

# LM Guide Actuator

Integrated LM Guide and Ball Screw  
High-rigidity/High-precision Actuator

# KR



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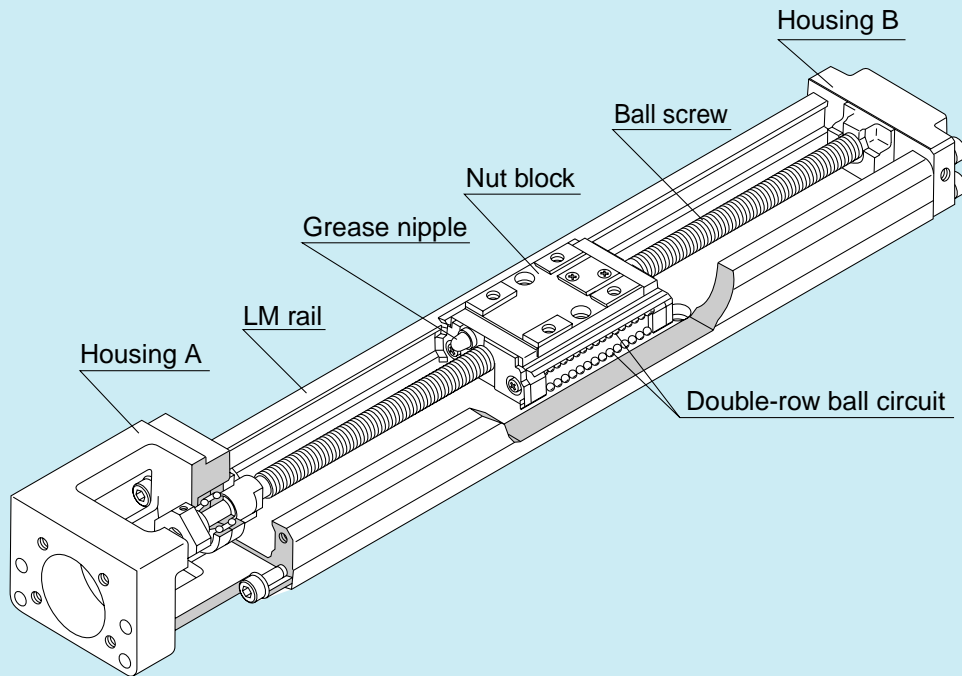
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- For Model KR33
- For Model KR45H
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## ● X-Y Bracket (see p.65)

The interpretation of model numbers is described in outline dimension drawings described in the following pages.

# LM Guide Actuator KR

LM guide + ball screw = integrated structure actuator



(Figure 1) Construction of LM Guide Actuator Model KR

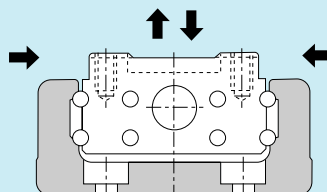
## Construction and Features

The LM guide actuator model KR provided with high-rigidity, high-precision functionality and space saving. It is achieved by a nut block designed in a structure that integrates an LM rail having a highly rigid U-shaped cross-sectional form with the LM guide section on both side faces of the nut block and the ball screw section at the center of the nut block.

Each row of balls is arranged at a contact angle of  $45^\circ$  so that loads acting on the nut block in the four directions (radial, inverse radial, and two lateral directions) exhibit the same rated load. As a result, the LM guide actuator model KR can be used in any position.

### ● Four-way Equal Load Rating

Two rows of balls under a load are arranged in a double-row angular contact structure on the left and right, respectively, and apply an equal rated load in the up, down, left, right directions. This means that the LM guide actuator can be operated in any position, which makes it ideal for loading in directions that are not fixed such as application in Cartesian coordinate robot arms.

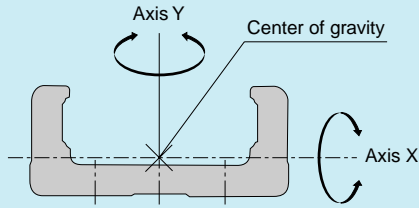


(Figure 2) Load-carrying Capacity of Model KR

## ● High Rigidity

The LM guide differs from conventional LM guides by incorporating an outer rail structure, which improves rigidity against excessive overhung loads even more.

The LM rail cross-section has been made lighter in a wide U-shape structure to minimize deflection, allowing it to be used in cantilever or center impeller structures.



(Figure 3)

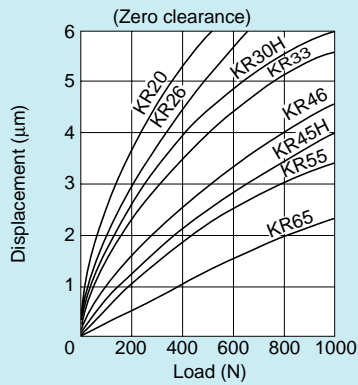
(Table 1) LM Rail Cross-sectional Characteristics

Unit: mm<sup>4</sup>

Model	$I_x$	$I_y$	Mass (kg/100 mm)
KR15	$9.08 \times 10^2$	$1.42 \times 10^4$	0.104
KR20	$6.1 \times 10^3$	$6.2 \times 10^4$	0.26
KR26	$1.7 \times 10^4$	$1.5 \times 10^5$	0.39
KR30H	$2.7 \times 10^4$	$2.8 \times 10^5$	0.5
KR33	$6.2 \times 10^4$	$3.8 \times 10^5$	0.66
KR45H	$8.4 \times 10^4$	$8.9 \times 10^5$	0.9
KR46	$2.4 \times 10^5$	$1.5 \times 10^6$	1.26
KR55	$2.2 \times 10^5$	$2.3 \times 10^6$	1.5
KR65	$4.6 \times 10^5$	$5.9 \times 10^6$	2.31

$I_x$  = geometrical moment of inertia around axis X

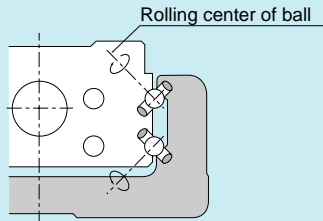
$I_y$  = geometrical moment of inertia around axis Y



(Figure 4) Displacement of Model KR-A by Radial Load

## ● High Precision

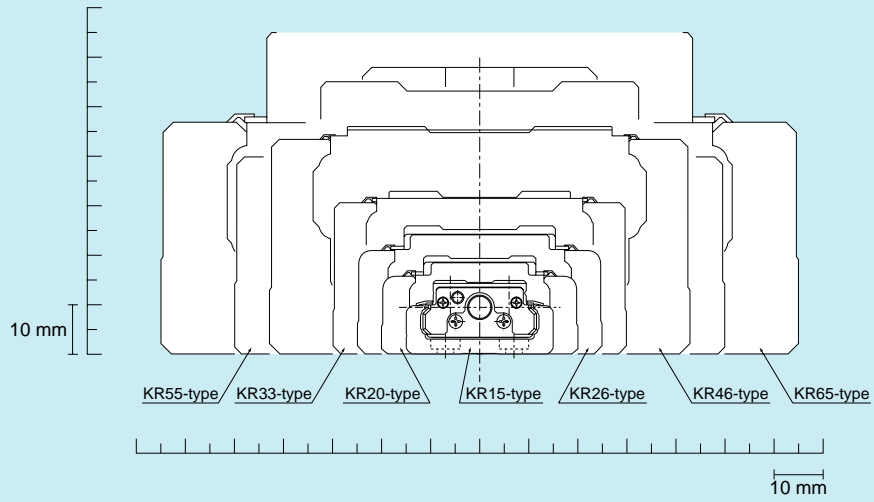
As the raceway has four rows of circular arc grooves that provide smooth motion by mere pre-load, highly rigid guidance can be obtained. In addition, changes in frictional resistance resulting from load fluctuations are minimized, allowing the KR to attain high-precision feed at the submicron level.



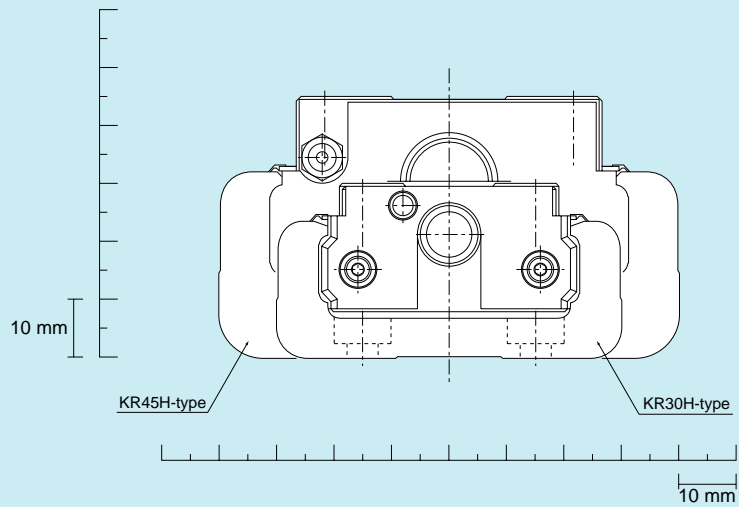
(Figure 5) Contact Structure of Model KR

## ● Space Saving

The integration of the LM guide section at both side faces of the nut block, and the integration of the ball screw section at the center of the nut block, allow the KR to achieve actuator functionality of high rigidity and high precision in a minimal space.



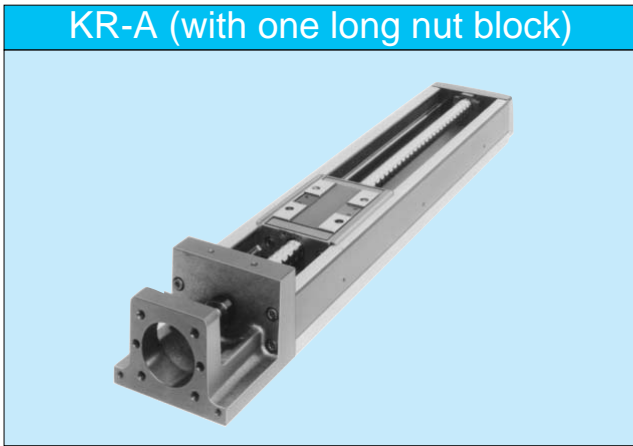
(Figure 6) Sectional Shape



(Figure 7) Sectional Shape

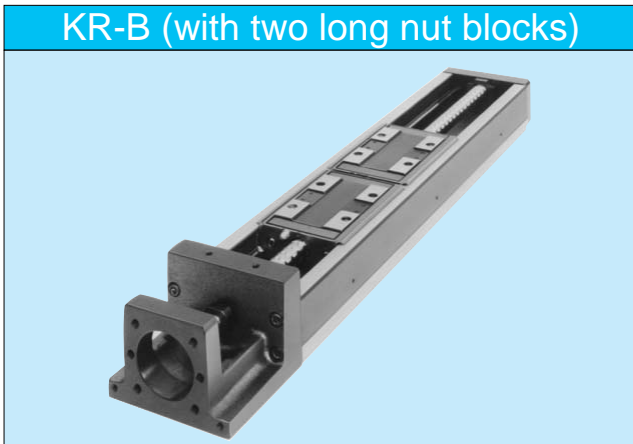
## Types

KR-A (with one long nut block)



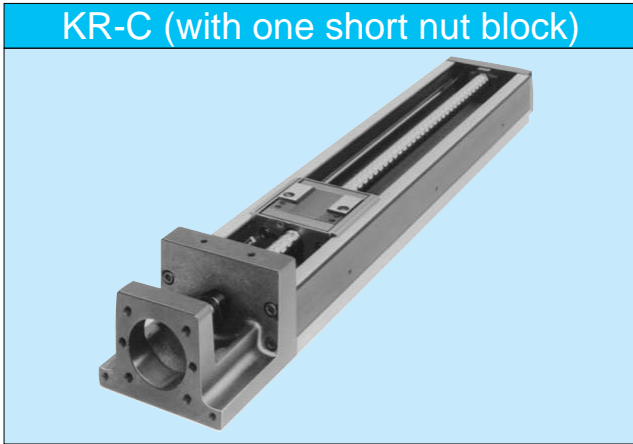
Standard model of KR.

KR-B (with two long nut blocks)



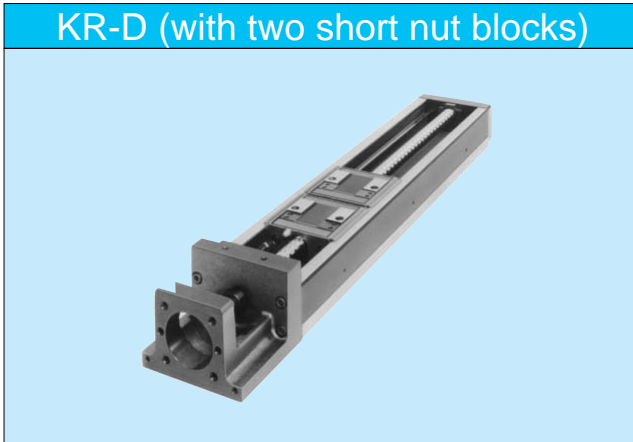
Two KR-A nut blocks are provided to achieve higher rigidity, higher load capacity, and higher precision.

KR-C (with one short nut block)



Shorter KR-A nut block to achieve longer stroke.  
(Applicable models: KR30H, 33, 45H, 46)

KR-D (with two short nut blocks)

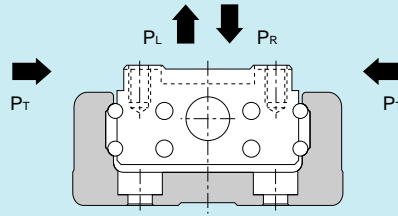


Two KR-C nut blocks are provided. Because this model allows provision of a span suitable for equipment, high rigidity can be achieved.

(Applicable models: KR30H, 33, 45H, 46)

# Rated Load and Static Permissible Moment in Each Direction

## Rated Load



### • LM guide section

The KR can carry loads in all directions, i.e., the radial, inverse radial, and two lateral directions. The basic rated load is the same in all four directions, and their values are shown in Table 2 on page 7.

### • Ball screw section

The KR can carry loads in the axial direction since it incorporates a ball screw in the nut block. The basic rated load values are shown in Table 2 on page 7.

### • Supporting bearing

The KR can carry loads in the axial direction since it incorporates an angular bearing in housing A. The basic rated load values are shown in Table 2 on page 7.

## • Equivalent Load (LM guide)

When loads are simultaneously applied to the KR's LM guide in all directions, the equivalent load is obtained by the following equation:

$$P_E = P_R (P_L) + P_T$$

$P_E$	: equivalent load	(N)
	· in radial direction	
	· in inverse radial direction	
	· in lateral directions	
$P_R$	: radial load	(N)
$P_L$	: inverse radial load	(N)
$P_T$	: load in lateral directions	(N)

(Table 2) Rated Loads of Model KR

Figures in parentheses ( ) indicate unit.

Model			KR15		KR20	KR26	KR30H		KR33		KR45H		KR46		KR55	KR65
			KR1501	KR1502			KR30H06	KR30H10	KR3306	KR3310	KR45H10	KR45H20	KR4610	KR4620		
LM Guide	Basic dynamic load rating C (N)	Long nut block, types A and B	1930		3590	7240	11600		11600		23300		27400		38100	50900
		Short nut block, types C and D	-		-	-	4900		4900		11900		14000		-	-
	Basic static load rating C <sub>0</sub> (N)	Long nut block, types A and B	3450		6300	12150	20200		20200		39200		45500		61900	80900
		Short nut block, types C and D	-		-	-	10000		10000		19600		22700		-	-
	Radial clearance (mm)	Normal/high accuracy grade	-0.001 to +0.002		+0.002 to -0.003	+0.002 to -0.004	+0.002 to -0.004		+0.002 to -0.004		+0.003 to -0.006		+0.003 to -0.006		+0.004 to -0.007	+0.004 to -0.008
		Precision grade	-0.005 to -0.002		-0.003 to -0.007	-0.004 to -0.01	-0.004 to -0.012		-0.004 to -0.012		-0.006 to -0.016		-0.006 to -0.016		-0.007 to -0.019	-0.008 to -0.022
Ball screw	Basic dynamic load rating C <sub>a</sub> (N)	Normal/high accuracy grade	340	230	660	2350	2840	1760	2840	1760	3140	3040	3140	3040	3620	5680
		Precision grade	340	230	660	2350	2250	1370	2250	1370	2940	3430	2940	3430	3980	5950
	Basic static load rating C <sub>0a</sub> (N)	Normal/high accuracy grade	660	410	1170	4020	4900	2840	4900	2840	6760	7150	6760	7150	9290	14500
		Precision grade	660	410	1170	4020	2740	1570	2740	1570	3720	5290	3720	5290	6850	10700
	Screw shaft diameter (mm)		5		6	8	10		10		15		15		20	25
	Lead (mm)		1	2	1	2	6	10	6	10	10	20	10	20	20	25
	Thread minor diameter (mm)		4.5		5.3	6.6	7.8		7.8		12.5		12.5		17.5	22
	Ball center diameter (mm)		5.15		6.15	8.3	10.5		10.5		15.75		15.75		20.75	26
	Supporting bearing Axial direction	Basic dynamic load rating C <sub>a</sub> (N)	590		1000	1380	1790		1790		6660		6660		7600	13700
Static permissible load P <sub>0a</sub> (N)		290		1240	1760	2590		2590		3240		3240		3990	5830	
Page Numbers to Refer to External Dimension Drawings			P.19, 20		P.21,22	P.23,24	P.25, 26, 27, 28		P.29, 30, 31, 32		P.33, 34, 35, 36		P.37, 38, 39, 40		P.41,42	P.43,44

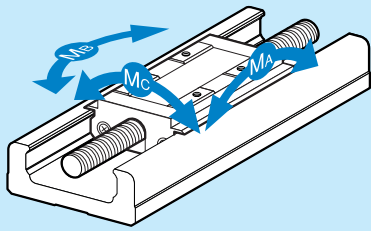
(Note 1) The rated load of the LM guide is the rated load per nut block.

(Note 2) One spacer ball is incorporated in each of the precision grade (P) ball screws of the KR30H, KR33, KR45H10, and KR4610.

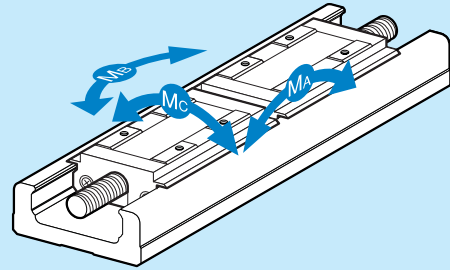
(Note 3) Two spacer balls are incorporated in each of the precision grade (P) ball screws of the KR45H20, KR4620, KR55, and KR65.

## ● Permissible Moment (LM guide)

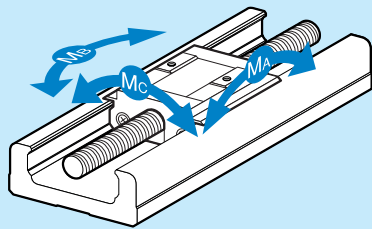
The KR's LM guide section can carry moment in all directions even though it uses only one nut block. Table 3 on page 8 shows the values of the permissible static moment in the  $M_A$ ,  $M_B$  and  $M_C$  directions.



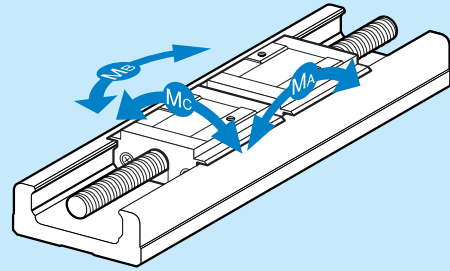
Use of one long nut block (type A)



Use of two long nut blocks in a double block (type B)



Use of one short nut block (type C)



Use of two short nut blocks in a double block (type D)

(Table 3) Static Permissible Moment of Model KR

Unit: N·m

Model	Static Permissible Moment		
	$M_A$	$M_B$	$M_C$
KR15-A	12.1	12.1	38
KR15-B	70.3	70.3	76
KR20-A	31	31	83
KR20-B	176	176	165
KR26-A	84	84	208
KR26-B	480	480	416
KR30H-A	166	166	428
KR30H-B	908	908	857
KR30H-C	44	44	214
KR30H-D	319	319	427
KR33-A	166	166	428
KR33-B	908	908	857
KR33-C	44	44	214
KR33-D	319	319	427
KR45H-A	486	486	925
KR45H-B	2732	2732	1850
KR45H-C	130	130	463
KR45H-D	994	994	925
KR46-A	547	547	1400
KR46-B	2940	2940	2800
KR46-C	149	149	700
KR46-D	1010	1010	1400
KR55-A	870	870	2280
KR55-B	4890	4890	4570
KR65-A	1300	1300	3920
KR65-B	7230	7230	7840

(Note) The static permissible moment of model KR-B/D is the value when two nut blocks are used in a double block.

Model KR consists of an LM guide, ball screw, and supporting bearing. The rated life span of each component can be calculated based on the basic dynamic load rating shown in Rated Loads (Table 2, page 7).

## LM Guide

### ● Rated life span

$$L = \left( \frac{f_c \cdot C}{f_w \cdot P_c} \right)^3 \times 50$$

L : rated life span (km)

(The "rated life span" refers to the total traveling distance that 90% of a group of the same LM guides can achieve without flaking (flakes peeling off the metal surface) when these LM guides are individually moved under the same conditions.)

C : basic dynamic load rating (N)

$P_c$  : calculated imposed load (N)

$f_w$  : load factor (see Table 5, page 10)

$f_c$  : contact factor (see Table 4, page 10)

• If moment acts on the KR when two KR-A/C or KR-B/D nut blocks are used in a double block structure, multiply the acting moment by the equivalent coefficient shown in Table 6 on page 10 to calculate the equivalent load.

$$P_m = K \cdot M$$

$P_m$  : equivalent load (per block) (N)

K : moment equivalent factor (see Table 6, page 10)

M : operating moment (N•mm)

(If three or more nut blocks are to be used or nut blocks are to be used with the span separated, contact THK.)

• If moment  $M_c$  acts on model KR-B/D, use the following equation to obtain the equivalent load:

$$P_m = \frac{K_c \cdot M_c}{2}$$

• If radial load (P) and moment act simultaneously on the KR, use the following equation to obtain the equivalent load:

$$P_E = P_m + P$$

$P_E$  : total equivalent radial load (N)

### ● Life span

When the rated life span (L) is obtained, the life span can be obtained by the following equation if the stroke length and the number of forward and reverse motions are constant:

$$L_h = \frac{L \times 10^6}{2 \cdot R_s \cdot n_1 \times 60}$$

$L_h$  : life span (h)

$\ell_s$  : stroke length (mm)

$n_1$  : number of forward and reverse motions per minute ( $\text{min}^{-1}$ )

## Ball Screw and Supporting Bearing

### ● Rated life span

$$L = \left( \frac{C_a}{f_w \cdot F_a} \right)^3 \times 10^6$$

L : rated life span (rev.)

(The "rated life span" refers to the total number of revolutions that 90% of a group of the same ball screws (supporting bearings) can achieve without flaking when these ball screws (supporting bearings) are individually operated under the same conditions.)

$C_a$  : basic dynamic load rating (N)

$F_a$  : axial load (N)

$f_w$  : load factor (see Table 5, page 10)

When the rated life span is obtained, the life span can be obtained by the following equation if the stroke length and the number of back and forth motions are constant.

## ● Life Span

$$L_h = \frac{L \cdot \ell}{2 \cdot \ell_s \cdot n_1 \times 60}$$

- $L_h$  : life span (h)  
 $\ell_s$  : stroke length (mm)  
 $n_1$  : number of forward and reverse motions per minute (min<sup>-1</sup>)  
 $\ell$  : ball screw's lead (mm)

### $f_c$ : contact factor

If two nut blocks are used in a double block on model KR-B/D, multiply the basic load rating by the contact factor shown in Table 4.

(Table 4) Contact Factor ( $f_c$ )

Type of Nut Block	Contact Factor $f_c$
Types A/C	1
Types B/D	0.81

### $f_w$ : load factor

(Table 5) Load Factor ( $f_w$ )

Vibration or Impact	Velocity (V)	$f_w$
Minute	For crawling $V \leq 0.25$ m/s	1 to 1.2
Small	For slow speed $0.25 < V \leq 1$ m/s	1.2 to 1.5
Medium	For intermediate speed $1 < V \leq 2$ m/s	1.5 to 2
Large	For high speed $V > 2$ m/s	2 to 3.5

### $K$ : moment equivalent coefficient (LM guide)

If traveling is performed with moment applied, the load-carrying distribution of the LM guide increases locally. In this case, multiply the moment value with the moment equivalent coefficient shown in Table 6 to calculate the load.

$K_A$ ,  $K_B$  and  $K_C$  show the moment equivalent coefficient in the  $M_A$ ,  $M_B$  and  $M_C$  directions, respectively.

(Table 6) Moment Equivalent Coefficient (K)

Model	$K_A$	$K_B$	$K_C$
KR15-A	$3.2 \times 10^{-1}$	$3.2 \times 10^{-1}$	$9.09 \times 10^{-2}$
KR15-B	$5.96 \times 10^{-2}$	$5.96 \times 10^{-2}$	$9.09 \times 10^{-2}$
KR20-A	$2.4 \times 10^{-1}$	$2.4 \times 10^{-1}$	$7.69 \times 10^{-2}$
KR20-B	$4.26 \times 10^{-2}$	$4.26 \times 10^{-2}$	$7.69 \times 10^{-2}$
KR26-A	$1.73 \times 10^{-1}$	$1.73 \times 10^{-1}$	$5.88 \times 10^{-2}$
KR26-B	$3.06 \times 10^{-2}$	$3.06 \times 10^{-2}$	$5.88 \times 10^{-2}$
KR30H-A	$1.51 \times 10^{-1}$	$1.51 \times 10^{-1}$	$4.78 \times 10^{-2}$
KR30H-B	$2.76 \times 10^{-2}$	$2.76 \times 10^{-2}$	$4.78 \times 10^{-2}$
KR30H-C	$2.77 \times 10^{-1}$	$2.77 \times 10^{-1}$	$4.78 \times 10^{-2}$
KR30H-D	$3.99 \times 10^{-2}$	$3.99 \times 10^{-2}$	$4.78 \times 10^{-2}$
KR33-A	$1.51 \times 10^{-1}$	$1.51 \times 10^{-1}$	$4.93 \times 10^{-2}$
KR33-B	$2.57 \times 10^{-2}$	$2.57 \times 10^{-2}$	$4.93 \times 10^{-2}$
KR33-C	$2.77 \times 10^{-1}$	$2.77 \times 10^{-1}$	$4.93 \times 10^{-2}$

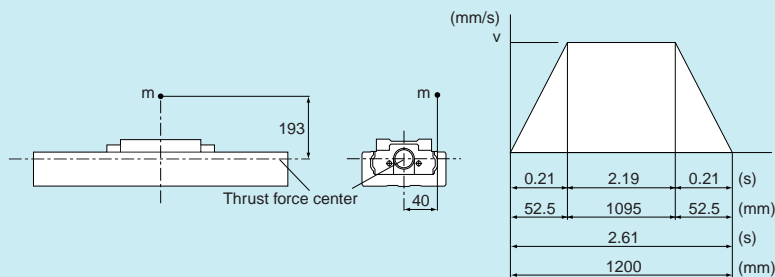
Model	$K_A$	$K_B$	$K_C$
KR33-D	$3.55 \times 10^{-2}$	$3.55 \times 10^{-2}$	$4.93 \times 10^{-2}$
KR45H-A	$9.83 \times 10^{-2}$	$9.83 \times 10^{-2}$	$3.45 \times 10^{-2}$
KR45H-B	$1.87 \times 10^{-2}$	$1.87 \times 10^{-2}$	$3.45 \times 10^{-2}$
KR45H-C	$1.83 \times 10^{-1}$	$1.83 \times 10^{-1}$	$3.45 \times 10^{-2}$
KR45H-D	$2.81 \times 10^{-2}$	$2.81 \times 10^{-2}$	$3.45 \times 10^{-2}$
KR46-A	$1.01 \times 10^{-1}$	$1.01 \times 10^{-1}$	$3.38 \times 10^{-2}$
KR46-B	$1.78 \times 10^{-2}$	$1.78 \times 10^{-2}$	$3.38 \times 10^{-2}$
KR46-C	$1.85 \times 10^{-1}$	$1.85 \times 10^{-1}$	$3.38 \times 10^{-2}$
KR46-D	$2.5 \times 10^{-2}$	$2.5 \times 10^{-2}$	$3.38 \times 10^{-2}$
KR55-A	$8.63 \times 10^{-2}$	$8.63 \times 10^{-2}$	$2.83 \times 10^{-2}$
KR55-B	$1.53 \times 10^{-2}$	$1.53 \times 10^{-2}$	$2.83 \times 10^{-2}$
KR65-A	$7.55 \times 10^{-2}$	$7.55 \times 10^{-2}$	$2.14 \times 10^{-2}$
KR65-B	$1.35 \times 10^{-2}$	$1.35 \times 10^{-2}$	$2.14 \times 10^{-2}$

(Note) For model KR-B/D, the moment equivalent coefficient is the value when two nut blocks are used in a double block.

