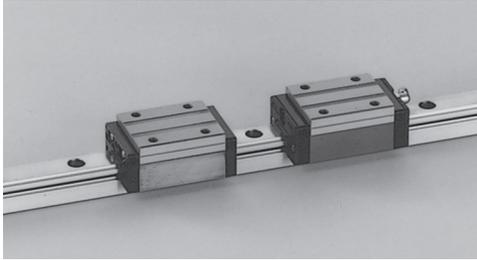


## A-4-2.1 DH Model



### 1. Features

#### (1) Double the life of standard linear guides

DH model is based on our proven, highly reliable standard NH model that feature an optimized groove shape. Applying our special TF heat treatment achieves even longer life. What is TF (Tough) Technology?

NSK's TF technology is an exclusive heat treatment developed and cultivated over years of experience with rolling bearings and materials. TF technology helps suppress surface flaking on the raceway. Load ratings are 1.25 times higher and service life is doubled compared to conventional NH model<sup>\*1</sup>. DH linear guide offers greatly improved life at the same size and equal or longer life to the next smallest conventional model, allowing for equipment downsizing.

\*1: Representative values for model.

#### (2) Ball circulation path with excellent high-speed property

By reexamining the design for the ball circulation path, we have attained smooth ball circulation and reduced noise. DH models are suited for high-speed applications same as NH models.

#### (3) All mounting dimensions are the same as the NH Model

The dimensions surrounding the mounting (assembled dimensions), such as mounting height, width, mounting hole diameter/pitch, etc. of the DH model are identical to the NH model, allowing for easy replacement without design changes.

#### (4) High self-aligning capability (rolling direction)

Similar to a DF arrangement of angular contact bearings, DH models offer large self-aligning capability with the internal intersection of the contact lines of the balls and grooves reducing moment rigidity. This increases the capacity to absorb errors in installation.

#### (5) High vertical load carrying capacity

The contact angle is set at 50 degrees, thus increasing load carrying capacity as well as rigidity in the vertical direction.

#### (6) High resistance against impact load

The bottom ball groove forms a Gothic arch and the center of the top and bottom grooves are offset as shown in Fig. 2.

Vertical load is generally carried by the top rows at two contact points, but with this design, the bottom rows also carry load when a large impact load is applied vertically as shown in Fig. 3. This assures high resistance to impact load.

#### (7) High accuracy

As showing in Fig. 4, fixing the master rollers to the ball grooves is easy thanks to the Gothic arch groove. This makes for easy and accurate measuring of ball grooves.

#### (8) Easy to handle, and designed with safety in mind.

Balls are retained in the retainer, therefore they do not fall out when the ball slide is withdrawn from the rail.

#### (9) Abundant variations and sizes

The DH model comes in several sizes and ball

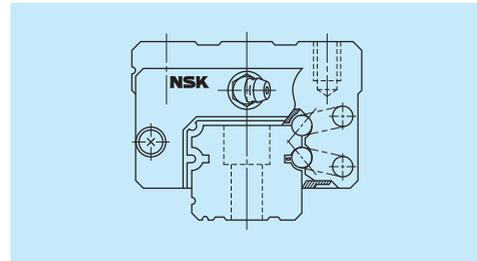


Fig. 1 DH Model

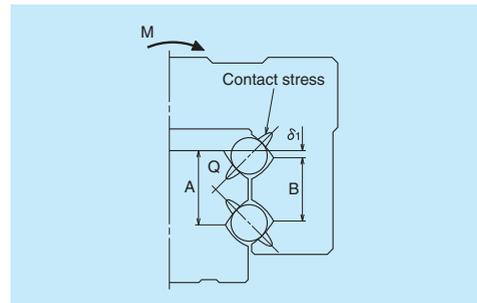


Fig. 2 Enlarged illustration of the offset Gothic arch groove

slide shapes, allowing for use in a variety of applications.

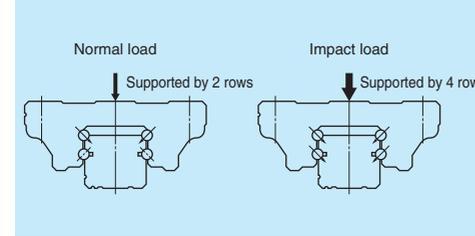


Fig. 3 When load is applied

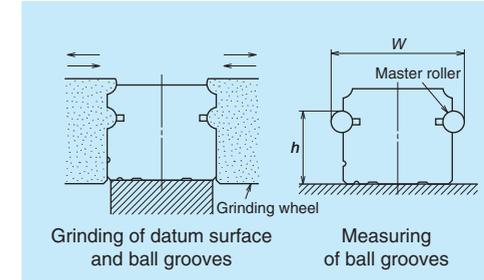


Fig. 4 Rail grinding and measuring

### 2. Ball slide shape

Ball slide shape code	Shape/installation method	Type (Upper row, Rating: Lower row, Ball slide length)	
		High-load Standard	Super-high-load Long
AN BN		AN 	BN 
AL BL		AL 	BL 
EM GM		EM 	GM 

### 3. Accuracy and preload

#### (1) Running parallelism of ball slide

**Table 1** Unit:  $\mu\text{m}$

Rail length (mm)	Accuracy grade over or less	Preloaded assembly				
		Ultra precision P3	Super precision P4	High precision P5	Precision grade P6	Normal grade PN
– 50		2	2	2	4	5
50 – 80		2	2	3	4	5
80 – 125		2	2	3	4	5
125 – 200		2	2	3.5	5	6
200 – 250		2	2.5	4.5	6	7.5
250 – 315		2	2.5	5	6.5	8.5
315 – 400		2	3	5.5	7	9.5
400 – 500		2	3	6	7.5	11
500 – 630		2	3.5	6.5	8.5	12
630 – 800		2	4	7	9.5	13
800 – 1 000		2.5	4.5	7.5	10	15
1 000 – 1 250		3	5	8.5	12	16
1 250 – 1 600		3.5	5.5	9.5	13	17
1 600 – 2 000		4	6.5	11	14	19
2 000 – 2 500		4.5	7.5	12	16	21
2 500 – 3 150		5.5	8.5	13	18	23
3 150 – 4 000		6	9.5	14	19	25

