SLIDE BUSH

SLIDE BUSH

The NB slide bush is a linear motion mechanism utilizing the rotational motion of ball elements. Since linear motion is obtained using a simple mechanism, the slide bush can be used in a wide variety of applications, including transportation equipment, food processing equipment, and semiconductor equipment.

STRUCTURE AND ADVANTAGES

The NB slide bush consists of the outer cylinder and a ball retainer that guide the circulation of the ball elements, resulting in smooth linear motion.

Compact Mechanism:

The NB slide bush uses a round shaft for the guide, resulting in effective space utilization, which allows for compact designs.

A Wide Variety of Shapes and Installation Methods:

The NB slide bush is available in various shapes, which make it suitable for various types of installations : lightweight, standard, clearance adjustable, open, flange, and double-wide types.

Selection According to Environment:

Standard and anticorrosion NB slide bushes are available. Additionally, options available are both metallic retainers suitable for use in harsh environments and low acoustic, low-cost resin retainers.

These options can be specified according to application need.

Compatibility:

The NB slide bush is fully compatible with a variety of shaft types.

Low Friction:

The raceway surface is precision ground. Since the contact surface between the ball elements and the raceway surface is minimized, the NB slide bush provides low friction when compared to other linear motion mechanisms.

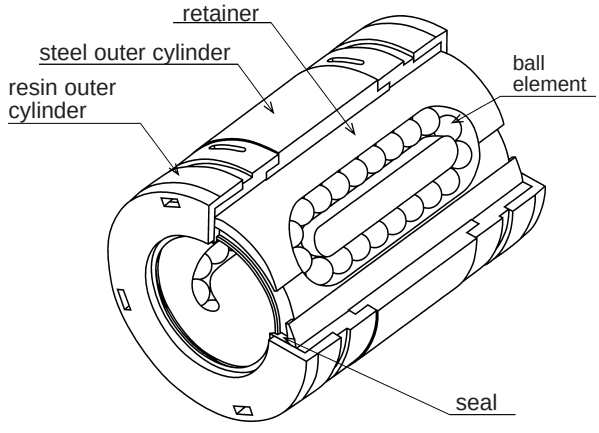
GM type series:

The GM Slide Bush makes efficient use of resin components making it possible to achieve an overall weight reduction of 30〜50% when compared with the SM Slide Bush.

The ball return section is configured completely in resin material, which provides for low noise operation.

Figure D-1 Basic Structure of NB Slide Bush (GM)

GM type



GMF-W type

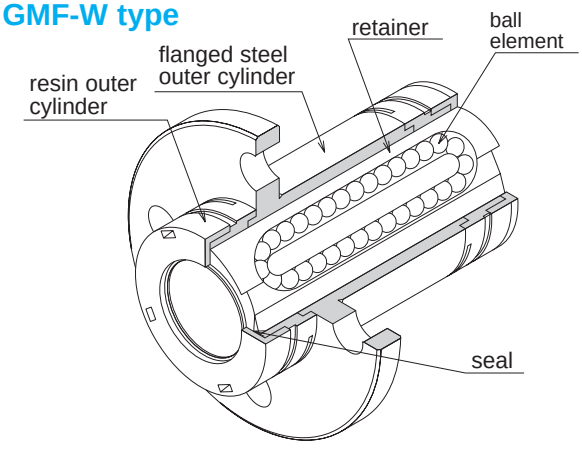
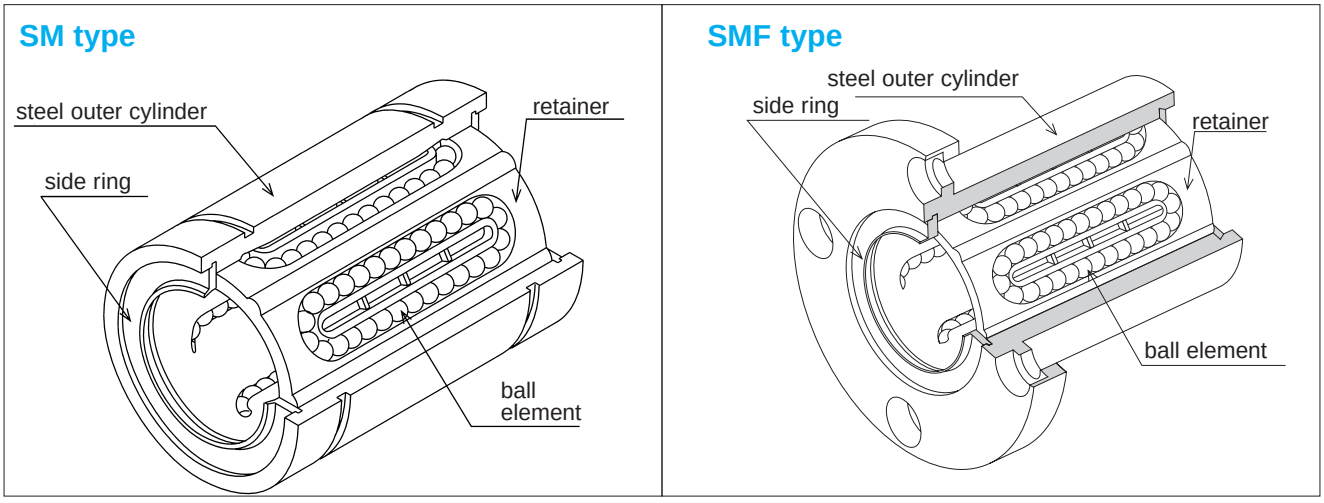


Figure D-2 Basic Structure of NB Slide Bush (SM, KB, SW)



TYPES

Table D-1 Types (1)

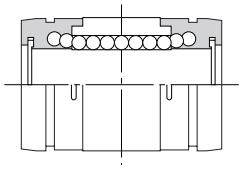
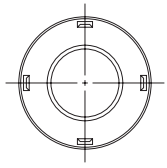
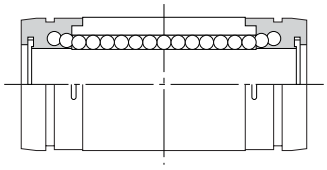
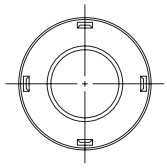
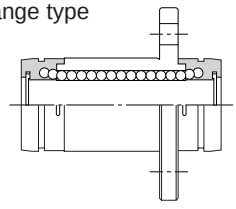
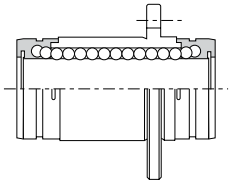
type		standard	page
GM/GW type 		**GM**	**D- 12**
		GW	**D-120**
GM double-wide type 		**GM-W**	**D- 13**
GM double-wide flange type 		**GMF-W**	**D- 14**
		**GMK-W**	**D- 16**
		**GMT-W**	**D- 18**
GM double-wide pilot end flange type 		**GMF-W-E**	**D- 20**
		**GMK-W-E**	**D- 22**
		**GMT-W-E**	**D- 24**

Table D-2 Types (2)

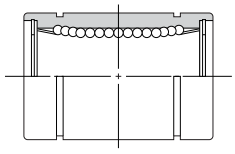
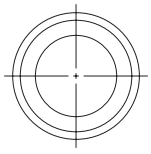
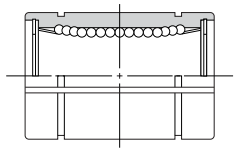
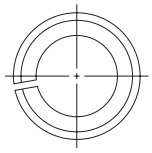
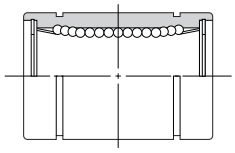
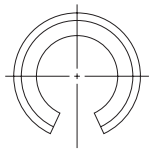
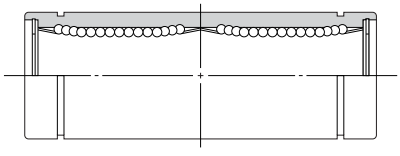
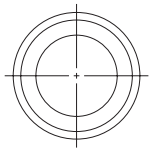
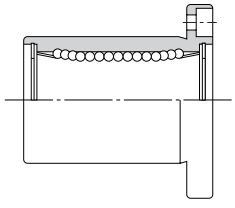
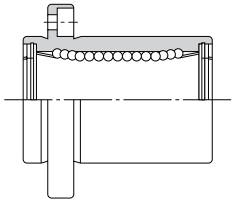
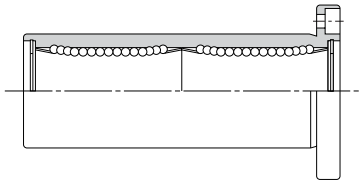
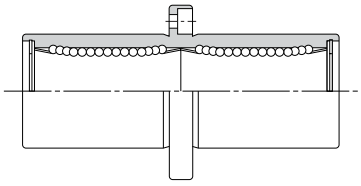
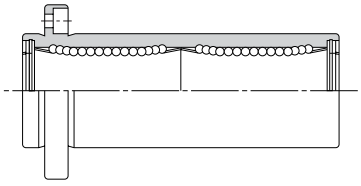
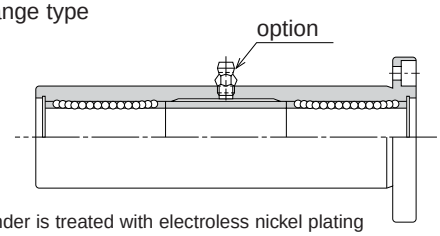
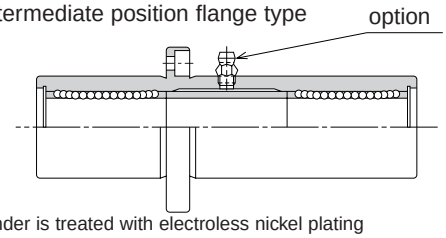
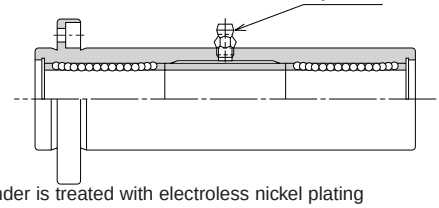
type		standard	anticorrosion	page
standard type 		**SM**	**SMS**	**D- 26**
		KB	**KBS**	**D- 76**
		SW	**SWS**	**D- 98**
clearance-adjustable (AJ) type 		**SM-AJ**	**SMS-AJ**	**D- 28**
		KB-AJ	**KBS-AJ**	**D- 78**
		SW-AJ	**SWS-AJ**	**D-100**
open (OP) type 		**SM-OP**	**SMS-OP**	**D- 30**
		KB-OP	**KBS-OP**	**D- 80**
		SW-OP	**SWS-OP**	**D-102**
double-wide type 		**SM-W**	**SMS-W**	**D- 32**
		KB-W	**KBS-W**	**D- 82**
		SW-W	**SWS-W**	**D-104**
flange type 		**SMF**	**SMSF**	**D- 34**
		KBF	**KBSF**	**D- 84**
		SWF	**SWSF**	**D-106**
		**SMK**	**SMSK**	**D- 36**
		KBK	**KBSK**	**D- 86**
		SWK	**SWSK**	**D-108**
		**SMT**	**SMST**	**D- 38**
		KBT	**KBST**	**D- 88**
		SWT	**SWST**	**D-110**
flange type with pilot end 		**SMF-E**	**SMSF-E**	**D- 40**
		**SMK-E**	**SMSK-E**	**D- 42**
		**SMT-E**	**SMST-E**	**D- 44**

Table D-3 Types (3)

type		standard	anticorrosion	page
double wide flange type 		SMF-W	SMSF-W	D- 46
		KBF-W	KBSF-W	D- 90
		SWF-W	SWSF-W	D-112
		SMK-W	SMSK-W	D- 48
		KBK-W	KBSK-W	D- 92
		SWK-W	SWSK-W	D-114
		SWT-W	SWST-W	D- 50
center mount flange type 		SMFC	SMSFC	D- 52
		KBFC	KBSFC	D- 94
		SWFC	SWSFC	D-116
		SMKC	SMSKC	D- 54
		KBKC	KBSKC	D- 96
		SWKC	SWSKC	D-118
		SMTC	SMSTC	D- 56
double-wide pilot end flange type 		SMF-W-E	SMSF-W-E	D- 58
		SMK-W-E	SMSK-W-E	D- 60
		SMT-W-E	SMST-W-E	D- 62
triple wide flange type option  ※ Outer cylinder is treated with electroless nickel plating		TRF	—	D- 64
		TRK	—	D- 66
triple-wide intermediate position flange type option  ※ Outer cylinder is treated with electroless nickel plating		TRFC	—	D- 68
		TRKC	—	D- 70
triple-wide pilot end flange type option  ※ Outer cylinder is treated with electroless nickel plating		TRF-E	—	D- 72
		TRK-E	—	D- 74

SPECIFICATIONS

Dimensional Series:

The NB slide bush is available in three primary dimensional series, each with different dimensions and tolerances depending on the location of use. Select the series most appropriate for your location.

Table D-4 Dimensional Series and Use Location

series		location			
		Japan	Asia	Europe	North America
mm dimension	GM	◎	◎	○	○
	SM				
	KB	○	○	◎	○
inch dimension	SW	○	○	○	◎

◎ generally used ○ rarely used

Allowable Load:

NB slide bushes are categorized into three functonal types depending on the number and location of retainers: single, double, and triple. The single type uses only one retainer, so when a moment load is to be applied, the double or triple type should be used.

Table D-5 Comparison of Allowable Loads

type	basic dynamic load rating	basic static load rating	allowable static moment
single	1	1	1
GM-W	1.6	2	4 approx.
double	1.6	2	6 approx.
triple	1.6	2	21 approx.

※ The single type is designated as "1" for comparison purposes.

Material:

The standard NB slide bush uses a bearing steel outer cylinder. The anti-corrosion NB slide bush uses Martensitic stainless steel. Seamless type steel (stainless steel for the anticorrosion type) retainers and resin retainers for low acoustic operation can be specified.

Table D-6 Operating Environment Temperature

material		temperature range
outer cylinder	retainer	
steel	steel	−20℃ ～110℃
	resin	−20℃ ～ 80℃
stainless	steel	−20℃ ～140℃*
	resin	−20℃ ～ 80℃

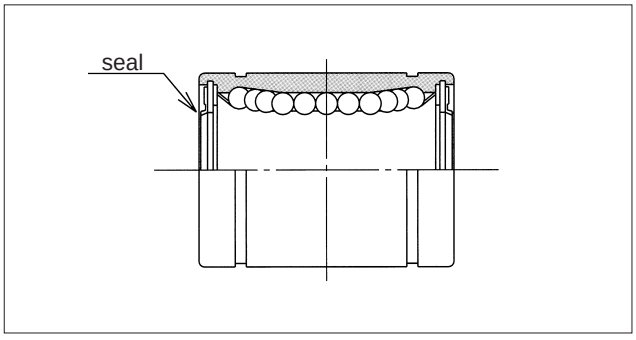
* When a slide bush with seals is used, the temperature should never exceed 120°C.

Seals:

The seals effectively retain the lubricant within the slide bush, extending the time between lubrications. The UU type has seals on both sides. The U type has a seal only on one side and is available for the standard, clearance adjustable, and open types. Nitril rubber, which has low wear and good sealing characteristics, is used as the seal material.

※ Resin seals are used for GM type.

Figure D-3 Seal Profile



LIFE CALCULATION

Since ball elements are used as the rolling element in the NB slide bush, Equation (6) is used to calculate the Travel life.

$$L=\left(\frac{f_H \cdot f_T \cdot f_C}{f_W}\cdot\frac{C}{P}\right)^3\cdot 50 \cdots\cdots\cdots\cdots\cdots\cdots (6)$$

L : travel life (Km) f_H : hardness coefficient
f_T : temperature coefficient f_W : load coefficient
C : basic dynamic load rating P : load (N)
*Refer to page Eng. 5 for the coefficient.

If the stroke distance and number of strokes per unit time are constant, the life is calculated using Equation (9).

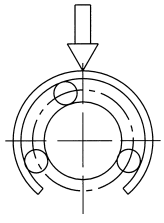
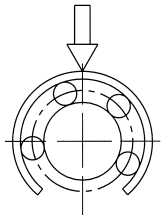
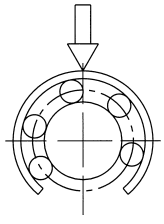
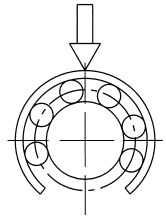
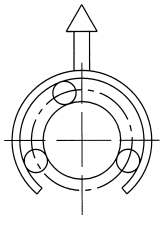
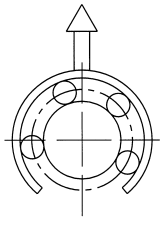
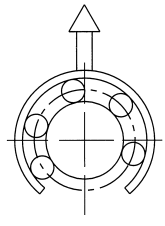
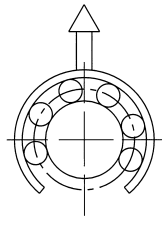
$$Lh=\frac{L\cdot 10^3}{2\cdot \ell s\cdot n_1\cdot 60} \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (9)$$

Lh : travel life in time (h) ℓs : stroke distance (m)
L : travel life (Km) n_1 : stroke frequency per min (cpm)

LOAD RATING FOR OPEN TYPE SLIDE BUSH

In the open type slide bush, an opening is provided to allow the shaft to be supported from underneath. When a load is constantly applied in the direction of the opening (for example, when used with a vertical shaft or when an overhang loading is applied), the rated load decreases due to the reduction in the number of rows of ball elements that are loaded. Therefore, the load rating must be calibrated at the time of design based on the direction of the loading.

Table D-7 Direction of Load and Basic Static Load Rating

part number	SM10G～16G-OP KB12G～16G-OP SW 8G～10G-OP	SM20(G)-OP KB20(G)-OP SW12(G)-OP	SM25(G)～100-OP KB25(G)～80-OP SW16(G)～64-OP	SM120,150-OP
loading from above	Load P 	Load P 	Load P 	Load P 
	C	C	C	C
loading from below	Load P 	Load P 	Load P 	Load P 
	0.64C	0.54C	0.57C	0.35C

※ Excludes SM12G-OP and all 3-row steel retainer open types.

MOUNTING

Examples of Mounting methods are shown in Figures D-4 ～D-7.

Figure D-4 Standard Type

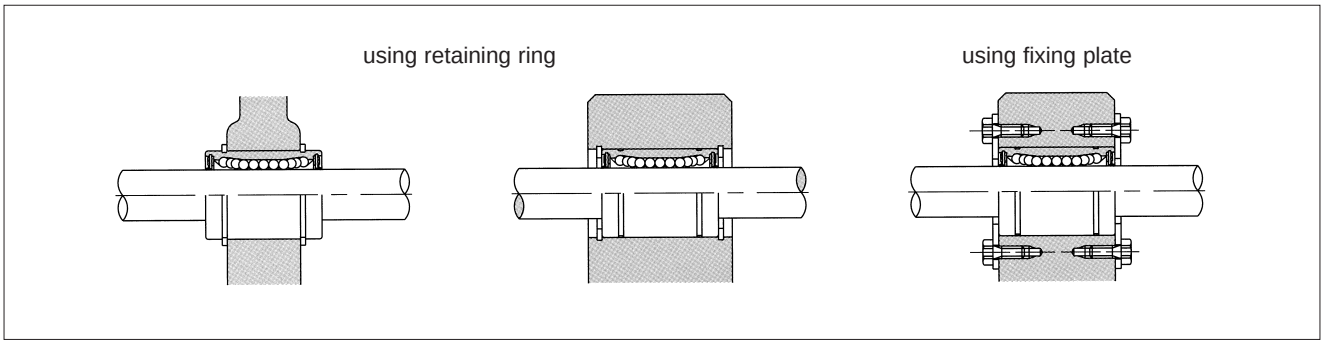


Figure D-5 Clearance Adjustable Type

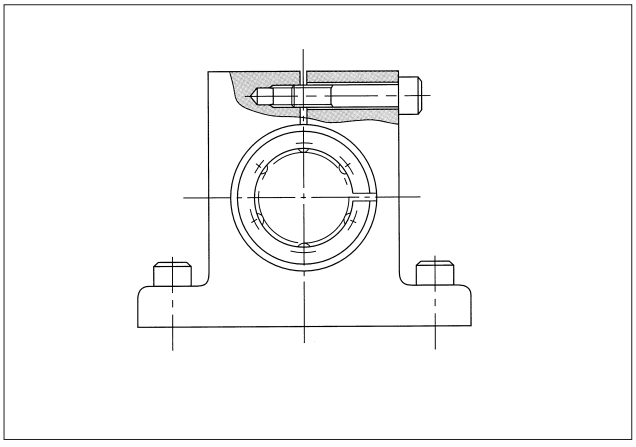


Figure D-6 Open Type

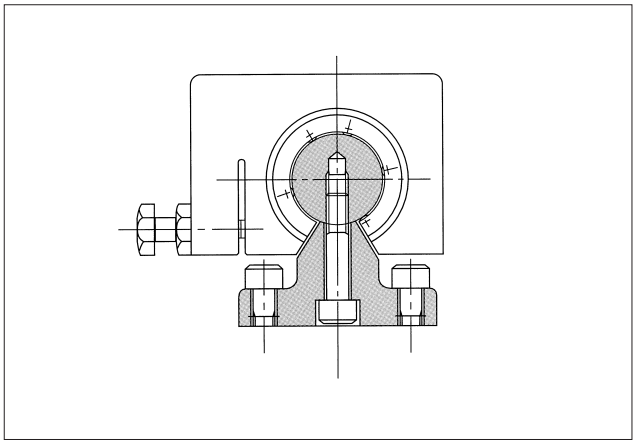
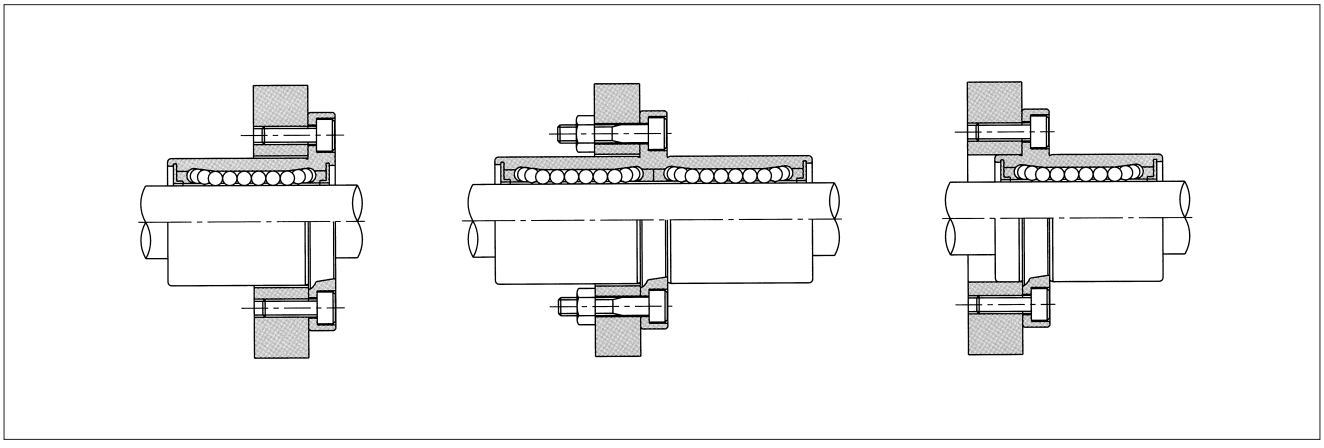


Figure D-7 Flange Type



These figures illustrate the basics of flange installation.

Fit:

The normal clearances listed in Table D-8 are generally used for the NB slide bush. The transition fit is used to reduce clearance and increase accuracy. Matching the clearance as specified between bush and shaft is also possible.
The pre-load for the clearance adjustable and open type slide bush must be adjusted carefully so that excessive pre-load does not exceed limits, based on the radial clearances listed in the table.

The flange-type bush is generally inserted into an installation bore, which is slightly larger than the outer cylinder. However, if the outer cylinder is used as the pilot type, H7 tolerance is recommended.
The recommended clearances for the flange type are listed in Table D-9.

GM Flange type:

GM flange has a reference plane on one side only as Figure D-8a, do not use the other side as a reference plane. In case of using the pilot-end flange type, Figure D-8b shows that both sides can be used as a reference plane.
H7 is recommended for the housing bore tolerance.

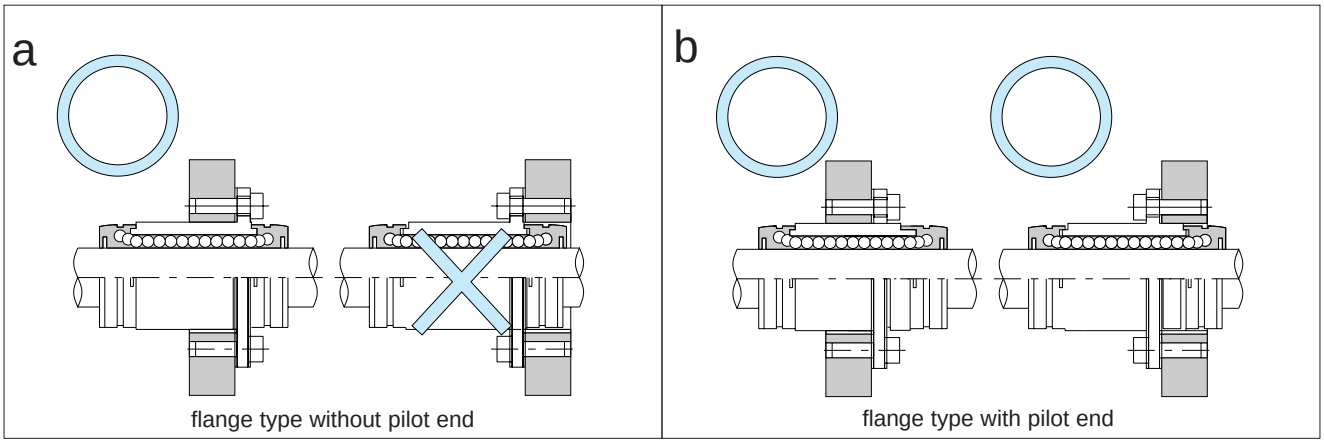
Table D-8 Normal Clearances

series	accuracy grade	shaft		housing	
		clearance fit	transition fit	clearance fit	transition fit
GM	high	g6	h6	H7	–
GM-W	high	g6	–	H7	–
SM	high	g6	h6	H7	J7
	precision (P)	g5	h5	H6	J6
SM-W	high	g6	–	H7	–
KB	high	h6	j6	H7	J7
KB-W	high	h6	–	H7	–
SW	high	g6	h6	H7	J7
	precision (P)	g5	h5	H6	J6
SW-W	high	g6	–	H7	–

Table D-9 Recommended Fit for Flange Type Bush

series	shaft	
	clearance fit	transition fit
GMF-W	g6	–
SMF	g6	h6
SMF-W	g6	–
TRF	g6	–
KBF	h6	j6
KBF-W	h6	–
SWF	g6	h6
SWF-W	g6	–

Figure D-8 Installation of GM Flange type



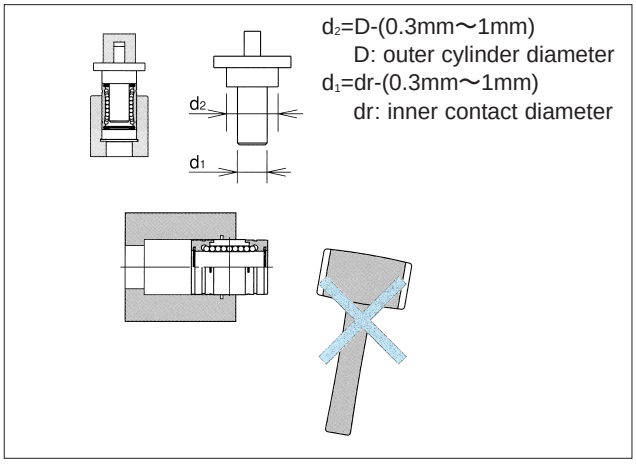
Notes on Installation:

When inserting a slide bush into a housing, carefully insert it by using a jig to apply a uniform pushing force at the end of the outer cylinder, as illustrated in Figure D-9. Motion performance may be diminished if an excessive force is applied to the resin portion of the outer cylinder, the side-ring, or the seal.

Ensure that all burrs are removed from the shaft and carefully insert the bush by aligning it with the center of the bore. The ball elements may drop out if excessive force is used during insertion.

When two or more shafts are used, the parallelism of the shafts will greatly affect the motion characteristics and life of the slide bush. The parallelism should be adjusted by moving the slide bush back and forth the length of stroke to check for freedom of movement before final fixing of shaft.

Figure D-9 Insertion of Slide Bush



LUBRICATION

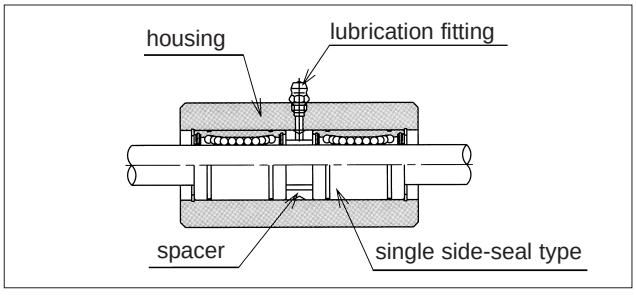
For a slide bush to continue operating accurately and have a long life, it must be lubricated on a regular basis. Anti-rust oil is applied to NB slide bush prior to shipment. When slide bushes are delivered, they should be cleaned with kerosene and dried, then a lubricant should be applied before usage.

Grease Lubricant:

Grease should be applied to the internal components of the slide bush. Grease should be periodically reapplied depending on the operating conditions. Reapplication may be done by adding the grease directly to the internal components or by using a mechanism similar to that as shown in Figure D-10. Lithium soap grease is recommended.

A special low dust generating grease for use in clean rooms is also available.(See page Eng.20) Contact NB for further details.

Figure D-10 Example of Mechanism for Applying Lubrication

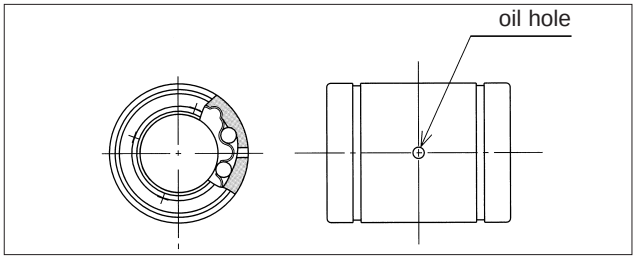


Oil Lubricant:

Oil can be applied directly to the shaft or by using a mechanism similar to that shown in Figure D-10. Turbine oil (ISO standard VG32-68) is recommended for highspeed applications.

Lubrication oil holes can be fabricated (see Figure D-11) in the center portion of the outer cylinder to simplify oil application. Contact NB for further details.

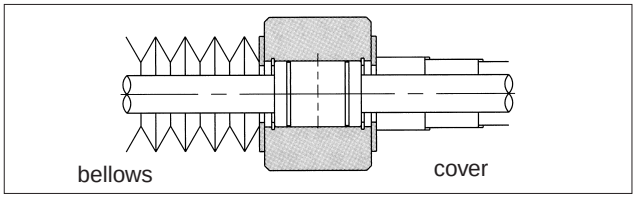
Figure D-11 Oil Hole (Custom Specification)



Dust Prevention

If foreign particles such as dust or grinding chips are introduced into the slide bush, they will disrupt the smooth circulation of the ball elements. The NB slide bush is available with seals as an option. Bellows or protective covers should be used under harsh environmental operating conditions.

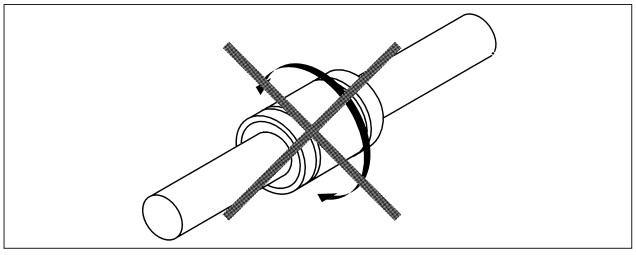
Figure D-12 Example of Dust Prevention



NOTES ON HANDLING

The NB slide bush is a precision device and therefore should always be handled with care. The slide bush is not designed for rotational motion. When applications require both rotating and linear motions, a stroke bush (page F-2), slide rotary bush (page F-8), or rotary ball spline (page B-32) should be considered.

Figure D-13 Direction of Motion



OTHER NOTES

●Flange Type Slide Bush with Surface-Treatment

The following standard surface treatments are available:

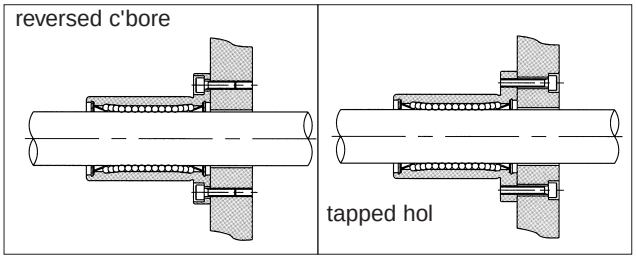
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide (excludes anti-corrosion specification)
SC	industrial chrome plating

※ In case of above treatment, tolerance of outer diameter might be different to dimension table.

●Special Specifications

Contact NB for information for surface finish other than those listed above, oil hole (Figure D-11), or special mounting hole requirements for the flange-type bush. (Figure D-14)

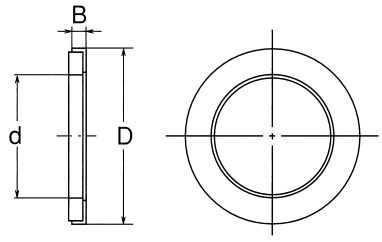
Figure D-14 Examples of Special Installation Holes



FELT SEAL

A felt seal may be used when lubrication is used with the NB slide bush. This felt seal improves the effect of the lubrication and increases the period between reapplications.

Figure D-15 Felt Seal

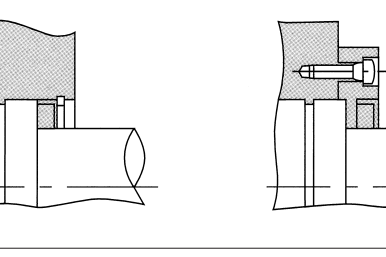


part number	major dimensions(mm)			applicable slide bush
	d	D	B	
FLM 6	6	12	2	SM 6/GM 6
FLM 8	8	15	2	SM 8/GM 8
FLM 10	10	19	3	SM10/GM10
FLM 12	12	21	3	SM12/GM12
FLM 13	13	23	3	SM13/GM13
FLM 16	16	28	4	SM16/GM16
FLM 20	20	32	4	SM20/GM20
FLM 25	25	40	5	SM25/GM25
FLM 30	30	45	5	SM30/GM30
FLM 35	35	52	5	SM 35
FLM 40	40	60	5	SM 40
FLM 50	50	80	10	SM 50
FLM 60	60	90	10	SM 60
FLM 80	80	120	10	SM 80
FLM100	100	150	10	SM100

Felt Seal Installation:

The felt seal should be installed as shown in Figure D-16.

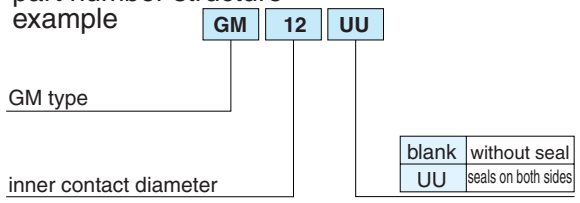
Figure D-16 Example of Felt Seal Installation

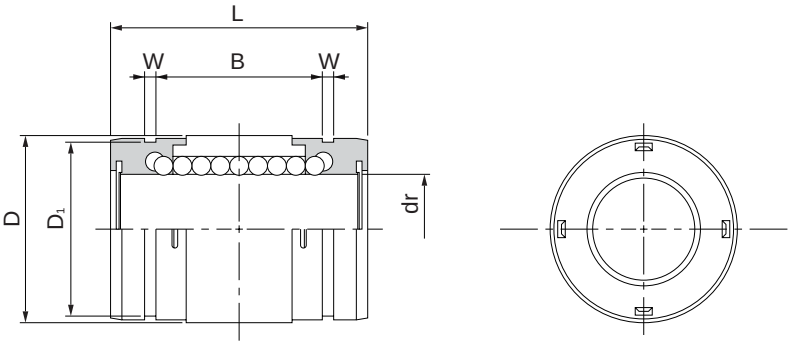


GM TYPE

– Single Type –

part number structure example





part number	number of ball circuits	major dimensions								basic load rating		mass
		dr		D		L	B	W	D_1	dynamic C	static Co	
		mm	tolerance μm	mm	tolerance μm	mm	mm	mm	mm	N	N	g
GM 6	4	6	0 −9	12	0 −11	19	11.3	1.1	11.5	206	265	5
GM 8	4	8		15		24	15.3	1.1	14.3	274	392	10
GM10	4	10		19	0 −13	29	19.4	1.3	18	372	549	18
GM12	4	12		21		30	20.4	1.3	20	510	784	23
GM13	4	13		23		32	20.4	1.3	22	510	784	27
GM16	4	16		28		37	23.3	1.6	27	774	1,180	45
GM20	6	20	0 −10	32	0 −16	42	27.3	1.6	30.5	882	1,370	70
GM25	6	25		40		59	37.3	1.85	38	980	1,570	150
GM30	6	30		45		64	40.8	1.85	43	1,570	2,740	180

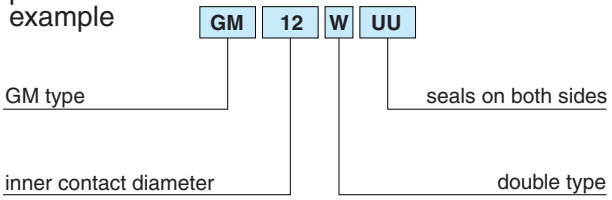
GM-AJ type is available. Contact NB

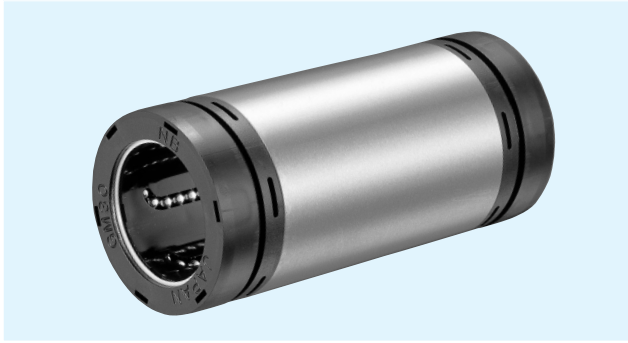
1N≒0.102kgf

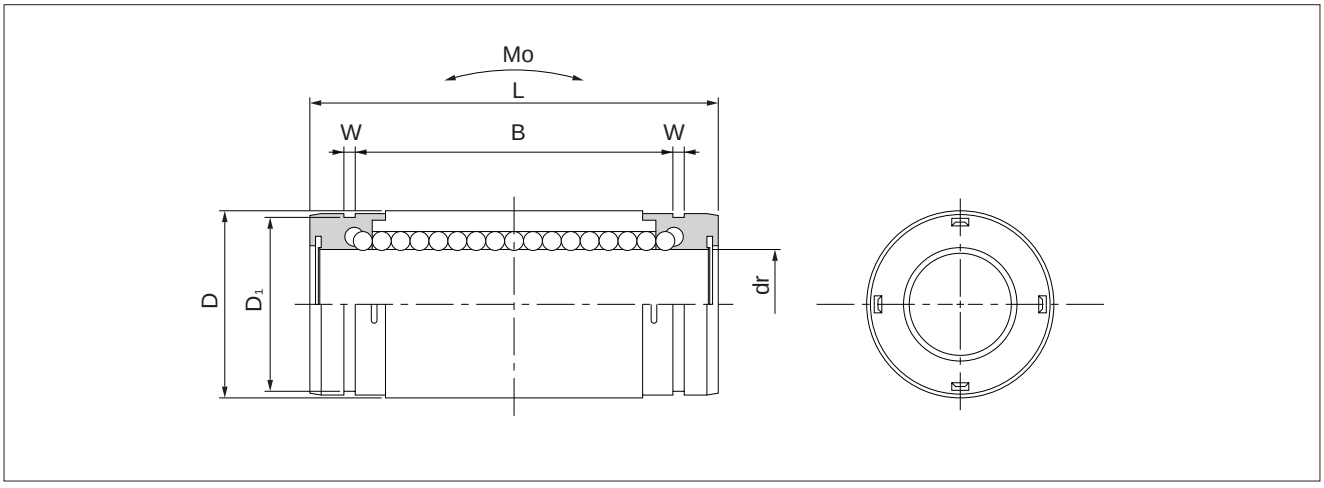
GM-W TYPE

– Double-Wide Type –

part number structure example





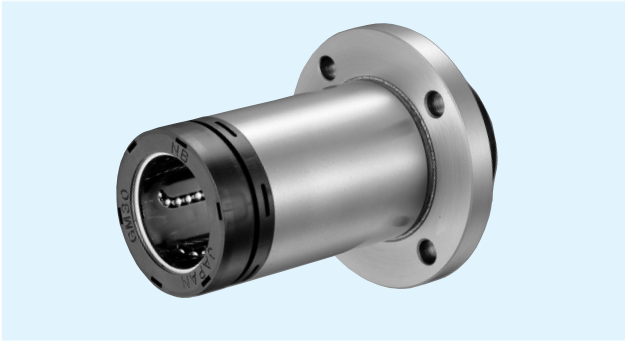


part number	number of ball circuits	major dimensions								basic load rating		allowable static moment	mass
		dr		D		L	B	W	D_1	dynamic	static		
			tolerance		tolerance					C	Co	Mo	
		mm	μm	mm	μm	mm	mm	mm	mm	N	N	N・m	g
GM 6W UU	4	6	0 −10	12	0 −13	28	20.3	1.1	11.5	323	530	1.5	9
GM 8W UU	4	8		15		36	27.3	1.1	14.3	431	784	3.3	18
GM10W UU	4	10		19	0 −16	41	31.4	1.3	18	588	1,100	5.0	31
GM12W UU	4	12		21		46	36.4	1.3	20	813	1,570	7.6	42
GM13W UU	4	13		23		48	36.4	1.3	22	813	1,570	8.1	50
GM16W UU	4	16		28		53	39.3	1.6	27	1,230	2,350	13.8	76
GM20W UU	6	20	0 −12	32	0 −19	65	50.3	1.6	30.5	1,400	2,740	20.0	130
GM25W UU	6	25		40		91	69.3	1.85	38	1,560	3,140	34.8	280
GM30W UU	6	30		45		99	75.8	1.85	43	2,490	5,490	57.5	334

1N≒0.102kgf 1N・m≒0.102kgf・m

GMF-W TYPE

– Round Flange Double-Wide Type –

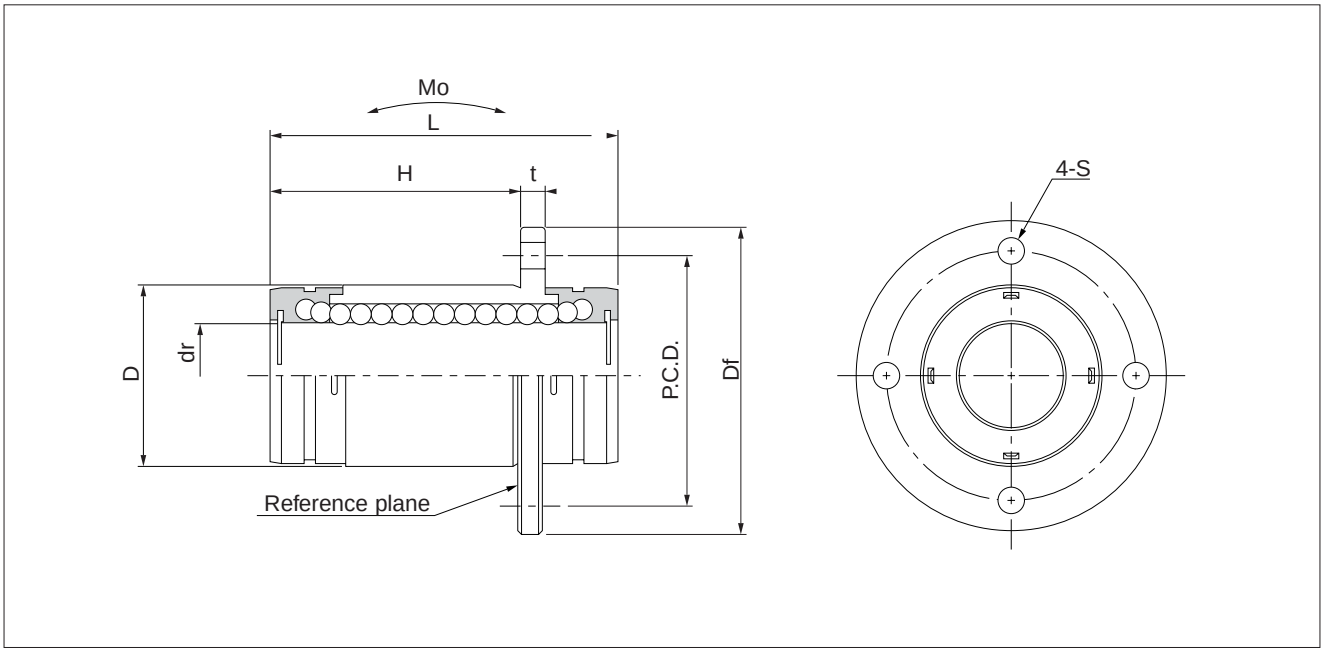


part number structure example

GMF | 12 | W | UU

- GMF: GMF type
- 12: inner contact diameter
- W: double type
- UU: seals on both sides

part number	number of ball circuits	major dimensions					
		dr		D		L	H
		mm	tolerance μm	mm	tolerance μm	mm	mm
GMF 6W UU	4	6	0 −10	12	0 −13	28	17.8
GMF 8W UU	4	8		15		36	25.1
GMF10W UU	4	10		19	0 −16	41	28.2
GMF12W UU	4	12		21		46	34.2
GMF13W UU	4	13		23		48	34.7
GMF16W UU	4	16		28		53	38.3
GMF20W UU	6	20	0 −12	32	0 −19	65	49.2
GMF25W UU	6	25		40		91	70.5
GMF30W UU	6	30		45		99	74.3