# Examples of Rated Life Span Calculations

## Conditions

Model to be evaluated	: KR5520A
LM guide section	( $C=38100$ N, $C_0=61900$ N)
Ball screw section	( $C_a=3620$ N, $C_{0a}=9290$ N)
Supporting bearing	( $C_a=7600$ N, $P_{0a}=3990$ N)
Mass	$m=30$ kg
Velocity	$v=500$ mm/s
Acceleration	$\alpha=2.4$ m/s <sup>2</sup>
Stroke	$l_s=1200$ mm
Gravitational acceleration	$g=9.807$ m/s <sup>2</sup>
Velocity chart	See figure below.



## Evaluations

### Evaluating the Rated Life Span of the LM Guide

#### Imposed load of the nut block

- \* Since one nut block is used, the  $M_A$  and  $M_B$  moments are multiplied by the moment equivalent coefficient ( $K_A=K_B=8.63 \times 10^{-2}$ ) to convert to the imposed load.
- \* Since one shaft is used, the acting  $M_C$  moment is multiplied by the moment equivalent coefficient ( $K_C=2.83 \times 10^{-2}$ ) to convert to the imposed load.

During uniform motion

$$P_1 = m_g + K_C \cdot m_g \times 40 = 627 \text{ N}$$

During acceleration

$$P_{1a} = P_1 + K_A \cdot m \alpha \times 193 = 1826 \text{ N}$$

$$P_{1aT} = 1K_B \cdot m \alpha \times 40 = -249 \text{ N}$$

During deceleration

$$P_{1d} = P_1 - K_A \cdot m \alpha \times 193 = -572 \text{ N}$$

$$P_{1dT} = K_B \cdot m \alpha \times 40 = 249 \text{ N}$$

\*  $P_{1aT}$  and  $P_{1dT}$  are taken to be zero as the load groove is different from the evaluated groove.

#### Combined radial and thrust load

During uniform motion

$$P_{1E} = P_1 = 627 \text{ N}$$

During acceleration

$$P_{1aE} = P_{1a} + P_{1aT} = 1826 \text{ N}$$

During deceleration

$$P_{1dE} = P_{1d} + P_{1dT} = 249 \text{ N}$$

### ● Static safety factor

$$f_s = \frac{C_0}{P_{\max}} = \frac{C_0}{P_{1aE}} = 33.9$$

### ● Rated life span

Average load

$$P_m = \sqrt[3]{\frac{1}{\ell_s} (P_{1E}^3 \times 1095 + P_{1aE}^3 \times 52.5 + P_{1dE}^3 \times 52.5)} = 790 \text{ N}$$

Rated life span

$$L = \left( \frac{C}{f_w \cdot P_m} \right)^3 \times 50 = 3.25 \times 10^6 \text{ km}$$

$f_w$  : load factor

## Evaluating the Rated Life Span of the Ball Screw

### ● Axial load

During forward uniform motion

$$Fa_1 = \mu \cdot m_g + f = 4 \text{ N}$$

$\mu$  : friction coefficient (0.005)

$f$  : rolling resistance of individual KR block + seal resistance (2.5 N)

During forward acceleration

$$Fa_2 = Fa_1 + m\alpha = 76 \text{ N}$$

During forward deceleration

$$Fa_3 = Fa_1 - m\alpha = -68 \text{ N}$$

During reverse uniform motion

$$Fa_4 = -Fa_1 = -4 \text{ N}$$

During reverse acceleration

$$Fa_5 = Fa_4 - m\alpha = -4 \text{ N}$$

During reverse deceleration

$$Fa_6 = Fa_4 + m\alpha = 68 \text{ N}$$

\*  $Fa_3$ ,  $Fa_4$  and  $Fa_5$  are taken to be zero as the load groove is different from the evaluated groove.

### ● Static safety factor

$$f_s = \frac{C_0 a}{Fa_{\max}} = \frac{C_0 a}{Fa_2} = 122.2$$

### ● Buckling load

$$P_1 = \frac{n \cdot \pi^2 \cdot E \cdot I}{\ell_a^2} \times 0.5 = 11000 \text{ N}$$

$P_1$  : buckling load (N)

$\ell_a$  : distance between two mounting surfaces (1300 mm)

$E$  : Young's modulus ( $2.06 \times 10^5 \text{ N/mm}^2$ )

$n$  : installation procedure coefficient (fixed-fixed 4.0)

0.5 : safety factor

$I$  : min. geometrical moment of inertia of screw shaft ( $\text{mm}^4$ )

$$I = \frac{\pi}{64} \cdot d_1^4$$

$d_1$  : screw shaft thread diameter (17.5 mm)

## ● Permissible tensile compressive load

$$P_2 = \delta \cdot \frac{\pi}{4} \cdot d_1^2 = 35300 \text{ N}$$

$P_2$  : permissible tensile compressive load (N)  
 $\delta$  : permissible tensile compressive stress (147 N/mm<sup>2</sup>)  
 $d_1$  : screw shaft thread minor diameter (17.5 mm)

## ● Critical speed

$$N_1 = \frac{60 \cdot \lambda^2}{2_p \cdot \ell_b^2} \cdot \sqrt{\frac{E \times 10^3 \cdot I}{\gamma \cdot A}} \times 0.8 = 1560 \text{ min}^{-1}$$

$N_1$  : critical speed (min<sup>-1</sup>)  
 $\ell_b$  : distance between two mounting surfaces (1300 mm)  
 $\gamma$  : density (7.85 × 10<sup>-6</sup> kg/mm<sup>3</sup>)  
 $\lambda$  : installation procedure coefficient (fixed - supported 3.927)  
 0.8 : safety factor

## ● DN value

$$DN = 31125 (\leq 50000)$$

$D$  : ball center diameter (20.75 mm)  
 $N$  : max. operating rotational speed (150 min<sup>-1</sup>)

## ● Rated life span

Average axial load

$$F_{a_m} = \sqrt[3]{\frac{1}{2 \cdot \ell_s} (F_{a_1}^3 \times 1095 + F_{a_2}^3 \times 52.5 + F_{a_6}^3 \times 52.5)} = 25.5 \text{ N}$$

Rated life span

$$L = \left( \frac{Ca}{f_w \cdot F_{a_m}} \right)^3 \cdot \ell = 3.32 \times 10^7 \text{ km}$$

$f_w$  : load factor (1.2)  
 $\ell$  : ball screw's lead (20 mm)

## Evaluation of Rated Life Span of Supporting Bearing

### ● Axial load (same as ball screw)

$F_{a_1} = 4 \text{ N}$   
 $F_{a_2} = 76 \text{ N}$   
 $F_{a_3} = 0 \text{ N}$   
 $F_{a_4} = 0 \text{ N}$   
 $F_{a_5} = 0 \text{ N}$   
 $F_{a_6} = 68 \text{ N}$

### ● Static safety factor

$$f_s = \frac{P_0 a}{F_{a_{\max}}} = \frac{P_0 a}{F_{a_2}} = 52.5$$

## ● Rated life span

Average axial load

$$F_{a_m} = \sqrt[3]{\frac{1}{2 \cdot \ell_s} (F_{a_1^3} \times 1095 + F_{a_2^3} \times 52.5 + F_{a_6^3} \times 52.5)} = 25.5 \text{ N}$$

Rated life span

$$L = \left( \frac{C_a}{f_w \cdot F_{a_m}} \right)^3 \times 10^6 = 1.53 \times 10^{13} \text{ rev.}$$

$f_w$  : load factor (1.2)

\* The above rated life span is converted to the traveling life span of the ball screw.

$$LS = L \cdot \ell \times 10^{-6} = 3.06 \times 10^8 \text{ Km}$$

## ● Result

The following table summarizes the evaluation results.

KR5520A	LM guide section	Ball screw section	Supporting bearing
Static safety factor	33.9	122.2	52.5
Buckling load (N)	–	11000	–
Permissible tensile compressive load (N)	–	35300	–
Critical speed (min <sup>-1</sup> )	–	1560	–
DN value	–	31125	–
Rated life span (km)	3.25×10 <sup>6</sup>	3.32×10 <sup>7</sup>	3.06×10 <sup>8</sup>
Max. axial load (N)	–	76	–
Max. operating rotational speed (min <sup>-1</sup> )	–	1500	–

Whether the evaluated model can be used can be judged from numerical values such as static safety factor. Also, the rated life span of the shortest LM guide section is taken as the rated life span of the evaluated model KR5520A.

# Maximum Travel Speed and Maximum Length

The maximum travel speed of the KR is limited by the critical speed and DN value of the ball screw shaft regardless of the maximum rotational speed of the motor. Pay particular attention to this when using the KR at high speeds.

Furthermore, the maximum length is indicated by the LM rail length.

(Table 7) Maximum Travel Speed and Maximum Length

Figures in parentheses ( ) indicate unit.

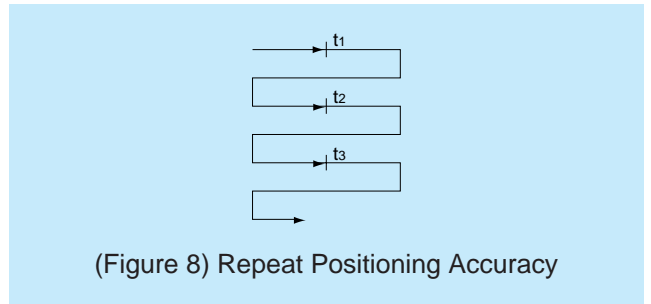
Model	Ball Screw's Lead (mm)	LM Rail Length (mm)	Maximum Travel Speed (mm/sec)		Maximum Length (mm)	
			Precision Grade	Normal/High Accuracy Grade	Precision Grade	Normal/High Accuracy Grade
KR15	01	–	160	160	250	250
	02	–	330	330		
KR20	01	–	190	190	200	200
KR26	02	–	280	280	300	300
KR30H	06	150	660	470	600	600
		200	660	470		
		300	660	470		
		400	660	470		
		500	660	470		
		600	400	400		
	10	150	1100	790		
		200	1100	790		
		300	1100	790		
		400	1100	790		
		500	1100	790		
		600	670	870		
KR33	06	150	660	470	600	600
		200	660	470		
		300	660	470		
		400	660	470		
		500	660	470		
		600	400	400		
	10	150	1100	790		
		200	1100	790		
		300	1100	790		
		400	1100	790		
		500	1100	790		
		600	670	670		
KR45H	10	340	740	520	800	1200
		440	740	520		
		540	740	520		
		640	740	520		
		740	740	520		
		840	–	520		
	940	–	430			
	20	340	1080	1050		
		440	1480	1050		
		540	1480	1050		
		640	1480	1050		
		740	1430	1050		
840		–	1050			
940	–	840				
KR46	10	340	740	520	800	1200
		440	740	520		
		540	740	520		
		640	740	520		
		740	740	520		
		940	–	430		
	20	340	1480	1050		
		440	1480	1050		
		540	1480	1050		
		640	1480	1050		
		740	1440	1050		
		940	–	850		
KR55	20	980	1120	800	1180	2000
		1080	980	800		
		1180	750	750		
		1280	–	630		
		1380	–	530		
KR65	25	980	1120	800	1380	2000
		1180	1120	800		
		1380	830	800		
		1680	–	800		
			–	550		

# Accuracy Standards

The precision of the Model KR is determined by repeat positioning accuracy, positioning accuracy, backlash, and travel parallelism.

## ● Repeat Positioning Accuracy

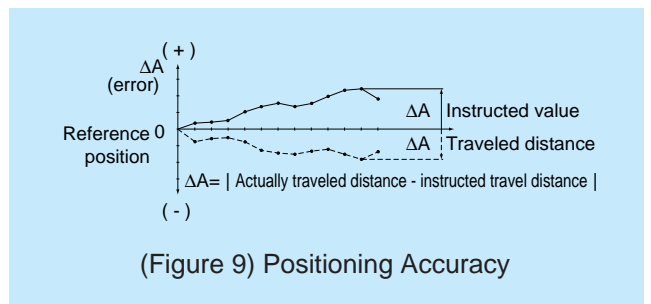
Positioning from the same direction is repeated at any position seven times, the stop position is measured at each operation, and half of the maximum error in the readings is obtained. This measurement is basically performed at each position in the center and at both ends of the travel distance. The largest of the obtained values is taken to be the measurement value, and is indicated by adding the  $\pm$  sign to half the maximum error.



(Figure 8) Repeat Positioning Accuracy

## ● Positioning Accuracy

The maximum stroke is taken to be the reference length, and the maximum error between the actual traveled distance from the reference position and the instructed distance is expressed as an absolute value.

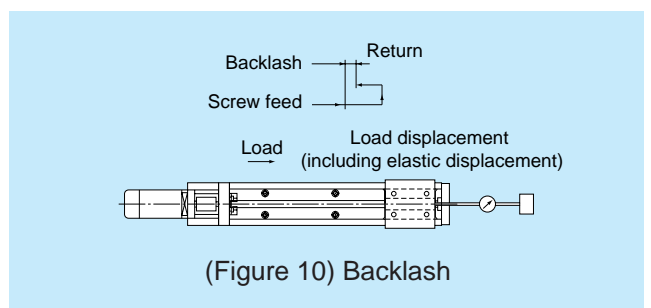


(Figure 9) Positioning Accuracy

## ● Backlash

Feed is applied to the nut block, and the reading on the test indicator obtained when slight movement is applied is taken to be the reference. A load is then applied on the nut block from the same direction (table feed direction) from that state independent of the feed equipment, and the subsequent error between the return and reference after movement is canceled is taken to be the measurement value.

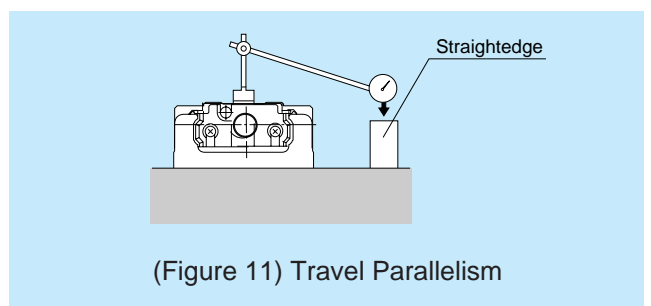
This measurement is performed at each position at the center and at almost both ends of movement, and the largest of the obtained values is taken to be the measurement value.



(Figure 10) Backlash

## ● Travel Parallelism

A straightedge is placed on a leveling plate mounted with the KR, and parallelism is measured over almost the entire travel distance of the nut block using a test indicator. The maximum error in the reading within the travel distance is taken to be the measurement value.



(Figure 11) Travel Parallelism

The accuracy of the Model KR is divided into three categories: normal grade (no symbol), high accuracy grade (H) and precision grade (P). The following table shows the standards of each of these accuracies.

(Figure 8-1) Normal Grade (no symbol) Unit: mm

Model	LM Rail Length	Repeat Positioning Accuracy	Positioning Accuracy	Travel Parallelism	Backlash	Starting Torque (N·cm)
KR20	100	± 0.01	Not stipulated	Not stipulated	0.02	0.5
	150					
	200					
KR26	150	± 0.01	Not stipulated	Not stipulated	0.02	1.5
	200					
	250					
	300					
	300					
KR30H	150	± 0.01	Not stipulated	Not stipulated	0.02	7
	200					
	300					
	400					
	500					
KR33	150	± 0.01	Not stipulated	Not stipulated	0.02	7
	200					
	300					
	400					
	500					
	600					
KR45H	340	± 0.01	Not stipulated	Not stipulated	0.02	10
	440					
	540					
	640					
	740					
	840					
KR46	340	± 0.01	Not stipulated	Not stipulated	0.02	10
	440					
	540					
	640					
	740					
	940					
KR55	1080	± 0.01	Not stipulated	Not stipulated	0.05	12
	1180					
	1280					
	1380					
KR65	980	± 0.01	Not stipulated	Not stipulated	0.05	12
	1180					
	1380					
	1680					

(Table 8-2) High Accuracy Grade (H) Unit: mm

Model	LM Rail Length	Repeat Positioning Accuracy	Positioning Accuracy	Travel Parallelism	Backlash	Starting Torque (N·cm)
KR15	75	± 0.004	0.04	0.02	0.01	0.4
	100					
	125					
	150					
	175					
	200					
KR20	100	± 0.005	0.06	0.025	0.01	0.5
	150					
	200					
KR26	150	± 0.005	0.06	0.025	0.01	1.5
	200					
	250					
	300					
KR30H	150	± 0.005	0.06	0.025	0.02	7
	200					
	300					
	400		0.1	0.035		
	500					
600						
KR33	150	± 0.005	0.06	0.025	0.02	7
	200					
	300					
	400		0.1	0.035		
	500					
600						
KR45H	340	± 0.005	0.1	0.035	0.02	10
	440					
	540					
	640		0.12	0.04		
	740					
	840					
940	0.15	0.05				
940						
KR46	340	± 0.005	0.1	0.035	0.02	10
	440					
	540					
	640		0.12	0.04		
	740					
	940					
940	0.15	0.05				
940						
KR55	980	± 0.005	0.18	0.05	0.05	12
	1080					
	1180					
	1280		0.25			
	1380					
	1380					
KR65	980	± 0.008	0.18	0.05	0.05	12
	1180					
	1380		0.2			
	1680					

(Table 8-3) Precision Grade (P) Unit: mm

Model	LM Rail Length	Repeat Positioning Accuracy	Positioning Accuracy	Travel Parallelism	Backlash	Starting Torque (N·cm)
KR15	75	± 0.003	0.02	0.01	0.002	0.8
	100					
	125					
	150					
	175					
	200					
KR20	100	± 0.003	0.02	0.01	0.003	1.2
	150					
	200					
	200					
KR26	150	± 0.003	0.02	0.01	0.003	4
	200					
	250					
	300					
KR30H	150	± 0.003	0.02	0.01	0.003	15
	200					
	300					
	400		0.025	0.015		
	500					
	600					
KR33	150	± 0.003	0.02	0.01	0.003	15
	200					
	300					
	400		0.025	0.015		
	500					
	600					
KR45H	340	± 0.003	0.025	0.015	0.003	15
	440					
	540		0.03	0.02		17
	640					
KR46	340	± 0.003	0.025	0.015	0.003	15
	440					
	540		0.03	0.02		17
	640					
KR55	980	± 0.005	0.035	0.025	0.003	17
	1080					
	1180		0.04	0.03		20
1180						
KR65	980	± 0.005	0.035	0.025	0.005	20
	1180					
	1380		0.04	0.03		22
1380						

(Note) Evaluation methods conform to THK criteria.

(Note) The starting torque is the value obtained when lithium-based grease No.2 is used with the product.

Note, however, that the starting value becomes the value when THK AFA grease is used on the KR20 and KR26 types or the value when THK AFF grease is used on the KR15 type.

(Note) When high-viscosity greases such as vacuum grease or grease for clean rooms is used, there are cases where the criteria value of the starting torque is exceeded. In such a case, exercise care in selecting the motor.

# Outline Dimension Drawings

## **KR15□□□ Standard Specifications ...see p.19**

KR15□□A (with one nut block)  
KR15□□B (with two nut blocks)

## **KR15□□□ (with Cover) ...see p.20**

KR15□□A (with one nut block)  
KR15□□B (with two nut blocks)

## **KR2001□□□ Standard Specifications ...see p.21**

KR2001A (with one long nut block)  
KR2001B (with two long nut blocks)

## **KR2001□ (with Cover) ...see p.22**

KR2001A (with one long nut block)  
KR2001B (with two long nut blocks)

## **KR2602□ Standard Specifications ...see p.23**

KR2602A (with one long nut block)  
KR2602B (with two long nut blocks)

## **KR2602□ (with Cover) ...see p.24**

KR2602A (with one long nut block)  
KR2602B (with two long nut blocks)

## **KR30H□□□ Standard Specifications ...see p.25**

KR30H□□A (with one long nut block)  
KR30H□□B (with two long nut blocks)  
KR30H□□C (with one short nut block)  
KR30H□□D (with two short nut blocks)

## **KR30H□□□ (with Cover) ...see p.27**

KR30H□□A (with one long nut block)  
KR30H□□B (with two long nut blocks)  
KR30H□□C (with one short nut block)  
KR30H□□D (with two short nut blocks)

## **KR33□□□ Standard Specifications ...see p.29**

KR33□□A (with one long nut block)  
KR33□□B (with two long nut blocks)  
KR33□□C (with one short nut block)  
KR33□□D (with two short nut blocks)

## **KR33□□□ (with Cover) ...see p.31**

KR33□□A (with one long nut block)  
KR33□□B (with two long nut blocks)  
KR33□□C (with one short nut block)  
KR33□□D (with two short nut blocks)

## **KR45H□□□ Standard Specifications ...see p.33**

KR45H□□A (with one long nut block)  
KR45H□□B (with two long nut blocks)  
KR45H□□C (with one short nut block)  
KR45H□□D (with two short nut blocks)

## **KR45H□□□ (with Cover) ...see p.35**

KR45H□□A (with one long nut block)  
KR45H□□B (with two long nut blocks)  
KR45H□□C (with one short nut block)  
KR45H□□D (with two short nut blocks)

## **KR46□□□ Standard Specifications ...see p.37**

KR46□□A (with one long nut block)  
KR46□□B (with two long nut blocks)  
KR46□□C (with one short nut block)  
KR46□□D (with two short nut blocks)

## **KR46□□□ (with Cover) ...see p.39**

KR46□□A (with one long nut block)  
KR46□□B (with two long nut blocks)  
KR46□□C (with one short nut block)  
KR46□□D (with two short nut blocks)

## **KR5520□ Standard Specifications ...see p.41**

KR5520A (with one long nut block)  
KR5520B (with two long nut blocks)

## **KR5520□ (with Cover) ...see p.42**

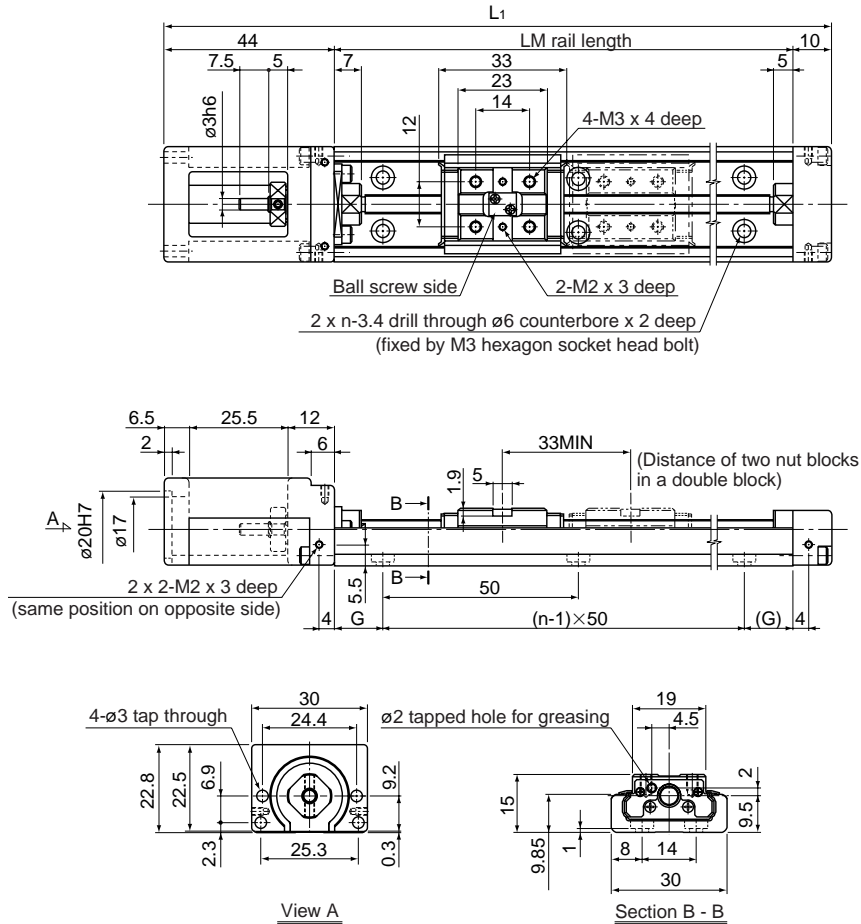
KR5520A (with one long nut block)  
KR5520B (with two long nut blocks)

## **KR6525□ Standard Specifications ...see p.43**

KR6525A (with one long nut block)  
KR6525B (with two long nut blocks)

## **KR6525□ (with Cover) ...see p.44**

KR6525A (with one long nut block)  
KR6525B (with two long nut blocks)



LM Rail Length (mm)	Full Length L <sub>1</sub> (mm)	Possible Stroke Range (mm)		G (mm)	n	Unit's Total Weight (kg)	
		Type A	Type B			Type A	Type B
75	129	31.4	—	12.5	2	0.19	—
100	154	56.4	—	25	2	0.22	—
125	179	81.4	48.4	12.5	3	0.25	0.292
150	204	106.4	73.4	25	3	0.28	0.322
175	229	131.4	98.4	12.5	4	0.31	0.352
200	254	156.4	123.4	25	4	0.34	0.382

\* The possible stroke range of KR15  B shows a value applicable when the product is used with two nut blocks in a double block.

