With NSK's cumulated state-of-the-art technology, the standard linear guides have been reborn as these new series.

Based on the LH and LS series characterized by reliability and performance, we have attained a significant increase in durability. Inheriting the random-matching capability and the use of the "NSK K1™" lubrication unit, they are the new linear guides, easy to use for any kind of machine.

Features of NH and NS Series

1. Excellent durability

Super-long life, twice as long as compared with that of conventional series

As compared with the conventional LH and LS Series, a load rating 1.3 times greater and a lifespan two times longer have been accomplished*1. These features enable you to design a machine with a longer life and downsize the machine. Thus, your design capability is greatly enhanced.

*1: Based on the representative values of each series.

Maintenance-free

Installing NSK K1™ lubrication unit (optional), which has an overwhelming track record in a wide range of application fields, assures a long-term, maintenance-free operation. Not only cost saving in maintenance but also environmental protection can be practiced.

What is "NSK K1™" lubrication unit?

NSK K1 is a lubrication device which combines oil and resin in a single unit. The porous resin contains a large amount of lubrication oil. Touching its surface to the raceway of a rail close to the ball contact point NSK K1 constantly supplies fresh oil which seeps from the resin.

2. Easy-to-use "Standard Linear Guides"

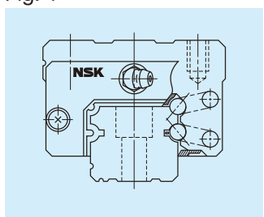
The random-matching (interchangeable) type is available

The rails and ball slides can be selected in any combinations. The random-matching is available in all the models. The free combination of different ball slide types, accuracy grades and preload can be made. Also, we can accommodate to short-term delivery as well.

Robust design to absorb mounting errors

Same as the DF combination in angular contact bearings, self-aligning capability is high because the cross point of the contact lines of balls and grooves comes inside, and thus reducing moment rigidity(Fig. 1). This increases the capacity to absorb errors in installation, and will demand less work to achieve precision in mounting the linear guide.

Fig. 1



Abundant options

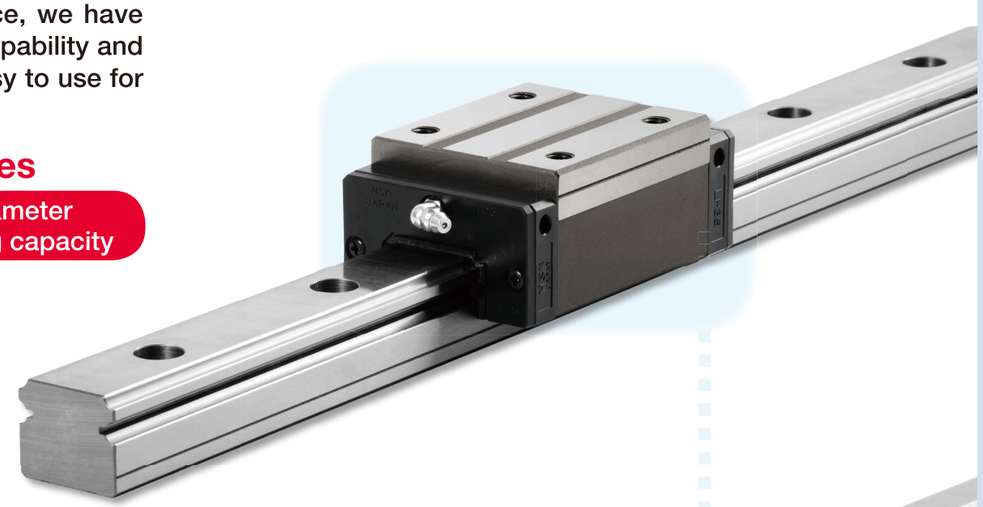
Abundant options are available, including an NSK K1™ lubrication unit, double seal, protector, surface treatment, etc. We offer the configuration best suited to the customer's needs.