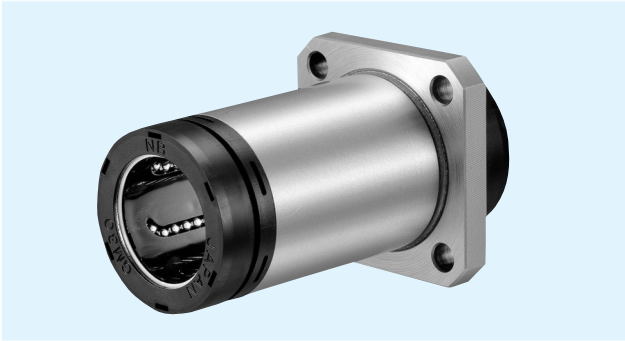


flange				perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
					dynamic	static			
Df	t	P.C.D	S		C	Co	Mo		
mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	20	3.5	15	323	530	1.5	25	6
32	4	24	3.5		431	784	3.3	38	8
40	4	29	4.5		588	1,100	5.0	62	10
42	4	32	4.5		813	1,570	7.6	75	12
43	4	33	4.5		813	1,570	8.1	83	13
48	4	38	4.5		1,230	2,350	13.8	115	16
54	5	43	5.5	20	1,400	2,740	20.0	188	20
62	5	51	5.5		1,560	3,140	34.8	350	25
74	8	60	6.6		2,490	5,490	57.5	502	30

1N≒0.102kgf　1N・m≒0.102kgf・m

GMK-W TYPE

– Square Flange Double-Wide Type –

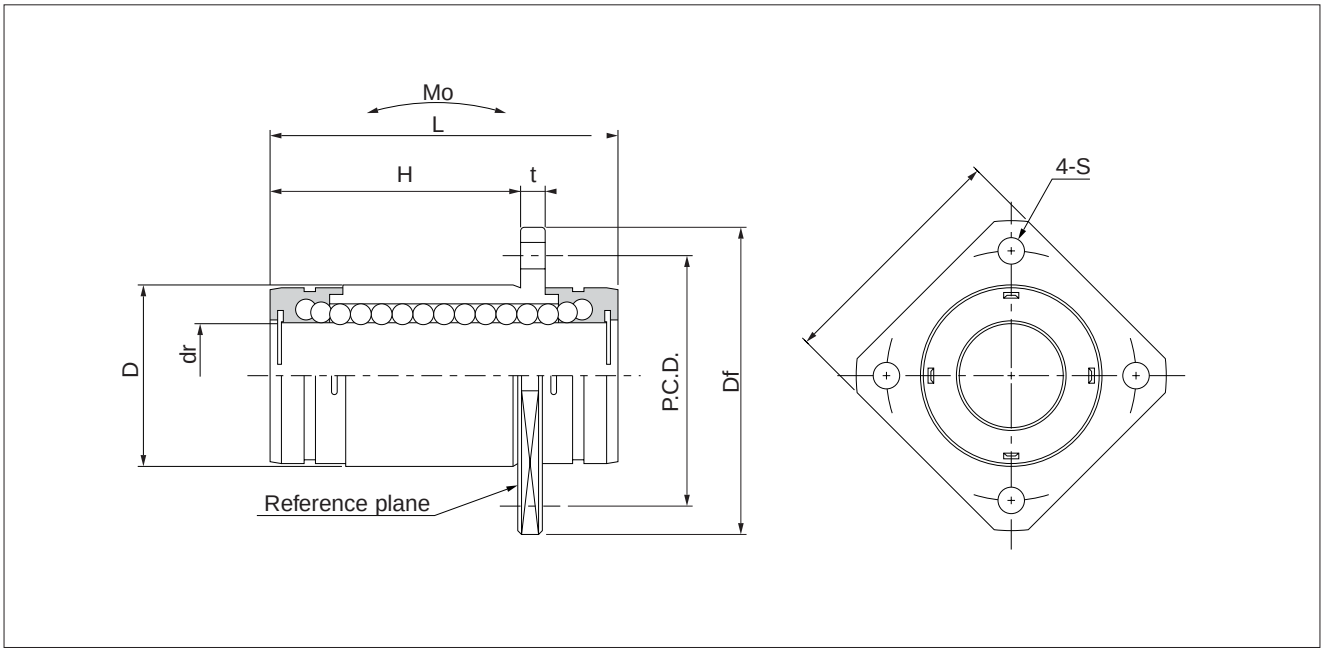


part number structure example

GMK | 12 | W | UU

- GMK: GMK type
- 12: inner contact diameter
- W: double type
- UU: seals on both sides

part number	number of ball circuits	major dimensions					
		dr		D		L	H
		mm	tolerance μm	mm	tolerance μm	mm	mm
GMK 6W UU	4	6	0 −10	12	0 −13	28	17.8
GMK 8W UU	4	8		15		36	25.1
GMK10W UU	4	10		19	0 −16	41	28.2
GMK12W UU	4	12		21		46	34.2
GMK13W UU	4	13		23		48	34.7
GMK16W UU	4	16		28		53	38.3
GMK20W UU	6	20	0 −12	32	0 −19	65	49.2
GMK25W UU	6	25		40		91	70.5
GMK30W UU	6	30		45		99	74.3

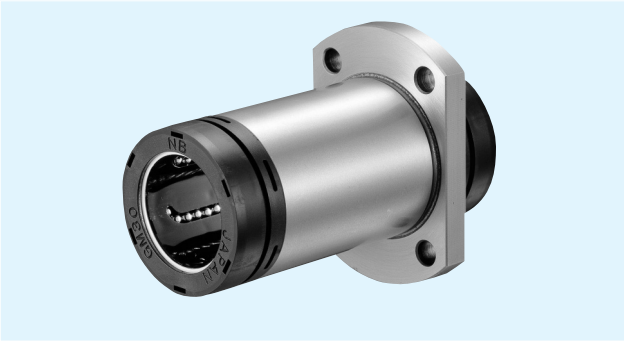


flange					perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
						dynamic	static			
Df	t	P.C.D	K	S		C	Co	Mo		
mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	20	22	3.5	15	323	530	1.5	20	6
32	4	24	25	3.5		431	784	3.3	32	8
40	4	29	30	4.5		588	1,100	5.0	50	10
42	4	32	32	4.5		813	1,570	7.6	63	12
43	4	33	34	4.5		813	1,570	8.1	72	13
48	4	38	37	4.5		1,230	2,350	13.8	99	16
54	5	43	42	5.5	20	1,400	2,740	20.0	165	20
62	5	51	50	5.5		1,560	3,140	34.8	325	25
74	8	60	58	6.6		2,490	5,490	57.5	437	30

1N≒0.102kgf　1N・m≒0.102kgf・m

GMT-W TYPE

— Two Side Cut Double-Wide Flange Type —

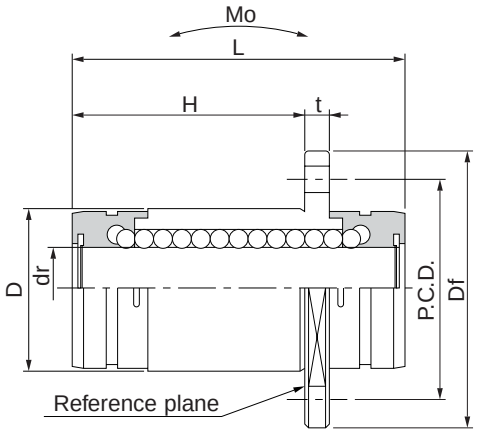


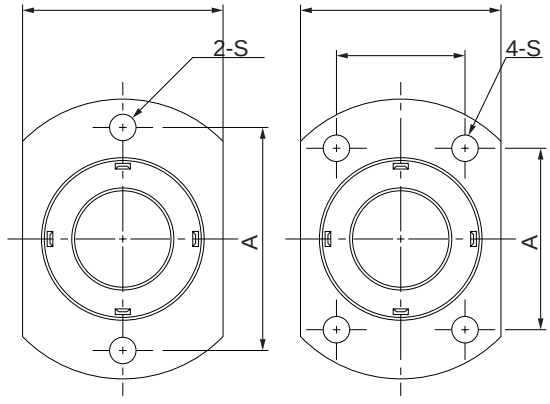
part number structure example

GMT | 12 | W | UU

- GMT: GMT type
- 12: inner contact diameter
- W: double type
- UU: seals on both sides

part number	number of ball circuits	major dimensions					
		dr		D		L	H
		mm	tolerance μm	mm	tolerance μm	mm	mm
GMT 6W UU	4	6	0 −10	12	0 −13	28	17.8
GMT 8W UU	4	8		15		36	25.1
GMT10W UU	4	10		19	0 −16	41	28.2
GMT12W UU	4	12		21		46	34.2
GMT13W UU	4	13		23		48	34.7
GMT16W UU	4	16		28		53	38.3
GMT20W UU	6	20	0 −12	32	0 −19	65	49.2
GMT25W UU	6	25		40		91	70.5
GMT30W UU	6	30		45		99	74.3





GMT13W or smaller　　GMT16W or larger

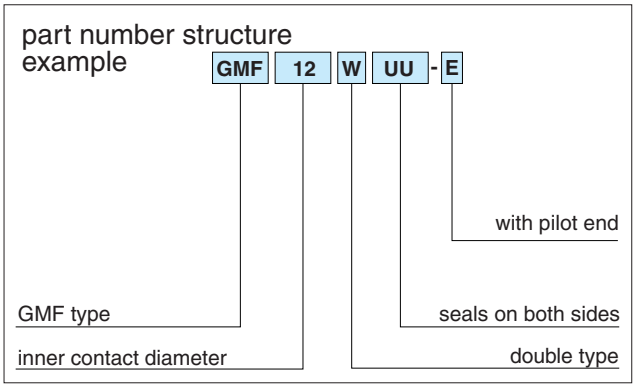
flange						perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
							dynamic	static			
Df	t	W	A	F	S		C	Co	Mo		
mm	mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	18	20	—	3.5	15	323	530	1.5	21	6
32	4	21	24	—	3.5		431	784	3.3	33	8
40	4	25	29	—	4.5		588	1,100	5.0	52	10
42	4	27	32	—	4.5		813	1,570	7.6	65	12
43	4	29	33	—	4.5		813	1,570	8.1	74	13
48	4	34	31	22	4.5		1,230	2,350	13.8	104	16
54	5	38	36	24	5.5	20	1,400	2,740	20.0	171	20
62	5	46	40	32	5.5		1,560	3,140	34.8	331	25
74	8	51	49	35	6.6		2,490	5,490	57.5	447	30

1N≒0.102kgf　1N・m≒0.102kgf・m

GMF-W-E TYPE

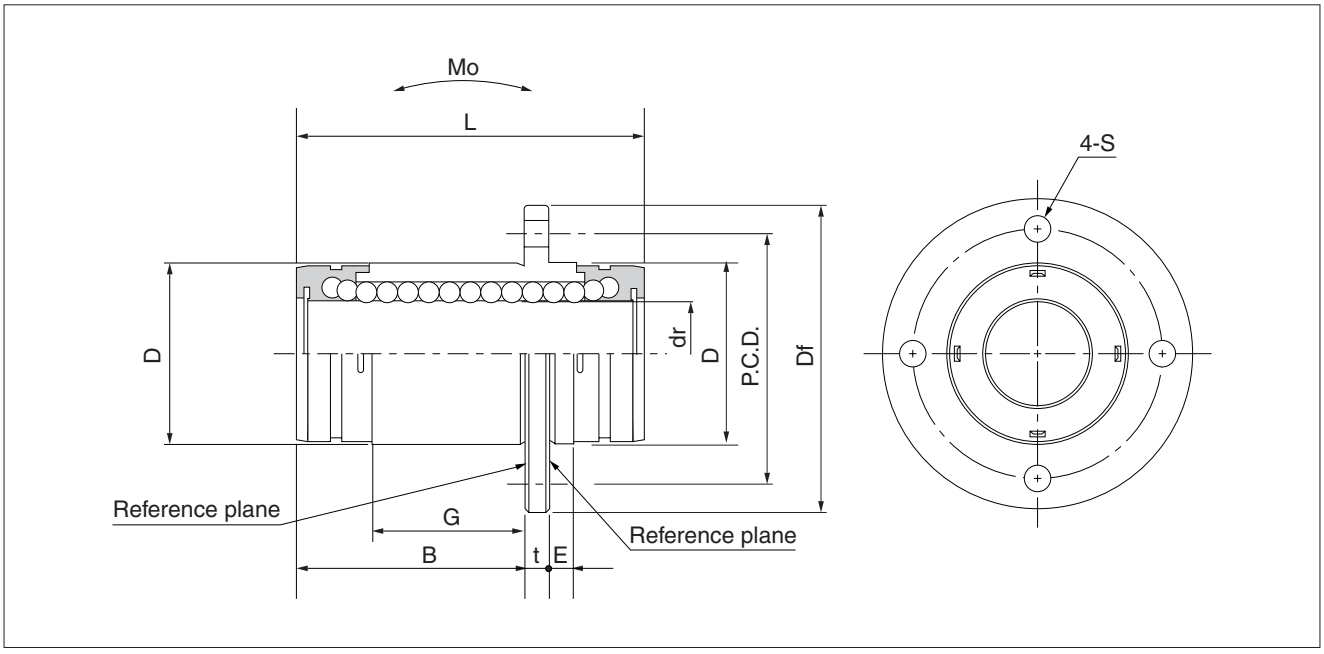
– Round Flange Double-Wide Type with pilot end –

part number structure example



part number	number of ball circuits	major dimensions							
		dr		D		L	B	G	E
		mm	tolerance μm	mm	tolerance μm	mm	mm	mm	mm
GMF 6W UU-E	4	6	0 −10	12	0 −13	28	13.8	7.6	4
GMF 8W UU-E	4	8		15		36	21.1	14.2	4
GMF10W UU-E	4	10		19	0 −16	41	24.2	15.4	4
GMF12W UU-E	4	12		21		46	30.2	22.4	4
GMF13W UU-E	4	13		23		48	30.65	21.3	4
GMF16W UU-E	4	16		28		53	33.3	22.6	5
GMF20W UU-E	6	20	0 −12	32	0 −19	65	44.2	33.4	5
GMF25W UU-E	6	25		40		91	65.5	50.0	5
GMF30W UU-E	6	30		45		99	69.3	52.6	5

Both side of flange are reference plane.

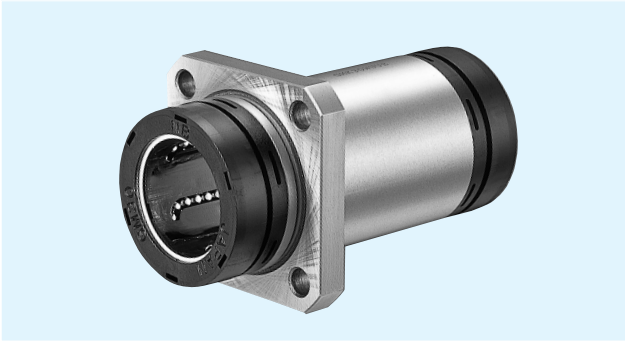


flange				perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
					dynamic	static			
Df	t	P.C.D	S		C	Co	Mo		
mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	20	3.5	15	323	530	1.5	25	6
32	4	24	3.5		431	784	3.3	38	8
40	4	29	4.5		588	1,100	5.0	62	10
42	4	32	4.5		813	1,570	7.6	75	12
43	4	33	4.5		813	1,570	8.1	83	13
48	4	38	4.5		1,230	2,350	13.8	115	16
54	5	43	5.5	20	1,400	2,740	20.0	188	20
62	5	51	5.5		1,560	3,140	34.8	350	25
74	8	60	6.6		2,490	5,490	57.5	502	30

1N≒0.102kgf　1N・m≒0.102kgf・m

GMK-W-E TYPE

– Square Flange Double-Wide Type with pilot end –



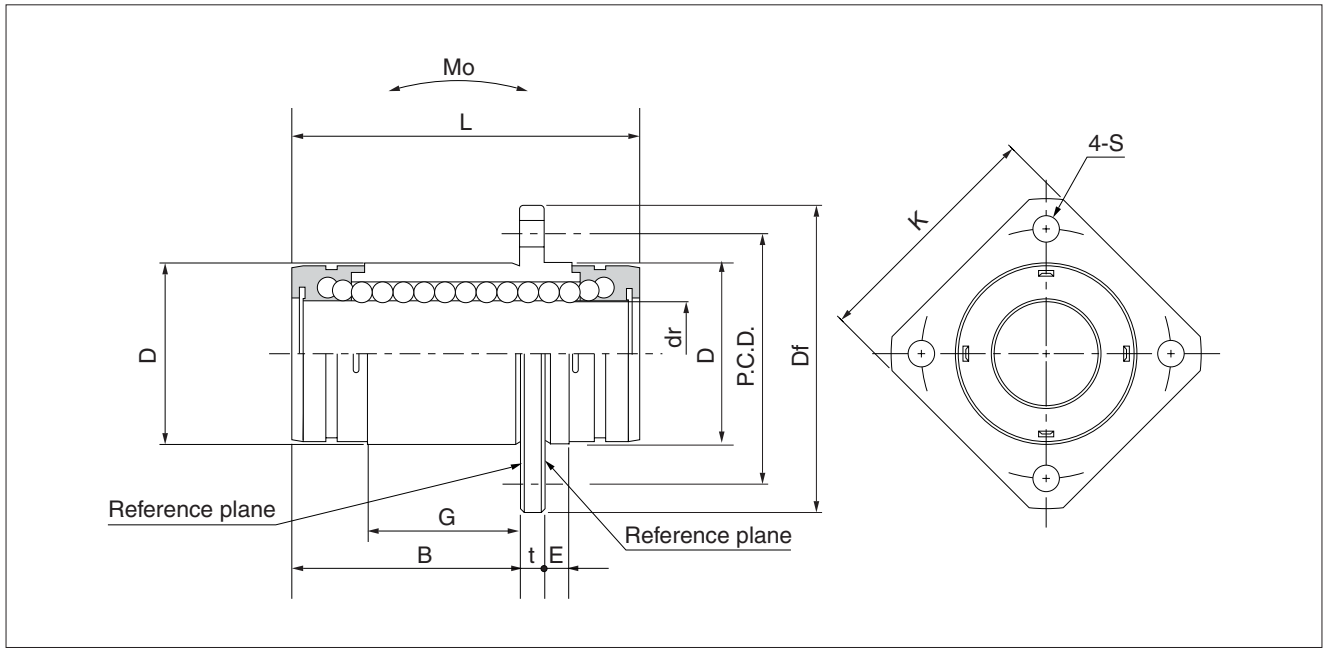
part number structure example

GMK | 12 | W | UU | - | E

- GMK: GMK type
- 12: inner contact diameter
- W: double type
- UU: seals on both sides
- E: with pilot end

part number	number of ball circuits	major dimensions							
		dr		D		L	B	G	E
		mm	tolerance μm	mm	tolerance μm	mm	mm	mm	mm
GMK 6W UU-E	4	6	0 −10	12	0 −13	28	13.8	7.6	4
GMK 8W UU-E	4	8		15		36	21.1	14.2	4
GMK10W UU-E	4	10		19	0 −16	41	24.2	15.4	4
GMK12W UU-E	4	12		21		46	30.2	22.4	4
GMK13W UU-E	4	13		23		48	30.65	21.3	4
GMK16W UU-E	4	16		28		53	33.3	22.6	5
GMK20W UU-E	6	20	0 −12	32	0 −19	65	44.2	33.4	5
GMK25W UU-E	6	25		40		91	65.5	50.0	5
GMK30W UU-E	6	30		45		99	69.3	52.6	5

Both side of flange are reference plane.



flange					perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
						dynamic	static			
Df	t	P.C.D.	K	S		C	Co	Mo		
mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	20	22	3.5	15	323	530	1.5	20	6
32	4	24	25	3.5		431	784	3.3	32	8
40	4	29	30	4.5		588	1,100	5.0	50	10
42	4	32	32	4.5		813	1,570	7.6	63	12
43	4	33	34	4.5		813	1,570	8.1	72	13
48	4	38	37	4.5		1,230	2,350	13.8	99	16
54	5	43	42	5.5	20	1,400	2,740	20.0	165	20
62	5	51	50	5.5		1,560	3,140	34.8	325	25
74	8	60	58	6.6		2,490	5,490	57.5	437	30

1N≒0.102kgf　1N・m≒0.102kgf・m

GMT-W-E TYPE

– Two Side Cut Double-Wide Flange Type with pilot end–

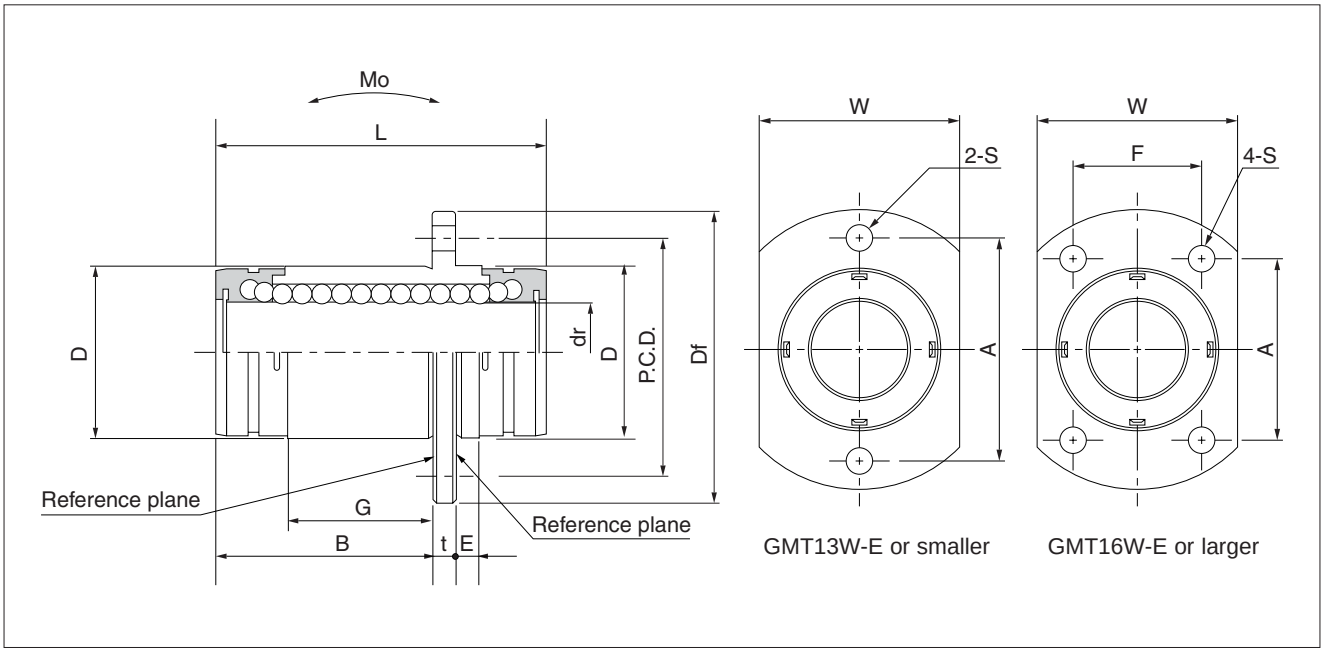
part number structure example

GMT | 12 | W | UU | - | E

- GMT: GMT type
- 12: inner contact diameter
- W: double type
- UU: seals on both sides
- E: with pilot end

part number	number of ball circuits	major dimensions							
		dr		D		L	B	G	E
		mm	tolerance μm	mm	tolerance μm	mm	mm	mm	mm
GMT 6W UU-E	4	6	0 −10	12	0 −13	28	13.8	7.6	4
GMT 8W UU-E	4	8		15		36	21.1	14.2	4
GMT10W UU-E	4	10		19	0 −16	41	24.2	15.4	4
GMT12W UU-E	4	12		21		46	30.2	22.4	4
GMT13W UU-E	4	13		23		48	30.65	21.3	4
GMT16W UU-E	4	16		28		53	33.3	22.6	5
GMT20W UU-E	6	20	0 −12	32	0 −19	65	44.2	33.4	5
GMT25W UU-E	6	25		40		91	65.5	50.0	5
GMT30W UU-E	6	30		45		99	69.3	52.6	5

Both side of flange are reference plane.



flange						perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
							dynamic	static			
Df	t	W	A	F	S		C	Co	Mo		
mm	mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
28	4	18	20	—	3.5	15	323	530	1.5	21	6
32	4	21	24	—	3.5		431	784	3.3	33	8
40	4	25	29	—	4.5		588	1,100	5.0	52	10
42	4	27	32	—	4.5		813	1,570	7.6	65	12
43	4	29	33	—	4.5		813	1,570	8.1	74	13
48	4	34	31	22	4.5		1,230	2,350	13.8	104	16
54	5	38	36	24	5.5	20	1,400	2,740	20.0	171	20
62	5	46	40	32	5.5		1,560	3,140	34.8	331	25
74	8	51	49	35	6.6		2,490	5,490	57.5	447	30

1N≒0.102kgf　1N・m≒0.102kgf・m

SM TYPE

– Standard Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMS | 25 | G | UU | - | P

specification

SM	standard
SMS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

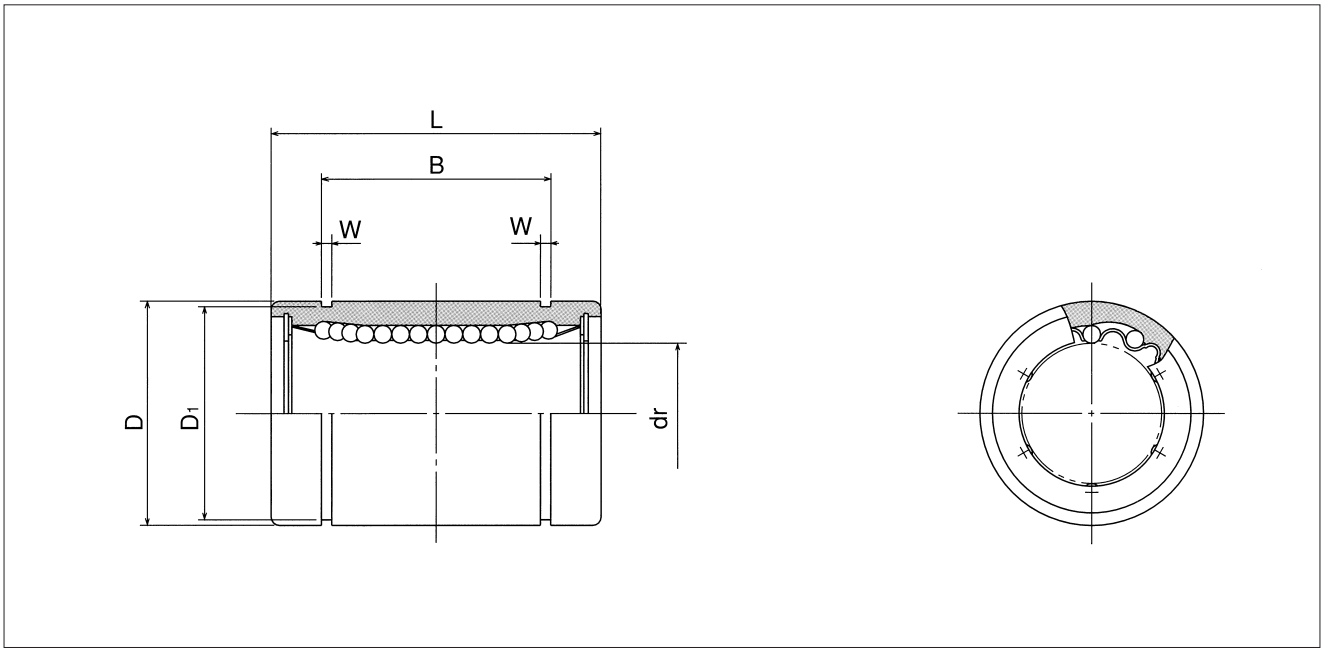
accuracy grade

blank	high
P	precision

seal

blank	without seal
U	seal on one side
UU	seals on both sides

part number				number of ball circuits	dr			D	
standard		anticorrosion				tolerance μm			
steel retainer	resin retainer	stainless retainer	resin retainer		mm	precision	high	mm	tolerance μm
SM 3	**SM 3G**	**SMS 3**	**SMS 3G**	4	3	0 −5	0 −8	7	0 −9
SM 4	**SM 4G**	**SMS 4**	**SMS 4G**	4	4			8	
SM 5	**SM 5G**	**SMS 5**	**SMS 5G**	4	5			10	
SM 6	**SM 6G**	**SMS 6**	**SMS 6G**	4	6	0 −6	0 −9	12	0 −11
SM 8s	**SM8sG**	**SMS8s**	**SMS8sG**	4	8			15	
SM 8	**SM 8G**	**SMS 8**	**SMS 8G**	4	8			15	
SM 10	**SM10G**	**SMS10**	**SMS10G**	4	10			19	0 −13
SM 12	**SM12G**	**SMS12**	**SMS12G**	4	12			21	
SM 13	**SM13G**	**SMS13**	**SMS13G**	4	13			23	
SM 16	**SM16G**	**SMS16**	**SMS16G**	4	16			28	
SM 20	**SM20G**	**SMS20**	**SMS20G**	5	20	0 −7	0 −10	32	0 −16
SM 25	**SM25G**	**SMS25**	**SMS25G**	6	25			40	
SM 30	**SM30G**	**SMS30**	**SMS30G**	6	30			45	
SM 35	**SM35G**	**SMS35**	**SMS35G**	6	35	0 −8	0 −12	52	0 −19
SM 40	**SM40G**	**SMS40**	**SMS40G**	6	40			60	
SM 50	**SM50G**	**SMS50**	**SMS50G**	6	50			80	
SM 60	**SM60G**	**SMS60**	**SMS60G**	6	60	0 −9	0 −15	90	0 −22
SM 80	**SM80G**	**SMS80**	**SMS80G**	6	80			120	
SM100	–	–	–	6	100	0 −10	0 −20	150	0 −25
SM120	–	–	–	8	120			180	
SM150	–	–	–	8	150	0/−13	0/−25	210	0/−29



major dimensions						eccentricity		radial clearance (maximum)	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D1	precision	high		dynamic C	static Co		
mm	mm	mm	mm	mm	mm	μm	μm	μm	N	N	g	mm
10	0 −0.12	—	—	—	—	4	8	− 3	69	105	1.4	3
12		—	—	—	—				88	127	2.0	4
15		10.2	0 −0.2	1.1	9.6				167	206	4.0	5
19	0 −0.2	13.5		1.1	11.5	8	12		206	265	8.5	6
17		11.5		1.1	14.3				176	216	11	8
24		17.5		1.1	14.3				274	392	17	8
29		22		1.3	18			− 4	372	549	36	10
30		23		1.3	20				510	784	42	12
32		23		1.3	22				510	784	49	13
37		26.5		1.6	27			− 6	774	1,180	76	16
42		30.5		1.6	30.5	10	15		882	1,370	100	20
59	0 −0.3	41	0 −0.3	1.85	38				980	1,570	240	25
64		44.5		1.85	43			− 8	1,570	2,740	270	30
70		49.5		2.1	49	12	20		1,670	3,140	425	35
80		60.5		2.1	57			−10	2,160	4,020	654	40
100		74		2.6	76.5			−13	3,820	7,940	1,700	50
110		85		3.15	86.5	17	25		4,700	10,000	2,000	60
140	0 −0.4	105.5	0 −0.4	4.15	116			−20	7,350	16,000	4,520	80
175		125.5		4.15	145	20	30		14,100	34,800	8,600	100
200		158.6		4.15	175			−25	16,400	40,000	15,000	120
240		170.6		5.15	204	25	40		21,100	54,300	20,250	150

1N≒0.102kgf

SM-AJ TYPE

– Clearance-Adjustable Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMS | 25 | G | UU | - | AJ

specification

SM	standard
SMS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

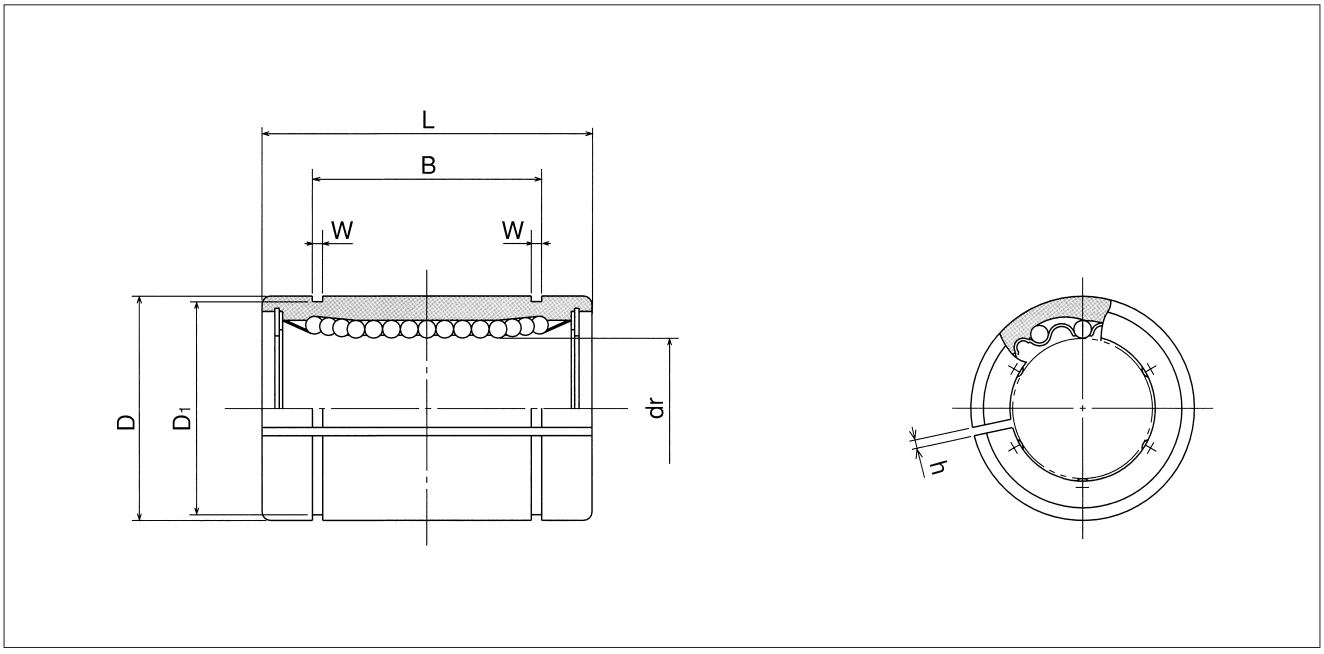
seal

blank	without seal
U	seal on one side
UU	seals on both sides

clearance-adjustable

part number				number of ball circuits	dr		D	
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	**SM 6G-AJ**	–	**SMS 6G-AJ**	4	6	0 −9	12	0 −11
–	**SM8sG-AJ**	–	**SMS8sG-AJ**	4	8		15	
–	**SM 8G-AJ**	–	**SMS 8G-AJ**	4	8		15	
–	**SM10G-AJ**	–	**SMS10G-AJ**	4	10		19	0 −13
SM 12-AJ	**SM12G-AJ**	**SMS12-AJ**	**SMS12G-AJ**	4	12		21	
SM 13-AJ	**SM13G-AJ**	**SMS13-AJ**	**SMS13G-AJ**	4	13		23	
SM 16-AJ	**SM16G-AJ**	**SMS16-AJ**	**SMS16G-AJ**	4	16		28	
SM 20-AJ	**SM20G-AJ**	**SMS20-AJ**	**SMS20G-AJ**	5	20	0 −10	32	0 −16
SM 25-AJ	**SM25G-AJ**	**SMS25-AJ**	**SMS25G-AJ**	6	25		40	
SM 30-AJ	**SM30G-AJ**	**SMS30-AJ**	**SMS30G-AJ**	6	30		45	
SM 35-AJ	**SM35G-AJ**	**SMS35-AJ**	**SMS35G-AJ**	6	35	0 −12	52	0 −19
SM 40-AJ	**SM40G-AJ**	**SMS40-AJ**	**SMS40G-AJ**	6	40		60	
SM 50-AJ	**SM50G-AJ**	**SMS50-AJ**	**SMS50G-AJ**	6	50		80	
SM 60-AJ	**SM60G-AJ**	**SMS60-AJ**	**SMS60G-AJ**	6	60	0 −15	90	0 −22
SM 80-AJ	**SM80G-AJ**	–	–	6	80		120	
SM100-AJ	–	–	–	6	100	0 −20	150	0 −25
SM120-AJ	–	–	–	8	120		180	
SM150-AJ	–	–	–	8	150	0/−25	210	0/−29

* Accuracy is measured prior to machining clearance slot.



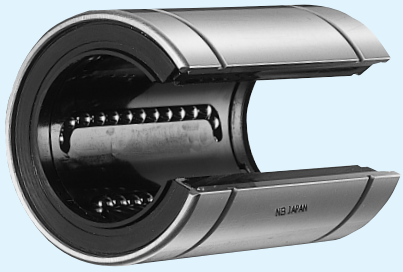
major dimensions							eccentricity*	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D_1	h		dynamic C	static Co		
mm	mm	mm	mm	mm	mm	mm	μm	N	N	g	mm
19		13.5		1.1	11.5	1		206	265	7.5	6
17		11.5		1.1	14.3	1		176	216	10	8
24		17.5		1.1	14.3	1		274	392	14.7	8
29	0	22	0	1.3	18	1	12	372	549	29	10
30	−0.2	23	−0.2	1.3	20	1.5		510	784	41	12
32		23		1.3	22	1.5		510	784	48	13
37		26.5		1.6	27	1.5		774	1,180	75	16
42		30.5		1.6	30.5	1.5		882	1,370	98	20
59		41		1.85	38	2	15	980	1,570	237	25
64		44.5		1.85	43	2.5		1,570	2,740	262	30
70	0	49.5	0	2.1	49	2.5		1,670	3,140	420	35
80	−0.3	60.5	−0.3	2.1	57	3	20	2,160	4,020	640	40
100		74		2.6	76.5	3		3,820	7,940	1,680	50
110		85		3.15	86.5	3	25	4,700	10,000	1,980	60
140		105.5		4.15	116	3		7,350	16,000	4,400	80
175	0	125.5	0	4.15	145	3	30	14,100	34,800	8,540	100
200	−0.4	158.6	−0.4	4.15	175	3		16,400	40,000	14,900	120
240		170.6		5.15	204	3	40	21,100	54,300	20,150	150

1N≒0.102kgf

SM-OP TYPE

– Open Type –

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

SMS | 25 | G | UU - OP

specification

SM	standard
SMS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

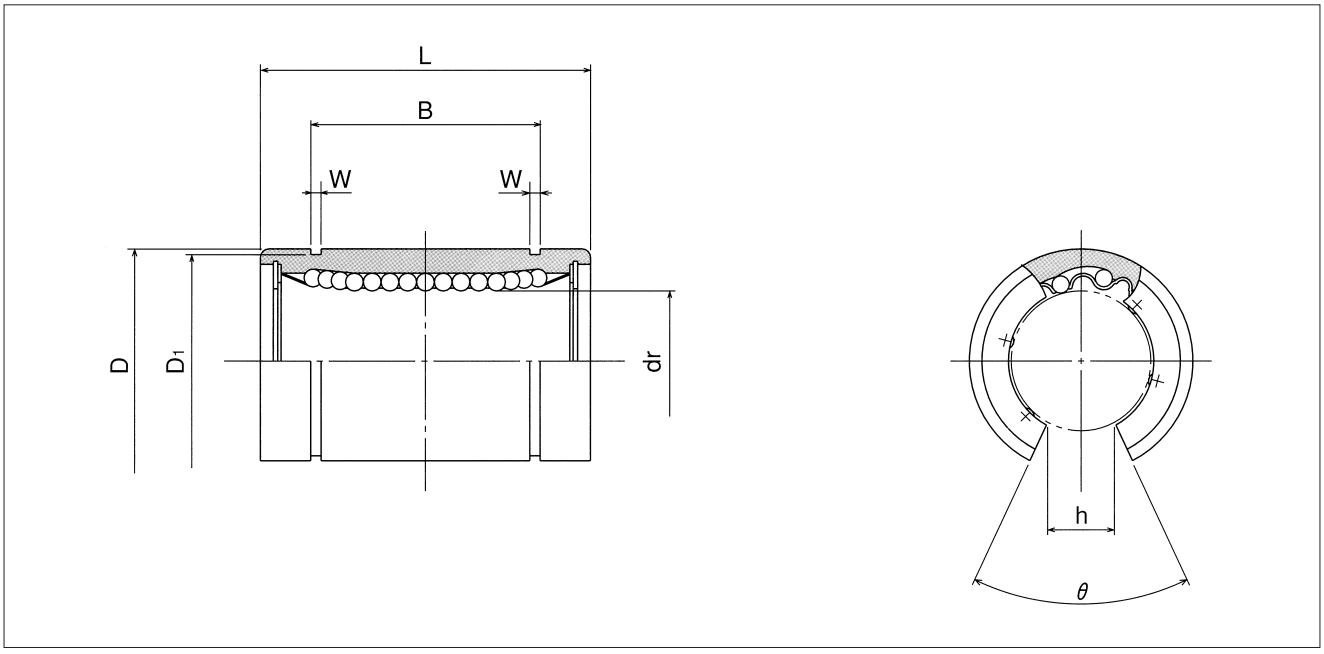
seal

blank	without seal
U	seal on one side
UU	seals on both sides

open type

part number				number of ball circuits	dr		D	
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	**SM10G-OP**	–	**SMS10G-OP**	3	10		19	
SM 12-OP	**SM12G-OP**	**SMS12-OP**	**SMS12G-OP**	3	12	0	21	0
SM 13-OP	**SM13G-OP**	**SMS13-OP**	**SMS13G-OP**	3	13	– 9	23	–13
SM 16-OP	**SM16G-OP**	**SMS16-OP**	**SMS16G-OP**	3	16		28	
SM 20-OP	**SM20G-OP**	**SMS20-OP**	**SMS20G-OP**	4	20		32	
SM 25-OP	**SM25G-OP**	**SMS25-OP**	**SMS25G-OP**	5	25	0 –10	40	0 –16
SM 30-OP	**SM30G-OP**	**SMS30-OP**	**SMS30G-OP**	5	30		45	
SM 35-OP	**SM35G-OP**	**SMS35-OP**	**SMS35G-OP**	5	35		52	
SM 40-OP	**SM40G-OP**	**SMS40-OP**	**SMS40G-OP**	5	40	0 –12	60	0 –19
SM 50-OP	**SM50G-OP**	**SMS50-OP**	**SMS50G-OP**	5	50		80	
SM 60-OP	**SM60G-OP**	**SMS60-OP**	**SMS60G-OP**	5	60	0	90	0
SM 80-OP	**SM80G-OP**	–	–	5	80	–15	120	–22
SM100-OP	–	–	–	5	100	0	150	0
SM120-OP	–	–	–	6	120	–20	180	–25
SM150-OP	–	–	–	6	150	0/–25	210	0/–29

* Accuracy is measured prior to machining open slot.