### Interpretation of Model Number

13  
**KR15 01 A M +200L P M 0 - 0 0 0 0**  

1
2
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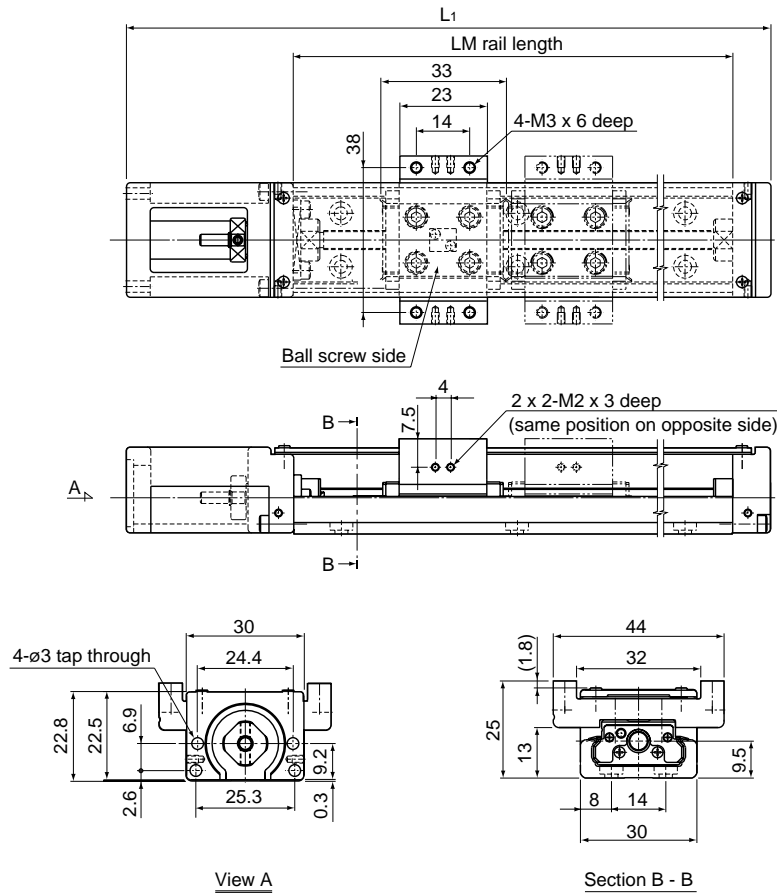
- |  |  |                                    |
|--|--|------------------------------------|
| <b>1</b> Model number  | <b>2</b> Ball screw's lead (1 mm/2 mm) | <b>3</b> Type of nut block         |
| <b>4</b> Stainless steel nut block (standard)                    | <b>5</b> LM rail length                | <b>6</b> Accuracy grade            |
| <b>7</b> Stainless steel LM rail (standard)                      | <b>8</b> Presence/absence of motor     | <b>9</b> Presence/absence of cover |
| <b>10</b> Presence/absence of sensor                             | <b>11</b> Type of housing A            |                                    |
| <b>12</b> Presence/absence of intermediate housing (see page 55) | <b>13</b> Control No.                  |                                    |

(Note) With the KR15 , the LM rail, nut block, ball screw shaft, and balls are made of stainless steel (standard).

# KR15 □□□ (With the Cover)

KR15 □□□ A (With one nut block)

KR15 □□□ B (With one nut block)

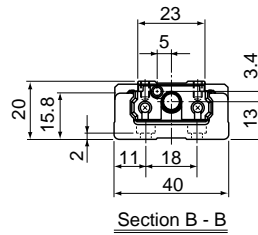
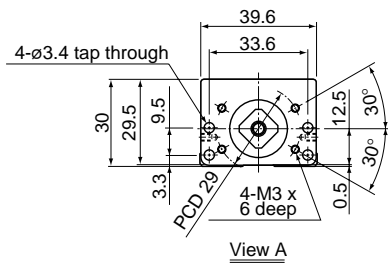
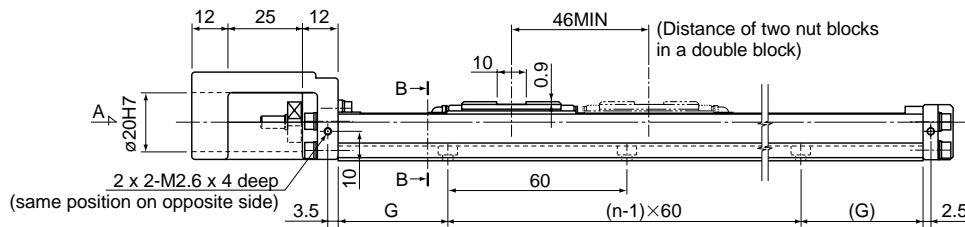
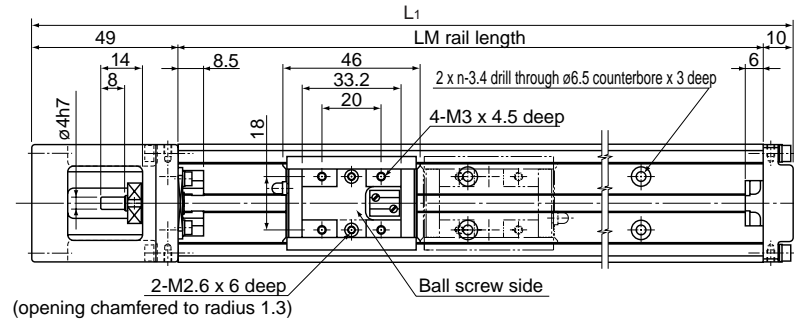


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
75	129	31.4	—	0.23	—
100	154	56.4	—	0.26	—
125	179	81.4	48.4	0.3	0.364
150	204	106.4	73.4	0.33	0.394
175	229	131.4	98.4	0.36	0.424
200	254	156.4	123.4	0.4	0.464

\* The possible stroke range of KR15□□□B shows a value applicable when the product is used with two nut blocks in a double block.

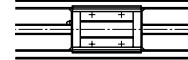
<b>6</b> Accuracy Grade	Description	High accuracy		Precision
	Symbol	H		P
<b>8</b> Presence/absence of motor	Description	Not provided		Provided
	Symbol	0		1
<b>9</b> Presence/absence of cover	Description	Not provided		Provided
	Symbol	0		1
<b>10</b> Presence/absence of sensor	Description	Not provided	With sensor rail	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake). For details, contact THK.

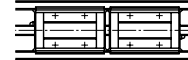


Nipple orientation

When one nut block is used



When two nut blocks are used



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		G (mm)	n	Unit's Total Weight (kg)	
		Type A	Type B			Type A	Type B
100	159	41.5	—	20	2	0.45	—
150	209	91.5	45.5	15	3	0.58	0.655
200	259	141.5	95.5	40	3	0.72	0.795

\* The possible stroke range of KR2001B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

11  
**KR20 01 A +200L P 0 - 0 0 0 0**  

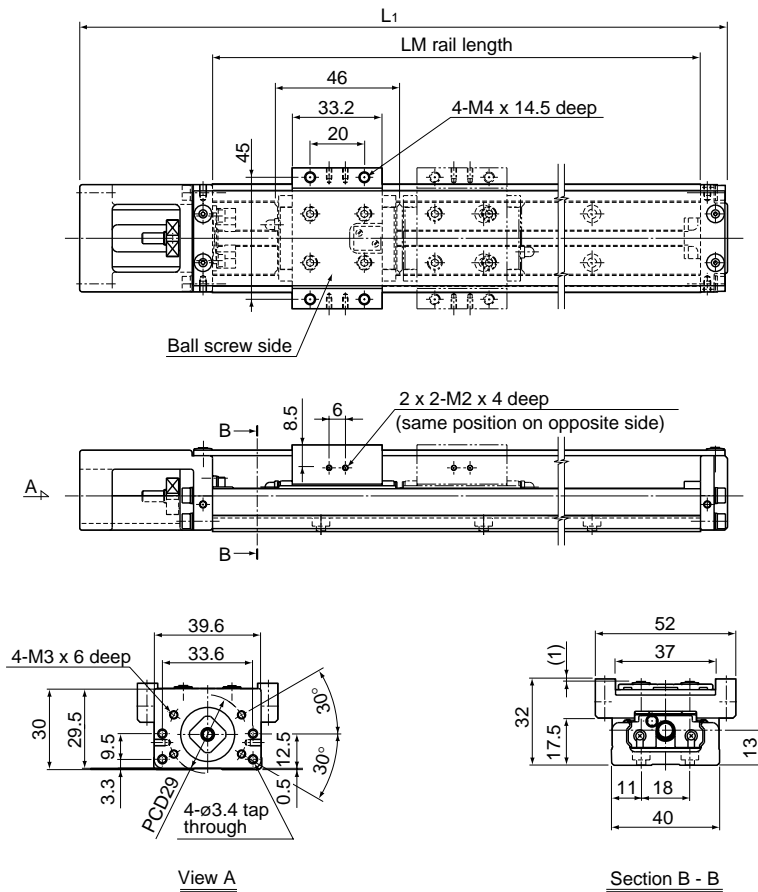
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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (1 mm)  | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A         |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.              |                                    |                         |

# KR2001 □ (With the cover)

KR2001A (With one long nut Block)

KR2001B (With two long nut Blocks)

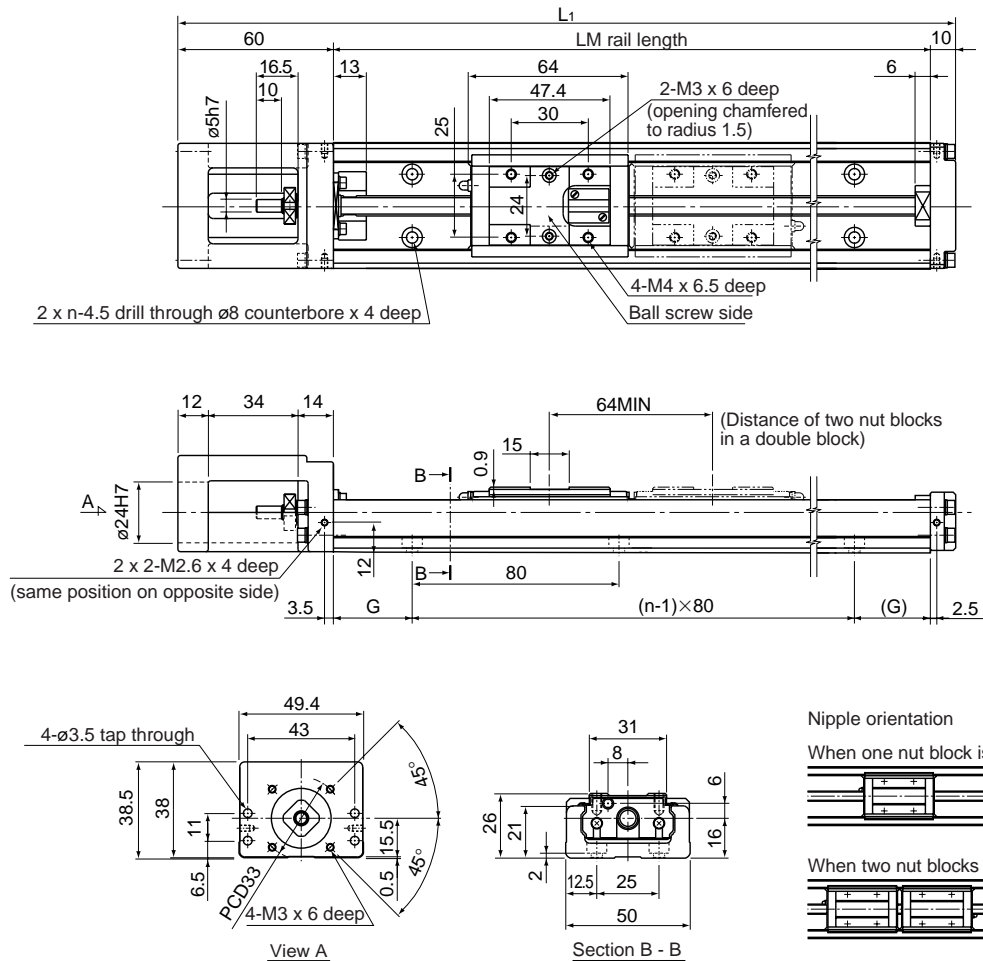


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
100	159	41.5	—	0.51	—
150	209	91.5	45.5	0.66	0.78
200	259	141.5	95.5	0.8	0.92

\* The possible stroke range of KR2001B shows a value applicable when the product is used with two nut blocks in a double block.

<b>5</b> Accuracy Grade	Description	Normal	High accuracy	Precision
	Symbol	No symbol	H	P
<b>6</b> Presence/absence of motor	Description	Not provided		Provided
	Symbol	0		1
<b>7</b> Presence/absence of cover	Description	Not provided		Provided
	Symbol	0		1
<b>8</b> Presence/absence of sensor	Description	Not provided	With sensor rail	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake). For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		G (mm)	n	Unit's Total Weight (kg)	
		Type A	Type B			Type A	Type B
150	220	69	—	35	2	0.99	—
200	270	119	55	20	3	1.2	1.38
250	320	169	105	45	3	1.41	1.59
300	370	219	155	30	4	1.62	1.8

\* The possible stroke range of KR2602B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

11  
**KR26 02 A +300L P 0 - 0 0 0 0**  

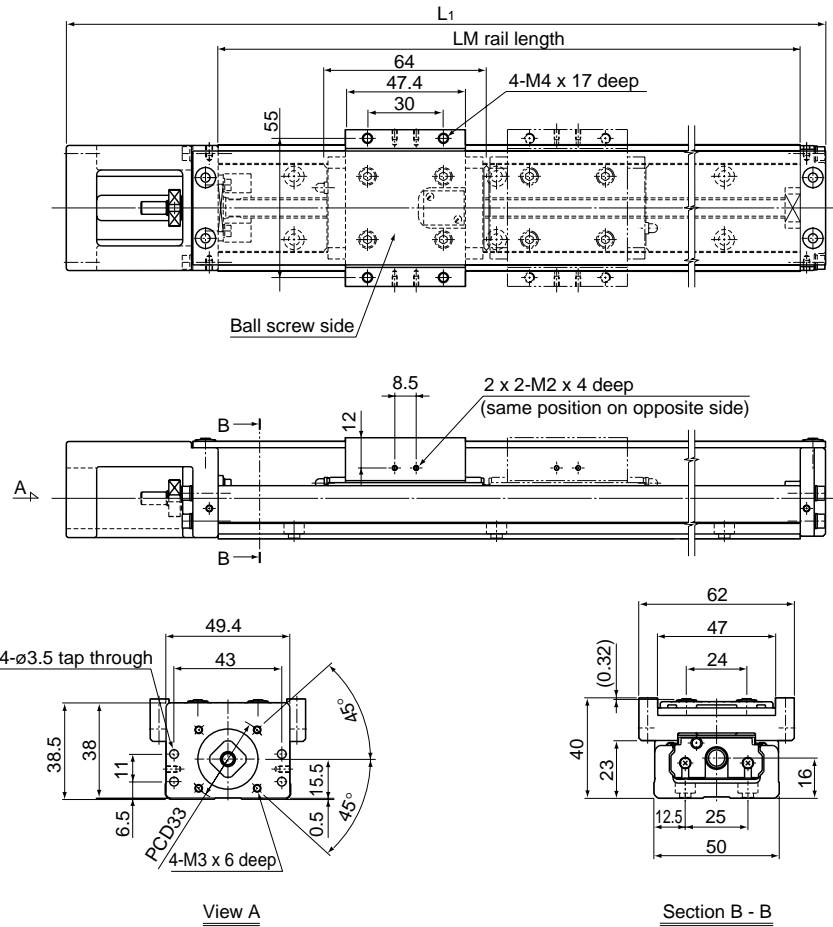
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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (2 mm)  | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A         |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.              |                                    |                         |

# KR2602 (With the Cover)

KR2602A (With one long nut Block)

KR2602B (With two long nut Blocks)

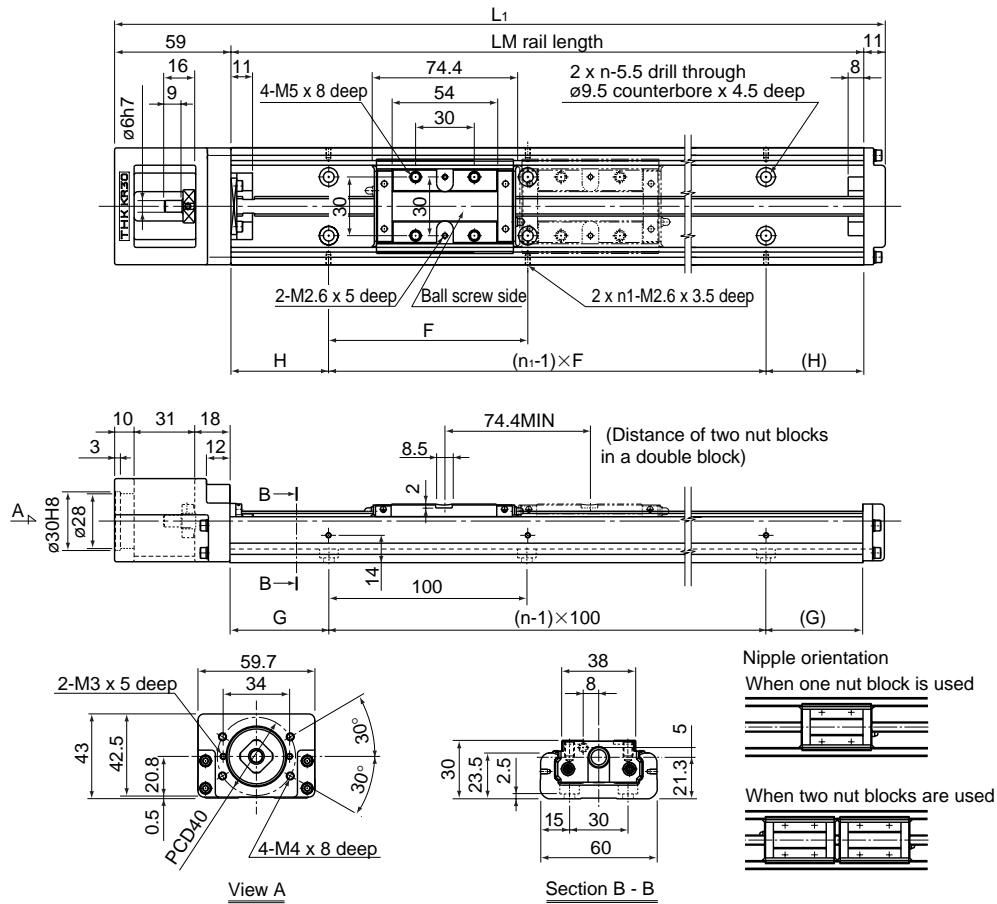


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
150	220	69	—	1.12	—
200	270	119	55	1.34	1.605
250	320	169	105	1.56	1.825
300	370	219	155	1.78	2.045

\* The possible stroke range of KR2602B shows a value applicable when the product is used with two nut blocks in a double block.

<b>5</b> Accuracy Grade	Description	Normal	High accuracy	Precision
	Symbol	No symbol	H	P
<b>6</b> Presence/absence of motor	Description	Not provided		Provided
	Symbol	0		1
<b>7</b> Presence/absence of cover	Description	Not provided		Provided
	Symbol	0		1
<b>8</b> Presence/absence of sensor	Description	Not provided	With sensor rail	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake). For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		G (mm)	n	Unit's Total Weight (kg)	
		Type A	Type B			Type A	Type B
150	220	58.8	—	25	2	1.4	—
200	270	108.8	—	50	2	1.6	—
300	370	208.8	134.4	50	3	2.2	2.5
400	470	308.8	234.4	50	4	2.7	3
500	570	408.8	334.4	50	5	3.2	3.5
600	670	508.8	434.4	50	6	3.8	4.1

\* The possible stroke range of KR30H  B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

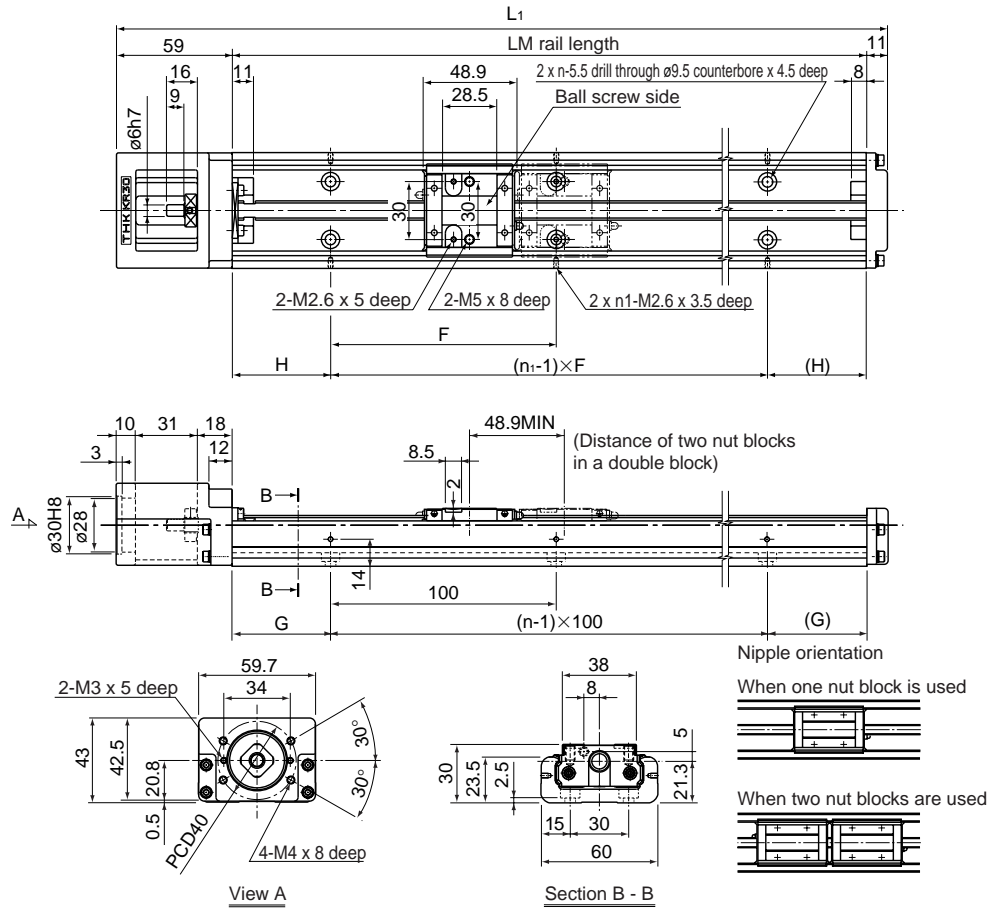
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**KR30H 10 A +600L P 0 - 0 0 0 0**  

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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (6 mm/10 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor      | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A              |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.                   |                                    |                         |

KR30H □□ C (With one short nut block)

KR30H □□ D (With two short nut blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		G (mm)	n	Unit's Total Weight (kg)	
		Type C	Type D			Type C	Type D
150	220	84.3	35.4	25	2	1.3	1.47
200	270	134.3	85.4	50	2	1.5	1.67
300	370	234.3	185.4	50	3	2.1	2.27
400	470	334.3	285.4	50	4	2.6	2.77
500	570	434.3	385.4	50	5	3.1	3.27
600	670	534.3	485.4	50	6	3.7	3.87

\* The possible stroke range of KR30H □□ D shows a value applicable when the product is used with two nut blocks in a double block.

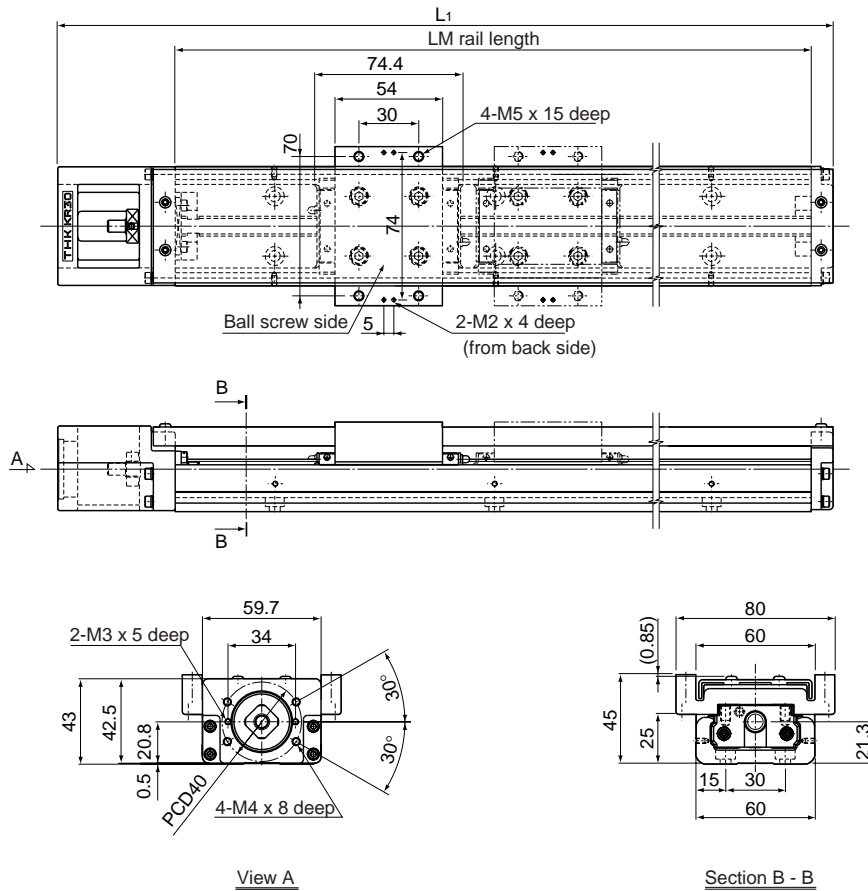
5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided						Provided
	Symbol	0						1
7 Presence/absence of cover	Description	Not provided						Provided
	Symbol	0						1
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

# KR30H □□□ (With the cover)

KR30H □□ A (With one long nut Block)

KR30H □□ B (With two long nut Blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
150	220	58.8	—	1.6	—
200	270	108.8	—	1.8	—
300	370	208.8	134.4	2.4	2.83
400	470	308.8	234.4	3	3.43
500	570	408.8	334.4	3.5	3.93
600	670	508.8	434.4	4.1	4.53

\* The possible stroke range of KR30H□□B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

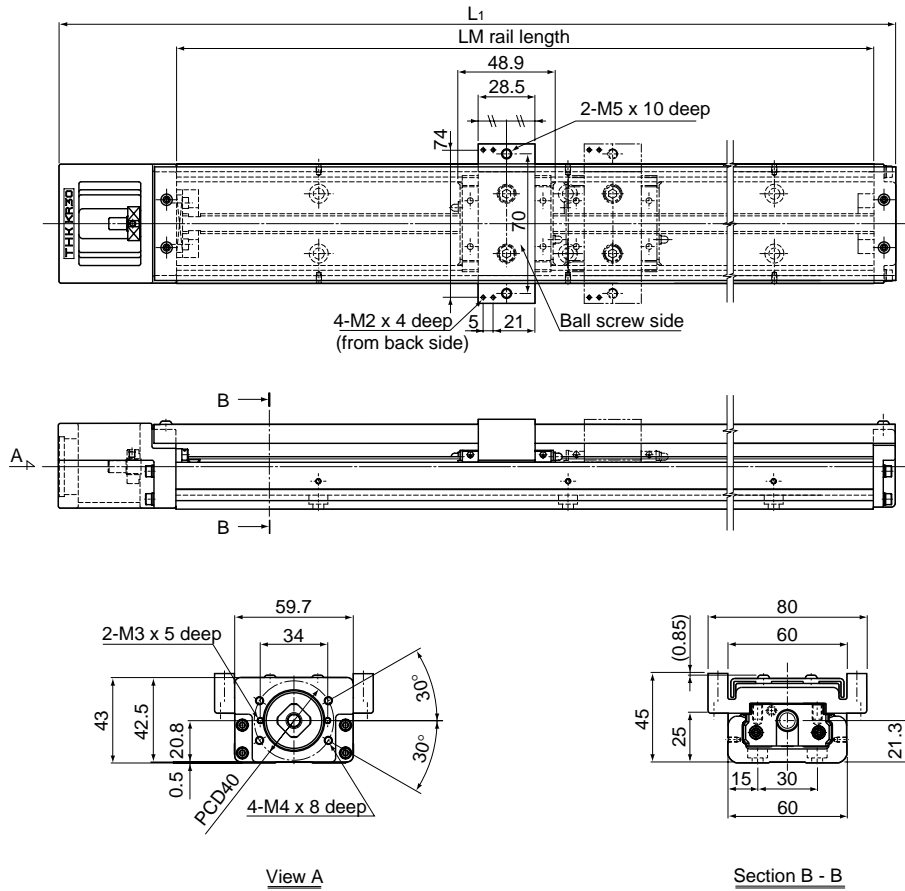
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**KR30H 10 A +600L P 0 - 0 0 0 0**  

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|--|---|------------------------------------|-------------------------|
| <b>1</b> Model number  | <b>2</b> Ball screw's lead (6 mm/10 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor      | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A              |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.                   |                                    |                         |

KR30H □□ C (With one short nut block)

KR30H □□ D (With two short nut blocks)

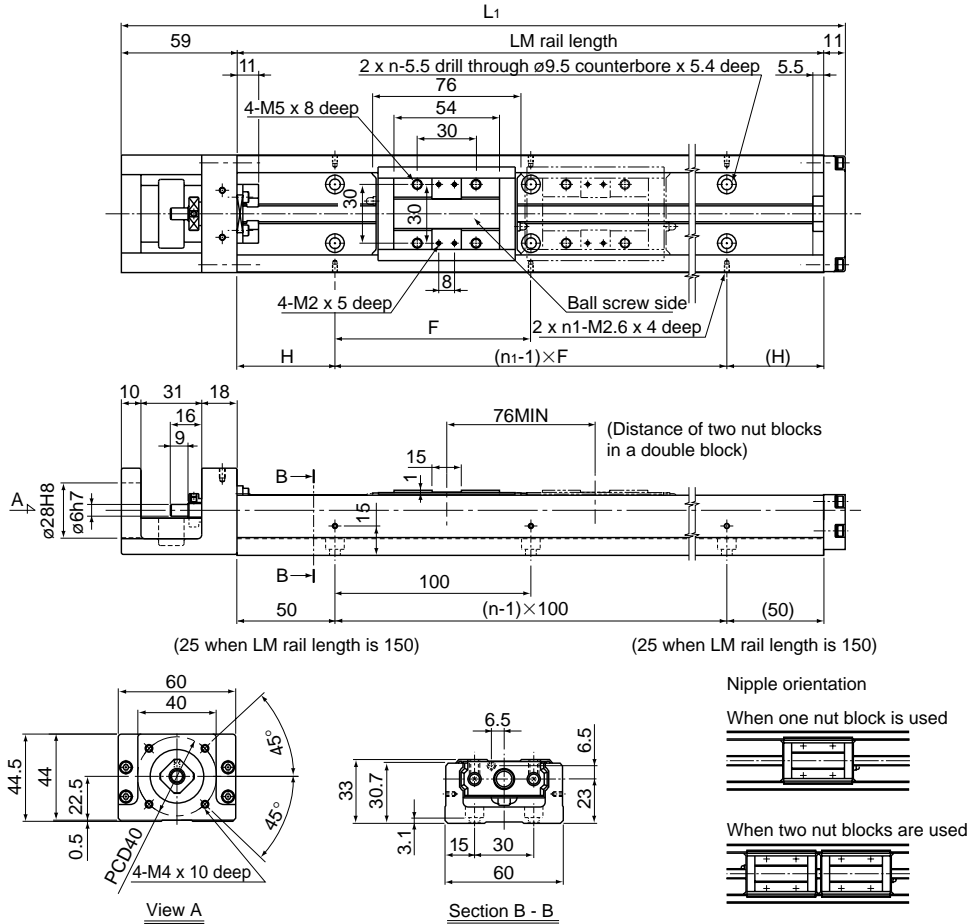


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type C	Type D	Type C	Type D
150	220	84.3	35.4	1.4	1.64
200	270	134.3	85.4	1.6	1.84
300	370	234.3	185.4	2.2	2.44
400	470	334.3	285.4	2.8	3.04
500	570	434.3	385.4	3.3	3.54
600	670	534.3	485.4	3.9	4.14

\* The possible stroke range of KR30H□□D shows a value applicable when the product is used with two nut blocks in a double block.