#### (2) Accuracy standard

The preloaded assembly has five accuracy grades; Ultra precision P3, Super precision P4, High precision P5, Precision P6 and Normal PN grades

**Table 2** Unit:  $\mu\text{m}$

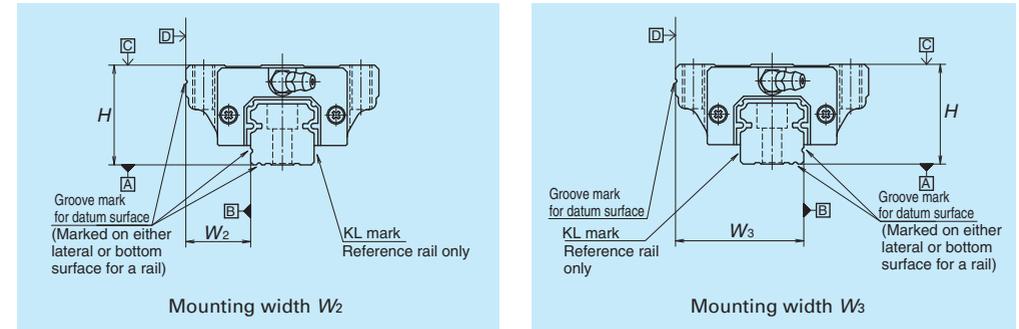
Characteristics	Ultra precision P3	Super precision P4	High precision P5	Precision grade P6	Normal grade PN
Mounting height $H$ Variation of $H$ (All ball slides on a set of rails)	$\pm 8$ 3	$\pm 10$ 5	$\pm 20$ 7	$\pm 40$ 15	$\pm 80$ 25
Mounting width $W_2$ or $W_3$ Variation of $W_2$ or $W_3$ (All ball slides on reference rail)	$\pm 10$ 3	$\pm 15$ 7	$\pm 25$ 10	$\pm 50$ 20	$\pm 100$ 30
Running parallelism of surface C to surface A Running parallelism of surface D to surface B	Shown in <b>Table 1, Fig. 5</b>				

#### (3) Combinations of accuracy and preload

**Table 3**

		Accuracy grade				
		Ultra precision	Super precision	High precision	Precision grade	Normal grade
Without NSK K1-L lubrication unit		P3	P4	P5	P6	PN
With NSK K1-L lubrication unit		L3	L4	L5	L6	LN
With NSK K1 for food and medical equipment		F3	F4	F5	F6	FN
Preload	Fine clearance Z0	○	○	○	○	○
	Slight preload Z1	○	○	○	○	○
	Medium preload Z3	○	○	○	○	—

#### (4) Assembled accuracy



**Fig. 5**

**(5) Preload and rigidity**

We offer three levels of preload: Slight preload Z1, Medium preload Z3 and Fine clearance Z0.

**• Preload and rigidity of preloaded assembly**

**Table 4**

Model No.	Preload (N)		Rigidity (N/μm)				
	Slight preload Z1	Medium preload Z3	Vertical direction		Lateral direction		
			Slight preload Z1	Medium preload Z3	Slight preload Z1	Medium preload Z3	
High-load	DH15 AN, EM	78	490	137	226	98	186
	DH20 AN, EM	147	835	186	335	137	245
	DH25 AL, AN, EM	196	1 270	206	380	147	284
	DH30 AL, AN	245	1 570	216	400	157	294
	DH30 EM	294	1 770	265	480	186	355
	DH35 AL, AN, EM	390	2 350	305	560	216	390
	DH45 AL, AN, EM	635	3 900	400	745	284	540
	DH55 AL, AN, EM	980	5 900	490	910	345	645
	DH65 AN, EM	1 470	8 900	580	1 070	400	755
	Super-high-load	DH15 BN, GM	98	685	196	345	137
DH20 BN, GM		196	1 080	265	480	196	355
DH25 BL, BN, GM		245	1 570	294	560	216	400
DH30 BL, BN, GM		390	2 260	360	665	265	480
DH35 BL, BN, GM		490	2 940	430	795	305	570
DH45 BL, BN, GM		785	4 800	520	960	370	695
DH55 BL, BN, GM		1 180	7 050	635	1 170	440	835
DH65 BN, GM		1 860	11 300	805	1 480	550	1 040

Note: Clearance for Fine clearance Z0 is 0 to 3μm. Therefore, preload is zero.  
However, Z0 of PN grade is 0 to 15μm.

**4. Maximum rail length**

Table 5 shows the limitations of rail length (maximum length). However, the limitations vary by accuracy grades.

**Table 5 Length limitations of rails**

Unit: mm

Model	Material	Size	Length (mm)							
			15	20	25	30	35	45	55	65
DH	Special high carbon steel		2 980	3 960	3 960	4 000	4 000	3 990	3 960	3 900

Note: Rails can be butted if user requirements exceed the rail length shown in the table. Please consult NSK.

**5. Installation**

**(1) Permissible values of mounting error**

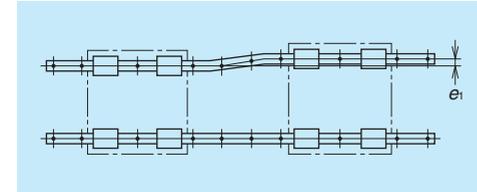


Fig. 6

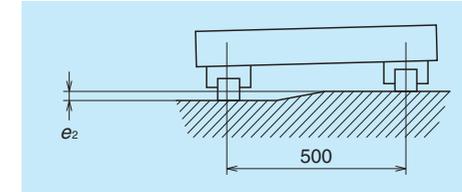


Fig. 7

**Table 6**

Unit: μm

Value	Preload	Model No.							
		DH15	DH20	DH25	DH30	DH35	DH45	DH55	DH65
Permissible values for parallelism error of two rails $e_1$	Z0	22	30	40	45	55	65	80	110
	Z1	18	20	25	30	35	45	55	70
	Z3	13	15	20	25	30	40	45	60
Permissible values for height error of two rails $e_2$	Z0	375μm/500mm							
	Z1, Z3	330μm/500mm							

**(2) Shoulder height of the mounting surface and corner radius r**

**Table 7**

Unit: mm

Model No.	Corner radius (maximum)		Shoulder height	
	$r_a$	$r_b$	$H'$	$H''$
DH15	0.5	0.5	4	4
DH20	0.5	0.5	4.5	5
DH25	0.5	0.5	5	5
DH30	0.5	0.5	6	6
DH35	0.5	0.5	6	6
DH45	0.7	0.7	8	8
DH55	0.7	0.7	10	10
DH65	1	1	11	11

Fig. 8 Shoulder for the rail datum surface

Fig. 9 Shoulder for the ball slide datum surface

**6. Maximum allowable speed**

Table 8 indicates the maximum allowable speed for 10,000 km operation when using an DH model under normal conditions. However, the maximum allowable speed can be affected by accuracy of installation, operating temperature, external load, etc. If the operation is made exceeding the permissible distance and speed, please consult NSK.