All mounting dimensions are the same as those for the LH and LS Series

Regarding the mounting dimensions (mounting parts' dimensions), such as the mounting height, mounting width, mounting hole diameter/ pitch of the linear guide, etc., the mounting dimensions of the NH Series remain the same as those of the conventional LH series, while the mounting dimensions of the NS Series remain the same as those of the conventional LS Series. So, the new NH/NS Series linear guides can be used without making any design changes.

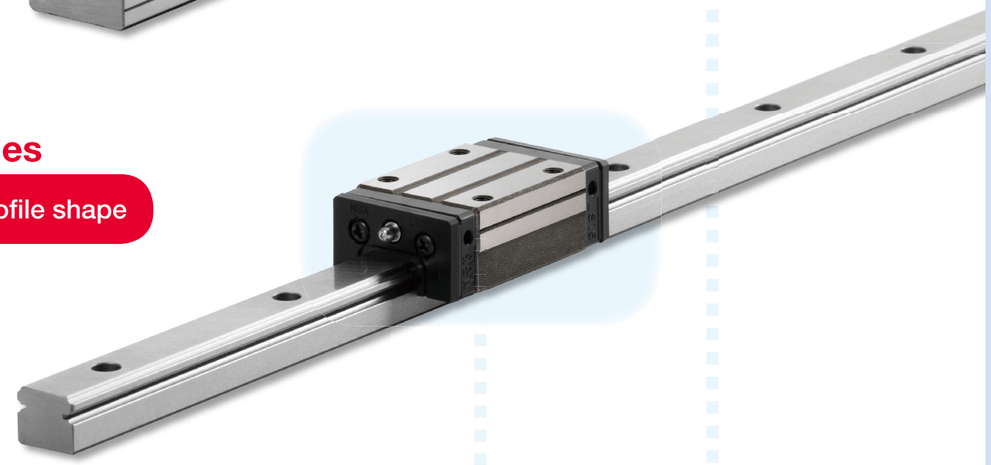
NH Series

Larger ball diameter
Larger load rating capacity

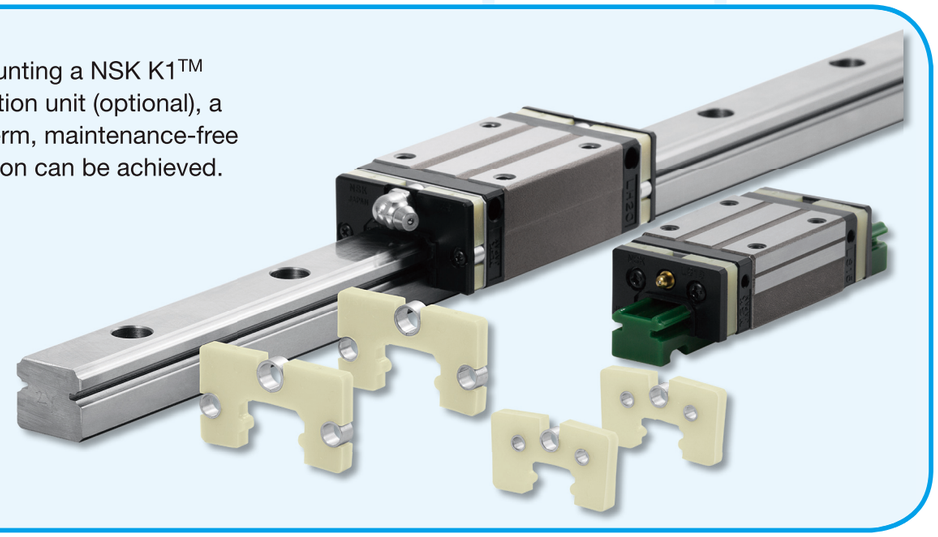


NS Series

Compact, low-profile shape



By mounting a NSK K1™ lubrication unit (optional), a long-term, maintenance-free operation can be achieved.



New standard linear guides produced through state-of-the-art technology

Based on the LH/LS Series, which have achieved exceptional results in numerous application areas ever since their debut in 1989, the new NH/NS Series are created as the focal point of NSK's cumulated state-of-the-art design and manufacturing technologies.

