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 manufacturing equipment.

STRUCTURE AND ADVANTAGES

The outer cylinder of slide bush contains a ball retainer that is perfectly designed to control the circulation of ball elements, resulting in smooth linear motion.

Compact Machanism

The NB slide bush uses a round shaft for the guiding axis, resulting in space-saving, which allows for compact designs.

A Wide Variety of Shapes and Installation Methods

The NB slide bush is available in various types, standard, clearance-adjustable, open, flange, etc., for a various applications.

Selection According to Environment

NB slide bushes are available in standard and anti-corrosion types. Available options include steel-retainer suitable for use in harsh environments and resin retainer for low acoustic, low-cost requirement. Other options can be specified according to the application requirements.

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 compared to other linear motion mechanisms.

GM Series

The GM slide bush makes efficient use of resin sub-parts making it possible to achieve an overall weight reduction of 30～50% compared with the SM slide bush. The ball return section is made of resin material, which serves for low noise operation. Also, cost-effectiveness expands the use of slide bush in many applications.

Block Type Series

Block type series is a unit of NB slide bush and a block type housing. A variety of block types are available such as precision-machined blocks, resin-made blocks, and cost-effective units, each contributes to higher accuracy, light-weight, and low-cost and design-time saving, respectively.

FIT Series

FIT series is a combination of NB slide bush and precision-machined shaft. The best-fit between slide bush and shaft achieves a smooth, high-accuracy performance meeting the customer requirements.

(see page F-16)

Figure C-1 Basic Structure of NB Slide Bush (SM, KB, SW)

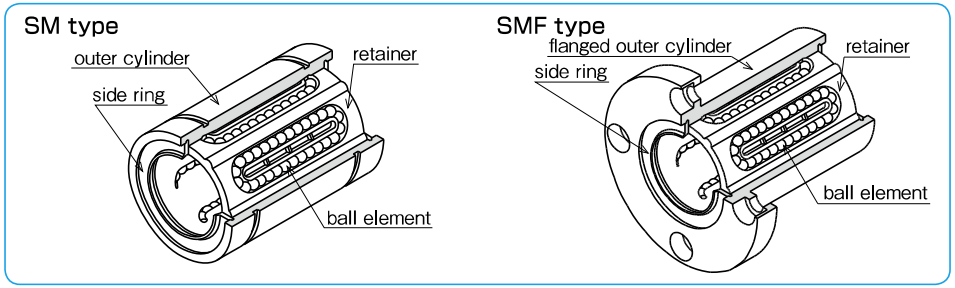
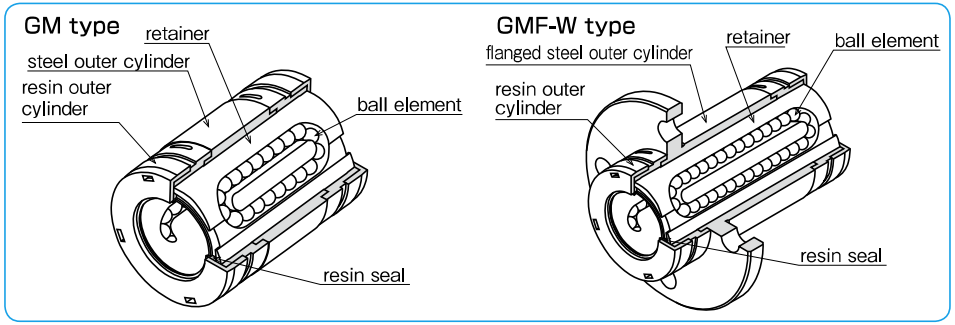


Figure C-2 Basic Structure of NB Slide Bush (GM)



TYPES

Table C-1 Type (1)

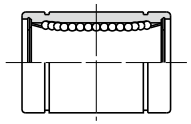
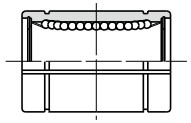
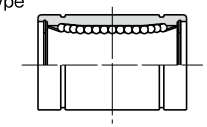
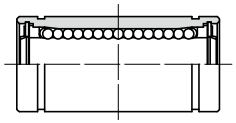
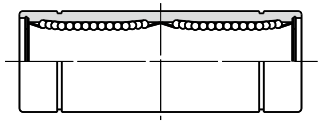
type		standard	anti-corrosion	page
standard type		**SM**	**SMS**	C- 14
		KB	**KBS**	C- 68
		SW	**SWS**	C- 90
clearance-adjustable (AJ) type		**SM-AJ**	**SMS-AJ**	C- 16
		KB-AJ	**KBS-AJ**	C- 70
		SW-AJ	**SWS-AJ**	C- 92
open (OP) type		**SM-OP**	**SMS-OP**	C- 18
		KB-OP	**KBS-OP**	C- 72
		SW-OP	**SWS-OP**	C- 94
long type		**SM-G-L**	—	C- 20
double-wide type		**SM-W**	**SMS-W**	C- 22
		KB-W	**KBS-W**	C- 74
		SW-W	**SWS-W**	C- 96

Table C-2 Type (2)

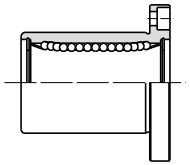
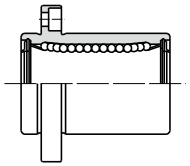
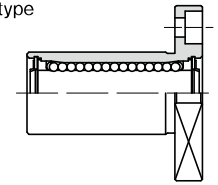
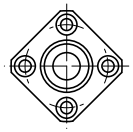
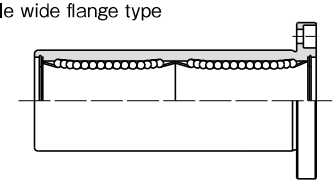
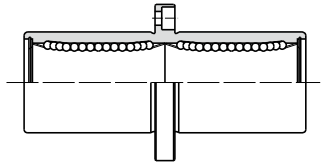
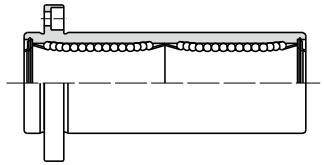
type		standard	anti-corrosion	page
flange type 		SMF	SMSF	C- 24
		KBF	KBSF	C- 76
		SWF	SWSF	C- 98
		SMK	SMSK	C- 26
		KBK	KBSK	C- 78
		SWK	SWSK	C-100
		SMT	SMST	C- 28
		KBT	KBST	C- 80
		SWT	SWST	C-102
flange type with pilot end 		SMF-E	SMSF-E	C- 30
		SMK-E	SMSK-E	C- 32
		SMT-E	SMST-E	C- 34
long flange type 		SMK-G-L	—	C- 36
double wide flange type 		SMF-W	SMSF-W	C- 38
		KBF-W	KBSF-W	C- 82
		SWF-W	SWSF-W	C-104
		SMK-W	SMSK-W	C- 40
		KBK-W	KBSK-W	C- 84
		SWK-W	SWSK-W	C-106
		SMT-W	SMST-W	C- 42
center mount flange type 		SMFC	SMSFC	C- 44
		KBFC	KBSFC	C- 86
		SWFC	SWSFC	C-108
		SMKC	SMSKC	C- 46
		KBKC	KBSKC	C- 88
		SWKC	SWSKC	C-110
		SMTC	SMSTC	C- 48
double-wide pilot end flange type 		SMF-W-E	SMSF-W-E	C- 50
		SMK-W-E	SMSK-W-E	C- 52
		SMT-W-E	SMST-W-E	C- 54

Table C-3 Type (3)

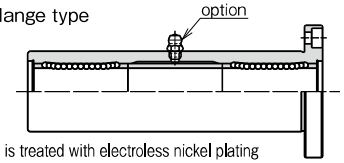
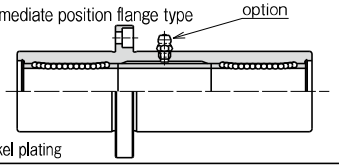
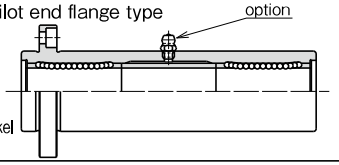
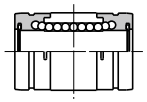
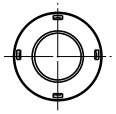
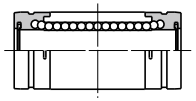
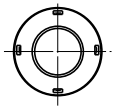
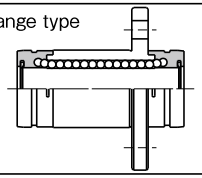
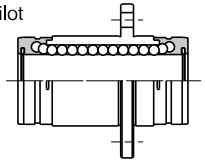
type		standard	anti-corrosion	page
triple wide flange type (option)  ※ Outer cylinder is treated with electroless nickel plating		TRF	—	C- 56
		TRK	—	C- 58
triple-wide intermediate position flange type (option)  ※ Outer cylinder is treated with electroless nickel plating		TRFC	—	C- 60
		TRKC	—	C- 62
triple-wide pilot end flange type (option)  ※ Outer cylinder is treated with electroless nickel plating		TRF-E	—	C- 64
		TRK-E	—	C- 66

Table C-4 Type (4) GM Series

type		standard	page
GM/GW single type 		GM	C- 112
		GW	C-126
GM double-wide type 		GM-W	C-113
GM double-wide flange type 		GMF-W	C-114
		GMK-W	C-116
		GMT-W	C-118
GM double-wide pilot end flange type 		GMF-W-E	C-120
		GMK-W-E	C-122
		GMT-W-E	C-124

BLOCK SERIES

SMA・AK・SMB・SWA Type
This type is the most commonly used standard type. The housing is made of aluminum alloy. The wide (W) type is also available for SMA and AK types.

SMJ ・ SWJ Type
Clearance-adjustment is achieved by creating a slit on the SMA/SWA type housing. Less clearance between block and shaft results in higher positioning accuracy by tightening the adjustment screw.

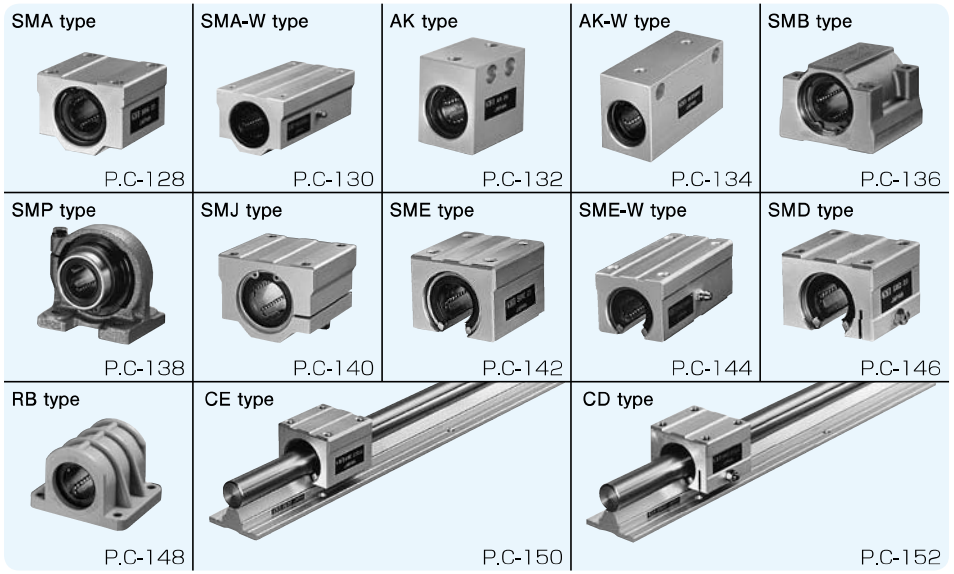
RB ・RBW Type
The housing is made of ABS resin for light-weight and low-cost. Inside is a standard slide bush of a resin retainer type with seals.

SMP Type
The housing has a self-aligning feature. This feature will absorb inaccuracy of the installation base so that a smooth movement is expected.

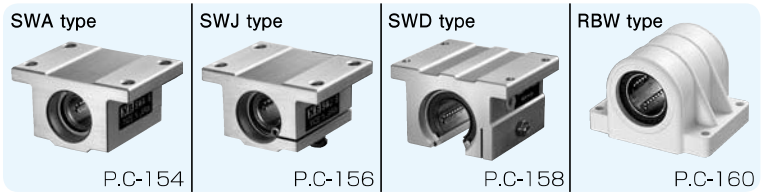
SME・SMD・SWD Type
Open type housing allows a support from below so that a deflection of the shaft is minimized for high loading or long-stroke applications. The wide(W) type is also available for SME type.

CE・CD Type
This type is a unit of block(s), shaft, and support rail that contributes to a total cost reduction. The maximum length is 2,000mm for the support rail and for the shaft the maximum length is 4,500mm.

Metric Series



Inch Series



SPECIFICATIONS

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

Table C-5 Series and Use Location

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

◎ generally used ○ rarely used

Allowable Load
NB slide bushes are categorized into three functional types depending on the number and location of retainers: single, double, and triple. Table C-6 shows load ratings and static moment in comparison. The single type uses only one retainer, so when a moment load is to be applied, the double or triple type is recommended.

Table C-6 Load Comparison

type	basic dynamic load rating	basic static load rating	allowable static moment
single	1	1	1
long	1.3	1.8	約 4
GM-W	1.6	2	約 4
SM double	1.6	2	約 6
triple	1.6	2	約21

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

Material
The outer cylinder of standard type is made of bearing steel and the outer cylinder of anti-corrosion type is made of Martensitic stainless steel. The retainer is available in steel (stainless steel for anti-corrosion), and resin for low acoustic operation. The steel retainer is made of one plate (seamless type).

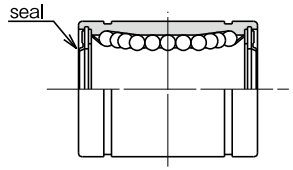
Table C-7 Operating Environment Temperature

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

* If a seal is used in the stainless steel slide bush, the temperature is up to 120℃. Please contact NB if a temperature range exceeds 140℃.

Seal
The seals prevent dust from entering the slide bush in order to retain the motion accuracy, resulting in a long life time. The UU type is a standard option that has seals on both sides. The U type has a seal on one side only 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 series.

Figure C-3 Seal Profile



LIFE CALCULATION

Since ball elements are used as the rolling element in the NB slide bush, the following equation is used to calculate the travel life.

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

L: rated life (km) f_H: hardness coefficient
f_T: temperature coefficient f_C: contact coefficient
f_W: applied load coefficient C: basic dynamic load rating (N)
P: applied load (N)
*Refer to page Eng-5 for the coefficients.

If the stroke distance and number of strokes per unit time are constant, the life time is calculated using the following equation.

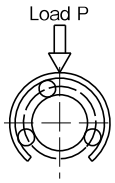
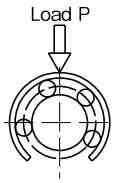
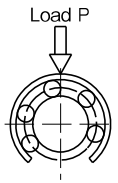
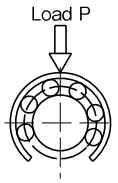
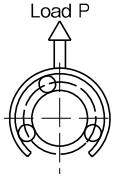
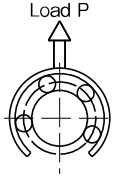
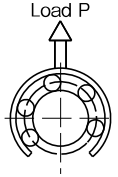
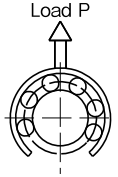
$$L_h=\frac{L \cdot 10^3}{2 \cdot \ell_S \cdot n_1 \cdot 60}$$

L_h: life time (hr) ℓ_S: stroke length (m)
L: rated life (km) n_1: number of cycles per minute (cpm)

LOAD RATING FOR OPEN TYPE SLIDE BUSH

For the open type slide bush an opening is provided to allow the shaft to be supported from underneath. In case a load is constantly applied in the direction of the opening (for example, being used with a vertical shaft or an overhang loading is applied), the load rating decreases due to less number of loaded rows of ball elements. (Table C-8) Therefore, the load rating must be calibrated at the time of design based on the direction of the loading.

Table C-8 Direction of Load and Basic Static Load Rating

part number	SM10G~16G-OP KB10G~16G-OP SW 8G~10G-OP SME (D) 10G~16G CE (D) 16	SM20 (G) -OP KB20 (G) -OP SW12 (G) -OP SME (D) 20 CE (D) 20	SM25 (G) ~100-OP KB25 (G) ~80-OP SW16 (G) ~64-OP SME (D) 25~30 CE (D) 25~30	SM120,150-OP
loading from above				
	C	C	C	C
loading from below				
	0.64C	0.54C	0.57C	0.35C

※ Excluding all the 3-row steel retainer types. Please contact NB in case of 3-row steel retainer.