**Table 8 Maximum allowable speed**

Unit: m/min

Model	Size	Maximum allowable speed (m/min)							
		15	20	25	30	35	45	55	65
DH		300				200			150

## 7. Lubrication components

Refer to pages A58 and D13 for the lubrication of linear guides.

### (1) Types of lubrication accessories

Fig. 10 and Table 9 show grease fittings and tube fittings.

We provide lubrication accessories with an extended thread body length (L) for the addition of dust-resistant accessories such as NSK K1-L lubrication units, double seals and protectors. We provide suitable lubrication accessories for special dust-resistant requirements upon request.

NSK can also provide extended length threads for ease of replenishment.

Please contact NSK if stainless lubrication accessories are required.

### (2) Mounting position of lubrication accessories

The standard position for grease fittings is at the end face of the ball slide, but we can mount them on the side of the end cap as an option.

(Fig. 11)

Please consult NSK for the installation of grease or tube fittings to the ball slide body.

Using a piping unit with thread of M6 × 1, requires a connector to connect to a grease fitting mounting hole with M6 × 0.75. The connector is available from NSK.

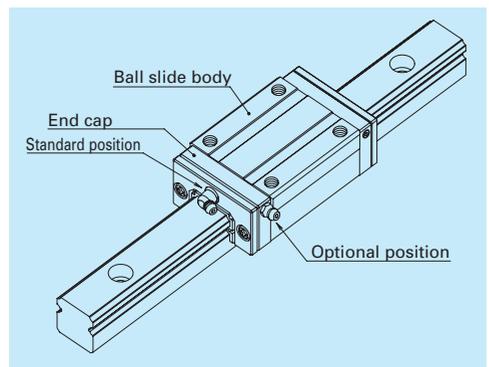


Fig. 11 Mounting position of lubrication accessories

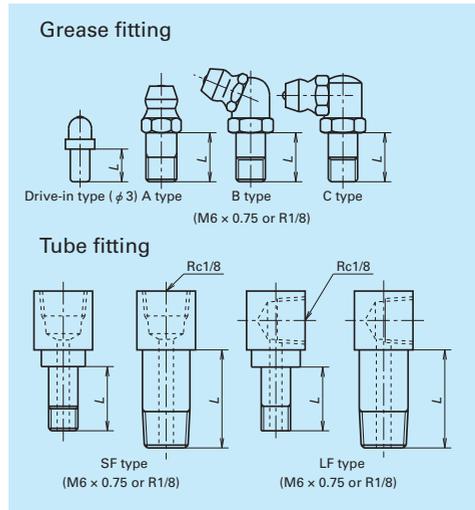


Fig. 10 Grease fitting and tube fitting

Model No.	Dust-resistant specification	Dimension L		
		Grease fitting / Drive-in type	SF type	LF type
DH15	Standard	5	-	-
	With NSK K1-L	10	-	-
	Double seal	*	-	-
	Protector	*	-	-
DH20	Standard	5	-	-
	With NSK K1-L	12	-	-
	Double seal	10	-	-
	Protector	10	-	-
DH25	Standard	5	5	5
	With NSK K1-L	12	12	12
	Double seal	10	9	9
	Protector	10	9	9
DH30	Standard	5	6	6
	With NSK K1-L	14	12	13
	Double seal	12	10	11
	Protector	12	10	11
DH35	Standard	5	6	6
	With NSK K1-L	14	12	13
	Double seal	12	10	11
	Protector	12	10	11
DH45	Standard	8	13.5	17
	With NSK K1-L	18	20	21.5
	Double seal	14	16	17
	Protector	14	13.5	17
DH55	Standard	8	13.5	17
	With NSK K1-L	18	20	21.5
	Double seal	14	16	17
	Protector	14	13.5	17
DH65	Standard	8	13.5	17
	With NSK K1-L	20	22	25.5
	Double seal	16	18	19
	Protector	16	13.5	17

\*) A connector is required for this model. Please contact NSK.

## 8. Dust-resistant components

### (1) Standard specification

Under normal applications, the DH model can be used without modification thanks to its dust resistance. These ball slides come standard with an end seal on both ends and bottom seals on the bottom.

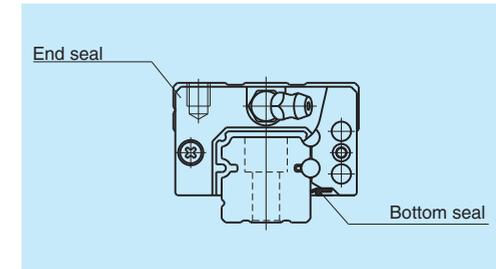
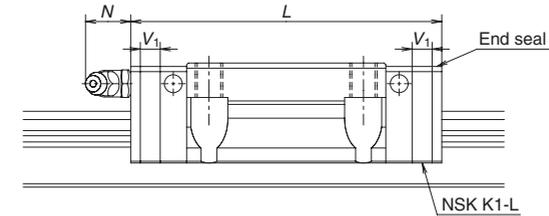


Fig. 12

Model	Size	15	20	25	30	35	45	55	65
DH		8	9	10	10	12	17	22	29

### (2) NSK K1-L™ and NSK K1™ lubrication units for food processing machinery/medical equipment

Table 11 shows linear guide dimensions when equipped with NSK K1-L lubrication units.