LH/LS Series with reliability and performance

+

NSK's state-of-the-art design/manufacturing technologies

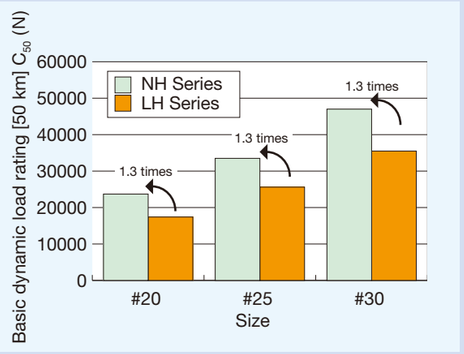
=

New series of standard linear guides:
the NH Series and NS Series

Ball groove geometry contributing to long life

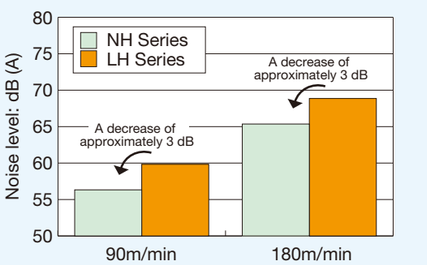
New ball groove geometry is introduced, which has been developed by utilizing NSK's state-of-the-art tribological and analytical technologies. Due to the optimized distribution of contact surface pressures, the rating life has dramatically increased. As compared with the LH/LS Series, the load rating capacity of the new series has increased to 1.3 times, while the life span has increased to twice*1.

*1: Representative values of each series.



Ball circulating groove with excellent high-speed property

By reexamining the design practice for the ball circulation path, we have attained smooth ball circulation and a reduced noise level. So, these new series are suited for high-speed applications compared with the LH/LS Series.



*Measurement results are obtained from the size #25 linear guide alone.
Microphone position: 500 mm above the top of the specimen
The noise level varies depending on the microphone position.

11. Dimensions

NH-AN (High-load type/standard, square type)
NH-BN (Super-high-load type/long, square type)

(1) Reference number for assembly

NH 30 1200 AN C 2 - ** **P5 3**

- Series name
- Size
- Rail length (mm)
- Ball slide shape code (refer to Fig. 2 on page 3)
- Material/surface treatment code (refer to Table 16 on page 7)
  C: Special high carbon steel (NSK standard); K: Stainless steel
- Number of ball slides per rail
- Design serial number
  Added to the reference number
- Accuracy code (refer to Table 9 on page 5)
- Preload code (refer to Table 9 on page 5)
  0 : Z0, 1 : Z1, 3 : Z3, T : ZT, Z : ZZ, H : ZH

(2) Reference number for random-matching type

Ball slide **NAH 30 AN S Z -K**

- Random-matching ball slide series code
  NAH: NH Series random-matching ball slide
- Size
- Ball slide shape code (refer to Fig. 2 on page 3)
- Option code
  -K: Equipped with NSK K1
  -F: Fluoride low temperature chrome plating + AS2 grease
  -F50: Fluoride low temperature chrome plating + LG2 grease
- Preload code
  No code: Fine clearance, Z: Slight preload, H: Medium preload
- Material code
  No code: Special high carbon steel (NSK standard), S: Stainless steel

Rail **N1H 30 1200 L C N -** ** PC Z**

- Random-matching rail series code
  N1H: NH Series random-matching rail
- Size
- Rail length (mm)
- Rail shape code: L
  L: Standard
- Material/surface treatment code (refer to Table 16 on page 7)
- Butting rail specification*
  N: Non-butting; L: Butting specification
- Design serial number
  Added to the reference number
- Accuracy code
  PH: High precision grade random-matching type
  PC: Normal grade random-matching type
- Preload code
  T: Fine clearance,
  Z: Slight preload (common rail for slight or medium preload) (refer to Table 9 on page 5)

*Please consult with NSK for butting rail specification.

Click!Speedy™ NSK Linear Guide Quick Delivery System uses a new numbering system.
For details, please refer to the Click!Speedy general catalog CAT. No. E3191.

