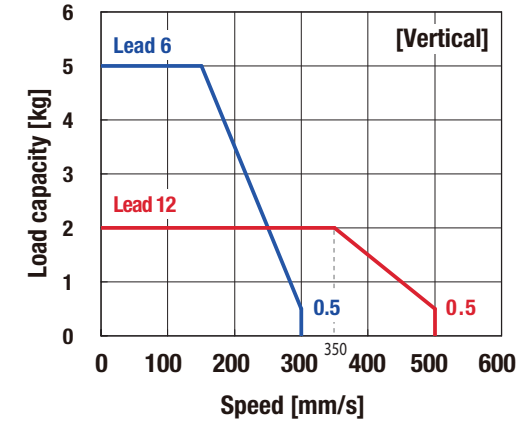
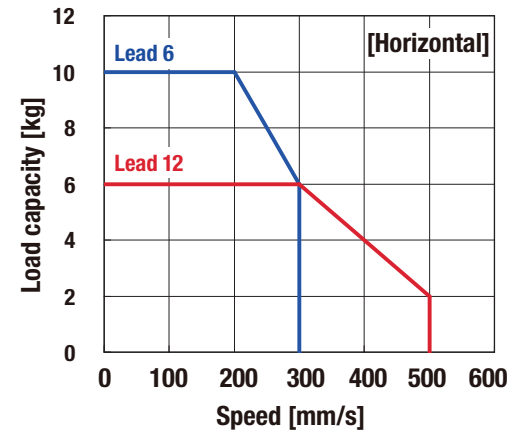
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	5	400	90	200
	10	270	40	90
12	3	400	160	280
	6	320	70	130

BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	5	160	70	400
	10	50	20	220
12	3	260	130	400
	6	100	50	250

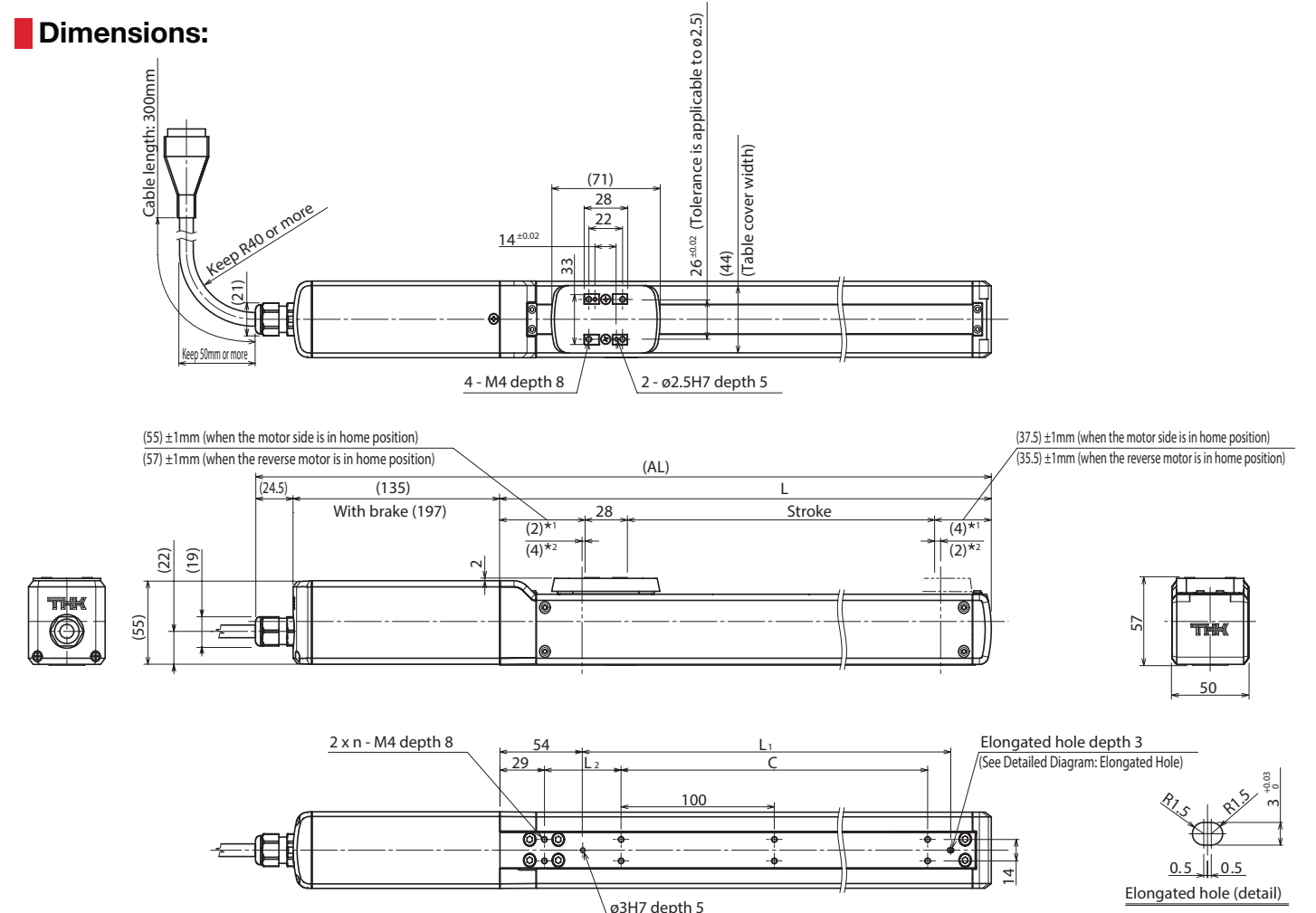
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	C
6	2.5	160	180
	5	70	70
12	1	400	400
	2	200	200

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

## Speed & Load Capacity Comparison:



## Dimensions:



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

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

Stroke in **Blue**: Stock Available for 6mm ball screw lead  
Stroke in **Red**: Stock Available for 12mm ball screw lead

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)
MAX SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	300									
	BALL SCREW LEAD: 12mm	500									
DIMENSIONS (mm)	AL *3	330 (392)	380 (442)	430 (492)	480 (542)	530 (592)	580 (642)	630 (692)	680 (742)	730 (792)	780 (842)
	L	170.5	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5
	L <sub>1</sub>	90	140	190	240	290	340	390	440	490	540
	L <sub>2</sub>	100	50	100	50	100	50	100	50	100	50
MOUNTING HOLE	C	0	100	100	200	200	300	300	400	400	500
	n	2	3	3	4	4	5	5	6	6	7
WEIGHT *3 (kg)		2.1 (2.6)	2.2 (2.7)	2.3 (2.8)	2.5 (3)	2.6 (3.1)	2.8 (3.2)	2.9 (3.4)	3 (3.5)	3.2 (3.7)	3.3 (3.8)

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

\*2 Dependent on permissible rotational speed of ball screw.