Model No.	Ball slide length	Ball slide shape code	Standard ball slide length	Ball slide length with two NSK K1-L units L	Thickness of single NSK K1-L unit V <sub>1</sub>	Protrusion of grease fitting N
DH15	Standard	AN, EM	55	65.6	5.3	(5)
	Long	BN, GM	74	84.6		
DH20	Standard	AN, EM	69.8	80.4	5.3	(14)
	Long	BN, GM	91.8	102.4		
DH25	Standard	AL, AN, EM	79	90.6	5.8	(14)
	Long	BL, BN, GM	107	118.6		
DH30	Standard	AL, AN	85.6	97.6	6	(14)
		EM	98.6	110.6		
DH35	Standard	AL, AN, EM	109	122	6.5	(14)
		BL, BN, GM	143	156		
DH45	Standard	AL, AN, EM	139	154	7.5	(15)
		BL, BN, GM	171	186		
DH55	Standard	AL, AN, EM	163	178	7.5	(15)
		BL, BN, GM	201	216		
DH65	Standard	AN, EM	193	211	9	(16)
		BN, GM	253	271		

Notes: 1) When using NSK K1 for food processing machinery/medical equipment, refer to Table 12.

2) Slide length when equipped with NSK K1-L = (standard ball slide length) + (V<sub>1</sub>, thickness of single NSK K1-L unit) × (number of K1-L units).

Table 12 shows linear guide dimensions when equipped with NSK K1 for food processing machinery/medical equipment.

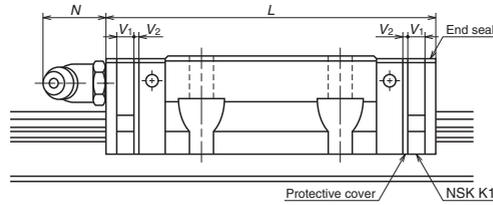


Table 12 Dimensions when equipped with NSK K1 for food processing machinery/medical equipment

Unit: mm

Model No.	Ball slide length	Ball slide shape code	Standard ball slide length	Ball slide length with two NSK K1 installed L	Thickness of single NSK K1 V <sub>1</sub>	Protective cover thickness V <sub>2</sub>	Protrusion of grease fitting N
DH15	Standard	AN, EM	55	65.6	4.5	0.8	(5)
	Long	BN, GM	74	84.6			
DH20	Standard	AN, EM	69.8	80.4	4.5	0.8	(14)
	Long	BN, GM	91.8	102.4			
DH25	Standard	AL, AN, EM	79.0	90.6	5.0	0.8	(14)
	Long	BL, BN, GM	107	118.6			
DH30	Standard	AL, AN	85.6	97.6	5.0	1.0	(14)
		EM	98.6	110.6			
DH35	Standard	AL, AN, EM	109	122	5.5	1.0	(14)
	Long	BL, BN, GM	143	156			

Note: Slide length when equipped with NSK K1 for food processing machinery/medical equipment = (standard ball slide length) + (V<sub>1</sub> thickness of single NSK K1 unit) × (number of K1 units) + (V<sub>2</sub> thickness of the protective cover) × 2.

Table 13 Double seal set

Model No.	Reference No.		Increased thickness V <sub>3</sub> (mm)
	Without connector	With connector	
DH15	LH15WS-01	*	2.5
DH20	LH20WS-01	LH20WSC-01	2.5
DH25	LH25WS-01	LH25WSC-01	2.8
DH30	LH30WS-01	LH30WSC-01	3.6
DH35	LH35WS-01	LH35WSC-01	3.6
DH45	LH45WS-01	LH45WSC-01	4.3
DH55	LH55WS-01	LH55WSC-01	4.3
DH65	LH65WS-01	LH65WSC-01	4.9

Table 14 Protector set

Model No.	Reference No.		Increased thickness V <sub>4</sub> (mm)
	Without connector	With connector	
DH15	LH15PT-01	*	2.7
DH20	LH20PT-01	LH20PTC-01	2.9
DH25	LH25PT-01	LH25PTC-01	3.2
DH30	LH30PT-01	LH30PTC-01	4.2
DH35	LH35PT-01	LH35PTC-01	4.2
DH45	LH45PT-01	LH45PTC-01	4.9
DH55	LH55PT-01	LH55PTC-01	4.9
DH65	LH65PT-01	LH65PTC-01	5.5

\*) For installation of a connector to a drive-in grease fitting, contact NSK.

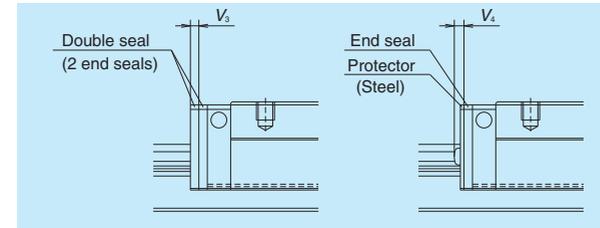


Fig. 15

(3) Double seal

Use a double seal set as shown in Table 13 when installing an extra seal to completed standard products. (Fig. 13)

When installing a grease fitting after the installation of double seals, a connector as shown in Fig.13 is required.

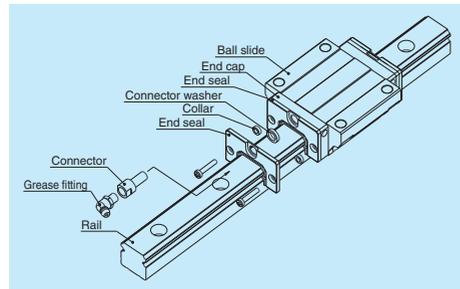


Fig. 13 Double seal

(4) Protector

Use a protector set as shown in Table 14 when installing a protector to completed standard products. (Fig.14)

When installing a grease fitting after the installation of protectors, a connector as shown in Fig.14 is required.

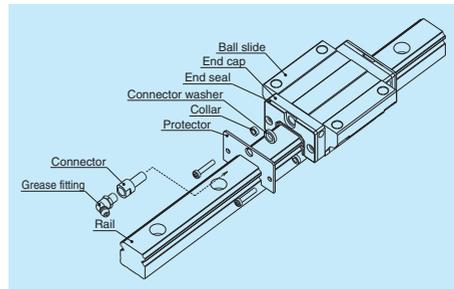


Fig. 14 Protector

(5) Caps to plug the rail mounting bolt hole

Table 15 Caps to plug rail bolt hole

Model No.	Bolt to secure rail	Cap reference No.	Quantity /case
DH15	M4	LG-CAP/M4	20
DH20	M5	LG-CAP/M5	20
DH25	M6	LG-CAP/M6	20
DH30, DH35	M8	LG-CAP/M8	20
DH45	M12	LG-CAP/M12	20
DH55	M14	LG-CAP/M14	20
DH65	M16	LG-CAP/M16	20

(6) Inner seal

Inner seal is only available for models shown in the table below.

