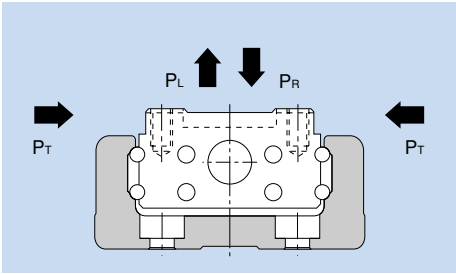
1.3. Rated Loads in All Directions and Static Permissible Moment

Rated Load



●LM Guide Unit

Model KR is capable of receiving loads in all directions: radial, reverse-radial and lateral directions. Its basic load ratings are equal in all four directions (radial, reverse-radial and lateral directions), and their values are indicated in table 2 on page L-8.

●Ball Screw Unit

Since the nut block is incorporated with a Ball Screw, model KR is capable of receiving an axial load. The basic load rating value is indicated in table 2 on page L-8.

●Support Bearing Unit

Since housing A contains an angular bearing, model KR is capable of receiving an axial load. The basic load rating value is indicated in table 2 on page L-8.

Equivalent Load (LM Guide Unit)

The equivalent load when the LM Guide unit of model KR simultaneously receives loads in all directions is obtained from the following equation.

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

where

P_E : Equivalent load (N)
- ·Radial direction
- ·Reverse-radial direction
- ·Lateral directions

P_R : Radial load (N)
P_L : Reverse-radial load (N)
P_T : Lateral load (N)

Table 2 Rated Load of Model KR

Symbols in the parentheses indicate units.

Model No.			KR15		KR20	KR26	KR30H		KR33		KR45H		KR46		KR55	KR65
			KR1501	KR1502			KR30H06	KR30H10	KR3306	KR3310	KR45H10	KR45H20	KR4610	KR4620		
LM Guide unit	Basic dynamic load rating C (N)	Long nut block Types A, B	1930		3590	7240	11600		11600		23300		27400		38100	50900
		Short nut block Types C, D	—		—	—	4900		4900		11900		14000		—	—
	Basic static load rating C_0 (N)	Long nut block Types A, B	3450		6300	12150	20200		20200		39200		45500		61900	80900
		Short nut block Types C, D	—		—	—	10000		10000		19600		22700		—	—
	Radial clearance (mm)	Normal grade, high 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 unit	Basic dynamic load rating Ca (N)	Normal grade, high 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_0a (N)	Normal grade, high 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
Support bearing unit	Axial direction	Basic dynamic load rating Ca (N)	590		1000	1380	1790		1790		6660		6660		7600	13700
		Static permissible load P_0a (N)	290		1240	1760	2590		2590		3240		3240		3990	5830

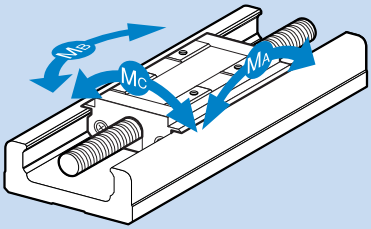
Note 1: The load ratings in the LM Guide unit each indicate the load rating per LM block.

Note 2: The Ball Screw of precision grade (grade P) for models KR30H, KR33, KR45H10 and KR4610 is incorporated with spacer balls in the proportion of one to one.

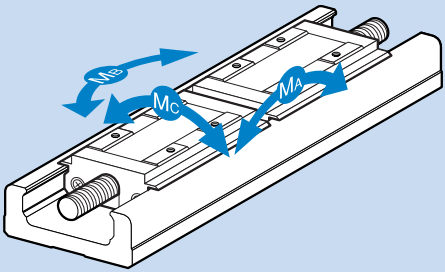
Note 3: The Ball Screw of precision grade (grade P) for models KR45H20, KR4620, KR55 and KR65 is incorporated with spacer balls in the proportion of one to one.

Static Permissible Moment (LM Guide Unit)

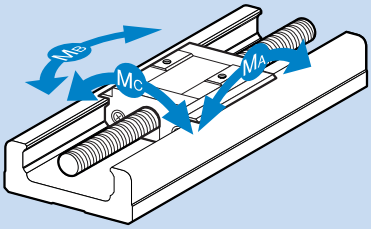
The LM Guide unit of model KR is capable of receiving moments in all directions only with a single nut block. Table 3 on page L-10 shows static permissible moments in the M_A, M_B and M_C directions.



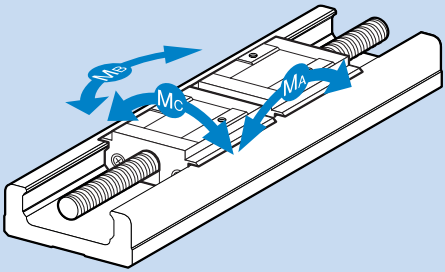
With a single long nut block (type A)



With two long nut blocks (type B)



With a single short nut block (type C)



With two short nut blocks (type D)

Table 3 Static Permissible Moments of Model KR

Unit: N-m

Model No.	Static permissible moment		
	M_A	M_B	M_C
KR 15-A	12.1	12.1	38
KR 15-B	70.3	70.3	76
KR 20-A	31	31	83
KR 20-B	176	176	165
KR 26-A	84	84	208
KR 26-B	480	480	416
KR 30H-A	166	166	428
KR 30H-B	908	908	857
KR 30H-C	44	44	214
KR 30H-D	319	319	427
KR 33-A	166	166	428
KR 33-B	908	908	857
KR 33-C	44	44	214
KR 33-D	319	319	427
KR 45H-A	486	486	925
KR 45H-B	2732	2732	1850
KR 45H-C	130	130	463
KR 45H-D	994	994	925
KR 46-A	547	547	1400
KR 46-B	2940	2940	2800
KR 46-C	149	149	700
KR 46-D	1010	1010	1400
KR 55-A	870	870	2280
KR 55-B	4890	4890	4570
KR 65-A	1300	1300	3920
KR 65-B	7230	7230	7840

Note: The values for models KR - B/D indicate the values when two nut blocks are used in close contact with each other.