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

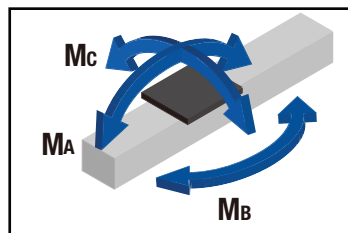
## Basic Specifications:

CONTROL DEVICE TYPE		TSC			
MOTOR		□42			
BALL SCREW LEAD (mm)		6	12		
MAX. LOAD WEIGHT	ACCELERATION/ DECELERATION RATE	HORIZONTAL MOUNT	0.3G	10	6
		VERTICAL MOUNT	0.2G	5	2
RUNNING LIFE *1 (km)		5000			
POSITIONING REPEATABILITY (mm)		±0.020			
LOST MOTION (mm)		0.1			
STATIC PERMISSIBLE MOMENT *2 (N-m)		MA: 10.5, MB: 22, Mc: 22.1			

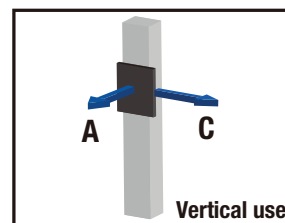
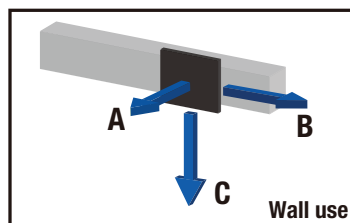
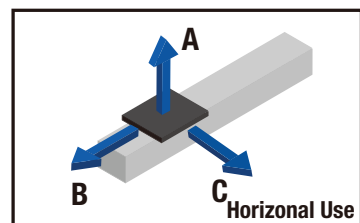
\*1 Service life is based on below conditions.  
Conditions: Horizontal or vertical, under the maximum load capacity, overhang length A=6mm, B and C=0mm, 0.3G for horizontal, 0.2G for vertical, stroke 50mm.

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

### Static Permissible Moment



## Permissible Overhang Length\*:



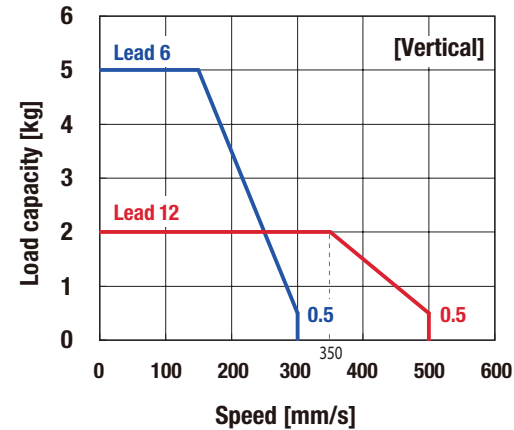
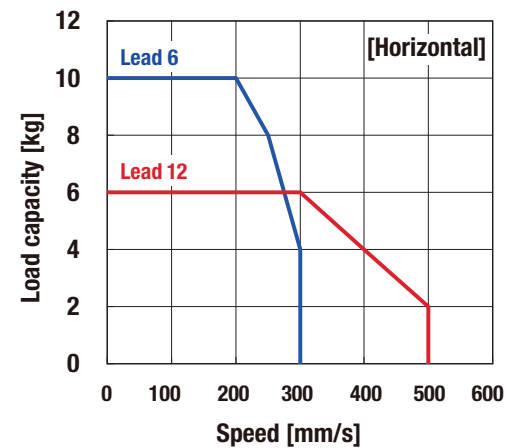
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	5	500	90	200
	10	260	40	90
12	3	500	160	280
	6	320	70	130

BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	B	C
6	5	160	70	500
	10	40	20	210
12	3	250	130	500
	6	90	50	140