Table 16

Model	Model No.
DH	DH20, DH25, DH30, DH35, DH45, DH55, DH65

(7) Bellows

- A bellows fastener kit, which includes one bellows fastener, two M<sub>1</sub> set screws, two M<sub>2</sub> set screws, and two collars for M<sub>2</sub> set screws as shown in Fig. 7.7 on page A69, is supplied with bellows for the ends.
- Middle bellows are supplied with four set screws and four collars.
- Use a bellows fastener kit as shown in **Table 17**, when installing bellows to completed standard products.
- When NSK K1-L units, NSK K1 for food and medical equipment, double seals, or protectors are used, the set screws of bellows fastener kits cannot be used.

**Table 17 Bellows fastener kit reference No.**

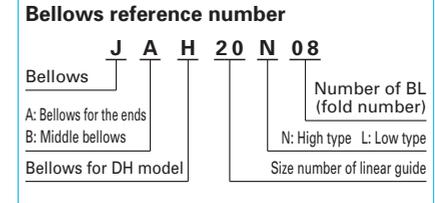
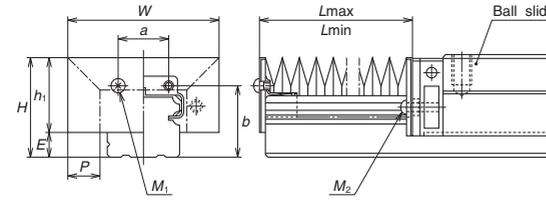
Model No.	Kit reference No.
DH20	LH20FS-01
DH25	LH25FS-01
DH30	LH30FS-01
DH35	LH35FS-01
DH45	LH45FS-01
DH55	LH55FS-01
DH65	LH65FS-01

Please contact NSK for details.

- Bellows fasteners are available only for horizontal mounting positions; other mounting positions require a sliding plate (see **Fig. 7.10** on page A70).

To fix the bellows to the rail, make tap holes on the rail end surface. Fix the bellows mounting plate to the rail end surface through these tap holes with a machine screw. NSK prepares tap holes on the rail end surface when bellows are ordered with a linear guide.

**Dimension tables for bellows  
DH Model**



**Fig. 16 Dimensions of bellows**

**Table 18 Dimensions of bellows**

Unit: mm

Model No.	H	h <sub>1</sub>	E	W	P	a	b	BL minimum length	M <sub>1</sub> Tap x depth	M <sub>2</sub> Tap x depth
JAH20N	29.5	24.5	5	48	10	13	22	17	M3 × 5	M2.5 × 16
JAH25L	35	28	7	51	10	16	26	17	M3 × 5	M3 × 18
JAH25N	39	32		61	15					
JAH30L	41	32	9	60	12	18	31	17	M4 × 6	M4 × 22
JAH30N	44	35		66	15					
JAH35L	47	37.5	9.5	72	15	24	34	17	M4 × 6	M4 × 23
JAH35N	54	44.5		82	20					
JAH45L	59	45	14	83	15	32	44.5	17	M5 × 8	M5 × 28
JAH45N	69	55		103	25					
JAH55L	69	54	15	101	20	40	50.5	17	M5 × 8	M5 × 30
JAH55N	79	64		121	30					
JAH65N	89	73	16	131	30	48	61	17	M6 × 8	M6 × 35

**Table 19 Numbers of folds (BL) and lengths of bellows**

Unit: mm

Model No.	Number of BL	2	4	6	8	10	12	14	16	18	20
		L <sub>min</sub>	34	68	102	136	170	204	238	272	306
JAH20N	Stroke	106	212	318	424	530	636	742	848	954	1 060
	L <sub>max</sub>	140	280	420	560	700	840	980	1 120	1 260	1 400
JAH25L	Stroke	106	212	318	424	530	636	742	848	954	1 060
	L <sub>max</sub>	140	280	420	560	700	840	980	1 120	1 260	1 400
JAH25N	Stroke	176	352	528	704	880	1 056	1 232	1 408	1 584	1 760
	L <sub>max</sub>	210	420	630	840	1 050	1 260	1 470	1 680	1 890	2 100
JAH30L	Stroke	134	268	402	536	670	804	938	1 072	1 206	1 340
	L <sub>max</sub>	168	336	504	672	840	1 008	1 176	1 344	1 512	1 680
JAH30N	Stroke	176	352	528	704	880	1 056	1 232	1 408	1 584	1 760
	L <sub>max</sub>	210	420	630	840	1 050	1 260	1 470	1 680	1 890	2 100
JAH35L	Stroke	176	352	528	704	880	1 056	1 232	1 408	1 584	1 760
	L <sub>max</sub>	210	420	630	840	1 050	1 260	1 470	1 680	1 890	2 100
JAH35N	Stroke	246	492	738	984	1 230	1 476	1 722	1 968	2 214	2 460
	L <sub>max</sub>	280	560	840	1 120	1 400	1 680	1 960	2 240	2 520	2 800
JAH45L	Stroke	176	352	528	704	880	1 056	1 232	1 408	1 584	1 760
	L <sub>max</sub>	210	420	630	840	1 050	1 260	1 470	1 680	1 890	2 100
JAH45N	Stroke	316	632	948	1 264	1 580	1 896	2 212	2 528	2 844	3 160
	L <sub>max</sub>	350	700	1 050	1 400	1 750	2 100	2 450	2 800	3 150	3 500
JAH55L	Stroke	246	492	738	984	1 230	1 476	1 722	1 968	2 214	2 460
	L <sub>max</sub>	280	560	840	1 120	1 400	1 680	1 960	2 240	2 520	2 800
JAH55N	Stroke	386	772	1 158	1 544	1 930	2 316	2 702	3 088	3 474	3 860
	L <sub>max</sub>	420	840	1 260	1 680	2 100	2 520	2 940	3 360	3 780	4 200
JAH65N	Stroke	386	772	1 158	1 544	1 930	2 316	2 702	3 088	3 474	3 860
	L <sub>max</sub>	420	840	1 260	1 680	2 100	2 520	2 940	3 360	3 780	4 200