5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided						Provided
	Symbol	0						1
7 Presence/absence of cover	Description	Not provided						Provided
	Symbol	0						1
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.



LM Rail Length (mm)	Full Length L <sub>1</sub> (mm)	Possible Stroke Range (mm)		H (mm)	F (mm)	n	n <sub>1</sub>	Unit's Total Weight (kg)	
		Type A	Type B					Type A	Type B
150	220	61.5	—	25	100	2	2	1.7	—
200	270	111.5	—	50	100	2	2	2	—
300	370	211.5	135.5	50	200	3	2	2.6	2.95
400	470	311.5	235.5	100	200	4	2	3.2	3.55
500	570	411.5	335.5	50	200	5	3	3.9	4.25
600	670	511.5	435.5	100	200	6	3	4.5	4.85

\* The possible stroke range of KR33  B shows a value applicable when the product is used with two nut blocks in a double block.

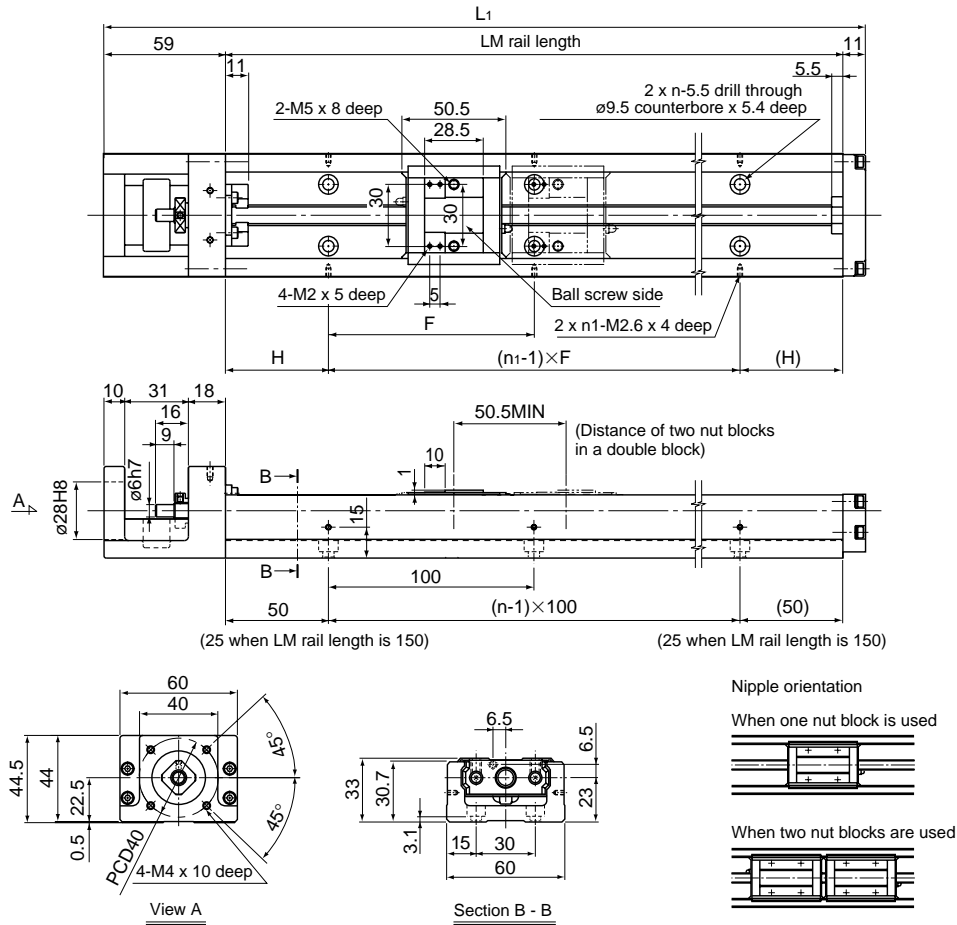
## Interpretation of Model Number

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**KR33** 10 **A** + 600 **L** P 0 - 0 0 0 0  
1 2 3 4 5 6 7 8 9 10

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|--|---|------------------------------------|-------------------------|
| <b>1</b> Model number  | <b>2</b> Ball screw's lead (6 mm/10 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor      | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A              |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.                   |                                    |                         |

KR33 □□ C (With one short nut block)

KR33 □□ D (With two short nut blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		H (mm)	F (mm)	n	n <sub>1</sub>	Unit's Total Weight (kg)	
		Type C	Type D					Type C	Type D
150	220	87	36.5	25	100	2	2	1.6	1.83
200	270	137	86.5	50	100	2	2	1.9	2.13
300	370	237	186.5	50	200	3	2	2.5	2.73
400	470	337	286.5	100	200	4	2	3.1	3.33
500	570	437	386.5	50	200	5	3	3.8	4.03
600	670	537	486.5	100	200	6	3	4.4	4.63

\* The possible stroke range of KR33 □□ D shows a value applicable when the product is used with two nut blocks in a double block.

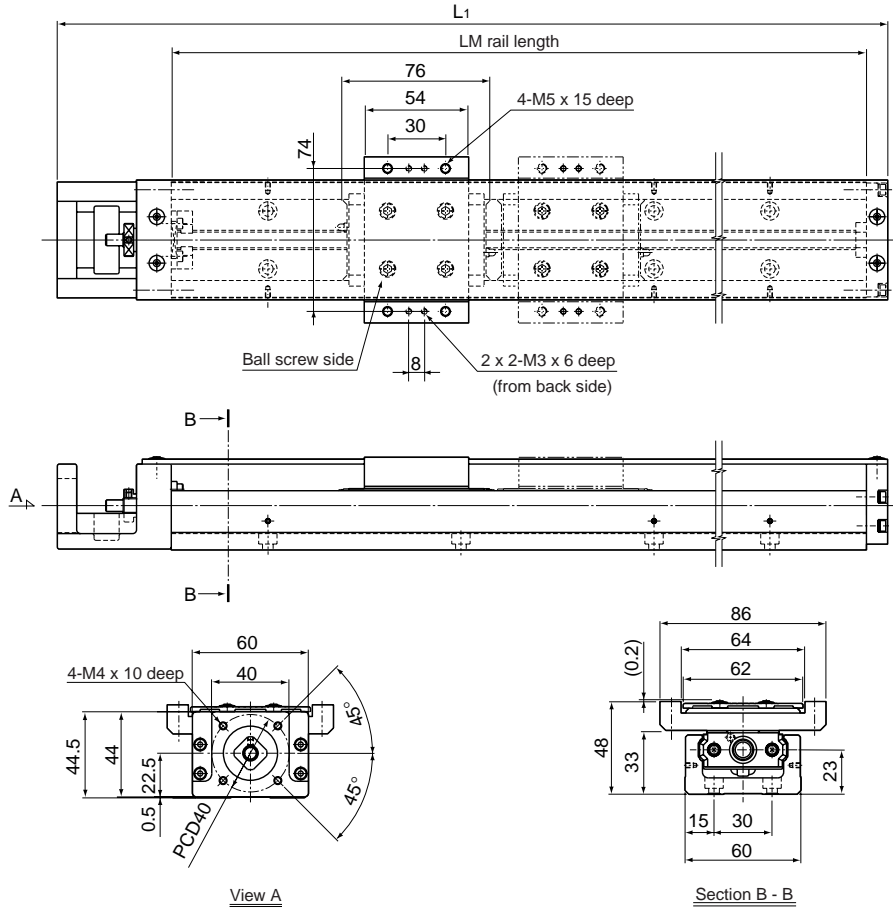
5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided				Provided		
	Symbol	0				1		
7 Presence/absence of cover	Description	Not provided		Provided		With bellows		
	Symbol	0		1		2		
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

# KR33 □□□ (With the cover)

KR33 □□ A (With one long nut Block)

KR33 □□ B (With two long nut Blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
150	220	61.5	—	1.9	—
200	270	111.5	—	2.2	—
300	370	211.5	135.5	2.8	3.28
400	470	311.5	235.5	3.5	3.98
500	570	411.5	335.5	4.2	4.68
600	670	511.5	435.5	4.8	5.28

\* The possible stroke range of KR33□□□ shows a value applicable when the product is used with two nut blocks in a double block.

Note that the cover mounting bolts are 0.2 mm higher than the top surface of the top table.

## Interpretation of Model Number

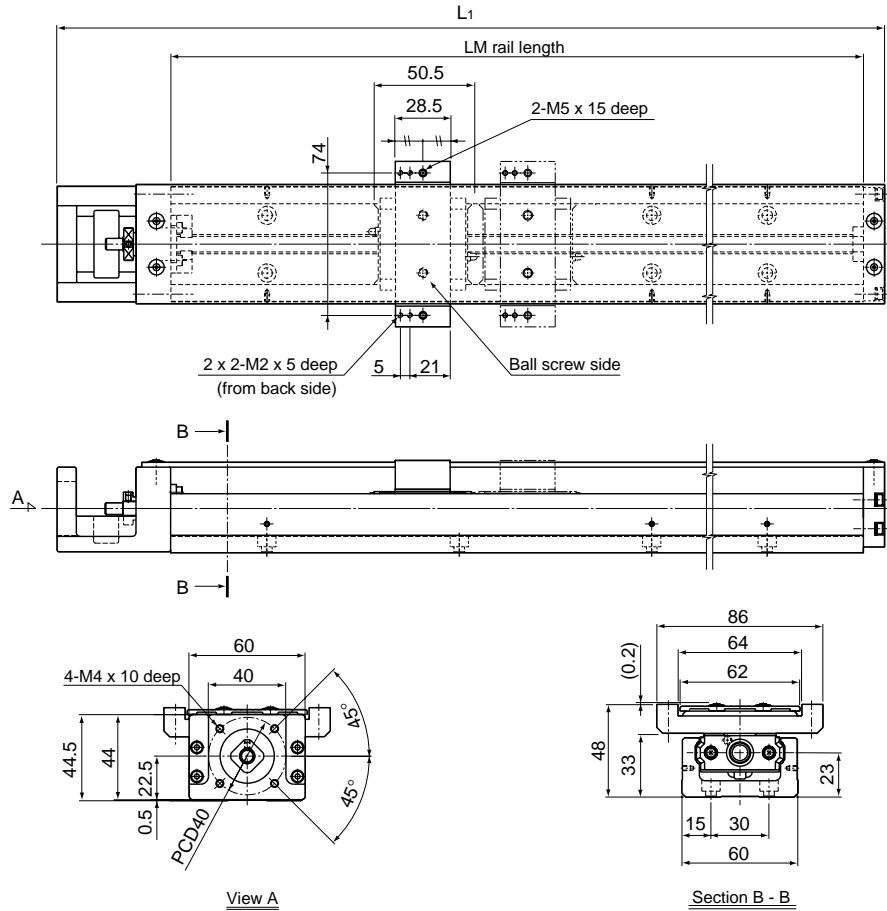
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**KR33 10 A +600L P 0 - 0 0 0 0**  

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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (6 mm/10 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor      | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A              |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |   |                                    | <b>11</b> Control No.   |

KR33 □□ C (With one short nut block)

KR33 □□ D (With two short nut blocks)

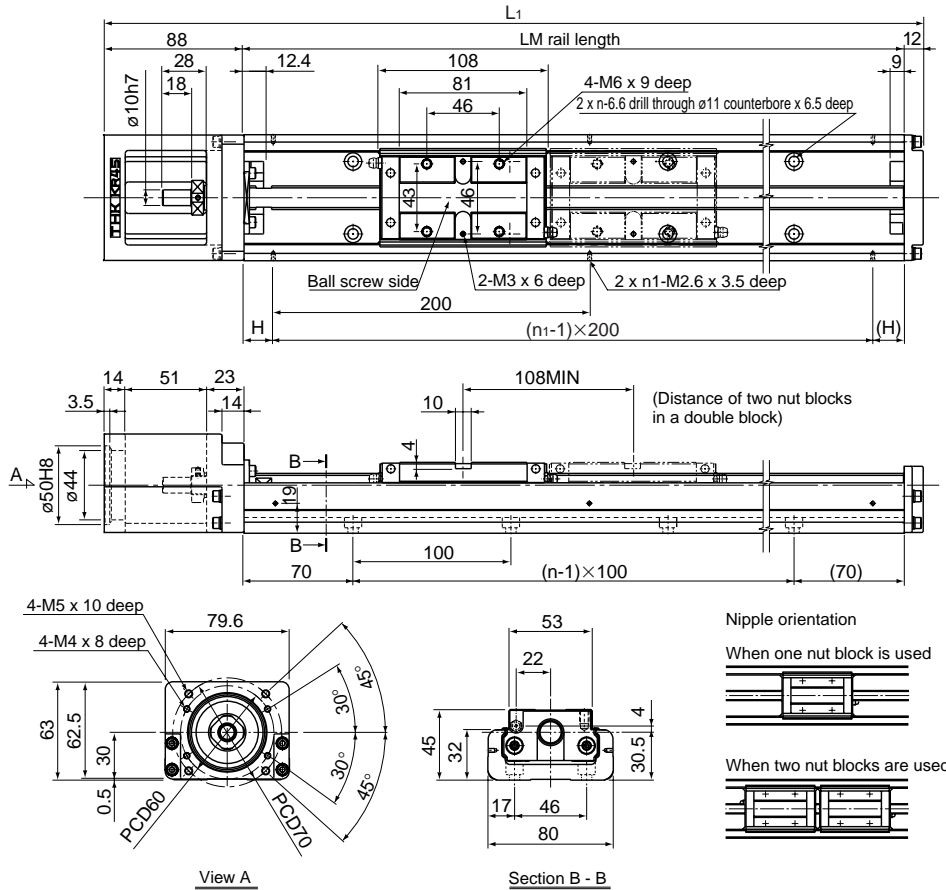


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type C	Type D	Type C	Type D
150	220	87	36.5	1.7	2
200	270	137	86.5	2.1	2.4
300	370	237	186.5	2.7	3
400	470	337	286.5	3.3	3.6
500	570	437	386.5	4	4.3
600	670	537	486.5	4.7	5

\* The possible stroke range of KR33 □□ B shows a value applicable when the product is used with two nut blocks in a double block.  
Note that the cover mounting bolts are 0.2 mm higher than the top surface of the top table.

5 Accuracy Grade	Description	Normal			High accuracy		Precision	
	Symbol	No symbol			H		P	
6 Presence/absence of motor	Description	Not provided						
	Symbol	0			1		2	
7 Presence/absence of cover	Description	Not provided			Provided		With bellows	
	Symbol	0			1		2	
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX).  
For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		n	Unit's Total Weight (kg)	
		Type A	Type B		Type A	Type B
340	440	213	105	3	5.1	6.05
440	540	313	205	4	6.1	7.05
540	640	413	305	5	7.1	8.05
640	740	513	405	6	8.1	9.05
740	840	613	505	7	9.1	10.05
840	940	713	605	8	10.1	11.05
940	1040	813	705	9	11.2	12.15

\* The possible stroke range of KR45H  B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

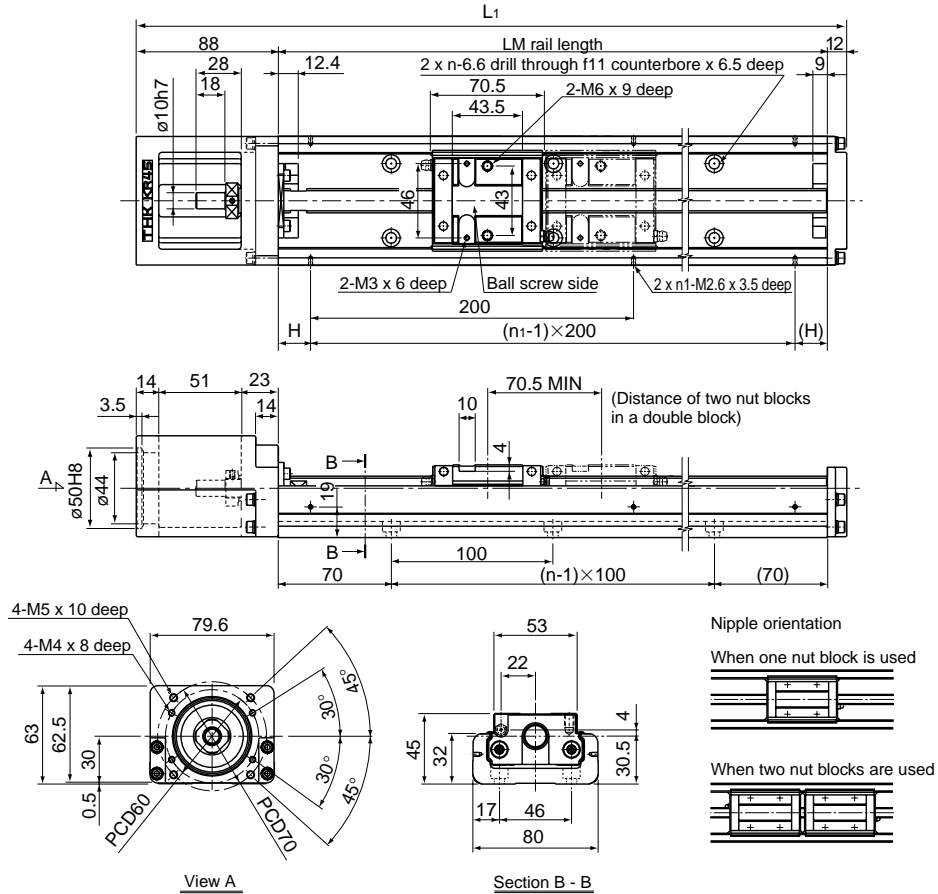
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**KR45H 10 A +940L P 0 - 0 0 0 0**  

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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (10 mm/20 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor       | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A               |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |  |                                    | <b>11</b> Control No.   |

KR45H □□ C (With one short nut block)

KR45H □□ D (With two short nut blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		n	Unit's Total Weight (kg)	
		Type C	Type D		Type C	Type D
340	440	250.5	180	3	4.7	5.23
440	540	350.5	280	4	5.7	6.23
540	640	450.5	380	5	6.7	7.23
640	740	550.5	480	6	7.7	8.23
740	840	650.5	580	7	8.7	9.23
840	940	750.5	680	8	9.7	10.23
940	1040	850.5	780	9	10.8	11.33

\* The possible stroke range of KR45H □□ D shows a value applicable when the product is used with two nut blocks in a double block.

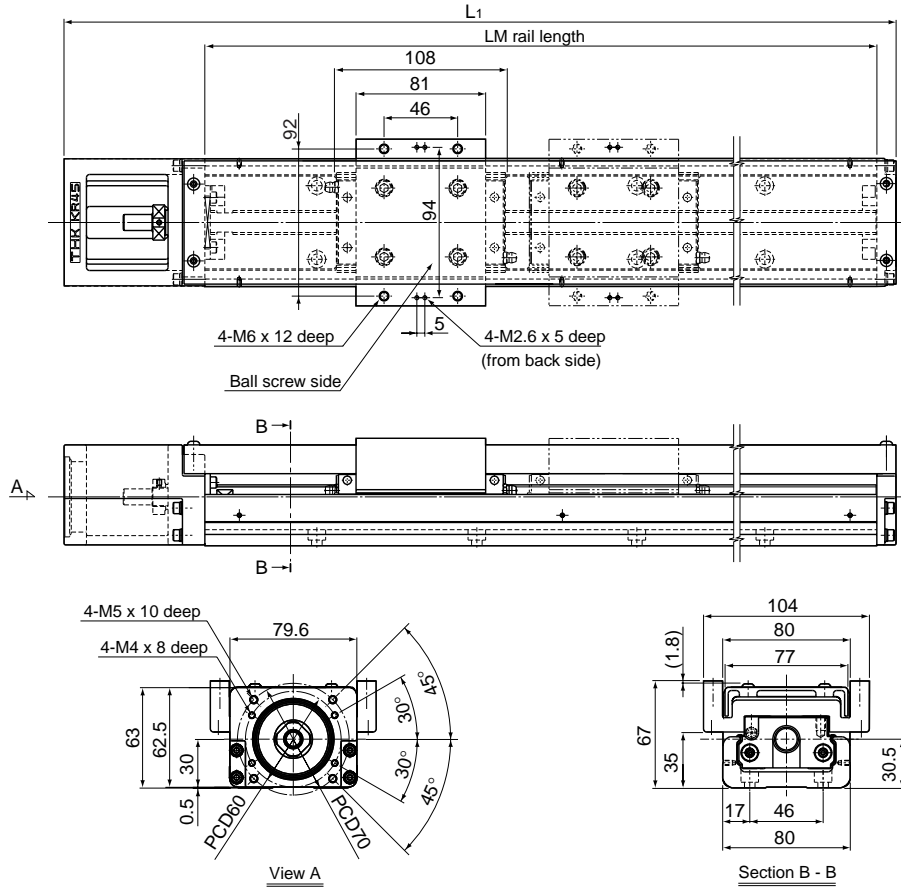
5 Accuracy Grade	Description	Normal		High accuracy			Precision	
	Symbol	No symbol		H			P	
6 Presence/absence of motor	Description	Not provided			Provided			
	Symbol	0			1			
7 Presence/absence of cover	Description	Not provided			Provided			
	Symbol	0			1			
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

# KR45H □□□ (With the cover)

KR45H □□ A (With one long nut Block)

KR45H □□ B (With two long nut Blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
340	440	213	105	5.7	7.01
440	540	313	205	6.8	8.11
540	640	413	305	7.9	9.21
640	740	513	405	9	10.31
740	840	613	505	10.1	11.41
840	940	713	605	11.2	12.51
940	1040	813	705	12.3	13.61

\* The possible stroke range of KR45H□□B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

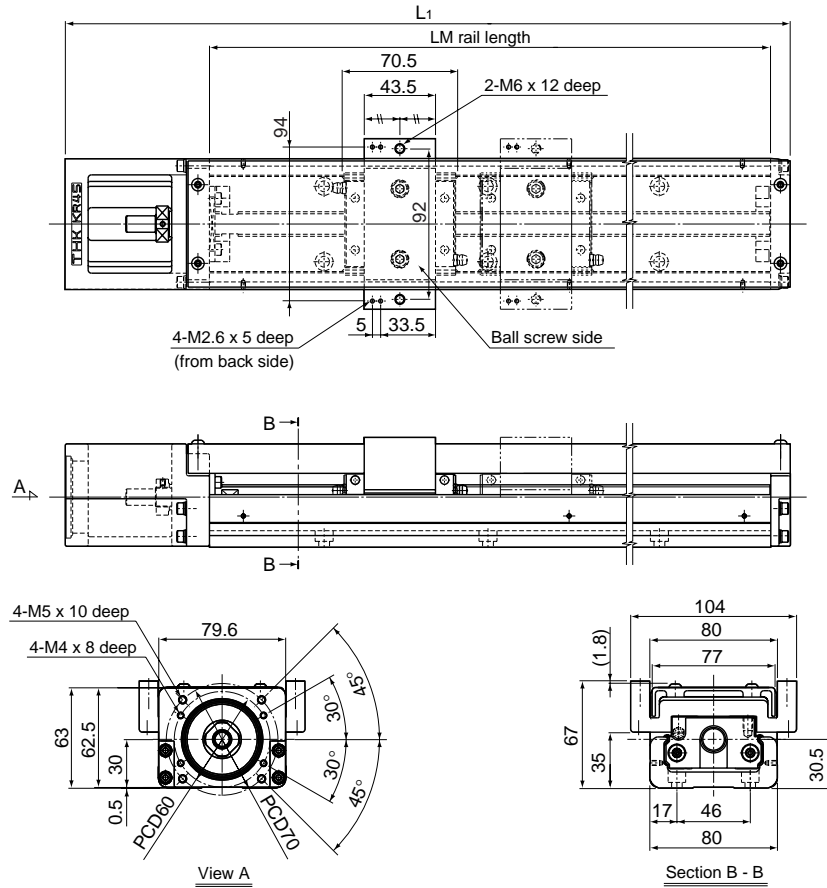
11  
**KR45H 10 A +940L P 0 - 0 0 0 0**  

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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (10 mm/20 mm) | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor       | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A               |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |  |                                    | <b>11</b> Control No.   |

KR45H □□ C (With one short nut block)

KR45H □□ D (With two short nut blocks)

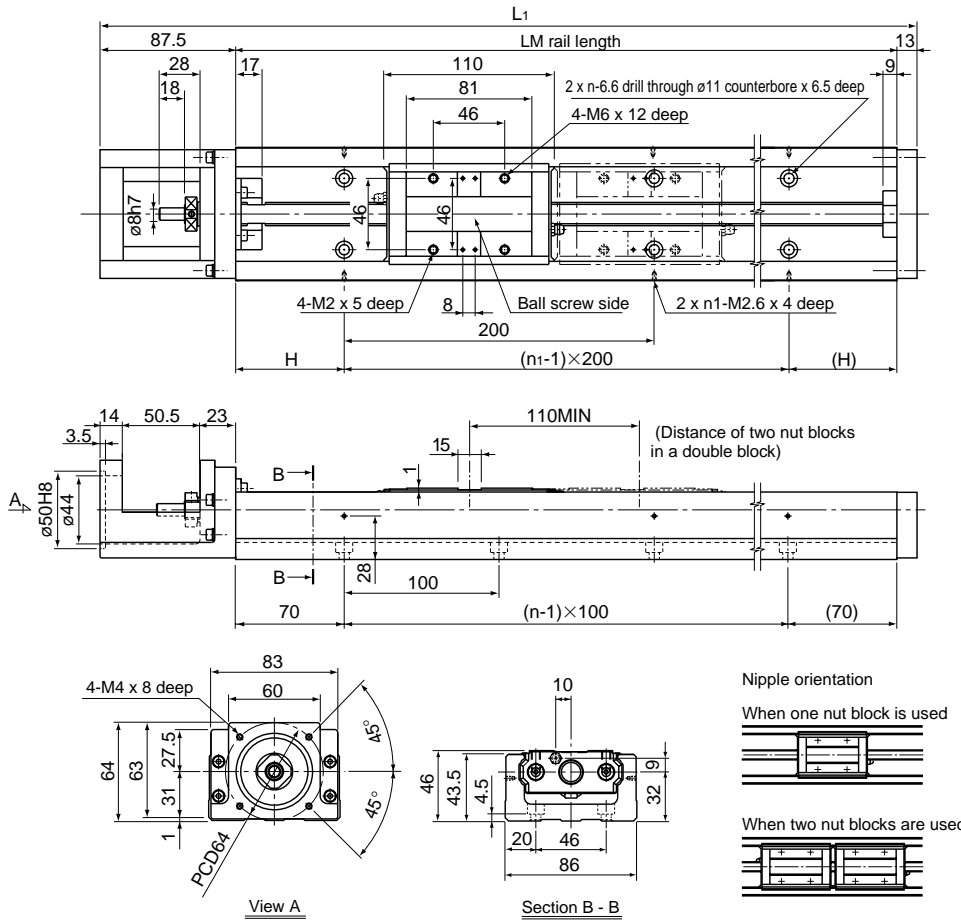


LM Rail Length (mm)	Full Length L <sub>1</sub> (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type C	Type D	Type C	Type D
340	440	250.5	180	5.1	5.82
440	540	350.5	280	6.2	6.92
540	640	450.5	380	7.3	8.02
640	740	550.5	480	8.4	9.12
740	840	650.5	580	9.5	10.22
840	940	750.5	680	10.6	11.32
940	1040	850.5	780	11.7	12.42

\* The possible stroke range of KR45H□□D shows a value applicable when the product is used with two nut blocks in a double block.