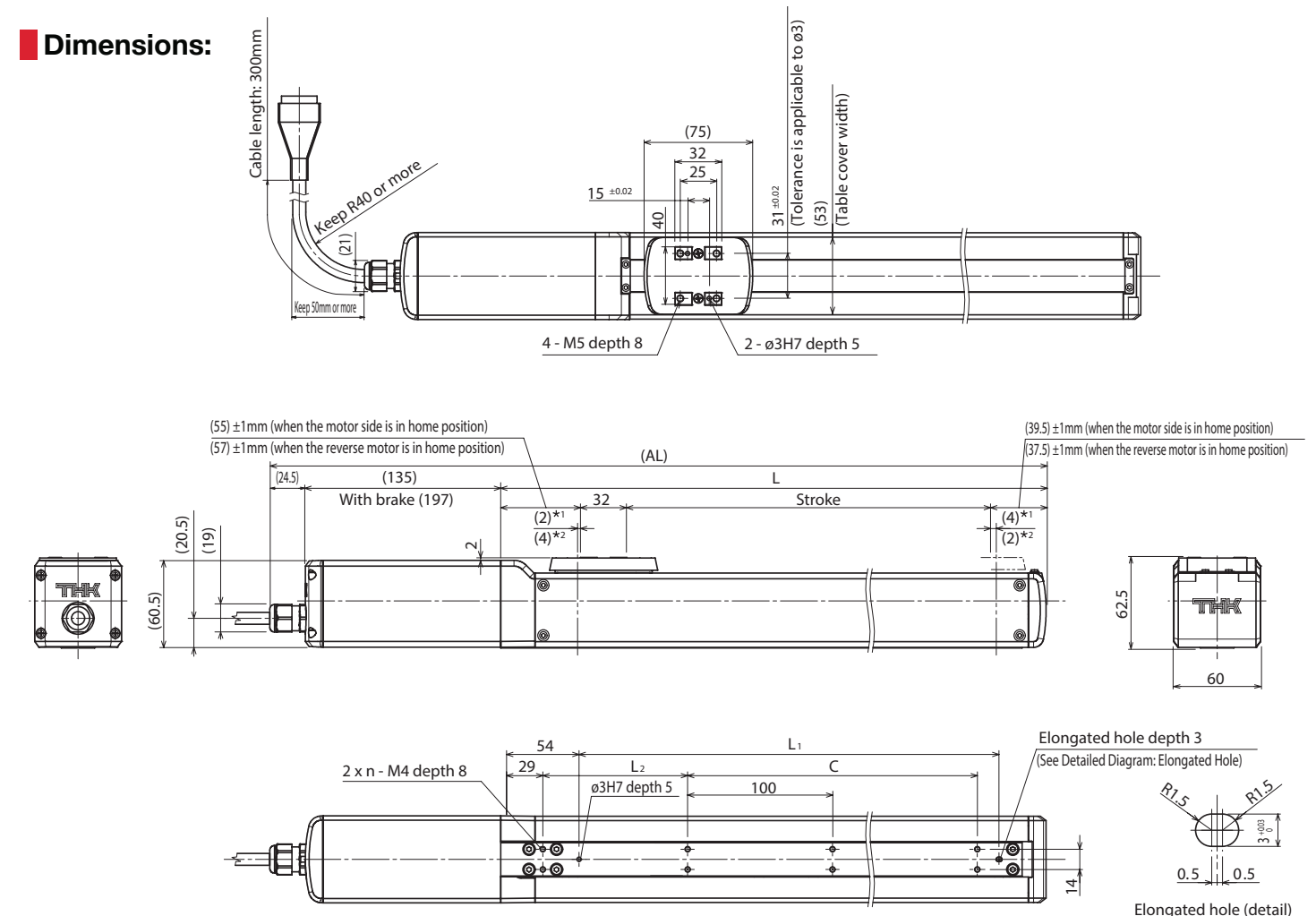
BALL SCREW LEAD (mm)	LOAD MASS (kg)	A	C
6	2.5	160	160
	5	60	60
12	1	420	420
	2	190	190

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

## Speed & Load Capacity Comparison:



## Dimensions:



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

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

Stroke in **Blue**: Stock Available for 6mm ball screw lead

Stroke in **Red**: Stock Available for 12mm ball screw lead

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (56)	100 (106)	150 (156)	200 (206)	250 (256)	300 (306)	350 (356)	400 (406)	450 (456)	500 (506)	550 (556)	600 (606)
MAX SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	300											
	BALL SCREW LEAD: 12mm	500											
DIMENSIONS (mm)	AL *3	336 (398)	386 (448)	436 (498)	486 (548)	536 (598)	586 (648)	636 (698)	686 (748)	736 (798)	786 (848)	836 (898)	886 (948)
	L	176.5	226.5	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5
	L1	90	140	190	240	290	340	390	440	490	540	590	640
	L2	100	50	100	50	100	50	100	50	100	50	100	50
MOUNTING HOLE	C	0	10	100	200	200	300	300	400	400	500	500	600
	n	2	3	3	4	4	5	5	6	6	7	7	8
WEIGHT *3 (kg)		2.4 (2.9)	2.6 (3)	2.7 (3.2)	2.8 (3.3)	3 (3.5)	3.1 (3.6)	3.3 (3.8)	3.4 (3.9)	3.5 (4)	3.7 (4.2)	3.8 (4.3)	4 (4.5)

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

\*2 Dependent on permissible rotational speed of ball screw.

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



**Basic Specifications:**

CONTROL DEVICE				TSC	
MOTOR				□35	
BALL SCREW LEAD (mm)				6	12
MAXIMUM LOAD WEIGHT *1 (kg)	ACCELERATION & DECELERATION RATE	HORIZONTAL MOUNT	0.3G	15	6
		VERTICAL	0.2G	6	1
RUNNING LIFE *2 (km)				5000	
POSITIONING REPEATABILITY (mm)				±0.020	
LOST MOTION (mm)				0.1	
ROD NON-ROTATIONAL ACCURACY (°)				±1.5	

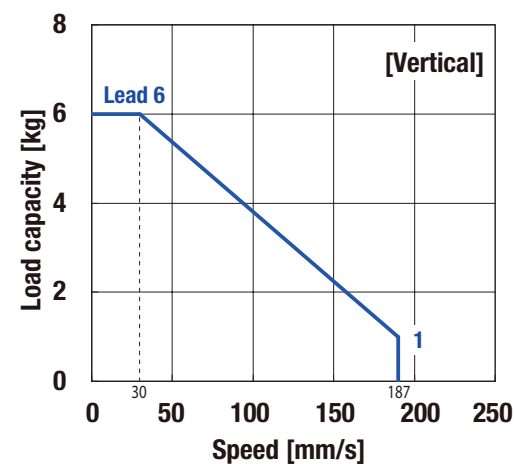
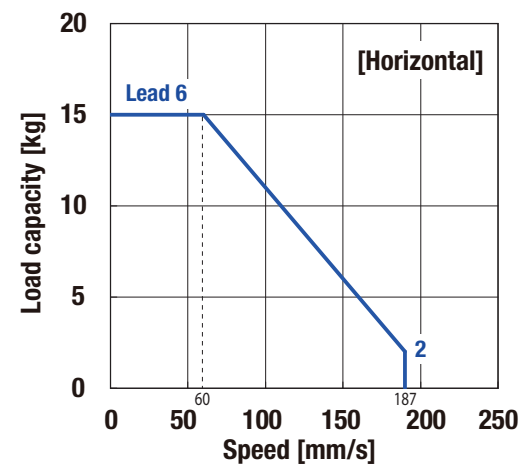
\*1 Only axial loads permissible.