major dimensions								eccentricity*	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D_1	h	θ		dynamic C	static Co		
mm	mm	mm	mm	mm	mm	mm		μm	N	N	g	mm
29	0 −0.2	22	0 −0.2	1.3	18	6.8	80°	12	372	549	23	10
30		23		1.3	20	8	80°		510	784	32	12
32		23		1.3	22	9	80°		510	784	37	13
37		26.5		1.6	27	11	80°		774	1,180	58	16
42		30.5		1.6	30.5	11	60°	15	882	1,370	79	20
59	0 −0.3	41	0 −0.3	1.85	38	12	50°		980	1,570	203	25
64		44.5		1.85	43	15	50°		1,570	2,740	228	30
70		49.5		2.1	49	17	50°	20	1,670	3,140	355	35
80		60.5		2.1	57	20	50°		2,160	4,020	546	40
100		74		2.6	76.5	25	50°		3,820	7,940	1,420	50
110		85		3.15	86.5	30	50°	25	4,700	10,000	1,650	60
140	0 −0.4	105.5	0 −0.4	4.15	116	40	50°		7,350	16,000	3,750	80
175		125.5		4.15	145	50	50°	30	14,100	34,800	7,200	100
200		158.6		4.15	175	85	80°		16,400	40,000	11,600	120
240		170.6		5.15	204	105	80°	40	21,100	54,300	15,700	150

1N≒0.102kgf

SM-W TYPE

− Double-Wide Type −

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMS	25	G	W	UU

specification

SM	standard
SMS	anticorrosion

inner contact diameter

retainer material

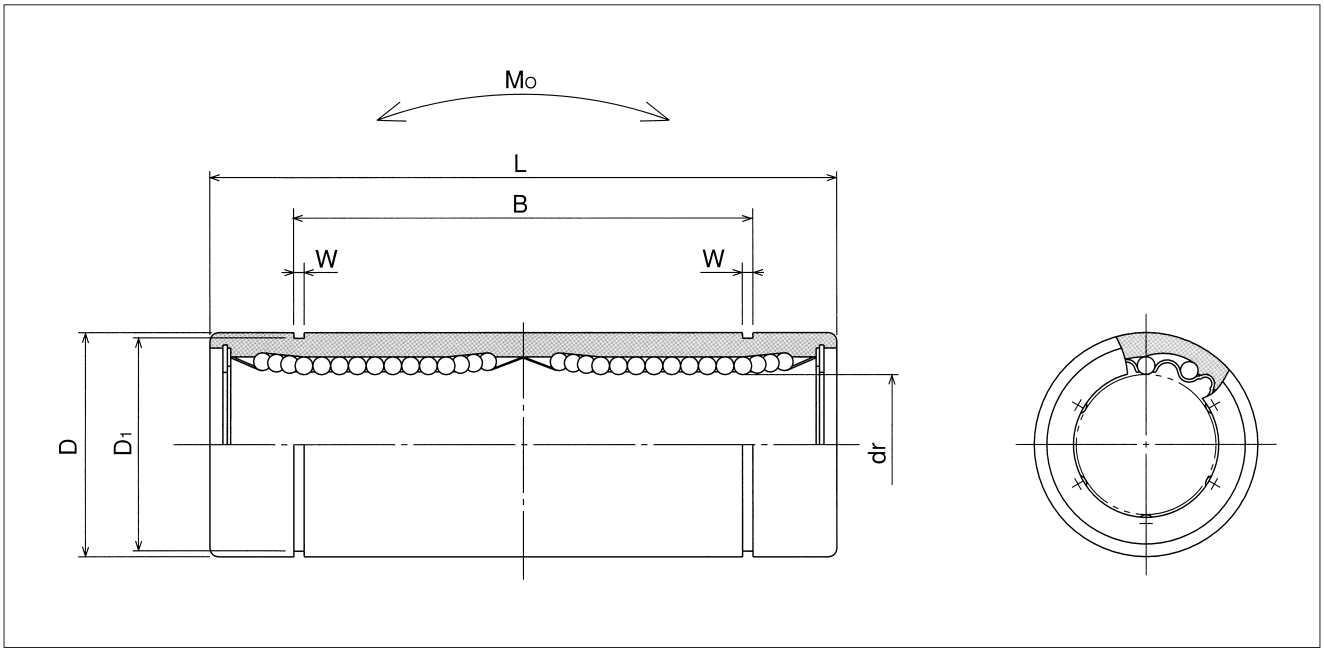
blank	steel
G	resin

seal

blank	without seal
UU	seals on both sides

double-wide type

part number				number of ball circuits	dr		D	
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm
SM 3W	**SM 3GW**	**SMS 3W**	**SMS 3GW**	4	3	0 −10	7	0 −11
SM 4W	**SM 4GW**	**SMS 4W**	**SMS 4GW**	4	4		8	
SM 5W	**SM 5GW**	**SMS 5W**	**SMS 5GW**	4	5		10	
SM 6W	**SM 6GW**	**SMS 6W**	**SMS 6GW**	4	6		12	0 −13
SM 8W	**SM 8GW**	**SMS 8W**	**SMS 8GW**	4	8		15	
SM10W	**SM10GW**	**SMS10W**	**SMS10GW**	4	10		19	0 −16
SM12W	**SM12GW**	**SMS12W**	**SMS12GW**	4	12		21	
SM13W	**SM13GW**	**SMS13W**	**SMS13GW**	4	13		23	
SM16W	**SM16GW**	**SMS16W**	**SMS16GW**	4	16		28	
SM20W	**SM20GW**	**SMS20W**	**SMS20GW**	5	20	0 −12	32	0 −19
SM25W	**SM25GW**	**SMS25W**	**SMS25GW**	6	25		40	
SM30W	**SM30GW**	**SMS30W**	**SMS30GW**	6	30		45	
SM35W	**SM35GW**	**SMS35W**	**SMS35GW**	6	35	0 −15	52	0 −22
SM40W	**SM40GW**	**SMS40W**	**SMS40GW**	6	40		60	
SM50W	**SM50GW**	**SMS50W**	**SMS50GW**	6	50		80	
SM60W	**SM60GW**	**SMS60W**	**SMS60GW**	6	60	0/−20	90	0/−25



major dimensions						eccentricity	basic load rating		allowable static moment	mass	shaft diameter
L	tolerance	B	tolerance	W	D1		dynamic C	static Co	Mo		
mm	mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
19		—	—	—	—		138	210	0.51	3.2	3
23		—	—	—	—	10	176	254	0.63	4.8	4
28		20.4		1.1	9.6		265	412	1.38	11	5
35		27		1.1	11.5		323	530	2.18	16	6
45	0	35		1.1	14.3		431	784	4.31	31	8
55	−0.3	44	0	1.3	18	15	588	1,100	7.24	62	10
57		46	−0.3	1.3	20		813	1,570	10.9	80	12
61		46		1.3	22		813	1,570	11.6	90	13
70		53		1.6	27		1,230	2,350	19.7	145	16
80		61		1.6	30.5		1,400	2,740	26.8	180	20
112		82		1.85	38	20	1,560	3,140	43.4	440	25
123		89		1.85	43		2,490	5,490	82.8	480	30
135	0	99	0	2.1	49		2,650	6,270	110	795	35
151	−0.4	121	−0.4	2.1	57	25	3,430	8,040	147	1,170	40
192		148		2.6	76.5		6,080	15,900	397	3,100	50
209		170		3.15	86.5	30	7,550	20,000	530	3,500	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMF TYPE

− Round Flange Type −

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSF | 25 | G | UU | - | SK

specification

SMF	standard
SMSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

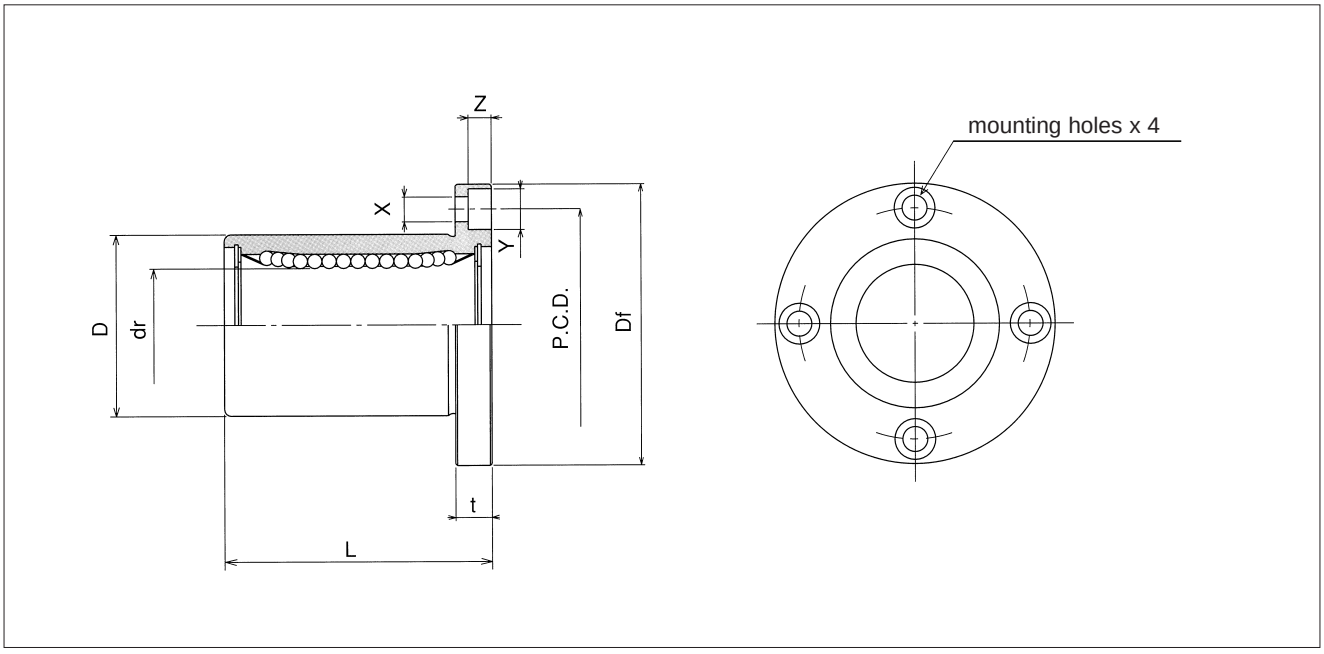
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMF 6	**SMF 6G**	**SMSF 6**	**SMSF 6G**	6	0 −9	12	0 −13	19
SMF 8s	**SMF8sG**	**SMSF8s**	**SMSF8sG**	8		15		17
SMF 8	**SMF 8G**	**SMSF 8**	**SMSF 8G**	8		15		24
SMF 10	**SMF10G**	**SMSF10**	**SMSF10G**	10		19	0 −16	29
SMF 12	**SMF12G**	**SMSF12**	**SMSF12G**	12		21		30
SMF 13	**SMF13G**	**SMSF13**	**SMSF13G**	13		23		32
SMF 16	**SMF16G**	**SMSF16**	**SMSF16G**	16		28		37
SMF 20	**SMF20G**	**SMSF20**	**SMSF20G**	20	0 −10	32	0 −19	42
SMF 25	**SMF25G**	**SMSF25**	**SMSF25G**	25		40		59
SMF 30	**SMF30G**	**SMSF30**	**SMSF30G**	30		45		64
SMF 35	**SMF35G**	**SMSF35**	**SMSF35G**	35	0 −12	52	0 −22	70
SMF 40	**SMF40G**	**SMSF40**	**SMSF40G**	40		60		80
SMF 50	**SMF50G**	**SMSF50**	**SMSF50G**	50		80		100
SMF 60	**SMF60G**	**SMSF60**	**SMSF60G**	60	0 −15	90	0 −25	110
SMF 80	−	−	−	80		120		140
SMF100	−	−	−	100	0/−20	150	0/−29	175



major dimensions				eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange						dynamic	static		
Df	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	μm	μm	N	N	g	mm
28	5	20	3.5×6×3.1	12	12	206	265	24	6
32	5	24	3.5×6×3.1			176	216	32	8
32	5	24	3.5×6×3.1			274	392	37	8
40	6	29	4.5×7.5×4.1			372	549	72	10
42	6	32	4.5×7.5×4.1			510	784	76	12
43	6	33	4.5×7.5×4.1			510	784	88	13
48	6	38	4.5×7.5×4.1			774	1,180	120	16
54	8	43	5.5×9×5.1	15	15	882	1,370	180	20
62	8	51	5.5×9×5.1			980	1,570	340	25
74	10	60	6.6×11×6.1			1,570	2,740	470	30
82	10	67	6.6×11×6.1	20	20	1,670	3,140	650	35
96	13	78	9×14×8.1			2,160	4,020	1,060	40
116	13	98	9×14×8.1			3,820	7,940	2,200	50
134	18	112	11×17×11.1	25	25	4,700	10,000	3,000	60
164	18	142	11×17×11.1			7,350	16,000	5,800	80
200	20	175	14×20×13.1	30	30	14,100	34,800	10,600	100

1N≒0.102kgf

SMK TYPE

– Square Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example **SMSK 25 G UU - SK**

specification

SMK	standard
SMSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seal

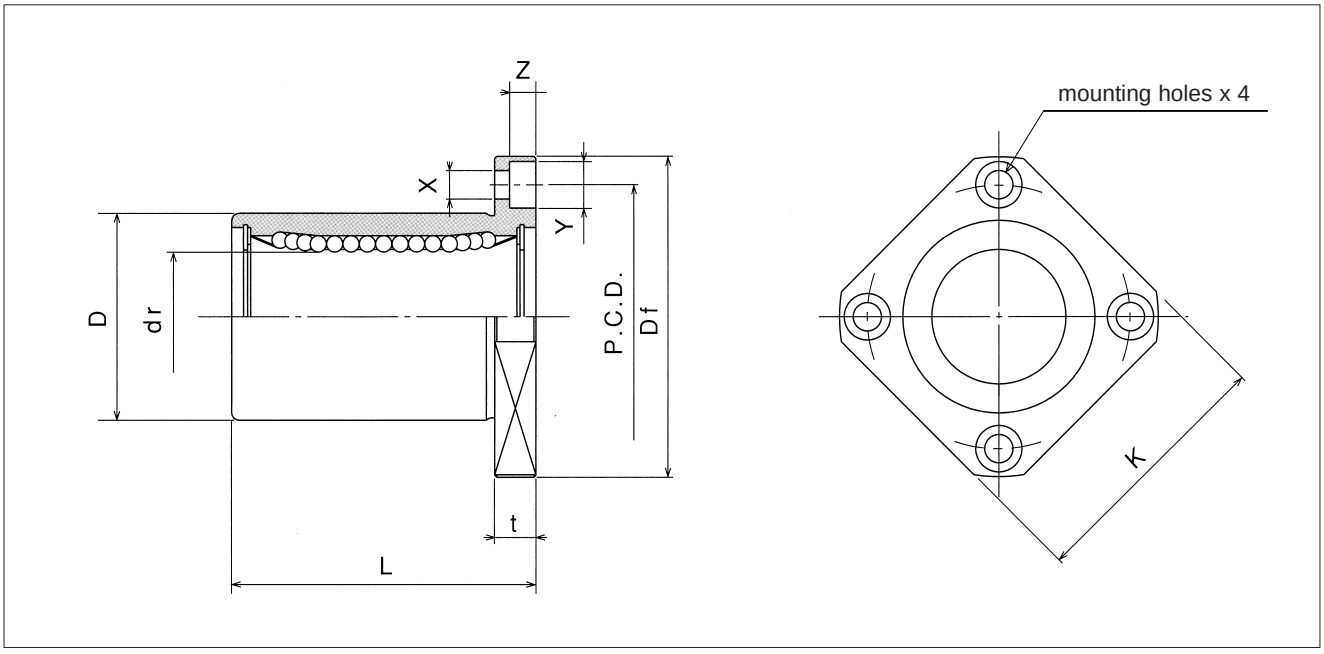
blank	without seal
UU	seals on both sides

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSF type

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMK 6	**SMK 6G**	**SMSK 6**	**SMSK 6G**	6	0 −9	12	0 −13	19
SMK 8s	**SMK8sG**	**SMSK8s**	**SMSK8sG**	8		15		17
SMK 8	**SMK 8G**	**SMSK 8**	**SMSK 8G**	8		15		24
SMK 10	**SMK10G**	**SMSK10**	**SMSK10G**	10		19	0 −16	29
SMK 12	**SMK12G**	**SMSK12**	**SMSK12G**	12		21		30
SMK 13	**SMK13G**	**SMSK13**	**SMSK13G**	13		23		32
SMK 16	**SMK16G**	**SMSK16**	**SMSK16G**	16		28		37
SMK 20	**SMK20G**	**SMSK20**	**SMSK20G**	20	0 −10	32	0 −19	42
SMK 25	**SMK25G**	**SMSK25**	**SMSK25G**	25		40		59
SMK 30	**SMK30G**	**SMSK30**	**SMSK30G**	30		45		64
SMK 35	**SMK35G**	**SMSK35**	**SMSK35G**	35	0 −12	52	0 −22	70
SMK 40	**SMK40G**	**SMSK40**	**SMSK40G**	40		60		80
SMK 50	**SMK50G**	**SMSK50**	**SMSK50G**	50		80		100
SMK 60	**SMK60G**	**SMSK60**	**SMSK60G**	60	0 −15	90	0 −25	110
SMK 80	–	–	–	80		120		140
SMK100	–	–	–	100	0/−20	150	0/−29	175



major dimensions					eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange							dynamic	static		
Df	K	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
28	22	5	20	3.5×6×3.1	12	12	206	265	18	6
32	25	5	24	3.5×6×3.1			176	216	24	8
32	25	5	24	3.5×6×3.1			274	392	29	8
40	30	6	29	4.5×7.5×4.1			372	549	52	10
42	32	6	32	4.5×7.5×4.1			510	784	57	12
43	34	6	33	4.5×7.5×4.1			510	784	72	13
48	37	6	38	4.5×7.5×4.1			774	1,180	104	16
54	42	8	43	5.5×9×5.1	15	15	882	1,370	145	20
62	50	8	51	5.5×9×5.1			980	1,570	300	25
74	58	10	60	6.6×11×6.1			1,570	2,740	375	30
82	64	10	67	6.6×11×6.1	20	20	1,670	3,140	560	35
96	75	13	78	9×14×8.1			2,160	4,020	880	40
116	92	13	98	9×14×8.1			3,820	7,940	2,000	50
134	106	18	112	11×17×11.1	25	25	4,700	10,000	2,560	60
164	136	18	142	11×17×11.1			7,350	16,000	5,300	80
200	170	20	175	14×20×13.1	30	30	14,100	34,800	9,900	100

1N≒0.102kgf

SMT TYPE

– Two Side Cut Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMST | **25** | **G** | **UU** | - | **SK**

specification

SMT	standard
SMST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

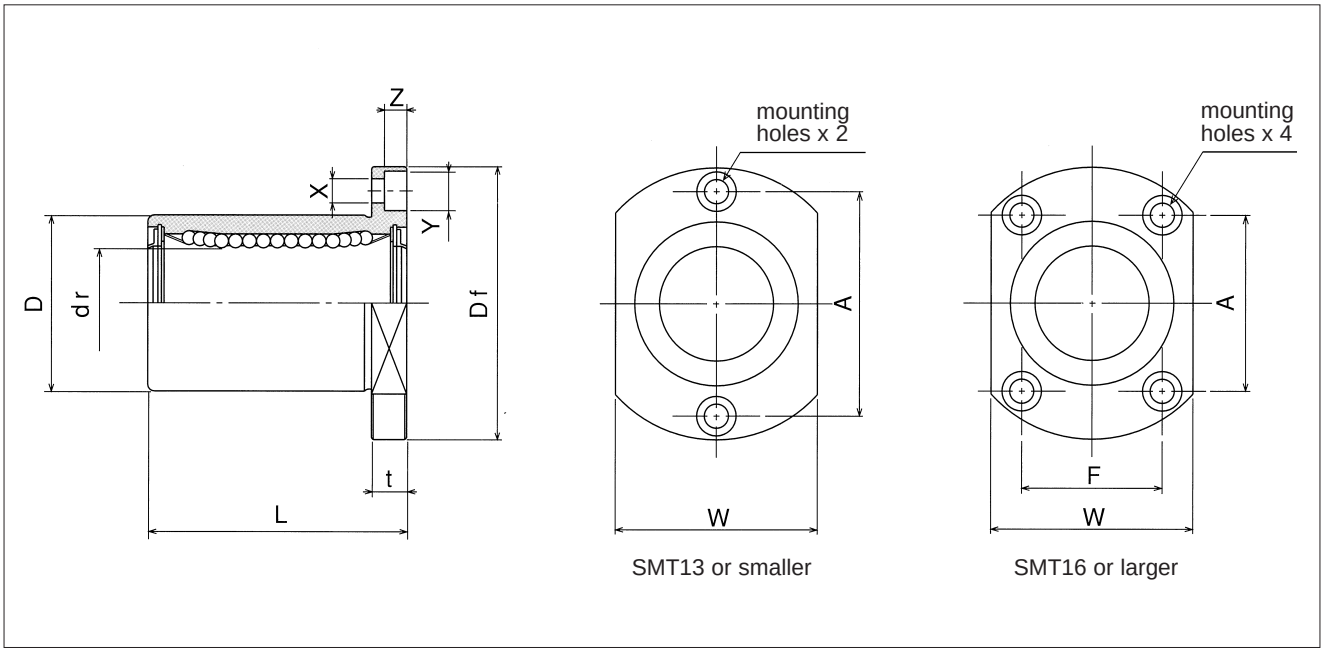
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMST type

seals on both sides

part number*				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMT 6UU	**SMT 6GUU**	**SMST 6UU**	**SMST 6GUU**	6		12	0	19
SMT 8UU	**SMT 8GUU**	**SMST 8UU**	**SMST 8GUU**	8		15	−13	24
SMT10UU	**SMT10GUU**	**SMST10UU**	**SMST10GUU**	10	0	19		29
SMT12UU	**SMT12GUU**	**SMST12UU**	**SMST12GUU**	12	− 9	21	0	30
SMT13UU	**SMT13GUU**	**SMST13UU**	**SMST13GUU**	13		23	−16	32
SMT16UU	**SMT16GUU**	**SMST16UU**	**SMST16GUU**	16		28		37
SMT20UU	**SMT20GUU**	**SMST20UU**	**SMST20GUU**	20	0	32	0	42
SMT25UU	**SMT25GUU**	**SMST25UU**	**SMST25GUU**	25	−10	40	−19	59
SMT30UU	**SMT30GUU**	**SMST30UU**	**SMST30GUU**	30		45		64

* UU type is standard feature.



major dimensions						eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange								dynamic	static		
Df	W	t	A	F	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
28	18	5	20	—	3.5×6×3.1	12	12	206	265	21	6
32	21	5	24	—	3.5×6×3.1			274	392	33	8
40	25	6	29	—	4.5×7.5×4.1			372	549	64	10
42	27	6	32	—	4.5×7.5×4.1			510	784	68	12
43	29	6	33	—	4.5×7.5×4.1			510	784	81	13
48	34	6	31	22	4.5×7.5×4.1			774	1,180	112	16
54	38	8	36	24	5.5×9×5.1	15	15	882	1,370	167	20
62	46	8	40	32	5.5×9×5.1			980	1,570	325	25
74	51	10	49	35	6.6×11×6.1			1,570	2,740	388	30

1N≒0.102kgf

SMF-E TYPE

– Round Flange Type with Pilot End –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSF 25 G UU - E - SK

specification

SMF	standard
SMSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seals on both sides

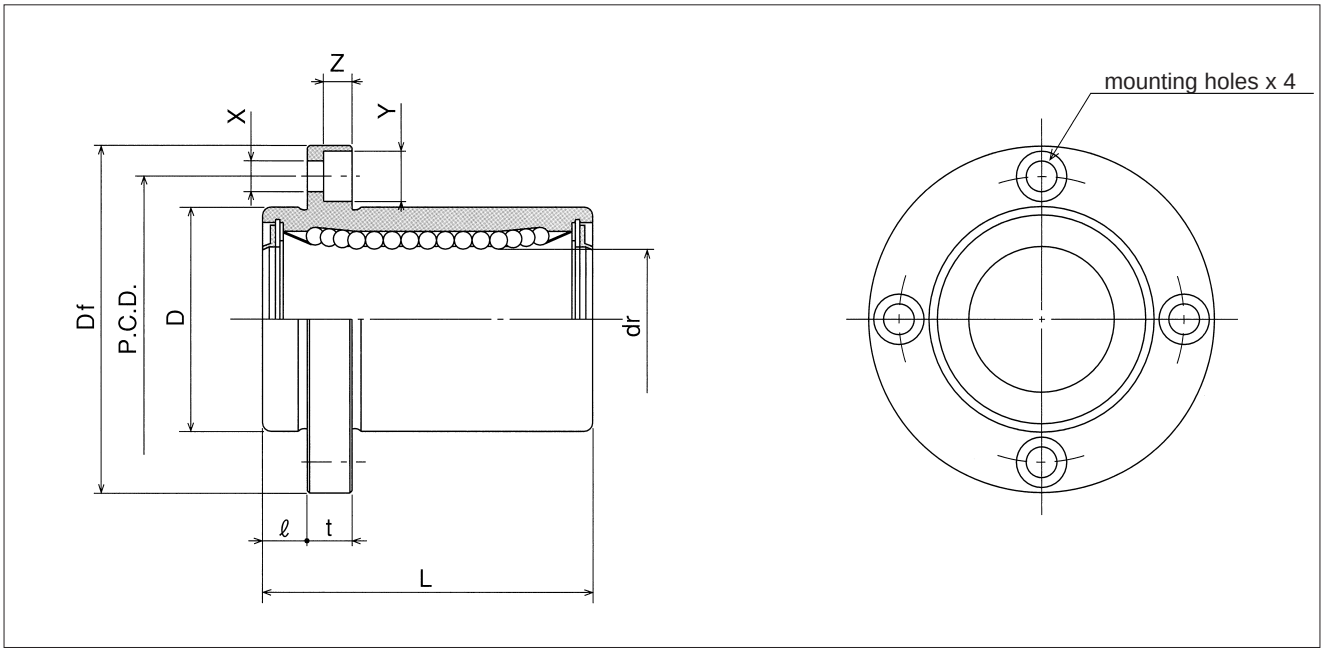
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSF type with pilot end

part number*				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMF 6UU-E	**SMF 6GUU-E**	**SMSF 6UU-E**	**SMSF 6GUU-E**	6	0 −9	12	0 −13	19
SMF 8UU-E	**SMF 8GUU-E**	**SMSF 8UU-E**	**SMSF 8GUU-E**	8		15		24
SMF10UU-E	**SMF10GUU-E**	**SMSF10UU-E**	**SMSF10GUU-E**	10		19	0 −16	29
SMF12UU-E	**SMF12GUU-E**	**SMSF12UU-E**	**SMSF12GUU-E**	12		21		30
SMF13UU-E	**SMF13GUU-E**	**SMSF13UU-E**	**SMSF13GUU-E**	13		23		32
SMF16UU-E	**SMF16GUU-E**	**SMSF16UU-E**	**SMSF16GUU-E**	16		28		37
SMF20UU-E	**SMF20GUU-E**	**SMSF20UU-E**	**SMSF20GUU-E**	20	0 −10	32	0 −19	42
SMF25UU-E	**SMF25GUU-E**	**SMSF25UU-E**	**SMSF25GUU-E**	25		40		59
SMF30UU-E	**SMF30GUU-E**	**SMSF30UU-E**	**SMSF30GUU-E**	30		45		64
SMF35UU-E	**SMF35GUU-E**	–	–	35	0 −12	52	0 −22	70
SMF40UU-E	**SMF40GUU-E**	–	–	40		60		80
SMF50UU-E	**SMF50GUU-E**	–	–	50		80		100
SMF60UU-E	**SMF60GUU-E**	–	–	60	0/−15	90	0/−25	110

* UU type is standard feature.



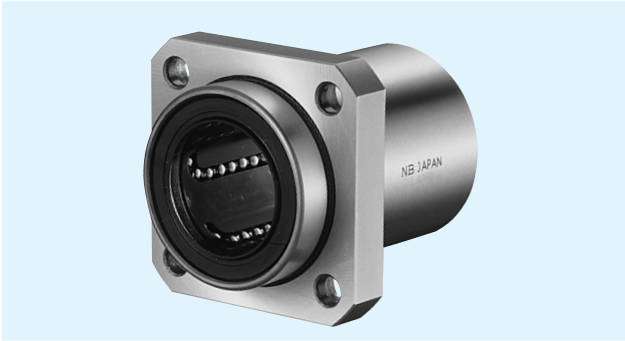
major dimensions					eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange							dynamic	static		
ℓ	Df	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
5	28	5	20	3.5×6×3.1	12	12	206	265	24	6
5	32	5	24	3.5×6×3.1			274	392	37	8
6	40	6	29	4.5×7.5×4.1			372	549	72	10
6	42	6	32	4.5×7.5×4.1			510	784	76	12
6	43	6	33	4.5×7.5×4.1			510	784	88	13
6	48	6	38	4.5×7.5×4.1			774	1,180	120	16
8	54	8	43	5.5×9×5.1	15	15	882	1,370	180	20
8	62	8	51	5.5×9×5.1			980	1,570	340	25
10	74	10	60	6.6×11×6.1			1,570	2,740	470	30
10	82	10	67	6.6×11×6.1	20	20	1,670	3,140	650	35
13	96	13	78	9×14×8.1			2,160	4,020	1,060	40
13	116	13	98	9×14×8.1			3,820	7,940	2,200	50
18	134	18	112	11×17×11.1	25	25	4,700	10,000	3,000	60

1N≒0.102kgf

SMK-E TYPE

– Square Flange Type with Pilot End –

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

SMSK 25 G UU - E - SK

specification

SMK	standard
SMSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seals on both sides

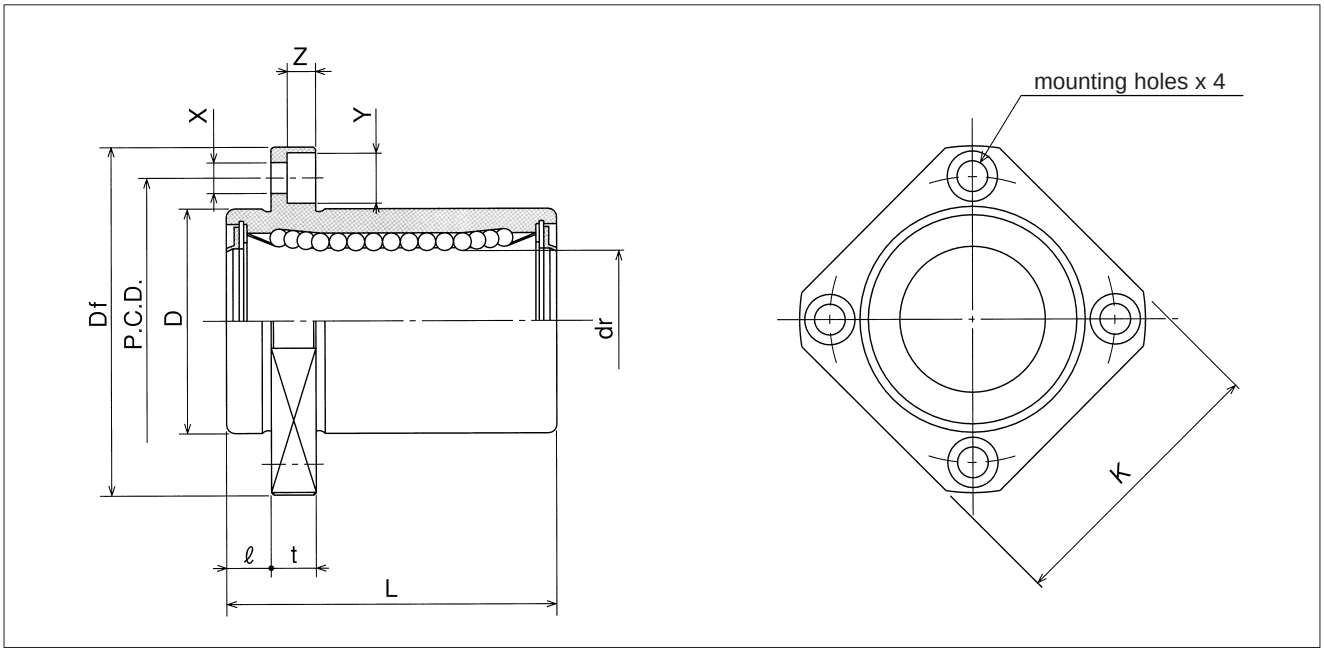
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSK type with pilot end

part number*				dr		D		L
standard		anticorrosion			tolerance		tolerance	±0.3
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm
SMK 6UU-E	**SMK 6GUU-E**	**SMSK 6UU-E**	**SMSK 6GUU-E**	6	0 −9	12	0 −13	19
SMK 8UU-E	**SMK 8GUU-E**	**SMSK 8UU-E**	**SMSK 8GUU-E**	8		15		24
SMK10UU-E	**SMK10GUU-E**	**SMSK10UU-E**	**SMSK10GUU-E**	10		19	0 −16	29
SMK12UU-E	**SMK12GUU-E**	**SMSK12UU-E**	**SMSK12GUU-E**	12		21		30
SMK13UU-E	**SMK13GUU-E**	**SMSK13UU-E**	**SMSK13GUU-E**	13		23		32
SMK16UU-E	**SMK16GUU-E**	**SMSK16UU-E**	**SMSK16GUU-E**	16		28		37
SMK20UU-E	**SMK20GUU-E**	**SMSK20UU-E**	**SMSK20GUU-E**	20	0 −10	32	0 −19	42
SMK25UU-E	**SMK25GUU-E**	**SMSK25UU-E**	**SMSK25GUU-E**	25		40		59
SMK30UU-E	**SMK30GUU-E**	**SMSK30UU-E**	**SMSK30GUU-E**	30		45		64
SMK35UU-E	**SMK35GUU-E**	–	–	35	0 −12	52	0 −22	70
SMK40UU-E	**SMK40GUU-E**	–	–	40		60		80
SMK50UU-E	**SMK50GUU-E**	–	–	50		80		100
SMK60UU-E	**SMK60GUU-E**	–	–	60	0/−15	90	0/−25	110

* UU type is standard feature.



major dimensions						eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange								dynamic	static		
ℓ	Df	K	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
5	28	22	5	20	3.5×6×3.1	12	12	206	265	18	6
5	32	25	5	24	3.5×6×3.1			274	392	29	8
6	40	30	6	29	4.5×7.5×4.1			372	549	52	10
6	42	32	6	32	4.5×7.5×4.1			510	784	57	12
6	43	34	6	33	4.5×7.5×4.1			510	784	72	13
6	48	37	6	38	4.5×7.5×4.1			774	1,180	104	16
8	54	42	8	43	5.5×9×5.1	15	15	882	1,370	145	20
8	62	50	8	51	5.5×9×5.1			980	1,570	300	25
10	74	58	10	60	6.6×11×6.1			1,570	2,740	375	30
10	82	64	10	67	6.6×11×6.1	20	20	1,670	3,140	560	35
13	96	75	13	78	9×14×8.1			2,160	4,020	880	40
13	116	92	13	98	9×14×8.1			3,820	7,940	2,000	50
18	134	106	18	112	11×17×11.1	25	25	4,700	10,000	2,560	60

1N≒0.102kgf

SMT-E TYPE

– Two Side Cut Pilot End Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMST 25 G UU - E - SK

specification

SMT	standard
SMST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seals on both sides

outer cylinder surface treatment

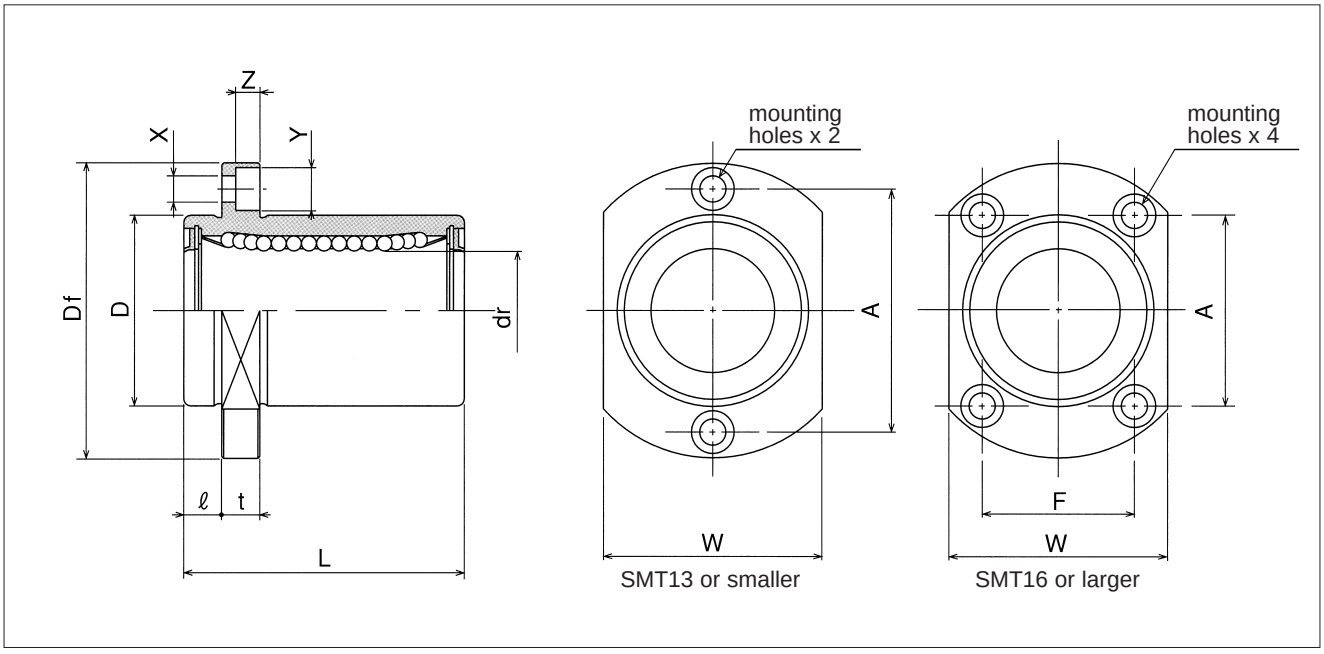
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMST type

with pilot end

part number*				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	ℓ
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
SMT 6UU-E	**SMT 6GUU-E**	**SMST 6UU-E**	**SMST 6GUU-E**	6		12	0	19	5
SMT 8UU-E	**SMT 8GUU-E**	**SMST 8UU-E**	**SMST 8GUU-E**	8		15	−13	24	5
SMT10UU-E	**SMT10GUU-E**	**SMST10UU-E**	**SMST10GUU-E**	10	0	19		29	6
SMT12UU-E	**SMT12GUU-E**	**SMST12UU-E**	**SMST12GUU-E**	12	− 9	21	0	30	6
SMT13UU-E	**SMT13GUU-E**	**SMST13UU-E**	**SMST13GUU-E**	13		23	−16	32	6
SMT16UU-E	**SMT16GUU-E**	**SMST16UU-E**	**SMST16GUU-E**	16		28		37	6
SMT20UU-E	**SMT20GUU-E**	**SMST20UU-E**	**SMST20GUU-E**	20	0	32	0	42	8
SMT25UU-E	**SMT25GUU-E**	**SMST25UU-E**	**SMST25GUU-E**	25	−10	40	−19	59	8
SMT30UU-E	**SMT30GUU-E**	**SMST30UU-E**	**SMST30GUU-E**	30		45		64	10

* UU type is standard feature.