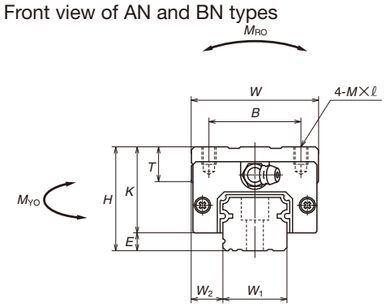
Unit: mm

Model No.	Assembly Height H	E	W_2	Ball slide Width W	Length L	Mounting hole B	J	M×Pitch×ℓ	L_1	K	T	Grease fitting Hole size	T_1	N	Width W_1	Height H_1
NH15AN	28	4.6	9.5	34	55	26	26	M4×0.7×6	39	23.4	8	φ3	8.5	3.3	15	15
NH15BN					74				58							
NH20AN	30	5	12	44	69.8	32	36	M5×0.8×6	50	25	12	M6×0.75	5	11	20	18
NH20BN					91.8		50		72							
NH25AN	40	7	12.5	48	79	35	35	M6×1×9	58	33	12	M6×0.75	10	11	23	22
NH25BN					107		50		86							
NH30AN	45	9	16	60	85.6	40	40	M8×1.25×10	59	36	14	M6×0.75	10	11	28	26
NH30BN					124.6		60		98							
NH35AN	55	9.5	18	70	109	50	50	M8×1.25×12	80	45.5	15	M6×0.75	15	11	34	29
NH35BN					143		72		114							
NH45AN	70	14	20.5	86	139	60	60	M10×1.5×17	105	56	17	Rc1/8	20	13	45	38
NH45BN					171		80		137							
NH55AN	80	15	23.5	100	163	75	75	M12×1.75×18	126	65	18	Rc1/8	21	13	53	44
NH55BN					201		95		164							
NH65AN	90	16	31.5	126	193	76	70	M16×2×20	147	74	23	Rc1/8	19	13	63	53
NH65BN					253		120		207							

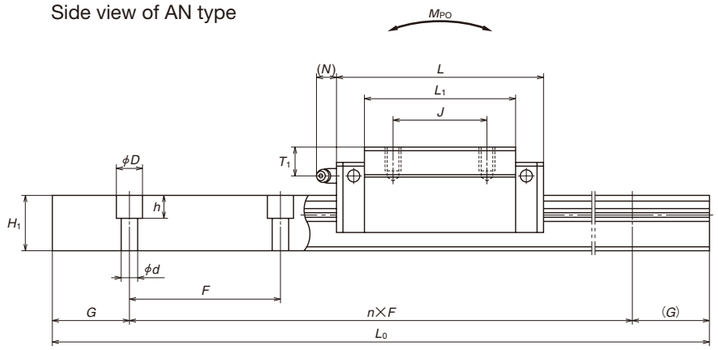
Notes: 1) External appearance of stainless steel ball slides differs from those of carbon steel ball slides.

Assembly (Preloaded assembly, random-matching type)