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

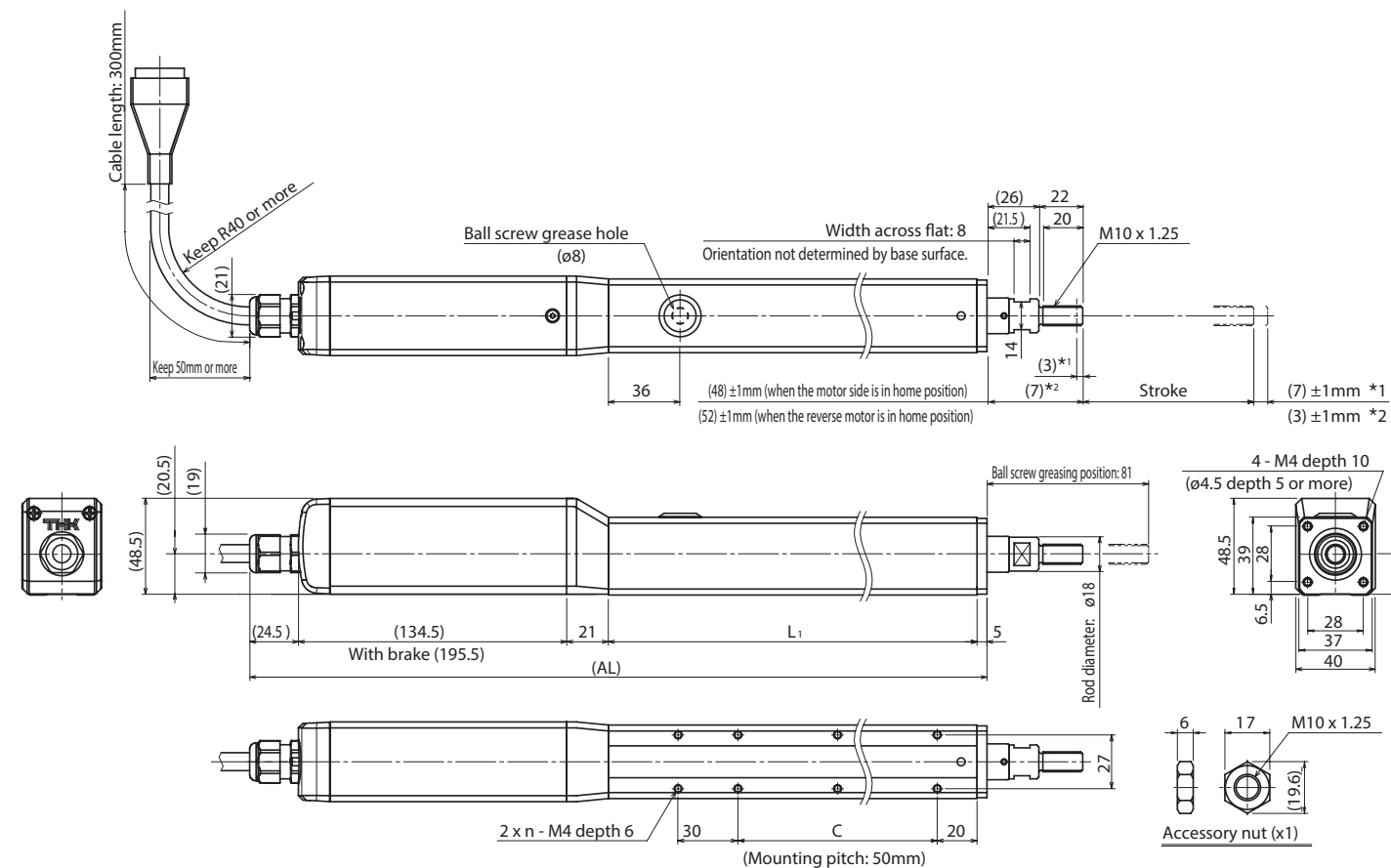
\*2 The following conditions apply to running life.

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

**Speed & Load Capacity Comparison:**



**Dimensions:**



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

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

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (60)	100 (110)	150 (160)	200 (210)
MAXIMUM SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	187			
DIMENSIONS (mm)	AL*3	320 (381)	370 (431)	420 (481)	470 (531)
	L <sub>1</sub>	135	185	235	285
	C	50	100	150	200
MOUNTING HOLE COUNT	n	3	4	5	6
WEIGHT *3 (kg)		1.4 (1.8)	1.6 (2)	1.8 (2.2)	2 (2.4)

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

\*2 Dependent on permissible rotational speed of ball screw.

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

**Basic Specifications:**

CONTROL DEVICE				TSC	
MOTOR				□42	
BALL SCREW LEAD (mm)				6	12
MAXIMUM LOAD WEIGHT *1 (kg)	ACCELERATION & DECELERATION RATE	HORIZONTAL MOUNT	0.3G	40	25
		VERTICAL	0.2G	12	4.5
RUNNING LIFE *2 (km)				5000	
POSITIONING REPEATABILITY (mm)				±0.020	
LOST MOTION (mm)				0.1	
ROD NON-ROTATIONAL ACCURACY (°)				±1.5	