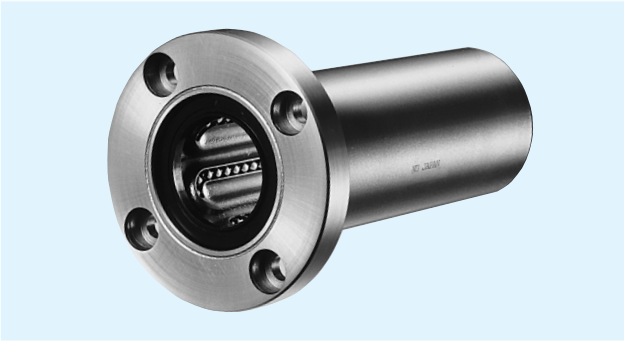
major dimensions						eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange								dynamic	static		
Df	W	t	A	F	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
28	18	5	20	—	3.5×6×3.1	12	12	206	265	21	6
32	21	5	24	—	3.5×6×3.1			274	392	33	8
40	25	6	29	—	4.5×7.5×4.1			372	549	64	10
42	27	6	32	—	4.5×7.5×4.1			510	784	68	12
43	29	6	33	—	4.5×7.5×4.1			510	784	81	13
48	34	6	31	22	4.5×7.5×4.1			774	1,180	112	16
54	38	8	36	24	5.5×9×5.1	15	15	882	1,370	167	20
62	46	8	40	32	5.5×9×5.1			980	1,570	325	25
74	51	10	49	35	6.6×11×6.1			1,570	2,740	388	30

1N≒0.102kgf

SMF-W TYPE

− Round Flange Double-Wide Type −

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

SMSF | **25** | **G** | **W** | **UU** | - | **SK**

specification

SMF	standard
SMSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

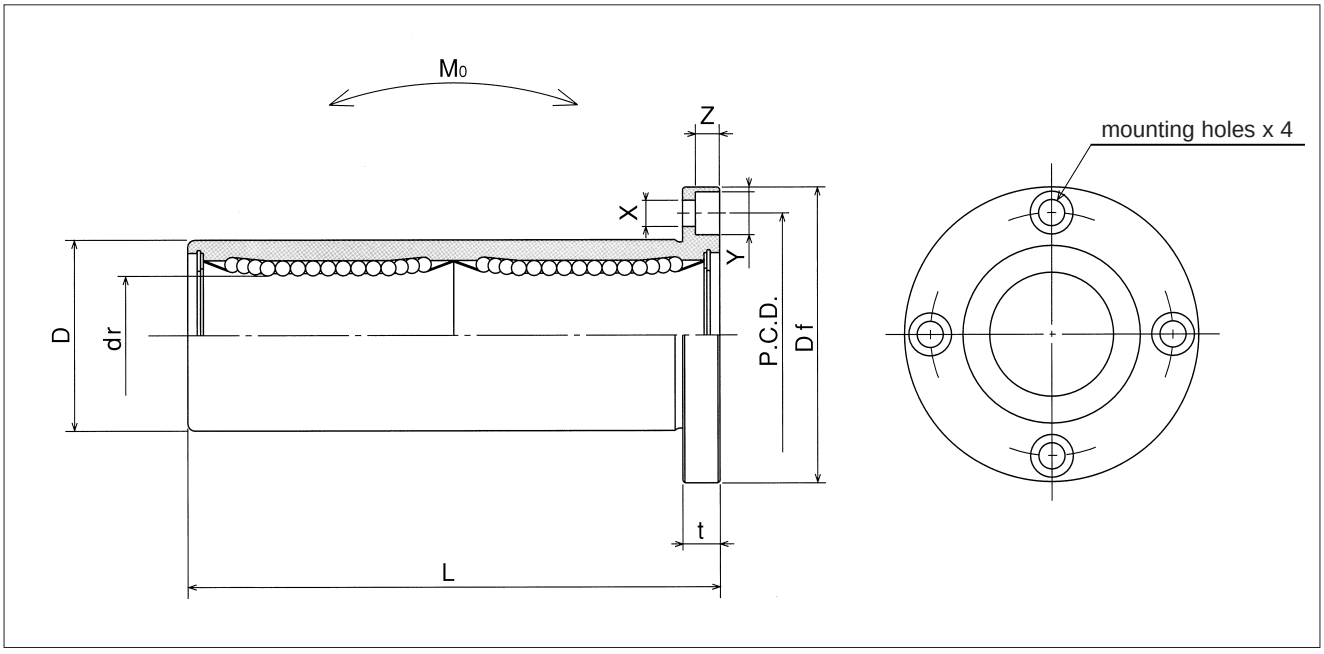
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMF 6W	**SMF 6GW**	**SMSF 6W**	**SMSF 6GW**	6	0 −10	12	0 −13	35
SMF 8W	**SMF 8GW**	**SMSF 8W**	**SMSF 8GW**	8		15		45
SMF10W	**SMF10GW**	**SMSF10W**	**SMSF10GW**	10		19	0 −16	55
SMF12W	**SMF12GW**	**SMSF12W**	**SMSF12GW**	12		21		57
SMF13W	**SMF13GW**	**SMSF13W**	**SMSF13GW**	13		23		61
SMF16W	**SMF16GW**	**SMSF16W**	**SMSF16GW**	16		28		70
SMF20W	**SMF20GW**	**SMSF20W**	**SMSF20GW**	20	0 −12	32	0 −19	80
SMF25W	**SMF25GW**	**SMSF25W**	**SMSF25GW**	25		40		112
SMF30W	**SMF30GW**	**SMSF30W**	**SMSF30GW**	30		45		123
SMF35W	**SMF35GW**	**SMSF35W**	**SMSF35GW**	35	0 −15	52	0 −22	135
SMF40W	**SMF40GW**	**SMSF40W**	**SMSF40GW**	40		60		151
SMF50W	**SMF50GW**	**SMSF50W**	**SMSF50GW**	50		80		192
SMF60W	**SMF60GW**	**SMSF60W**	**SMSF60GW**	60	0/−20	90	0/−25	209



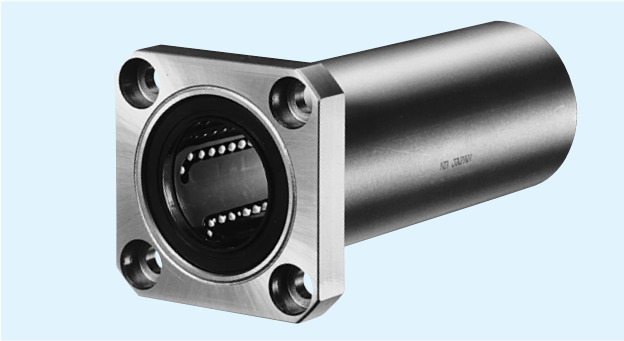
major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
28	5	20	3.5×6×3.1	15	15	323	530	2.18	31	6
32	5	24	3.5×6×3.1			431	784	4.31	51	8
40	6	29	4.5×7.5×4.1			588	1,100	7.24	98	10
42	6	32	4.5×7.5×4.1			813	1,570	10.9	110	12
43	6	33	4.5×7.5×4.1			813	1,570	11.6	130	13
48	6	38	4.5×7.5×4.1			1,230	2,350	19.7	190	16
54	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	260	20
62	8	51	5.5×9×5.1			1,560	3,140	43.4	540	25
74	10	60	6.6×11×6.1			2,490	5,490	82.8	680	30
82	10	67	6.6×11×6.1	25	25	2,650	6,270	110	1,020	35
96	13	78	9×14×8.1			3,430	8,040	147	1,570	40
116	13	98	9×14×8.1			6,080	15,900	397	3,600	50
134	18	112	11×17×11.1	30	30	7,550	20,000	530	4,500	60

1N≒0.102kgf 1N・m≒0.102kgf・m

SMK-W TYPE

– Square Flange Double-Wide Type –

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

SMSK **25** **G** **W** **UU** - **SK**

specification

SMK	standard
SMSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

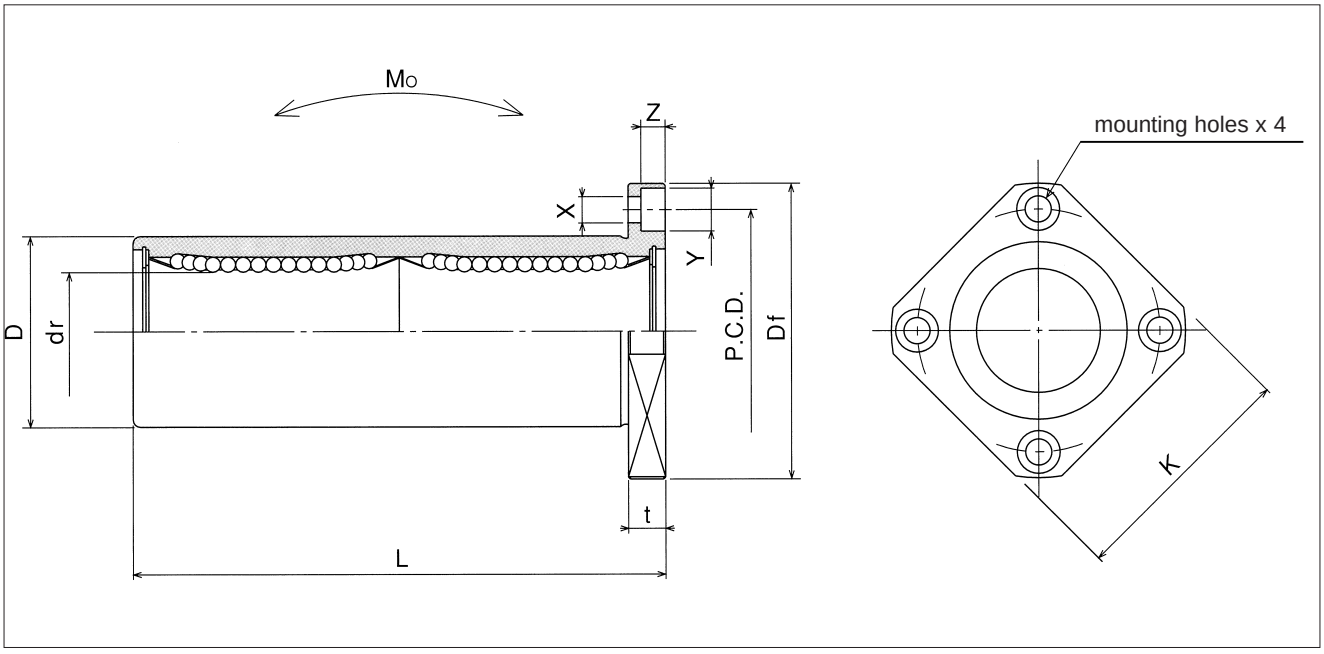
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSK type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	Df
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
SMK 6W	**SMK 6GW**	**SMSK 6W**	**SMSK 6GW**	6	0 −10	12	0 −13	35	28
SMK 8W	**SMK 8GW**	**SMSK 8W**	**SMSK 8GW**	8		15		45	32
SMK10W	**SMK10GW**	**SMSK10W**	**SMSK10GW**	10		19	0 −16	55	40
SMK12W	**SMK12GW**	**SMSK12W**	**SMSK12GW**	12		21		57	42
SMK13W	**SMK13GW**	**SMSK13W**	**SMSK13GW**	13		23		61	43
SMK16W	**SMK16GW**	**SMSK16W**	**SMSK16GW**	16		28		70	48
SMK20W	**SMK20GW**	**SMSK20W**	**SMSK20GW**	20	0 −12	32	0 −19	80	54
SMK25W	**SMK25GW**	**SMSK25W**	**SMSK25GW**	25		40		112	62
SMK30W	**SMK30GW**	**SMSK30W**	**SMSK30GW**	30		45		123	74
SMK35W	**SMK35GW**	**SMSK35W**	**SMSK35GW**	35	0 −15	52	0 −22	135	82
SMK40W	**SMK40GW**	**SMSK40W**	**SMSK40GW**	40		60		151	96
SMK50W	**SMK50GW**	**SMSK50W**	**SMSK50GW**	50		80		192	116
SMK60W	**SMK60GW**	**SMSK60W**	**SMSK60GW**	60	0/−20	90	0/−25	209	134



major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
K	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
22	5	20	3.5×6×3.1	15	15	323	530	2.18	25	6
25	5	24	3.5×6×3.1			431	784	4.31	43	8
30	6	29	4.5×7.5×4.1			588	1,100	7.24	78	10
32	6	32	4.5×7.5×4.1			813	1,570	10.9	90	12
34	6	33	4.5×7.5×4.1			813	1,570	11.6	108	13
37	6	38	4.5×7.5×4.1			1,230	2,350	19.7	165	16
42	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	225	20
50	8	51	5.5×9×5.1			1,560	3,140	43.4	500	25
58	10	60	6.6×11×6.1			2,490	5,490	82.8	590	30
64	10	67	6.6×11×6.1	25	25	2,650	6,270	110	930	35
75	13	78	9×14×8.1			3,430	8,040	147	1,380	40
92	13	98	9×14×8.1			6,080	15,900	397	3,400	50
106	18	112	11×17×11.1	30	30	7,550	20,000	530	4,060	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMT-W TYPE

– Two Side Cut Double-Wide Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMST 25 G W UU - SK

specification

SMT	standard
SMST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

seals on both sides

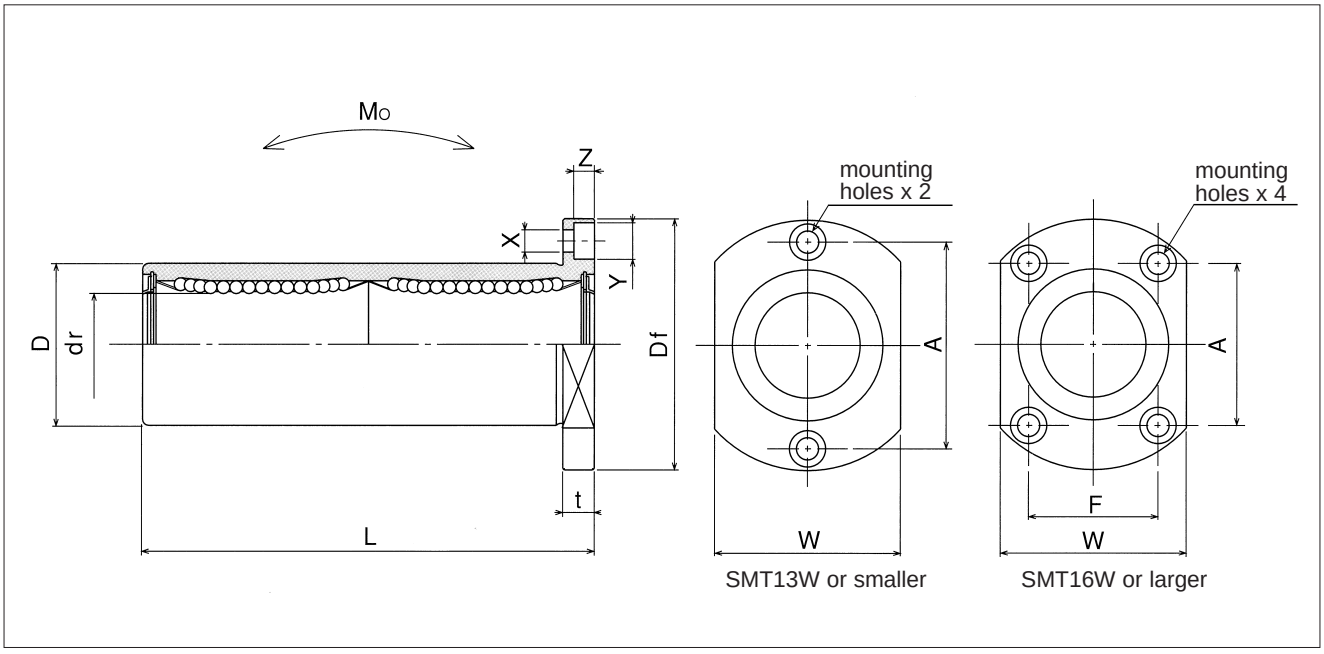
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMST type

part number*				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	Df
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
SMT 6WUU	**SMT 6GWUU**	**SMST 6WUU**	**SMST 6GWUU**	6		12	0	35	28
SMT 8WUU	**SMT 8GWUU**	**SMST 8WUU**	**SMST 8GWUU**	8		15	−13	45	32
SMT10WUU	**SMT10GWUU**	**SMST10WUU**	**SMST10GWUU**	10	0	19		55	40
SMT12WUU	**SMT12GWUU**	**SMST12WUU**	**SMST12GWUU**	12	−10	21	0	57	42
SMT13WUU	**SMT13GWUU**	**SMST13WUU**	**SMST13GWUU**	13		23	−16	61	43
SMT16WUU	**SMT16GWUU**	**SMST16WUU**	**SMST16GWUU**	16		28		70	48
SMT20WUU	**SMT20GWUU**	**SMST20WUU**	**SMST20GWUU**	20	0	32	0	80	54
SMT25WUU	**SMT25GWUU**	**SMST25WUU**	**SMST25GWUU**	25	−12	40	−19	112	62
SMT30WUU	**SMT30GWUU**	**SMST30WUU**	**SMST30GWUU**	30		45		123	74

* UU type is standard feature.



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
W	t	A	F	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
18	5	20	—	3.5×6×3.1	15	15	323	530	2.18	28	6
21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
25	6	29	—	4.5×7.5×4.1			588	1,100	7.24	90	10
27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
38	8	36	24	5.5×9×5.1	20	20	1,400	2,740	26.8	247	20
46	8	40	32	5.5×9×5.1			1,560	3,140	43.4	525	25
51	10	49	35	6.6×11×6.1			2,490	5,490	82.8	645	30

1N≒0.102kgf　1N・m≒0.102kgf・m

SMFC TYPE

– Center Mount Round Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSFC **25** **G** **UU** - **SK**

specification

SMFC	standard
SMSFC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

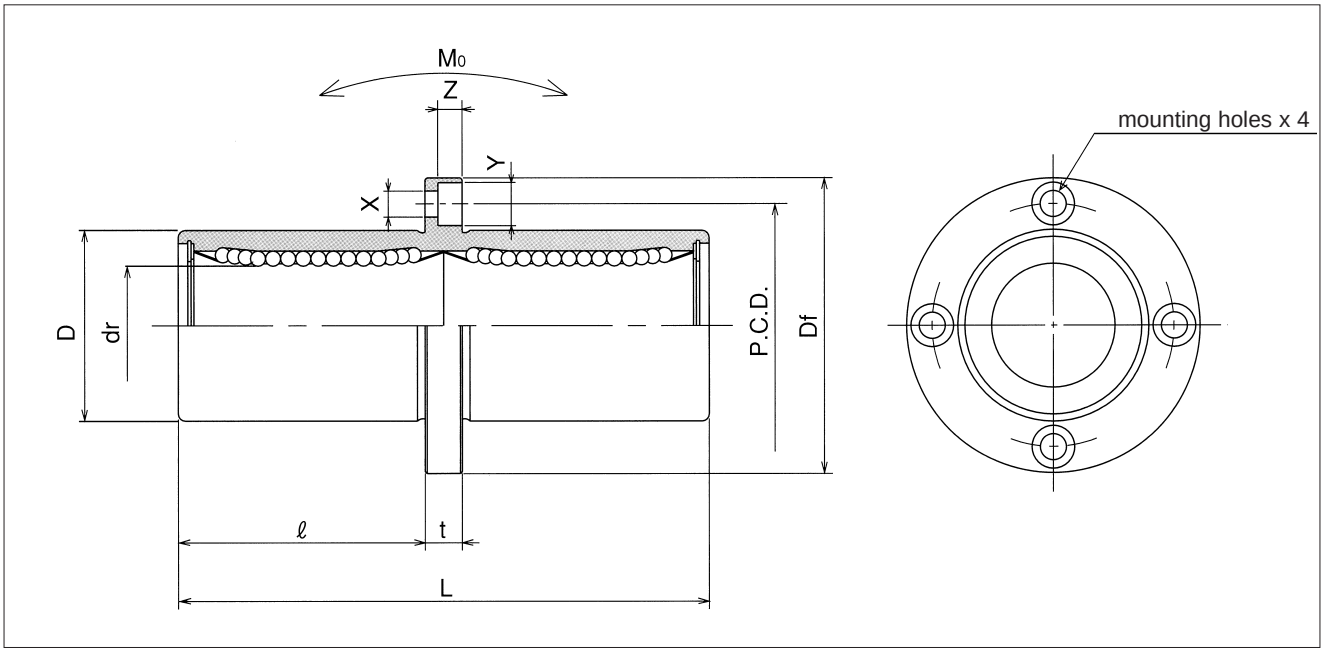
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSFC type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L	
standard		anticorrosion							
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm
SMFC 6	**SMFC 6G**	**SMSFC 6**	**SMSFC 6G**	6		12	0	35	15
SMFC 8	**SMFC 8G**	**SMSFC 8**	**SMSFC 8G**	8		15	−13	45	20
SMFC10	**SMFC10G**	**SMSFC10**	**SMSFC10G**	10	0	19		55	24.5
SMFC12	**SMFC12G**	**SMSFC12**	**SMSFC12G**	12	−10	21	0	57	25.5
SMFC13	**SMFC13G**	**SMSFC13**	**SMSFC13G**	13		23	−16	61	27.5
SMFC16	**SMFC16G**	**SMSFC16**	**SMSFC16G**	16		28		70	32
SMFC20	**SMFC20G**	**SMSFC20**	**SMSFC20G**	20	0	32	0	80	36
SMFC25	**SMFC25G**	**SMSFC25**	**SMSFC25G**	25	−12	40	−19	112	52
SMFC30	**SMFC30G**	**SMSFC30**	**SMSFC30G**	30		45		123	56.5
SMFC35	**SMFC35G**	**SMSFC35**	**SMSFC35G**	35	0	52	0	135	62.5
SMFC40	**SMFC40G**	**SMSFC40**	**SMSFC40G**	40	−15	60	−22	151	69
SMFC50	**SMFC50G**	**SMSFC50**	**SMSFC50G**	50		80		192	89.5
SMFC60	**SMFC60G**	**SMSFC60**	**SMSFC60G**	60	0/−20	90	0/−25	209	95.5



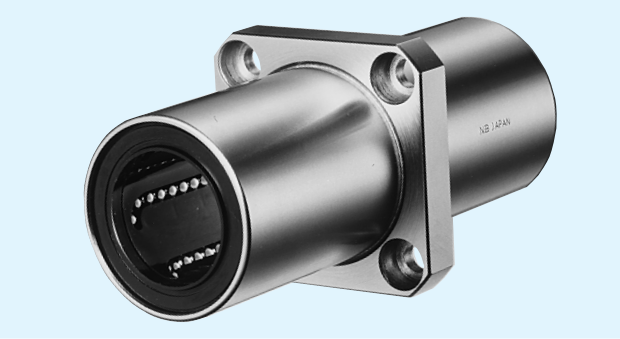
major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
28	5	20	3.5×6×3.1	15	15	323	530	2.18	31	6
32	5	24	3.5×6×3.1			431	784	4.31	51	8
40	6	29	4.5×7.5×4.1			588	1,100	7.24	98	10
42	6	32	4.5×7.5×4.1			813	1,570	10.9	110	12
43	6	33	4.5×7.5×4.1			813	1,570	11.6	130	13
48	6	38	4.5×7.5×4.1			1,230	2,350	19.7	190	16
54	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	260	20
62	8	51	5.5×9×5.1			1,560	3,140	43.4	540	25
74	10	60	6.6×11×6.1			2,490	5,490	82.8	680	30
82	10	67	6.6×11×6.1	25	25	2,650	6,270	110	1,020	35
96	13	78	9×14×8.1			3,430	8,040	147	1,570	40
116	13	98	9×14×8.1			6,080	15,900	397	3,600	50
134	18	112	11×17×11.1	30	30	7,550	20,000	530	4,500	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMKC TYPE

– Center Mount Square Flange Type –

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

SMSKC | **25** | **G** | **UU** - **SK**

specification

SMKC	standard
SMSKC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seal

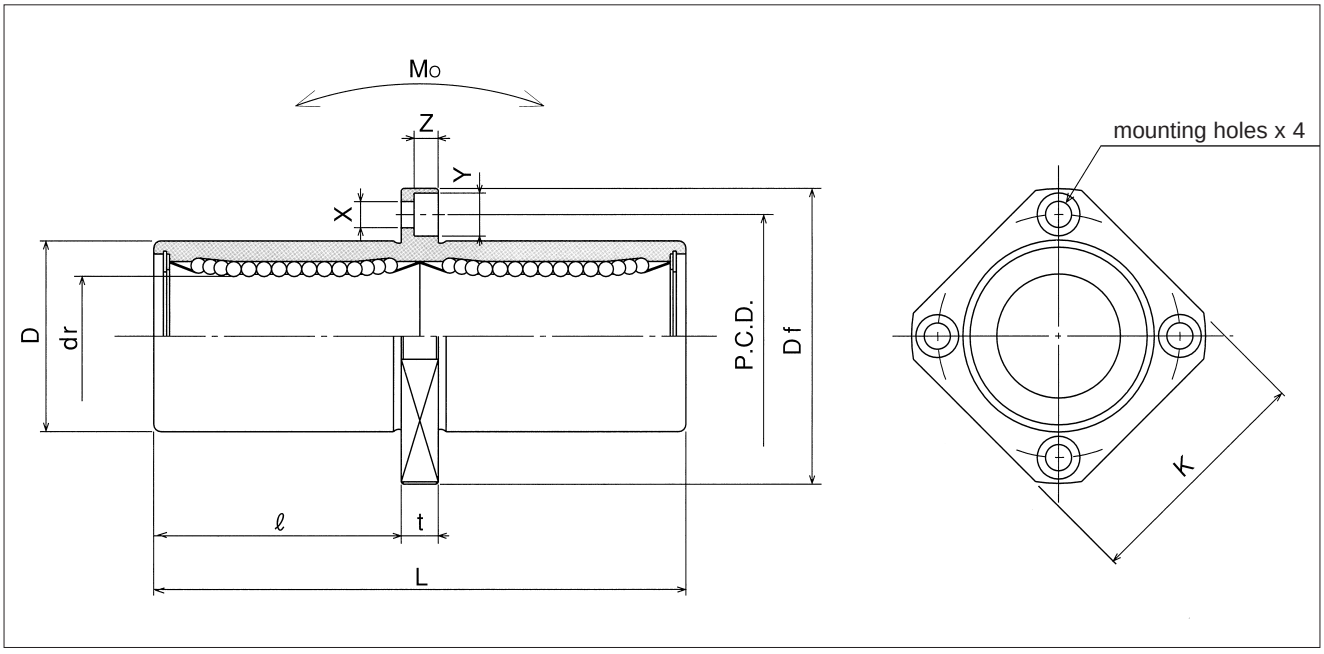
blank	without seal
UU	seals on both sides

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSKC type

part number				dr		D		L	
standard		anticorrosion							
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm
SMKC 6	**SMKC 6G**	**SMSKC 6**	**SMSKC 6G**	6		12	0	35	15
SMKC 8	**SMKC 8G**	**SMSKC 8**	**SMSKC 8G**	8		15	−13	45	20
SMKC10	**SMKC10G**	**SMSKC10**	**SMSKC10G**	10	0	19		55	24.5
SMKC12	**SMKC12G**	**SMSKC12**	**SMSKC12G**	12	−10	21	0	57	25.5
SMKC13	**SMKC13G**	**SMSKC13**	**SMSKC13G**	13		23	−16	61	27.5
SMKC16	**SMKC16G**	**SMSKC16**	**SMSKC16G**	16		28		70	32
SMKC20	**SMKC20G**	**SMSKC20**	**SMSKC20G**	20	0	32	0	80	36
SMKC25	**SMKC25G**	**SMSKC25**	**SMSKC25G**	25	−12	40	−19	112	52
SMKC30	**SMKC30G**	**SMSKC30**	**SMSKC30G**	30		45		123	56.5
SMKC35	**SMKC35G**	**SMSKC35**	**SMSKC35G**	35	0	52	0	135	62.5
SMKC40	**SMKC40G**	**SMSKC40**	**SMSKC40G**	40	−15	60	−22	151	69
SMKC50	**SMKC50G**	**SMSKC50**	**SMSKC50G**	50		80		192	89.5
SMKC60	**SMKC60G**	**SMSKC60**	**SMSKC60G**	60	0/−20	90	0/−25	209	95.5



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df	K	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
28	22	5	20	3.5×6×3.1	15	15	323	530	2.18	25	6
32	25	5	24	3.5×6×3.1			431	784	4.31	43	8
40	30	6	29	4.5×7.5×4.1			588	1,100	7.24	78	10
42	32	6	32	4.5×7.5×4.1			813	1,570	10.9	90	12
43	34	6	33	4.5×7.5×4.1			813	1,570	11.6	108	13
48	37	6	38	4.5×7.5×4.1			1,230	2,350	19.7	165	16
54	42	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	225	20
62	50	8	51	5.5×9×5.1			1,560	3,140	43.4	500	25
74	58	10	60	6.6×11×6.1			2,490	5,490	82.8	590	30
82	64	10	67	6.6×11×6.1	25	25	2,650	6,270	110	930	35
96	75	13	78	9×14×8.1			3,430	8,040	147	1,380	40
116	92	13	98	9×14×8.1			6,080	15,900	397	3,400	50
134	106	18	112	11×17×11.1	30	30	7,550	20,000	530	4,060	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMTC TYPE

– Two Side Cut Center Flange Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSTC 25 G UU - SK

specification

SMTC	standard
SMSTC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

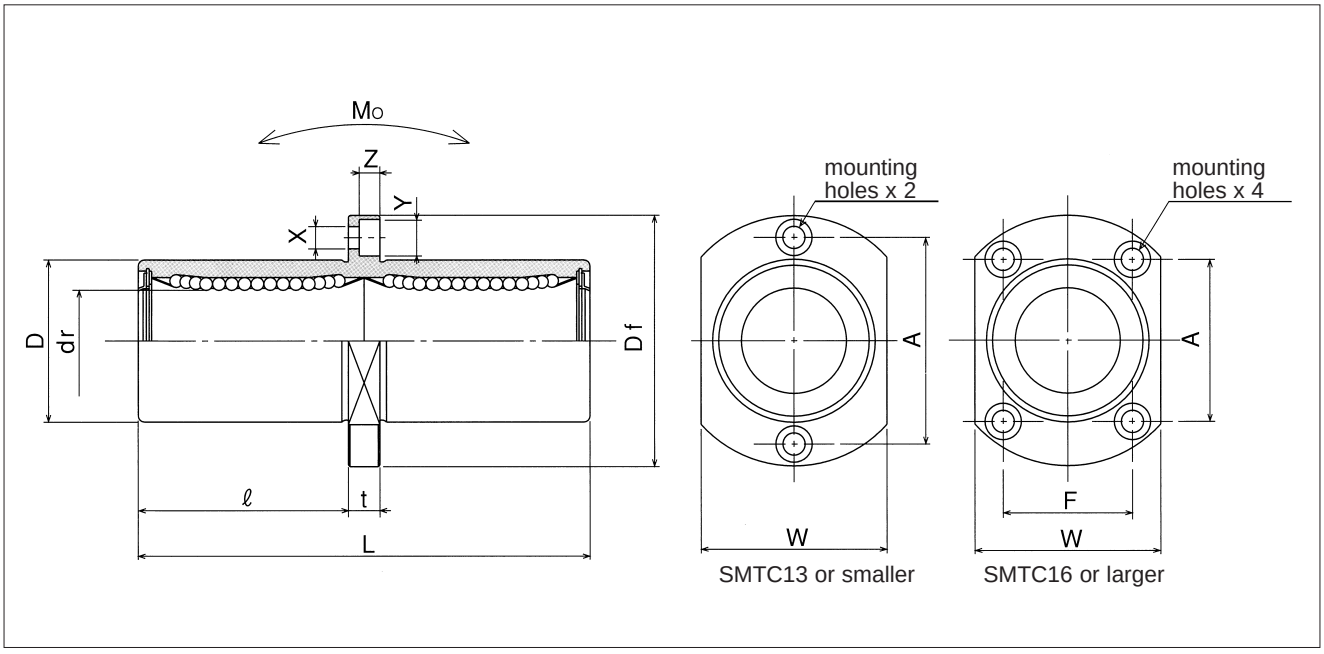
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSTC type

seals on both sides

part number*				dr		D		L		
standard		anticorrosion								
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm	Df mm
SMTC 6UU	**SMTC 6GUU**	**SMSTC 6UU**	**SMSTC 6GUU**	6	0 −10	12	0 −13	35	15	28
SMTC 8UU	**SMTC 8GUU**	**SMSTC 8UU**	**SMSTC 8GUU**	8		15		45	20	32
SMTC10UU	**SMTC10GUU**	**SMSTC10UU**	**SMSTC10GUU**	10		19	0 −16	55	24.5	40
SMTC12UU	**SMTC12GUU**	**SMSTC12UU**	**SMSTC12GUU**	12		21		57	25.5	42
SMTC13UU	**SMTC13GUU**	**SMSTC13UU**	**SMSTC13GUU**	13		23		61	27.5	43
SMTC16UU	**SMTC16GUU**	**SMSTC16UU**	**SMSTC16GUU**	16		28		70	32	48
SMTC20UU	**SMTC20GUU**	**SMSTC20UU**	**SMSTC20GUU**	20	0 −12	32	0 −19	80	36	54
SMTC25UU	**SMTC25GUU**	**SMSTC25UU**	**SMSTC25GUU**	25		40		112	52	62
SMTC30UU	**SMTC30GUU**	**SMSTC30UU**	**SMSTC30GUU**	30		45		123	56.5	74

* UU type is standard.



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
W	t	A	F	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
18	5	20	—	3.5×6×3.1	15	15	323	530	2.18	28	6
21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
25	6	29	—	4.5×7.5×4.1			588	1,100	7.24	90	10
27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
38	8	36	24	5.5×9×5.1	20	20	1,400	2,740	26.8	247	20
46	8	40	32	5.5×9×5.1			1,560	3,140	43.4	525	25
51	10	49	35	6.6×11×6.1			2,490	5,490	82.8	645	30

1N≒0.102kgf　1N・m≒0.102kgf・m

SMF-W-E TYPE

– Round Flange Double-Wide Pilot End Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSF 25 G W UU - E - SK

specification

SMF	standard
SMSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

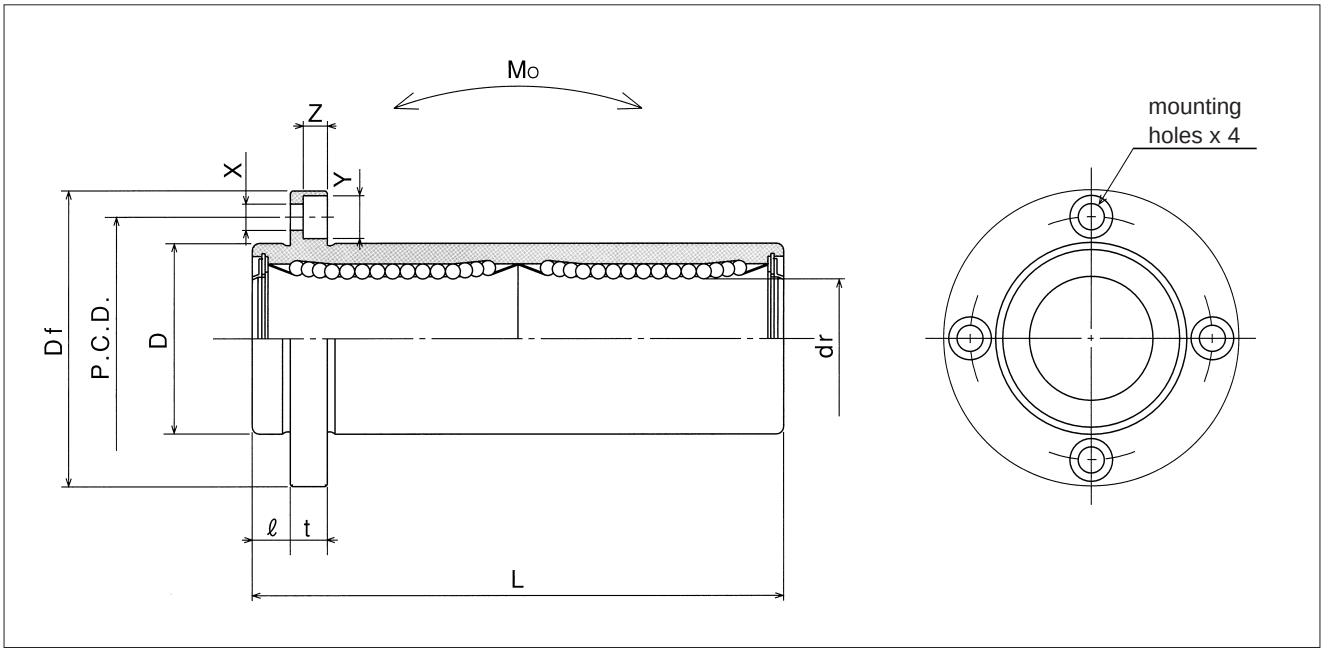
*not available in SMSF type

with pilot end

seals on both sides

part number*				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	ℓ
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
SMF 6WUU-E	**SMF 6GWUU-E**	**SMSF 6WUU-E**	**SMSF 6GWUU-E**	6	0 −10	12	0 −13	35	5
SMF 8WUU-E	**SMF 8GWUU-E**	**SMSF 8WUU-E**	**SMSF 8GWUU-E**	8		15		45	5
SMF10WUU-E	**SMF10GWUU-E**	**SMSF10WUU-E**	**SMSF10GWUU-E**	10		19	0 −16	55	6
SMF12WUU-E	**SMF12GWUU-E**	**SMSF12WUU-E**	**SMSF12GWUU-E**	12		21		57	6
SMF13WUU-E	**SMF13GWUU-E**	**SMSF13WUU-E**	**SMSF13GWUU-E**	13		23		61	6
SMF16WUU-E	**SMF16GWUU-E**	**SMSF16WUU-E**	**SMSF16GWUU-E**	16		28		70	6
SMF20WUU-E	**SMF20GWUU-E**	**SMSF20WUU-E**	**SMSF20GWUU-E**	20	0 −12	32	0 −19	80	8
SMF25WUU-E	**SMF25GWUU-E**	**SMSF25WUU-E**	**SMSF25GWUU-E**	25		40		112	8
SMF30WUU-E	**SMF30GWUU-E**	**SMSF30WUU-E**	**SMSF30GWUU-E**	30		45		123	10
SMF35WUU-E	**SMF35GWUU-E**	–	–	35	0 −15	52	0 −22	135	10
SMF40WUU-E	**SMF40GWUU-E**	–	–	40		60		151	13
SMF50WUU-E	**SMF50GWUU-E**	–	–	50		80		192	13
SMF60WUU-E	**SMF60GWUU-E**	–	–	60	0/−20	90	0/−25	209	18

* UU type is standard.



major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
28	5	20	3.5×6×3.1	15	15	323	530	2.18	31	6
32	5	24	3.5×6×3.1			431	784	4.31	51	8
40	6	29	4.5×7.5×4.1			588	1,100	7.24	98	10
42	6	32	4.5×7.5×4.1			813	1,570	10.9	110	12
43	6	33	4.5×7.5×4.1			813	1,570	11.6	130	13
48	6	38	4.5×7.5×4.1			1,230	2,350	19.7	190	16
54	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	260	20
62	8	51	5.5×9×5.1			1,560	3,140	43.4	540	25
74	10	60	6.6×11×6.1			2,490	5,490	82.8	680	30
82	10	67	6.6×11×6.1	25	25	2,650	6,270	110	1,020	35
96	13	78	9×14×8.1			3,430	8,040	147	1,570	40
116	13	98	9×14×8.1			6,080	15,900	397	3,600	50
134	18	112	11×17×11.1	30	30	7,550	20,000	530	4,500	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMK-W-E TYPE

– Square Flange Double-Wide Pilot End Type –

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMSK | 25 | G | W | UU | - | E | - | SK

specification

SMK	standard
SMSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

seals on both seides

with pilot end

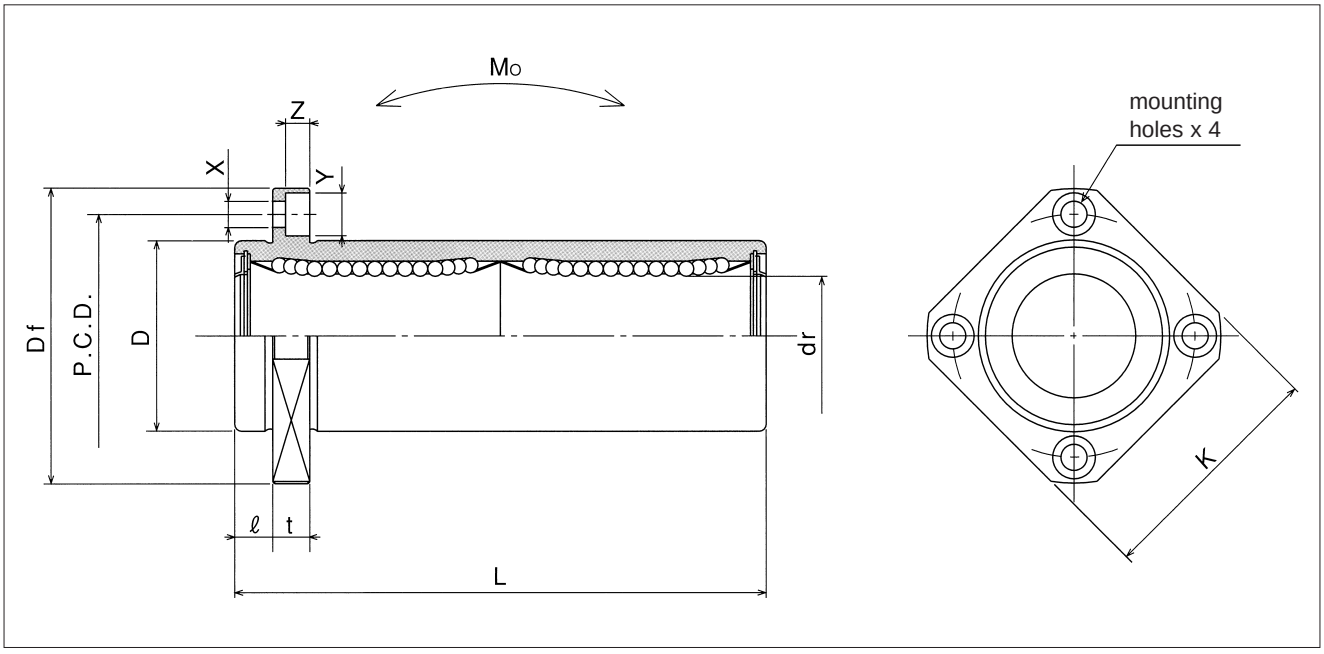
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SMSK type

part number*				dr		D		L	
standard		anticorrosion							
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm
SMK 6WUU-E	**SMK 6GWUU-E**	**SMSK 6WUU-E**	**SMSK 6GWUU-E**	6	0 −10	12	0 −13	35	5
SMK 8WUU-E	**SMK 8GWUU-E**	**SMSK 8WUU-E**	**SMSK 8GWUU-E**	8		15		45	5
SMK10WUU-E	**SMK10GWUU-E**	**SMSK10WUU-E**	**SMSK10GWUU-E**	10		19	0 −16	55	6
SMK12WUU-E	**SMK12GWUU-E**	**SMSK12WUU-E**	**SMSK12GWUU-E**	12		21		57	6
SMK13WUU-E	**SMK13GWUU-E**	**SMSK13WUU-E**	**SMSK13GWUU-E**	13		23		61	6
SMK16WUU-E	**SMK16GWUU-E**	**SMSK16WUU-E**	**SMSK16GWUU-E**	16		28		70	6
SMK20WUU-E	**SMK20GWUU-E**	**SMSK20WUU-E**	**SMSK20GWUU-E**	20	0 −12	32	0 −19	80	8
SMK25WUU-E	**SMK25GWUU-E**	**SMSK25WUU-E**	**SMSK25GWUU-E**	25		40		112	8
SMK30WUU-E	**SMK30GWUU-E**	**SMSK30WUU-E**	**SMSK30GWUU-E**	30		45		123	10
SMK35WUU-E	**SMK35GWUU-E**	–	–	35	0 −15	52	0 −22	135	10
SMK40WUU-E	**SMK40GWUU-E**	–	–	40		60		151	13
SMK50WUU-E	**SMK50GWUU-E**	–	–	50		80		192	13
SMK60WUU-E	**SMK60GWUU-E**	–	–	60	0/−20	90	0/−25	209	18

* UU type is standard.



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df	K	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
28	22	5	20	3.5×6×3.1	15	15	323	530	2.18	25	6
32	25	5	24	3.5×6×3.1			431	784	4.31	43	8
40	30	6	29	4.5×7.5×4.1			588	1,100	7.24	78	10
42	32	6	32	4.5×7.5×4.1			813	1,570	10.9	90	12
43	34	6	33	4.5×7.5×4.1			813	1,570	11.6	108	13
48	37	6	38	4.5×7.5×4.1			1,230	2,350	19.7	165	16
54	42	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	225	20
62	50	8	51	5.5×9×5.1			1,560	3,140	43.4	500	25
74	58	10	60	6.6×11×6.1			2,490	5,490	82.8	590	30
82	64	10	67	6.6×11×6.1	25	25	2,650	6,270	110	930	35
96	75	13	78	9×14×8.1			3,430	8,040	147	1,380	40
116	92	13	98	9×14×8.1			6,080	15,900	397	3,400	50
134	106	18	112	11×17×11.1	30	30	7,550	20,000	530	4,060	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SMT-W-E TYPE

— Two Side Cut Double-Wide Flange Pilot End Type —

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

SMST 25 G W UU - E - SK

specification

SMT	standard
SMST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

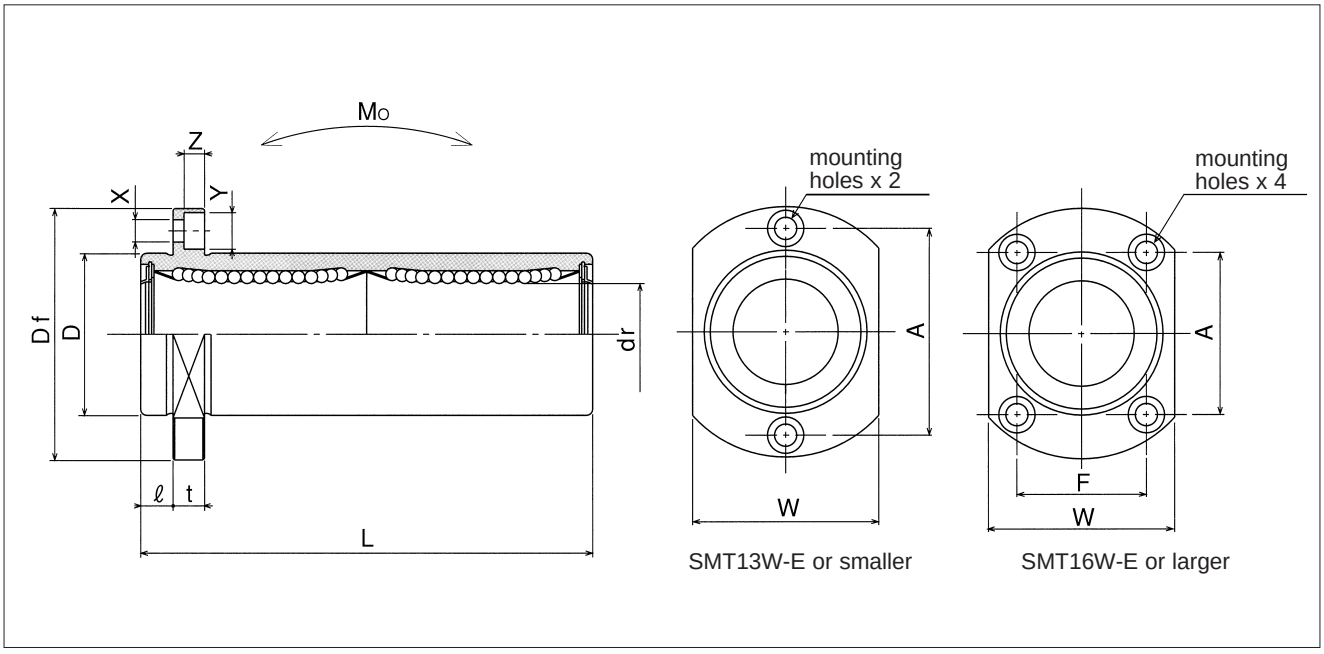
*not available in SMST type

with pilot end

seals on both sides

part number*				dr		D		L		
standard		anticorrosion								
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm	Df mm
SMT 6WUU-E	**SMT 6GWUU-E**	**SMST 6WUU-E**	**SMST 6GWUU-E**	6	0 −10	12	0 −13	35	5	28
SMT 8WUU-E	**SMT 8GWUU-E**	**SMST 8WUU-E**	**SMST 8GWUU-E**	8		15		45	5	32
SMT10WUU-E	**SMT10GWUU-E**	**SMST10WUU-E**	**SMST10GWUU-E**	10		19	0 −16	55	6	40
SMT12WUU-E	**SMT12GWUU-E**	**SMST12WUU-E**	**SMST12GWUU-E**	12		21		57	6	42
SMT13WUU-E	**SMT13GWUU-E**	**SMST13WUU-E**	**SMST13GWUU-E**	13		23		61	6	43
SMT16WUU-E	**SMT16GWUU-E**	**SMST16WUU-E**	**SMST16GWUU-E**	16		28		70	6	48
SMT20WUU-E	**SMT20GWUU-E**	**SMST20WUU-E**	**SMST20GWUU-E**	20	0 −12	32	0 −19	80	8	54
SMT25WUU-E	**SMT25GWUU-E**	**SMST25WUU-E**	**SMST25GWUU-E**	25		40		112	8	62
SMT30WUU-E	**SMT30GWUU-E**	**SMST30WUU-E**	**SMST30GWUU-E**	30		45		123	10	74

* UU type is standard feature.