5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided						
	Symbol	0						
7 Presence/absence of cover	Description	Not provided						
	Symbol	0						
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		H (mm)	n	n <sub>1</sub>	Unit's Total Weight (kg)	
		Type A	Type B				Type A	Type B
340	440.5	208	98	70	3	2	7.7	8.9
440	540.5	308	198	20	4	3	9	10.2
540	640.5	408	298	70	5	3	10.3	11.5
640	740.5	508	398	20	6	4	11.6	12.8
740	840.5	608	498	70	7	4	12.8	14
940	1040.5	808	698	70	9	5	15.3	16.5

\* The possible stroke range of KR46  B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

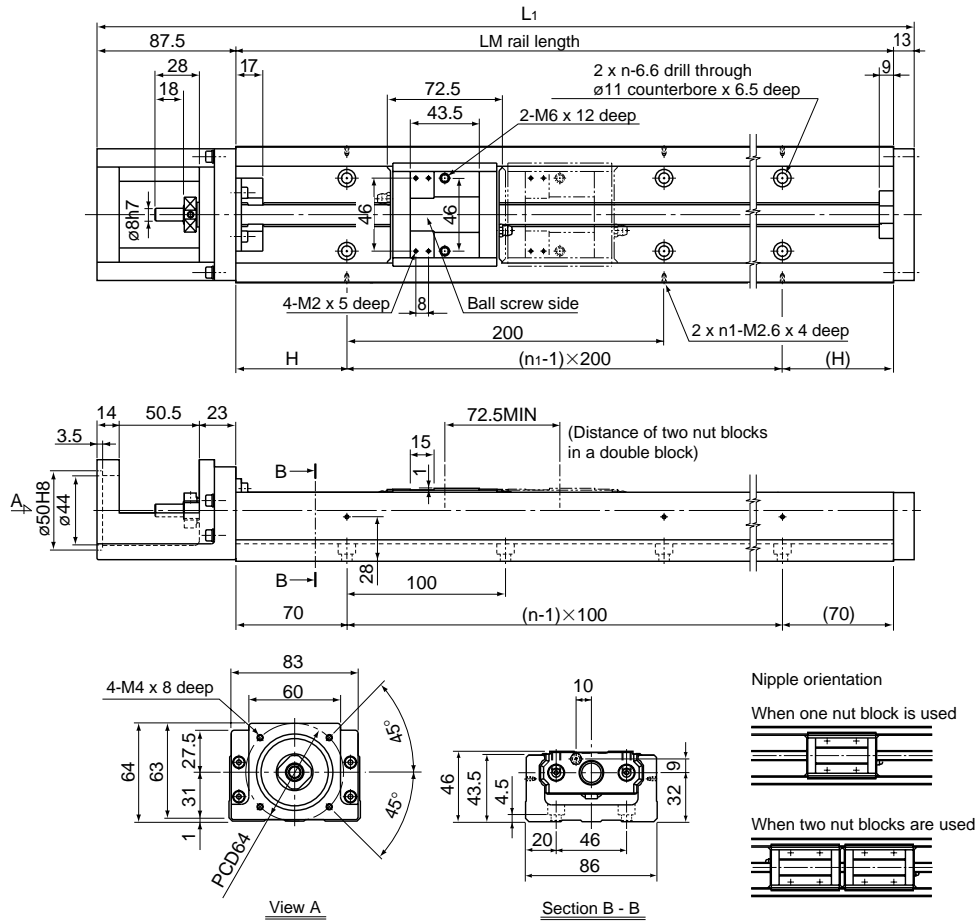
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**KR46 10 A +940L P 0 - 0 0 0 0**  

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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (10 mm/20 mm) | <b>3</b> Type of nut block               | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor       | <b>7</b> Presence/absence of cover       |                         |
| <b>8</b> Presence/absence of sensor                              |  | <b>9</b> Type of housing A (see page 53) |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |  |  | <b>11</b> Control No.   |

KR46 □□ C (With one short nut block)

KR46 □□ D (With two short nut blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		H (mm)	n	n <sub>1</sub>	Unit's Total Weight (kg)	
		Type C	Type D				Type C	Type D
340	440.5	245.5	173	70	3	2	7.3	8.1
440	540.5	345.5	273	20	4	3	8.6	9.4
540	640.5	445.5	373	70	5	3	9.9	10.7
640	740.5	545.5	473	20	6	4	11.2	12
740	840.5	645.5	573	70	7	4	12.4	13.2
940	1040.5	845.5	773	70	9	5	14.9	15.7

\* The possible stroke range of KR46 □□ D shows a value applicable when the product is used with two nut blocks in a double block.

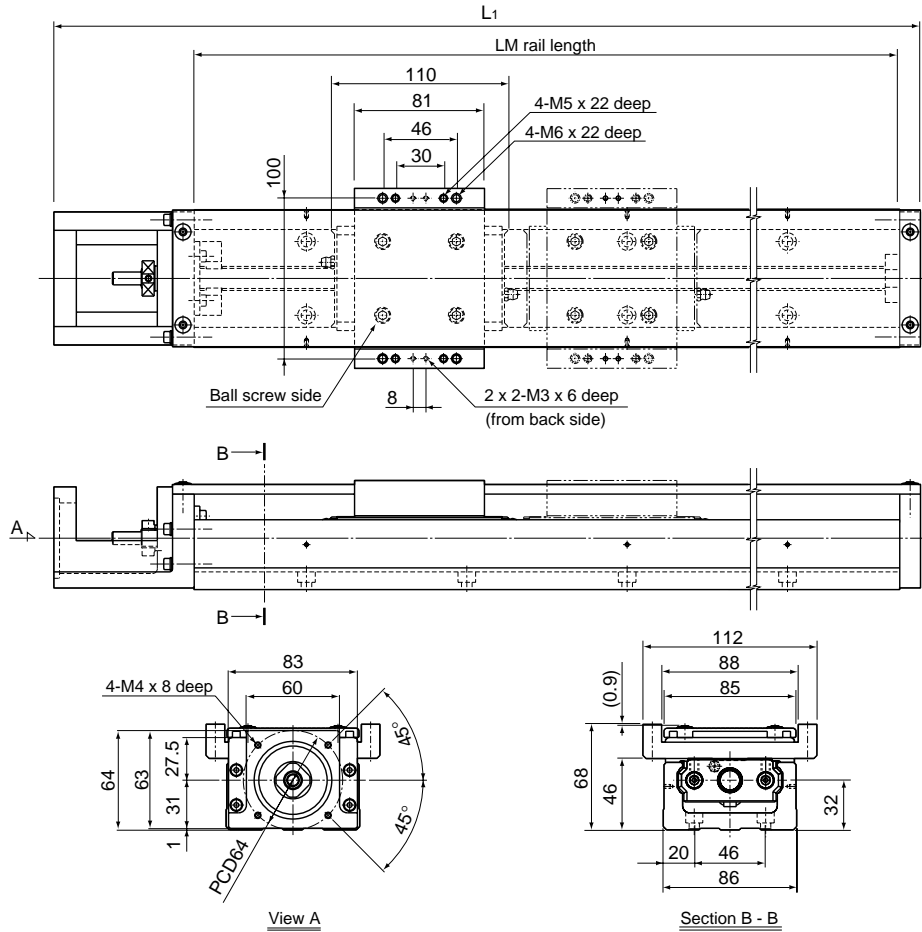
5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided						
	Symbol	0						
7 Presence/absence of cover	Description	Not provided		Provided		With bellows		
	Symbol	0		1		2		
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

# KR46 □□□ (With the cover)

KR46 □□ A (With one long nut Block)

KR46 □□ B (With two long nut Blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
340	440.5	208	98	8.3	9.79
440	540.5	308	198	9.7	11.19
540	640.5	408	298	11	12.49
640	740.5	508	398	12.4	13.89
740	840.5	608	498	13.7	15.19
940	1040.5	808	698	16.3	17.79

\* The possible stroke range of KR46□□B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

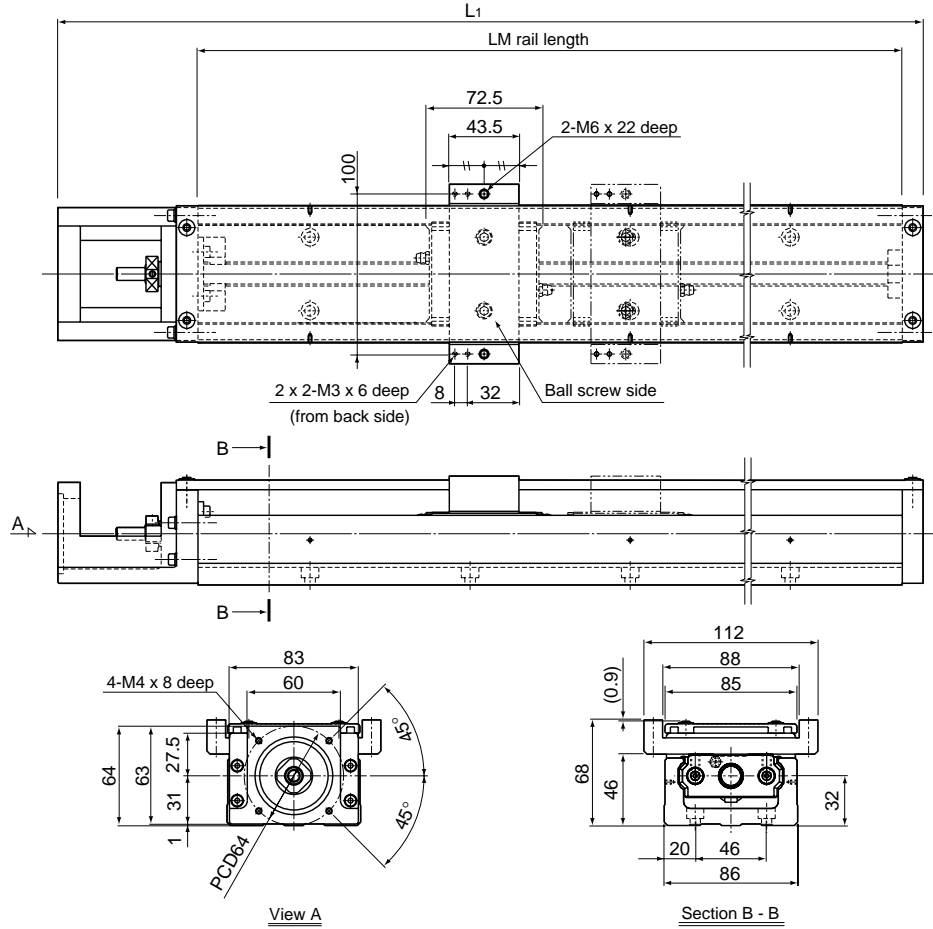
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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (10 mm/20 mm) | <b>3</b> Type of nut block               | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor       | <b>7</b> Presence/absence of cover       |                         |
| <b>8</b> Presence/absence of sensor                              |  | <b>9</b> Type of housing A (see page 53) |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |  |  | <b>11</b> Control No.   |

KR46 □□ C (With one short nut block)

KR46 □□ D (With two short nut blocks)

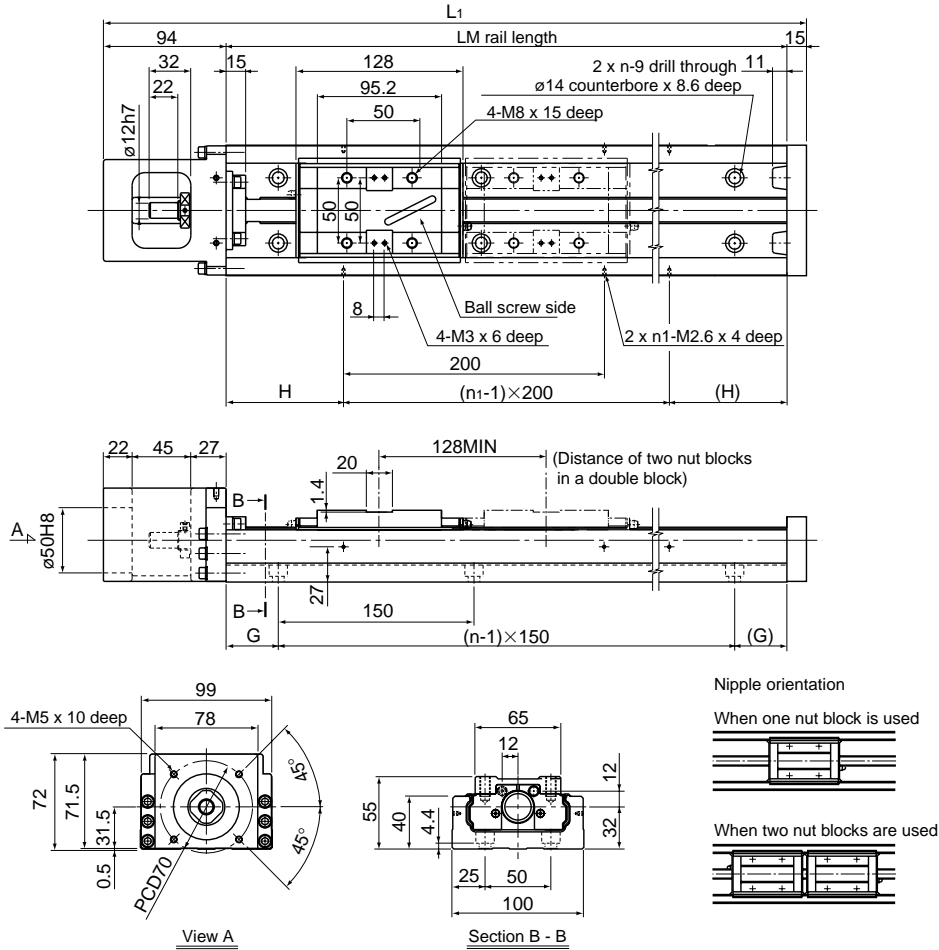


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type C	Type D	Type C	Type D
340	440.5	245.5	173	7.8	8.79
440	540.5	345.5	273	9.1	10.09
540	640.5	445.5	373	10.5	11.49
640	740.5	545.5	473	11.9	12.89
740	840.5	645.5	573	13.2	14.19
940	1040.5	845.5	773	15.8	16.79

\* The possible stroke range of KR46 □□ D shows a value applicable when the product is used with two nut blocks in a double block.

5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided				Provided		
	Symbol	0				1		
7 Presence/absence of cover	Description	Not provided		Provided		With bellows		
	Symbol	0		1		2		
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		H (mm)	G (mm)	n	n1	Unit's Total Weight (kg)	
		Type A	Type B					Type A	Type B
980	1089	826	698	90	40	7	5	19.9	21.6
1080	1189	926	798	40	15	8	6	21.7	23.4
1180	1289	1026	898	90	65	8	6	23.4	25.1
1280	1389	1126	998	40	40	9	7	25.1	26.8
1380	1489	1226	1098	90	15	10	7	26.9	28.6

\* The possible stroke range of KR5520B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

11  
**KR55 20 A +1380L P 0 - 0 0 0 0**  

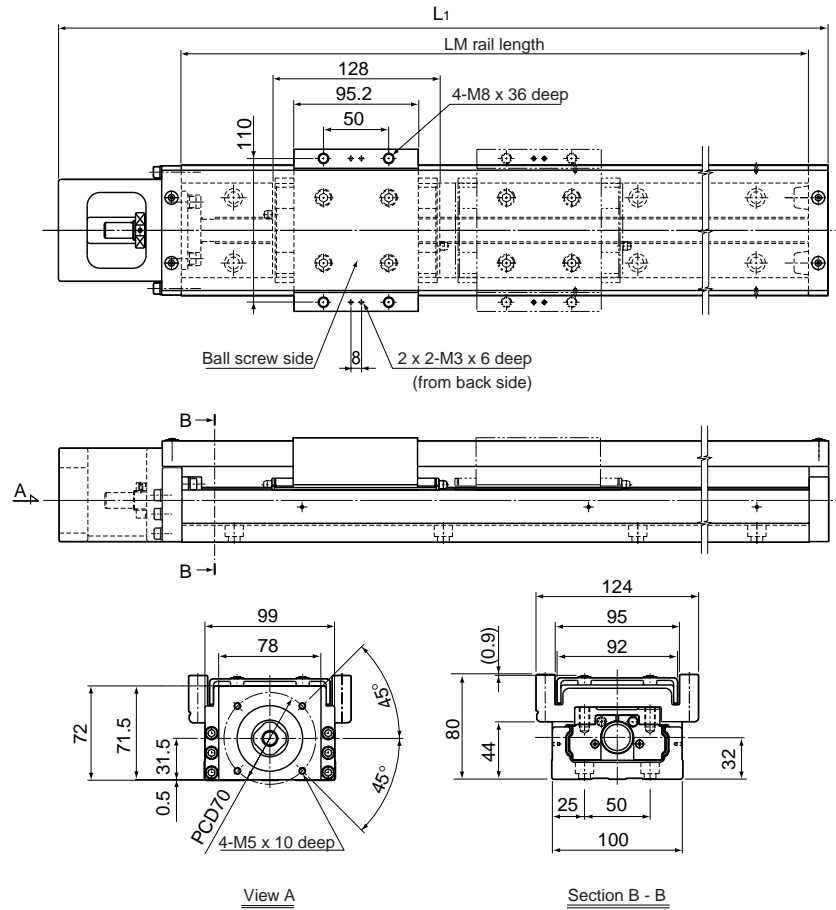
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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (20 mm)       | <b>3</b> Type of nut block         | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor       | <b>7</b> Presence/absence of cover |                         |
| <b>8</b> Presence/absence of sensor                              | <b>9</b> Type of housing A (see page 53) |                                    |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) | <b>11</b> Control No.                    |                                    |                         |

# KR5520 □ (With the Cover)

KR5520A (With one long nut Block)

KR5520B (With two long nut Blocks)

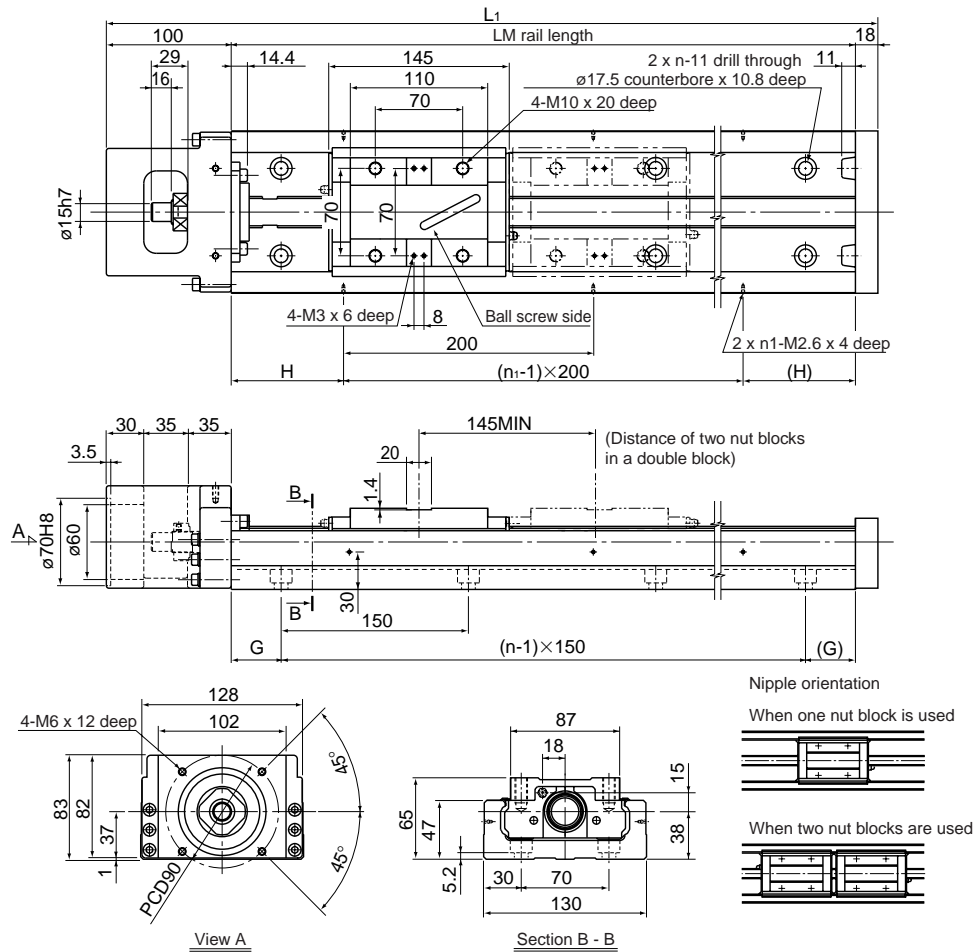


LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
980	1089	826	698	22.7	26.2
1080	1189	926	798	24.6	28.1
1180	1289	1026	898	26.4	29.9
1280	1389	1126	998	28.1	31.6
1380	1489	1226	1098	30	33.5

\* The possible stroke range of KR5520B shows a value applicable when the product is used with two nut blocks in a double block.

5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided				Provided		
	Symbol	0				1		
7 Presence/absence of cover	Description	Not provided		Provided		With bellows		
	Symbol	0		1		2		
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		H (mm)	G (mm)	n	n <sub>1</sub>	Unit's Total Weight (kg)	
		Type A	Type B					Type A	Type B
980	1098	810	665	90	40	7	5	31.6	34.6
1180	1298	1010	865	90	65	8	6	67	40
1380	1498	1210	1065	90	90	9	7	42.4	45.4
1680	1798	1510	1365	40	90	11	9	50.5	53.5

\* The possible stroke range of KR6525B shows a value applicable when the product is used with two nut blocks in a double block.

## Interpretation of Model Number

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**KR65 25 A +1680L P 0 - 0 0 0 0**  

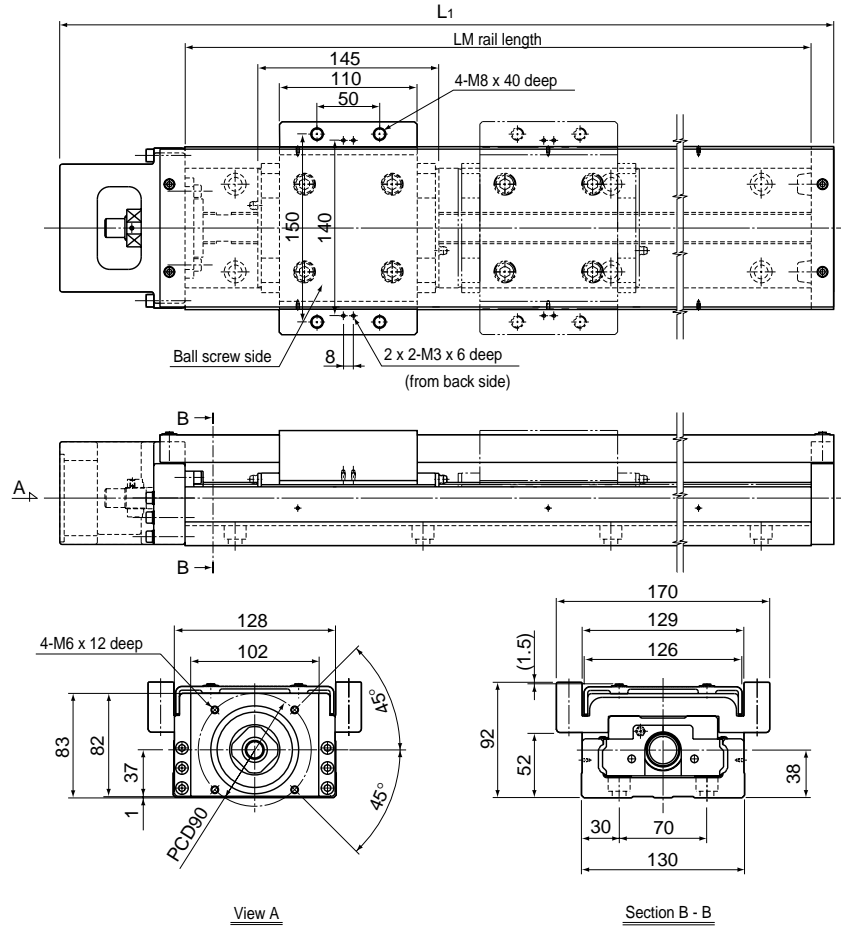
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| <b>1</b> Model number  | <b>2</b> Ball screw's lead (25 mm) | <b>3</b> Type of nut block               | <b>4</b> LM rail length |
| <b>5</b> Accuracy grade  | <b>6</b> Presence/absence of motor | <b>7</b> Presence/absence of cover       |                         |
| <b>8</b> Presence/absence of sensor                              |                                    | <b>9</b> Type of housing A (see page 53) |                         |
| <b>10</b> Presence/absence of intermediate housing (see page 55) |                                    |  | <b>11</b> Control No.   |

# KR6525 □ (With the Cover)

KR6525A (With one long nut Block)

KR6525B (With two long nut Blocks)



LM Rail Length (mm)	Full Length L1 (mm)	Possible Stroke Range (mm)		Unit's Total Weight (kg)	
		Type A	Type B	Type A	Type B
980	1098	810	665	36.3	43
1180	1298	1010	865	42	48.7
1380	1498	1210	1065	47.6	54.3
1680	1798	1510	1365	56.1	62.8

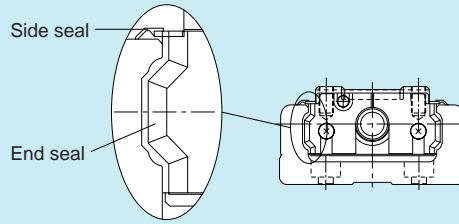
\* The possible stroke range of KR6525B shows a value applicable when the product is used with two nut blocks in a double block.