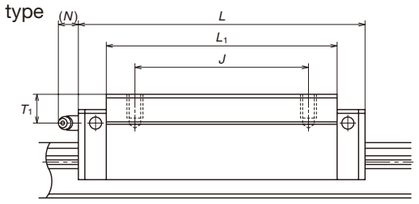
Front view of AN and BN types



Side view of AN type

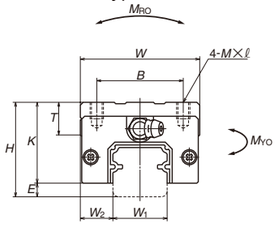


Side view of BN type

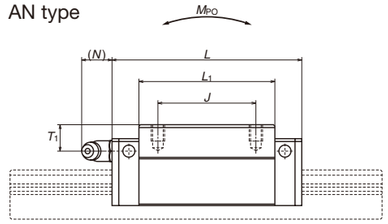


Ball slide of random-matching type

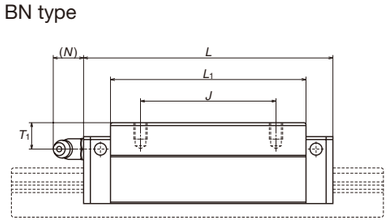
AN and BN types



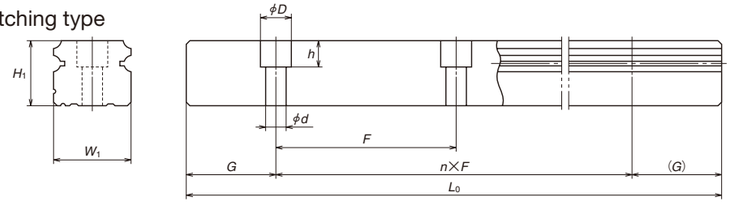
AN type



BN type



Rail of random-matching type



Pitch F	Rail Mounting bolt hole d×D×h	G (reference)	Max. length L_{0max} ( ) for stainless	Basic load rating 2) Dynamic [50km] C_{50}(N)	[100km] C_{100}(N)	Static C_0 (N)	Static moment (N·m) M_{RO}	M_{PO} (One slide)	M_{PO} (Two slides)	M_{YO} (One slide)	M_{YO} (Two slides)	Weight Ball slide (kg)	Rail (kg/m)
60	4.5×7.5×5.3	20	2 980	14 200	11 300	20 700	108	94.5	575	79.5	480	0.18	1.6
			(1 800)	18 100	14 400	32 000	166	216	1 150	181	965	0.26	
60	6×9.5×8.5	20	3 960	23 700	18 800	32 500	219	185	1 140	155	955	0.33	2.6
			(3 500)	30 000	24 000	50 500	340	420	2 230	355	1 870	0.48	
60	7×11×9	20	3 960	33 500	26 800	46 000	360	320	1 840	267	1 540	0.55	3.6
			(3 500)	45 500	36 500	71 000	555	725	3 700	610	3 100	0.82	
80	9×14×12	20	4 000	41 000	32 500	51 500	490	350	2 290	292	1 920	0.77	5.2
			(3 500)	61 000	48 500	91 500	870	1 030	5 600	865	4 700	1.3	
80	9×14×12	20	4 000	62 500	49 500	80 500	950	755	4 500	630	3 800	1.5	7.2
				81 000	64 500	117 000	1 380	1 530	8 350	1 280	7 000	2.1	
105	14×20×17	22.5	3 990	107 000	84 500	140 000	2 140	1 740	9 750	1 460	8 150	3.0	12.3
				131 000	104 000	187 000	2 860	3 000	15 600	2 520	13 100	3.9	
120	16×23×20	30	3 960	158 000	125 000	198 000	3 600	3 000	16 300	2 510	13 700	4.7	16.9
				193 000	153 000	264 000	4 850	5 150	26 300	4 350	22 100	6.1	
150	18×26×22	35	3 900	239 000	190 000	281 000	6 150	4 950	27 900	4 150	23 400	7.7	24.3
				310 000	246 000	410 000	8 950	10 100	51 500	8 450	43 500	10.8	

2) The basic load rating comply with the ISO standard. (ISO14728-1 and ISO14728-2)
C_{50}: the basic dynamic load rating for 50 km rating fatigue life, C_{100}: the basic dynamic load rating for 100 km rating fatigue life

NH-EM (High-load type/standard, flange type)
NH-GM (Super-high-load type/long, flange type)

(1) Reference number for assembly

NH 30 1200 EM C 2 - ** **P5 3**

- Series name
- Size
- Rail length (mm)
- Ball slide shape code (refer to Fig. 2 on page 3)
- Material/surface treatment code (refer to Table 16 on page 7)
  C: Special high carbon steel (NSK standard); K: Stainless steel
- Number of ball slides per rail
- Design serial number
  Added to the reference number
- Accuracy code (refer to Table 9 on page 5)
- Preload code (refer to Table 9 on page 5)
  0 : Z0, 1 : Z1, 3 : Z3, T : ZT, Z : ZZ, H : ZH