MOUNTING

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

Figure C-4 Standard Type

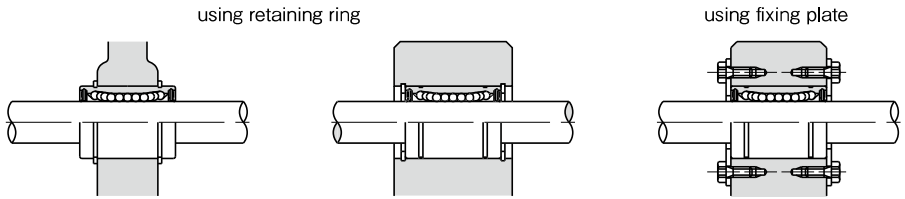


Figure C-5 Clearance Adjustable Type

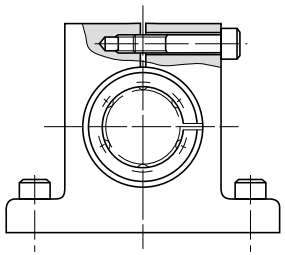


Figure C-6 Open Type

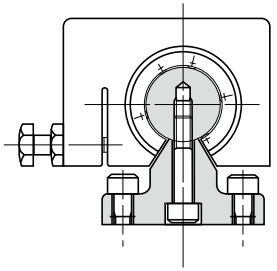
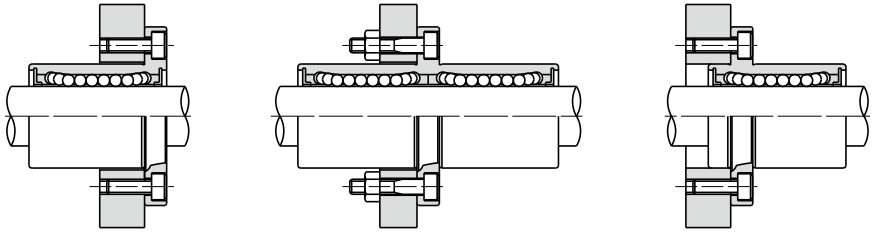


Figure C-7 Flange Type



Fit

The normal clearance fit listed in Table C-9 is generally selected as a shaft outer diameter tolerance for the NB slide bush. The transition fit is selected for a higher accuracy by reducing clearance between slide bush and shaft. Matching bush and shaft (FIT series) is also available for customer's specified clearance. Please be cautious not to apply excess preloading with clearance adjustable and open types. Please keep pre-loading within the maximum radial clearance listed in the dimension 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, H7 tolerance is recommended for housing.
The recommended clearances for the flange type are listed in Table C-10.

Table C-9 Recommended Fit

series	accuracy grade	shaft		housing	
		clearance fit	transition fit	clearance fit	transition fit
SM	high	g6	h6	H7	J7
	precision(P)	g5	h5	H6	J6
SM-G-L	high	g6	—	H7	—
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	—
GM	high	g6	h6	H7	—
GM-W	high	g6	—	H7	—

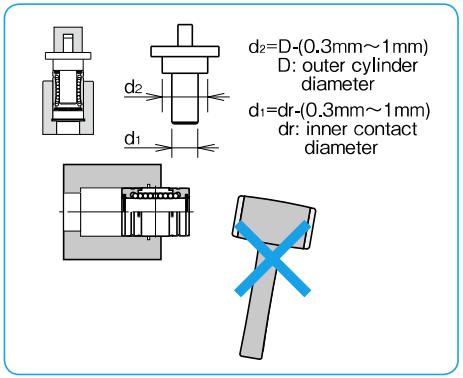
Table C-10 Recommended Fit (Flange Type)

series	shaft	
	clearance fit	transition fit
SMF	g6	h6
SMK-G-L	g6	—
SMF-W	g6	—
TRF	g6	—
KBF	h6	j6
KBF-W	h6	—
SWF	g6	h6
SWF-W	g6	—
GMF-W	g6	—

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 C-8. 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 install the bush by aligning it with the center of the bore. Excessive force may drop out the ball elements 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. Please check the parallelism by moving the slide bush back and forth the length of stroke to check for freedom of movement before final fixing of the shaft.
Please refer to page F-3 for shaft specifications.

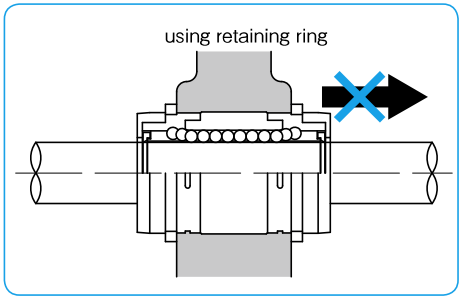
Figure C-8 Insertion of Slide Bush



GM Standard Type

Please avoid a tension load when retaining rings are used for installation.

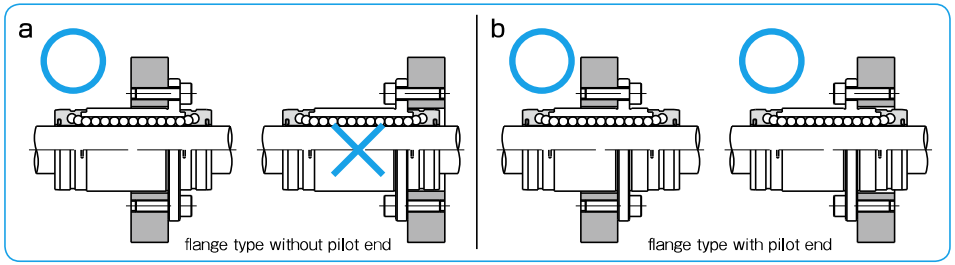
Figure C-9 Installation of GM Standard Type



GM Flange Type

The flange of GM type has a reference plane on one side only as Figure C-10a, please do not use the other side as a reference plane. In case of using the pilot-end flange type, as Figure C-10b shows, both sides can be used as a reference plane. H7 is recommended for the housing bore tolerance.

Figure C-10 Installation of GM Flange type



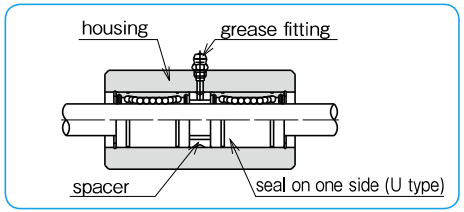
LUBRICATION

It is important to lubricate the slide bush for an accurate operation and for a long life. Anti-rust oil is applied to NB slide bush prior to shipment. The NB selected anti-rust oil has a little effect on the lubricant, however, please apply lubricant after cleaning the slide bush by, for example, kerosene, etc.

Grease Lubricant

Prior to usage, please apply grease, then re-lubricate periodically according to the operating conditions. (Lithium soap-based grease is recommended.) Re-lubrication can be done by directly applying grease inside the ball bush or by using a grease fitting as Figure C-11 shows.
A special low dust generating grease is optional for clean room application, please refer to page Eng-39.

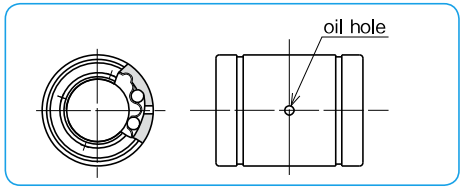
Figure C-11 Grease Fitting



Oil Lubricant

Prior to usage, please apply oil directly to the shaft surface or by using an oil hole as Figure C-12 shows. Turbine oil (ISO standard VG32-68) is recommended.
Oil holes can be machined (see Figure C-12) in the center portion of the outer cylinder. Please contact NB for oil hole specification.

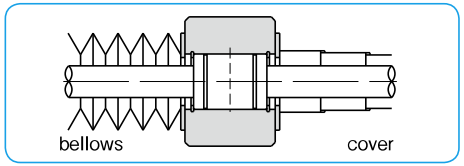
Figure C-12 Oil Hole -Specification-



DUST PREVENTION

A smooth ball circulation is hindered by dust or foreign particles inside the slide bush. Seals on both sides is a standard option for the NB slide bush, however, in a harsh environment it is necessary to attach bellows or protective covers.

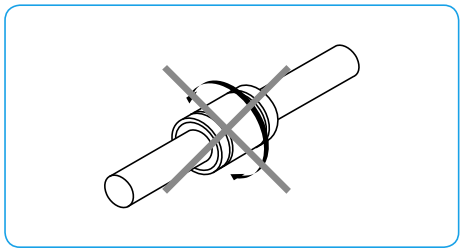
Figure C-13 Example of Dust Prevention



NOTES ON HANDLING

The NB slide bush is a precision component, please handle with care to maintain its high motion accuracy.
The slide bush is designed for linear motion, so that for applications in which a combination of linear and rotational motion is a requirement, let us recommend Stroke Bush, Slide Rotary Bush, or Rotary Ball Spline.

Figure C-14 Direction of Motion



OTHER SPECIFICATIONS

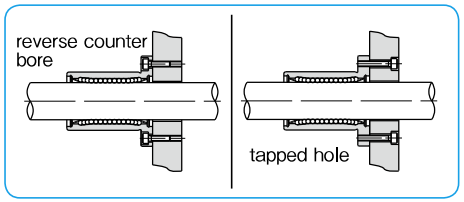
●Flange Type Slide Bush with Surface-Treatment
The following surface treatments are available as standard option:

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

* Please contact NB for the thickness of coating and the resulting outer diameter tolerance.

●Special Specifications
Please contact NB for more information on surface treatment, oil hole (Figure C-12), flange mounting hole (Figure C-15), etc.

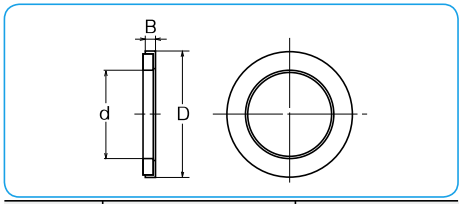
Figure C-15 Examples of Special Installation Hole



FELT SEAL

A felt seal FLM strengthens lubrication characteristics and extends re-lubrication period of the NB slide bush.

Figure C-16 Felt Seal

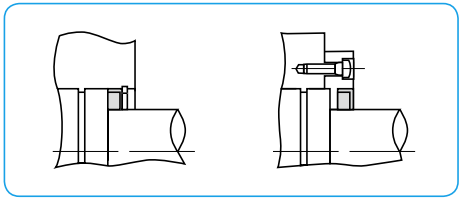


part number	major dimensions(mm) d	D	B	applicable slide bush
FLM 6	6	12	2	SM 6／GM 6
FLM 8	8	15	2	SM 8／GM 8
FLM 10	10	19	3	SM 10／GM10
FLM 12	12	21	3	SM 12／GM12
FLM 13	13	23	3	SM 13／GM13
FLM 16	16	28	4	SM 16／GM16
FLM 20	20	32	4	SM 20／GM20
FLM 25	25	40	5	SM 25／GM25
FLM 30	30	45	5	SM 30／GM30
FLM 35	35	52	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 does not work as a retaining ring. Figure C-17 shows how to install the felt seal.

Figure C-17 Example of Felt Seal Installation



ACCURACY

The accuracy of CE/CD-type support rails are measured as shown in Figure C-18.

Figure C-18 Accuracy Measurement

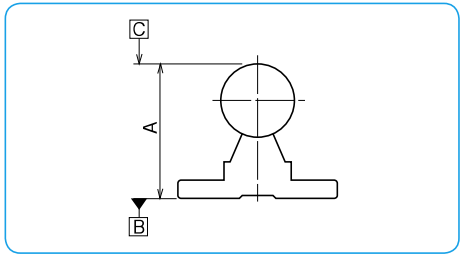
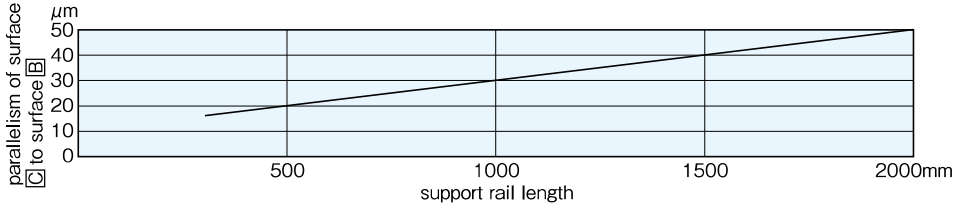


Figure C-19 Accuracy of CE/CD-type Support Rails



NOTES ON USAGE OF BLOCK SERIES

Reference Surface

The NB slide units have a reference surface as shown in Figure C-20. Accuracy is achieved by simply pushing the reference surface against the shoulder of the installation surface. (Excluding RB and SMP types)

Clearance Adjustment

On the clearance adjustment type please avoid excessive preloading. In the same manner please do not apply excessive torque when tightening the screws.

Mounting of RB Type

RB type has a resin housing. Table C-11 shows proper torque values.

Recommended Fit

For clearance fit please use a shaft with g6 tolerance and for transition fit a shaft with h6 tolerance. (Excluding adjustable-clearance and open types)

Special Installation Case of SMJ Type

Special mouting holes will be required for installations such as Figure C-21 shows. Please contact NB for special requirements.

Figure C-20 Reference Surface

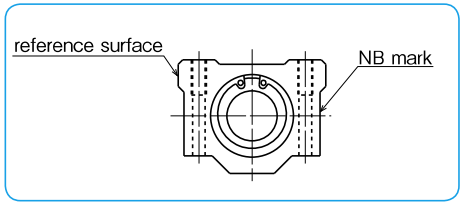
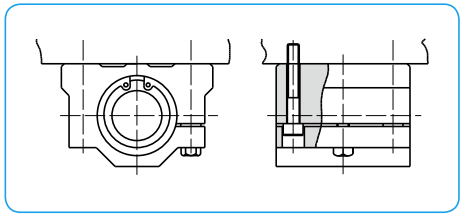


Table C-11 Recommended Torque for RB Type

part number	mounting screw	torque N・m
RB10～16	M4	1.8
RB20	M5	5.3

Figure C-21 Special Installation of SMJ Type

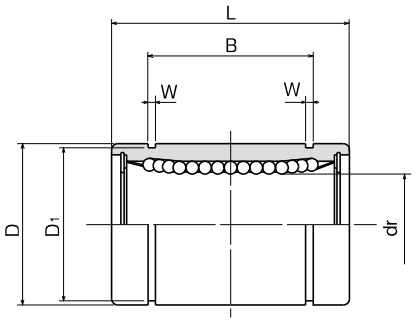


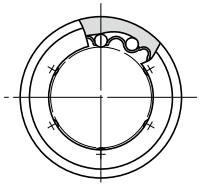
SM TYPE
– Standard Type –

part number structure

example SMS 25 G UU - P

- specification
  SM: standard
  SMS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- seal
  blank: without seal
  U: seal on one side
  UU: seals on both sides
- accuracy grade
  blank: high
  P: precision





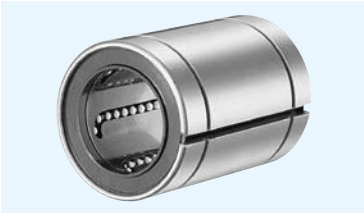
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr			D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm precision	tolerance μm high	mm	tolerance μm
SM 3	SM 3G	SMS 3	SMS 3G	4	3	0 / −5	0 / −8	7	0 / −9
SM 4	SM 4G	SMS 4	SMS 4G	4	4			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	SM 8sG	SMS 8s	SMS 8sG	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

L		B		W	D1	eccentricity		radial clearance	basic load rating		mass	shaft diameter
mm	tolerance mm	mm	tolerance mm	mm	mm	precision μm	high μm	(maximum) μm	dynamic C N	static Co 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

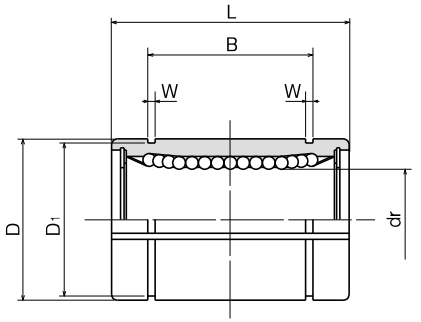
– Clearance Adjustable Type –

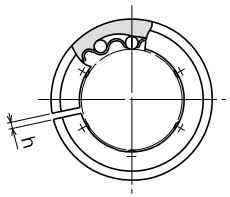


part number structure

example SMS 25 G UU -AJ

- specification
  SM: standard
  SMS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- seal
  blank: without seal
  U: seal on one side
  UU: seals on both sides
- clearance-adjustable





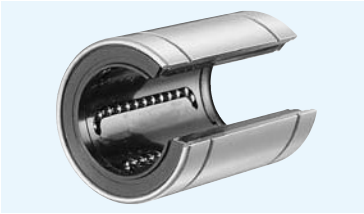
part number				number of ball circuits	major dimensions			
standard		anti-corrosion			dr		D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	SM 6G-AJ	–	SMS 6G-AJ	4	6	0 −9	12	0 −11
–	SM 8sG-AJ	–	SMS 8sG-AJ	4	8		15	
–	SM 8G-AJ	–	SMS 8G-AJ	4	8		15	
–	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 slit.

L		B		W	D1	h	eccentricity*	basic load rating dynamic C	basic load rating static Co	mass	shaft diameter
mm	tolerance mm	mm	tolerance mm	mm	mm	mm	μm	N	N	g	mm
19	0 −0.2	13.5	0 −0.2	1.1	11.5	1	12	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		22		1.3	18	1		372	549	29	10
30		23		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	0 −0.3	41	0 −0.3	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		49.5		2.1	49	2.5	20	1,670	3,140	420	35
80		60.5		2.1	57	3		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	0 −0.4	105.5	0 −0.4	4.15	116	3		7,350	16,000	4,400	80
175		125.5		4.15	145	3	30	14,100	34,800	8,540	100
200		158.6		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

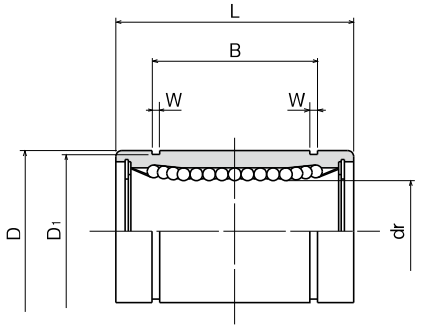
SM-OP TYPE
– Open Type –

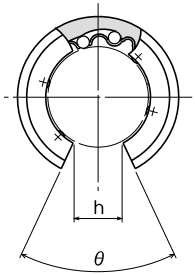


part number structure

example SMS 25 G UU -OP

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

* Accuracy is measured prior to machining open slit.