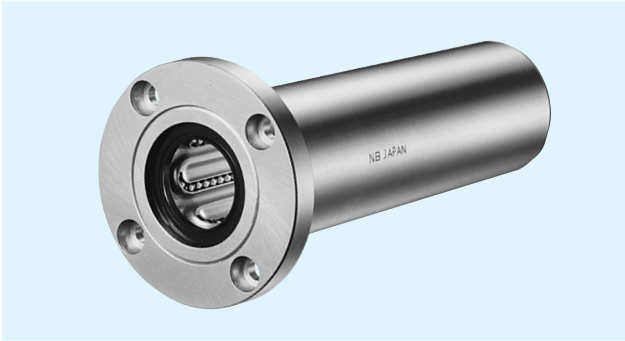
major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
W	t	A	F	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
18	5	20	—	3.5×6×3.1	15	15	323	530	2.18	28	6
21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
25	6	29	—	4.5×7.5×4.1			588	1,100	7.24	90	10
27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
38	8	36	24	5.5×9×5.1	20	20	1,400	2,740	26.8	247	20
46	8	40	32	5.5×9×5.1			1,560	3,140	43.4	525	25
51	10	49	35	6.6×11×6.1			2,490	5,490	82.8	645	30

1N≒0.102kgf　1N・m≒0.102kgf・m

TRF TYPE

− Triple-Wide Round Flange Type −

This type is a metric dimension series widely used in Japan and other countries.



part number structure example

TRF | **25** | **G** | **UU** - **Q**

- TRF type
- inner contact diameter
- retainer material

blank	steel
G	resin

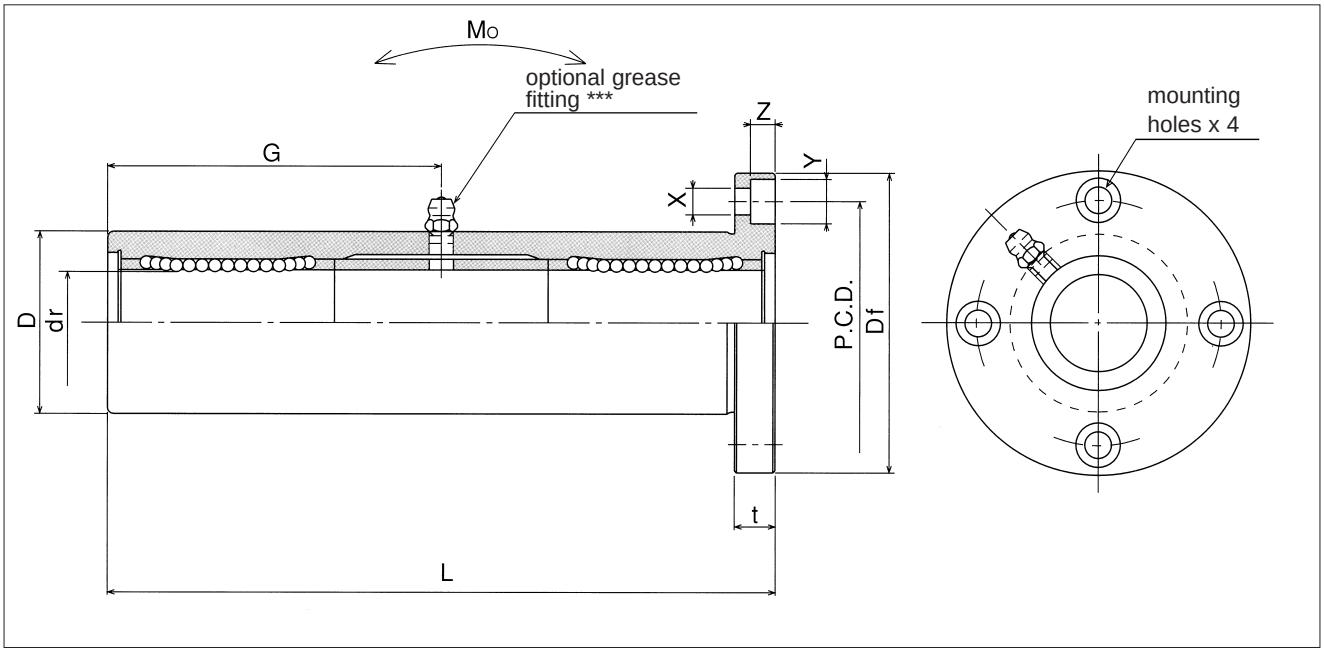
- grease fitting

blank	without
Q	grease fitting

- seals on both sides

part number*		dr		D		L	
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	Df mm
TRF 6UU	**TRF 6GUU**	6	0 −12	15	0/−18	51	32
TRF 8UU	**TRF 8GUU**	8		19	0 −21	66	40
TRF10UU	**TRF10GUU**	10		23		80	43
TRF12UU	**TRF12GUU**	12	0 −15	26		84	46
TRF13UU	**TRF13GUU**	13		28		90	48
TRF16UU	**TRF16GUU**	16		32	0 −25	103	54
TRF20UU	**TRF20GUU**	20	0 −18	40		118	62
TRF25UU	**TRF25GUU**	25		45		165	74
TRF30UU	**TRF30GUU**	30		52	0 −30	182	82
TRF35UU	**TRF35GUU**	35	0 −21	60		200	96
TRF40UU	**TRF40GUU**	40		65		230	101
TRF50UU	**TRF50GUU**	50		85	0 −35	290	129
TRF60UU	**TRF60GUU**	60	0/−25	100		310	144

* UU type is standard feature.
** Outer cylinder is treated with electroless nickel plating.
*** TRF6~8: A-MT6x1 TRF10~30: A-M6F TRF35~60: A-PT1/8



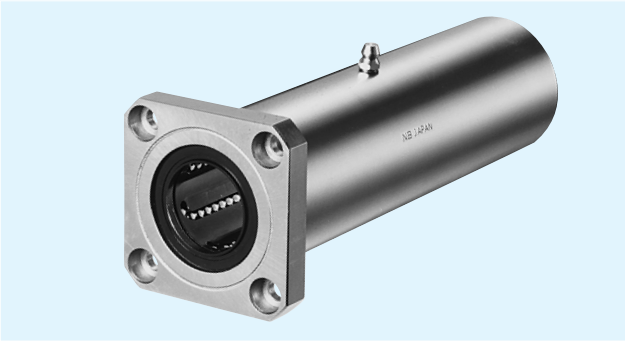
major dimensions			grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	66	6
6	29	4.5×7.5×4.1	29			431	784	16.0	135	8
6	33	4.5×7.5×4.1	38			588	1,100	27.0	205	10
6	36	4.5×7.5×4.1	41			813	1,570	40.1	248	12
6	38	4.5×7.5×4.1	45			813	1,570	42.9	308	13
8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	412	16
8	51	5.5×9×5.1	59			1,400	2,740	98.0	752	20
10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,244	25
10	67	6.6×11×6.1	91			2,490	5,490	297	1,636	30
13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,580	35
13	83	9×14×8.1	115			3,430	8,040	553	2,950	40
18	107	11×17×11.1	145			6,080	15,900	1,370	6,860	50
18	122	11×17×11.1	155			7,550	20,000	1,800	9,660	60

1N≒0.102kgf　1N・m≒0.102kgf・m

TRK TYPE

− Triple-Wide Square Flange Type −

This type is a metric dimension series widely used in Japan and other countries.



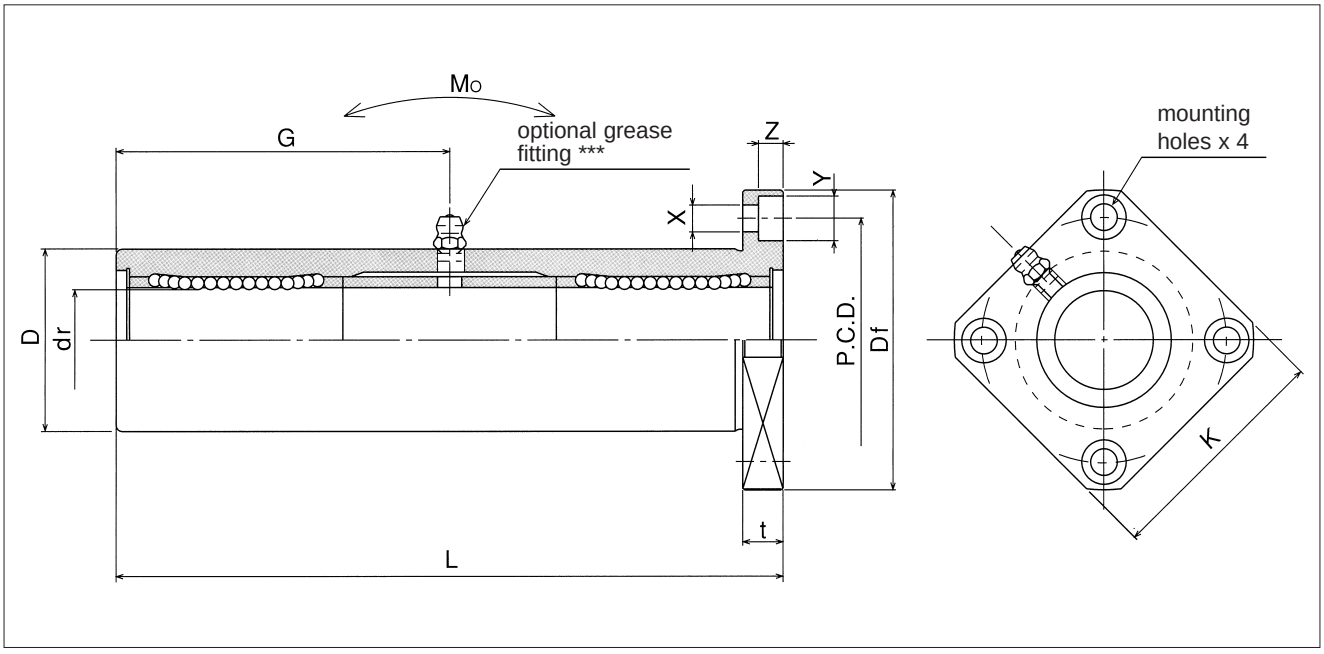
part number structure example

TRK | 25 | G | UU | - | Q

- TRK: TRK type
- 25: inner contact diameter
- G: retainer material (blank: steel; G: resin)
- UU: seals on both sides
- Q: grease fitting (blank: without; Q: grease fitting)

part number*		dr		D		L	
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	Df mm
TRK 6UU	**TRK 6GUU**	6	0 −12	15	0/−18	51	32
TRK 8UU	**TRK 8GUU**	8		19	0 −21	66	40
TRK10UU	**TRK10GUU**	10		23		80	43
TRK12UU	**TRK12GUU**	12	0 −15	26		84	46
TRK13UU	**TRK13GUU**	13		28		90	48
TRK16UU	**TRK16GUU**	16		32	0 −25	103	54
TRK20UU	**TRK20GUU**	20	0 −18	40		118	62
TRK25UU	**TRK25GUU**	25		45		165	74
TRK30UU	**TRK30GUU**	30		52	0 −30	182	82
TRK35UU	**TRK35GUU**	35	0 −21	60		200	96
TRK40UU	**TRK40GUU**	40		65		230	101
TRK50UU	**TRK50GUU**	50		85	0 −35	290	129
TRK60UU	**TRK60GUU**	60	0/−25	100		310	144

* UU type is standard feature.
** Outer cylinder is electroless nickel plated.
*** TRK6~8: A-MT6x1 TRK10~30: A-M6F TRK35~60: A-PT1/8



major dimensions				grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
K	t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
25	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	58	6
30	6	29	4.5×7.5×4.1	29			431	784	16.0	117	8
34	6	33	4.5×7.5×4.1	38			588	1,100	27.0	189	10
35	6	36	4.5×7.5×4.1	41			813	1,570	40.1	228	12
37	6	38	4.5×7.5×4.1	45			813	1,570	42.9	286	13
42	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	376	16
50	8	51	5.5×9×5.1	59			1,400	2,740	98.0	714	20
58	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,163	25
64	10	67	6.6×11×6.1	91			2,490	5,490	297	1,543	30
75	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,400	35
80	13	83	9×14×8.1	115			3,430	8,040	553	2,510	40
100	18	107	11×17×11.1	145			6,080	15,900	1,370	6,400	50
116	18	122	11×17×11.1	155			7,550	20,000	1,800	9,200	60

1N≒0.102kgf　1N・m≒0.102kgf・m

TRFC TYPE

— Triple-Wide Intermediate Position Round Flange Type —

This type is a metric dimension series widely used in Japan and other countries.

part number structure example

TRFC **25** **G** **UU** - **Q**

- TRFC type
- inner contact diameter
- retainer material

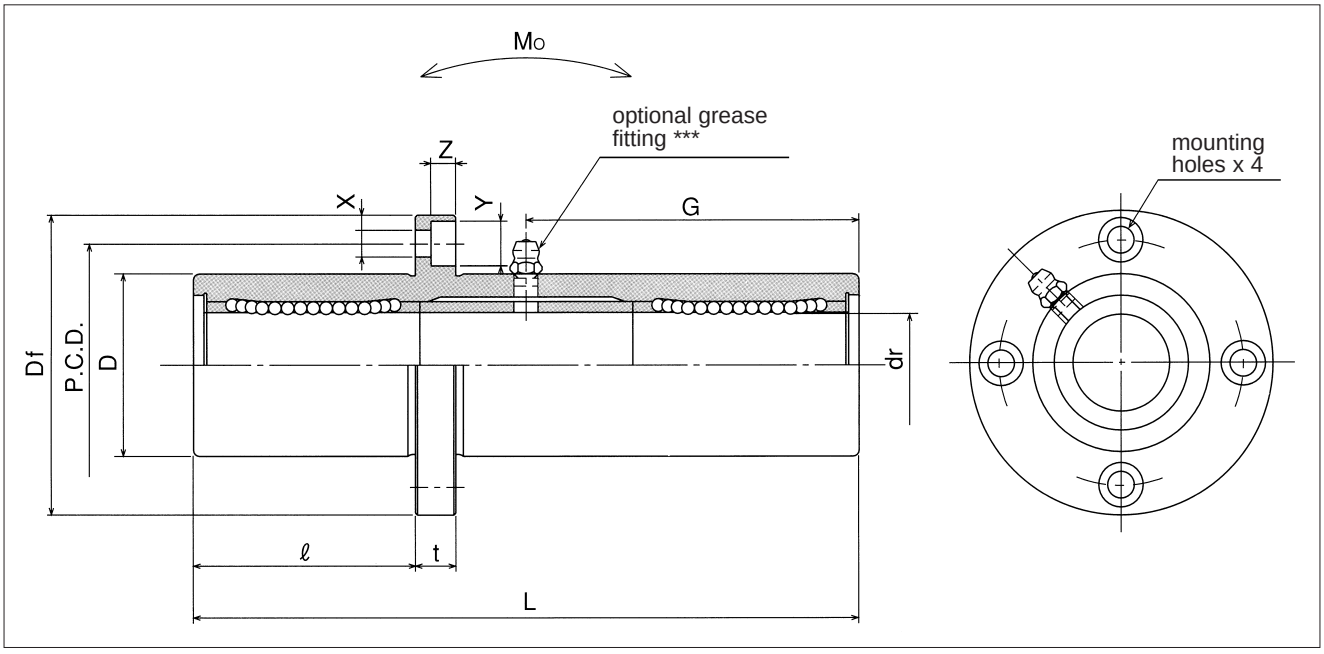
blank	steel
G	resin

- seals on both sides
- grease fitting

blank	without
Q	grease fitting

part number*		dr		D		L	ℓ
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	mm
TRFC 6UU	**TRFC 6GUU**	6	0 −12	15	0/−18	51	17
TRFC 8UU	**TRFC 8GUU**	8		19	0 −21	66	22
TRFC10UU	**TRFC10GUU**	10		23		80	27
TRFC12UU	**TRFC12GUU**	12	0 −15	26		84	28
TRFC13UU	**TRFC13GUU**	13		28		90	30
TRFC16UU	**TRFC16GUU**	16		32	0 −25	103	35
TRFC20UU	**TRFC20GUU**	20	0 −18	40		118	40
TRFC25UU	**TRFC25GUU**	25		45		165	55
TRFC30UU	**TRFC30GUU**	30		52	0 −30	182	61
TRFC35UU	**TRFC35GUU**	35	0 −21	60		200	67
TRFC40UU	**TRFC40GUU**	40		65		230	77
TRFC50UU	**TRFC50GUU**	50		85	0 −35	290	97
TRFC60UU	**TRFC60GUU**	60	0/−25	100		310	104

* UU type seal is standard feature.
** Outer cylinder is electroless nickel plated.
*** TRFC6~8: A-MT6x1 TRFC10~30: A-M6F TRFC35~60: A-PT1/8



major dimensions				grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df	t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	66	6
40	6	29	4.5×7.5×4.1	29			431	784	16.0	135	8
43	6	33	4.5×7.5×4.1	38			588	1,100	27.0	205	10
46	6	36	4.5×7.5×4.1	41			813	1,570	40.1	248	12
48	6	38	4.5×7.5×4.1	45			813	1,570	42.9	308	13
54	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	412	16
62	8	51	5.5×9×5.1	59			1,400	2,740	98.0	752	20
74	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,244	25
82	10	67	6.6×11×6.1	91			2,490	5,490	297	1,636	30
96	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,580	35
101	13	83	9×14×8.1	115			3,430	8,040	553	2,950	40
129	18	107	11×17×11.1	145			6,080	15,900	1,370	6,860	50
144	18	122	11×17×11.1	155			7,550	20,000	1,800	9,660	60

1N≒0.102kgf　1N・m≒0.102kgf・m

TRKC TYPE

— Triple-Wide Intermediate Position Square Flange Type —

This type is a metric dimension series widely used in Japan and other countries.

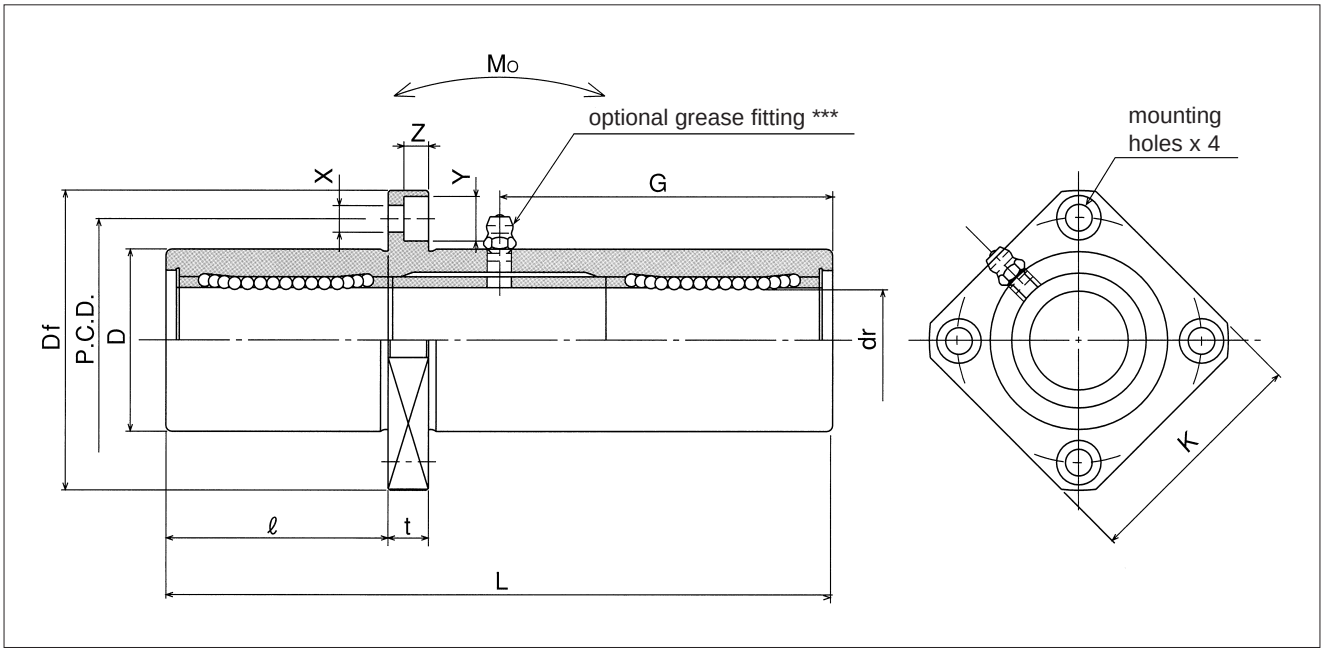
part number structure example

TRKC **25** **G** **UU** - **Q**

- TRKC: TRKC type
- 25: inner contact diameter
- G: retainer material (blank: steel; G: resin)
- UU: seals on both sides
- Q: grease fitting (blank: without; Q: grease fitting)

part number*		dr		D		L	
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	ℓ mm
TRKC 6UU	**TRKC 6GUU**	6	0 −12	15	0/−18	51	17
TRKC 8UU	**TRKC 8GUU**	8		19	0 −21	66	22
TRKC10UU	**TRKC10GUU**	10		23		80	27
TRKC12UU	**TRKC12GUU**	12	0 −15	26		84	28
TRKC13UU	**TRKC13GUU**	13		28		90	30
TRKC16UU	**TRKC16GUU**	16		32	0 −25	103	35
TRKC20UU	**TRKC20GUU**	20	0 −18	40		118	40
TRKC25UU	**TRKC25GUU**	25		45		165	55
TRKC30UU	**TRKC30GUU**	30		52	0 −30	182	61
TRKC35UU	**TRKC35GUU**	35	0 −21	60		200	67
TRKC40UU	**TRKC40GUU**	40		65		230	77
TRKC50UU	**TRKC50GUU**	50		85	0 −35	290	97
TRKC60UU	**TRKC60GUU**	60	0/−25	100		310	104

* UU type is standard feature.
** Outer cylinder is electroless nickel plated.
*** TRKC6~8: A-MT6x1 TRKC10~30: A-M6F TRKC35~60: A-PT1/8



major dimensions					grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange								dynamic	static			
Df	K	t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	25	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	58	6
40	30	6	29	4.5×7.5×4.1	29			431	784	16.0	117	8
43	34	6	33	4.5×7.5×4.1	38			588	1,100	27.0	189	10
46	35	6	36	4.5×7.5×4.1	41			813	1,570	40.1	228	12
48	37	6	38	4.5×7.5×4.1	45			813	1,570	42.9	286	13
54	42	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	376	16
62	50	8	51	5.5×9×5.1	59			1,400	2,740	98.0	714	20
74	58	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,163	25
82	64	10	67	6.6×11×6.1	91			2,490	5,490	297	1,543	30
96	75	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,400	35
101	80	13	83	9×14×8.1	115			3,430	8,040	553	2,510	40
129	100	18	107	11×17×11.1	145			6,080	15,900	1,370	6,400	50
144	116	18	122	11×17×11.1	155			7,550	20,000	1,800	9,200	60

1N≒0.102kgf　1N・m≒0.102kgf・m

TRF-E TYPE

— Triple-Wide Round Flange Pilot End Type —

This type is a metric dimension series widely used in Japan and other countries.

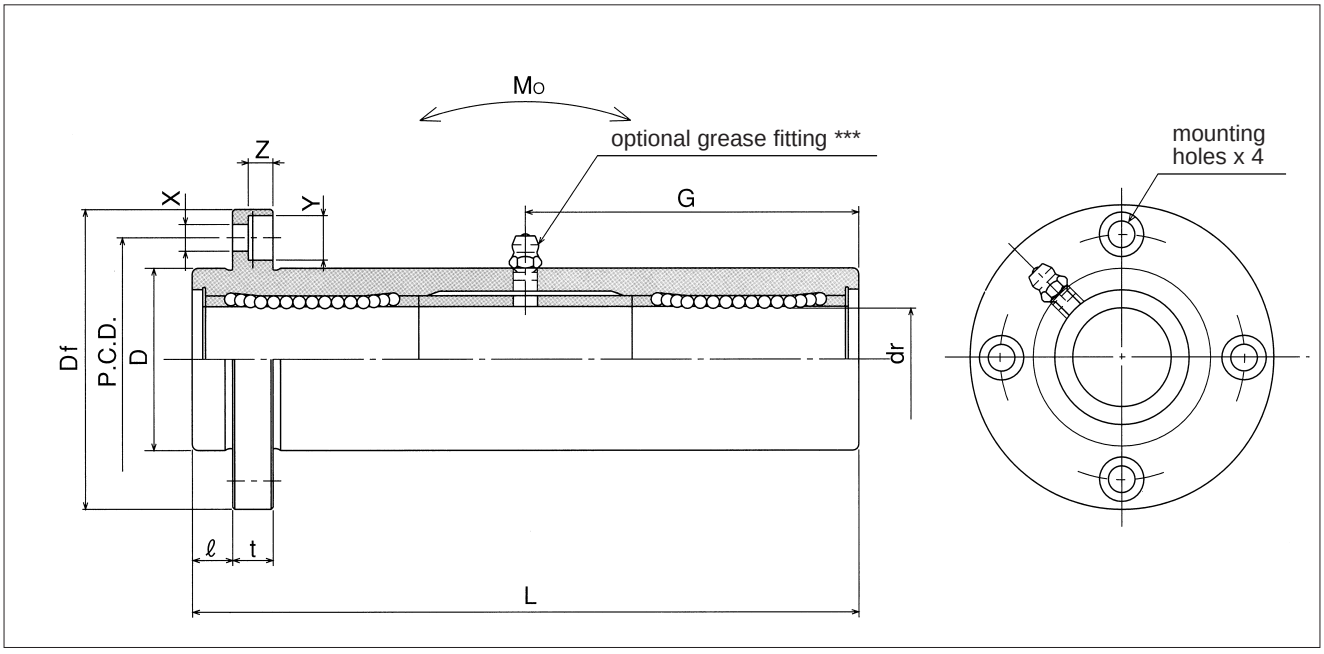
part number structure example

TRF | 25 | G | UU | - | E | - | Q

- TRF: TRF type
- 25: inner contact diameter
- G: retainer material (blank: steel; G: resin)
- UU: seals on both sides
- E: with pilot end
- Q: grease fitting (blank: without; Q: grease fitting)

part number*		dr		D		L	ℓ
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	mm
TRF 6UU-E	**TRF 6GUU-E**	6	0 −12	15	0/−18	51	5
TRF 8UU-E	**TRF 8GUU-E**	8		19	0 −21	66	6
TRF10UU-E	**TRF10GUU-E**	10		23		80	6
TRF12UU-E	**TRF12GUU-E**	12	0 −15	26		84	6
TRF13UU-E	**TRF13GUU-E**	13		28		90	6
TRF16UU-E	**TRF16GUU-E**	16		32	0 −25	103	8
TRF20UU-E	**TRF20GUU-E**	20	0 −18	40		118	8
TRF25UU-E	**TRF25GUU-E**	25		45		165	10
TRF30UU-E	**TRF30GUU-E**	30		52	0 −30	182	10
TRF35UU-E	**TRF35GUU-E**	35	0 −21	60		200	13
TRF40UU-E	**TRF40GUU-E**	40		65		230	13
TRF50UU-E	**TRF50GUU-E**	50		85	0 −35	290	18
TRF60UU-E	**TRF60GUU-E**	60	0/−25	100		310	18

* UU type is standard feature.
** Outer cylinder is electroless nickel plated.
*** TRF6~8-E: A-MT6x1 TRF10~30-E: A-M6F TRF35~60-E: A-PT1/8



major dimensions				grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df	t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	66	6
40	6	29	4.5×7.5×4.1	29			431	784	16.0	135	8
43	6	33	4.5×7.5×4.1	38			588	1,100	27.0	205	10
46	6	36	4.5×7.5×4.1	41			813	1,570	40.1	248	12
48	6	38	4.5×7.5×4.1	45			813	1,570	42.9	308	13
54	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	412	16
62	8	51	5.5×9×5.1	59			1,400	2,740	98.0	752	20
74	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,244	25
82	10	67	6.6×11×6.1	91			2,490	5,490	297	1,636	30
96	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,580	35
101	13	83	9×14×8.1	115			3,430	8,040	553	2,950	40
129	18	107	11×17×11.1	145			6,080	15,900	1,370	6,860	50
144	18	122	11×17×11.1	155			7,550	20,000	1,800	9,660	60

1N≒0.102kgf　1N・m≒0.102kgf・m

TRK-E TYPE

– Triple-Wide Square Flange Pilot End Type –

This type is a metric dimension series widely used in Japan and other countries.

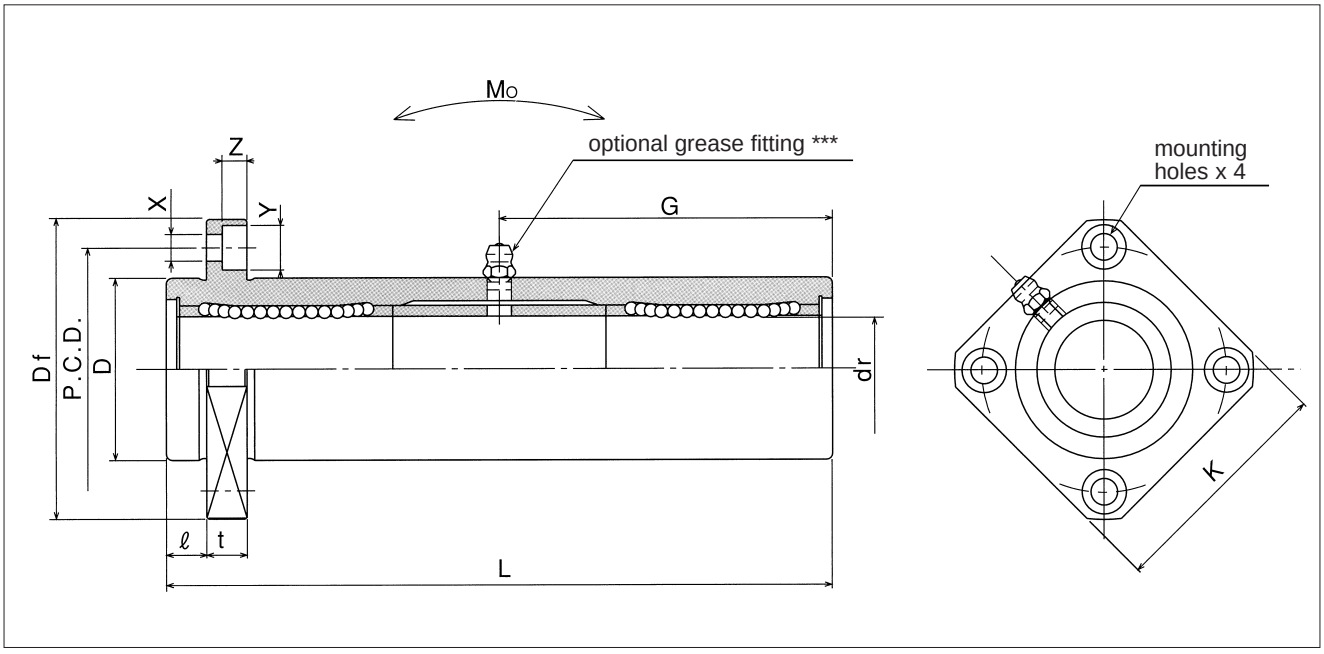
part number structure example

TRK | 25 | G | UU | - | E | - | Q

- TRK: TRK type
- 25: inner contact diameter
- G: retainer material (blank: steel; G: resin)
- UU: seals on both sides
- E: with pilot end
- Q: grease fitting (blank: without; Q: grease fitting)

part number*		dr		D		L	ℓ
steel retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm	mm
TRK 6UU-E	**TRK 6GUU-E**	6	0 −12	15	0/−18	51	5
TRK 8UU-E	**TRK 8GUU-E**	8		19	0 −21	66	6
TRK10UU-E	**TRK10GUU-E**	10		23		80	6
TRK12UU-E	**TRK12GUU-E**	12	0 −15	26		84	6
TRK13UU-E	**TRK13GUU-E**	13		28		90	6
TRK16UU-E	**TRK16GUU-E**	16		32	0 −25	103	8
TRK20UU-E	**TRK20GUU-E**	20	0 −18	40		118	8
TRK25UU-E	**TRK25GUU-E**	25		45		165	10
TRK30UU-E	**TRK30GUU-E**	30		52	0 −30	182	10
TRK35UU-E	**TRK35GUU-E**	35	0 −21	60		200	13
TRK40UU-E	**TRK40GUU-E**	40		65		230	13
TRK50UU-E	**TRK50GUU-E**	50		85	0 −35	290	18
TRK60UU-E	**TRK60GUU-E**	60	0/−25	100		310	18

* UU type is standard feature.
** Outer cylinder is electroless nickel plated.
*** TRK6~8-E: A-MT6x1 TRK10~30-E: A-M6F TRK35~60-E: A-PT1/8



major dimensions					grease fitting	eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange								dynamic	static			
Df	K	t	P.C.D.	X×Y×Z	G			C	Co	Mo		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	25	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	58	6
40	30	6	29	4.5×7.5×4.1	29			431	784	16.0	117	8
43	34	6	33	4.5×7.5×4.1	38			588	1,100	27.0	189	10
46	35	6	36	4.5×7.5×4.1	41			813	1,570	40.1	228	12
48	37	6	38	4.5×7.5×4.1	45			813	1,570	42.9	286	13
54	42	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	376	16
62	50	8	51	5.5×9×5.1	59			1,400	2,740	98.0	714	20
74	58	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,163	25
82	64	10	67	6.6×11×6.1	91			2,490	5,490	297	1,543	30
96	75	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,400	35
101	80	13	83	9×14×8.1	115			3,430	8,040	553	2,510	40
129	100	18	107	11×17×11.1	145			6,080	15,900	1,370	6,400	50
144	116	18	122	11×17×11.1	155			7,550	20,000	1,800	9,200	60

1N≒0.102kgf　1N・m≒0.102kgf・m

KB TYPE

– Standard Type –

This type is a metric dimension series generally used in Europe.

part number structure example

KBS | **25** | **G** | **UU**

specification

KB	standard
KBS	anticorrosion

inner contact diameter

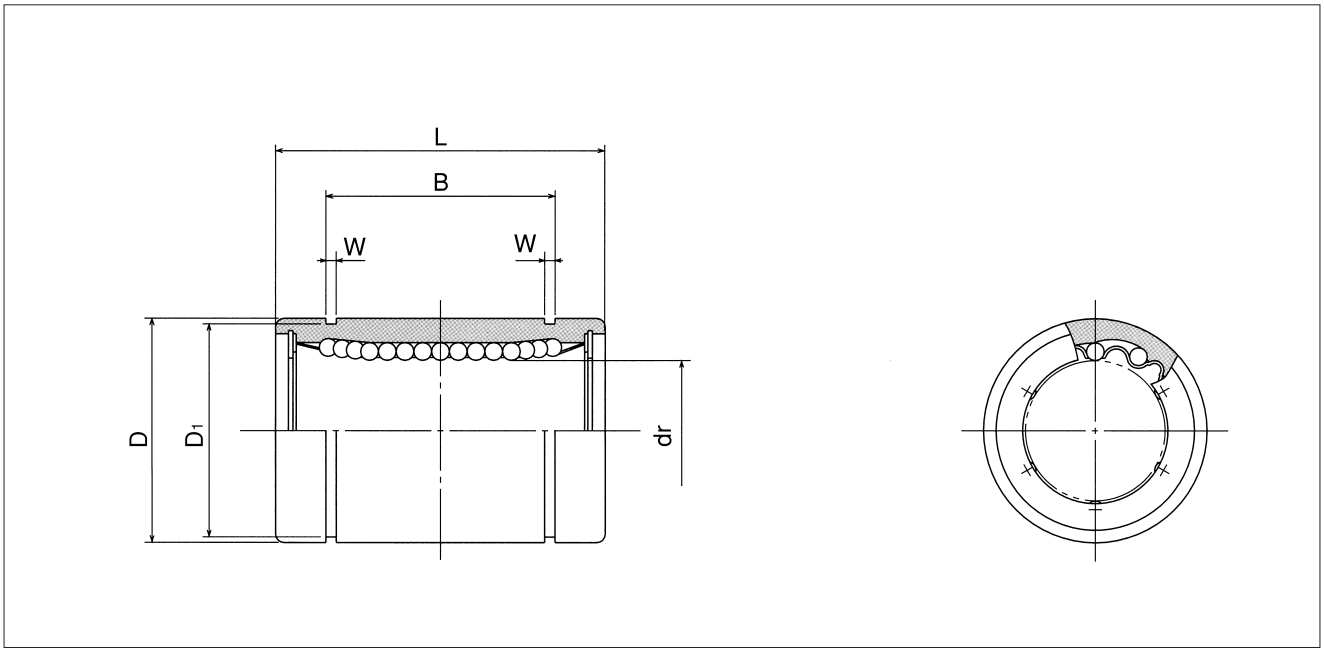
retainer material

blank	steel
G	resin

seal

blank	without seal
U	seal on one side
UU	seals on both sides

part number				number of ball circuits	dr		D	
standard		anticorrosion			mm	tolerance μm	mm	tolerance μm
steel retainer	resin retainer	stainless retainer	resin retainer					
KB 3	**KB 3G**	**KBS 3**	**KBS 3G**	4	3	+ 8 0	7	0 − 8
KB 4	**KB 4G**	**KBS 4**	**KBS 4G**	4	4		8	
KB 5	**KB 5G**	**KBS 5**	**KBS 5G**	4	5		12	
KB 8	**KB 8G**	**KBS 8**	**KBS 8G**	4	8		16	
KB10	**KB10G**	**KBS10**	**KBS10G**	4	10		19	0 − 9
KB12	**KB12G**	**KBS12**	**KBS12G**	4	12		22	
KB16	**KB16G**	**KBS16**	**KBS16G**	4	16	+ 9 − 1	26	
KB20	**KB20G**	**KBS20**	**KBS20G**	5	20		32	0 −11
KB25	**KB25G**	**KBS25**	**KBS25G**	6	25	+11 − 1	40	
KB30	**KB30G**	**KBS30**	**KBS30G**	6	30		47	
KB40	**KB40G**	**KBS40**	**KBS40G**	6	40	+13 − 2	62	0 −13
KB50	**KB50G**	**KBS50**	**KBS50G**	6	50		75	
KB60	**KB60G**	**KBS60**	**KBS60G**	6	60		90	0 −15
KB80	–	–	–	6	80	+16/−4	120	



major dimensions						eccentricity	radial clearance (maximum)	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D1			dynamic C	static Co		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
10	0 −0.12	−	−	−	−	10	− 3	69	105	1.4	3
12		−	−	−	−			88	127	2	4
22	0 −0.2	14.5	0 −0.2	1.1	11.5	12		206	265	11	5
25		16.5		1.1	15.2			265	402	22	8
29		22		1.3	18		− 4	372	549	36	10
32		22.9		1.3	21			510	784	45	12
36		24.9		1.3	24.9			578	892	60	16
45		31.5		1.6	30.3	15	− 6	862	1,370	102	20
58	0 −0.3	44.1	0 −0.3	1.85	37.5			980	1,570	235	25
68		52.1		1.85	44.5		− 8	1,570	2,740	360	30
80		60.6		2.15	59	17		2,160	4,020	770	40
100		77.6		2.65	72		−13	3,820	7,940	1,250	50
125	0 −0.4	101.7	0 −0.4	3.15	86.5	20		4,700	9,800	2,220	60
165		133.7		4.15	116		−20	7,350	16,000	5,140	80

1N≒0.102kgf

KB-AJ TYPE

– Clearance Adjustable Type –

This type is a metric dimension series generally used in Europe.

part number structure example

KBS | 25 | G | UU - AJ

specification

KB	standard
KBS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

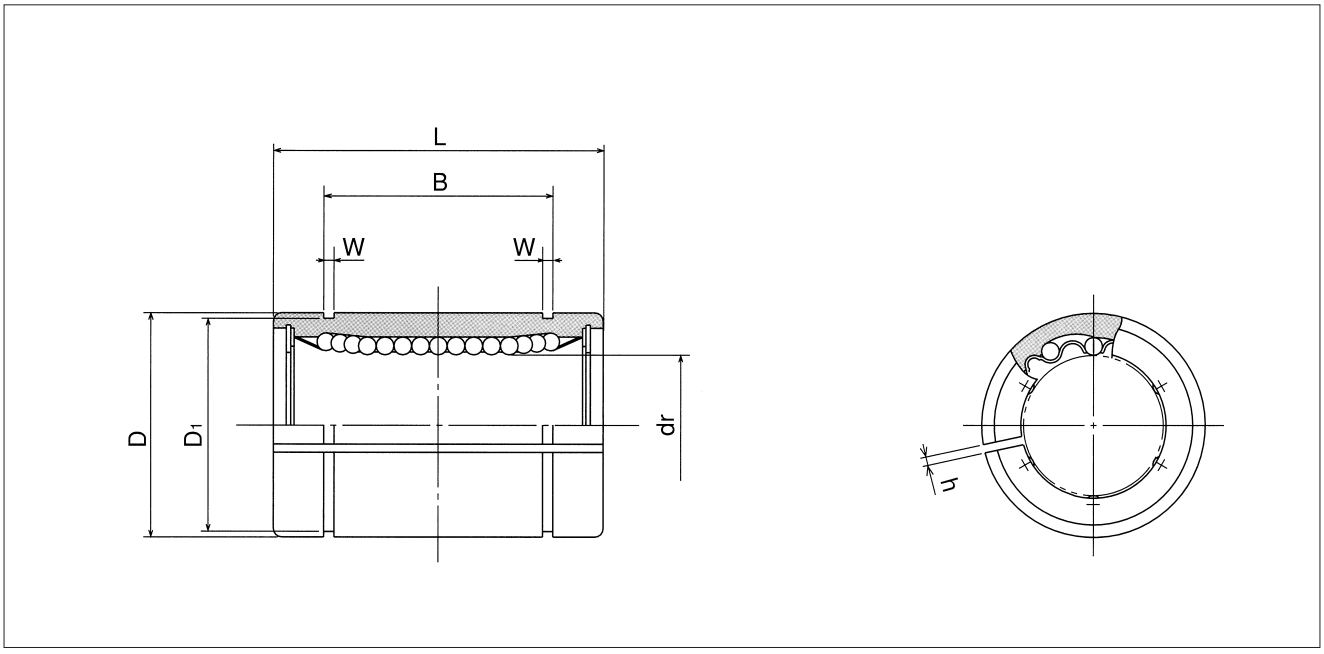
clearance-adjustable type

seal

blank	without seal
U	seal on one side
UU	seals on both sides

part number				number of ball circuits	dr		D	
standard		anticorrosion			mm	tolerance* μm	mm	tolerance* μm
steel retainer	resin retainer	stainless retainer	resin retainer					
–	**KB 5G-AJ**	–	**KBS 5G-AJ**	4	5	+ 8 0	12	0 − 8
–	**KB 8G-AJ**	–	**KBS 8G-AJ**	4	8		16	
–	**KB10G-AJ**	–	**KBS10G-AJ**	4	10		19	0 − 9
KB12-AJ	**KB12G-AJ**	**KBS12-AJ**	**KBS12G-AJ**	4	12		22	
KB16-AJ	**KB16G-AJ**	**KBS16-AJ**	**KBS16G-AJ**	4	16	+ 9 − 1	26	
KB20-AJ	**KB20G-AJ**	**KBS20-AJ**	**KBS20G-AJ**	5	20		32	0 −11
KB25-AJ	**KB25G-AJ**	**KBS25-AJ**	**KBS25G-AJ**	6	25	+11 − 1	40	
KB30-AJ	**KB30G-AJ**	**KBS30-AJ**	**KBS30G-AJ**	6	30		47	
KB40-AJ	**KB40G-AJ**	**KBS40-AJ**	**KBS40G-AJ**	6	40	+13 − 2	62	0 −13
KB50-AJ	**KB50G-AJ**	**KBS50-AJ**	**KBS50G-AJ**	6	50		75	
KB60-AJ	**KB60G-AJ**	**KBS60-AJ**	**KBS60G-AJ**	6	60		90	0 −15
KB80-AJ	–	–	–	6	80	+16/−4	120	

* Accuracy is measured prior to machining clearance slot.