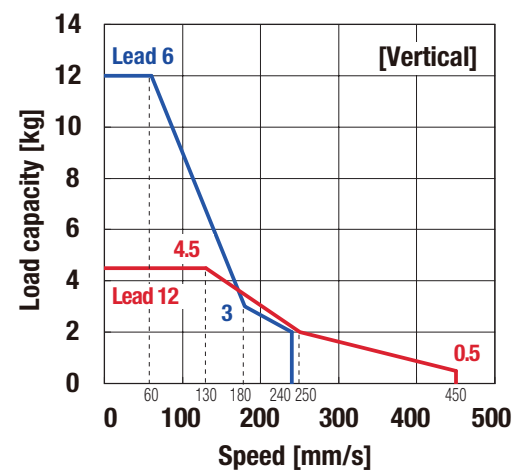
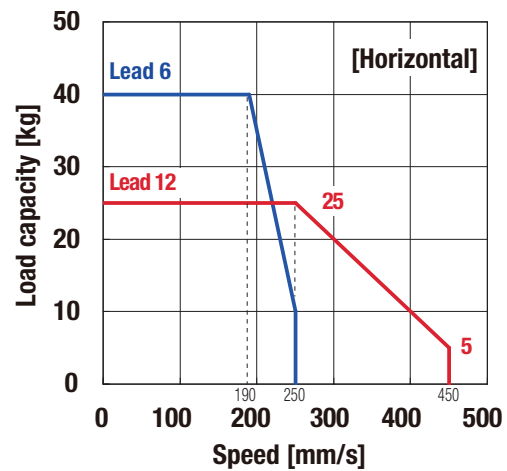
\*1 Only axial loads permissible.

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

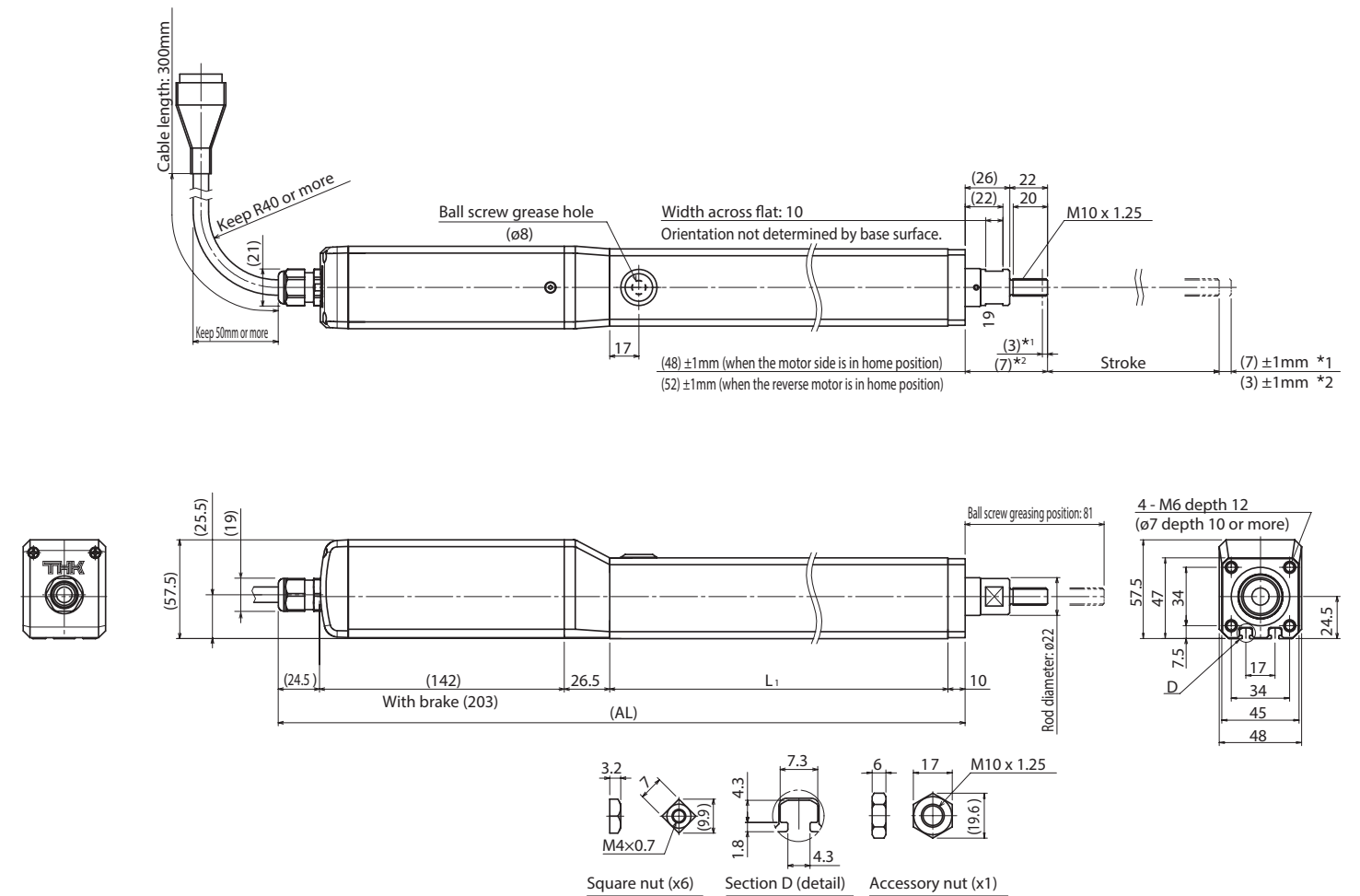
\*2 The following conditions apply to running life.

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

**Speed & Load Capacity Comparison:**



**Dimensions:**



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

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

Stroke in **Blue**: Stock Available for 6mm ball screw lead  
Stroke in **Red**: Stock Available for 12mm ball screw lead

STROKE (mm) (STROKE BTWN MECHANICAL STOPPERS)		50 (60)	100 (110)	150 (160)	200 (210)	250 (260)	300 (310)
MAXIMUM SPEED *1 *2 (mm/s)	BALL SCREW LEAD: 6mm	Horizontal: 250, Vertical: 240				230	170
	BALL SCREW LEAD: 12mm	450					340
DIMENSIONS (mm)	AL*3	350 (411)	400 (461)	450 (511)	500 (561)	550 (611)	600 (661)
	L <sub>1</sub> *4	147	197	247	297	347	397
WEIGHT *3 (kg)		2.3 (2.9)	2.6 (3.2)	3 (3.5)	3.3 (3.8)	3.6 (4.2)	4 (4.5)

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

\*2 Dependent on permissible rotational speed of ball screw.

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

\*4 The dimension of the T slot corresponds to L<sub>1</sub>.