L		B		W	D1	h	θ	eccentricity*	basic load rating		mass	shaft diameter
	tolerance		tolerance						dynamic	static		
mm	mm	mm	mm	mm	mm	mm		μm	C N	Co 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

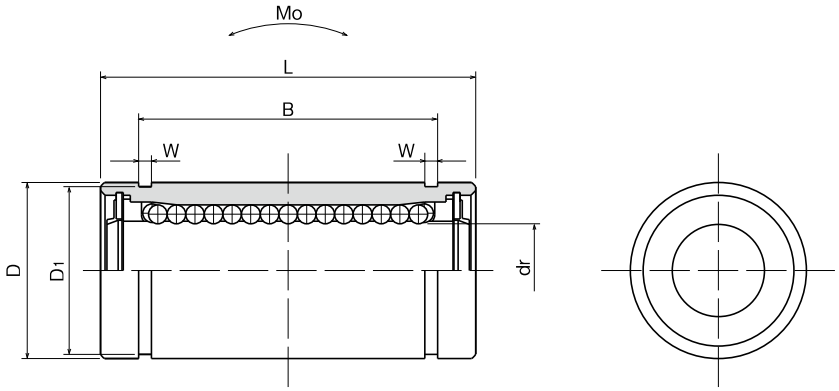
1N≒0.102kgf

SM-G-L TYPE
– Long Type –

part number structure

example SM 25 G - L UU

- SM type
- inner contact diameter (dr)
- resin retainer
- long type
- seals on both sides



part number*	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L mm	L tolerance mm	B mm	B tolerance mm
SM 6G-LUU	4	6	0 −10	12	0 −13	26	0 −0.3	20.5	0 −0.2
SM 8G-LUU	4	8		15		32		25.5	
SM10G-LUU	4	10		19		39		32	
SM12G-LUU	4	12		21	0 −16	41		34	
SM13G-LUU	4	13		23		45		36	
SM16G-LUU	4	16		28		53		42	
SM20G-LUU	5	20	0 −12	32	0 −19	59		47.5	
SM25G-LUU	6	25		40		83		69	0 −0.3
SM30G-LUU	6	30		45		90		75	

*UU type is standard.

W mm	D1 mm	eccentricity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter mm
1.1	11.5	15	262	476	1.15	10	6
1.1	14.3		352	615	1.94	19	8
1.3	18		493	1,005	3.98	38	10
1.3	20		637	1,430	6.26	43	12
1.3	22		682	1,560	7.68	62	13
1.6	27		1,039	2,350	13.2	99	16
1.6	30.5	20	1,160	2,740	17.9	125	20
1.85	38		1,300	2,960	27.2	315	25
1.85	43		2,160	5,880	61.3	347	30

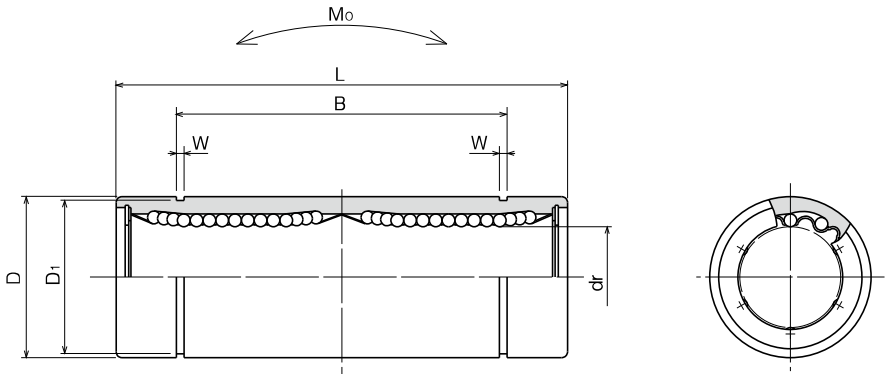
1N≒0.102kgf 1N・m≒0.102kgf・m

SM-W TYPE
– Double-Wide Type –

part number structure

example SMS 25 G W UU

- specification
  SM: standard
  SMS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- double-wide type
- seal
  blank: without seal
  UU: seals on both sides



part number				number of ball circuits	major dimensions			
standard		anti-corrosion			dr		D	
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

L		B		W	D1	eccentricity	basic load rating		allowable	mass	shaft diameter
							dynamic	static	static moment		
mm	tolerance mm	mm	tolerance mm	mm	mm	μm	C N	Co N	Mo N・m	g	mm
19	0 −0.3	–	–	–	–	10	138	210	0.51	3.2	3
23		–	–	–	–		176	254	0.63	4.8	4
28		20.4	0 −0.3	1.1	9.6		265	412	1.38	11	5
35		27		1.1	11.5	15	323	530	2.18	16	6
45		35		1.1	14.3		431	784	4.31	31	8
55		44		1.3	18		588	1,100	7.24	62	10
57		46		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	20	1,400	2,740	26.8	180	20
112	0 −0.4	82	0 −0.4	1.85	38		1,560	3,140	43.4	440	25
123		89		1.85	43		2,490	5,490	82.8	480	30
135		99		2.1	49	25	2,650	6,270	110	795	35
151		121		2.1	57		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

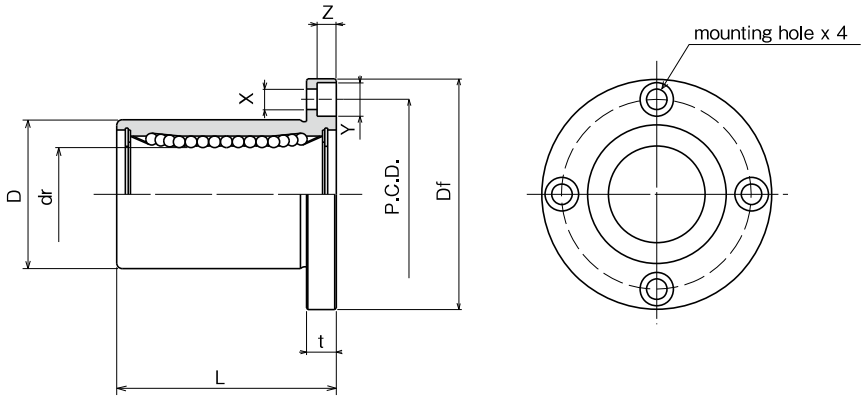
1N≒0.102kgf 1N・m≒0.102kgf・m

SMF TYPE
– Round Flange Type –

part number structure

example **SMSF 25 G UU-SK**

- specification
  - SMF: standard
  - SMSF: anti-corrosion
- inner contact diameter (dr)
- retainer material
  - blank: standard/steel
    anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - SC: industrial chrome plating



part number: standard steel retainer	part number: standard resin retainer	part number: anti-corrosion stainless retainer	part number: anti-corrosion resin retainer	number of ball circuits	major dimensions: dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMF 6	SMF 6G	SMSF 6	SMSF 6G	4	6	0 −9	12	0 −13	19
SMF 8s	SMF 8sG	SMSF 8s	SMSF 8sG	4	8		15		17
SMF 8	SMF 8G	SMSF 8	SMSF 8G	4	8		15		24
SMF 10	SMF10G	SMSF10	SMSF10G	4	10		19	0 −16	29
SMF 12	SMF12G	SMSF12	SMSF12G	4	12		21		30
SMF 13	SMF13G	SMSF13	SMSF13G	4	13		23		32
SMF 16	SMF16G	SMSF16	SMSF16G	4	16		28		37
SMF 20	SMF20G	SMSF20	SMSF20G	5	20	0 −10	32	0 −19	42
SMF 25	SMF25G	SMSF25	SMSF25G	6	25		40		59
SMF 30	SMF30G	SMSF30	SMSF30G	6	30		45		64
SMF 35	SMF35G	SMSF35	SMSF35G	6	35	0 −12	52	0 −22	70
SMF 40	SMF40G	SMSF40	SMSF40G	6	40		60		80
SMF 50	SMF50G	SMSF50	SMSF50G	6	50		80		100
SMF 60	SMF60G	SMSF60	SMSF60G	6	60	0 −15	90	0 −25	110
SMF 80	–	–	–	6	80		120		140
SMF100	–	–	–	6	100	0/−20	150	0/−29	175

flange Df mm	flange t mm	flange P.C.D. mm	X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter 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

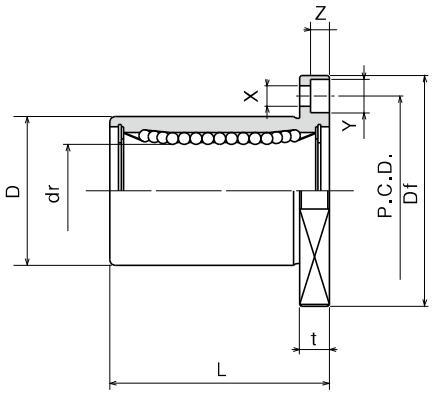
1N≒0.102kgf

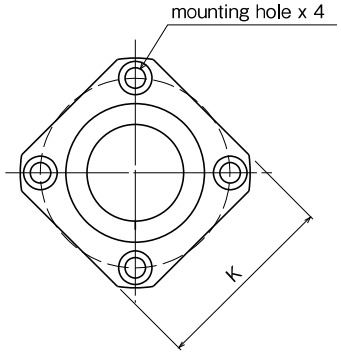
SMK TYPE
– Square Flange Type –

part number structure

example **SMSK 25 G UU - SK**

- specification
  - **SMK**: standard
  - **SMSK**: anti-corrosion
- inner contact diameter (dr)
- retainer material
  - **blank**: standard/steel, anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating





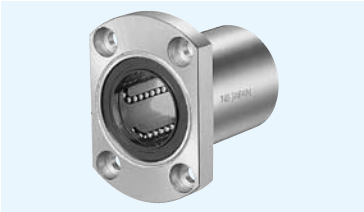
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMK 6	SMK 6G	SMSK 6	SMSK 6G	4	6	0 −9	12	0 −13	19
SMK 8s	SMK 8sG	SMSK 8s	SMSK 8sG	4	8		15		17
SMK 8	SMK 8G	SMSK 8	SMSK 8G	4	8		15		24
SMK 10	SMK10G	SMSK10	SMSK10G	4	10		19	0 −16	29
SMK 12	SMK12G	SMSK12	SMSK12G	4	12		21		30
SMK 13	SMK13G	SMSK13	SMSK13G	4	13		23		32
SMK 16	SMK16G	SMSK16	SMSK16G	4	16		28		37
SMK 20	SMK20G	SMSK20	SMSK20G	5	20	0 −10	32	0 −19	42
SMK 25	SMK25G	SMSK25	SMSK25G	6	25		40		59
SMK 30	SMK30G	SMSK30	SMSK30G	6	30		45		64
SMK 35	SMK35G	SMSK35	SMSK35G	6	35	0 −12	52	0 −22	70
SMK 40	SMK40G	SMSK40	SMSK40G	6	40		60		80
SMK 50	SMK50G	SMSK50	SMSK50G	6	50		80		100
SMK 60	SMK60G	SMSK60	SMSK60G	6	60	0 −15	90	0 −25	110
SMK 80	–	–	–	6	80		120		140
SMK100	–	–	–	6	100	0/−20	150	0/−29	175

flange					eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co 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

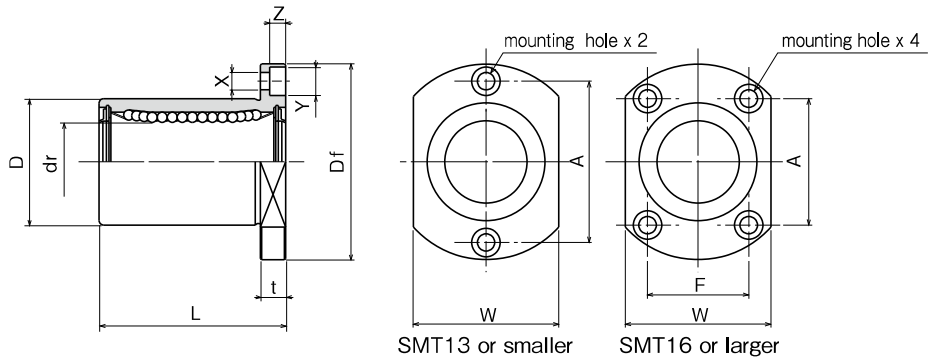
– Two Side Cut Flange Type –



part number structure

example **SMST 25 G UU - SK**

- specification
  SMT: standard
  SMST: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number*				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
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	4	6	0 −9	12	0 −13	19
SMT 8UU	SMT 8GUU	SMST 8UU	SMST 8GUU	4	8		15		24
SMT10UU	SMT10GUU	SMST10UU	SMST10GUU	4	10		19	0 −16	29
SMT12UU	SMT12GUU	SMST12UU	SMST12GUU	4	12		21		30
SMT13UU	SMT13GUU	SMST13UU	SMST13GUU	4	13		23		32
SMT16UU	SMT16GUU	SMST16UU	SMST16GUU	4	16		28		37
SMT20UU	SMT20GUU	SMST20UU	SMST20GUU	5	20	0 −10	32	0 −19	42
SMT25UU	SMT25GUU	SMST25UU	SMST25GUU	6	25		40		59
SMT30UU	SMT30GUU	SMST30UU	SMST30GUU	6	30		45		64

* UU type is standard.

flange						eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	W mm	t mm	A mm	F mm	X×Y×Z mm	μm	μm	dynamic C N	static Co 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

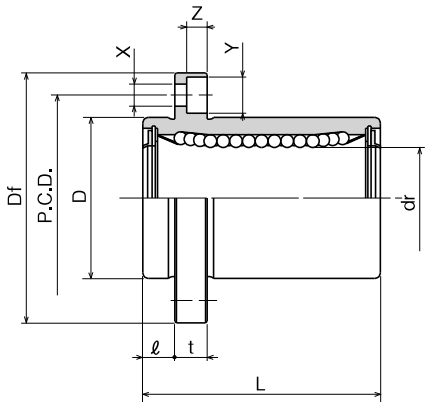
SMF-E TYPE

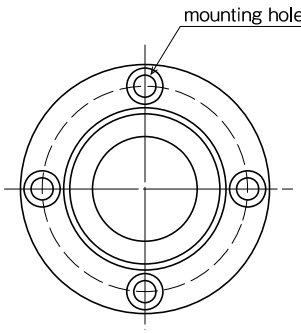
– Round Flange Type with Pilot End –

part number structure

example **SMSF 25 G UU - E - SK**

- specification
  SMF: standard
  SMSF: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- seals on both sides
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating





part number* standard steel retainer	part number* standard resin retainer	part number* anti-corrosion stainless retainer	part number* anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMF 6UU-E	SMF 6GUU-E	SMSF 6UU-E	SMSF 6GUU-E	4	6	0 −9	12	0 −13	19
SMF 8UU-E	SMF 8GUU-E	SMSF 8UU-E	SMSF 8GUU-E	4	8		15		24
SMF10UU-E	SMF10GUU-E	SMSF10UU-E	SMSF10GUU-E	4	10		19	0 −16	29
SMF12UU-E	SMF12GUU-E	SMSF12UU-E	SMSF12GUU-E	4	12		21		30
SMF13UU-E	SMF13GUU-E	SMSF13UU-E	SMSF13GUU-E	4	13		23		32
SMF16UU-E	SMF16GUU-E	SMSF16UU-E	SMSF16GUU-E	4	16		28		37
SMF20UU-E	SMF20GUU-E	SMSF20UU-E	SMSF20GUU-E	5	20	0 −10	32	0 −19	42
SMF25UU-E	SMF25GUU-E	SMSF25UU-E	SMSF25GUU-E	6	25		40		59
SMF30UU-E	SMF30GUU-E	SMSF30UU-E	SMSF30GUU-E	6	30		45		64
SMF35UU-E	SMF35GUU-E	—	—	6	35	0 −12	52	0 −22	70
SMF40UU-E	SMF40GUU-E	—	—	6	40		60		80
SMF50UU-E	SMF50GUU-E	—	—	6	50		80		100
SMF60UU-E	SMF60GUU-E	—	—	6	60	0/−15	90	0/−25	110

* UU type is standard.

flange ℓ mm	flange Df mm	flange t mm	flange P.C.D. mm	flange X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter 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

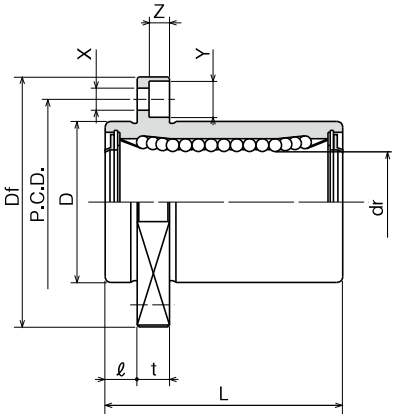
SMK-E TYPE

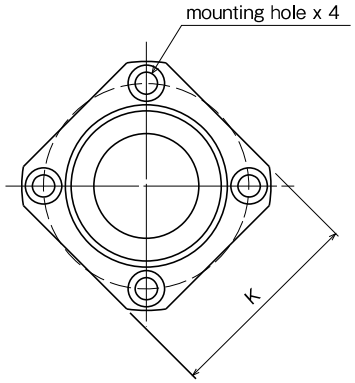
– Square Flange Type with Pilot End –

part number structure

example **SMSK 25 G UU - E - SK**

- specification
  SMK: standard
  SMSK: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- seals on both sides
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating





part number* standard steel retainer	standard resin retainer	anti-corrosion stainless retainer	anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMK 6UU-E	SMK 6GUU-E	SMSK 6UU-E	SMSK 6GUU-E	4	6	0 −9	12	0 −13	19
SMK 8UU-E	SMK 8GUU-E	SMSK 8UU-E	SMSK 8GUU-E	4	8		15		24
SMK10UU-E	SMK10GUU-E	SMSK10UU-E	SMSK10GUU-E	4	10		19	0 −16	29
SMK12UU-E	SMK12GUU-E	SMSK12UU-E	SMSK12GUU-E	4	12		21		30
SMK13UU-E	SMK13GUU-E	SMSK13UU-E	SMSK13GUU-E	4	13		23		32
SMK16UU-E	SMK16GUU-E	SMSK16UU-E	SMSK16GUU-E	4	16		28		37
SMK20UU-E	SMK20GUU-E	SMSK20UU-E	SMSK20GUU-E	5	20	0 −10	32	0 −19	42
SMK25UU-E	SMK25GUU-E	SMSK25UU-E	SMSK25GUU-E	6	25		40		59
SMK30UU-E	SMK30GUU-E	SMSK30UU-E	SMSK30GUU-E	6	30		45		64
SMK35UU-E	SMK35GUU-E	—	—	6	35	0 −12	52	0 −22	70
SMK40UU-E	SMK40GUU-E	—	—	6	40		60		80
SMK50UU-E	SMK50GUU-E	—	—	6	50		80		100
SMK60UU-E	SMK60GUU-E	—	—	6	60	0/−15	90	0/−25	110