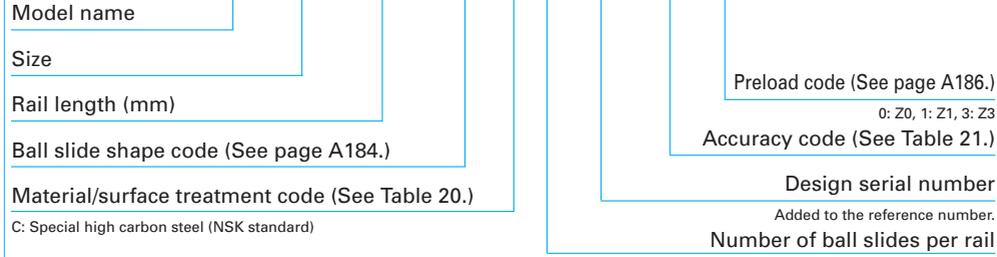
**Note:** The values of an odd number BL quantity (3, 5, 7, ...) can be obtained by adding two values of even number BL on both sides, then by dividing the sum by 2.

**9. Reference number**

A reference number (designation) is set and indicated on the specification drawing for an individual NSK linear guide when its specifications are finalized.

Please specify the reference number, except design serial number, to identify the product when ordering, requiring estimates, or inquiring about specifications from NSK.

**DH 30 1200 ANC 2 -\*\* P5 3**



**Table 20 Material/surface treatment code**

Code	Description
C	Special high carbon steel
D	Special high carbon steel with surface treatment
Z	Other, special

**Table 21 Accuracy code**

Accuracy	Standard (Without NSK K1-L)	With NSK K1-L	With NSK K1 for food and medical equipment
Ultra precision grade	P3	L3	F3
Super precision grade	P4	L4	F4
High precision grade	P5	L5	F5
Precision grade	P6	L6	F6
Normal grade	PN	LN	FN

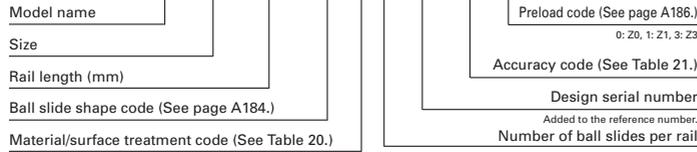
Note: Refer to page A58 for details on NSK K1-L lubrication units and to page A73 for details on NSK K1 lubrication units for food processing machinery/medical equipment.

10. Dimensions

DH-AN (High-load / Standard)

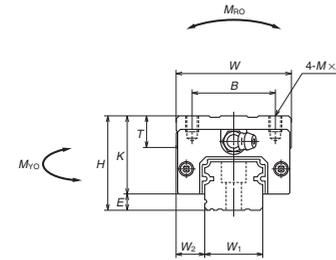
DH-BN (Super-high-load / Long)

**DH 30 1200 ANC 2 -\*\* P5 3**

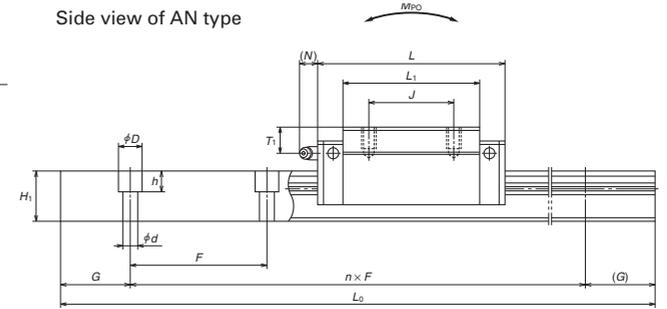


C: Special high carbon steel

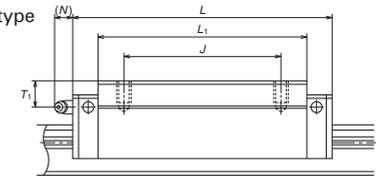
Front view of AN and BN types



Side view of AN type



Side view of BN type



Unit: mm

Model No.	Assembly			Ball slide										Width	Height	
	Height	Width	Length	Mounting hole						Grease fitting						
				H	E	W <sub>2</sub>	W	L	B	J	M × pitch × l	L <sub>1</sub>	K			T
DH15AN DH15BN	28	4.6	9.5	34	55 74	26	26	M4×0.7×6	39 58	23.4	8	φ 3	8.5	3.3	15	15
DH20AN DH20BN	30	5	12	44	69.8 91.8	32	36 50	M5×0.8×6	50 72	25	12	M6×0.75	5	11	20	18
DH25AN DH25BN	40	7	12.5	48	79 107	35	35 50	M6×1×9	58 86	33	12	M6×0.75	10	11	23	22
DH30AN DH30BN	45	9	16	60	85.6 124.6	40	40 60	M8×1.25×10	59 98	36	14	M6×0.75	10	11	28	26
DH35AN DH35BN	55	9.5	18	70	109 143	50	50 72	M8×1.25×12	80 114	45.5	15	M6×0.75	15	11	34	29
DH45AN DH45BN	70	14	20.5	86	139 171	60	60 80	M10×1.5×17	105 137	56	17	Rc1/8	20	13	45	38
DH55AN DH55BN	80	15	23.5	100	163 201	75	75 95	M12×1.75×18	126 164	65	18	Rc1/8	21	13	53	44
DH65AN DH65BN	90	16	31.5	126	193 253	76	70 120	M16×2×20	147 207	74	23	Rc1/8	19	13	63	53