## DETERMINE TSC PART NUMBER

: Choose Quick-Ship Option  
 : Standard/Only Quick Ship Option

MODEL	CURRENT	DESIGN SYMBOL	TYPE	COMBINE ACTUATOR	COMBINED ACTUATOR BALL SCREW LEAD	HOME POSITION	SAMPLE PART NUMBER
TSC	015	B	MOD	ES6	06	D00	TSC-015B-MOD-ES6-06-D00

TSC = Standard  
 015 = 1.5A  
 B = Standard  
 MOD = Mode Switching Type  
 D00 = Motor Side

### Basic Specifications:

BASIC SPECIFICATIONS	INPUT POWER SUPPLY		24V DC ±10% (Up to 2.5A)					
	CONTROL	CONTROL AXIS		Single shaft				
MOTOR TYPE		Stepper Motor (□28mm, □35mm, □42mm)						
CONTROL METHOD		Feedback control (Semi-closed loop)						
POSITION DETECTION METHOD		Incremental						
PROGRAM	ACCELERATION/DECELERATION METHOD		Trapezoid acceleration					
	FUNCTION MODE		64-position	External Unit Input	256-position	512-position	Solenoid mode 1	Solenoid mode 2
	STEP DATA COUNT		64 points	64 points	256 points	512 points	7 points	3 points
INPUT/OUTPUT	DATA INPUT/OUTPUT METHOD		PC setup tool D-STEP or Digital operator TDO					
	DEDICATED INPUT/OUTPUT	INPUT POINT	16 points (Start, Return to home position, Pause, Reset, Servo ON, Specify step number, etc.)*					
		OUTPUT POINT	16 points (Return to home position completed, In position, Servo ready, Alarm, Battery Alarm, etc.)*					
INPUT/OUTPUT POWER SUPPLY		24V DC ±10% (This should be prepared by yourself.)						
COMMUNICATION	SERIAL COMMUNICATION	CONNECTED DEVICE	PC setup tool D-STEP or Digital operator TDO					
		COMMUNICATION METHOD	RS-485					
		PORT COUNT	Mini DIN x 1					
USAGE CONDITIONS	USAGE CONDITIONS		0 to 40°C (No freezing)/-20 to 85°C (No freezing)					
	OPERATING HUMIDITY/STORAGE HUMIDITY		90% RH or below (No condensation)					
	AMBIENT CONDITION		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)					
GENERAL SPECIFICATIONS	PROTECTIVE FUNCTION		Overload, overvoltage, excessive position deviation, software limit over error, etc.					
	ACCESSORIES		Power supply connector x 1; I/O connector x 1					
	OPTIONS (SOLD SEPARATELY)		Digital operator TDO (Cable length 5m); I/O cable 3m, 5m, 7m and 10m; PC Communication cable (Mini DIN - USB)					
	OUTER DIMENSIONS		32 mm (W) x 192.2mm (H) x 77.6mm (D)					
	WEIGHT		300g or less					

\* Varies depending on function mode.

### System Configuration:

TSC needs either **TDO** or **D-STEP** for setting



**TDO**  
Digital Operator  
(Available in Japanese or English)



**D-STEP**  
PC Setup Tool

The PC Setup tool can be freely downloaded after logging into the technical support website.  
 (Available in Japanese, English and Simplified Chinese)  
<http://www.thk.com/us/dstep>

### Higher PLC, etc.



An I/O connector is provided with TSC



**TSC**

— Wiring provided by customer  
 - - - Separate order required  
 — Wiring provided with product

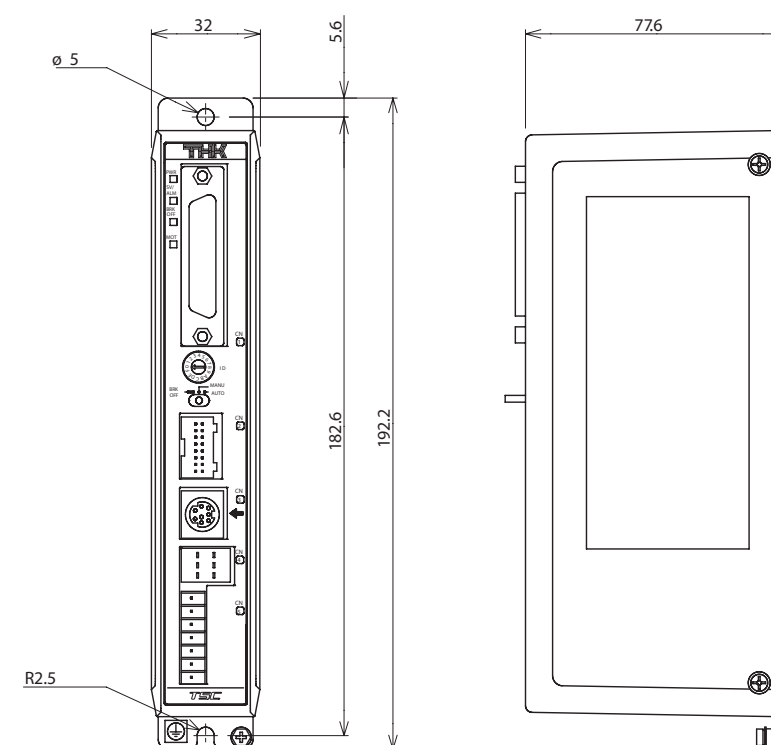
Cables provided with actuator main unit

**Actuator**

### External 24V DC Power Supply

Note 1)\* Power supply to be provided by customer. A power supply connector is provided with TSC.  
 Note 2) To use a 10m actuator cable, please insert noise filter.

### Dimensional Drawing of Controller:



\* For details of the dimensional drawing, please contact THK.

# D-STEP PC SETUP TOOL



## Features:

Supports multi-functional TSC/TLC/THC with user-friendly interface.

## Simple Operation:

Operations and settings of TSC, TLC and THC are possible using a PC.

Equipped with functions useful for maintenance, such as backing up data or logging operating states.