* UU type is standard.

flange ℓ mm	Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter 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

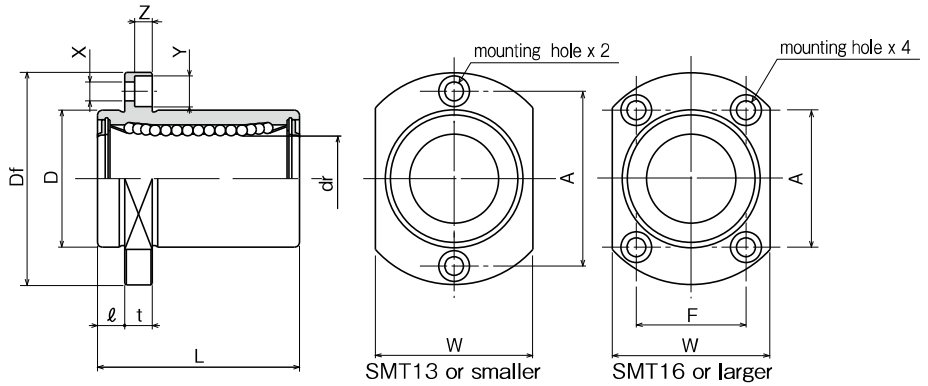
SMT-E TYPE

– Two Side Cut Pilot End Flange Type –

part number structure

example **SMST 25 G UU - E - SK**

- specification
  SMT: standard
  SMST: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- seals on both sides
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number* standard steel retainer	standard resin retainer	anti-corrosion stainless retainer	anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMT 6UU-E	SMT 6GUU-E	SMST 6UU-E	SMST 6GUU-E	4	6		12	0	19
SMT 8UU-E	SMT 8GUU-E	SMST 8UU-E	SMST 8GUU-E	4	8		15	−13	24
SMT10UU-E	SMT10GUU-E	SMST10UU-E	SMST10GUU-E	4	10	0	19		29
SMT12UU-E	SMT12GUU-E	SMST12UU-E	SMST12GUU-E	4	12	− 9	21	0	30
SMT13UU-E	SMT13GUU-E	SMST13UU-E	SMST13GUU-E	4	13		23	−16	32
SMT16UU-E	SMT16GUU-E	SMST16UU-E	SMST16GUU-E	4	16		28		37
SMT20UU-E	SMT20GUU-E	SMST20UU-E	SMST20GUU-E	5	20	0	32	0	42
SMT25UU-E	SMT25GUU-E	SMST25UU-E	SMST25GUU-E	6	25	−10	40	−19	59
SMT30UU-E	SMT30GUU-E	SMST30UU-E	SMST30GUU-E	6	30		45		64

* UU type is standard.

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

1N≒0.102kgf

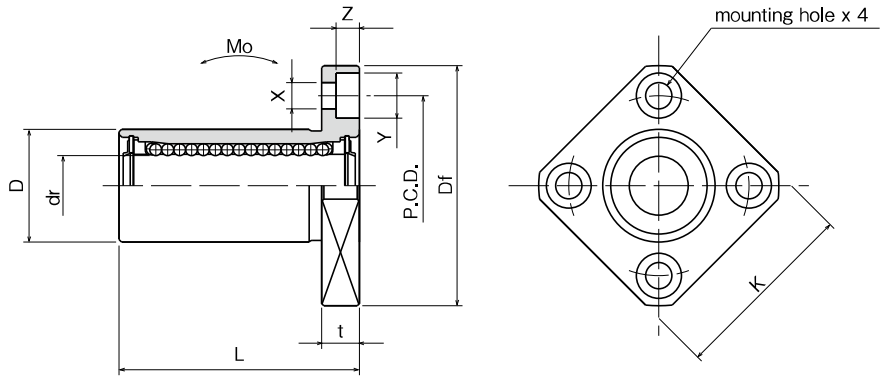
SMK-G-L TYPE

– Square Flange Long type –

part number structure

example SMK 25 G - L UU - SK

- SMK type
- inner contact diameter (dr)
- resin retainer
- long 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating



part number*	number of ball circuits	major dimensions: dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm	Df mm	K mm	flange t mm	flange P.C.D. mm
SMK 6G-LUU	4	6	0 −10	12	0 −13	26	28	22	5	20
SMK 8G-LUU	4	8		15		32	32	25	5	24
SMK10G-LUU	4	10		19	0 −16	39	40	30	6	29
SMK12G-LUU	4	12		21		41	42	32	6	32
SMK13G-LUU	4	13		23		45	43	34	6	33
SMK16G-LUU	4	16		28		53	48	37	6	38
SMK20G-LUU	5	20	0 −12	32	0 −19	59	54	42	8	43
SMK25G-LUU	6	25		40		83	62	50	8	51
SMK30G-LUU	6	30		45		90	74	58	10	60

* UU type is standard.

X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter mm
3.5×6×3.1	15	15	262	476	1.15	20	6
3.5×6×3.1			352	615	1.94	32	8
4.5×7.5×4.1			493	1,005	3.98	59	10
4.5×7.5×4.1			637	1,430	6.26	67	12
4.5×7.5×4.1			682	1,560	7.68	88	13
4.5×7.5×4.1			1,039	2,350	13.2	125	16
5.5×9×5.1	20	20	1,160	2,740	17.9	170	20
5.5×9×5.1			1,300	2,960	27.2	380	25
6.6×11×6.1			2,160	5,880	61.3	460	30

1N≒0.102kgf 1N・m≒0.102kgf・m

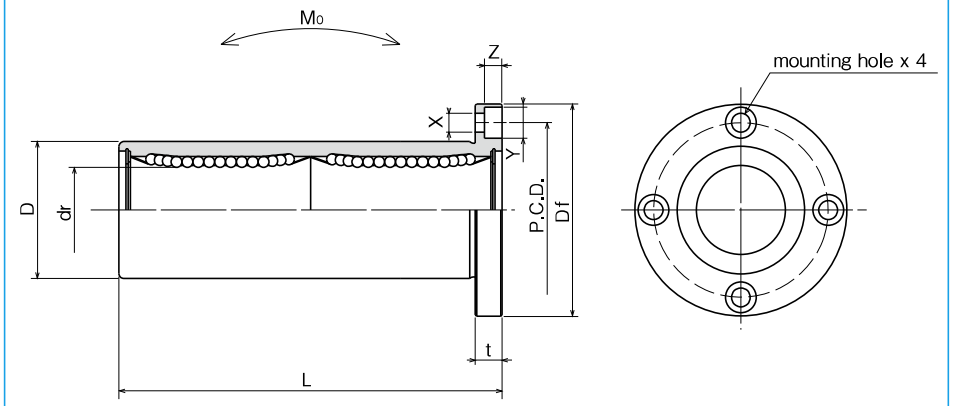
SMF-W TYPE

– Round Flange Double-Wide Type –

part number structure

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

- specification
  SMF: standard
  SMSF: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- double-wide type
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



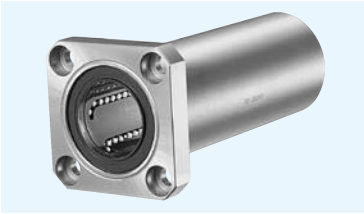
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMF 6W	SMF 6GW	SMSF 6W	SMSF 6GW	4	6	0 −10	12	0 −13	35
SMF 8W	SMF 8GW	SMSF 8W	SMSF 8GW	4	8		15		45
SMF10W	SMF10GW	SMSF10W	SMSF10GW	4	10		19	0 −16	55
SMF12W	SMF12GW	SMSF12W	SMSF12GW	4	12		21		57
SMF13W	SMF13GW	SMSF13W	SMSF13GW	4	13		23		61
SMF16W	SMF16GW	SMSF16W	SMSF16GW	4	16		28		70
SMF20W	SMF20GW	SMSF20W	SMSF20GW	5	20	0 −12	32	0 −19	80
SMF25W	SMF25GW	SMSF25W	SMSF25GW	6	25		40		112
SMF30W	SMF30GW	SMSF30W	SMSF30GW	6	30		45		123
SMF35W	SMF35GW	SMSF35W	SMSF35GW	6	35	0 −15	52	0 −22	135
SMF40W	SMF40GW	SMSF40W	SMSF40GW	6	40		60		151
SMF50W	SMF50GW	SMSF50W	SMSF50GW	6	50		80		192
SMF60W	SMF60GW	SMSF60W	SMSF60GW	6	60	0/−20	90	0/−25	209

flange				eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo 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

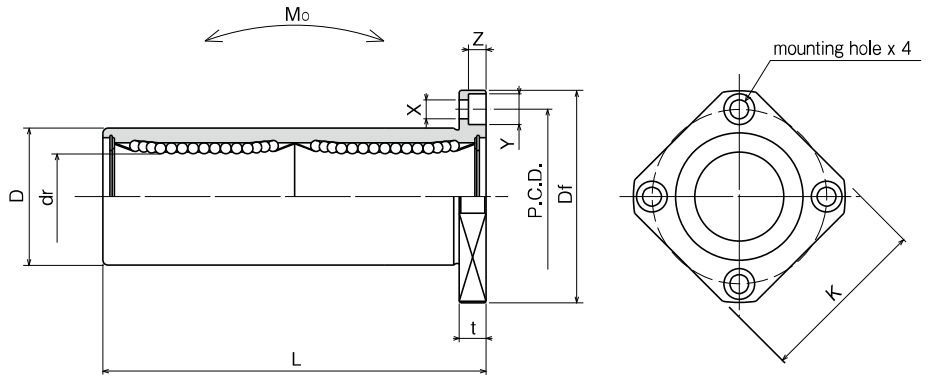
– Square Flange Double-Wide Type –



part number structure

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

- specification
  SMK: standard
  SMSK: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- double-wide type
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



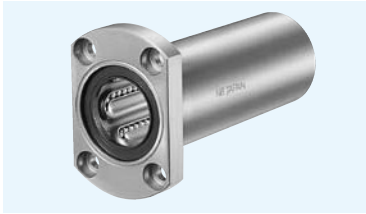
part number: standard steel retainer	part number: standard resin retainer	part number: anti-corrosion stainless retainer	part number: anti-corrosion resin retainer	number of ball circuits	major dimensions: dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMK 6W	SMK 6GW	SMSK 6W	SMSK 6GW	4	6	0 −10	12	0 −13	35
SMK 8W	SMK 8GW	SMSK 8W	SMSK 8GW	4	8		15		45
SMK10W	SMK10GW	SMSK10W	SMSK10GW	4	10		19	0 −16	55
SMK12W	SMK12GW	SMSK12W	SMSK12GW	4	12		21		57
SMK13W	SMK13GW	SMSK13W	SMSK13GW	4	13		23		61
SMK16W	SMK16GW	SMSK16W	SMSK16GW	4	16		28		70
SMK20W	SMK20GW	SMSK20W	SMSK20GW	5	20	0 −12	32	0 −19	80
SMK25W	SMK25GW	SMSK25W	SMSK25GW	6	25		40		112
SMK30W	SMK30GW	SMSK30W	SMSK30GW	6	30		45		123
SMK35W	SMK35GW	SMSK35W	SMSK35GW	6	35	0 −15	52	0 −22	135
SMK40W	SMK40GW	SMSK40W	SMSK40GW	6	40		60		151
SMK50W	SMK50GW	SMSK50W	SMSK50GW	6	50		80		192
SMK60W	SMK60GW	SMSK60W	SMSK60GW	6	60	0/−20	90	0/−25	209

flange: Df mm	flange: K mm	flange: t mm	flange: P.C.D. mm	flange: X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating: dynamic C N	basic load rating: static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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 TYPE

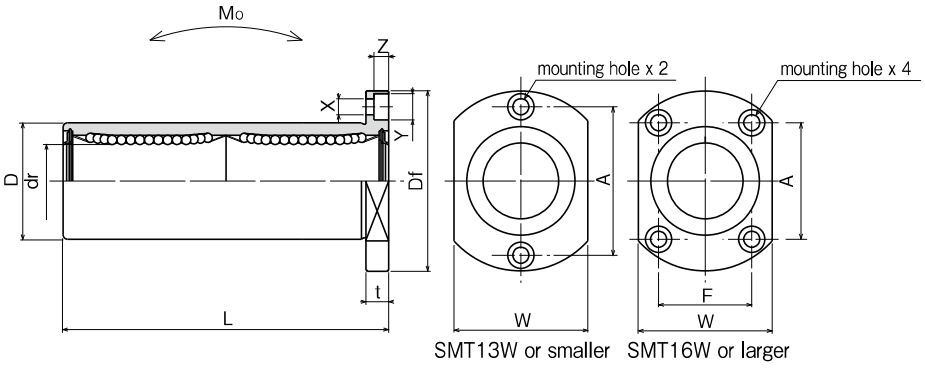
– Two Side Cut Double-Wide Flange Type –



part number structure

example **SMST 25 G W UU - SK**

- specification
  SMT: standard
  SMST: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number*				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMT 6WUU	SMT 6GWUU	SMST 6WUU	SMST 6GWUU	4	6	0 −10	12	0 −13	35
SMT 8WUU	SMT 8GWUU	SMST 8WUU	SMST 8GWUU	4	8		15		45
SMT10WUU	SMT10GWUU	SMST10WUU	SMST10GWUU	4	10		19	0 −16	55
SMT12WUU	SMT12GWUU	SMST12WUU	SMST12GWUU	4	12		21		57
SMT13WUU	SMT13GWUU	SMST13WUU	SMST13GWUU	4	13		23		61
SMT16WUU	SMT16GWUU	SMST16WUU	SMST16GWUU	4	16		28		70
SMT20WUU	SMT20GWUU	SMST20WUU	SMST20GWUU	5	20	0 −12	32	0 −19	80
SMT25WUU	SMT25GWUU	SMST25WUU	SMST25GWUU	6	25		40		112
SMT30WUU	SMT30GWUU	SMST30WUU	SMST30GWUU	6	30		45		123

* UU type is standard.

flange						eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
Df mm	W mm	t mm	A mm	F mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo N·m	g	mm
28	18	5	20	—	3.5×6×3.1	15	15	323	530	2.18	28	6
32	21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
40	25	6	29	—	4.5×7.5×4.1			588	1,100	7.24	90	10
42	27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
43	29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
48	34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
54	38	8	36	24	5.5×9×5.1	20	20	1,400	2,740	26.8	247	20
62	46	8	40	32	5.5×9×5.1			1,560	3,140	43.4	525	25
74	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

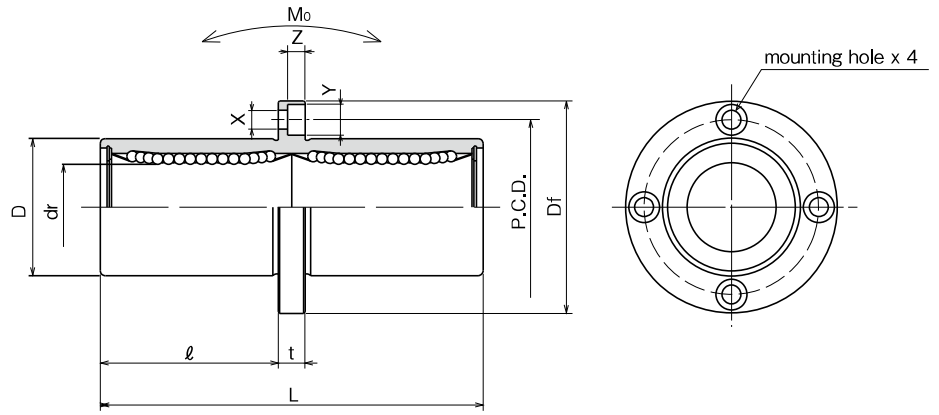
SMFC TYPE

– Center Mount Round Flange Type –

part number structure

example **SMSFC 25 G UU-SK**

- specification
  SMFC: standard
  SMSFC: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMFC 6	SMFC 6G	SMSFC 6	SMSFC 6G	4	6	0 −10	12	0 −13	35
SMFC 8	SMFC 8G	SMSFC 8	SMSFC 8G	4	8		15		45
SMFC10	SMFC10G	SMSFC10	SMSFC10G	4	10		19	0 −16	55
SMFC12	SMFC12G	SMSFC12	SMSFC12G	4	12		21		57
SMFC13	SMFC13G	SMSFC13	SMSFC13G	4	13		23		61
SMFC16	SMFC16G	SMSFC16	SMSFC16G	4	16		28		70
SMFC20	SMFC20G	SMSFC20	SMSFC20G	5	20	0 −12	32	0 −19	80
SMFC25	SMFC25G	SMSFC25	SMSFC25G	6	25		40		112
SMFC30	SMFC30G	SMSFC30	SMSFC30G	6	30		45		123
SMFC35	SMFC35G	SMSFC35	SMSFC35G	6	35	0 −15	52	0 −22	135
SMFC40	SMFC40G	SMSFC40	SMSFC40G	6	40		60		151
SMFC50	SMFC50G	SMSFC50	SMSFC50G	6	50		80		192
SMFC60	SMFC60G	SMSFC60	SMSFC60G	6	60	0/−20	90	0/−25	209

flange					eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
ℓ mm	Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	Mo N・m	g	mm
15	28	5	20	3.5×6×3.1	15	15	323	530	2.18	31	6
20	32	5	24	3.5×6×3.1			431	784	4.31	51	8
24.5	40	6	29	4.5×7.5×4.1			588	1,100	7.24	98	10
25.5	42	6	32	4.5×7.5×4.1			813	1,570	10.9	110	12
27.5	43	6	33	4.5×7.5×4.1			813	1,570	11.6	130	13
32	48	6	38	4.5×7.5×4.1			1,230	2,350	19.7	190	16
36	54	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	260	20
52	62	8	51	5.5×9×5.1			1,560	3,140	43.4	540	25
56.5	74	10	60	6.6×11×6.1			2,490	5,490	82.8	680	30
62.5	82	10	67	6.6×11×6.1	25	25	2,650	6,270	110	1,020	35
69	96	13	78	9×14×8.1			3,430	8,040	147	1,570	40
89.5	116	13	98	9×14×8.1			6,080	15,900	397	3,600	50
95.5	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