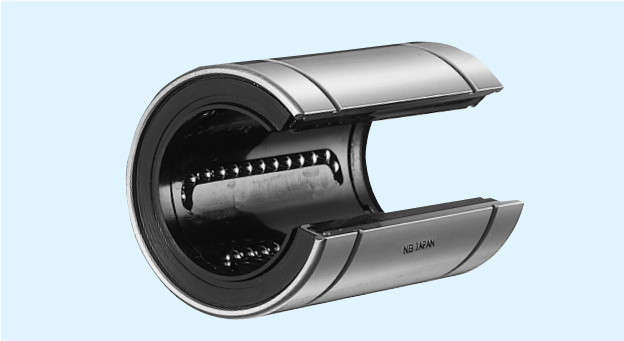
major dimensions							eccentricity*	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D_1	h		dynamic C	static Co		
mm	mm	mm	mm	mm	mm	mm	μm	N	N	g	mm
22		14.5		1.1	11.5	1		206	265	10	5
25		16.5		1.1	15.2	1		265	402	19.5	8
29	0	22	0	1.3	18	1	12	372	549	29	10
32	−0.2	22.9	−0.2	1.3	21	1.5		510	784	44	12
36		24.9		1.3	24.9	1.5		578	892	59	16
45		31.5		1.6	30.3	2		862	1,370	100	20
58		44.1		1.85	37.5	2	15	980	1,570	230	25
68	0	52.1	0	1.85	44.5	2		1,570	2,740	355	30
80	−0.3	60.6	−0.3	2.15	59	3	17	2,160	4,020	758	40
100		77.6		2.65	72	3		3,820	7,940	1,230	50
125	0	101.7	0	3.15	86.5	3	20	4,700	9,800	2,170	60
165	−0.4	133.7	−0.4	4.15	116	3		7,350	16,000	5,000	80

1N≒0.102kgf

KB-OP TYPE

− Open Type −

This type is a metric dimension series generally used in Europe.



part number structure example

KBS | 25 | G | UU | - | OP

specification

KB	standard
KBS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

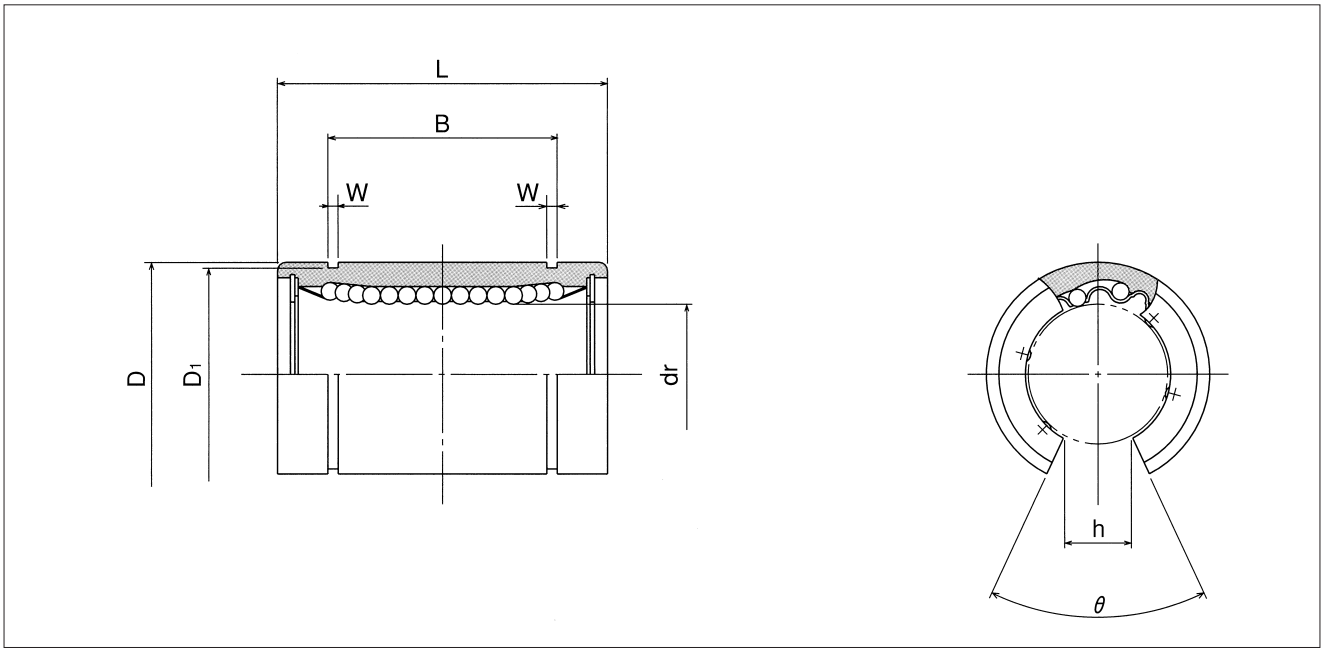
seal

blank	without seal
U	seal on one side
UU	seals on both sides

open type

part number				number of ball circuits	dr		D	
standard		anticorrosion			mm	tolerance* μm	mm	tolerance* μm
steel retainer	resin retainer	stainless retainer	resin retainer					
−	**KB10G-OP**	−	**KBS10G-OP**	3	10	+ 8	19	0
KB12-OP	**KB12G-OP**	**KBS12-OP**	**KBS12G-OP**	3	12	0	22	− 9
KB16-OP	**KB16G-OP**	**KBS16-OP**	**KBS16G-OP**	3	16	+ 9	26	
KB20-OP	**KB20G-OP**	**KBS20-OP**	**KBS20G-OP**	4	20	− 1	32	0
KB25-OP	**KB25G-OP**	**KBS25-OP**	**KBS25G-OP**	5	25	+11	40	−11
KB30-OP	**KB30G-OP**	**KBS30-OP**	**KBS30G-OP**	5	30	− 1	47	
KB40-OP	**KB40G-OP**	**KBS40-OP**	**KBS40G-OP**	5	40	+13	62	0
KB50-OP	**KB50G-OP**	**KBS50-OP**	**KBS50G-OP**	5	50	− 2	75	−13
KB60-OP	**KB60G-OP**	**KBS60-OP**	**KBS60G-OP**	5	60		90	0
KB80-OP	−	−	−	5	80	+16/−4	120	−15

* Accuracy is measured prior to machining open slot.



major dimensions								eccentricity	basic load rating		mass	shaft diameter
L	tolerance	B	tolerance	W	D1	h	θ		dynamic C	static Co		
mm	mm	mm	mm	mm	mm	mm		μm	N	N	g	mm
29	0 −0.2	22	0 −0.2	1.3	18	6.8	80°	12	372	549	23	10
32		22.9		1.3	21	7.5	78°		510	784	35	12
36		24.9		1.3	24.9	10	78°		578	892	48	16
45		31.5		1.6	30.3	10	60°	15	862	1,370	84	20
58	0 −0.3	44.1	0 −0.3	1.85	37.5	12.5	60°		980	1,570	195	25
68		52.1		1.85	44.5	12.5	50°		1,570	2,740	309	30
80		60.6		2.15	59	16.8	50°	17	2,160	4,020	665	40
100		77.6		2.65	72	21	50°		3,820	7,940	1,080	50
125	0 −0.4	101.7	0 −0.4	3.15	86.5	27.2	54°	20	4,700	9,800	1,900	60
165		133.7		4.15	116	36.3	54°		7,350	16,000	4,380	80

1N≒0.102kgf

KB-W TYPE

– Double-Wide Type –

This type is a metric dimension series generally used in Europe.

part number structure example

KBS | 25 | G | W | UU

specification

KB	standard
KBS	anticorrosion

inner contact diameter

retainer material

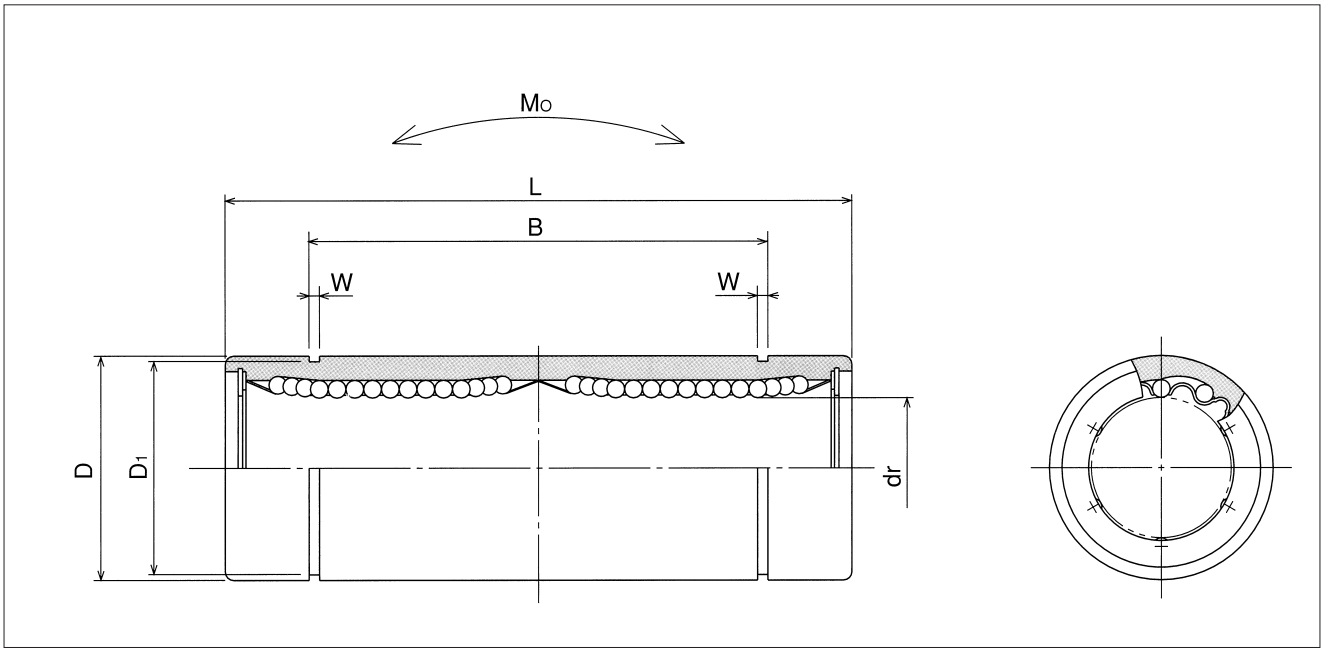
blank	steel
G	resin

seal

blank	without seal
UU	seals on both sides

double-wide type

part number				number of ball circuits	dr		D	
standard		anticorrosion			mm	tolerance μm	mm	tolerance μm
steel retainer	resin retainer	stainless retainer	resin retainer					
KB 8W	**KB 8GW**	**KBS 8W**	**KBS 8GW**	4	8	+ 9 − 1	16	0/−9
KB12W	**KB12GW**	**KBS12W**	**KBS12GW**	4	12		22	0 −11
KB16W	**KB16GW**	**KBS16W**	**KBS16GW**	4	16	+11 − 1	26	
KB20W	**KB20GW**	**KBS20W**	**KBS20GW**	5	20		32	0 −13
KB25W	**KB25GW**	**KBS25W**	**KBS25GW**	6	25	+13 − 2	40	
KB30W	**KB30GW**	**KBS30W**	**KBS30GW**	6	30		47	
KB40W	**KB40GW**	**KBS40W**	**KBS40GW**	6	40	+16 − 4	62	0 −15
KB50W	**KB50GW**	**KBS50W**	**KBS50GW**	6	50		75	
KB60W	**KB60GW**	**KBS60W**	**KBS60GW**	6	60		90	0/−20



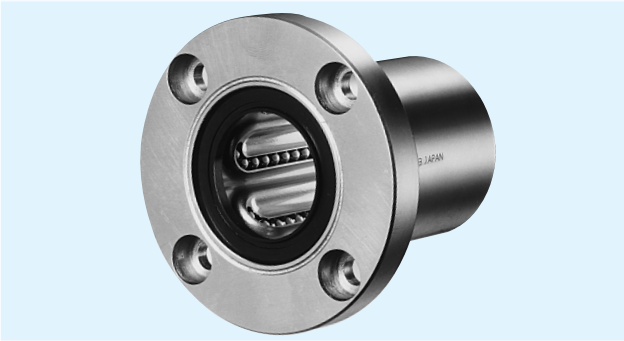
major dimensions						eccentricity	basic load rating		Allowable static moment	mass	shaft diameter
L	tolerance	B	tolerance	W	D1		dynamic C	static Co	Mo		
mm	mm	mm	mm	mm	mm	μm	N	N	N・m	g	mm
46	0 −0.3	33	0 −0.3	1.1	15.2	15	421	804	4.3	40	8
61		45.8		1.3	21		813	1,570	11.7	80	12
68		49.8		1.3	24.9		921	1,780	14.2	115	16
80		61		1.6	30.5	17	1,370	2,740	25.0	180	20
112	0 −0.4	82	0 −0.4	1.85	38		1,570	3,140	44.0	430	25
123		104.2		1.85	44.5		2,500	5,490	78.9	615	30
151		121.2		2.15	59	20	3,430	8,040	147	1,400	40
192		155.2		2.65	72		6,080	15,900	396	2,320	50
209		170		3.15	86.5	25	7,550	20,000	487	3,920	60

1N≒0.102kgf　1N・m≒0.102kgf・m

KBF TYPE

– Round Flange Type –

This type is a metric dimension series generally used in Europe.



part number structure example

KBSF | 25 | G | UU | - | SK

specification

KBF	standard
KBSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

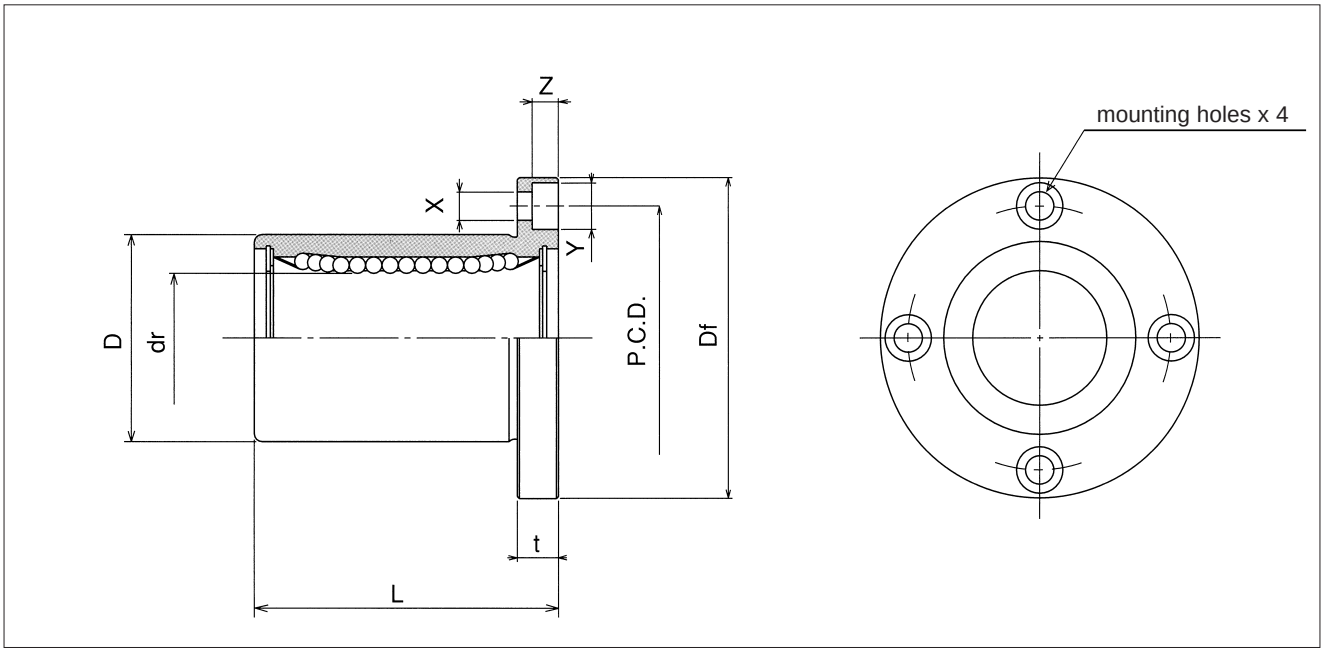
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
–	**KBF 5G**	–	**KBSF 5G**	5	+ 8 0	12	0 −13	22
KBF 8	**KBF 8G**	**KBSF 8**	**KBSF 8G**	8		16		25
KBF12	**KBF12G**	**KBSF12**	**KBSF12G**	12		22	0 −16	32
KBF16	**KBF16G**	**KBSF16**	**KBSF16G**	16	+ 9 − 1	26		36
KBF20	**KBF20G**	**KBSF20**	**KBSF20G**	20		32	0 −19	45
KBF25	**KBF25G**	**KBSF25**	**KBSF25G**	25	+11 − 1	40		58
KBF30	**KBF30G**	**KBSF30**	**KBSF30G**	30		47		68
KBF40	**KBF40G**	**KBSF40**	**KBSF40G**	40	+13 − 2	62	0 −22	80
KBF50	**KBF50G**	**KBSF50**	**KBSF50G**	50		75		100
KBF60	**KBF60G**	**KBSF60**	**KBSF60G**	60		90	0 −25	125
KBF80	–	–	–	80	+16/−4	120		165



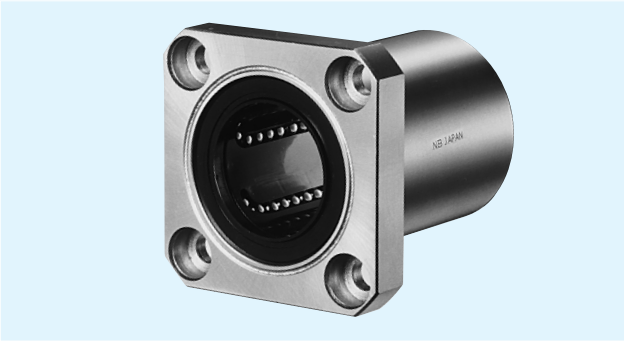
major dimensions				eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange						dynamic	static		
Df	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	μm	μm	N	N	g	mm
28	5	20	3.5×6×3.1	12	12	206	265	26	5
32	5	24	3.5×6×3.1			265	402	41	8
42	6	32	4.5×7.5×4.1			510	784	80	12
46	6	36	4.5×7.5×4.1			578	892	103	16
54	8	43	5.5×9×5.1	15	15	862	1,370	182	20
62	8	51	5.5×9×5.1			980	1,570	335	25
76	10	62	6.6×11×6.1			1,570	2,740	560	30
98	13	80	9×14×8.1	17	17	2,160	4,020	1,175	40
112	13	94	9×14×8.1			3,820	7,940	1,745	50
134	18	112	11×17×11.1	20	20	4,700	9,800	3,220	60
164	18	142	11×17×11.1			7,350	16,000	6,420	80

1N≒0.102kgf

KBK TYPE

– Square Flange Type –

This type is a metric dimension series generally used in Europe.



part number structure example

KBSK | 25 | G | UU | - | SK

specification

KBK	standard
KBSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

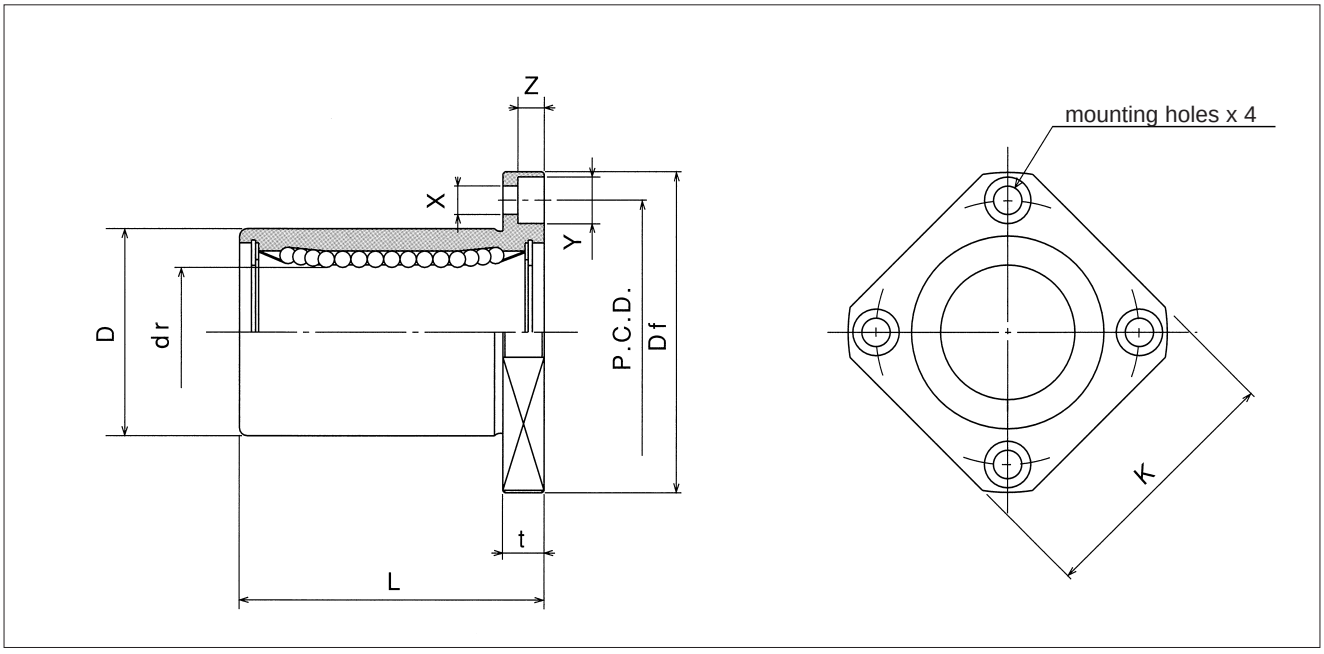
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSK type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
–	**KBK 5G**	–	**KBSK 5G**	5	+ 8 0	12	0 −13	22
KBK 8	**KBK 8G**	**KBSK 8**	**KBSK 8G**	8		16		25
KBK12	**KBK12G**	**KBSK12**	**KBSK12G**	12		22	0 −16	32
KBK16	**KBK16G**	**KBSK16**	**KBSK16G**	16	+ 9 − 1	26		36
KBK20	**KBK20G**	**KBSK20**	**KBSK20G**	20		32	0 −19	45
KBK25	**KBK25G**	**KBSK25**	**KBSK25G**	25	+11 − 1	40		58
KBK30	**KBK30G**	**KBSK30**	**KBSK30G**	30		47		68
KBK40	**KBK40G**	**KBSK40**	**KBSK40G**	40	+13 − 2	62	0 −22	80
KBK50	**KBK50G**	**KBSK50**	**KBSK50G**	50		75		100
KBK60	**KBK60G**	**KBSK60**	**KBSK60G**	60		90	0 −25	125
KBK80	–	–	–	80	+16/−4	120		165



major dimensions					eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange							dynamic	static		
Df	K	t	P.C.D.	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
28	22	5	20	3.5×6×3.1	12	12	206	265	20	5
32	25	5	24	3.5×6×3.1			265	402	33	8
42	32	6	32	4.5×7.5×4.1			510	784	64	12
46	35	6	36	4.5×7.5×4.1			578	892	90	16
54	42	8	43	5.5×9×5.1	15	15	862	1,370	147	20
62	50	8	51	5.5×9×5.1			980	1,570	295	25
76	60	10	62	6.6×11×6.1			1,570	2,740	465	30
98	75	13	80	9×14×8.1	17	17	2,160	4,020	975	40
112	88	13	94	9×14×8.1			3,820	7,940	1,545	50
134	106	18	112	11×17×11.1	20	20	4,700	9,800	2,780	60
164	136	18	142	11×17×11.1			7,350	16,000	5,920	80

1N≒0.102kgf

KBT TYPE

− Two Side Cut Flange Type −

KBT type is a metric dimension series generally used in Europe.

part number structure example

KBST **12** **G** **UU** - **SK**

specification

KBT	standard
KBST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seals on both sides

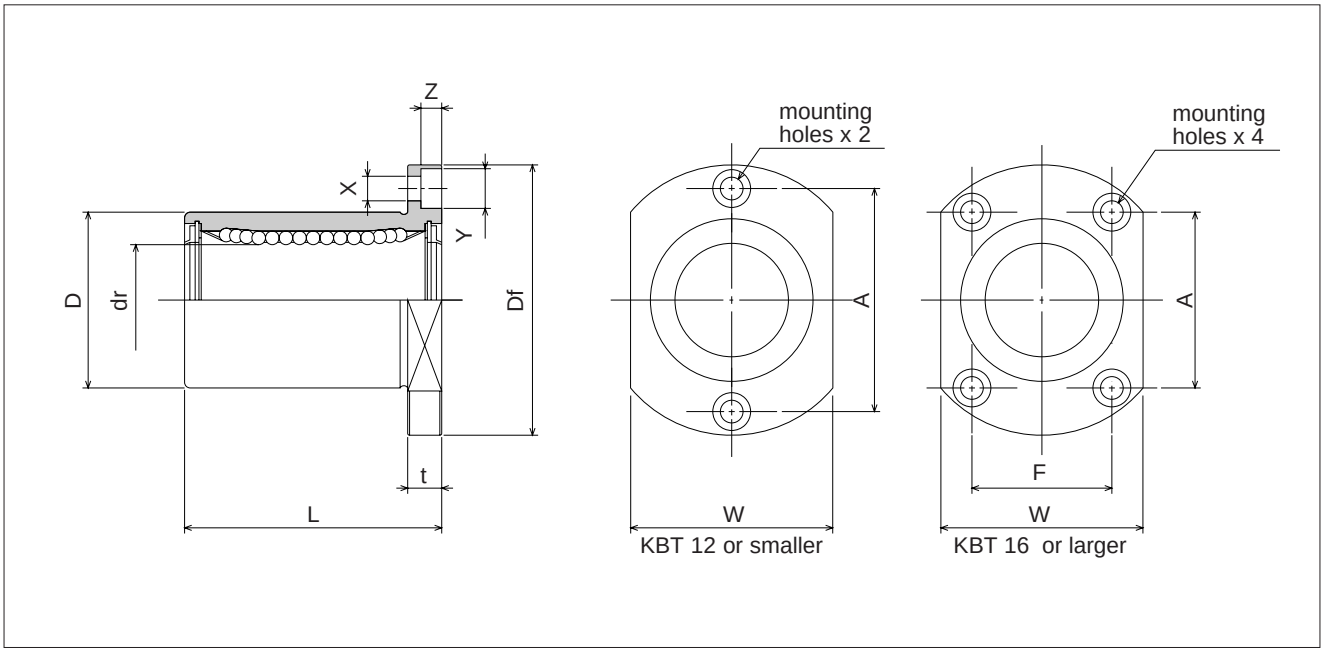
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in anticorrosion type

part number**				number of ball circuits	dr		D		L
standard		anticorrosion			mm	tolerance μm	mm	tolerance μm	±0.3 mm
steel retainer	resin retainer	stainless retainer	resin retainer						
KBT 5UU	**KBT 5GUU**	**KBST 5UU**	**KBST 5GUU**	4	5	+8 0	12	0 −13	22
KBT 8UU	**KBT 8GUU**	**KBST 8UU**	**KBST 8GUU**	4	8		16		25
KBT12UU	**KBT12GUU**	**KBST12UU**	**KBST12GUU**	4	12		22	0 −16	32
KBT16UU	**KBT16GUU**	**KBST16UU**	**KBST16GUU**	4	16	+9 −1	26		36
KBT20UU	**KBT20GUU**	**KBST20UU**	**KBST20GUU**	5	20		32	0 −19	45
KBT25UU	**KBT25GUU**	**KBST25UU**	**KBST25GUU**	6	25	+11 −1	40		58
KBT30UU	**KBT30GUU**	**KBST30UU**	**KBST30GUU**	6	30		47		68

** UU type is standard feature.



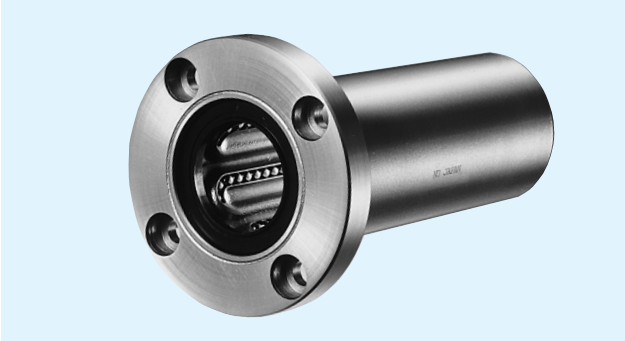
major dimensions						eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange								dynamic	static		
Df	W	t	A	F	X×Y×Z			C	Co		
mm	mm	mm	mm	mm	mm	μm	μm	N	N	g	mm
28	18	5	20	-	3.5× 6 ×3.1	12	12	206	265	25	5
32	22	5	24	-	3.5× 6 ×3.1			265	402	37	8
42	28	6	32	-	4.5×7.5×4.1			510	784	73	12
46	32	6	28	22	4.5×7.5×4.1			578	892	90	16
54	38	8	36	24	5.5× 9 ×5.1	15	15	862	1,370	155	20
62	46	8	40	32	5.5× 9 ×5.1			980	1,570	297	25
76	53	10	48	38	6.6×11 ×6.1			1,570	2,740	471	30

1N≒0.102kgf

KBF-W TYPE

− Round Flange Double-Wide Type −

This type is a metric dimension series generally used in Europe.



part number structure example

KBSF | **25** | **G** | **W** | **UU** | - | **SK**

specification

KBF	standard
KBSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

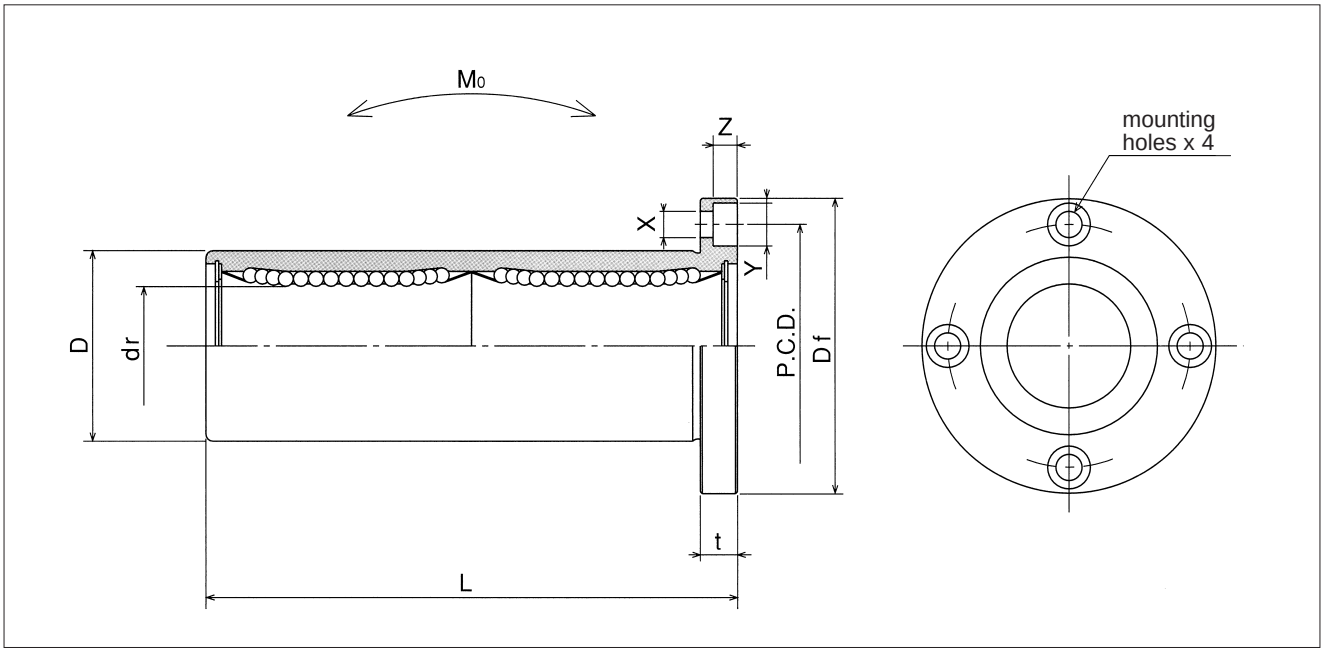
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L
standard		anticorrosion						
steel retainer	resin retainer	stainless retainer	resin retainer	mm	tolerance μm	mm	tolerance μm	±0.3 mm
KBF 8W	**KBF 8GW**	**KBSF 8W**	**KBSF 8GW**	8	+ 9 − 1	16	0/−13	46
KBF12W	**KBF12GW**	**KBSF12W**	**KBSF12GW**	12		22	0 −16	61
KBF16W	**KBF16GW**	**KBSF16W**	**KBSF16GW**	16	+11 − 1	26		68
KBF20W	**KBF20GW**	**KBSF20W**	**KBSF20GW**	20		32	0 −19	80
KBF25W	**KBF25GW**	**KBSF25W**	**KBSF25GW**	25	+13 − 2	40		112
KBF30W	**KBF30GW**	**KBSF30W**	**KBSF30GW**	30		47		123
KBF40W	**KBF40GW**	**KBSF40W**	**KBSF40GW**	40	+16 − 4	62	0 −22	151
KBF50W	**KBF50GW**	**KBSF50W**	**KBSF50GW**	50		75		192
KBF60W	**KBF60GW**	**KBSF60W**	**KBSF60GW**	60		90	0/−25	209



major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	5	24	3.5×6×3.1	15	15	421	804	4.3	59	8
42	6	32	4.5×7.5×4.1			813	1,570	11.7	110	12
46	6	36	4.5×7.5×4.1			921	1,780	14.2	160	16
54	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	260	20
62	8	51	5.5×9×5.1			1,570	3,140	44.0	540	25
76	10	62	6.6×11×6.1			2,500	5,490	78.9	815	30
98	13	80	9×14×8.1	20	20	3,430	8,040	147	1,805	40
112	13	94	9×14×8.1			6,080	15,900	396	2,820	50
134	18	112	11×17×11.1	25	25	7,550	20,000	487	4,920	60

1N≒0.102kgf　1N・m≒0.102kgf・m

KBK-W TYPE

− Square Flange Double-Wide Type −

This type is a metric dimension series generally used in Europe.

part number structure example

KBSK | 25 | G | W | UU | - | SK

specification

KBK	standard
KBSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

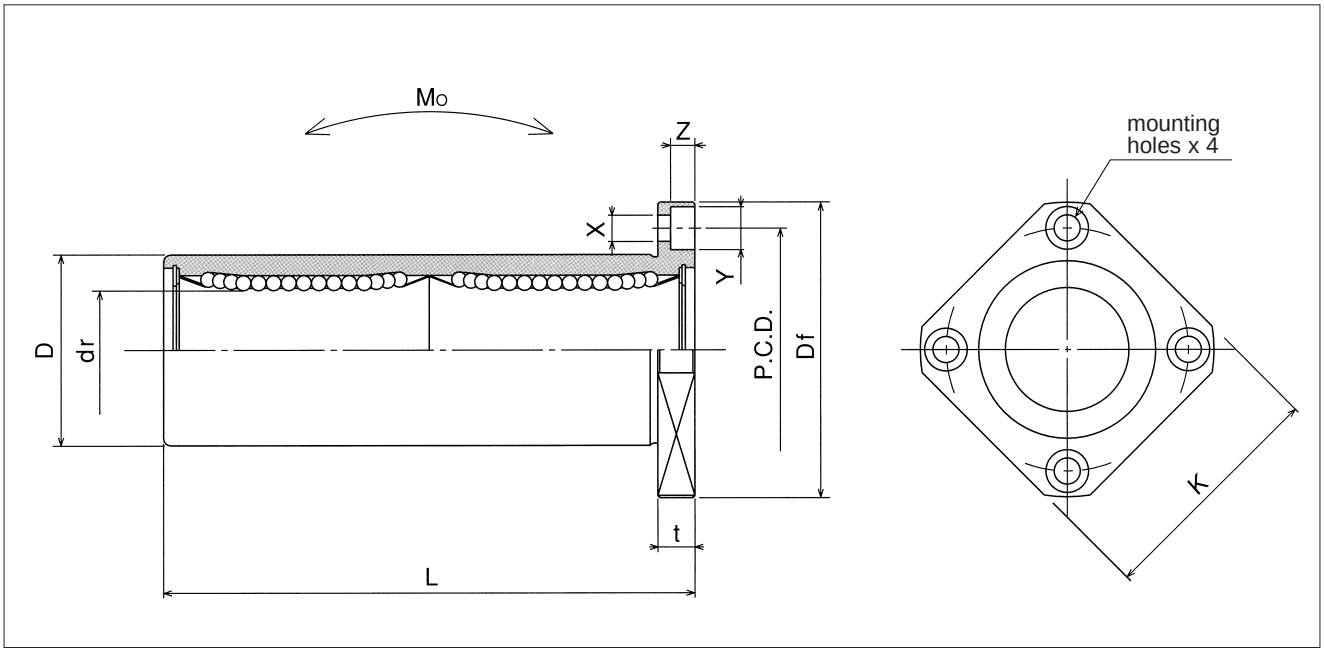
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSK type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	Df
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
KBK 8W	**KBK 8GW**	**KBSK 8W**	**KBSK 8GW**	8	+ 9 − 1	16	0/−13	46	32
KBK12W	**KBK12GW**	**KBSK12W**	**KBSK12GW**	12		22	0 −16	61	42
KBK16W	**KBK16GW**	**KBSK16W**	**KBSK16GW**	16	+11 − 1	26		68	46
KBK20W	**KBK20GW**	**KBSK20W**	**KBSK20GW**	20		32	0 −19	80	54
KBK25W	**KBK25GW**	**KBSK25W**	**KBSK25GW**	25	+13 − 2	40		112	62
KBK30W	**KBK30GW**	**KBSK30W**	**KBSK30GW**	30		47		123	76
KBK40W	**KBK40GW**	**KBSK40W**	**KBSK40GW**	40	+16 − 4	62	0 −22	151	98
KBK50W	**KBK50GW**	**KBSK50W**	**KBSK50GW**	50		75		192	112
KBK60W	**KBK60GW**	**KBSK60W**	**KBSK60GW**	60		90	0/−25	209	134



major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
K	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
25	5	24	3.5×6×3.1	15	15	421	804	4.3	51	8
32	6	32	4.5×7.5×4.1			813	1,570	11.7	90	12
35	6	36	4.5×7.5×4.1			921	1,780	14.2	135	16
42	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	225	20
50	8	51	5.5×9×5.1			1,570	3,140	44.0	500	25
60	10	62	6.6×11×6.1			2,500	5,490	78.9	720	30
75	13	80	9×14×8.1	20	20	3,430	8,040	147	1,600	40
88	13	94	9×14×8.1			6,080	15,900	396	2,620	50
106	18	112	11×17×11.1	25	25	7,550	20,000	487	4,480	60

1N≒0.102kgf　1N・m≒0.102kgf・m

KBFC TYPE

– Center Mount Round Flange Type –

This type is a metric dimension series generally used in Europe.

part number structure example

KBSFC | 25 | G | UU | - | SK

specification

KBFC	standard
KBSFC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

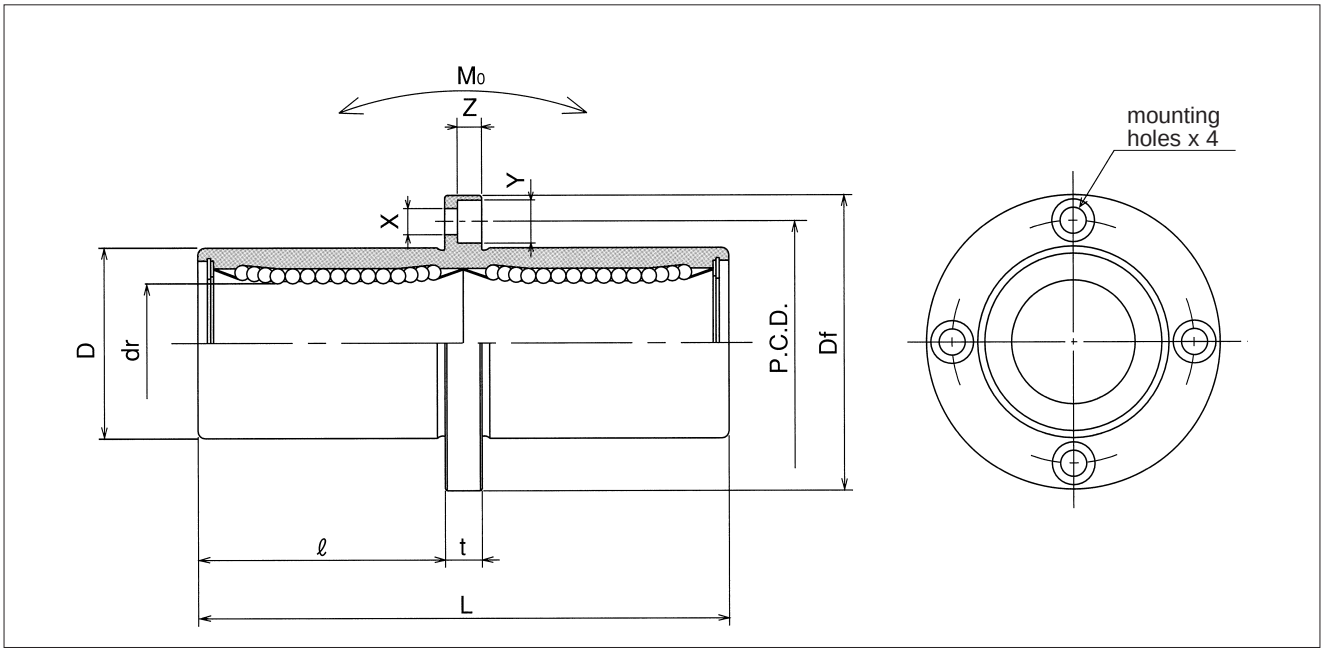
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSFC type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L	ℓ
standard		anticorrosion			tolerance		tolerance	±0.3	
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
KBFC 8	**KBFC 8G**	**KBSFC 8**	**KBSFC 8G**	8	+ 9 − 1	16	0/−13	46	20.5
KBFC12	**KBFC12G**	**KBSFC12**	**KBSFC12G**	12		22	0 −16	61	27.5
KBFC16	**KBFC16G**	**KBSFC16**	**KBSFC16G**	16	+11 − 1	26		68	31
KBFC20	**KBFC20G**	**KBSFC20**	**KBSFC20G**	20		32	0 −19	80	36
KBFC25	**KBFC25G**	**KBSFC25**	**KBSFC25G**	25	+13 − 2	40		112	52
KBFC30	**KBFC30G**	**KBSFC30**	**KBSFC30G**	30		47		123	56.5
KBFC40	**KBFC40G**	**KBSFC40**	**KBSFC40G**	40	+16 − 4	62	0 −22	151	69
KBFC50	**KBFC50G**	**KBSFC50**	**KBSFC50G**	50		75		192	89.5
KBFC60	**KBFC60G**	**KBSFC60**	**KBSFC60G**	60		90	0/−25	209	95.5



major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	5	24	3.5×6×3.1	15	15	421	804	4.3	59	8
42	6	32	4.5×7.5×4.1			813	1,570	11.7	110	12
46	6	36	4.5×7.5×4.1			921	1,780	14.2	160	16
54	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	260	20
62	8	51	5.5×9×5.1			1,570	3,140	44.0	540	25
76	10	62	6.6×11×6.1			2,500	5,490	78.9	815	30
98	13	80	9×14×8.1	20	20	3,430	8,040	147	1,805	40
112	13	94	9×14×8.1			6,080	15,900	396	2,820	50
134	18	112	11×17×11.1	25	25	7,550	20,000	487	4,920	60

1N≒0.102kgf　1N・m≒0.102kgf・m

KBKC TYPE

– Center Mount Square Flange Type –

This type is a metric dimension series generally used in Europe.

part number structure example

KBSKC | **25** | **G** | **UU** | - | **SK**

specification

KBKC	standard
KBSKC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seal

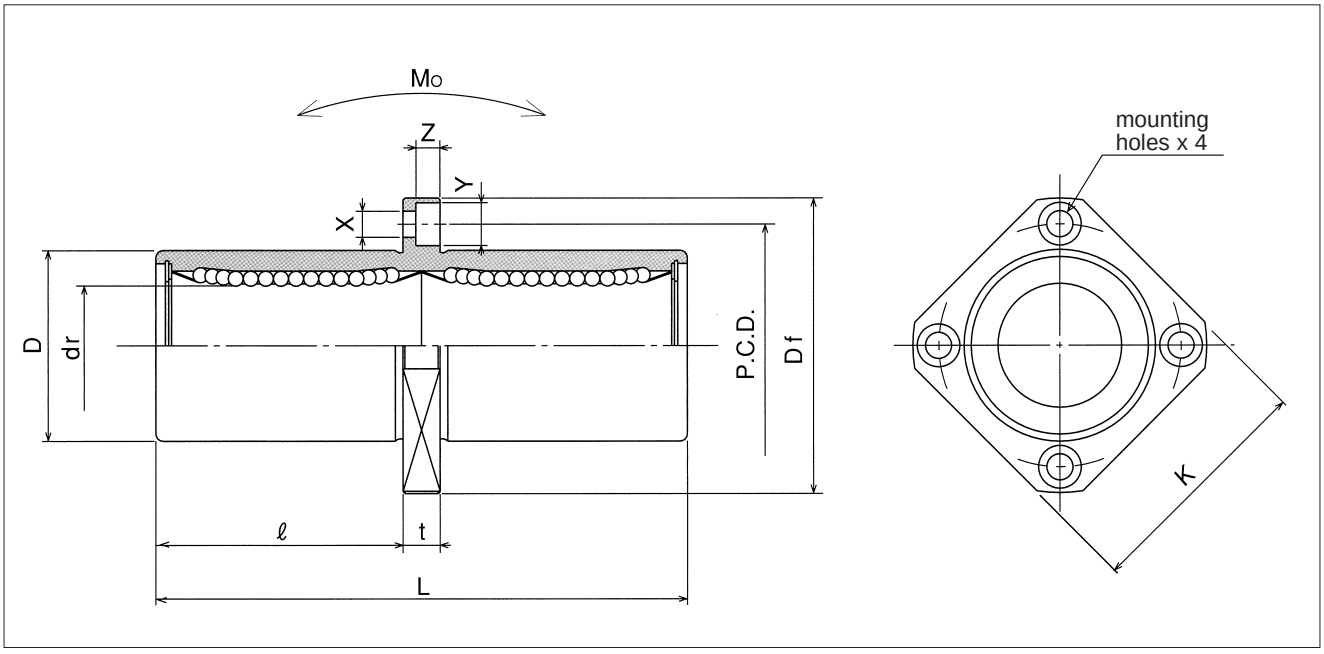
blank	without seal
UU	seals on both sides

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in KBSKC type

part number				dr		D		L	
standard		anticorrosion			tolerance		tolerance	±0.3	ℓ
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm	mm	μm	mm	mm
KBKC 8	**KBKC 8G**	**KBSKC 8**	**KBSKC 8G**	8	+ 9 − 1	16	0/−13	46	20.5
KBKC12	**KBKC12G**	**KBSKC12**	**KBSKC12G**	12		22	0 −16	61	27.5
KBKC16	**KBKC16G**	**KBSKC16**	**KBSKC16G**	16	+11 − 1	26		68	31
KBKC20	**KBKC20G**	**KBSKC20**	**KBSKC20G**	20		32	0 −19	80	36
KBKC25	**KBKC25G**	**KBSKC25**	**KBSKC25G**	25	+13 − 2	40		112	52
KBKC30	**KBKC30G**	**KBSKC30**	**KBSKC30G**	30		47		123	56.5
KBKC40	**KBKC40G**	**KBSKC40**	**KBSKC40G**	40	+16 − 4	62	0 −22	151	69
KBKC50	**KBKC50G**	**KBSKC50**	**KBSKC50G**	50		75		192	89.5
KBKC60	**KBKC60G**	**KBSKC60**	**KBSKC60G**	60		90	0/−25	209	95.5



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df	K	t	P.C.D.	X×Y×Z			C	Co	Mo		
mm	mm	mm	mm	mm	μm	μm	N	N	N・m	g	mm
32	25	5	24	3.5×6×3.1	15	15	421	804	4.3	51	8
42	32	6	32	4.5×7.5×4.1			813	1,570	11.7	90	12
46	35	6	36	4.5×7.5×4.1			921	1,780	14.2	135	16
54	42	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	225	20
62	50	8	51	5.5×9×5.1			1,570	3,140	44.0	500	25
76	60	10	62	6.6×11×6.1			2,500	5,490	78.9	720	30
98	75	13	80	9×14×8.1	20	20	3,430	8,040	147	1,600	40
112	88	13	94	9×14×8.1			6,080	15,900	396	2,620	50
134	106	18	112	11×17×11.1	25	25	7,550	20,000	487	4,480	60

1N≒0.102kgf　1N・m≒0.102kgf・m

SW TYPE

– Standard Type –

This type is an inch dimension series mainly used in the U.S.

part number structure example

SWS | 16 | G | R | UU | - | P

specification

SW	standard
SWS	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

accuracy grade

blank	high
P	precision

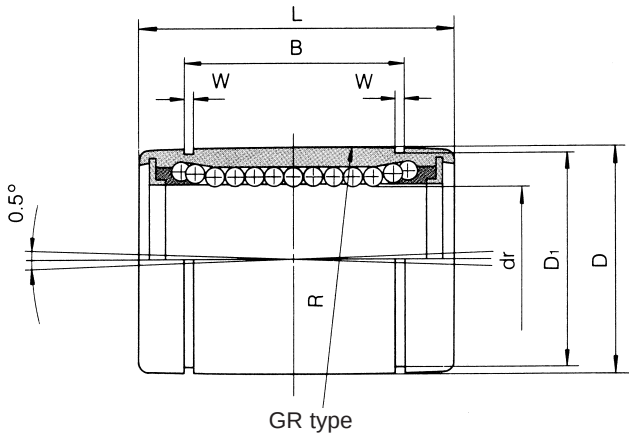
seal

blank	without seal
U	seal on one side
UU	seals on both sides

*Seal is not provided for SW 2 and 3 sizes.