Rail		Basic load ratings								Weight				
Pitch	Mounting bolt hole	G	Max. length	Dynamic		Static	Static moment (N-m)				Ball slide	Rail		
				[50km]	[100km]		M <sub>PO</sub>		M <sub>VO</sub>					
				F	d × D × h	(reference)	L <sub>max</sub>	C <sub>50</sub> (N)	C <sub>100</sub> (N)	C <sub>0</sub> (N)	M <sub>ro</sub>	One slide	Two slides	One slide
60	4.5×7.5×5.3	20	2 980	17 800 22 800	14 200 18 100	20 700 32 000	108 166	94.5 216	575 1 150	181 181	79.5 965	480 965	0.18 0.26	1.6
60	6×9.5×8.5	20	3 960	29 800 38 000	23 700 30 000	32 500 50 500	219 340	185 420	1 140 2 230	155 355	955 1 870	0.33 0.48	2.6	
60	7×11×9	20	3 960	42 500 57 500	33 500 45 500	46 000 71 000	360 555	320 725	1 840 3 700	267 610	1 540 3 100	0.55 0.82	3.6	
80	9×14×12	20	4 000	51 500 77 000	41 000 61 000	51 500 91 500	490 870	350 1 030	2 290 5 600	292 865	1 920 4 700	0.77 1.3	5.2	
80	9×14×12	20	4 000	78 500 102 000	62 500 81 000	80 500 117 000	950 1 380	755 1 530	4 500 8 350	630 1 280	3 800 7 000	1.5 2.1	7.2	
105	14×20×17	22.5	3 990	135 000 164 000	107 000 131 000	140 000 187 000	2 140 2 860	1 740 3 000	9 750 15 600	1 460 2 520	8 150 13 100	3.0 3.9	12.3	
120	16×23×20	30	3 960	199 000 243 000	158 000 193 000	198 000 264 000	3 600 4 850	3 000 5 150	16 300 26 300	2 510 4 350	13 700 22 100	4.7 6.1	16.9	
150	18×26×22	35	3 900	300 000 390 000	239 000 310 000	281 000 410 000	6 150 8 950	4 950 10 100	27 900 51 500	4 150 8 450	23 400 43 500	7.7 10.8	24.3	

Note : 1) The basic load ratings comply with the ISO standard. (ISO 14728-1, 14728-2) For long-life DH model, the rated load is multiplied by a coefficient that reflects the effect of life improvement technologies based on these ISO standards.  
C<sub>50</sub>: the basic dynamic load rating for 50 km rated fatigue life C<sub>100</sub>: the basic dynamic load rating for 100 km rated fatigue life  
The basic static load rating shows static permissible load.

**DH-AL (High-load / Standard)**  
**DH-BL (Super-high-load / Long)**

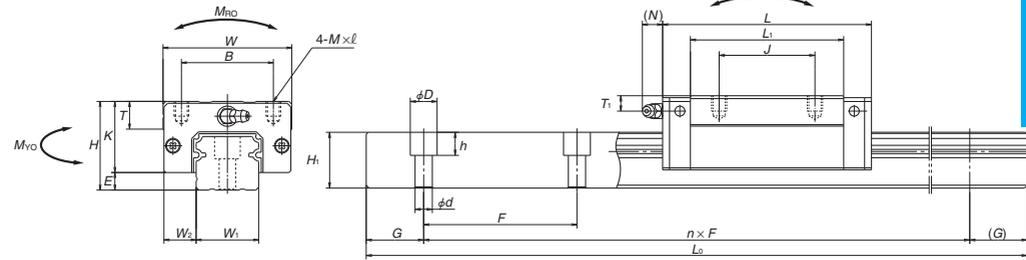
**DH 30 1200 AL C 2 -\*\* P5 3**

Model name	Preload code (See page A186.)
Size	0: Z0, 1: Z1, 3: Z3
Rail length (mm)	Accuracy code (See Table 21.)
Ball slide shape code (See page A184.)	Design serial number
Material/surface treatment code (See Table 20.)	Added to the reference number.
	Number of ball slides per rail

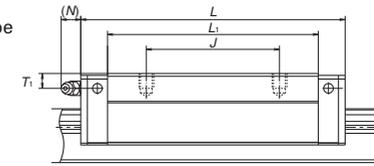
C: Special high carbon steel

Front view of AL and BL types

Side view of AL type



Side view of BL type



Unit: mm

Model No.	Assembly			Ball slide											Width	Height
	Height	Width	Length	Mounting hole						Grease fitting			Width	Height		
				$H$	$E$	$W_2$	$W$	$L$	$B$	$J$	$M \times \text{pitch} \times \ell$	$L_1$				
<b>DH25AL</b> <b>DH25BL</b>	36	7	12.5	48	79 107	35	35 50	M6×1×6	58 86	29	12	M6×0.75	6	11	23	22
<b>DH30AL</b> <b>DH30BL</b>	42	9	16	60	85.6 124.6	40	40 60	M8×1.25×8	59 98	33	14	M6×0.75	7	11	28	26
<b>DH35AL</b> <b>DH35BL</b>	48	9.5	18	70	109 143	50	50 72	M8×1.25×8	80 114	38.5	15	M6×0.75	8	11	34	29
<b>DH45AL</b> <b>DH45BL</b>	60	14	20.5	86	139 171	60	60 80	M10×1.5×10	105 137	46	17	Rc1/8	10	13	45	38
<b>DH55AL</b> <b>DH55BL</b>	70	15	23.5	100	163 201	75	75 95	M12×1.75×13	126 164	55	15	Rc1/8	11	13	53	44

Rail	Pitch	Mounting bolt hole	G	Max. length	Basic load ratings								Weight	
					Dynamic		Static	Static moment (N-m)				Ball slide	Rail	
					[50km]	[100km]		$C_0$	$M_{RO}$		$M_{VO}$			
					$C_{50}$ (N)	$C_{100}$ (N)	(N)		One slide	Two slides	One slide	Two slides	(kg)	(kg/m)
60	7×11×9	20	3 960	42 500 57 500	33 500 45 500	46 000 71 000	360 555	320 725	1 840 3 700	267 610	1 540 3 100	0.46 0.69	3.6	
80	9×14×12	20	4 000	51 500 77 000	41 000 61 000	51 500 91 500	490 870	350 1 030	2 290 5 600	292 865	1 920 4 700	0.69 1.16	5.2	
80	9×14×12	20	4 000	78 500 102 000	62 500 81 000	80 500 117 000	950 1 380	755 1 530	4 500 8 350	630 1 280	3 800 7 000	1.2 1.7	7.2	
105	14×20×17	22.5	3 990	135 000 164 000	107 000 131 000	140 000 187 000	2 140 2 860	1 740 3 000	9 750 15 600	1 460 2 520	8 150 13 100	2.2 2.9	12.3	
120	16×23×20	30	3 960	199 000 243 000	158 000 193 000	198 000 264 000	3 600 4 850	3 000 5 150	16 300 26 300	2 510 4 350	13 700 22 100	3.7 4.7	16.9	

Note : 1) The basic load ratings comply with the ISO standard. (ISO 14728-1, 14728-2) For long-life DH model, the rated load is multiplied by a coefficient that reflects the effect of life improvement technologies based on these ISO standards.  
 $C_{50}$ : the basic dynamic load rating for 50 km rated fatigue life  $C_{100}$ : the basic dynamic load rating for 100 km rated fatigue life  
 The basic static load rating shows static permissible load.