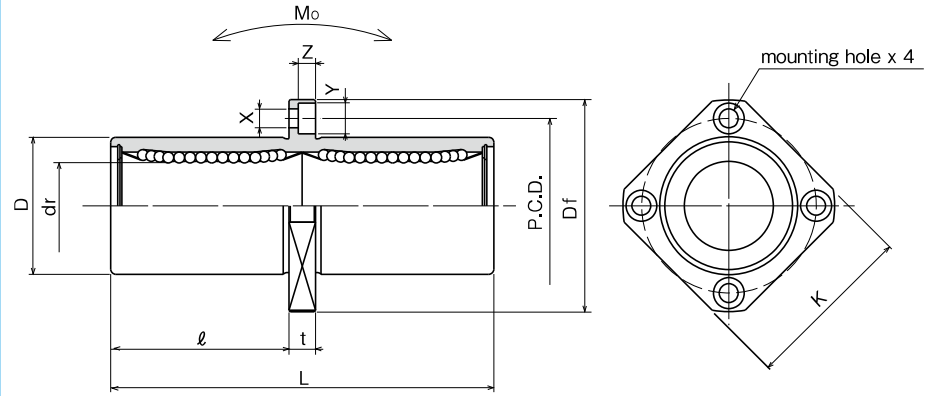
SMKC TYPE

– Center Mount Square Flange Type –

part number structure

example **SMSKC 25 G UU -SK**

- specification
  SMKC: standard
  SMSKC: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SMKC 6	SMKC 6G	SMSKC 6	SMSKC 6G	4	6	0 −10	12	0 −13	35
SMKC 8	SMKC 8G	SMSKC 8	SMSKC 8G	4	8		15		45
SMKC10	SMKC10G	SMSKC10	SMSKC10G	4	10		19	0 −16	55
SMKC12	SMKC12G	SMSKC12	SMSKC12G	4	12		21		57
SMKC13	SMKC13G	SMSKC13	SMSKC13G	4	13		23		61
SMKC16	SMKC16G	SMSKC16	SMSKC16G	4	16		28		70
SMKC20	SMKC20G	SMSKC20	SMSKC20G	5	20	0 −12	32	0 −19	80
SMKC25	SMKC25G	SMSKC25	SMSKC25G	6	25		40		112
SMKC30	SMKC30G	SMSKC30	SMSKC30G	6	30		45		123
SMKC35	SMKC35G	SMSKC35	SMSKC35G	6	35	0 −15	52	0 −22	135
SMKC40	SMKC40G	SMSKC40	SMSKC40G	6	40		60		151
SMKC50	SMKC50G	SMSKC50	SMSKC50G	6	50		80		192
SMKC60	SMKC60G	SMSKC60	SMSKC60G	6	60	0/−20	90	0/−25	209

flange						eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
ℓ mm	Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	Mo N・m	g	mm
15	28	22	5	20	3.5×6×3.1	15	15	323	530	2.18	25	6
20	32	25	5	24	3.5×6×3.1			431	784	4.31	43	8
24.5	40	30	6	29	4.5×7.5×4.1			588	1,100	7.24	78	10
25.5	42	32	6	32	4.5×7.5×4.1			813	1,570	10.9	90	12
27.5	43	34	6	33	4.5×7.5×4.1			813	1,570	11.6	108	13
32	48	37	6	38	4.5×7.5×4.1			1,230	2,350	19.7	165	16
36	54	42	8	43	5.5×9×5.1	20	20	1,400	2,740	26.8	225	20
52	62	50	8	51	5.5×9×5.1			1,560	3,140	43.4	500	25
56.5	74	58	10	60	6.6×11×6.1			2,490	5,490	82.8	590	30
62.5	82	64	10	67	6.6×11×6.1	25	25	2,650	6,270	110	930	35
69	96	75	13	78	9×14×8.1			3,430	8,040	147	1,380	40
89.5	116	92	13	98	9×14×8.1			6,080	15,900	397	3,400	50
95.5	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

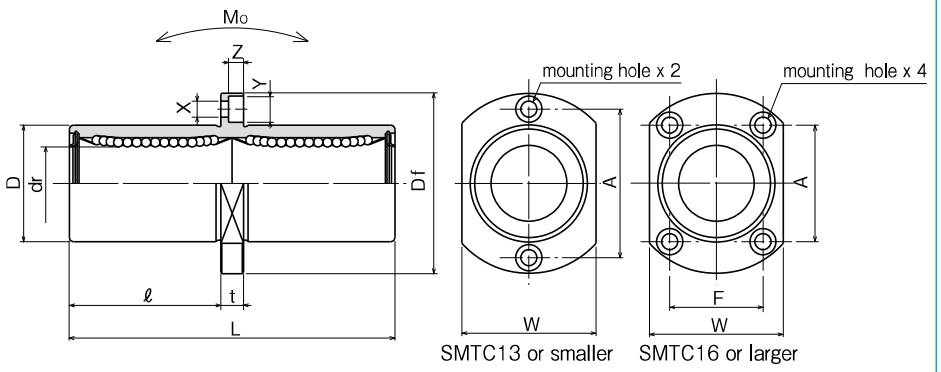
SMTC TYPE

– Two Side Cut Center Flange Type –

part number structure

example **SMSTC 25 G UU -SK**

- specification
  SMTC: standard
  SMSTC: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number* standard steel retainer	standard resin retainer	anti-corrosion stainless retainer	anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMTC 6UU	SMTC 6GUU	SMSTC 6UU	SMSTC 6GUU	4	6		12	0	35
SMTC 8UU	SMTC 8GUU	SMSTC 8UU	SMSTC 8GUU	4	8		15	−13	45
SMTC10UU	SMTC10GUU	SMSTC10UU	SMSTC10GUU	4	10	0	19		55
SMTC12UU	SMTC12GUU	SMSTC12UU	SMSTC12GUU	4	12	−10	21	0	57
SMTC13UU	SMTC13GUU	SMSTC13UU	SMSTC13GUU	4	13		23	−16	61
SMTC16UU	SMTC16GUU	SMSTC16UU	SMSTC16GUU	4	16		28		70
SMTC20UU	SMTC20GUU	SMSTC20UU	SMSTC20GUU	5	20	0	32	0	80
SMTC25UU	SMTC25GUU	SMSTC25UU	SMSTC25GUU	6	25	−12	40	−19	112
SMTC30UU	SMTC30GUU	SMSTC30UU	SMSTC30GUU	6	30		45		123

* UU type is standard.

flange ℓ mm	Df mm	W mm	t mm	A mm	F mm	X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N·m	mass g	shaft diameter mm
15	28	18	5	20	—	3.5×6×3.1			323	530	2.18	28	6
20	32	21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
24.5	40	25	6	29	—	4.5×7.5×4.1	15	15	588	1,100	7.24	90	10
25.5	42	27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
27.5	43	29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
32	48	34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
36	54	38	8	36	24	5.5×9×5.1			1,400	2,740	26.8	247	20
52	62	46	8	40	32	5.5×9×5.1	20	20	1,560	3,140	43.4	525	25
56.5	74	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

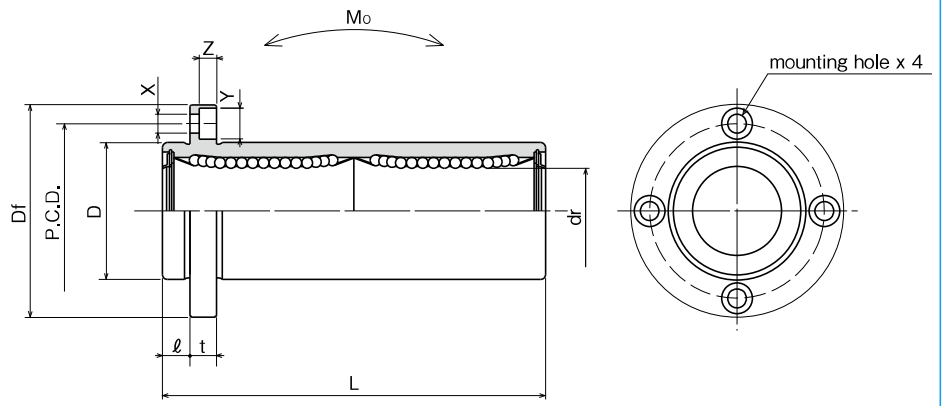
SMF-W-E TYPE

— Round Flange Double-Wide Pilot End Type —

part number structure

example **SMSF 25 G W UU - E - SK**

- specification — SMF: standard; SMSF: anti-corrosion
- inner contact diameter (dr)
- retainer material — blank: standard/steel, anti-corrosion/stainless 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 (not available on anti-corrosion type); SC: industrial chrome plating
- with pilot end
- seals on both sides



part number* standard steel retainer	part number* standard resin retainer	part number* anti-corrosion stainless retainer	part number* anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMF 6WUU-E	SMF 6GWUU-E	SMSF 6WUU-E	SMSF 6GWUU-E	4	6	0 −10	12	0 −13	35
SMF 8WUU-E	SMF 8GWUU-E	SMSF 8WUU-E	SMSF 8GWUU-E	4	8		15		45
SMF10WUU-E	SMF10GWUU-E	SMSF10WUU-E	SMSF10GWUU-E	4	10		19	0 −16	55
SMF12WUU-E	SMF12GWUU-E	SMSF12WUU-E	SMSF12GWUU-E	4	12		21		57
SMF13WUU-E	SMF13GWUU-E	SMSF13WUU-E	SMSF13GWUU-E	4	13		23		61
SMF16WUU-E	SMF16GWUU-E	SMSF16WUU-E	SMSF16GWUU-E	4	16		28		70
SMF20WUU-E	SMF20GWUU-E	SMSF20WUU-E	SMSF20GWUU-E	5	20	0 −12	32	0 −19	80
SMF25WUU-E	SMF25GWUU-E	SMSF25WUU-E	SMSF25GWUU-E	6	25		40		112
SMF30WUU-E	SMF30GWUU-E	SMSF30WUU-E	SMSF30GWUU-E	6	30		45		123
SMF35WUU-E	SMF35GWUU-E	—	—	6	35	0 −15	52	0 −22	135
SMF40WUU-E	SMF40GWUU-E	—	—	6	40		60		151
SMF50WUU-E	SMF50GWUU-E	—	—	6	50		80		192
SMF60WUU-E	SMF60GWUU-E	—	—	6	60	0/−20	90	0/−25	209

* UU type is standard.

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

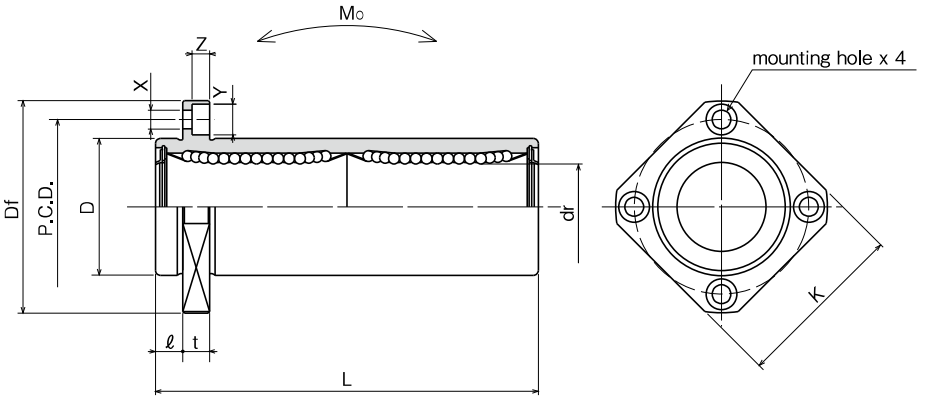
SMK-W-E TYPE

— Square Flange Double-Wide Pilot End Type —

part number structure

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

- SMSK: specification — SMK: standard; SMSK: anti-corrosion
- 25: inner contact diameter (dr)
- G: retainer material — blank: standard/steel; anti-corrosion/stainless steel
- W: double-wide type
- UU: seals on both sides
- E: with pilot end
- SK: outer cylinder surface treatment — blank: no surface treatment; SK: electroless nickel plating; LF: low temperature black chrome treatment with fluoride coating; SB: black oxide (not available on anti-corrosion type); SC: industrial chrome plating



part number* standard steel retainer	part number* standard resin retainer	part number* anti-corrosion stainless retainer	part number* anti-corrosion resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
SMK 6WUU-E	SMK 6GWUU-E	SMSK 6WUU-E	SMSK 6GWUU-E	4	6	0 −10	12	0 −13	35
SMK 8WUU-E	SMK 8GWUU-E	SMSK 8WUU-E	SMSK 8GWUU-E	4	8		15		45
SMK10WUU-E	SMK10GWUU-E	SMSK10WUU-E	SMSK10GWUU-E	4	10		19	0 −16	55
SMK12WUU-E	SMK12GWUU-E	SMSK12WUU-E	SMSK12GWUU-E	4	12		21		57
SMK13WUU-E	SMK13GWUU-E	SMSK13WUU-E	SMSK13GWUU-E	4	13		23		61
SMK16WUU-E	SMK16GWUU-E	SMSK16WUU-E	SMSK16GWUU-E	4	16		28		70
SMK20WUU-E	SMK20GWUU-E	SMSK20WUU-E	SMSK20GWUU-E	5	20	0 −12	32	0 −19	80
SMK25WUU-E	SMK25GWUU-E	SMSK25WUU-E	SMSK25GWUU-E	6	25		40		112
SMK30WUU-E	SMK30GWUU-E	SMSK30WUU-E	SMSK30GWUU-E	6	30		45		123
SMK35WUU-E	SMK35GWUU-E	—	—	6	35	0 −15	52	0 −22	135
SMK40WUU-E	SMK40GWUU-E	—	—	6	40		60		151
SMK50WUU-E	SMK50GWUU-E	—	—	6	50		80		192
SMK60WUU-E	SMK60GWUU-E	—	—	6	60	0/−20	90	0/−25	209

* UU type is standard.