## Functions:

Checking, editing, backing up or offline-editing of step data.

Checking, editing, backing up or offline-editing of parameters.

Operations of actuator (Return to home position, Jog operation, Inching operation, Program execution, Servo ON/OFF).

Monitor (I/O, Current position, Position command, Current command) - Logging (Speed and current waveform display).

Alarm (History display, Clear history, Alarm reset) - Display language (Japanese/English/Simplified Chinese).

Supported OS: Windows XP/Windows Vista/Windows 7.

D-STEP can be freely downloaded from the THK technical support website (<http://www.thk.com/us/dstep>).

TLC/THC/TNU is supported with Version 1.10 or later.

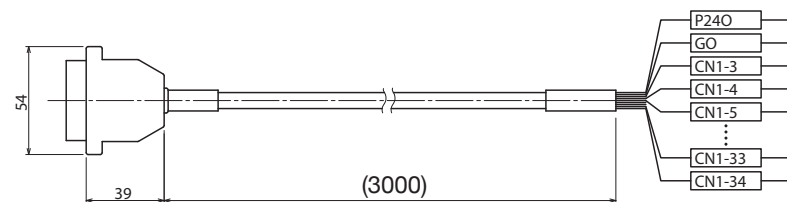
## Cable:

I/O cable: CBL-CON-IO-03 (optional)

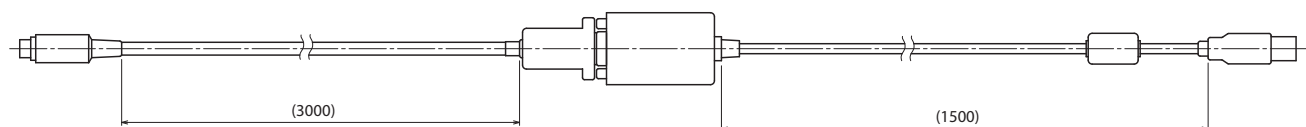
Cables are shipped with the discrete wire side terminals unprocessed.

Cables are used for TSC/TLC/THC.

For longer cables, contact THK.



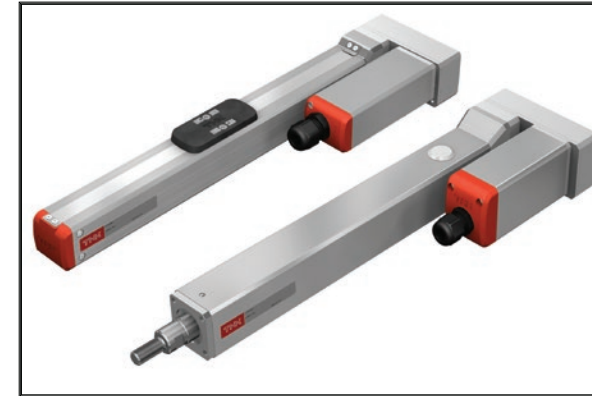
PC Communications cable: CBL-COM-03 (optional)



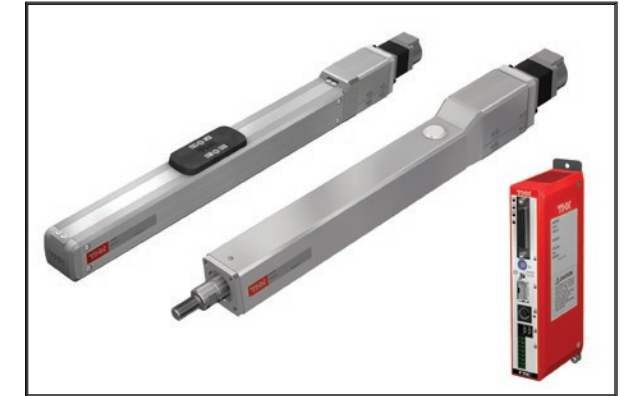
**U.S. STOCK AVAILABLE!**

## More Options:

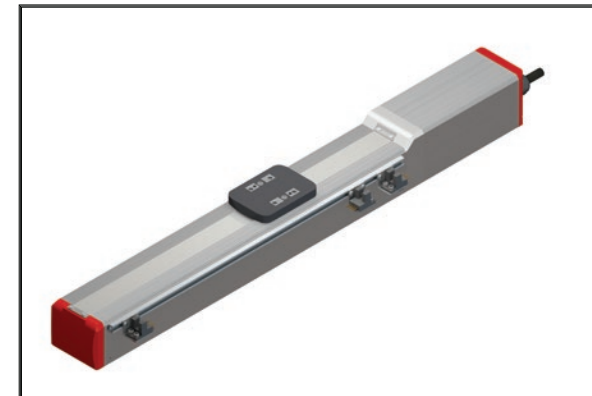
Contact THK or refer to Actuator Catalog No. 660E for details