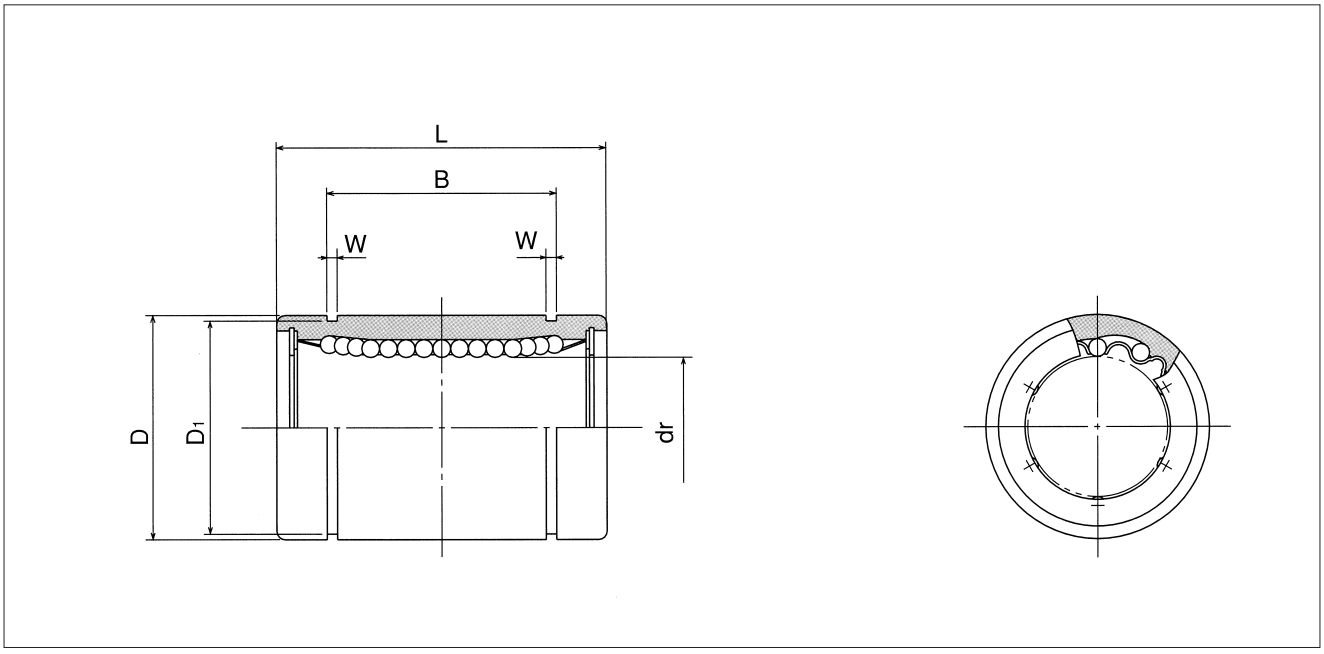
self aligning

blank	non self aligning
R	self aligning



GR type

part number					number of ball circuits	dr		D	
standard			anticorrosion			inch / mm	tolerance inch/μm	inch / mm	tolerance inch/μm
steel retainer	resin retainer		stainless retainer	resin retainer			precision / high		
–	–	–	SWS 2	SWS 2G	4	.1250 / 3.175	– / 0 −.00035	.3125 / 7.938	0 −.00040
–	–	–	SWS 3	SWS 3G	4	.1875 / 4.763	– / 0 −8	.3750 / 9.525	0 −9
SW 4	SW 4G	SW 4GR	SWS 4	SWS 4G	4	.2500 / 6.350		.5000 / 12.700	$^{0}_{-.00045}$ / $^{0}_{-11}$
SW 6	SW 6G	SW 6GR	SWS 6	SWS 6G	4	.3750 / 9.525	0 −.00025 / 0 −.00040	.6250 / 15.875	0 −.00050
SW 8	SW 8G	SW 8GR	SWS 8	SWS 8G	4	.5000 / 12.700	0 −6 / 0 −9	.8750 / 22.225	0 −13
SW10	SW10G	SW10GR	SWS10	SWS10G	4	.625 / 15.875		1.1250 / 28.575	
SW12	SW12G	SW12GR	SWS12	SWS12G	5	.7500 / 19.050	0 −.00030 / 0 −.00040	1.2500 / 31.750	0 −.00065
SW16	SW16G	SW16GR	SWS16	SWS16G	6	1.0000 / 25.400	0 −7 / 0 −10	1.5625 / 39.688	0 −16
SW20	SW20G	SW20GR	SWS20	SWS20G	6	1.2500 / 31.750	0 −.00035 / 0 −.00050	2.0000 / 50.800	0 −.00075
SW24	SW24G	SW24GR	SWS24	SWS24G	6	1.5000 / 38.100	0 −8 / 0 −12	2.3750 / 60.325	0 −19
SW32	SW32G	SW32GR	SWS32	SWS32G	6	2.0000 / 50.800		3.0000 / 76.200	0 −.00090
SW40	–	–	–	–	6	2.5000 / 63.500	0 −.00040 / 0 −.00060	3.7500 / 95.250	0 −22
SW48	–	–	–	–	6	3.0000 / 76.200	0 −9 / 0 −15	4.50000 / 114.300	
SW64	–	–	–	–	6	4.0000 / 101.600	$^{0}_{-.00040}$ / $^{0}_{-10}$ $^{0}_{-.00080}$ / $^{0}_{-20}$	6.0000 / 152.400	$^{0}_{-.00100}$ / $^{0}_{-25}$



major dimensions						eccentricity		radial clearance (maximum)	basic load rating		mass	shaft diameter
L		B		W	D_1				dynamic	static		
inch mm	tolerance inch/mm	inch mm	tolerance inch/mm	inch mm	inch mm	precision inch/μm	high inch/μm	inch/μm	C N	Co N	g	inch mm
.5000 12.700		.3681 9.35		.0280 0.710	.2902 7.370	—	.0003	−.0001 − 2	59	76	2.8	1/8 3.175
.5625 14.275		.4311 10.95		.0280 0.710	.3520 8.940		8		91	110	3.6	3/16 4.763
.7500 19.050	0 −.008	.5110 12.98	0 −.008	.0390 0.992	.4687 11.906			−.0001	206	265	9.5	1/4 6.350
.8750 22.225		.6358 16.15		.0390 0.992	.5880 14.935	.0003	.0005	− 3	225	314	15	3/8 9.525
1.2500 31.750	0 −0.2	.9625 24.46	0 −0.2	.0459 1.168	.8209 20.853	8	12	−.0001	510	784	42	1/2 12.700
1.5000 38.100		1.1039 28.04		.0559 1.422	1.0590 26.899			− 4	774	1,180	85	5/8 15.875
1.6250 41.275		1.1657 29.61		.0559 1.422	1.1760 29.870	.0004	.0006	−.0002	862	1,370	104	3/4 19.050
2.2500 57.150		1.7547 44.57		.0679 1.727	1.4687 37.306	10	15	− 6	980	1,570	220	1 25.400
2.6250 66.675	0 −.012	2.0047 50.92	0 −.012	.0679 1.727	1.8859 47.904	.0005	.0008	−.0003	1,570	2,740	465	1-1/4 31.750
3.0000 76.200		2.4118 61.26		.0859 2.184	2.2389 56.870	12	20	− 8	2,180	4,020	720	1-1/2 38.100
4.0000 101.600	0 −0.3	3.1917 81.07	0 −0.3	.1029 2.616	2.8379 72.085	.0007	.0010	−.0005	3,820	7,940	1,310	2 50.800
5.0000 127.000		3.9760 100.99		.1200 3.048	3.5519 90.220	17	25	− 13	4,700	10,000	2,600	2-1/2 63.500
6.0000 152.400	0 −.016	4.726 120.04	0 −.016	.1200 3.048	4.3100 109.474			−.0008	7,350	16,000	4,380	3 76.200
8.0000 203.200	0 −0.4	6.258 158.95	0 −0.4	.1389 3.530	5.745 145.923	.0008 20	.0012 30	− 20	14,100	34,800	10,200	4 101.600

1N≒0.225lbf 1kg≒2.205lbs

SW-AJ TYPE

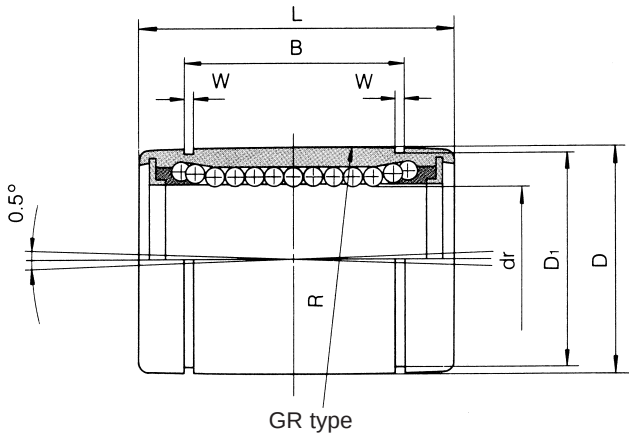
– Clearance Adjustable Type –

This type is an inch dimension series mainly used in the U.S.

part number structure example

SWS | 16 | G | R | UU - AJ

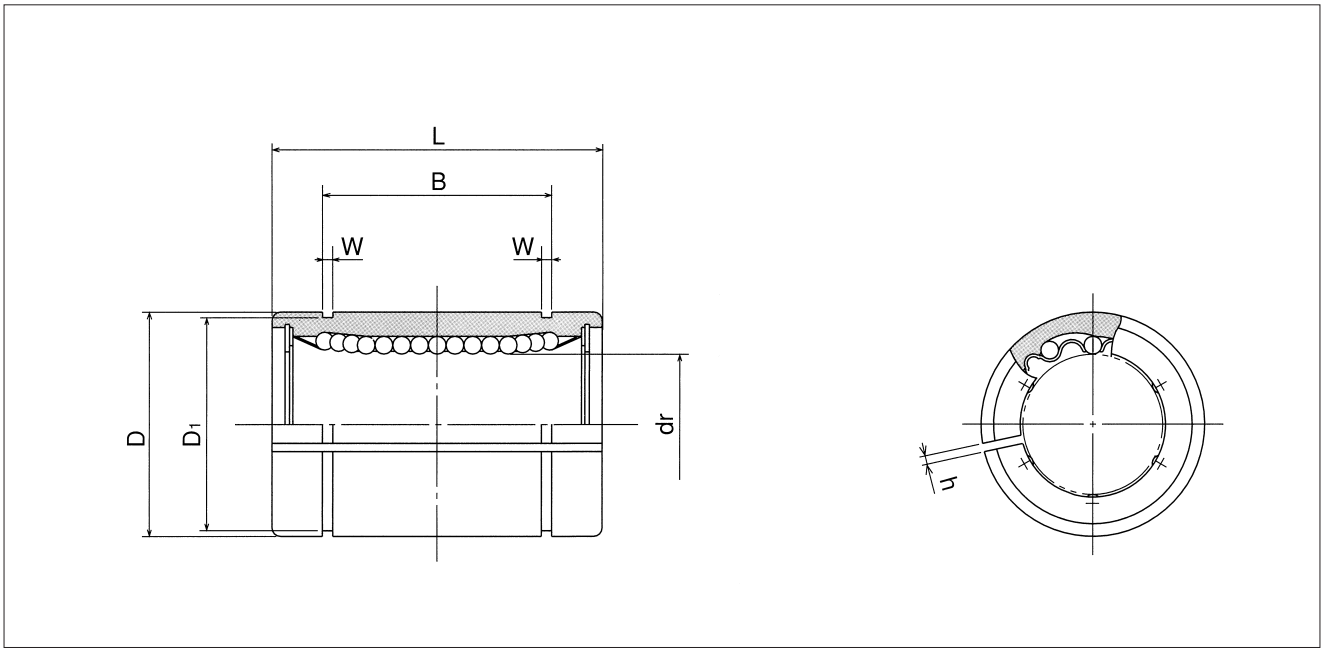
- AJ: clearance-adjustable type
- UU: seal — blank: without seal; U: seal on one side; UU: seals on both sides
- R: self aligning — blank: non self aligning; R: self aligning
- 16: inner contact diameter
- G: retainer material — blank: steel; G: resin
- SWS: specification — SW: standard; SWS: anticorrosion



GR type

part number					number of ball circuits	dr		D	
standard			anticorrosion						
steel retainer	resin retainer		stainless retainer	resin retainer		inch mm	tolerance* inch/μm	inch mm	tolerance* inch/μm
–	SW 4G-AJ	–	–	SWS 4G-AJ	4	.2500 6.350	0 −.00040 0 − 9	.5000 12.700	0 −.00045 0 −11
–	SW 6G-AJ	–	–	SWS 6G-AJ	4	.3750 9.525		.6250 15.875	0 −.00050 0 − 13
SW 8-AJ	SW 8G-AJ	SW 8GR-AJ	SWS 8-AJ	SWS 8G-AJ	4	5.000 12.700		.8750 22.225	
SW10-AJ	SW10G-AJ	SW10GR-AJ	SWS10-AJ	SWS10G-AJ	4	.625 15.875		1.1250 28.575	
SW12-AJ	SW12G-AJ	SW12GR-AJ	SWS12-AJ	SWS12G-AJ	5	.7500 19.050	0 −.00040 0 − 10	1.2500 31.750	0 −.00065 0 − 16
SW16-AJ	SW16G-AJ	SW16GR-AJ	SWS16-AJ	SWS16G-AJ	6	1.0000 25.400		1.5625 39.688	
SW20-AJ	SW20G-AJ	SW20GR-AJ	SWS20-AJ	SWS20G-AJ	6	1.2500 31.750	0 −.00050 0 −12	2.0000 50.800	0 −.00075 0 − 19
SW24-AJ	SW24G-AJ	SW24GR-AJ	SWS24-AJ	SWS24G-AJ	6	1.5000 38.100		2.3750 60.325	
SW32-AJ	SW32G-AJ	SW32GR-AJ	SWS32-AJ	SWS32G-AJ	6	2.0000 50.800		3.0000 76.200	0 −.00090 0 − 22
SW40-AJ	–	–	–	–	6	2.5000 63.500	0 −.00060 0 − 15	3.7500 95.250	
SW48-AJ	–	–	–	–	6	3.0000 76.200		4.50000 114.300	
SW64-AJ	–	–	–	–	6	4.0000 101.600	0 −.00080 0 −20	6.0000 152.400	0 −.00100 0 −25

* Accuracy is measured prior to machining clearance slot.



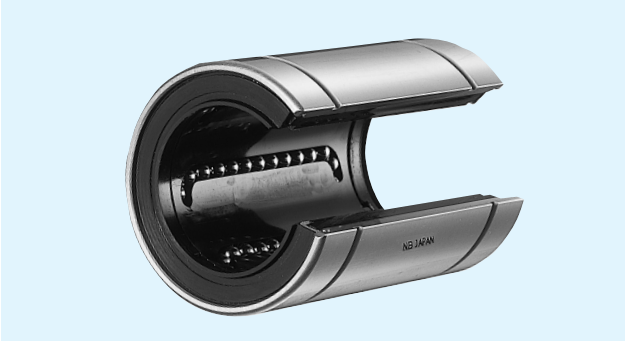
major dimensions							eccentricity	Radial clearance (Max)	basic load rating		mass	shaft diameter
L		B		W	D_1	h			dynamic	static		
inch mm	tolerance inch/mm	inch mm	tolerance inch/mm	inch mm	inch mm	inch mm	inch μm	inch/μm	C N	Co N	g	inch mm
.7500 19.050	0 −.008 0 −0.2	.5100 12.98	0 −.008 0 −0.2	.0390 0.992	.4687 11.906	.04 1	.0005 12	−.0001 −3	206	265	7.5	1/4 6.350
.8750 22.225		.6358 12.15		.0390 0.992	.5880 14.935	.04 1			225	314	13.5	3/8 9.525
1.2500 31.750		.9625 24.46		.0459 1.168	.8209 20.853	.06 1.5	.0005 12	−.0001 −4	510	784	41	1/2 12.700
1.5000 38.100		1.1039 28.04		.0559 1.422	1.0590 26.899	.06 1.5			774	1,180	83	5/8 15.875
1.6250 41.275		1.1657 29.61		.0559 1.422	1.1760 29.870	.06 1.5	.0006 15	−.0002 −6	862	1,370	102	3/4 19.050
2.2500 57.150	0 −.012 0 −0.3	1.7547 44.57	0 −.012 0 −0.3	.0679 1.727	1.4687 37.306	.06 1.5			980	1,570	218	1 25.400
2.6250 66.675		2.0047 50.92		.0679 1.727	1.8859 47.904	.10 2.5	.0008 20	−.0003 −8	1,570	2,740	455	1-1/4 31.750
3.0000 76.200		2.4118 61.26		0.859 2.184	2.2389 56.870	.12 3			2,180	4,020	710	1-1/2 38.100
4.0000 101.600		3.1917 81.07		.1029 2.616	2.8379 72.085	.12 3	.0010 25	−.0005 −13	3,820	7,940	1,290	2 50.800
5.0000 127.000		3.9760 100.99		.1200 3.048	3.5519 90.220	.12 3			4,700	10,000	2,560	2-1/2 63.500
6.0000 152.400	0 −.016 0 −0.4	4.726 120.04	0 −.016 0 −0.4	.1200 3.048	4.3100 109.474	.12 3		−.0008 −20	7,350	16,000	4,350	3 76.200
8.0000 203.200		6.258 158.95		.1389 3.530	5.745 145.923	.12 3	.0012 30		14,100	34,800	10,150	4 101.60

1N≒0.225lbf 1kg≒2.205lbs

SW-OP TYPE

– Open Type –

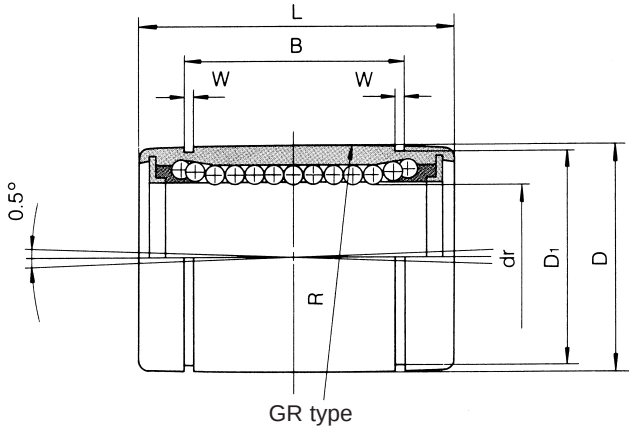
This type is an inch dimension series mainly used in the U.S.



part number structure example

SWS | 16 | G | R | UU | - | OP

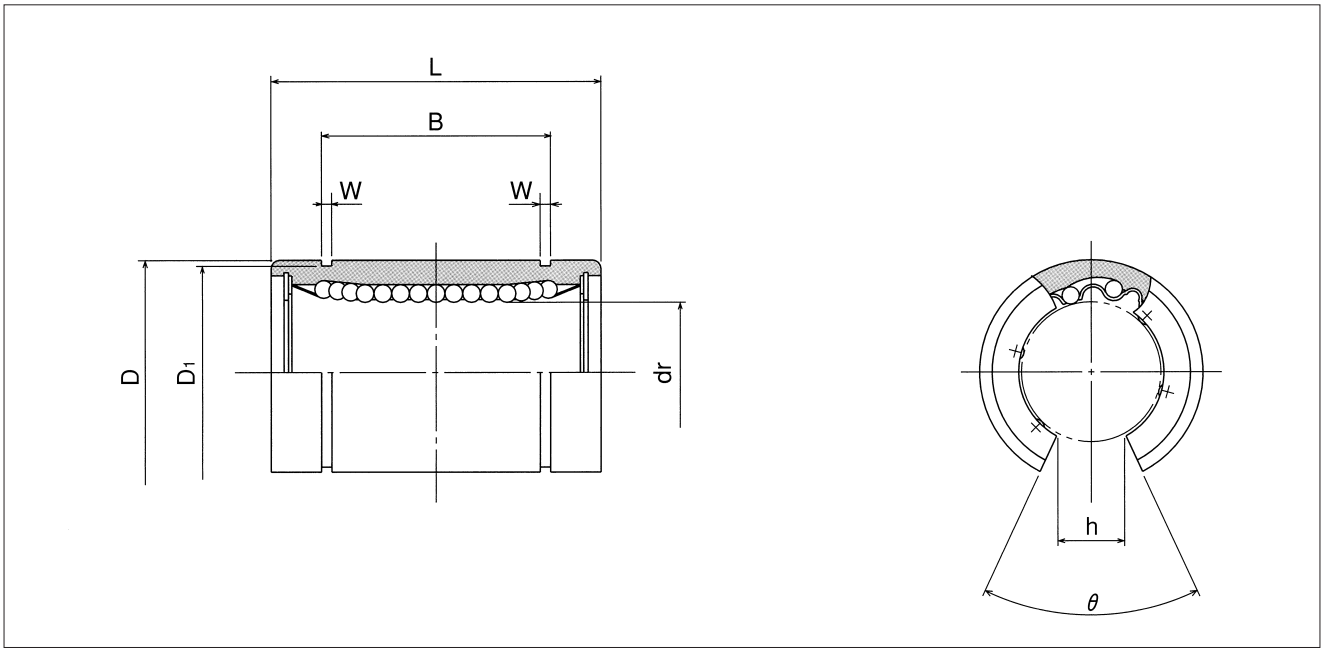
- SWS: specification — SW: standard; SWS: anticorrosion
- 16: inner contact diameter
- G: retainer material — blank: steel; G: resin
- R: self aligning — blank: non self aligning; R: self aligning
- UU: seal — blank: without seal; U: seal on one side; UU: seals on both sides
- OP: open type



GR type

part number					number of ball circuits	dr		D	
standard			anticorrosion						
steel retainer	resin retainer		stainless retainer	resin retainer		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm
SW 8-OP	**SW 8G-OP**	**SW 8GR-OP**	**SWS 8-OP**	**SWS 8G-OP**	3	.5000 12.700	0 −.00040	.8750 22.225	0 −.00050
SW10-OP	**SW10G-OP**	**SW10GR-OP**	**SWS10-OP**	**SWS10G-OP**	3	.625 15.875	0 − 9	1.1250 28.575	0 − 13
SW12-OP	**SW12G-OP**	**SW12GR-OP**	**SWS12-OP**	**SWS12G-OP**	4	.7500 19.050	0 −.00040	1.2500 31.750	0 −.00065
SW16-OP	**SW16G-OP**	**SW16GR-OP**	**SWS16-OP**	**SWS16G-OP**	5	1.0000 25.400	0 −10	1.5625 39.688	0 − 16
SW20-OP	**SW20G-OP**	**SW20GR-OP**	**SWS20-OP**	**SWS20G-OP**	5	1.2500 31.750	0 −.00050	2.0000 50.800	0 −.00075
SW24-OP	**SW24G-OP**	**SW24GR-OP**	**SWS24-OP**	**SWS24G-OP**	5	1.5000 38.100	0 −12	2.3750 60.325	0 − 19
SW32-OP	**SW32G-OP**	**SW32GR-OP**	**SWS32-OP**	**SWS32G-OP**	5	2.0000 50.800		3.0000 76.200	0 −.00090
SW40-OP	–	–	–	–	5	2.5000 63.500	0 −.00060	3.7500 95.250	0 − 22
SW48-OP	–	–	–	–	5	3.0000 76.200	0 −15	4.50000 114.300	
SW64-OP	–	–	–	–	5	4.0000 101.600	$^{0}_{-.00080}$ $^{0}_{-20}$	6.0000 152.400	$^{0}_{-.00100}$ $^{0}_{-25}$

* Accurary is measured prior to machining open slot.



major dimensions								eccentricity*	Radial clearance (Max)	basic load rating		mass	shaft diameter
L		B		W	D_1	h	θ			dynamic	static		
inch mm	tolerance inch/mm	inch mm	tolerance inch/mm	inch mm	inch mm	inch mm		inch μm	inch/μm	C N	Co N	g	inch mm
1.2500 31.750	0 −.008 0 −0.2	.9625 24.46	0 −.008 0 −0.2	.0459 1.168	.8209 20.853	.34 7.9375	80°	.0005 12	−.0001 −4	510	784	32	1/2 12.700
1.5000 38.100		1.1039 28.04		.0559 1.422	1.0590 26.899	.375 9.5250	80°			774	1,180	64	5/8 15.875
1.6250 41.275		1.1657 29.61		.0559 1.422	1.1760 29.870	.4375 11.1125	60°	.0006 15	−.0002 −6	862	1,370	86	3/4 19.050
2.2500 57.150	0 −.012 0 −0.3	1.7547 44.57	0 −.012 0 −0.3	.0679 1.727	1.4687 37.306	.5625 14.2875	50°			980	1,570	190	1 25.400
2.6250 66.675		2.0047 50.92		.0679 1.727	1.8859 47.904	.625 15.875	50°	.0008 20	−.0003 −8	1,570	2,740	390	1-1/4 31.750
3.0000 76.200		2.4118 61.26		0.859 2.184	2.2389 56.870	.75 19.05	50°			2,180	4,020	610	1-1/2 38.100
4.0000 101.600		3.1917 81.07		.1029 2.616	2.8379 72.085	1.0 25.40	50°	.0010 25	−.0005 −13	3,820	7,940	1,120	2 50.800
5.0000 127.000		3.9760 100.99		.1200 3.048	3.5519 90.220	1.25 31.75	50°			4,700	10,000	2,230	2-1/2 63.500
6.0000 152.400	0 −.016 0 −0.4	4.726 120.04	0 −.016 0 −0.4	.1200 3.048	4.3100 109.474	1.5 38.10	50°		−.0008 −20	7,350	16,000	3,750	3 76.200
8.0000 203.200		6.258 158.95		.1389 3.530	5.745 145.923	2.0 50.8	50°	.0012 30		14,100	34,800	8,740	4 101.60

1N≒0.225lbf 1kg≒2.205lbs

SW-W TYPE

– Double-Wide Type –

This type is an inch dimension series mainly used in the U.S.

part number structure example

SWS | 16 | G | W | UU

specification

SW	standard
SWS	anticorrosion

inner contact diameter

retainer material

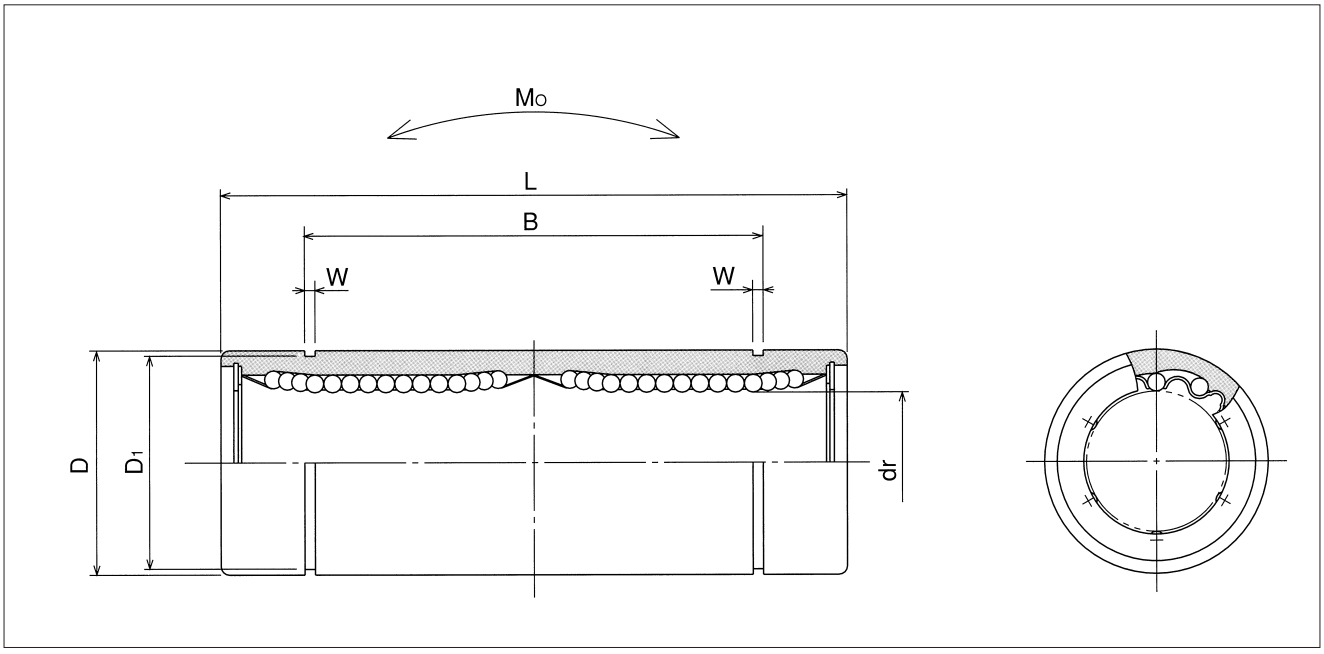
blank	steel
G	resin

seal

blank	without seal
UU	seals on both sides

double-wide type

part number				number of ball circuits	dr		D	
standard		anticorrosion			inch mm	tolerance inch/μm	inch mm	tolerance inch/μm
steel retainer	resin retainer	stainless retainer	resin retainer					
SW 4W	**SW 4GW**	**SWS 4W**	**SWS 4GW**	4	.2500 6.350	0 −.00040 0 −10	.5000 12.700	0 −.00050 0 −13
SW 6W	**SW 6GW**	**SWS 6W**	**SWS 6GW**	4	.3750 9.525		.6250 15.875	0 −.00065 0 −16
SW 8W	**SW 8GW**	**SWS 8W**	**SWS 8GW**	4	.5000 12.700		.8750 22.225	
SW10W	**SW10GW**	**SWS10W**	**SWS10GW**	4	.6250 15.875		1.1250 28.575	
SW12W	**SW12GW**	**SWS12W**	**SWS12GW**	5	.7500 19.050	0 −.00050 0 −12	1.2500 31.750	0 −.00075 0 −19
SW16W	**SW16GW**	**SWS16W**	**SWS16GW**	6	1.0000 25.400		1.5625 39.688	
SW20W	**SW20GW**	**SWS20W**	**SWS20GW**	6	1.2500 31.750	0 −.00060 0 −15	2.0000 50.800	0 −.00090 0 −22
SW24W	**SW24GW**	**SWS24W**	**SWS24GW**	6	1.5000 38.100		2.3750 60.325	
SW32W	**SW32GW**	**SWS32W**	**SWS32GW**	6	2.0000 50.800		3.0000 76.200	0 −.00100 0 −25



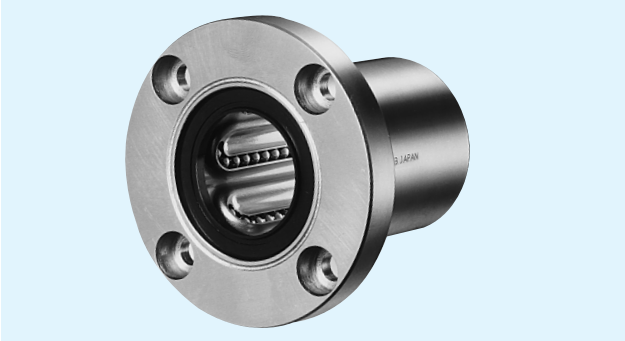
major dimensions						eccentricity	basic load rating		allowable static moment	mass	shaft diameter
L		B		W	D_1		dynamic	static			
inch mm	tolerance inch/mm	inch mm	tolerance inch/mm	inch mm	inch mm	inch μm	C N	Co N	Mo N・m	g	inch mm
1.3750 34.925		1.0220 25.959		.0390 0.992	.4687 11.906		323	530	2.0	17.5	1/4 6.350
1.5938 40.481	0 −.012	1.2716 32.298	0 −.012	.0390 0.992	.5880 14.935	.0006	353	630	2.7	28	3/8 9.525
2.3750 60.325		1.9250 48.895		.0459 1.168	.8209 20.853	15	813	1,570	11.5	80	1/2 12.700
2.8125 71.438	0 −0.3	2.2079 56.080	0 −0.3	.0559 1.422	1.0590 26.899		1,230	2,350	20.0	160	5/8 15.875
3.0937 78.581		2.3314 59.218		.0559 1.422	1.1760 29.870	.0008	1,370	2,740	26.5	195	3/4 19.050
4.2813 108.744	0 −.016	3.5094 89.139	0 −.016	.0679 1.727	1.4687 37.306	20	1,570	3,140	41.2	410	1 25.400
5.0000 127.000		4.0094 101.839		.0679 1.727	1.8859 47.904	.0010	2,500	5,490	84.8	820	1-1/4 31.750
5.6875 144.463	0 −0.4	4.8236 122.519	0 −0.4	.0859 2.184	2.2389 56.870	25	3,430	8,040	143	1,250	1-1/2 38.100
7.7500 196.850		6.3834 162.138		.1029 2.616	2.8379 72.085	.0012 30	6,080	15,900	399	2,.350	2 50.800

1N≒0.225lbf 1N・m≒0.738lb・ft

SWF TYPE

– Round Flange Type –

This type is an inch dimension series mainly used in the U.S.



part number structure example

SWSF **16** **G** **UU** - **SK**

specification

SWF	standard
SWSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

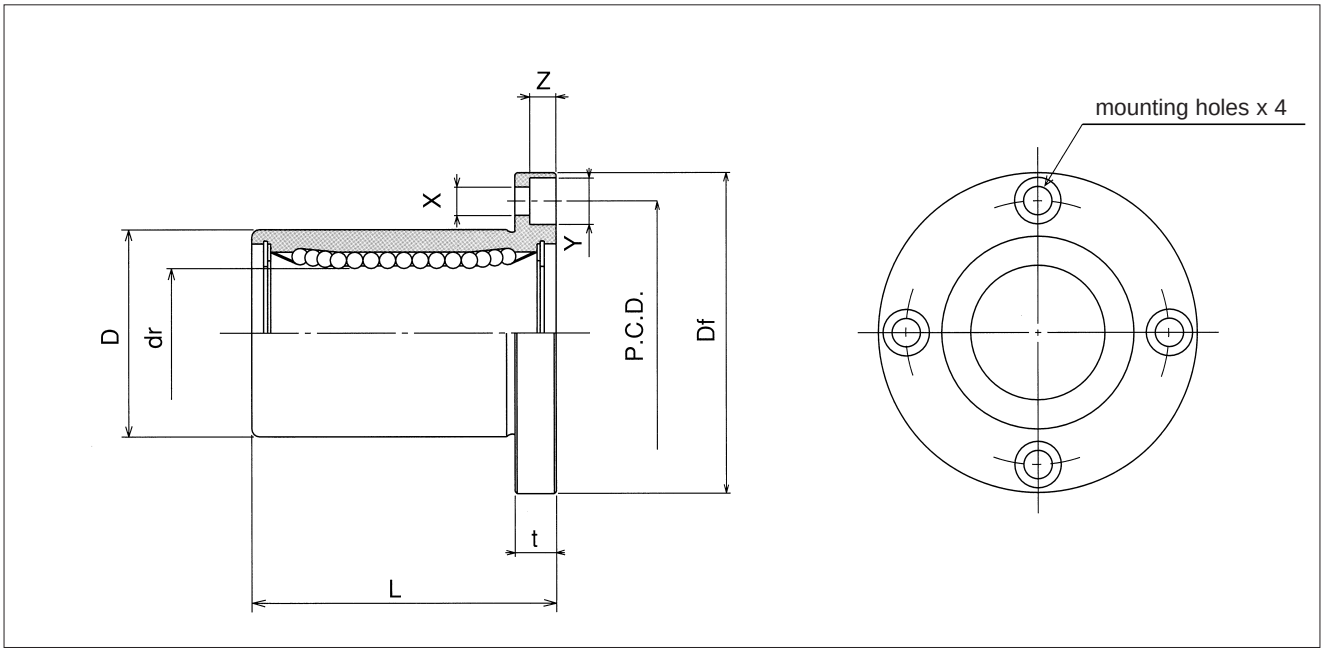
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L ±.012 ±0.3 inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm	
steel retainer	resin retainer	stainless retainer	resin retainer					
SWF 4	**SWF 4G**	**SWSF 4**	**SWSF 4G**	.2500 6.350		.5000 12.700	$-.00050^{0}_{0}$ -13^{0}_{0}	.7500 19.050
SWF 6	**SWF 6G**	**SWSF 6**	**SWSF 6G**	.3750 9.525	$-.00040^{0}$ -9^{0}	.6250 15.875	$-.00065^{0}$ -16^{0}	.8750 22.225
SWF 8	**SWF 8G**	**SWSF 8**	**SWSF 8G**	.5000 12.700		.8750 22.225		1.2500 31.750
SWF10	**SWF10G**	**SWSF10**	**SWSF10G**	.6250 15.875		1.1250 28.575		1.5000 38.100
SWF12	**SWF12G**	**SWSF12**	**SWSF12G**	.7500 19.050	$-.00040^{0}$ -10^{0}	1.2500 31.750	$-.00075^{0}$ -19^{0}	1.6250 41.275
SWF16	**SWF16G**	**SWSF16**	**SWSF16G**	1.0000 25.400		1.5625 39.688		2.2500 57.150
SWF20	**SWF20G**	**SWSF20**	**SWSF20G**	1.2500 31.750	$-.00050^{0}$ -12^{0}	2.0000 50.800	$-.00090^{0}$ -22^{0}	2.6250 66.675
SWF24	**SWF24G**	**SWSF24**	**SWSF24G**	1.5000 38.100		2.3750 60.325		3.0000 76.200
SWF32	**SWF32G**	**SWSF32**	**SWSF32G**	2.0000 50.800		3.0000 76.200	$-.00100^{0}$ -25^{0}	4.0000 101.600
SWF40	–	–	–	2.5000 63.500	$-.00060^{0}$ -15^{0}	3.7500 95.250		5.0000 127.000
SWF48	–	–	–	3.0000 76.200		4.5000 114.300		6.0000 152.400
SWF64	–	–	–	4.0000 101.600	$-.00080^{0}$ -20^{0}	6.0000 152.400	$-.00115^{0}$ -29^{0}	8.0000 203.200



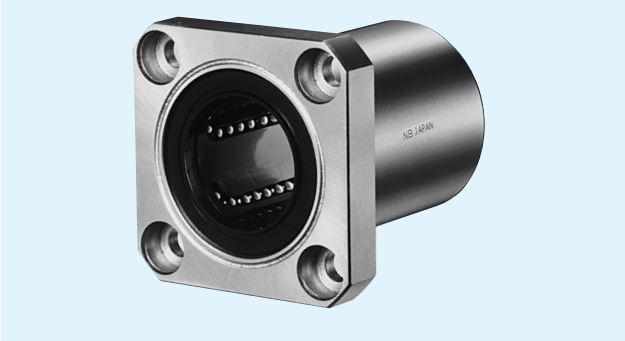
major dimensions				eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange						dynamic	static		
Df inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	g	inch mm
1.2500 31.750	0.219 5.556	.8750 22.225	.1560×.2500×.1410 3.969×6.350×3.572	.0005 12	.0005 12	206	265	32	1/4 6.350
1.5000 38.100	.2500 6.350	1.0620 26.988	.1875×.2970×.1720 4.763×7.541×4.366			225	314	47	3/8 9.525
1.7500 44.450	.2500 6.350	1.312 33.338	.1875×.2970×.1720 4.763×7.541×4.366			510	784	88	1/2 12.700
2.0000 50.800	.2500 6.350	1.5620 39.688	.1875×.2970×.1720 4.763×7.541×4.366			774	1,180	140	5/8 15.875
2.1875 55.563	.3125 7.938	1.7180 43.660	.2187×.3440×.2030 5.556×8.731×5.159	.0006 15	.0006 15	862	1,370	190	3/4 19.050
2.5000 63.500	.3125 7.938	2.0310 51.594	.2187×.3440×.2030 5.556×8.731×5.159			980	1,570	325	1 25.400
3.1250 79.375	.3750 9.525	2.5625 65.088	.2812×.4060×.2656 7.144×10.319×6.747	.0008 20	.0008 20	1,570	2,740	665	1-1/4 31.750
3.7500 95.250	.5000 12.700	3.0625 77.788	.3440×.5000×.3280 8.731×12.700×8.334			2,180	4,020	1,100	1-1/2 38.100
4.3750 111.125	.5000 12.700	3.6875 93.662	.3440×.5000×.3280 8.731×12.700×8.334	.0010 25	.0010 25	3,820	7,940	1,760	2 50.800
5.3750 136.525	.7500 19.050	4.5625 115.887	.4062×.6250×.3750 10.319×15.875×9.525			4,700	10,000	3,570	2-1/2 63.500
6.1250 155.575	.7500 19.050	5.3125 134.937	.4062×.6250×.3750 10.319×15.875×9.525			7,350	16,000	5,600	3 76.200
8.0000 203.200	.8750 22.225	7.0000 177.800	.5000×.7125×.5000 12.700×18.097×12.700	.0012 30	.0012 30	14,100	34,800	12,000	4 101.600