(2) Reference number for random-matching type

Ball slide

NAH 30 EM S Z -K

- Random-matching ball slide series code
  NAH: NH Series random-matching ball slide
- Size
- Ball slide shape code (refer to Fig. 2 on page 3)
- Material code
  No code: Special high carbon steel (NSK standard), S: Stainless steel
- Preload code
  No code: Fine clearance, Z: Slight preload, H: Medium preload
- Option code
  -K: Equipped with NSK K1
  -F: Fluoride low temperature chrome plating + AS2 grease
  -F50: Fluoride low temperature chrome plating + LG2 grease

Rail

N1H 30 1200 L C N - ** **PC Z**

- Random-matching rail series code
  N1H: NH Series random-matching rail
- Size
- Rail length (mm)
- Rail shape code: L
  L: Standard
- Material/surface treatment code (refer to Table 16 on page 7)
- Butting rail specification*
  N: Non-butting; L: Butting specification
  *Please consult with NSK for butting rail specification.
- Design serial number
  Added to the reference number
- Accuracy code
  PH: High precision grade random-matching type
  PC: Normal grade random-matching type
- Preload code
  T: Fine clearance,
  Z: Slight preload (common rail for slight or medium preload) (refer to Table 9 on page 5)

Click!Speedy™ NSK Linear Guide Quick Delivery System uses a new numbering system.
For details, please refer to the Click!Speedy general catalog CAT. No. E3191.

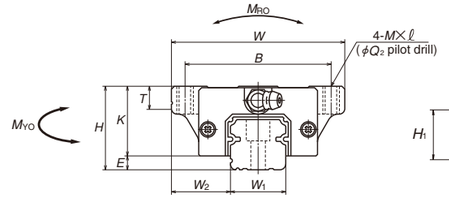
Unit: mm

Model No.	Assembly Height H	E	W_2	Ball slide Width W	Length L	Mounting hole B	J	M×Pitch×ℓ	Q_2	L_1	K	T	Grease fitting Hole size	T_1	N	Width W_1	Height H_1
NH15EM	24	4.6	16	47	55	38	30	M5×0.8×7	4.4	39	19.4	8	φ3	4.5	3.3	15	15
NH15GM					74					58							
NH20EM	30	5	21.5	63	69.8	53	40	M6×1×9.5	5.3	50	25	10	M6×0.75	5	11	20	18
NH20GM					91.8					72							
NH25EM	36	7	23.5	70	79	57	45	M8×1.25×10	6.8	58	29	11	M6×0.75	6	11	23	22
NH25GM					107			(M8×1.25×11.5)		86		(12)					
NH30EM	42	9	31	90	98.6	72	52	M10×1.5×12	8.6	72	33	11	M6×0.75	7	11	28	26
NH30GM					124.6			(M10×1.5×14.5)		98		(15)					
NH35EM	48	9.5	33	100	109	82	62	M10×1.5×13	8.6	80	38.5	12	M6×0.75	8	11	34	29
NH35GM					143					114							
NH45EM	60	14	37.5	120	139	100	80	M12×1.75×15	10.5	105	46	13	Rc1/8	10	13	45	38
NH45GM					171					137							
NH55EM	70	15	43.5	140	163	116	95	M14×2×18	12.5	126	55	15	Rc1/8	11	13	53	44
NH55GM					201					164							
NH65EM	90	16	53.5	170	193	142	110	M16×2×24	14.6	147	74	23	Rc1/8	19	13	63	53
NH65GM					253					207							

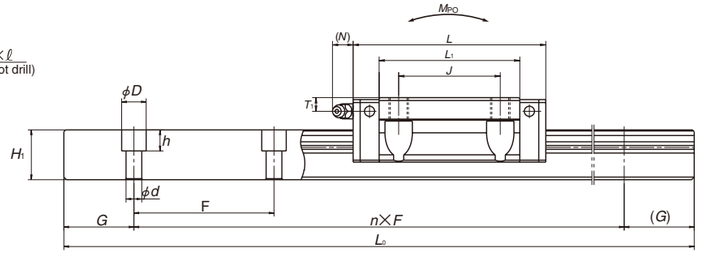
Notes: 1) Parenthesized dimensions are for items made of stainless steel.
2) External appearance of stainless steel ball slides differs from those of carbon steel ball slides.