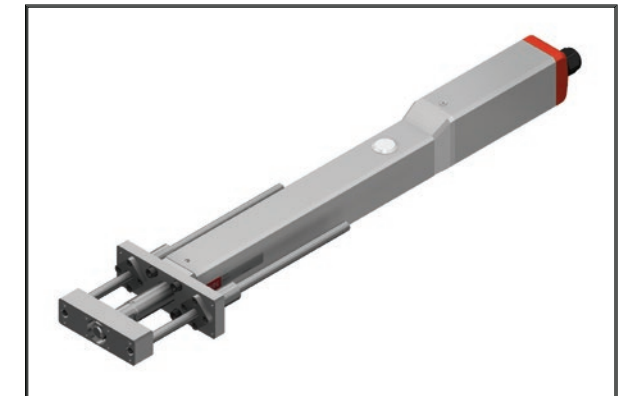
**Motor Wrap**



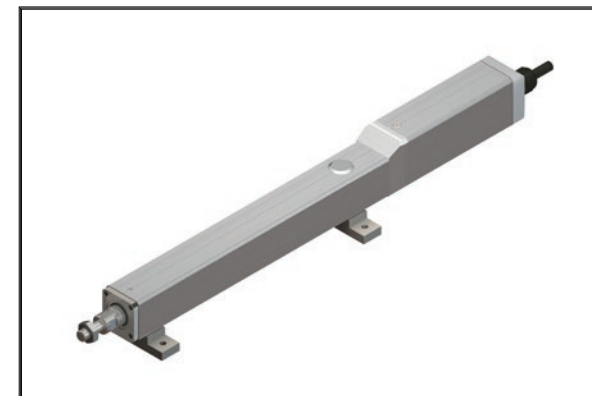
**Servo Motor**



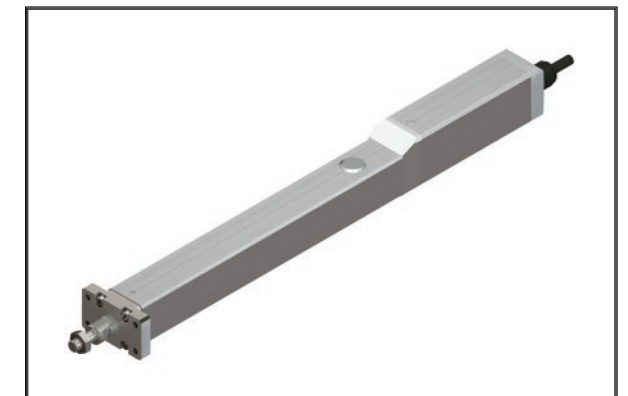
**Sensors: ES Option**



**Linear Bushings: EC Option**

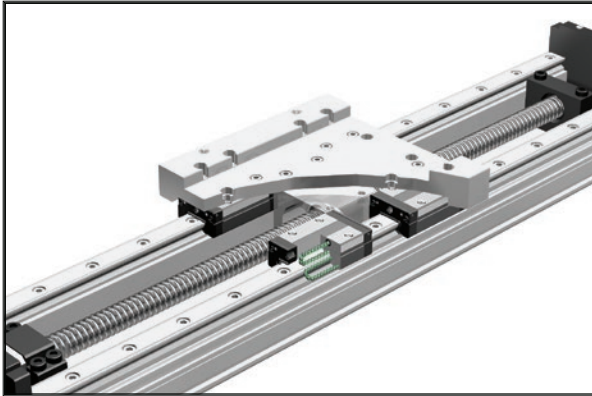


**Cylinder Base: EC Option**

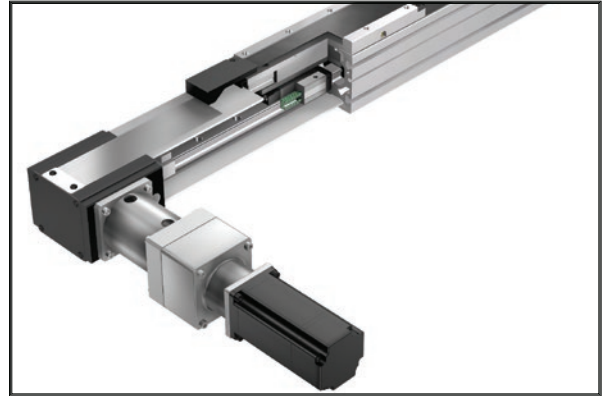


**Flange: EC Option**

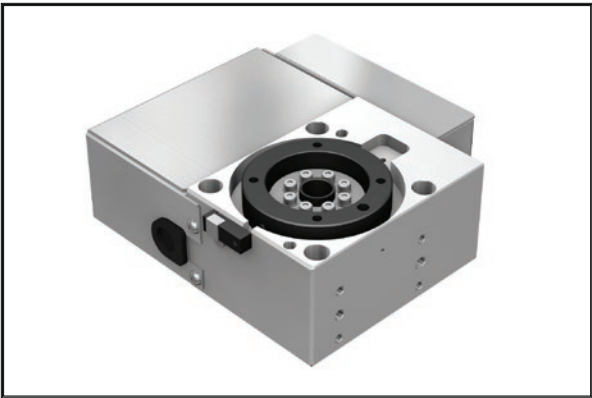
## Other THK Actuators:



**GL-N:** Ball Screw & Belt Drive Selectable



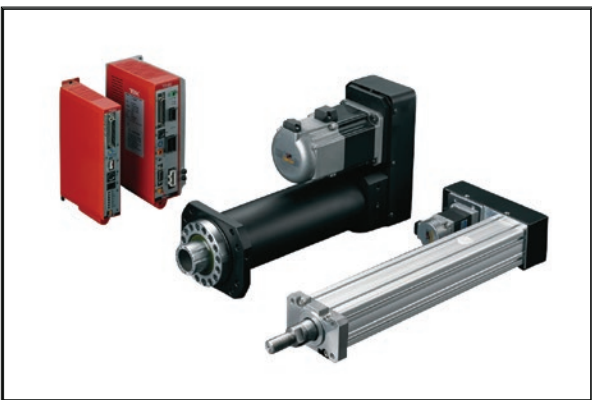
**TY:** Optimal for Long Stroke



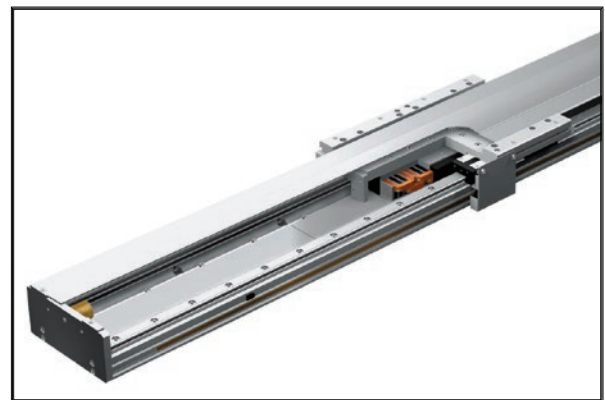
**ET:** Compact Rotary Table



**US/USW:** Universal Series



**PC/PCT:** Press Series



**GLM:** Linear Motor Series



**THK America, Inc.**  
200 E. Commerce Dr.  
Schaumburg, IL 60173

Company Information  
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