1N≒0.225lbf 1kg≒2.205lbs

SWK TYPE

– Square Flange Type –

This type is an inch dimension series mainly used in the U.S.



part number structure example

SWSK | **16** | **G** | **UU** - **SK**

specification

SWK	standard
SWSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

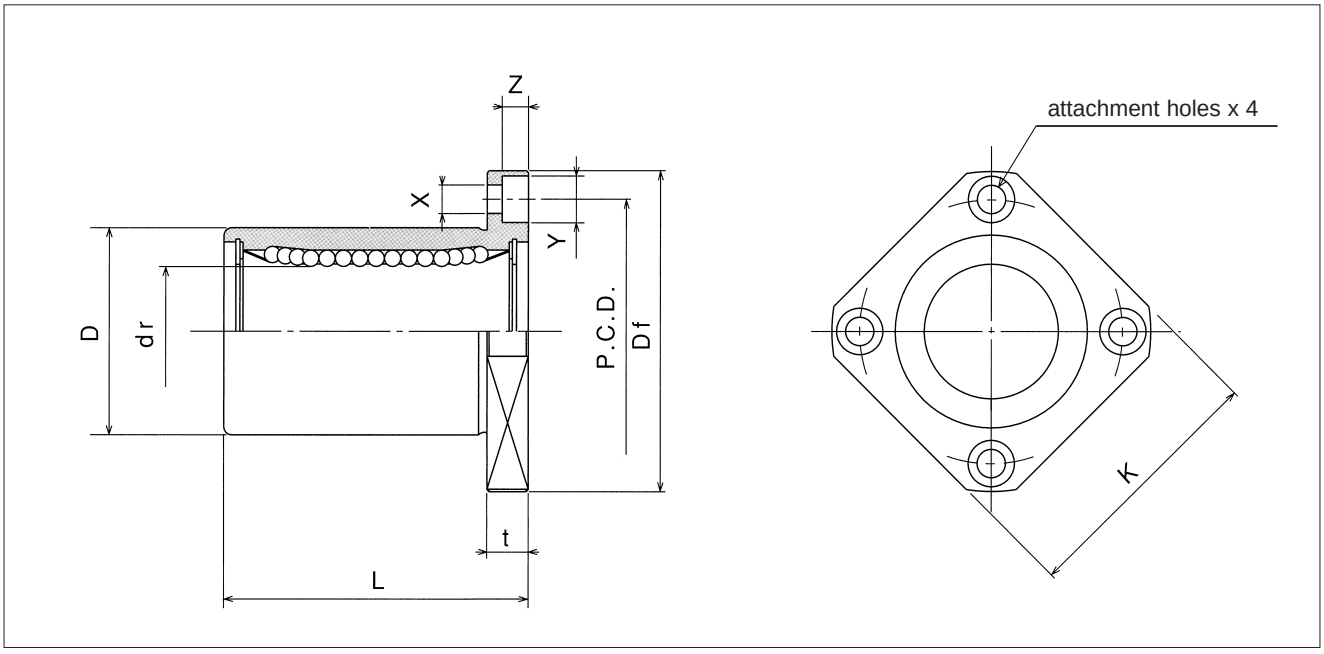
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSK type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L ±.012 ±0.3 inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm	
steel retainer	resin retainer	stainless retainer	resin retainer					
SWK 4	**SWK 4G**	**SWSK 4**	**SWSK 4G**	.2500 6.350		.5000 12.700	$-.00050^{0}_{0}$ -13^{0}_{0}	.7500 19.050
SWK 6	**SWK 6G**	**SWSK 6**	**SWSK 6G**	.3750 9.525	$-.00040^{0}$ -9^{0}	.6250 15.875	$-.00065^{0}$ -16^{0}	.8750 22.225
SWK 8	**SWK 8G**	**SWSK 8**	**SWSK 8G**	.5000 12.700		.8750 22.225		1.2500 31.750
SWK10	**SWK10G**	**SWSK10**	**SWSK10G**	.6250 15.875		1.1250 28.575		1.5000 38.100
SWK12	**SWK12G**	**SWSK12**	**SWSK12G**	.7500 19.050	$-.00040^{0}$ -10^{0}	1.2500 31.750	$-.00075^{0}$ -19^{0}	1.6250 41.275
SWK16	**SWK16G**	**SWSK16**	**SWSK16G**	1.0000 25.400		1.5625 39.688		2.2500 57.150
SWK20	**SWK20G**	**SWSK20**	**SWSK20G**	1.2500 31.750	$-.00050^{0}$ -12^{0}	2.0000 50.800	$-.00090^{0}$ -22^{0}	2.6250 66.675
SWK24	**SWK24G**	**SWSK24**	**SWSK24G**	1.5000 38.100		2.3750 60.325		3.0000 76.200
SWK32	**SWK32G**	**SWSK32**	**SWSK32G**	2.0000 50.800		3.0000 76.200	$-.00100^{0}$ -25^{0}	4.0000 101.600
SWK40	–	–	–	2.5000 63.500	$-.00060^{0}$ -15^{0}	3.7500 95.250		5.0000 127.000
SWK48	–	–	–	3.0000 76.200		4.5000 114.300		6.0000 152.400
SWK64	–	–	–	4.0000 101.600	$-.00080^{0}$ -20^{0}	6.0000 152.400	$-.00115^{0}$ -29^{0}	8.0000 203.200



major dimensions					eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange							dynamic	static		
Df inch mm	K inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	g	inch mm
1.2500 31.750	1.0000 25.400	0.219 5.556	.8750 22.225	.1560×.2500×.1410 3.969×6.350×3.572	.0005 12	.0005 12	206	265	25	1/4 6.350
1.5000 38.100	1.2500 31.750	.2500 6.350	1.0620 26.988	.1875×.2970×.1720 4.763×7.541×4.366			225	314	32	3/8 9.525
1.7500 44.450	1.3750 34.925	.2500 6.350	1.312 33.338	.1875×.2970×.1720 4.763×7.541×4.366			510	784	68	1/2 12.700
2.0000 50.800	1.5000 38.100	.2500 6.350	1.5620 39.688	.1875×.2970×.1720 4.763×7.541×4.366			774	1,180	124	5/8 15.875
2.1875 55.563	1.6875 42.863	.3125 7.938	1.7180 43.660	.2187×.3440×.2030 5.556×8.731×5.159	.0006 15	.0006 15	862	1,370	150	3/4 19.050
2.5000 63.500	2.0000 50.800	.3125 7.938	2.0310 51.594	.2187×.3440×.2030 5.556×8.731×5.159			980	1,570	280	1 25.400
3.1250 79.375	2.5000 63.500	.3750 9.525	2.5625 65.088	.2812×.4060×.2656 7.144×10.319×6.747			1,570	2,740	580	1-1/4 31.750
3.7500 95.250	3.0000 76.200	.5000 12.700	3.0625 77.788	.3440×.5000×.3280 8.731×12.700×8.334	.0008 20	.0008 20	2,180	4,020	930	1-1/2 38.100
4.3750 111.125	3.5000 88.900	.5000 12.700	3.6875 93.662	.3440×.5000×.3280 8.731×12.700×8.334			3,820	7,940	1,580	2 50.800
5.3750 136.525	4.3750 111.125	.7500 19.050	4.5625 115.887	.4062×.6250×.3750 10.319×15.875×9.525	.0010 25	.0010 25	4,700	10,000	3,200	2-1/2 63.500
6.1250 155.575	5.0000 127.000	.7500 19.050	5.3125 134.937	.4062×.6250×.3750 10.319×15.875×9.525			7,350	16,000	5,000	3 76.200
8.0000 203.200	6.7500 171.450	.8750 22.225	7.0000 177.800	.5000×.7125×.5000 12.700×18.097×12.700	.0012 30	.0012 30	14,100	34,800	11,300	4 101.600

1N≒0.225lbf 1kg≒2.205lbs

SWT TYPE

− Two Side Cut Flange Type −

SWT type is an inch dimension series generally used in the U.S.

part number structure example

SWST **12** **G** **UU** - **SK**

specification

SWT	standard
SWST	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seals on both sides

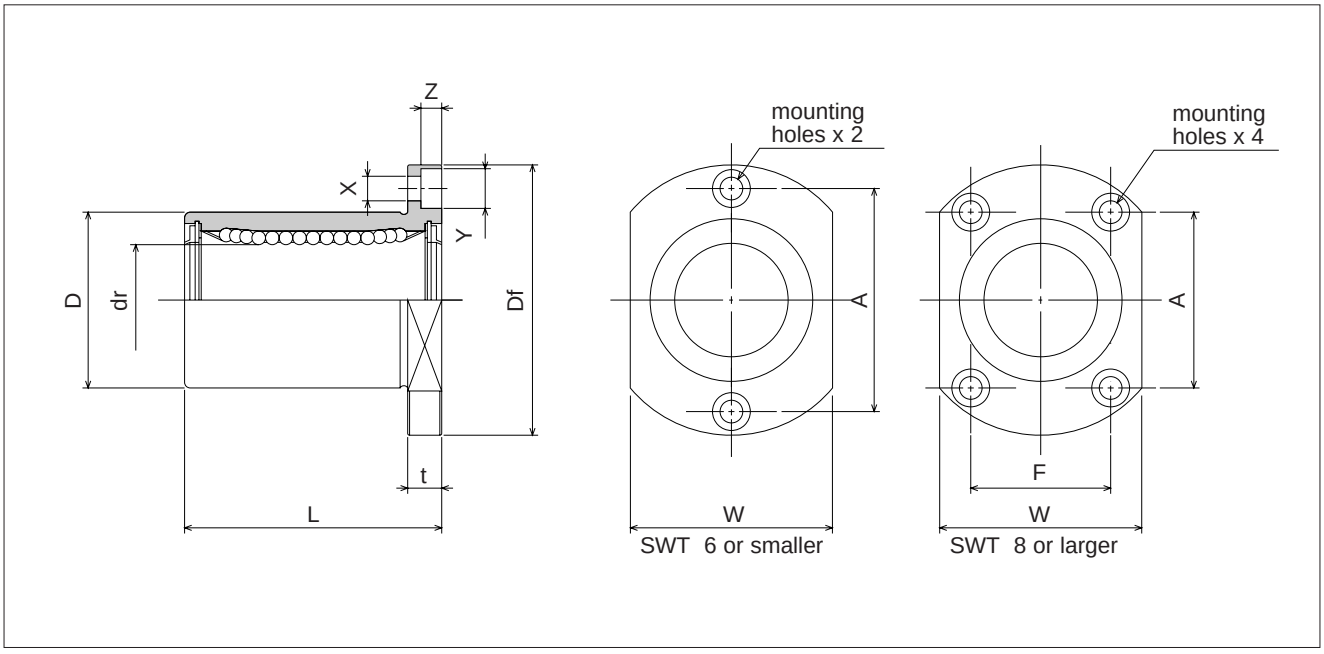
outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in anticorrosion type

part number***				number of ball circuits	dr		D		L
standard		anticorrosion			inch	tolerance inch	inch	tolerance inch	±0.012 inch
steel retainer	resin retainer	stainless retainer	resin retainer						
SWT 4UU	**SWT 4GUU**	**SWST 4UU**	**SWST 4GUU**	4	.2500	0 −.00040	.5000	0/−.00050	.7500
SWT 6UU	**SWT 6GUU**	**SWST 6UU**	**SWST 6GUU**	4	.3750		.6250	0 −.00065	.8750
SWT 8UU	**SWT 8GUU**	**SWST 8UU**	**SWST 8GUU**	4	.5000		.8750		1.2500
SWT10UU	**SWT10GUU**	**SWST10UU**	**SWST10GUU**	4	.6250		1.1250		1.5000
SWT12UU	**SWT12GUU**	**SWST12UU**	**SWST12GUU**	5	.7500		1.2500	0 −.00075	1.6250
SWT16UU	**SWT16GUU**	**SWST16UU**	**SWST16GUU**	6	1.0000		1.5625		2.2500
SWT20UU	**SWT20GUU**	**SWST20UU**	**SWST20GUU**	6	1.2500	0/−.00050	2.0000	0/−.00090	2.6250

*** UU type is standard feature.



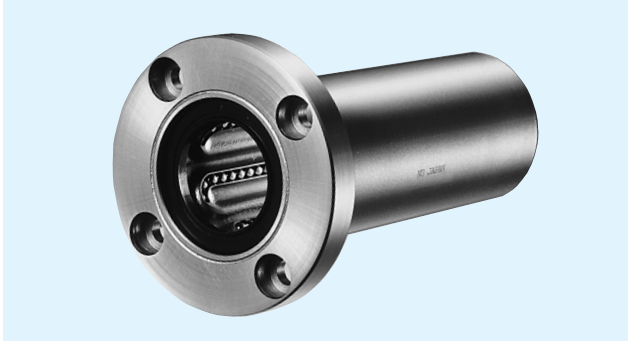
major dimensions						eccentricity	perpen-dicularity	basic load rating		mass	shaft diameter
flange								dynamic	static		
Df	W	t	A	F	X×Y×Z			C	Co		
inch	inch	inch	inch	inch	inch	inch	inch	N	N	g	inch
1.2500	.7500	.2190	.8750	-	.1560×.2500×.1410	.0005	.0005	206	265	28	1/4
1.5000	.8750	.2500	1.0625	-	.1875×.2970×.1720			225	314	44	3/8
1.7500	1.1250	.2500	1.1250	.6875	.1875×.2970×.1720			510	784	77	1/2
2.0000	1.3750	.2500	1.2500	.9375	.1875×.2970×.1720			774	1,180	125	5/8
2.1875	1.5000	.3125	1.3750	1.0000	.2187×.3440×.2030	.0006	.0006	862	1,370	162	3/4
2.5000	1.8750	.3125	1.5625	1.3125	.2187×.3440×.2030			980	1,570	293	1
3.1250	2.3750	.3750	1.8750	1.7500	.2812×.4060×.2656	.0008	.0008	1,570	2,740	586	1−1/4

1N≒0.225lbf 1kg≒2.205lbs

SWF-W TYPE

– Round Flange Double-Wide Type –

This type is an inch dimension series mainly used in the U.S.



part number structure example **SWSF 16 G W UU - SK**

specification

SWF	standard
SWSF	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

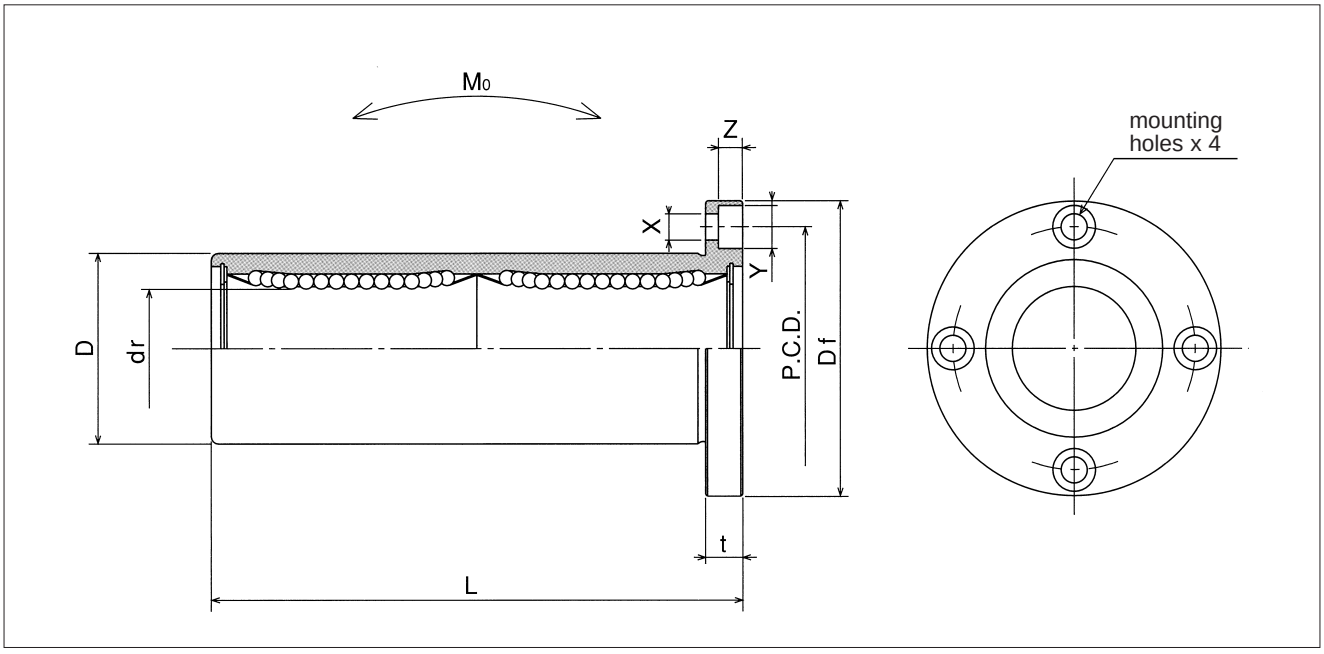
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSF type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L ±.012 ±0.3 inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm	
steel retainer	resin retainer	stainless retainer	resin retainer					
SWF 4W	**SWF 4GW**	**SWSF 4W**	**SWSF 4GW**	.2500 6.350	0 −.00040 0 −10	.5000 12.700	0 −.00050 0 −13	1.3750 34.925
SWF 6W	**SWF 6GW**	**SWSF 6W**	**SWSF 6GW**	.3750 9.525		.6250 15.875	0 −.00065 0 −16	1.5938 40.481
SWF 8W	**SWF 8GW**	**SWSF 8W**	**SWSF 8GW**	.5000 12.700		.8750 22.225		2.3750 60.325
SWF10W	**SWF10GW**	**SWSF10W**	**SWSF10GW**	.6250 15.875		1.1250 28.575		2.8125 71.438
SWF12W	**SWF12GW**	**SWSF12W**	**SWSF12GW**	.7500 19.050	0 −.00050 0 −12	1.2500 31.750	0 −.00075 0 −19	3.0937 78.581
SWF16W	**SWF16GW**	**SWSF16W**	**SWSF16GW**	1.0000 25.400		1.5625 39.688		4.2813 108.744
SWF20W	**SWF20GW**	**SWSF20W**	**SWSF20GW**	1.2500 31.750	0 −.00060 0 −15	2.0000 50.800	0 −.00090 0 −22	5.0000 127.000
SWF24W	**SWF24GW**	**SWSF24W**	**SWSF24GW**	1.5000 38.100		2.3750 60.325		5.6875 144.463
SWF32W	**SWF32GW**	**SWSF32W**	**SWSF32GW**	2.0000 50.800		3.0000 76.200	0 −.00100 0 −25	7.7500 196.850



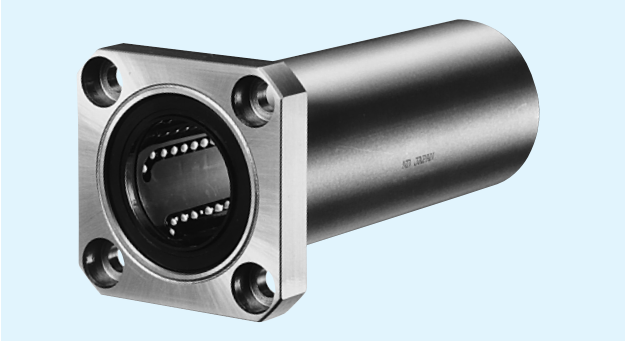
major dimensions				eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	Mo N・m	g	inch mm
1.2500 31.750	.2188 5.556	.8750 22.225	.1563×.2500×.1406 3.969×6.350×3.572	.0006 15	.0006 15	323	530	2.0	40	1/4 6.350
1.5000 38.100	.2500 6.350	1.0625 26.988	.1875×.2969×.1719 4.763×7.541×4.366			353	630	2.7	60	3/8 9.525
1.7500 44.450	.2500 6.350	1.3125 33.338	.1875×.2969×.1719 4.763×7.541×4.366			813	1,570	11.5	126	1/2 12.700
2.0000 50.800	.2500 6.350	1.5625 39.688	.1875×.2969×.1719 4.763×7.541×4.366			1,230	2,350	20.0	215	5/8 15.875
2.1875 55.563	.3125 7.938	1.7188 43.656	.2188×.3438×.2031 5.556×8.731×5.159	.0008 20	.0008 20	1,370	2,740	26.5	280	3/4 19.050
2.5000 63.500	.3125 7.938	2.0313 51.594	.2188×.3438×.2031 5.556×8.731×5.159			1,570	3,140	41.2	515	1 25.400
3.1250 79.375	.3750 9.525	2.5625 65.088	.2813×.4063×.2656 7.144×10.319×6.747	.0010 25	.0010 25	2,500	5,490	84.8	1,020	1-1/4 31.750
3.7500 95.250	.5000 12.700	3.0625 77.788	.3437×.5000×.3281 8.731×12.700×8.334			3,430	8,040	143	1,630	1-1/2 38.100
4.3750 111.125	.5000 12.700	3.6875 93.662	.3437×.5000×.3281 8.731×12.700×8.334	.0012 30	.0012 30	6,080	15,900	399	2,800	2 50.800

1N≒0.225lbf 1N・m≒0.738lb・ft

SWK-W TYPE

– Square Flange Double-Wide Type –

This type is an inch dimension series mainly used in the U.S.



part number structure example

SWSK | **16** | **G** | **W** | **UU** | - | **SK**

specification

SWK	standard
SWSK	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

double-wide type

outer cylinder surface treatment

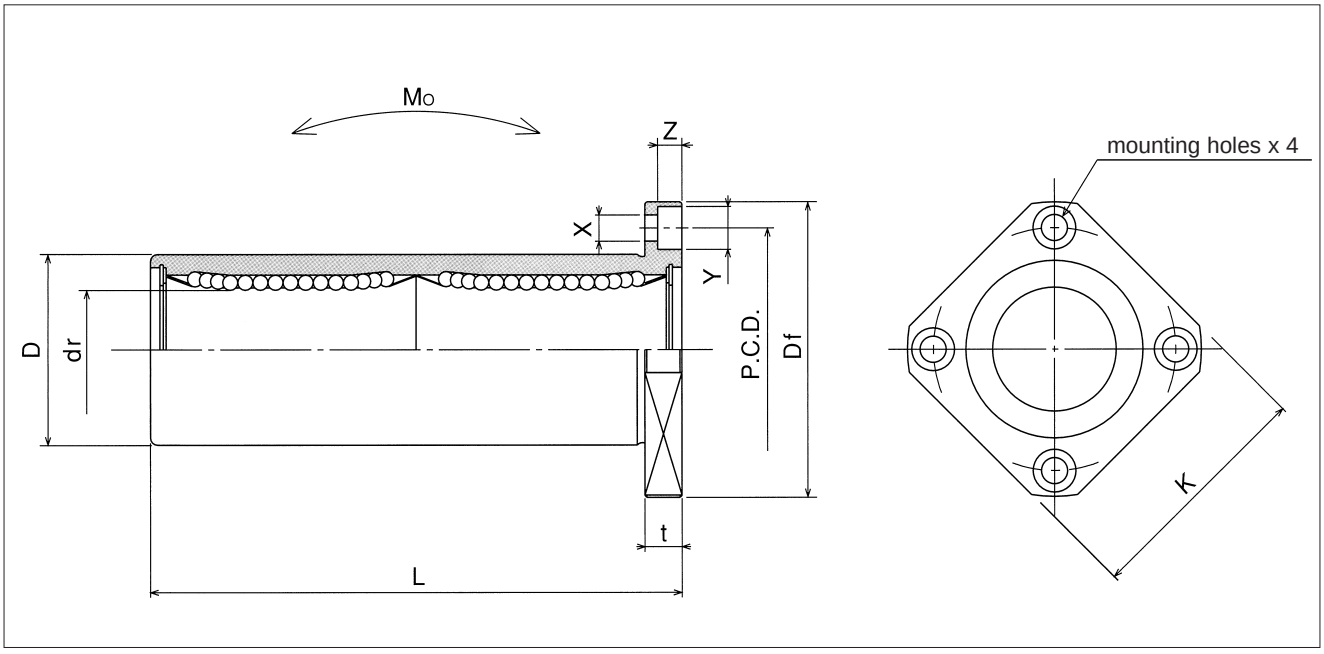
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSK type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L ±.012 ±0.3 inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm	
steel retainer	resin retainer	stainless retainer	resin retainer					
SWK 4W	**SWK 4GW**	**SWSK 4W**	**SWSK 4GW**	.2500 6.350	0 −.00040	.5000 12.700	0 −.00050 0 −13	1.3750 34.925
SWK 6W	**SWK 6GW**	**SWSK 6W**	**SWSK 6GW**	.3750 9.525		.6250 15.875	0 −.00065 0 −16	1.5938 40.481
SWK 8W	**SWK 8GW**	**SWSK 8W**	**SWSK 8GW**	.5000 12.700	0 −10	.8750 22.225		2.3750 60.325
SWK10W	**SWK10GW**	**SWSK10W**	**SWSK10GW**	.6250 15.875		1.1250 28.575		2.8125 71.438
SWK12W	**SWK12GW**	**SWSK12W**	**SWSK12GW**	.7500 19.050	0 −.00050 0 −12	1.2500 31.750	0 −.00075 0 −19	3.0937 78.581
SWK16W	**SWK16GW**	**SWSK16W**	**SWSK16GW**	1.0000 25.400		1.5625 39.688		4.2813 108.744
SWK20W	**SWK20GW**	**SWSK20W**	**SWSK20GW**	1.2500 31.750	0 −.00060 0 −15	2.0000 50.800	0 −.00090 0 −22	5.0000 127.000
SWK24W	**SWK24GW**	**SWSK24W**	**SWSK24GW**	1.5000 38.100		2.3750 60.325		5.6875 144.463
SWK32W	**SWK32GW**	**SWSK32W**	**SWSK32GW**	2.0000 50.800		3.0000 76.200	0 −.00100 0 −25	7.7500 196.850



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df inch mm	K inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	Mo N・m	g	inch mm
1.2500 31.750	1.0000 25.400	.2188 5.556	.8750 22.225	.1563×.2500×.1406 3.969×6.350×3.572	.0006 15	.0006 15	323	530	2.0	33	1/4 6.350
1.5000 38.100	1.2500 31.750	.2500 6.350	1.0625 26.988	.1875×.2969×.1719 4.763×7.541×4.366			353	630	2.7	45	3/8 9.525
1.7500 44.450	1.3750 34.925	.2500 6.350	1.3125 33.338	.1875×.2969×.1719 4.763×7.541×4.366			813	1,570	11.5	106	1/2 12.700
2.0000 50.800	1.5000 38.100	.2500 6.350	1.5625 39.688	.1875×.2969×.1719 4.763×7.541×4.366			1,230	2,350	20.0	200	5/8 15.875
2.1875 55.563	1.6875 42.863	.3125 7.938	1.7188 43.656	.2188×.3438×.2031 5.556×8.731×5.159	.0008 20	.0008 20	1,370	2,740	26.5	240	3/4 19.050
2.5000 63.500	2.0000 50.800	.3125 7.938	2.0313 51.594	.2188×.3438×.2031 5.556×8.731×5.159			1,570	3,140	41.2	470	1 25.400
3.1250 79.375	2.5000 63.500	.3750 9.525	2.5625 65.088	.2813×.4063×.2656 7.144×10.319×6.747	.0010 25	.0010 25	2,500	5,490	84.8	935	1-1/4 31.750
3.7500 95.250	3.0000 76.200	.5000 12.700	3.0625 77.788	.3437×.5000×.3281 8.731×12.700×8.334			3,430	8,040	143	1,460	1-1/2 38.100
4.3750 111.125	3.5000 88.900	.5000 12.700	3.6875 93.662	.3437×.5000×.3281 8.731×12.700×8.334	.0012 30	.0012 30	6,080	15,900	399	2,620	2 50.800

1N≒0.225lbf 1N・m≒0.738lb・ft

SWFC TYPE

– Center Mount Round Flange Type –

This type is an inch dimension series mainly used in the U.S.

part number structure example

SWSFC | **16** | **G** | **UU** - **SK**

specification

SWFC	standard
SWSFC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

seal

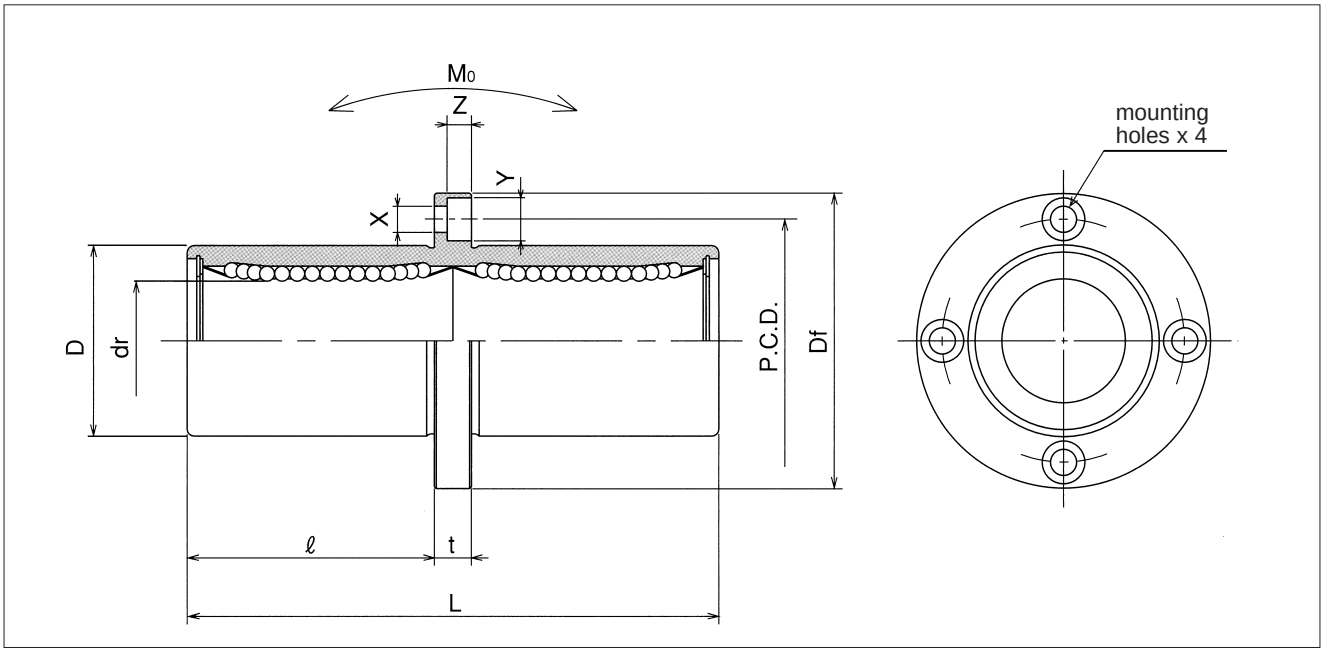
blank	without seal
UU	seals on both sides

outer cylinder surface treatment

blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSFC type

part number				dr		D		L ±.012 ±0.3 inch mm	ℓ inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm		
steel retainer	resin retainer	stainless retainer	resin retainer						
SWFC 4	**SWFC 4G**	**SWSFC 4**	**SWSFC 4G**	.2500 6.350	0 −.00040 0 −10	.5000 12.700	−.00050 0 0 −13	1.3750 34.925	.5781 14.684
SWFC 6	**SWFC 6G**	**SWSFC 6**	**SWSFC 6G**	.3750 9.525		.6250 15.875	0 −.00065 0 −16	1.5938 40.481	.6719 17.066
SWFC 8	**SWFC 8G**	**SWSFC 8**	**SWSFC 8G**	.5000 12.700		.8750 22.225		2.3750 60.325	1.0625 26.988
SWFC10	**SWFC10G**	**SWSFC10**	**SWSFC10G**	.6250 15.875		1.1250 28.575		2.8125 71.438	1.2813 32.544
SWFC12	**SWFC12G**	**SWSFC12**	**SWSFC12G**	.7500 19.050	0 −.00050 0 −12	1.2500 31.750	0 −.00075 0 −19	3.0937 78.581	1.3906 35.322
SWFC16	**SWFC16G**	**SWSFC16**	**SWSFC16G**	1.0000 25.400		1.5625 39.688		4.2813 108.744	1.9844 50.403
SWFC20	**SWFC20G**	**SWSFC20**	**SWSFC20G**	1.2500 31.750	0 −.00060 0 −15	2.0000 50.800	0 −.00090 0 −22	5.0000 127.000	2.3125 58.738
SWFC24	**SWFC24G**	**SWSFC24**	**SWSFC24G**	1.5000 38.100		2.3750 60.325		5.6875 144.463	2.5938 65.882
SWFC32	**SWFC32G**	**SWSFC32**	**SWSFC32G**	2.0000 50.800		3.0000 76.200	−.00100 0 0 −25	7.7500 196.850	3.6250 92.075



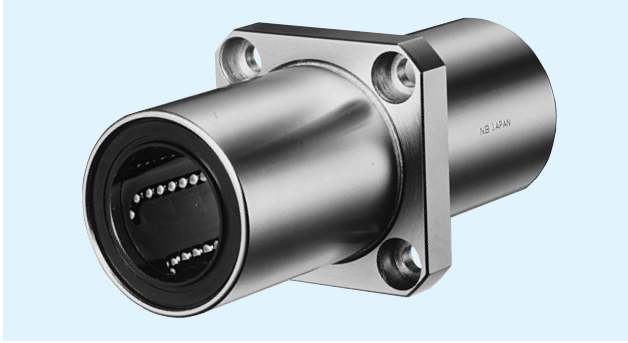
major dimensions				eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange						dynamic	static			
Df inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	Mo N・m	g	inch mm
1.2500 31.750	.2188 5.556	.8750 22.225	.1563×.2500×.1406 3.969×6.350×3.572			323	530	2.0	40	1/4 6.350
1.5000 38.100	.2500 6.350	1.0625 26.988	.1875×.2969×.1719 4.763×7.541×4.366	.0006	.0006	353	630	2.7	60	3/8 9.525
1.7500 44.450	.2500 6.350	1.3125 33.338	.1875×.2969×.1719 4.763×7.541×4.366	15	15	813	1,570	11.5	126	1/2 12.700
2.0000 50.800	.2500 6.350	1.5625 39.688	.1875×.2969×.1719 4.763×7.541×4.366			1,230	2,350	20.0	215	5/8 15.875
2.1875 55.563	.3125 7.938	1.7188 43.656	.2188×.3438×.2031 5.556×8.731×5.159	.0008	.0008	1,370	2,740	26.5	280	3/4 19.050
2.5000 63.500	.3125 7.938	2.0313 51.594	.2188×.3438×.2031 5.556×8.731×5.159	20	20	1,570	3,140	41.2	515	1 25.400
3.1250 79.375	.3750 9.525	2.5625 65.088	.2813×.4063×.2656 7.144×10.319×6.747	.0010	.0010	2,500	5,490	84.8	1,020	1-1/4 31.750
3.7500 95.250	.5000 12.700	3.0625 77.788	.3437×.5000×.3281 8.731×12.700×8.334	25	25	3,430	8,040	143	1,630	1-1/2 38.100
4.3750 111.125	.5000 12.700	3.6875 93.662	.3437×.5000×.3281 8.731×12.700×8.334	.0012 30	.0012 30	6,080	15,900	399	2,800	2 50.800

1N≒0.225lbf 1N・m≒0.738lb・ft

SWKC TYPE

– Center Mount Square Flange Type –

This type is an inch dimension series mainly used in the U.S.



part number structure example

SWSKC | **16** | **G** | **UU** - **SK**

specification

SWKC	standard
SWSKC	anticorrosion

inner contact diameter

retainer material

blank	steel
G	resin

outer cylinder surface treatment

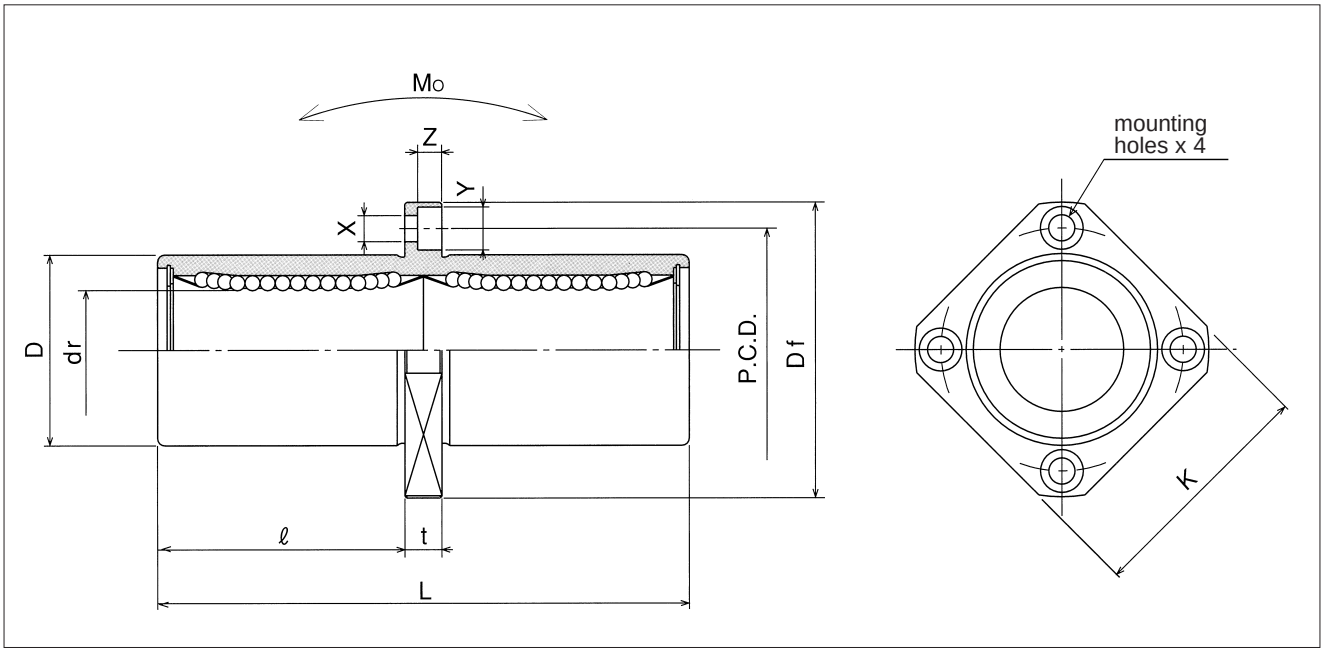
blank	no surface treatment
SK	electroless nickel plating
LF	low temperature black chrome treatment with fluoride coating
SB	black oxide*
SC	industrial chrome plating

*not available in SWSKC type

seal

blank	without seal
UU	seals on both sides

part number				dr		D		L ±.012 ±0.3 inch mm	ℓ inch mm
standard		anticorrosion		inch mm	tolerance inch/μm	inch mm	tolerance inch/μm		
steel retainer	resin retainer	stainless retainer	resin retainer						
SWKC 4	**SWKC 4G**	**SWSKC 4**	**SWSKC 4G**	.2500 6.350	0 −.00040 0 −10	.5000 12.700	$-.00050^{0}_{0}$ $-^{0}_{13}$	1.3750 34.925	.5781 14.684
SWKC 6	**SWKC 6G**	**SWSKC 6**	**SWSKC 6G**	.3750 9.525		.6250 15.875	0 −.00065 0 −16	1.5938 40.481	.6719 17.066
SWKC 8	**SWKC 8G**	**SWSKC 8**	**SWSKC 8G**	.5000 12.700		.8750 22.225		2.3750 60.325	1.0625 26.988
SWKC10	**SWKC10G**	**SWSKC10**	**SWSKC10G**	.6250 15.875		1.1250 28.575		2.8125 71.438	1.2813 32.544
SWKC12	**SWKC12G**	**SWSKC12**	**SWSKC12G**	.7500 19.050	0 −.00050 0 −12	1.2500 31.750	0 −.00075 0 −19	3.0937 78.581	1.3906 35.322
SWKC16	**SWKC16G**	**SWSKC16**	**SWSKC16G**	1.0000 25.400		1.5625 39.688		4.2813 108.744	1.9844 50.403
SWKC20	**SWKC20G**	**SWSKC20**	**SWSKC20G**	1.2500 31.750	0 −.00060 0 −15	2.0000 50.800	0 −.00090 0 −22	5.0000 127.000	2.3125 58.738
SWKC24	**SWKC24G**	**SWSKC24**	**SWSKC24G**	1.5000 38.100		2.3750 60.325		5.6875 144.463	2.5938 65.882
SWKC32	**SWKC32G**	**SWSKC32**	**SWSKC32G**	2.0000 50.800		3.0000 76.200	$-.00100^{0}_{0}$ $-^{0}_{25}$	7.7500 196.850	3.6250 92.075



major dimensions					eccentricity	perpen-dicularity	basic load rating		allowable static moment	mass	shaft diameter
flange							dynamic	static			
Df inch mm	K inch mm	t inch mm	P.C.D. inch mm	X×Y×Z inch mm	inch μm	inch μm	C N	Co N	Mo N・m	g	inch mm
1.2500 31.750	1.0000 25.400	.2188 5.556	.8750 22.225	.1563×.2500×.1406 3.969×6.350×3.572	.0006 15	.0006 15	323	530	2.0	33	1/4 6.350
1.5000 38.100	1.2500 31.750	.2500 6.350	1.0625 26.988	.1875×.2969×.1719 4.763×7.541×4.366			353	630	2.7	45	3/8 9.525
1.7500 44.450	1.3750 34.925	.2500 6.350	1.3125 33.338	.1875×.2969×.1719 4.763×7.541×4.366			813	1,570	11.5	106	1/2 12.700
2.0000 50.800	1.5000 38.100	.2500 6.350	1.5625 39.688	.1875×.2969×.1719 4.763×7.541×4.366			1,230	2,350	20.0	200	5/8 15.875
2.1875 55.563	1.6875 42.863	.3125 7.938	1.7188 43.656	.2188×.3438×.2031 5.556×8.731×5.159	.0008 20	.0008 20	1,370	2,740	26.5	240	3/4 19.050
2.5000 63.500	2.0000 50.800	.3125 7.938	2.0313 51.594	.2188×.3438×.2031 5.556×8.731×5.159			1,570	3,140	41.2	470	1 25.400
3.1250 79.375	2.5000 63.500	.3750 9.525	2.5625 65.088	.2813×.4063×.2656 7.144×10.319×6.747	.0010 25	.0010 25	2,500	5,490	84.8	935	1-1/4 31.750
3.7500 95.250	3.0000 76.200	.5000 12.700	3.0625 77.788	.3437×.5000×.3281 8.731×12.700×8.334			3,430	8,040	143	1,460	1-1/2 38.100
4.3750 111.125	3.5000 88.900	.5000 12.700	3.6875 93.662	.3437×.5000×.3281 8.731×12.700×8.334	.0012 30	.0012 30	6,080	15,900	399	2,620	2 50.800

1N≒0.225lbf　1N・m≒0.738lb・ft

GW TYPE

– Single Type –

part number structure

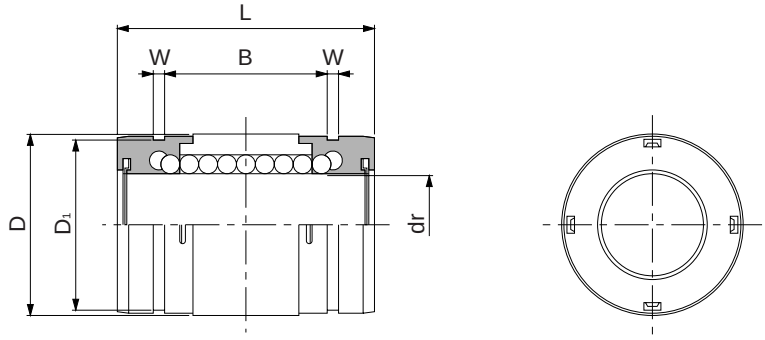
example **GW** **12** **UU**

GW type

inner contact diameter

Seal

Blank	without seal
UU	seals on both sides



part number	number of ball circuits	major dimensions								basic load rating		mass
		dr		D		L	B	W	D_1	dynamic C	static Co	
		inch	tolerance inch	inch	tolerance inch	inch	inch	inch	inch	N	N	g
GW 4	4	.2500	0 −.00040	.5000	0/−.00045	.7500	.4329	.0390	.4687	206	265	5.4
GW 6	4	.3750		.6250	0 −.00050	.8750	.5577	.0390	.5880	225	314	7.8
GW 8	4	.5000		.8750		1.2500	.8710	.0459	.8209	510	784	26
GW 10	4	.6250		1.1250		1.5000	.9920	.0559	1.0590	774	1,180	51
GW 12	6	.7500		1.2500	0 −.00065	1.6250	1.0538	.0559	1.1760	862	1,370	72
GW 16	6	1.0000		1.5625		2.2500	1.6187	.0679	1.4687	980	1,570	138
GW 20	6	1.2500	0/−.00050	2.0000	0/−.00075	2.6250	1.8687	.0679	1.8859	1,570	2,740	269

1N≒0.225lbf 1kg≒2.205lbs