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

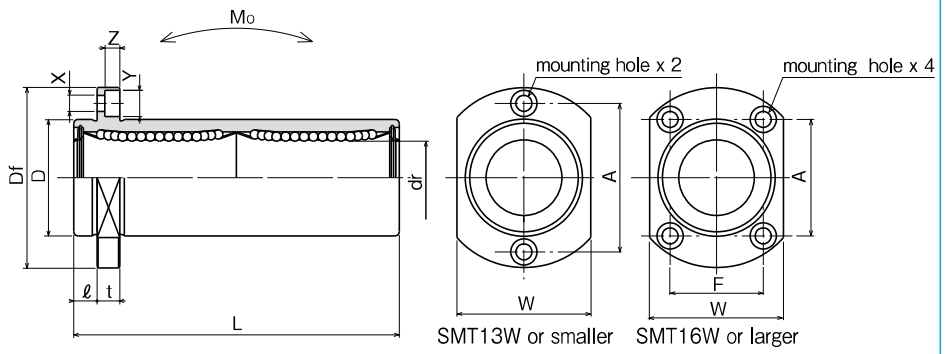
SMT-W-E TYPE

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

part number structure

example **SMST 25 G W UU - E - SK**

- specification — **SMT**: standard; **SMST**: anti-corrosion
- inner contact diameter (dr)
- retainer material — **blank**: standard/steel, anti-corrosion/stainless steel; **G**: resin
- double-wide type
- seals on both sides
- 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 (not available on anti-corrosion type); **SC**: industrial chrome plating



part number* standard: steel retainer	part number* standard: resin retainer	part number* anti-corrosion: stainless retainer	part number* anti-corrosion: resin retainer	number of ball circuits	dr: mm	dr: tolerance μm	D: mm	D: tolerance μm	L ±0.3 mm
SMT 6WUU-E	SMT 6GWUU-E	SMST 6WUU-E	SMST 6GWUU-E	4	6	0 −10	12	0 −13	35
SMT 8WUU-E	SMT 8GWUU-E	SMST 8WUU-E	SMST 8GWUU-E	4	8		15		45
SMT10WUU-E	SMT10GWUU-E	SMST10WUU-E	SMST10GWUU-E	4	10		19	0 −16	55
SMT12WUU-E	SMT12GWUU-E	SMST12WUU-E	SMST12GWUU-E	4	12		21		57
SMT13WUU-E	SMT13GWUU-E	SMST13WUU-E	SMST13GWUU-E	4	13		23		61
SMT16WUU-E	SMT16GWUU-E	SMST16WUU-E	SMST16GWUU-E	4	16		28		70
SMT20WUU-E	SMT20GWUU-E	SMST20WUU-E	SMST20GWUU-E	5	20	0 −12	32	0 −19	80
SMT25WUU-E	SMT25GWUU-E	SMST25WUU-E	SMST25GWUU-E	6	25		40		112
SMT30WUU-E	SMT30GWUU-E	SMST30WUU-E	SMST30GWUU-E	6	30		45		123

* UU type is standard.

flange: ℓ mm	flange: Df mm	flange: W mm	flange: t mm	flange: A mm	flange: F mm	flange: X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating: dynamic C N	basic load rating: static Co N	allowable static moment Mo N·m	mass g	shaft diameter mm
5	28	18	5	20	—	3.5×6×3.1	15	15	323	530	2.18	28	6
5	32	21	5	24	—	3.5×6×3.1			431	784	4.31	47	8
6	40	25	6	29	—	4.5×7.5×4.1			588	1,100	7.24	90	10
6	42	27	6	32	—	4.5×7.5×4.1			813	1,570	10.9	102	12
6	43	29	6	33	—	4.5×7.5×4.1			813	1,570	11.6	123	13
6	48	34	6	31	22	4.5×7.5×4.1			1,230	2,350	19.7	182	16
8	54	38	8	36	24	5.5×9×5.1	20	20	1,400	2,740	26.8	247	20
8	62	46	8	40	32	5.5×9×5.1			1,560	3,140	43.4	525	25
10	74	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

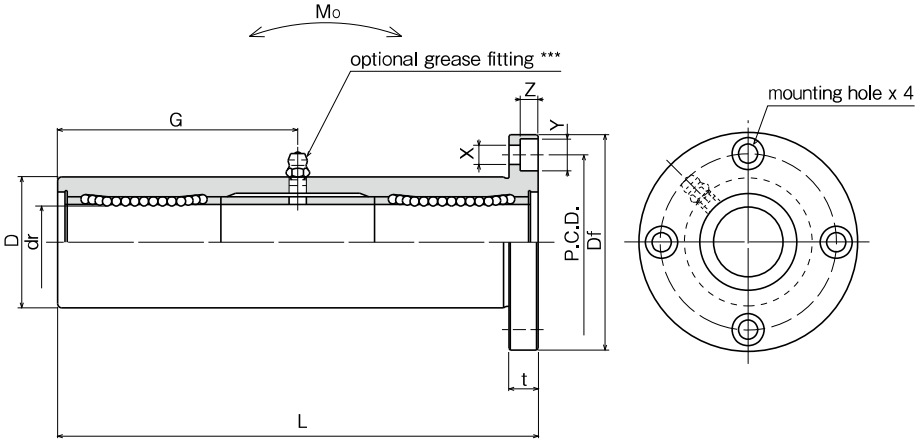
TRF TYPE

– Triple-Wide Round Flange Type –

part number structure

example **TRF 25 G UU - Q**

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



part number* steel retainer	part number* resin retainer	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRF 6UU	TRF 6GUU	4	6	0 −12	15	0/−18	51
TRF 8UU	TRF 8GUU	4	8		19	0 −21	66
TRF10UU	TRF10GUU	4	10		23		80
TRF12UU	TRF12GUU	4	12	0 −15	26		84
TRF13UU	TRF13GUU	4	13		28		90
TRF16UU	TRF16GUU	4	16		32	0 −25	103
TRF20UU	TRF20GUU	5	20	0 −18	40		118
TRF25UU	TRF25GUU	6	25		45		165
TRF30UU	TRF30GUU	6	30		52	0 −30	182
TRF35UU	TRF35GUU	6	35	0 −21	60		200
TRF40UU	TRF40GUU	6	40		65		230
TRF50UU	TRF50GUU	6	50		85	0 −35	290
TRF60UU	TRF60GUU	6	60	0/−25	100		310

* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRF6～8: A-M6x1 TRF10～30: A-M6F TRF35～60: A-R1/8

Df mm	t mm	flange P.C.D. mm	X×Y×Z mm	grease fitting G mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

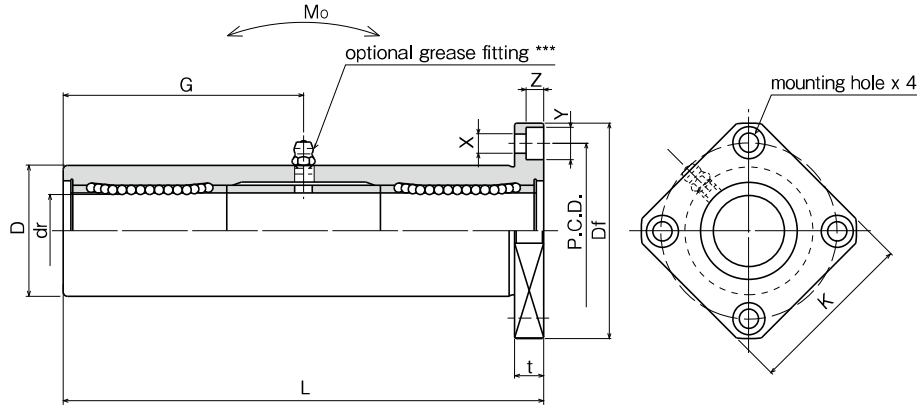
TRK TYPE

– Triple-Wide Square Flange Type –

part number structure

example **TRK 25 G UU -Q**

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



part number* steel retainer	part number* resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRK 6UU	TRK 6GUU	4	6	0 −12	15	0/−18	51
TRK 8UU	TRK 8GUU	4	8		19	0 −21	66
TRK10UU	TRK10GUU	4	10		23		80
TRK12UU	TRK12GUU	4	12	0 −15	26		84
TRK13UU	TRK13GUU	4	13		28		90
TRK16UU	TRK16GUU	4	16		32	0 −25	103
TRK20UU	TRK20GUU	5	20	0 −18	40		118
TRK25UU	TRK25GUU	6	25		45		165
TRK30UU	TRK30GUU	6	30		52	0 −30	182
TRK35UU	TRK35GUU	6	35	0 −21	60		200
TRK40UU	TRK40GUU	6	40		65		230
TRK50UU	TRK50GUU	6	50		85	0 −35	290
TRK60UU	TRK60GUU	6	60	0/−25	100		310

* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRK6～8: A-M6x1 TRK10～30: A-M6F TRK35～60: A-R1/8

flange Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	grease fitting G mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

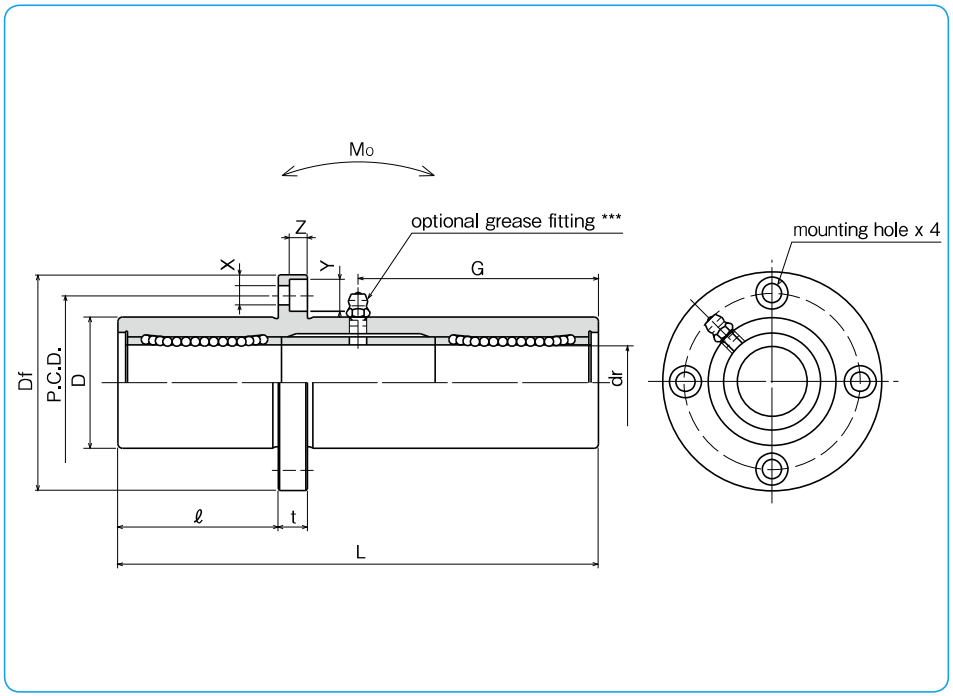
TRFC TYPE

— Triple-Wide Intermediate Position Round Flange Type —

part number structure

example **TRFC 25 G UU -Q**

- TRFC type
- inner contact diameter (dr)
- retainer material — **blank**: steel; **G**: resin
- seals on both sides
- grease fitting — **blank**: without; **Q**: grease fitting



part number* steel retainer	part number* resin retainer	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRFC 6UU	TRFC 6GUU	4	6	0 −12	15	0/−18	51
TRFC 8UU	TRFC 8GUU	4	8		19	0 −21	66
TRFC10UU	TRFC10GUU	4	10		23		80
TRFC12UU	TRFC12GUU	4	12	0 −15	26		84
TRFC13UU	TRFC13GUU	4	13		28		90
TRFC16UU	TRFC16GUU	4	16		32	0 −25	103
TRFC20UU	TRFC20GUU	5	20	0 −18	40		118
TRFC25UU	TRFC25GUU	6	25		45		165
TRFC30UU	TRFC30GUU	6	30		52	0 −30	182
TRFC35UU	TRFC35GUU	6	35	0 −21	60		200
TRFC40UU	TRFC40GUU	6	40		65		230
TRFC50UU	TRFC50GUU	6	50		85	0 −35	290
TRFC60UU	TRFC60GUU	6	60	0/−25	100		310

* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRFC6~8: A-M6x1 TRFC10~30: A-M6F TRFC35~60: A-R1/8

flange ℓ mm	flange Df mm	flange t mm	flange P.C.D. mm	flange X×Y×Z mm	grease fitting G mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N·m	mass g	shaft diameter mm
17	32	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	66	6
22	40	6	29	4.5×7.5×4.1	29			431	784	16.0	135	8
27	43	6	33	4.5×7.5×4.1	38			588	1,100	27.0	205	10
28	46	6	36	4.5×7.5×4.1	41			813	1,570	40.1	248	12
30	48	6	38	4.5×7.5×4.1	45			813	1,570	42.9	308	13
35	54	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	412	16
40	62	8	51	5.5×9×5.1	59			1,400	2,740	98.0	752	20
55	74	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,244	25
61	82	10	67	6.6×11×6.1	91			2,490	5,490	297	1,636	30
67	96	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,580	35
77	101	13	83	9×14×8.1	115			3,430	8,040	553	2,950	40
97	129	18	107	11×17×11.1	145			6,080	15,900	1,370	6,860	50
104	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

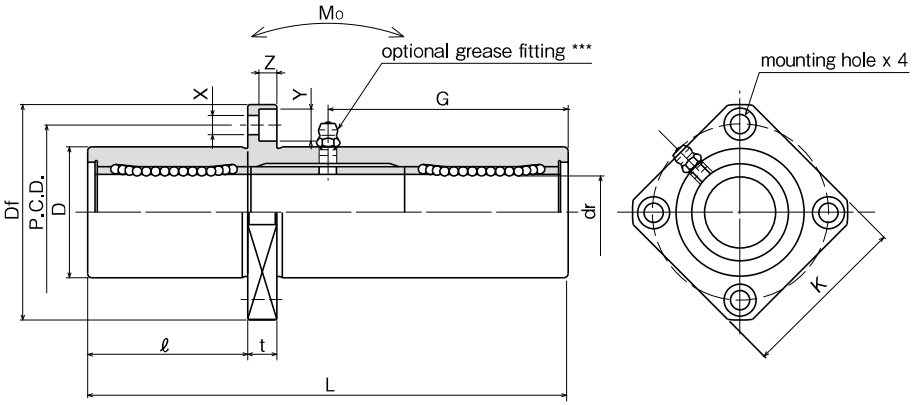
TRKC TYPE

— Triple-Wide Intermediate Position Square Flange Type —

part number structure

example **TRKC 25 G UU -Q**

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



part number* steel retainer	part number* resin retainer	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRKC 6UU	TRKC 6GUU	4	6	0 −12	15	0/−18	51
TRKC 8UU	TRKC 8GUU	4	8		19	0 −21	66
TRKC10UU	TRKC10GUU	4	10		23		80
TRKC12UU	TRKC12GUU	4	12	0 −15	26		84
TRKC13UU	TRKC13GUU	4	13		28		90
TRKC16UU	TRKC16GUU	4	16		32	0 −25	103
TRKC20UU	TRKC20GUU	5	20	0 −18	40		118
TRKC25UU	TRKC25GUU	6	25		45		165
TRKC30UU	TRKC30GUU	6	30		52	0 −30	182
TRKC35UU	TRKC35GUU	6	35	0 −21	60		200
TRKC40UU	TRKC40GUU	6	40		65		230
TRKC50UU	TRKC50GUU	6	50		85	0 −35	290
TRKC60UU	TRKC60GUU	6	60	0/−25	100		310

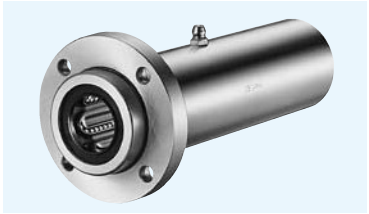
* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRKC6～8: A-M6x1 TRKC10～30: A-M6F TRKC35～60: A-R1/8

flange ℓ mm	Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	grease fitting G mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter mm
17	32	25	5	24	3.5×6×3.1	20.5	20	20	323	530	8.2	58	6
22	40	30	6	29	4.5×7.5×4.1	29			431	784	16.0	117	8
27	43	34	6	33	4.5×7.5×4.1	38			588	1,100	27.0	189	10
28	46	35	6	36	4.5×7.5×4.1	41			813	1,570	40.1	228	12
30	48	37	6	38	4.5×7.5×4.1	45			813	1,570	42.9	286	13
35	54	42	8	43	5.5×9×5.1	51	25	25	1,230	2,350	73.5	376	16
40	62	50	8	51	5.5×9×5.1	59			1,400	2,740	98.0	714	20
55	74	58	10	60	6.6×11×6.1	82.5			1,560	3,140	157	1,163	25
61	82	64	10	67	6.6×11×6.1	91			2,490	5,490	297	1,543	30
67	96	75	13	78	9×14×8.1	100	30	30	2,650	6,270	373	2,400	35
77	101	80	13	83	9×14×8.1	115			3,430	8,040	553	2,510	40
97	129	100	18	107	11×17×11.1	145			6,080	15,900	1,370	6,400	50
104	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

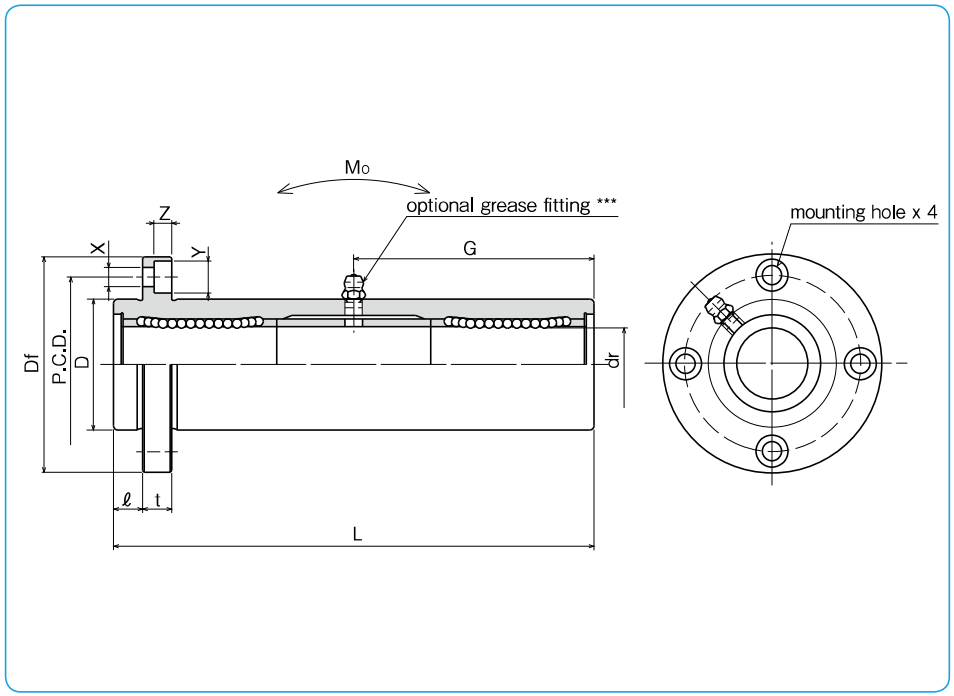
– Triple-Wide Round Flange Pilot End Type –



part number structure

example **TRF 25 G UU - E - Q**

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



part number* steel retainer	part number* resin retainer	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRF 6UU-E	TRF 6GUU-E	4	6	0 −12	15	0/−18	51
TRF 8UU-E	TRF 8GUU-E	4	8		19	0 −21	66
TRF10UU-E	TRF10GUU-E	4	10		23		80
TRF12UU-E	TRF12GUU-E	4	12	0 −15	26		84
TRF13UU-E	TRF13GUU-E	4	13		28		90
TRF16UU-E	TRF16GUU-E	4	16		32	0 −25	103
TRF20UU-E	TRF20GUU-E	5	20	0 −18	40		118
TRF25UU-E	TRF25GUU-E	6	25		45		165
TRF30UU-E	TRF30GUU-E	6	30		52	0 −30	182
TRF35UU-E	TRF35GUU-E	6	35	0 −21	60		200
TRF40UU-E	TRF40GUU-E	6	40		65		230
TRF50UU-E	TRF50GUU-E	6	50		85	0 −35	290
TRF60UU-E	TRF60GUU-E	6	60	0/−25	100		310