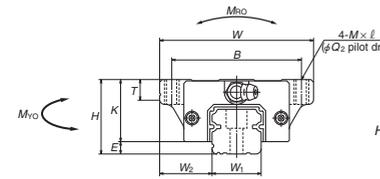
**DH-EM (High-load / Standard)**  
**DH-GM (Super-high-load / Long)**

**DH 30 1200 EMC 2 -\*\* P5 3**

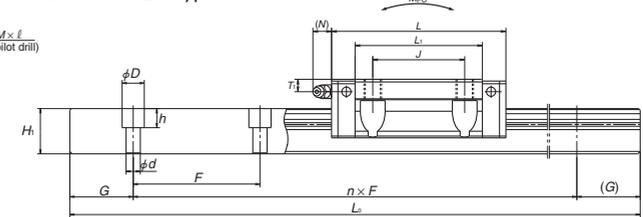
Model name	Preload code (See page A186.)
Size	0: Z0, 1: Z1, 3: Z3
Rail length (mm)	Accuracy code (See Table 21.)
Ball slide shape code (See page A184.)	Design serial number
Material/surface treatment code (See Table 20.)	Added to the reference number.
	Number of ball slides per rail

C: Special high carbon steel

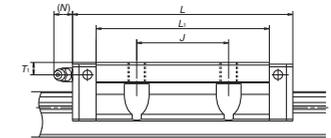
Front view of EM and GM types



Side view of EM type



Side view of GM type



Model No.	Assembly			Ball slide										Width	Height		
	Height	E	W <sub>2</sub>	W	L	Mounting hole				L <sub>1</sub>	K	T	Grease fitting				
						B	J	M × pitch × l	Q <sub>2</sub>				Hole size			T <sub>1</sub>	N
DH15EM DH15GM	24	4.6	16	47	55 74	38	30	M5×0.8×7	4.4	39 58	19.4	8	φ 3	4.5	3.3	15	15
DH20EM DH20GM	30	5	21.5	63	69.8 91.8	53	40	M6×1×9.5	5.3	50 72	25	10	M6×0.75	5	11	20	18
DH25EM DH25GM	36	7	23.5	70	79 107	57	45	M8×1.25×10	6.8	58 86	29	11	M6×0.75	6	11	23	22
DH30EM DH30GM	42	9	31	90	98.6 124.6	72	52	M10×1.5×12	8.6	72 98	33	11	M6×0.75	7	11	28	26
DH35EM DH35GM	48	9.5	33	100	109 143	82	62	M10×1.5×13	8.6	80 114	38.5	12	M6×0.75	8	11	34	29
DH45EM DH45GM	60	14	37.5	120	139 171	100	80	M12×1.75×15	10.5	105 137	46	13	Rc1/8	10	13	45	38
DH55EM DH55GM	70	15	43.5	140	163 201	116	95	M14×2×18	12.5	126 164	55	15	Rc1/8	11	13	53	44
DH65EM DH65GM	90	16	53.5	170	193 253	142	110	M16×2×24	14.6	147 207	74	23	Rc1/8	19	13	63	53

Rail				Basic load ratings								Weight	
Pitch	Mounting bolt hole	G	Max. length	Dynamic		C <sub>0</sub>	M <sub>Ro</sub>	Static moment (N-m)				Ball slide	Rail
				[50km]	[100km]			M <sub>Ro</sub>		M <sub>Vo</sub>			
				C <sub>50</sub> (N)	C <sub>100</sub> (N)	(N)	One slide	Two slides	One slide	Two slides	(kg)	(kg/m)	
60	4.5×7.5×5.3	20	2 980	17 800	14 200	20 700	108	94.5	575	79.5	480	0.17	1.6
				22 800	18 100	32 000	166	216	1 150	181	965	0.25	
60	6×9.5×8.5	20	3 960	29 800	23 700	32 500	219	185	1 140	155	955	0.45	2.6
				38 000	30 000	50 500	340	420	2 230	355	1 870	0.65	
60	7×11×9	20	3 960	42 500	33 500	46 000	360	320	1 840	267	1 540	0.63	3.6
				57 500	45 500	71 000	555	725	3 700	610	3 100	0.93	
80	9×14×12	20	4 000	59 000	47 000	63 000	600	505	3 150	425	2 650	1.2	5.2
				77 000	61 000	91 500	870	1 030	5 600	865	4 700	1.6	
80	9×14×12	20	4 000	78 500	62 500	80 500	950	755	4 500	630	3 800	1.7	7.2
				102 000	81 000	117 000	1 380	1 530	8 350	1 280	7 000	2.4	
105	14×20×17	22.5	3 990	135 000	107 000	140 000	2 140	1 740	9 750	1 460	8 150	3	12.3
				164 000	131 000	187 000	2 860	3 000	15 600	2 520	13 100	3.9	
120	16×23×20	30	3 960	199 000	158 000	198 000	3 600	3 000	16 300	2 510	13 700	5	16.9
				243 000	193 000	264 000	4 850	5 150	26 300	4 350	22 100	6.5	
150	18×26×22	35	3 900	300 000	239 000	281 000	6 150	4 950	27 900	4 150	23 400	10	24.3
				390 000	310 000	410 000	8 950	10 100	51 500	8 450	43 500	14.1	

Note : 1) The basic load ratings comply with the ISO standard. (ISO 14728-1, 14728-2) For long-life DH model, the rated load is multiplied by a coefficient that reflects the effect of life improvement technologies based on these ISO standards.  
 C<sub>50</sub>; the basic dynamic load rating for 50 km rated fatigue life C<sub>100</sub>; the basic dynamic load rating for 100 km rated fatigue life  
 The basic static load rating shows static permissible load.