5 Accuracy Grade	Description	Normal		High accuracy		Precision		
	Symbol	No symbol		H		P		
6 Presence/absence of motor	Description	Not provided						
	Symbol	0			1			
7 Presence/absence of cover	Description	Not provided		Provided		With bellows		
	Symbol	0		1		2		
8 Presence/absence of sensor	Description	Not provided	With sensor rail	Photosensor EE-SX-671 (OMRON)	Proximity sensor GL-12F (SUNX)	Proximity sensor GXL-N12F (SUNX)*	Photosensor EE-SX-674 (OMRON)	Proximity sensor APM-D3A1-001 (Yamatake)*
	Symbol	0	1	2	4	5	6	7

(Note) \* A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

# Seals

Model KR is equipped with an end seal and a side seal as standard for dust-proofing.



In severe environments where fine particles, liquid and foreign material are present, we recommend jointly using both the dust-proofing option in addition to these end and side seals. For details, contact THK.

# Options

Various options are available for the KR. Check the option that meets your particular requirements.

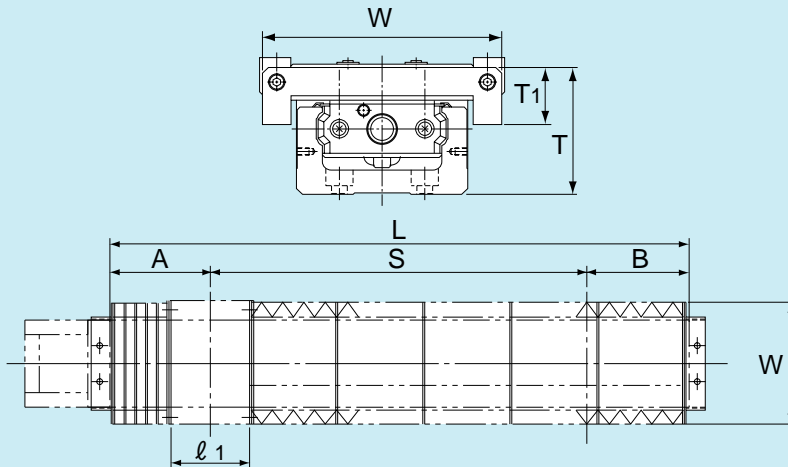
Name	See Page	Outline
Cover	P.20	Dust-proofing measure
Bellows	P.47	
Proximity sensors	P.51	Compatible manufacturers: Yamatake, SUNX
Photosensors	P.52	Compatible manufacturer: OMRON
Sensor rail	P.52	For mounting the sensor
Housing A	P.53	When the motor is not installed in the KR standard specifications
Housing A with separate motor	P.53	When the motor bracket is prepared by the user
Wrap housing A	P.53	In case of motor wrap specifications
Adapter flanges	P.55	When the motor is not installed in the KR standard specifications
Motor wrap type	P.64	In case of motor wrap specifications
X-Y bracket	P.65	Bracket for 1-axis use and X-Y 2-axis use

(Table 9) Option Compatibility

Model	Cover	Bellows	Proximity sensors	Photo sensors	Housing A	Housing A with separate motor	Wrap housing A	Intermediate flanges	Motor wrap type	X-Y bracket
KR15-A	○	—	○	—	—	—	—	○	—	—
KR15-B	○	—	○	—	—	—	—	○	—	—
KR20-A	○	—	○	—	—	—	—	○	—	—
KR20-B	○	—	○	—	—	—	—	○	—	—
KR26-A	○	—	○	—	—	—	—	○	—	—
KR26-B	○	—	○	—	—	—	—	○	—	—
KR30H-A	○	—	○	○	—	—	—	○	—	—
KR30H-B	○	—	○	○	—	—	—	○	—	—
KR30H-C	○	—	○	○	—	—	—	○	—	—
KR30H-D	○	—	○	○	—	—	—	○	—	—
KR33-A	○	○	○	○	○	○	○	○	○	○
KR33-B	○	○	○	○	○	○	○	○	○	○
KR33-C	○	○	○	○	○	○	○	○	○	○
KR33-D	○	○	○	○	○	○	○	○	○	○
KR45H-A	○	—	○	○	—	—	—	○	—	—
KR45H-B	○	—	○	○	—	—	—	○	—	—
KR45H-C	○	—	○	○	—	—	—	○	—	—
KR45H-D	○	—	○	○	—	—	—	○	—	—
KR46-A	○	○	○	○	○	○	○	○	○	○
KR46-B	○	○	○	○	○	○	○	○	○	○
KR46-C	○	○	○	○	○	○	○	○	○	○
KR46-D	○	○	○	○	○	○	○	○	○	○
KR55-A	○	○	○	○	—	—	○	○	—	—
KR55-B	○	○	○	○	—	—	○	○	—	—
KR65-A	○	○	○	○	○	—	○	○	—	—
KR65-B	○	○	○	○	○	—	○	○	—	—



## Block type A



Unit: mm

Model	LM Rail Length L	Stroke Length S	MIN / MAX	Motor Side A	Non-motor Side B	R <sub>1</sub>	W	T	T <sub>1</sub>
KR33	150	57	14 / 76	48	45	54	84	44.5	20
	200	104	17 / 123	48	48				
	300	180	30 / 210	59	61				
	400	260	40 / 300	69	71				
	500	330	55 / 385	84	86				
	600	410	65 / 475	94	96				
KR46	340	178	29.5 / 207.5	81	81	81	110	56	20
	440	258	39.5 / 297.5	91	91				
	540	328	54.5 / 382.5	106	106				
	640	418	59.5 / 477.5	111	111				
	740	488	74.5 / 562.5	126	126				
	940	648	94.5 / 742.5	146	146				
KR55	980	770	55.4 / 825.4	105	105	95.2	154	77	42
	1080	856	62.4 / 918.4	112	112				
	1180	944	68.4 / 1012.4	118	118				
	1280	1030	75.4 / 1105.4	125	125				
	1380	1116	82.4 / 1198.4	132	132				
KR65	980	746.5	58 / 804.5	115	118.5	110	184	87	49
	1180	914.5	74 / 988.5	131	134.5				
	1380	1082.5	90 / 1172.5	147	150.5				
	1680	1334.5	114 / 1448.5	171	174.5				

(Note 1) An adapter plate is available for lubricating the actuator guide from the grease nipple with the bellows still attached. For details, contact THK.

(Note 2) The degree of shrinkage differs when the bellows are used in applications outside of horizontal use (e.g. vertical or wall-mounting use). For details, contact THK.

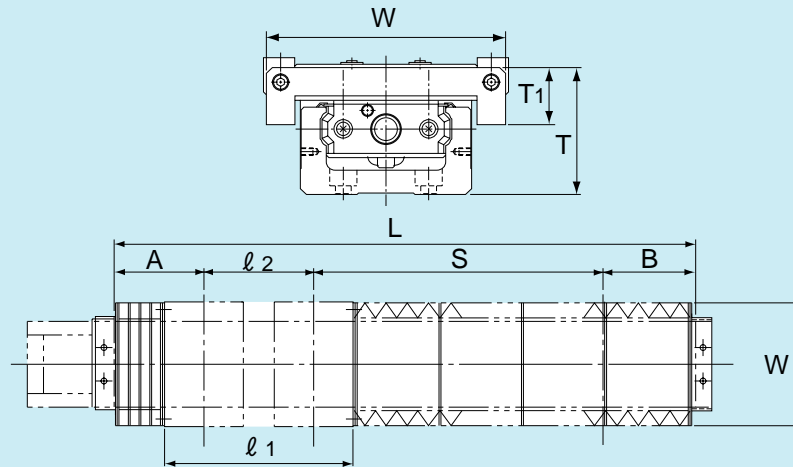
(Note) Calculate the length of the bellows by the following equation:

$$L_{min} = \frac{S}{(A-1)} \quad S: \text{Stroke length (mm)}$$

$$L_{max} = L_{min} \cdot A \quad A: \text{Degree of shrinkage (see table at right)}$$

	A (degree of shrinkage)
KR33	7
KR46	7
KR55	13
KR65	13

## ● Block type B



Unit: mm

Model	LM Rail Length L	Stroke Length S	MIN / MAX	Motor Side A	Non-motor Side B	l <sub>1</sub>	l <sub>2</sub>	W	T	T <sub>1</sub>
KR33	300	114	25 / 139	54	56	130	76	84	44.5	20
	400	194	35 / 229	64	66					
	500	264	50 / 321	79	81					
	600	344	60 / 404	89	91					
KR46	340	90	15.5 / 111.5	73	67	191	110	110	56	20
	440	168	29.5 / 197.5	81	81					
	540	248	39.5 / 287.5	91	91					
	640	318	54.5 / 372.5	106	106					
	740	408	59.5 / 467.5	111	111					
KR55	980	652	50.4 / 702.4	100	100	223.1	128	154	77	42
	1080	738	57.4 / 795.4	107	107					
	1180	826	63.4 / 889.4	113	113					
	1280	912	70.4 / 982.4	120	120					
	1380	998	77.4 / 1075.4	127	127					
KR65	980	625.5	46 / 671.5	103	106.5	225	145	184	87	49
	1180	795.5	61 / 856.5	118	121.5					
	1380	959.5	79 / 1038.5	136	139.5					
	1680	1211.5	103 / 1314.5	160	163.5					

(Note 1) An adapter plate is available for lubricating the actuator guide from the grease nipple with the bellows still attached. For details, contact THK.

(Note 2) The degree of shrinkage differs when the bellows are used in applications outside of horizontal use (e.g. vertical or wall-mounting use). For details, contact THK.

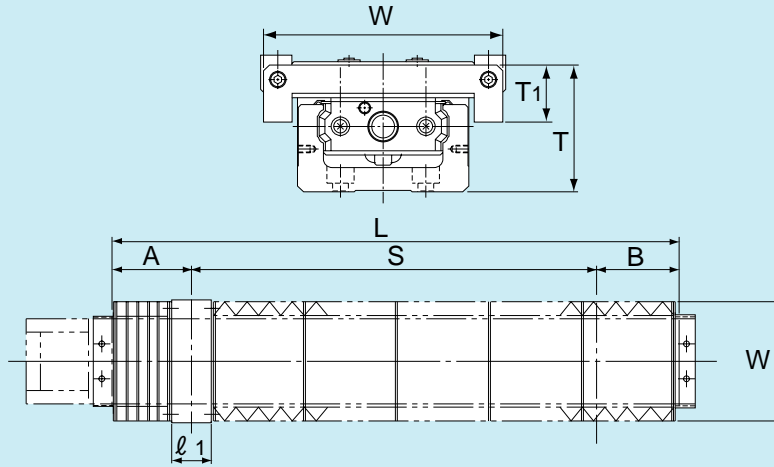
(Note) Calculate the length of the bellows by the following equation:

$$L_{min} = \frac{S}{(A-1)} \quad S: \text{Stroke length (mm)}$$

$$L_{max} = L_{min} \cdot A \quad A: \text{Degree of shrinkage (see table at right)}$$

	A (degree of shrinkage)
KR33	7
KR46	7
KR55	13
KR65	13

## ● Block type C



Unit: mm

Model	LM Rail Length L	Stroke Length S	MIN / MAX	Motor Side A	Non-motor Side B	$l_1$	W	T	$T_1$
KR33	150	78.7	17 / 98.5	36	35.3	28.5	84	44.5	20
	200	119.4	23 / 142.5	39.3	41.3				
	300	195.4	35 / 230.5	51.3	53.3				
	400	269.4	48 / 317.5	64.3	66.3				
	500	345.4	60 / 405.5	76.3	78.3				
	600	425.4	70 / 495.5	86.3	88.3				
KR46	340	205.4	34.5 / 240	67.3	67.3	43.5	110	56	20
	440	279.4	47.5 / 327	80.3	80.3				
	540	355.4	59.5 / 415	92.3	92.3				
	640	439.4	67.5 / 507	100.3	100.3				
	740	509.4	82.5 / 592	115.3	115.3				
	940	675.4	99.5 / 775	132.3	132.3				

(Note 1) An adapter plate is available for lubricating the actuator guide from the grease nipple with the bellows still attached. For details, contact THK.

(Note 2) The degree of shrinkage differs when the bellows are used in applications outside of horizontal use (e.g. vertical or wall-mounting use). For details, contact THK.

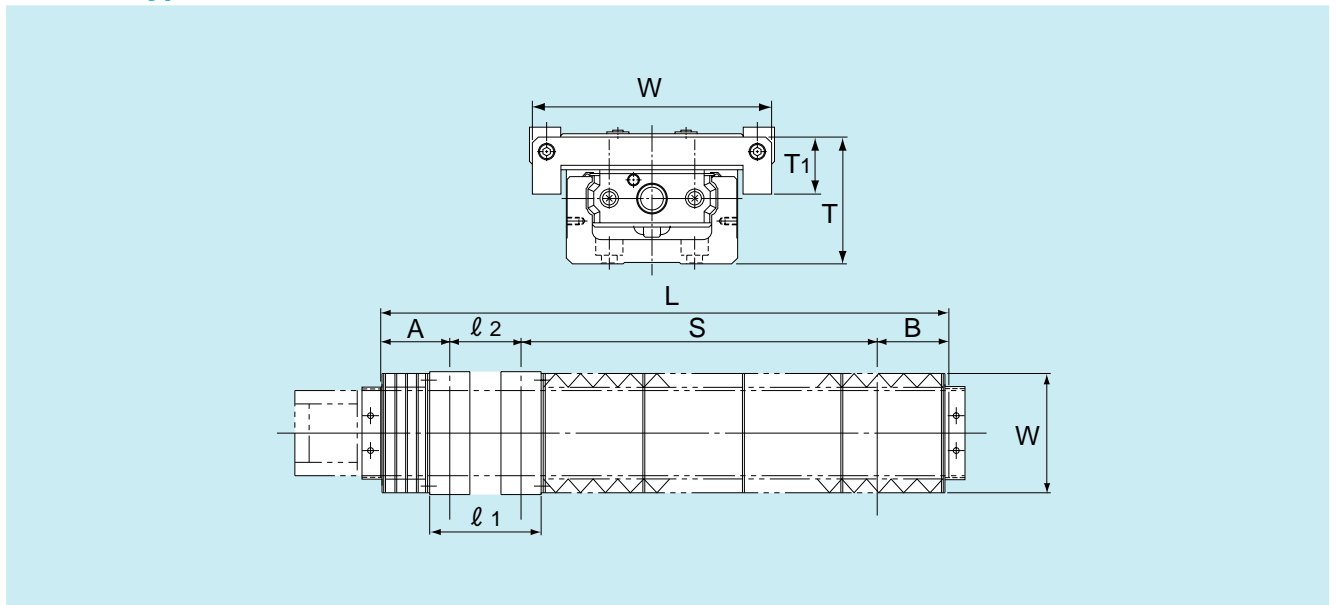
(Note) Calculate the length of the bellows by the following equation:

$$L_{min} = \frac{S}{(A-1)} \quad S: \text{Stroke length (mm)}$$

$$L_{max} = L_{min} \cdot A \quad A: \text{Degree of shrinkage (see table at right)}$$

	A (degree of shrinkage)
KR33	7
KR46	7

● Block type D



Unit: mm

Model	LM Rail Length L	Stroke Length S	MIN / MAX	Motor Side A	Non-motor Side B	$l_1$	$l_2$	W	T	$T_1$
KR33	150	31.2	14 / 51	36	32.3	79	50.5	84	44.5	20
	200	78.2	17 / 98	36	35.3					
	300	154.9	30 / 185	46.3	48.3					
	400	234.9	40 / 275	56.3	58.3					
	500	304.9	55 / 360	71.3	73.3					
	600	384.9	65 / 450	81.3	83.3					
KR46	340	142.9	29.5 / 167.5	62.3	62.3	116	72.5	110	56	20
	440	222.9	39.5 / 262.5	72.3	72.3					
	540	292.9	54.5 / 347.5	87.3	87.3					
	640	382.9	59.5 / 442.5	92.3	92.3					
	740	452.9	74.5 / 527.5	107.3	107.3					
	940	612.9	94.5 / 707.5	127.3	127.3					

(Note 1) An adapter plate is available for lubricating the actuator guide from the grease nipple with the bellows still attached. For details, contact THK.

(Note 2) The degree of shrinkage differs when the bellows are used in applications outside of horizontal use (e.g. vertical or wall-mounting use). For details, contact THK.

(Note) Calculate the length of the bellows by the following equation:

$$L_{min} = \frac{S}{(A-1)} \quad S: \text{Stroke length (mm)}$$

$$L_{max} = L_{min} \cdot A \quad A: \text{Degree of shrinkage (see table at right)}$$

	A (degree of shrinkage)
KR33	7
KR46	7

# Sensors

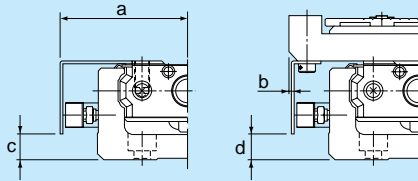
Proximity sensors and photosensors are provided as options for model KR. When the KR with sensors is specified, the sensor rails and sensor dogs specially designed for the KR are also supplied with the product.

## Proximity sensors

APM-D3A1-001 (Yamatake)	3 units
GL-12F (SUNX)	3 units
GXL-N12F (SUNX)	3 units

(Note) A normally closed (NC) contact is also available for the APM-D3A1-001 (Yamatake) and GXL-N12F (SUNX). For details, contact THK.

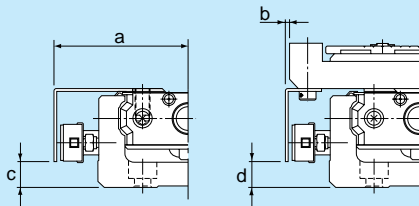
### Proximity sensor APM-D3A1-001 (Yamatake)



Unit: mm

Model	a	b	c	d
KR15	27.8	-5.8	1.4	1.4
KR20	32.5	6.6	6	6
KR26	37.5	6.4	8	8
KR30H	43.3	3.3	8.8	9
KR33	42.5	-0.6	8.8	9
KR45H	53.2	1.2	14	14
KR46	55.4	-0.6	21.8	22
KR55	62.4	0.4	22	22
KR65	77.4	-7.5	25.1	25

### Proximity sensor GL-12F (SUNX) GXL-N12F (SUNX)



Unit: mm

Model	a	b	c	d
KR30H	45	5	8.8	9
KR33	44.5	1.5	8.8	9
KR45H	54.8	2.8	13.8	14
KR46	57.4	1.5	21.8	22
KR55	63.5	1.5	22	22
KR65	79	-6	25.1	25

## ● Photosensors

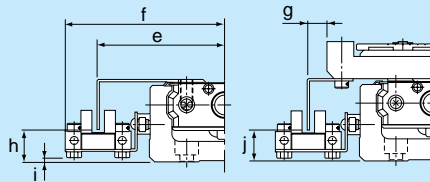
EE-SX671 (OMRON) 3 units

EE-SX674 (OMRON) 3 units

Connector EE-1001 (OMRON) 3 units

(Note) Connectors are supplied with photosensors as standard.

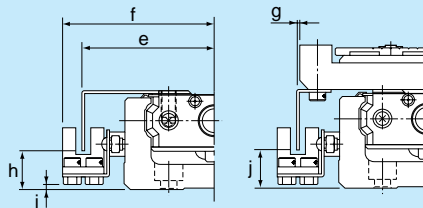
### Photosensor EE-SX671 (OMRON)



Unit: mm

Model	e	f	g	h	i	j
KR30H	51.3	64.3	11.3	13.8	1.4	13.5
KR33	50.8	63.7	7.8	12.8	1.6	13
KR45H	61.2	74.2	9.3	18.3	6.4	18.5
KR46	63.6	76.6	7.6	25.8	14.6	26
KR55	70.7	83.5	8.6	24.5	13.6	25
KR65	85.5	98.5	0.6	28.1	16.6	28

### Photosensor EE-SX674 (OMRON)

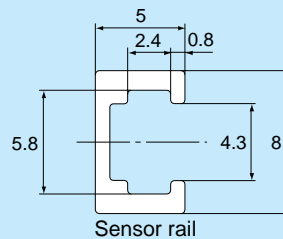


Unit: mm

Model	e	f	g	h	i	j
KR30H	46.2	52.8	6.3	13.8	1.1	14
KR33	43.9	50.3	0.9	12.8	1.6	13
KR45H	56.2	62.7	4.2	19	6.1	19
KR46	56.7	63.2	0.7	25.8	14.6	26
KR55	63.8	70.1	1.8	24.5	13.6	25
KR65	78.8	85.1	-6.2	28.1	16.6	28

## ● Sensor rail

It is also possible to install a sensor rail only.



# Housings

## Housing A

Housing A with separate motor and wrap housing A are provided as options for compatibility when a motor bracket and wrap section are made separately. Use these optional housings as required.

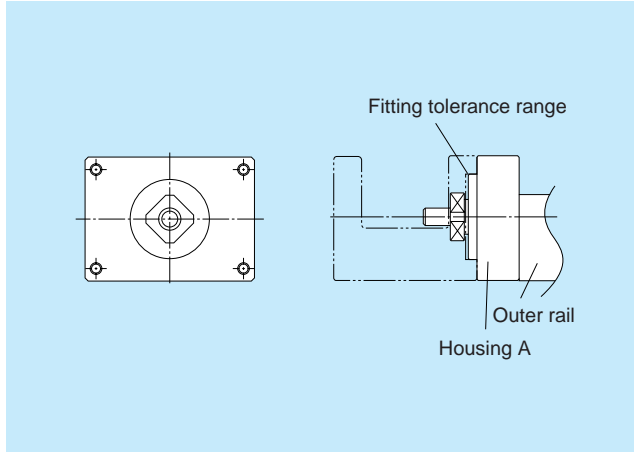
### Housing A with separate motor

Separately made motor brackets can be easily incorporated by making use of the fitting tolerances.

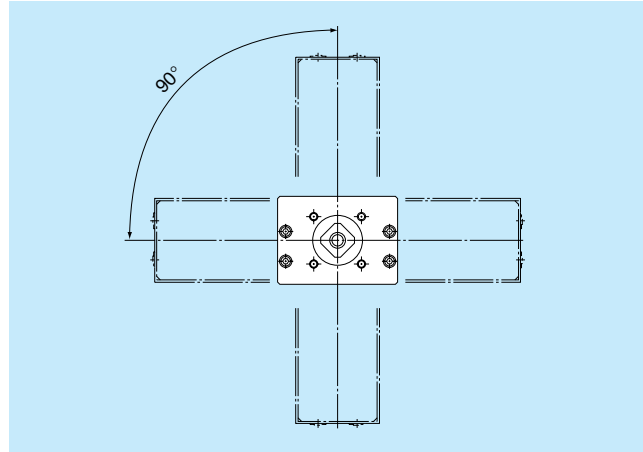
### Wrap housing A

Mounting holes have been drilled at an equal pitch to enable easy selection of the mounting direction of the motor bracket.

For detailed dimensions, see pages 53 and 54.



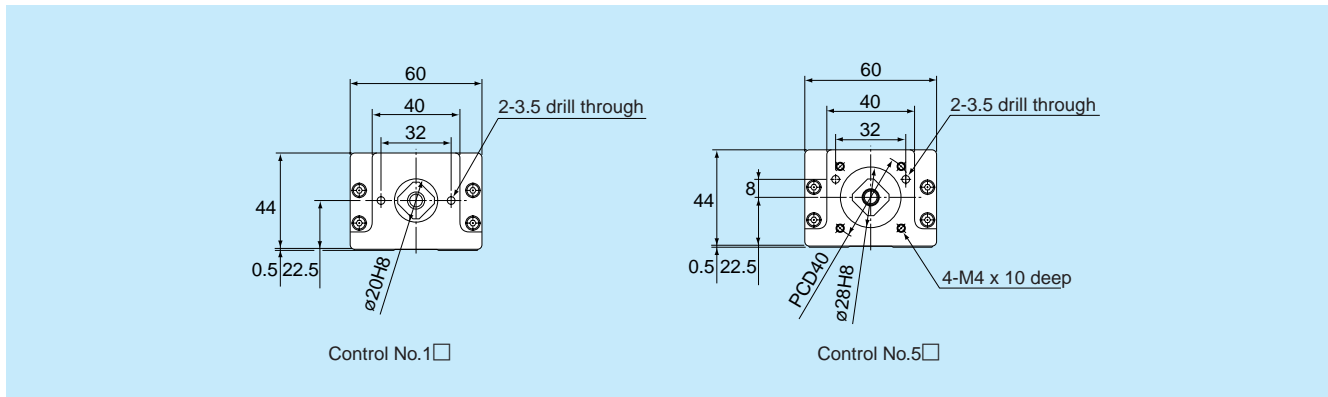
For detailed dimensions, see pages 53 and 54.



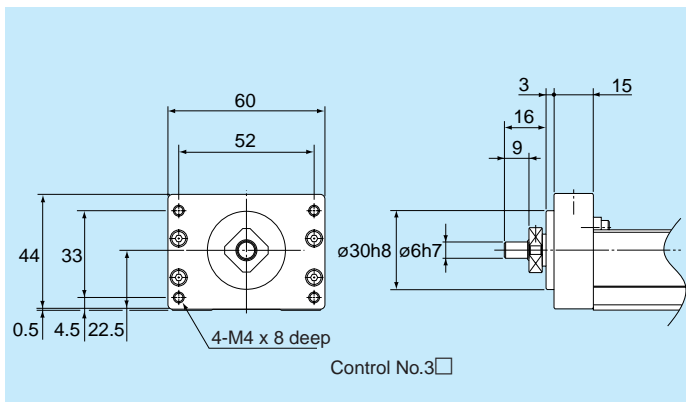
For detailed dimensions, see pages 53 and 54.