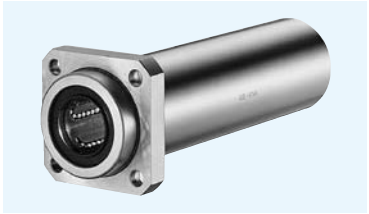
* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRF6～8: A-M6x1 TRF10～30: A-M6F TRF35～60: A-R1/8

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

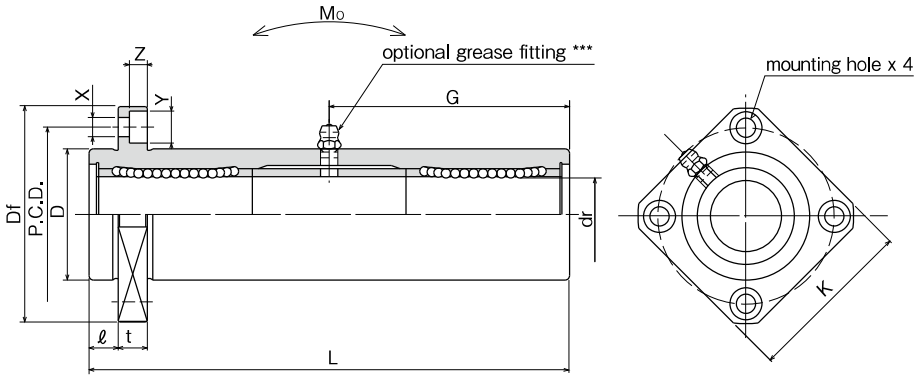
– Triple-Wide Square Flange Pilot End Type –



part number structure

example **TRK 25 G UU - E - Q**

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



part number* steel retainer	part number* resin retainer	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
TRK 6UU-E	TRK 6GUU-E	4	6	0 −12	15	0/−18	51
TRK 8UU-E	TRK 8GUU-E	4	8		19	0 −21	66
TRK10UU-E	TRK10GUU-E	4	10		23		80
TRK12UU-E	TRK12GUU-E	4	12	0 −15	26		84
TRK13UU-E	TRK13GUU-E	4	13		28		90
TRK16UU-E	TRK16GUU-E	4	16		32	0 −25	103
TRK20UU-E	TRK20GUU-E	5	20	0 −18	40		118
TRK25UU-E	TRK25GUU-E	6	25		45		165
TRK30UU-E	TRK30GUU-E	6	30		52	0 −30	182
TRK35UU-E	TRK35GUU-E	6	35	0 −21	60		200
TRK40UU-E	TRK40GUU-E	6	40		65		230
TRK50UU-E	TRK50GUU-E	6	50		85	0 −35	290
TRK60UU-E	TRK60GUU-E	6	60	0/−25	100		310

* UU type is standard.
** Outer cylinder is treated with electroless nickel plating.
*** TRK6～8: A-M6x1 TRK10～30: A-M6F TRK35～60: A-R1/8

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

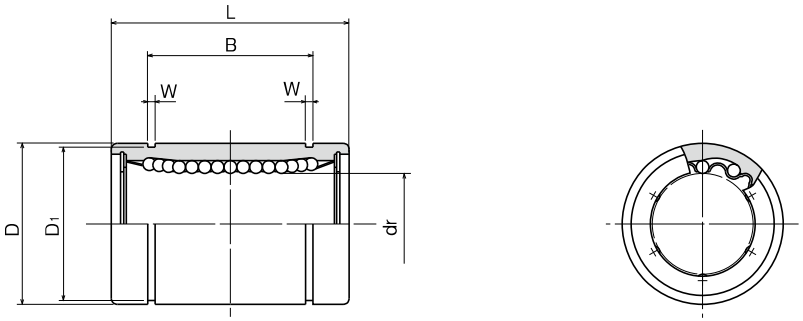
KB TYPE (Euro Standard)

– Standard Type –

part number structure

example KBS 25 G UU

- specification
  - KB: standard
  - KBS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  - blank: standard/steel
  - anti-corrosion/stainless steel
  - G: resin
- seal
  - blank: without seal
  - U: seal on one side
  - UU: seals on both sides



part number				number of ball circuits	major dimensions			
standard		anti-corrosion			dr		D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm
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	

L		B		W	D1	eccentricity	radial clearance (maximum)	basic load rating dynamic C	basic load rating static Co	mass	shaft diameter
mm	tolerance mm	mm	tolerance 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

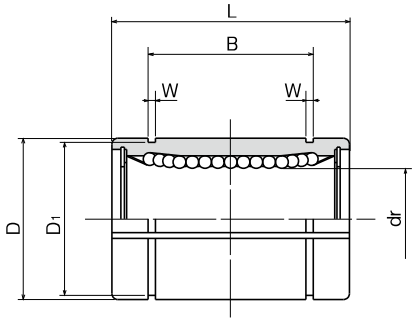
KB-AJ TYPE (Euro Standard)

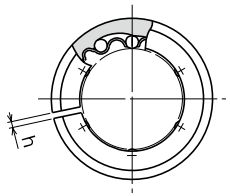
– Clearance Adjustable Type –

part number structure

example **KBS 25 G UU -AJ**

- specification
  KB: standard
  KBS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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	major dimensions			
standard		anti-corrosion			dr		D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	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	

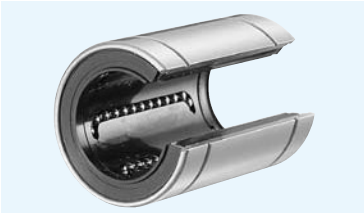
* Accuracy is measured prior to machining clearance slit.

L		B		W	D1	h	eccentricity*	basic load rating dynamic C	basic load rating static Co	mass	shaft diameter
mm	tolerance mm	mm	tolerance mm	mm	mm	mm	μm	N	N	g	mm
22	0 –0.2	14.5	0 –0.2	1.1	11.5	1	12	206	265	10	5
25		16.5		1.1	15.2	1		265	402	19.5	8
29		22		1.3	18	1		372	549	29	10
32		22.9		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	15	862	1,370	100	20
58	0 –0.3	44.1	0 –0.3	1.85	37.5	2		980	1,570	230	25
68		52.1		1.85	44.5	2		1,570	2,740	355	30
80		60.6		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 –0.4	101.7	0 –0.4	3.15	86.5	3	20	4,700	9,800	2,170	60
165		133.7		4.15	116	3		7,350	16,000	5,000	80

1N≒0.102kgf

KB-OP TYPE (Euro Standard)

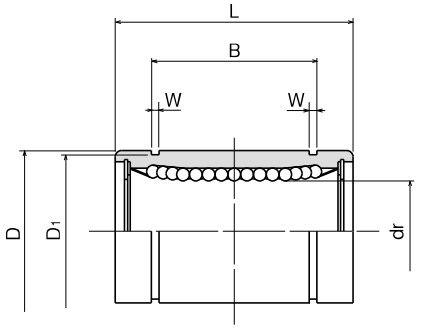
– Open Type –

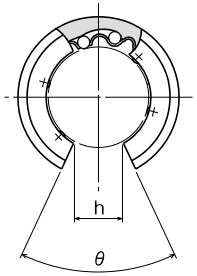


part number structure

example KBS 25 G UU -OP

- specification
  KB: standard
  KBS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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	major dimensions			
standard		anti-corrosion			dr		D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	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 slit.

L		B		W	D_1	h	θ	eccentricity*	basic load rating		mass	shaft diameter
mm	tolerance mm	mm	tolerance mm	mm	mm	mm		μm	dynamic C N	static Co N	g	mm
29		22		1.3	18	6.8	80°		372	549	23	10
32	0	22.9	0	1.3	21	7.5	78°	12	510	784	35	12
36	–0.2	24.9	–0.2	1.3	24.9	10	78°		578	892	48	16
45		31.5		1.6	30.3	10	60°		862	1,370	84	20
58		44.1		1.85	37.5	12.5	60°	15	980	1,570	195	25
68	0	52.1	0	1.85	44.5	12.5	50°		1,570	2,740	309	30
80	–0.3	60.6	–0.3	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	101.7	0	3.15	86.5	27.2	54°	20	4,700	9,800	1,900	60
165	–0.4	133.7	–0.4	4.15	116	36.3	54°		7,350	16,000	4,380	80

1N≒0.102kgf

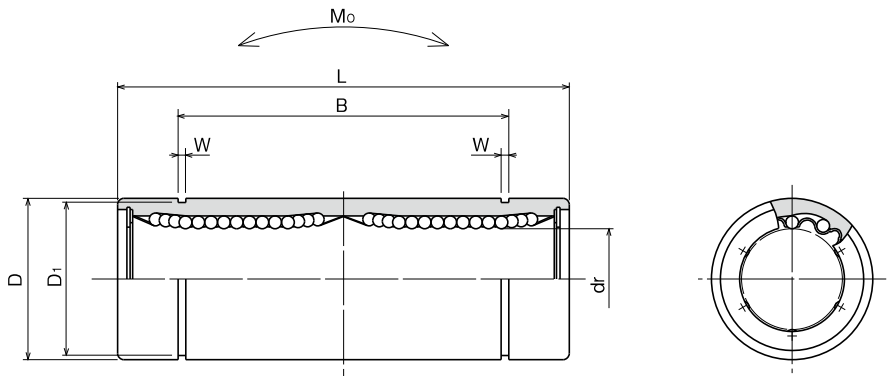
KB-W TYPE (Euro Standard)

– Double-Wide Type –

part number structure

example KBS 25 G W UU

- specification
  KB: standard
  KBS: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- double-wide type
- seal
  blank: without seal
  UU: seals on both sides

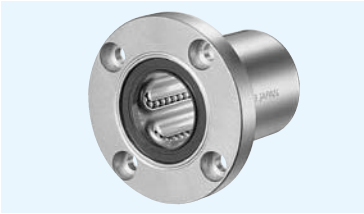


part number				number of ball circuits	major dimensions			
standard		anti-corrosion			dr		D	
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm
KB 8W	KB 8GW	KBS 8W	KBS 8GW	4	8	+ 9	16	0/−9
KB12W	KB12GW	KBS12W	KBS12GW	4	12	− 1	22	0
KB16W	KB16GW	KBS16W	KBS16GW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

L		B		W	D1	eccentricity	basic load rating		allowable static moment	mass	shaft diameter
							dynamic	static			
mm	tolerance mm	mm	tolerance mm	mm	mm	μm	C N	Co N	Mo N・m	g	mm
46		33		1.1	15.2		421	804	4.3	40	8
61	0	45.8	0	1.3	21	15	813	1,570	11.7	80	12
68	−0.3	49.8	−0.3	1.3	24.9		921	1,780	14.2	115	16
80		61		1.6	30.5		1,370	2,740	25.0	180	20
112		82		1.85	38	17	1,570	3,140	44.0	430	25
123	0	104.2	0	1.85	44.5		2,500	5,490	78.9	615	30
151	−0.4	121.2	−0.4	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

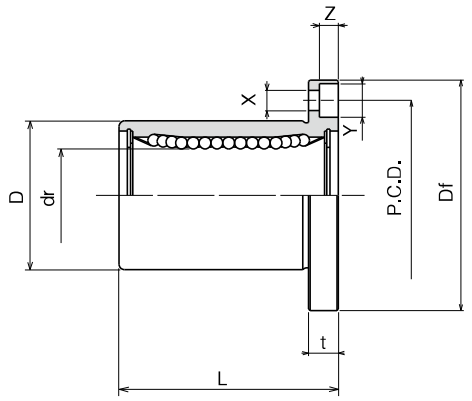
KBF TYPE (Euro Standard)
– Round Flange Type –

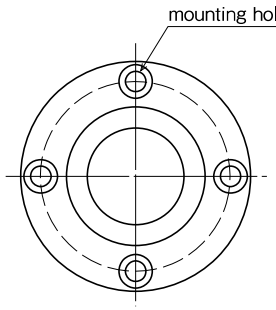


part number structure

example **KBSF 25 G UU-SK**

- specification
  KBF: standard
  KBSF: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating





part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
–	KBF 5G	–	KBSF 5G	4	5	+ 8 0	12	0 −13	22
KBF 8	KBF 8G	KBSF 8	KBSF 8G	4	8		16		25
KBF12	KBF12G	KBSF12	KBSF12G	4	12		22	0 −16	32
KBF16	KBF16G	KBSF16	KBSF16G	4	16	+ 9 − 1	26		36
KBF20	KBF20G	KBSF20	KBSF20G	5	20		32	0 −19	45
KBF25	KBF25G	KBSF25	KBSF25G	6	25	+11 − 1	40		58
KBF30	KBF30G	KBSF30	KBSF30G	6	30		47		68
KBF40	KBF40G	KBSF40	KBSF40G	6	40	+13 − 2	62	0 −22	80
KBF50	KBF50G	KBSF50	KBSF50G	6	50		75		100
KBF60	KBF60G	KBSF60	KBSF60G	6	60		90	0 −25	125
KBF80	–	–	–	6	80	+16/−4	120		165

flange				eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co 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

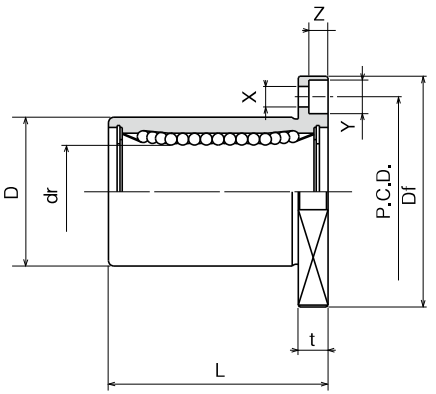
1N≒0.102kgf

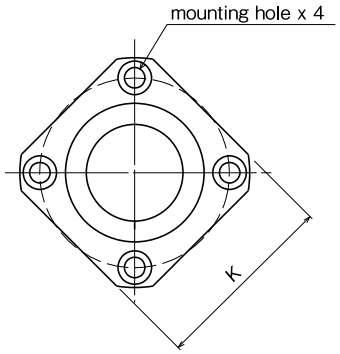
KBK TYPE (Euro Standard)
– Square Flange Type –

part number structure

example **KBSK 25 G UU - SK**

- specification
  - **KBK**: standard
  - **KBSK**: anti-corrosion
- inner contact diameter (dr)
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating





part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
–	KBK 5G	–	KBSK 5G	4	5	+ 8 0	12	0 −13	22
KBK 8	KBK 8G	KBSK 8	KBSK 8G	4	8		16		25
KBK12	KBK12G	KBSK12	KBSK12G	4	12		22	0 −16	32
KBK16	KBK16G	KBSK16	KBSK16G	4	16	+ 9 − 1	26		36
KBK20	KBK20G	KBSK20	KBSK20G	5	20		32	0 −19	45
KBK25	KBK25G	KBSK25	KBSK25G	6	25	+11 − 1	40		58
KBK30	KBK30G	KBSK30	KBSK30G	6	30		47		68
KBK40	KBK40G	KBSK40	KBSK40G	6	40	+13 − 2	62	0 −22	80
KBK50	KBK50G	KBSK50	KBSK50G	6	50		75		100
KBK60	KBK60G	KBSK60	KBSK60G	6	60		90	0 −25	125
KBK80	–	–	–	6	80	+16/−4	120		165

flange					eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co 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

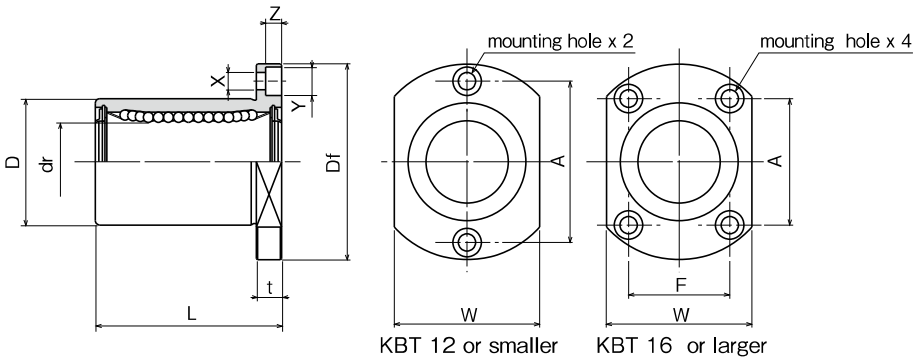
KBT TYPE (Euro Standard)

– Two Side Cut Flange Type –

part number structure

example **KBST 25 G UU - SK**

- specification
  KBT: standard
  KBST: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
KBT 5 UU	KBT 5G UU	KBST 5 UU	KBST 5G UU	4	5	+8 0	12	0 −13	22
KBT 8 UU	KBT 8G UU	KBST 8 UU	KBST 8G UU	4	8		16		25
KBT12 UU	KBT12G UU	KBST12 UU	KBST12G UU	4	12		22		32
KBT16 UU	KBT16G UU	KBST16 UU	KBST16G UU	4	16	+9 −1	26	0 −16	36
KBT20 UU	KBT20G UU	KBST20 UU	KBST20G UU	5	20		32		45
KBT25 UU	KBT25G UU	KBST25 UU	KBST25G UU	6	25	+11 −1	40	0 −19	58
KBT30 UU	KBT30G UU	KBST30 UU	KBST30G UU	6	30		47		68