Assembly (Preloaded assembly, random-matching type)

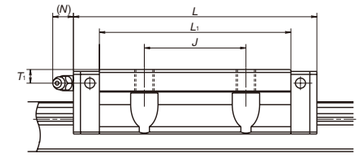
Front view of EM and GM types



Side view of EM type

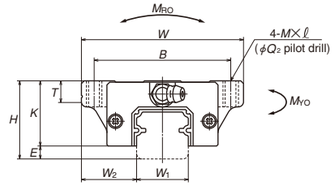


Side view of GM type

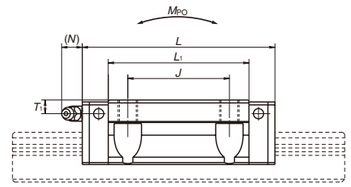


Ball slide of random-matching type

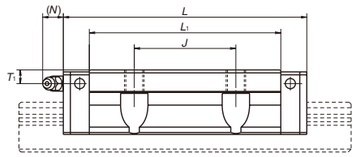
EM and GM types



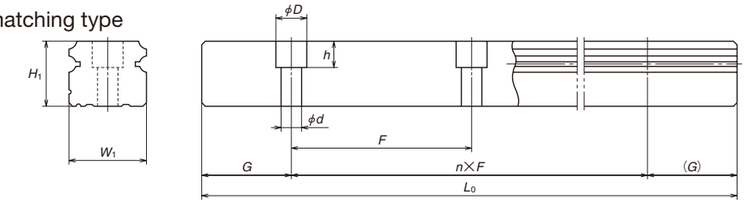
EM type



GM type



Rail of random-matching type



Pitch F	Rail: Mounting bolt hole d×D×h	G (reference)	Max. length L_{0max} ( ) for stainless	Basic load rating: 3) Dynamic [50km] C_{50}(N)	[100km] C_{100}(N)	Static C_0 (N)	Static moment (N·m): M_{RO}	M_{PO} (One slide)	M_{PO} (Two slides)	M_{YO} (One slide)	M_{YO} (Two slides)	Weight: Ball slide (kg)	Rail (kg/m)
60	4.5×7.5×5.3	20	2 980 (1 800)	14 200	11 300	20 700	108	94.5	575	79.5	480	0.17	1.6
				18 100	14 400	32 000	166	216	1 150	181	965	0.25	
60	6×9.5×8.5	20	3 960 (3 500)	23 700	18 800	32 500	219	185	1 140	155	955	0.45	2.6
				30 000	24 000	50 500	340	420	2 230	355	1 870	0.65	
60	7×11×9	20	3 960 (3 500)	33 500	26 800	46 000	360	320	1 840	267	1 540	0.63	3.6
				45 500	36 500	71 000	555	725	3 700	610	3 100	0.93	
80	9×14×12	20	4 000 (3 500)	47 000	37 500	63 000	600	505	3 150	425	2 650	1.2	5.2
				61 000	48 500	91 500	870	1 030	5 600	865	4 700	1.6	
80	9×14×12	20	4 000	62 500	49 500	80 500	950	755	4 500	630	3 800	1.7	7.2
				81 000	64 500	117 000	1 380	1 530	8 350	1 280	7 000	2.4	
105	14×20×17	22.5	3 990	107 000	84 500	140 000	2 140	1 740	9 750	1 460	8 150	3	12.3
				131 000	104 000	187 000	2 860	3 000	15 600	2 520	13 100	3.9	
120	16×23×20	30	3 960	158 000	125 000	198 000	3 600	3 000	16 300	2 510	13 700	5	16.9
				193 000	153 000	264 000	4 850	5 150	26 300	4 350	22 100	6.5	
150	18×26×22	35	3 900	239 000	190 000	281 000	6 150	4 950	27 900	4 150	23 400	10	24.3
				310 000	246 000	410 000	8 950	10 100	51 500	8 450	43 500	14.1	

3) The basic load rating comply with the ISO standard. (ISO14728-1 and ISO14728-2)
C_{50}: the basic dynamic load rating for 50 km rating fatigue life, C_{100}: the basic dynamic load rating for 100 km rating fatigue life