## For Model KR33

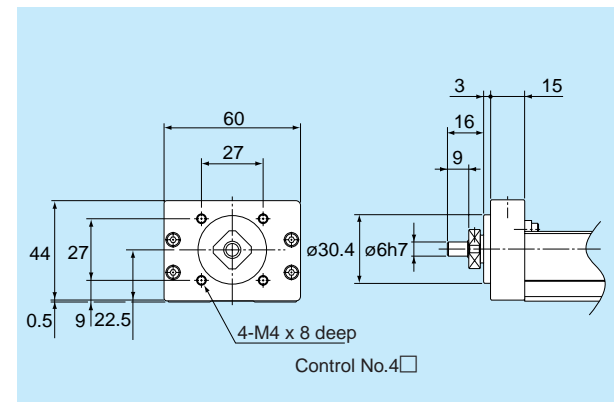
### Housing A



### Housing A with separate motor

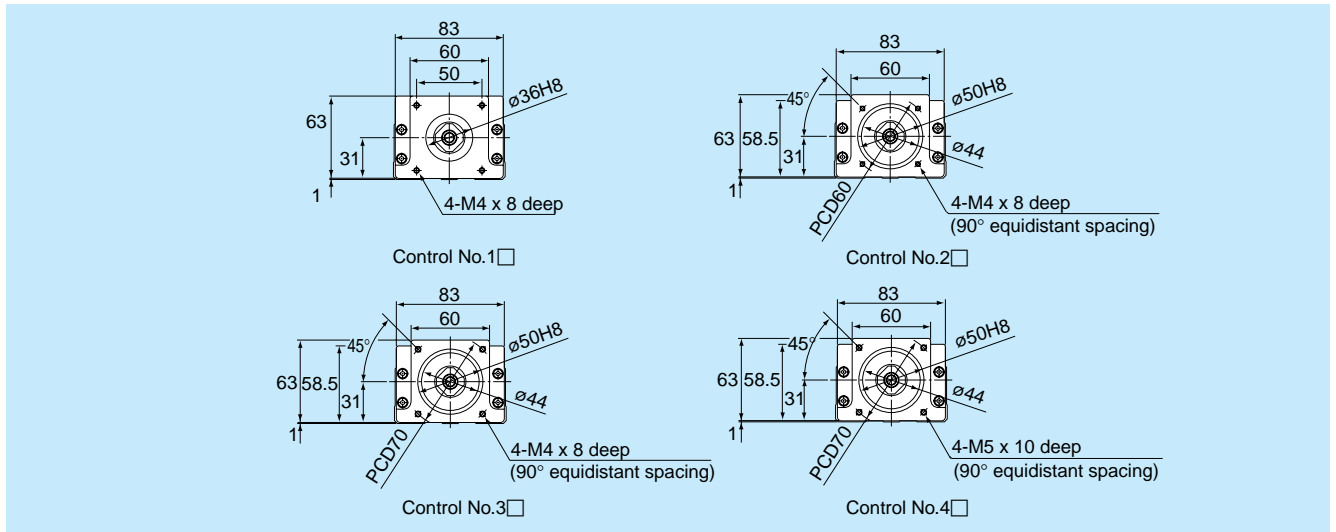


### Wrap housing A

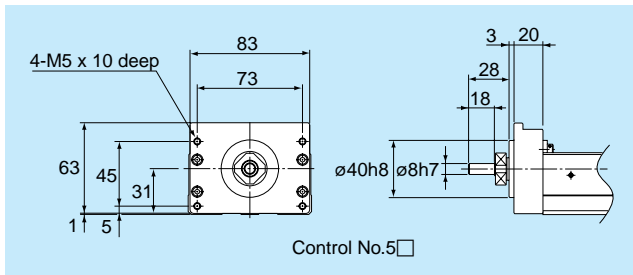


■ For Model KR46

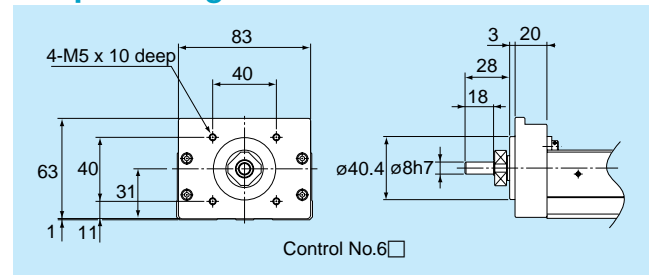
Housing A



Housing A with separate motor

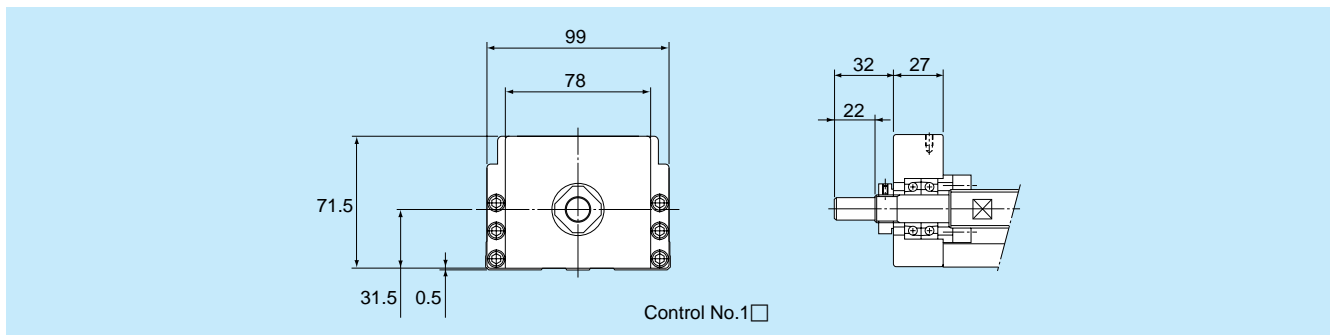


Wrap housing A



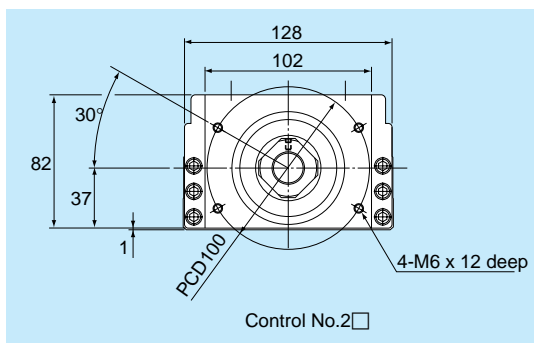
■ For Model KR55

Wrap housing A

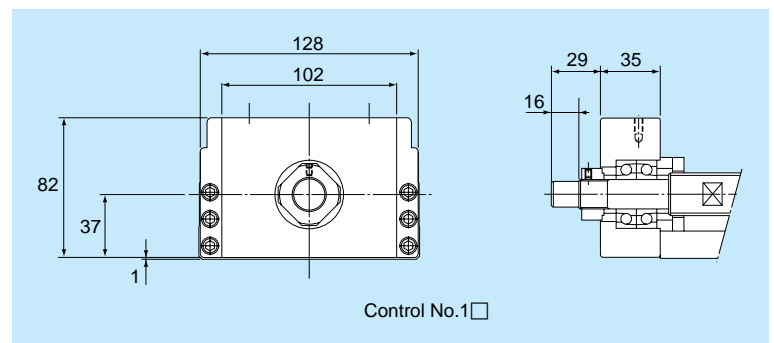


■ For Model KR65

Housing A



Wrap housing A



# Adapter flanges

## Applicable Motors and Applicable Adapter Flanges

Adapter flanges are provided for model KR so that various motors can be mounted. Specify the adapter flange matched the motor according to the model by the control No.

(Table 10) Compatible Motor - Flange Correspondence Table

			Model Number		KR15	KR20	KR26	KR30H	KR33	KR45H	KR46	KR55	KR65	
Motor Model			Flange Angle											
AC Servo Motors	Yaskawa Electric	Σ-mini	SGMM -A1 (10W)	□25	0B	3N	0N	-	-	-	-	-	-	
			SGMM -A2 (20W)		0B	3N	0N	-	-	-	-	-	-	
			SGMM -A3 (30W)		-	3N	0N	-	-	-	-	-	-	
		Σ-II	SGMAH-A3 (30W)	□40	-	0B	0B	0B	5H	0B	0F	-	-	-
			SGMAH-A5 (50W)		-	0B	0B	0B	5H	0B	0F	-	-	
			SGMAH-01 (100W)		-	-	-	0B	5H	0B	0F	-	-	
			SGMPH-01 (100W)	□60	-	-	-	-	-	0D	40	00	0A	0A
			SGMAH-02 (200W)		-	-	-	-	-	0D	40	00	0A	0A
			SGMAH-04(400W)		-	-	-	-	-	0D	40	00	0A	0A
			SGMPH-02 (200W)	□80	-	-	-	-	-	-	-	0B	00	00
SGMPH-04 (400W)	-	-	-		-	-	-	-	0B	00	00	00		
SGMAH-08 (750W)	-	-	-		-	-	-	-	-	0B	00	0G		
Mitsubishi Electric	MELSERVO	J2-Jr	HC-AQ 013 (10W)	□28	0A	3M	0M	-	-	-	-	-	-	
			HC-AQ 023 (20W)		0A	3M	0M	-	-	-	-	-	-	
			HC-AQ 033 (30W)		-	3M	0M	-	-	-	-	-	-	
		J2 Super	HC-MFS 053 (50W)	□40	-	0B	0B	0B	5H	0B	0F	-	-	-
			HC-MFS 13 (100W)		-	-	-	0B	5H	0B	0F	-	-	
			HC-MFS 23 (200W)		-	-	-	-	-	0D	40	00	0A	0A
			HC-KFS 23 (200W)	□60	-	-	-	-	-	0D	40	00	0A	0A
			HC-MFS 43 (400W)		-	-	-	-	-	0D	40	00	0A	0A
			HC-KFS 43 (400W)		-	-	-	-	-	0D	40	00	0A	0A
			HC-MFS 73 (750W)	□80	-	-	-	-	-	-	-	0B	0G	0G
HC-KFS 73 (750W)	-	-	-		-	-	-	-	0B	0G	0G	0G		
Matsushita Electric	MINAS A	μMINAS	MSM 5B (5W)	ø20	0C	0G	0G	-	-	-	-	-	-	
			MSM 1A (10W)		0C	0G	0G	-	-	-	-	-	-	
			MSM 2A (20W)		0C	0G	0G	-	-	-	-	-	-	
		MINAS A	MSMA 3A (30W)	□38	-	0A	0A	0A	5K	0A	0G	-	-	-
			MSMA 5A (50W)		-	0A	0A	0A	5K	0A	0G	-	-	
			MSMA 01 (100W)		-	-	-	0A	5K	0A	0G	-	-	
			MQMA 01 (100W)	□60	-	-	-	-	-	0C	30	-	-	-
			MSMA 02 (200W)		-	-	-	-	-	0C	30	-	-	
			MSMA 04 (400W)		-	-	-	-	-	0C	30	-	-	
			MSMA 08 (750W)	□80	-	-	-	-	-	-	-	0A	2B	2B
Sanyo Denki	SANMOTION Q1	Q1AA04003D (30W)	□40	-	0B	0B	0B	5H	0B	0F	-	-		
		Q1AA04005D (50W)		-	0B	0B	0B	5H	0B	0F	-	-		
		Q1AA04010D (100W)		-	-	-	0B	5H	0B	0F	-	-		
		Q1AA06020D (200W)	□60	-	-	-	-	-	0D	40	00	0A	0A	
		Q1AA06040D (400W)		-	-	-	-	-	0D	40	00	0A	0A	
		Q1AA07075D (750W)		□76	-	-	-	-	-	-	-	0A	2B	2B
		OMRON	OMNUC W	R88M-W03030 (30W)	□40	-	0B	0B	0B	5H	0B	0F	-	-
				R88M-W05030 (50W)		-	0B	0B	0B	5H	0B	0F	-	-
				R88M-W10030 (100W)		-	-	-	0B	5H	0B	0F	-	-
				R88M-W20030 (200W)	□60	-	-	-	-	-	0D	40	00	0A
R88M-W40030 (400W)	-			-		-	-	-	0D	40	00	0A	0A	
R88M-W75030 (750W)	□80			-		-	-	-	-	-	-	0B	0G	0G
FANUC	βM series	β0.2/5000is (50W)	□40	-	0B	0B	0B	5H	0B	0F	-	-		
		β0.3/5000is (100W)		-	-	-	0B	5H	0B	0F	-	-		
		β0.4/5000is (125W)		-	-	-	-	-	0D	40	00	0A	0A	
		β0.5/5000is (200W)	□60	-	-	-	-	-	0D	40	00	0A	0A	
		β1/5000is (400W)		-	-	-	-	-	0D	40	00	0A	0A	
Stepping Motors	Oriental Motor Co., Ltd.	α Step	ASC3*	□28	0D	0F	0F	-	-	-	-	-		
			AS 46, ASC46	□42	-	0E	0E	XC	5I	-	-	-		
			AS 6*, ASC66	□60	-	-	-	0E	5G	0F	10	-		
			AS 9*	□85	-	-	-	-	-	-	-	0G	2F	
			AS 9*	□85	-	-	-	-	-	-	-	-	-	
		5-phase	PMU	PMU33/35 (PMM33/35)	□28	0D	0F	0F	-	-	-	-	-	
				PMC33/35 (PMM33/35)		0D	0F	0F	-	-	-	-	-	
				UPK54* (PK54*)	□42	-	0E	0E	XC	5I	-	-	-	
				UPK56* (PK56*)	□60	-	-	-	0E	5G	0F	10	-	
				UPK59* (PK59*)	□85	-	-	-	-	-	-	-	0G	2F
2-phase	UMK	UMK24* (PK24*)	□42	-	0E	0E	XC	5I	-	-	-			
		UMK26* (PK26*)	□56.4	-	-	-	0D	5F	-	-	-			

(Note 1) Symbols in the above table indicate the lower two digits of the control No.

(Note 2) With the KR15, the input torque is restricted. The maximum permissible input torque is 51 N•mm and 103 N•mm for the KR1501 and KR1502, respectively. When the maximum torque of the motor to mount on the KR15 exceeds the permissible input torque, restrict the torque or adopt other safety measures.

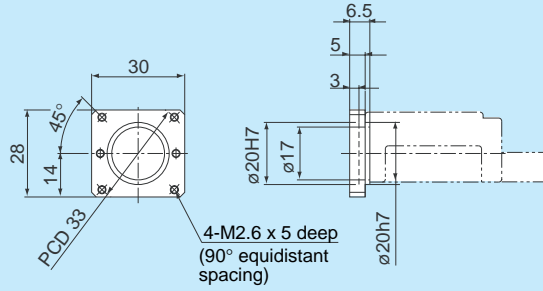
(Note 3) The stainless steel of adapter flanges is treated with THK AP-C high corrosion-resistant coating.

## ● Dimensions of Adapter Flanges

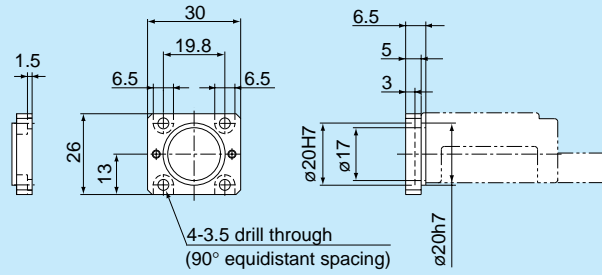
### ■ For Model KR15

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

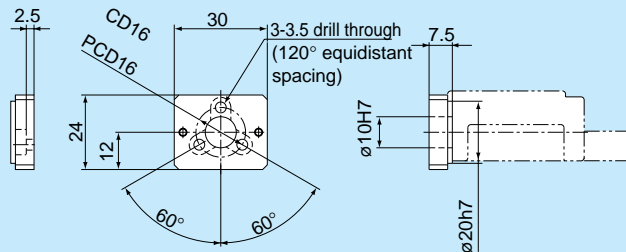
F15-A  
 0A



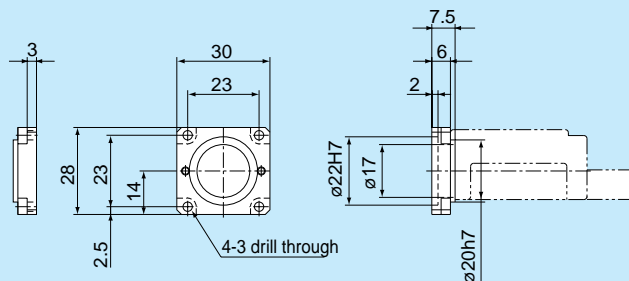
F15-B  
 0B



F15-C  
 0C



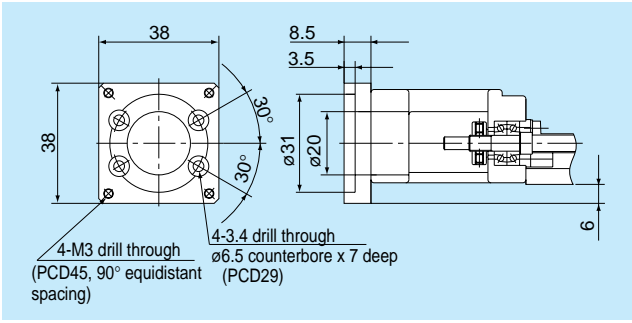
F15-D  
 0D



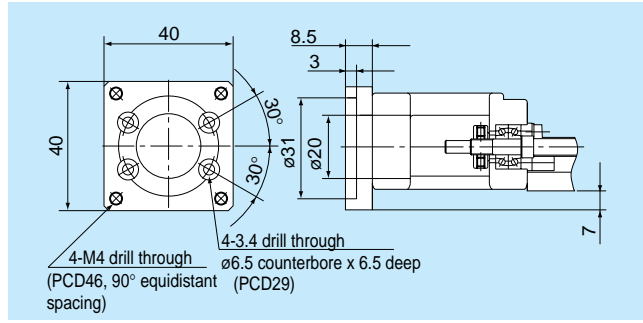
# For Model KR20

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

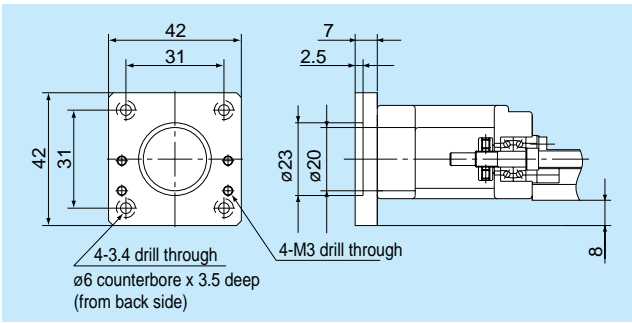
F20-A  
0A



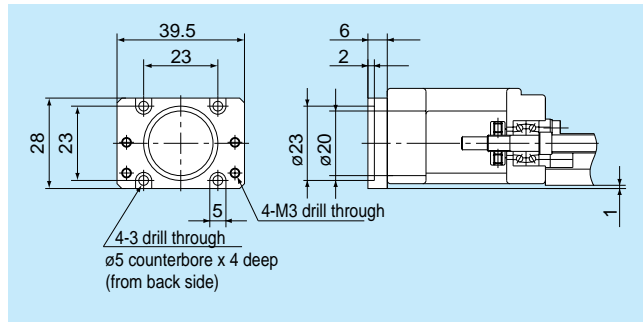
F20-B  
0B



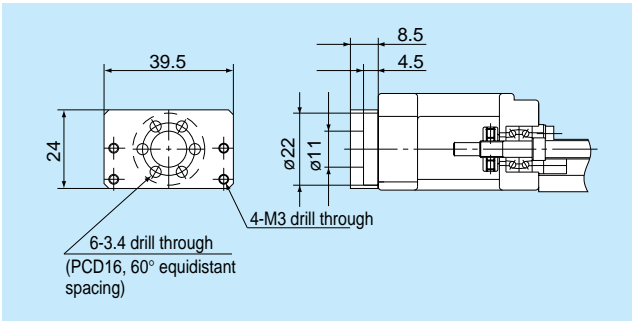
F20-E  
0E



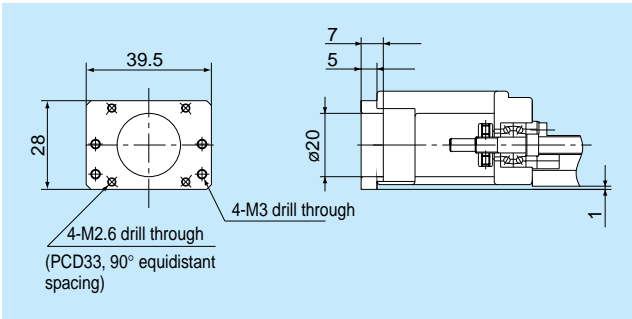
F20-F  
0F



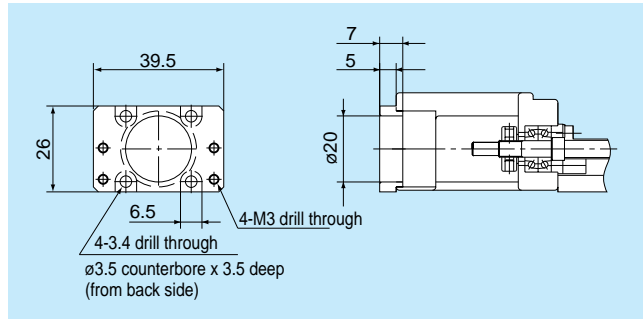
F20-G  
0G



F20-M  
3M



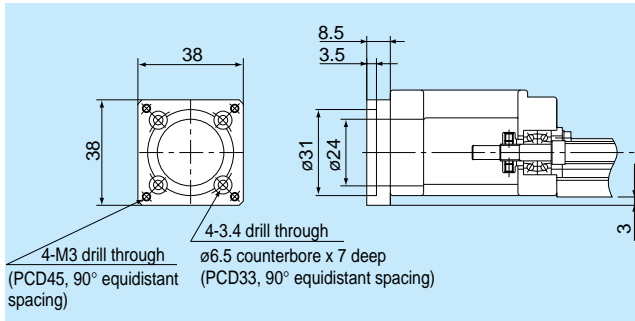
F20-N  
3N



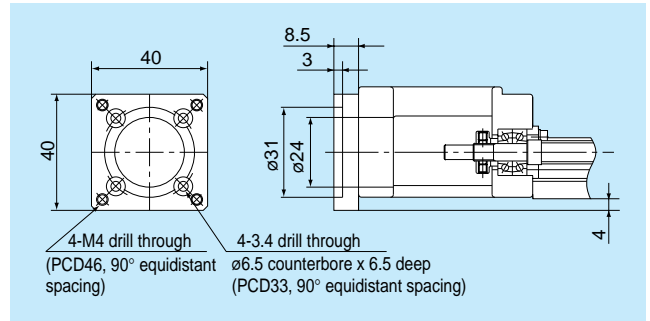
■ For Model KR26

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

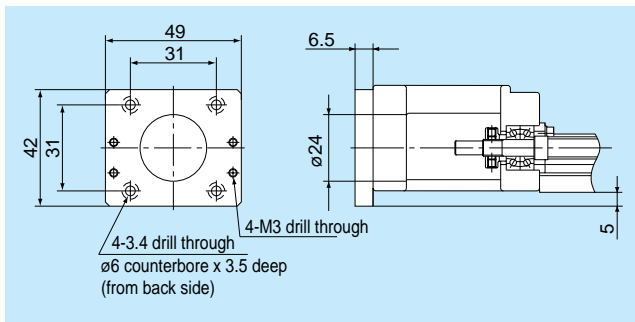
F26-A  
0A



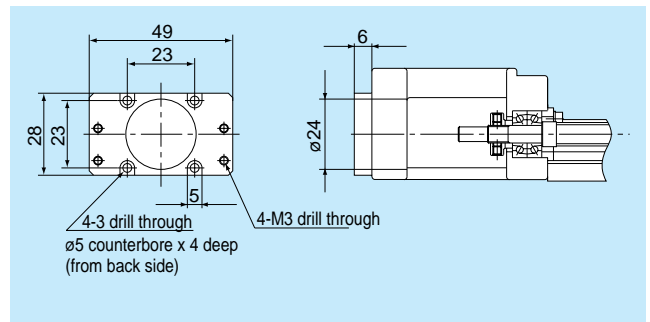
F26-B  
0B



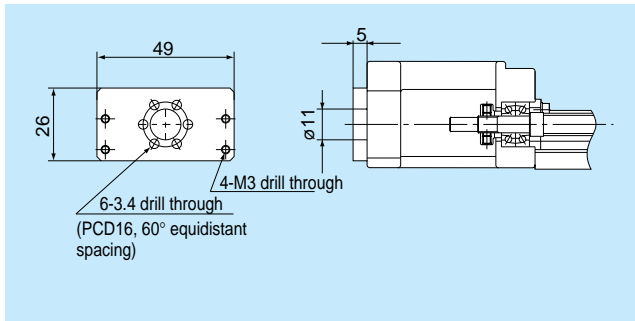
F26-E  
0E



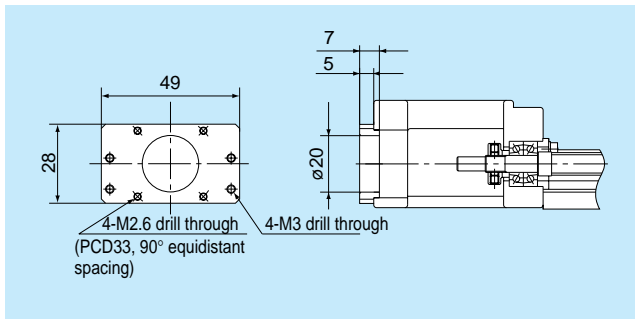
F26-F  
0F



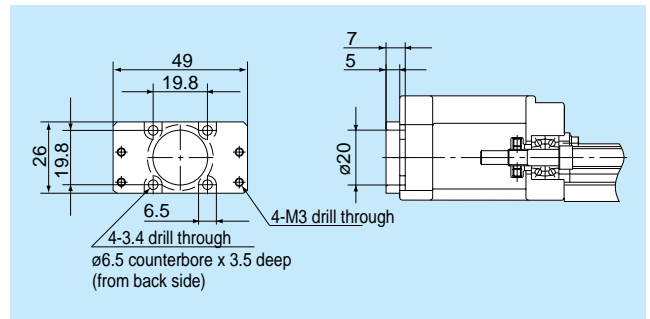
F26-G  
0G



F26-M  
0M



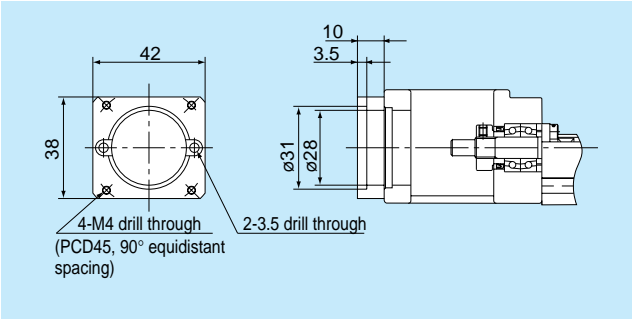
F26-N  
0N



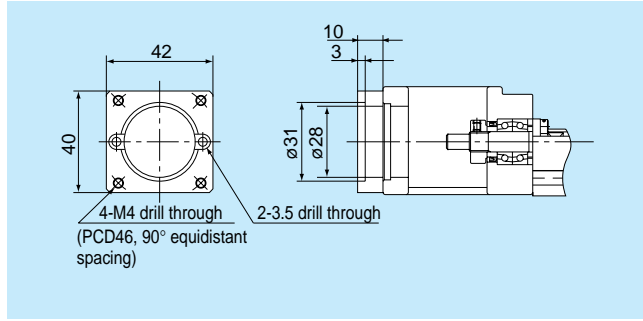
**For Model KR30H**

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

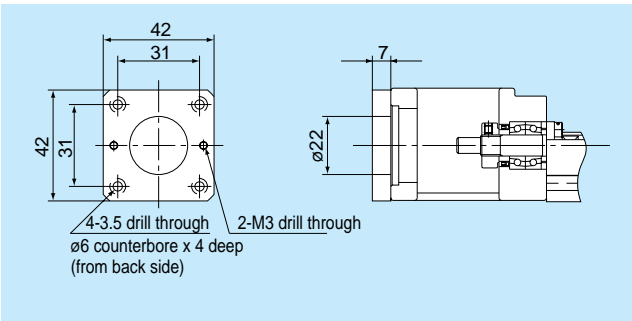
F30-A  
0A



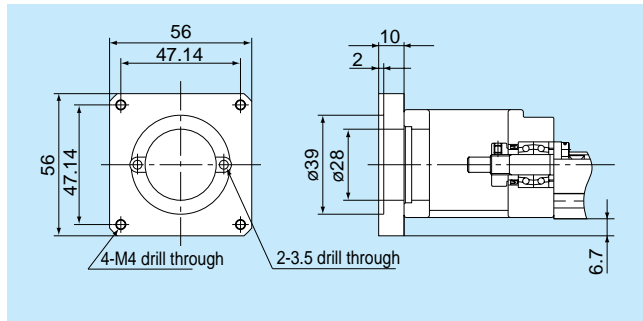
F30-B  
0B



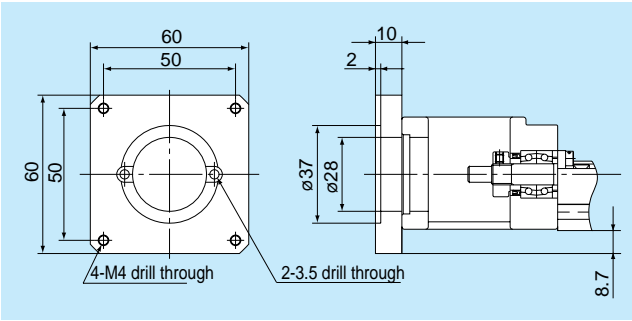
F30-C  
XC



F30-D  
0D



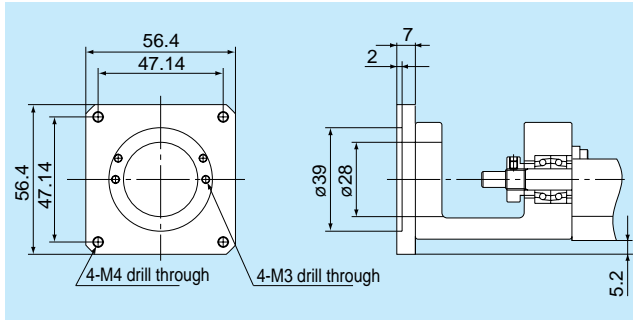
F30-E  
0E



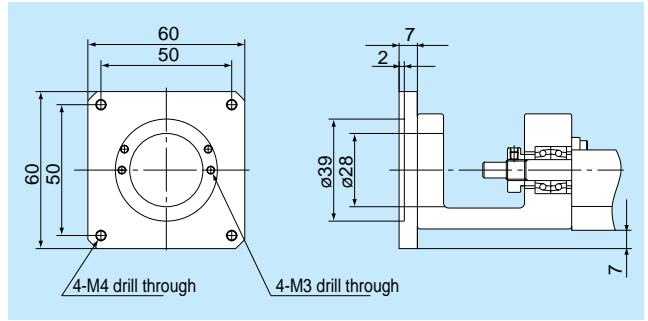
■ For Model KR33

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

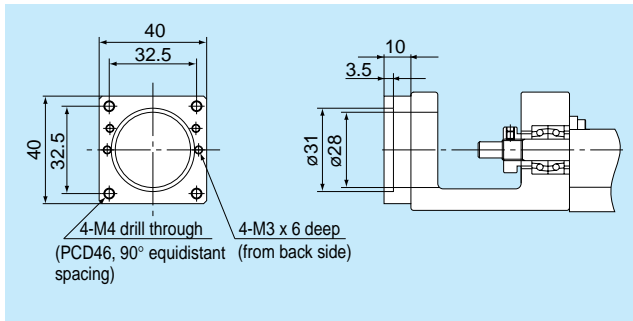
F33-F  
5F



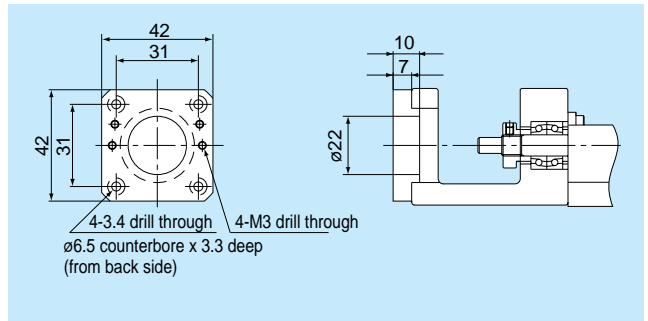
F33-G  
5G



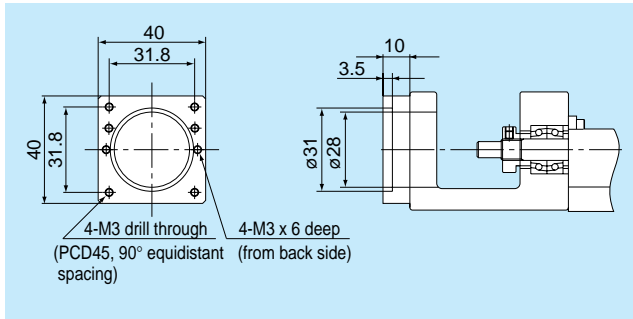
F33-H  
5H



F33-I  
5I



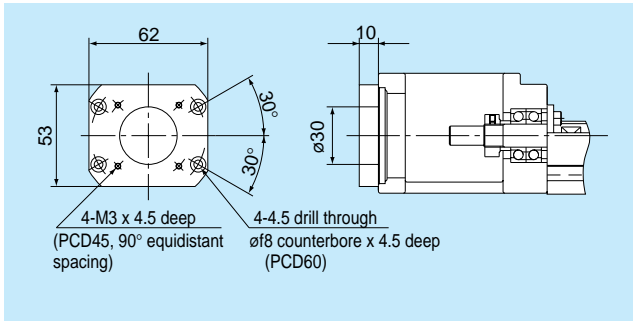
F33-K  
5K



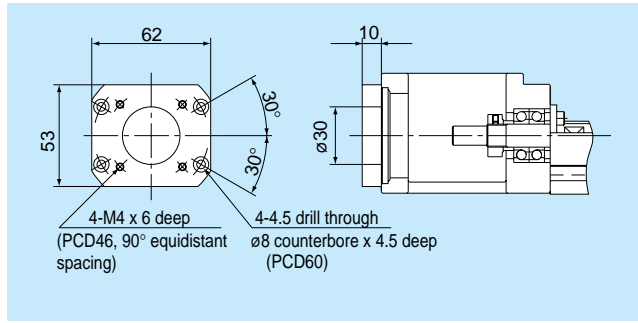
# For Model KR45H

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

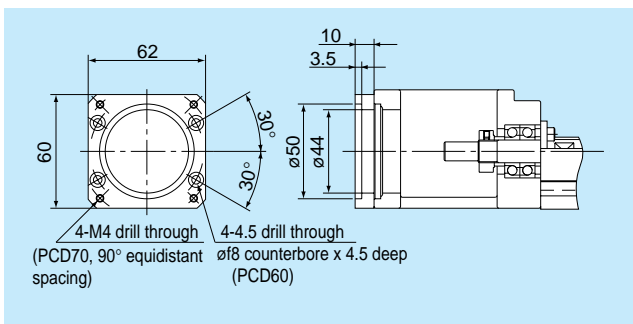
F45-A  
0A



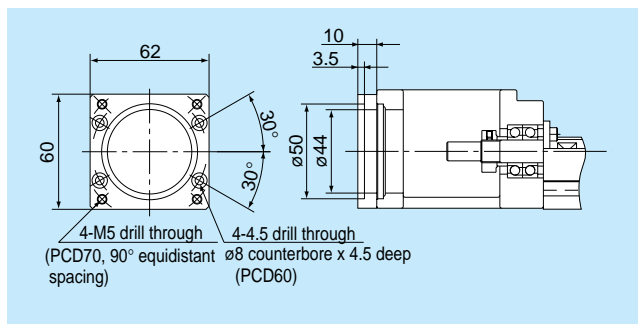
F45-B  
0B



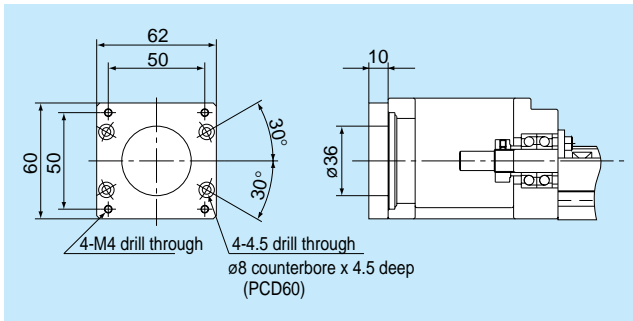
F45-C  
0C



F45-D  
0D

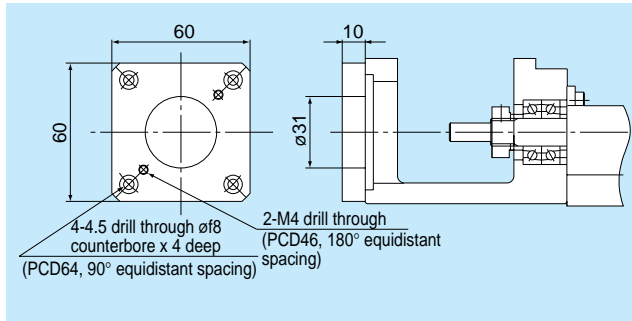


F45-F  
0F



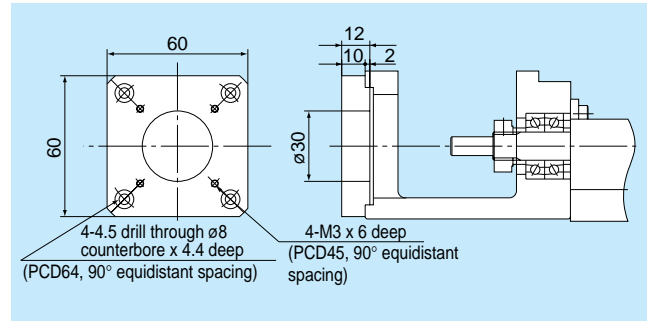
## ■ For Model KR46

F46-F  
0F



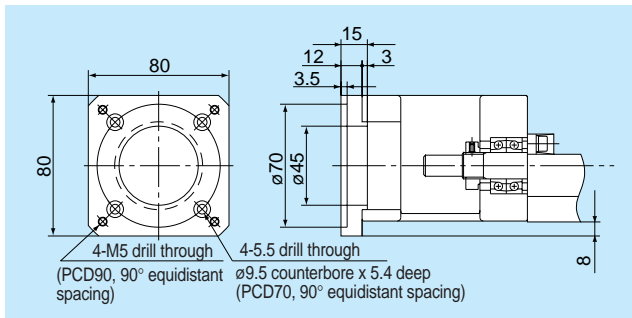
F46-G  
0G

F□□-□ ... Adapter flange model  
□□ ... Lower 2 digits of control No.

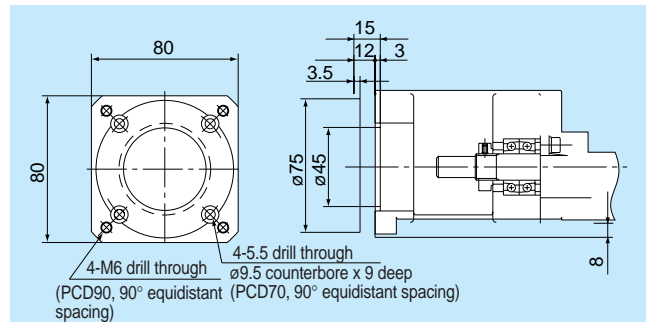


## ■ For Model KR55

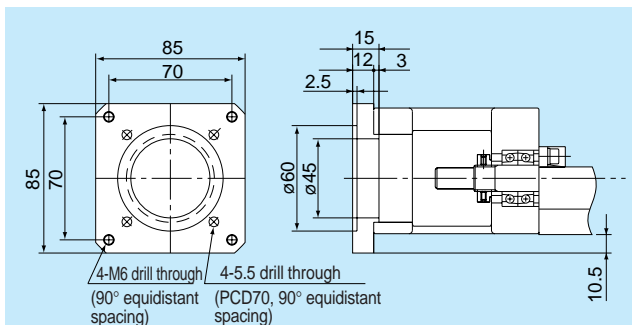
F55-A  
0A



F55-B  
0B



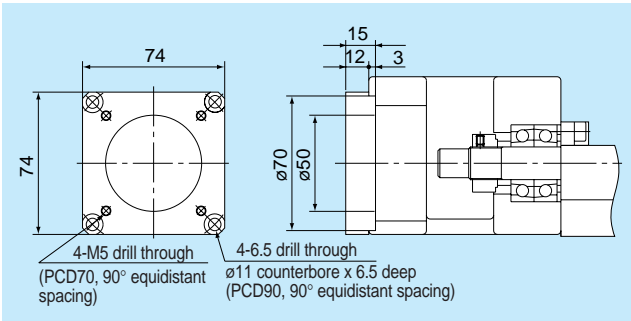
F55-G  
0G



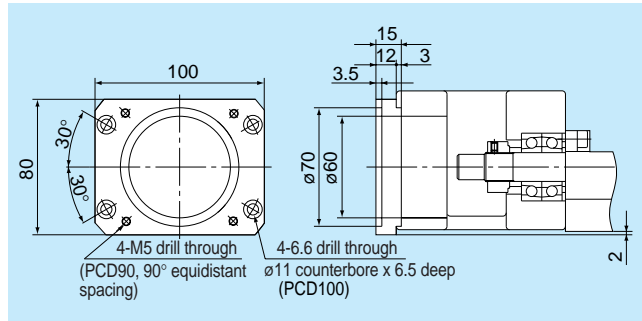
**For Model KR65**

F□□-□ ... Adapter flange model  
 □□ ... Lower 2 digits of control No.

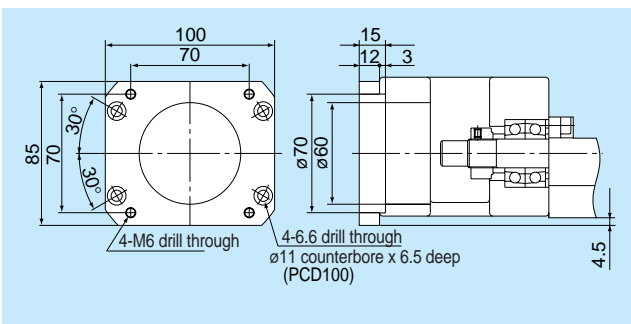
F65-A  
0A



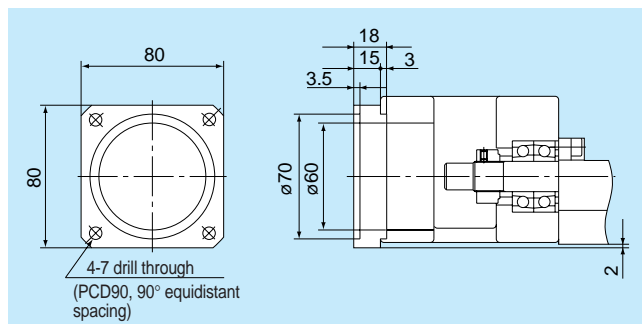
F65-B  
2B



F65-F  
2F



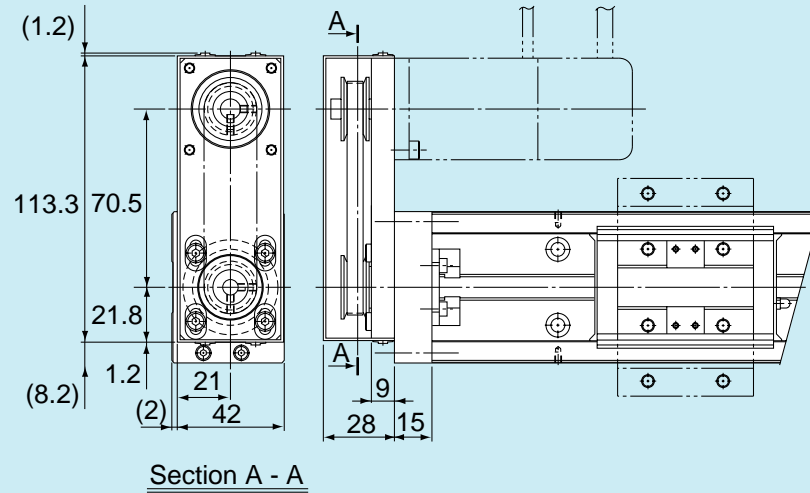
F65-G  
0G



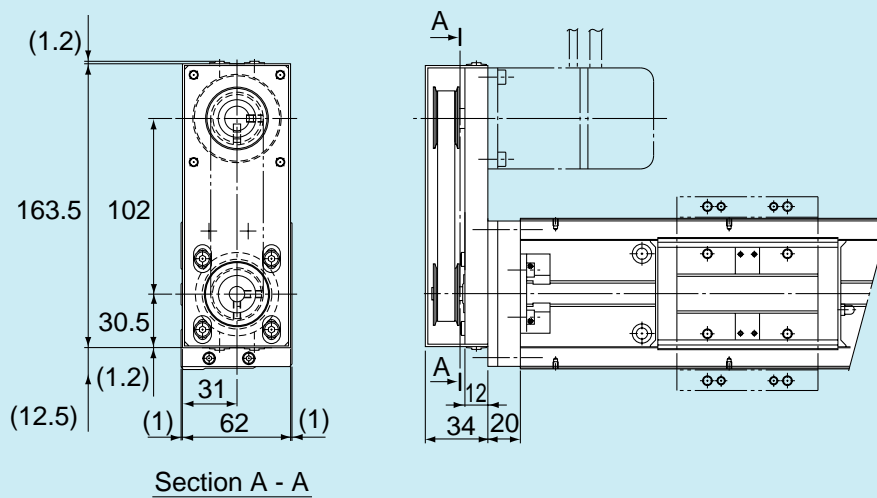
## ● Motor wrap type

A motor wrap type is also available as an option for model KR for compatibility when the motor is to be wrapped back, for example, to minimize the dimensions in the longitudinal direction. (pulley ratio 1:1)

### ● Example of model KR33 motor wrap



### ● Example of model KR46 motor wrap

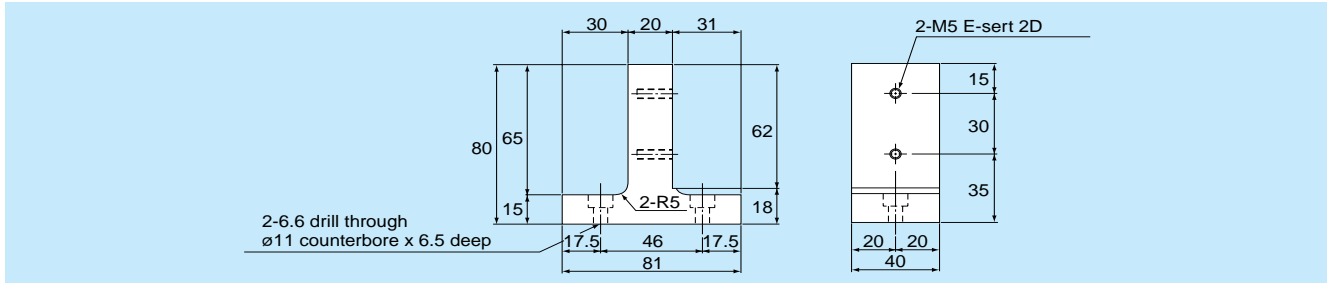


(Note) The specifications differ according to the motor to be mounted. For details, contact THK.

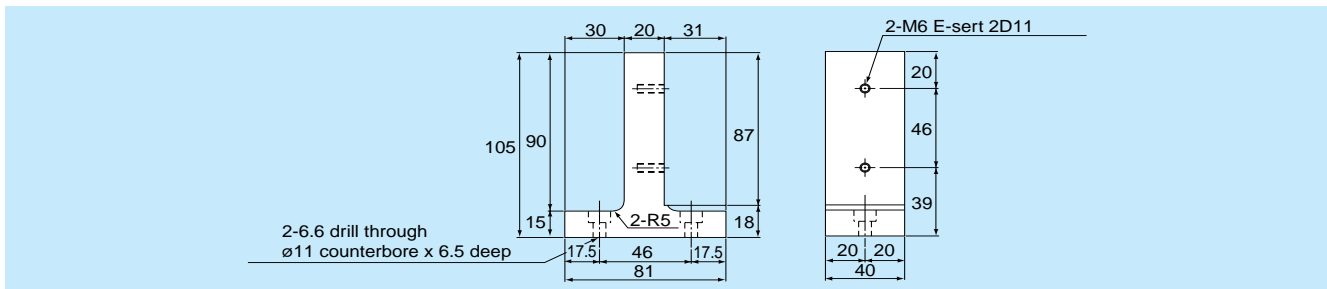
# X-Y Bracket

The X-Y bracket is provided as standard for when the LM guide actuator is incorporated in a line. The bracket is made of aluminum to make it lighter and reduce inertia as far as possible.

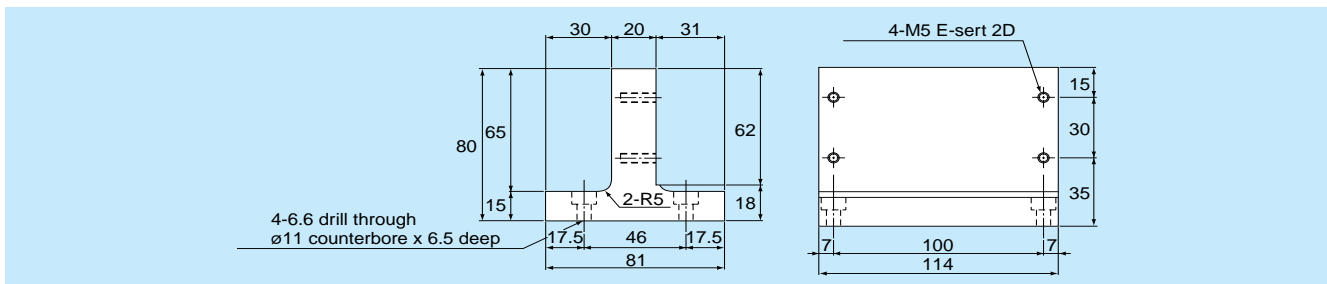
## KR-008XS (for model KR33 1 shaft)



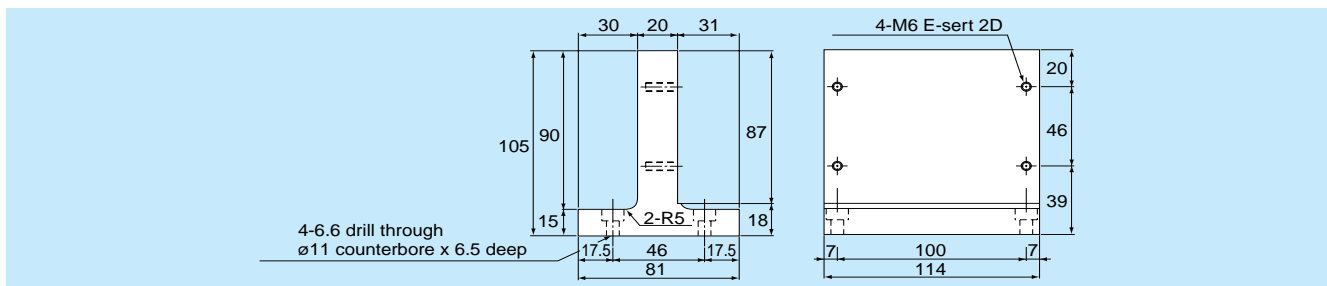
## KR-008XL (for model KR46 1 shaft)



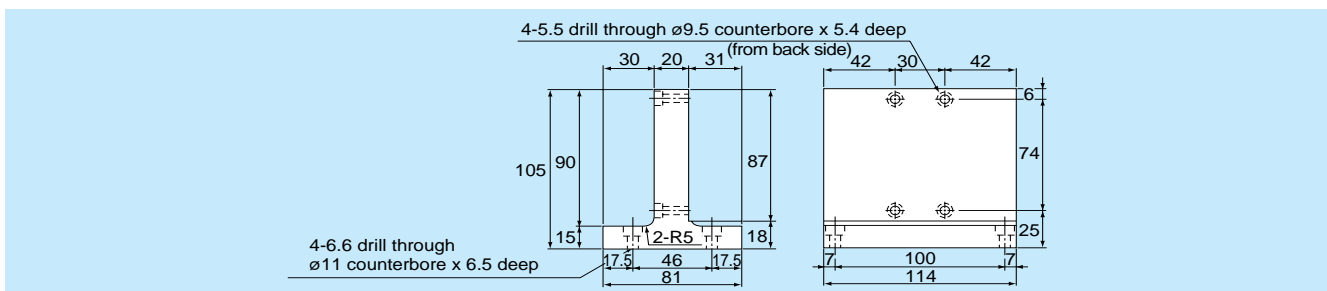
## KR-003XS (model KR33 LM rail fixing)



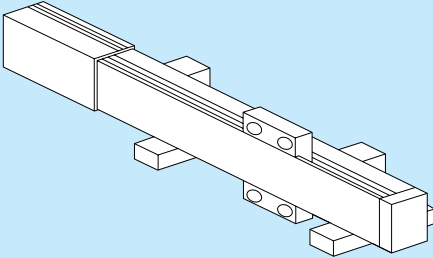
## KR-003XL (model KR46 LM rail fixing)



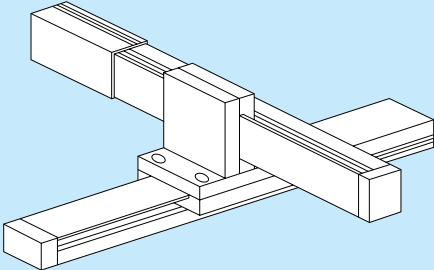
## KR-002XS (model KR33 slider fixing)



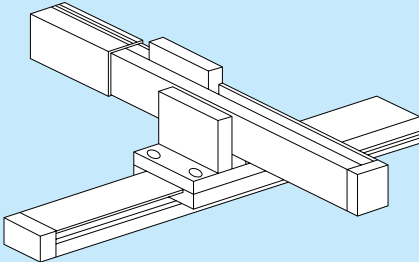
● Example of combinations



For 1 shaft



Slider fixing



Rail fixing

# Precautions on Handling LM Guide Actuator Model KR

## Handling

- Do not disassemble the product. Disassembling the product may result in the ingress of foreign material or the decreased accuracy of parts assembly.
- Exercise caution when handling the product. Dropping or tapping it may result in breakage. Applying shock to the product may result in functional damage even if the product appears to have no visible damage.

## Lubrication

- Wipe off the rust-preventive oil from the product sufficiently and then fill it with lubricant before use.
- Do not mix and use lubricants with different properties.
- If the product is to be used in locations constantly exposed to vibration or in special environments such as clean rooms, vacuums, low temperatures, or high temperatures, there are cases where ordinary greases cannot be used. In such cases, contact THK.
- When special lubricants are to be used, contact THK.
- When oil lubrication is to be used, contact THK.
- To fully demonstrate the functions of the KR, lubrication is essential. Use of the product without lubrication may result in increased abrasion at rolling sections or a shorter life.  
Generally, perform greasing after 100 km of actuator travel. However, the greasing intervals differ with the operating conditions. It is recommended that the greasing intervals be determined at the initial inspection.

Recommended greases KR15 : THK AFF grease  
KR20/26 : THK AFA grease  
KR30H to 65 : THK AFB-LF grease


A low dust-generating grease, THK AFF, is available for use in clean rooms. Contact THK.

## Precautions on Use

- Entry of foreign material may cause damage to the ball circulating path or functional loss. Prevent foreign material, such as dust or chips, from entering the system.
- When using the system in an environment where coolant penetrates the nut block, contact THK.
- Do not use the system at temperatures of 80°C or higher. When using the system at temperatures of 80°C or higher, contact THK.
- If foreign material, such as dirt or chips, penetrates the system, replenish the lubricant after cleaning the product. For available types of cleaning fluid, contact THK.
- Operating the product exceeding the permissible revolution speed may lead to part breakage or accidents. The operation rotational speed should be limited to the range specified by THK.
- When using the product in locations constantly exposed to vibration or in special environments such as clean rooms, vacuums, low temperature, or high temperatures, contact THK.

## Storage

When storing the KR, pack it in the package specified by THK and store it in a horizontal state while avoiding low and high temperatures, and high humidity.

- "LM Guide", "Ball Cage", "  " and "QZ" are registered trademarks of THK Co., Ltd.
- Photos may differ slightly in appearance from the actual product.
- The appearance and specifications of the product are subject to change without notice in the interest of product improvement. Contact THK before placing an order.
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