* UU type is standard.

flange						eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	W mm	t mm	A mm	F mm	X×Y×Z mm	μm	μm	dynamic C N	static Co 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	295	25
76	53	10	48	36	6.6×11×6.1			1,570	2,740	471	30

1N≒0.102kgf

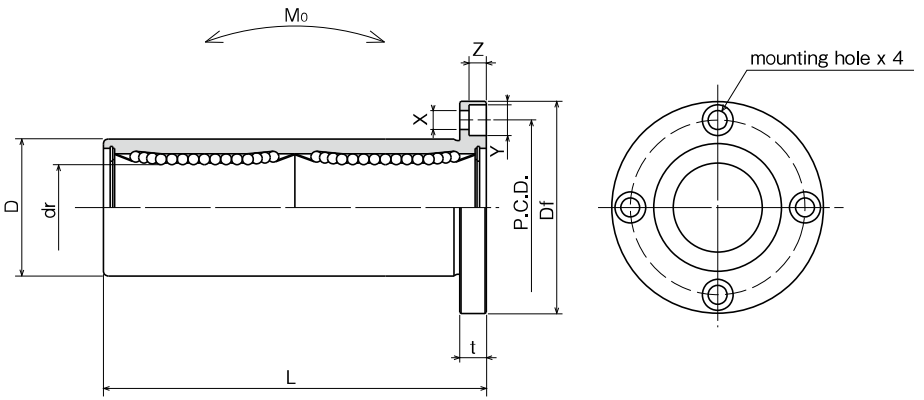
KBF-W TYPE (Euro Standard)

– Round Flange Double-Wide Type –

part number structure

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

- specification
  KBF: standard
  KBSF: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- double-wide type
- 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



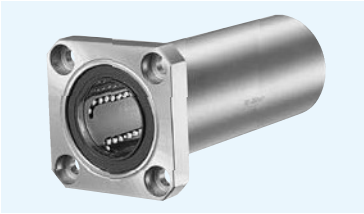
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
KBF 8W	KBF 8GW	KBSF 8W	KBSF 8GW	4	8	+ 9	16	0/−13	46
KBF12W	KBF12GW	KBSF12W	KBSF12GW	4	12	− 1	22	0	61
KBF16W	KBF16GW	KBSF16W	KBSF16GW	4	16	+11	26	−16	68
KBF20W	KBF20GW	KBSF20W	KBSF20GW	5	20	− 1	32	0	80
KBF25W	KBF25GW	KBSF25W	KBSF25GW	6	25	+13	40	−19	112
KBF30W	KBF30GW	KBSF30W	KBSF30GW	6	30	− 2	47		123
KBF40W	KBF40GW	KBSF40W	KBSF40GW	6	40	+16	62	0	151
KBF50W	KBF50GW	KBSF50W	KBSF50GW	6	50	− 4	75	−22	192
KBF60W	KBF60GW	KBSF60W	KBSF60GW	6	60		90	0/−25	209

flange				eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	Mo 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 (Euro Standard)

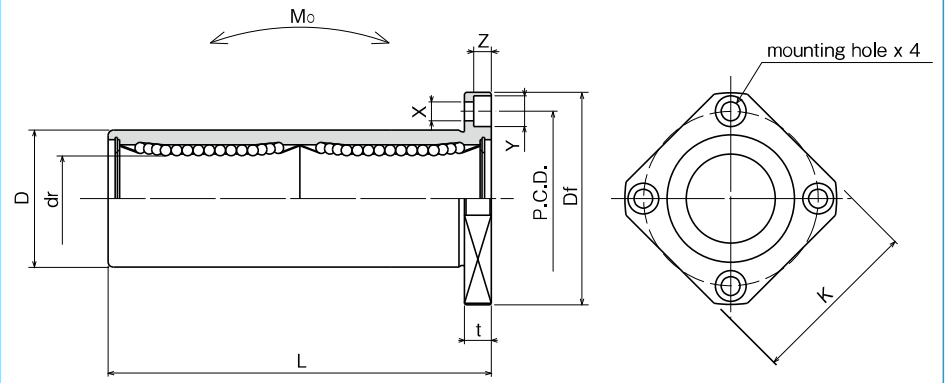
– Square Flange Double-Wide Type –



part number structure

example **KBSK 25 G W UU - SK**

- **KBSK**: specification — KBK: standard; KBSK: anti-corrosion
- **25**: inner contact diameter (dr)
- **G**: retainer material — blank: standard/steel; anti-corrosion/stainless steel; G: resin
- **W**: double-wide type
- **UU**: seal — blank: without seal; UU: seals on both sides
- **SK**: outer cylinder surface treatment — blank: no surface treatment; SK: electroless nickel plating; LF: low temperature black chrome treatment with fluoride coating; SB: black oxide (not available on anti-corrosion type); SC: industrial chrome plating



part number: standard steel retainer	part number: standard resin retainer	part number: anti-corrosion stainless retainer	part number: anti-corrosion resin retainer	number of ball circuits	major dimensions: dr mm	dr tolerance μm	D mm	D tolerance μm	L ±0.3 mm
KBK 8W	KBK 8GW	KBSK 8W	KBSK 8GW	4	8	+ 9	16	0/−13	46
KBK12W	KBK12GW	KBSK12W	KBSK12GW	4	12	− 1	22	0	61
KBK16W	KBK16GW	KBSK16W	KBSK16GW	4	16	+11	26	−16	68
KBK20W	KBK20GW	KBSK20W	KBSK20GW	5	20	− 1	32	0	80
KBK25W	KBK25GW	KBSK25W	KBSK25GW	6	25	+13	40	−19	112
KBK30W	KBK30GW	KBSK30W	KBSK30GW	6	30	− 2	47		123
KBK40W	KBK40GW	KBSK40W	KBSK40GW	6	40	+16	62	0	151
KBK50W	KBK50GW	KBSK50W	KBSK50GW	6	50	− 4	75	−22	192
KBK60W	KBK60GW	KBSK60W	KBSK60GW	6	60		90	0/−25	209

flange: Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating: dynamic C N	static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

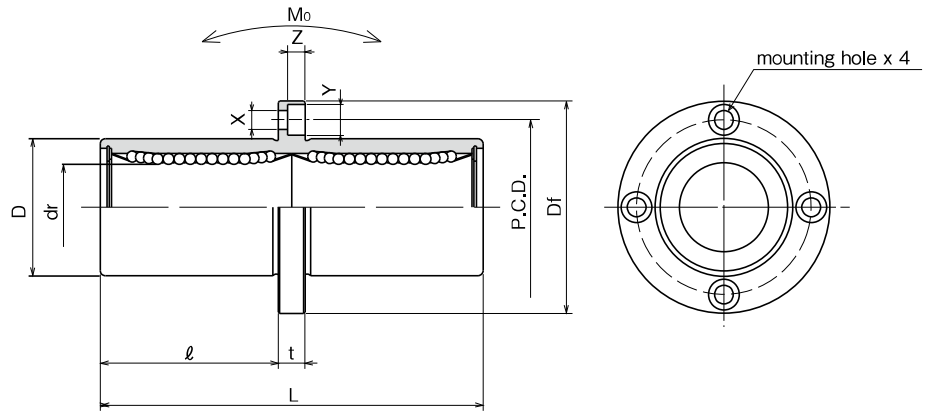
KBFC TYPE (Euro Standard)

– Center Mount Round Flange Type –

part number structure

example **KBSFC 25 G UU -SK**

- specification
  KBFC: standard
  KBSFC: anti-corrosion
- inner contact diameter (dr)
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



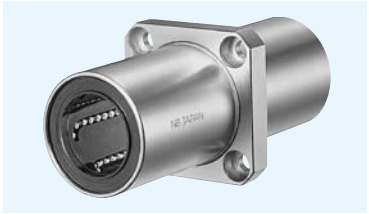
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
KBFC 8	KBFC 8G	KBSFC 8	KBSFC 8G	4	8	+ 9	16	0/−13	46
KBFC12	KBFC12G	KBSFC12	KBSFC12G	4	12	− 1	22	0	61
KBFC16	KBFC16G	KBSFC16	KBSFC16G	4	16	+11	26	−16	68
KBFC20	KBFC20G	KBSFC20	KBSFC20G	5	20	− 1	32	0	80
KBFC25	KBFC25G	KBSFC25	KBSFC25G	6	25	+13	40	−19	112
KBFC30	KBFC30G	KBSFC30	KBSFC30G	6	30	− 2	47		123
KBFC40	KBFC40G	KBSFC40	KBSFC40G	6	40	+16	62	0	151
KBFC50	KBFC50G	KBSFC50	KBSFC50G	6	50	− 4	75	−22	192
KBFC60	KBFC60G	KBSFC60	KBSFC60G	6	60		90	0/−25	209

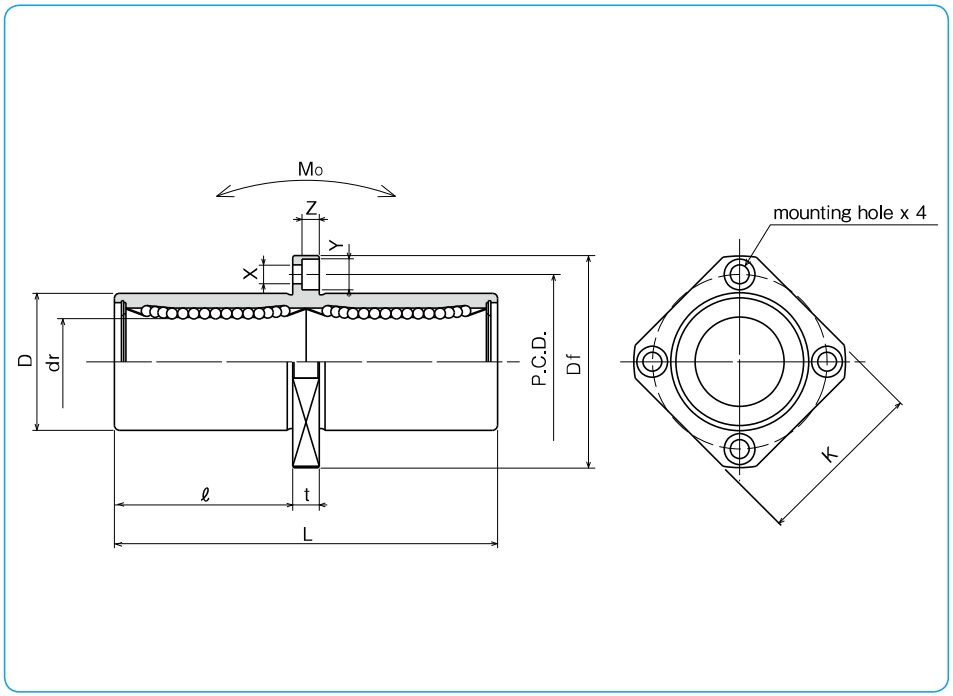
flange					eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
ℓ mm	Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	Mo N・m	g	mm
20.5	32	5	24	3.5×6×3.1	15	15	421	804	4.3	59	8
27.5	42	6	32	4.5×7.5×4.1			813	1,570	11.7	110	12
31	46	6	36	4.5×7.5×4.1			921	1,780	14.2	160	16
36	54	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	260	20
52	62	8	51	5.5×9×5.1			1,570	3,140	44.0	540	25
56.5	76	10	62	6.6×11×6.1			2,500	5,490	78.9	815	30
69	98	13	80	9×14×8.1	20	20	3,430	8,040	147	1,805	40
89.5	112	13	94	9×14×8.1			6,080	15,900	396	2,820	50
95.5	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 (Euro Standard)

– Center Mount Square Flange Type –





part number structure

example **KBSKC 25 G UU -SK**

- specification
  - **KBKC**: standard
  - **KBSKC**: anti-corrosion
- inner contact diameter (dr)
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating

part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
KBKC 8	**KBKC 8G**	**KBSKC 8**	**KBSKC 8G**	4	8	+ 9	16	0/−13	46
KBKC12	**KBKC12G**	**KBSKC12**	**KBSKC12G**	4	12	− 1	22	0	61
KBKC16	**KBKC16G**	**KBSKC16**	**KBSKC16G**	4	16	+11	26	−16	68
KBKC20	**KBKC20G**	**KBSKC20**	**KBSKC20G**	5	20	− 1	32	0	80
KBKC25	**KBKC25G**	**KBSKC25**	**KBSKC25G**	6	25	+13	40	−19	112
KBKC30	**KBKC30G**	**KBSKC30**	**KBSKC30G**	6	30	− 2	47		123
KBKC40	**KBKC40G**	**KBSKC40**	**KBSKC40G**	6	40	+16	62	0	151
KBKC50	**KBKC50G**	**KBSKC50**	**KBSKC50G**	6	50	− 4	75	−22	192
KBKC60	**KBKC60G**	**KBSKC60**	**KBSKC60G**	6	60		90	0/−25	209

flange						eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
ℓ mm	Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo N・m	g	mm
20.5	32	25	5	24	3.5×6×3.1	15	15	421	804	4.3	51	8
27.5	42	32	6	32	4.5×7.5×4.1			813	1,570	11.7	90	12
31	46	35	6	36	4.5×7.5×4.1			921	1,780	14.2	135	16
36	54	42	8	43	5.5×9×5.1	17	17	1,370	2,740	25.0	225	20
52	62	50	8	51	5.5×9×5.1			1,570	3,140	44.0	500	25
56.5	76	60	10	62	6.6×11×6.1			2,500	5,490	78.9	720	30
69	98	75	13	80	9×14×8.1	20	20	3,430	8,040	147	1,600	40
89.5	112	88	13	94	9×14×8.1			6,080	15,900	396	2,620	50
95.5	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

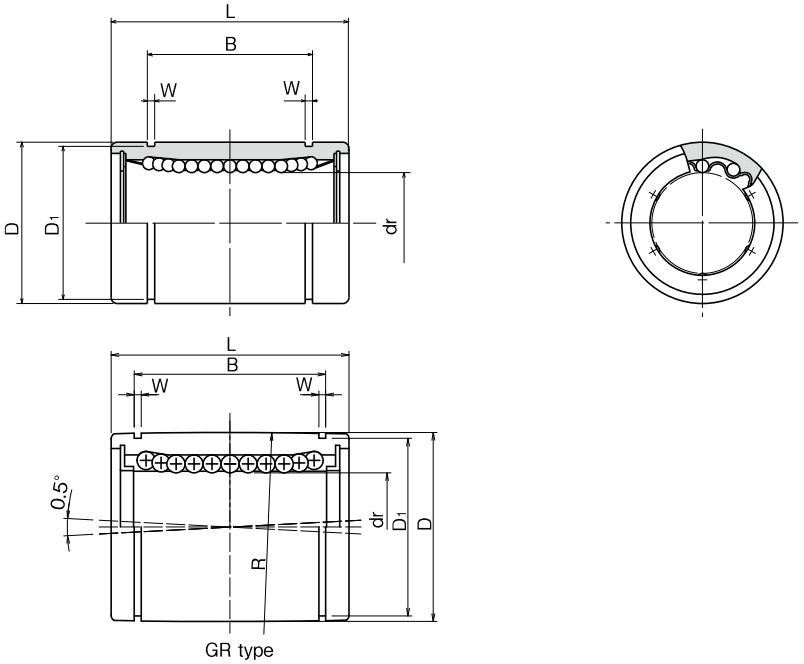
SW TYPE (Inch Standard)

– Standard Type –

part number structure

example SWS 16 G R UU-P

- specification — SW: standard; SWS: anti-corrosion
- size
- retainer material — blank: standard/steel, anti-corrosion/stainless steel; G: resin
- self aligning — blank: non self aligning; R: self aligning
- seal — blank: without seal; U: seal on one side; UU: seals on both sides
  *Seals are not available on SWS2 and SWS3.
- accuracy grade — blank: high; P: precision



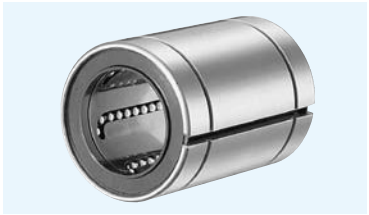
part number					number of ball circuits	major dimensions				
	standard		anti-corrosion			dr			D	
steel retainer	resin retainer		stainless retainer	resin retainer		mm	tolerance μm precision	tolerance μm high	mm	tolerance μm
–	–	–	SWS 2	SWS 2G	4	3.175	–	0	7.938	0
–	–	–	SWS 3	SWS 3G	4	4.763		– 8	9.525	– 9
SW 4	SW 4G	SW 4GR	SWS 4	SWS 4G	4	6.350			12.700	0/–11
SW 6	SW 6G	SW 6GR	SWS 6	SWS 6G	4	9.525	0	0	15.875	
SW 8	SW 8G	SW 8GR	SWS 8	SWS 8G	4	12.700	–6	– 9	22.225	0 –13
SW10	SW10G	SW10GR	SWS10	SWS10G	4	15.875			28.575	
SW12	SW12G	SW12GR	SWS12	SWS12G	5	19.050	0	0	31.750	0
SW16	SW16G	SW16GR	SWS16	SWS16G	6	25.400	–7	–10	39.688	–16
SW20	SW20G	SW20GR	SWS20	SWS20G	6	31.750	0	0	50.800	0
SW24	SW24G	SW24GR	SWS24	SWS24G	6	38.100	–8	–12	60.325	–19
SW32	SW32G	SW32GR	SWS32	SWS32G	6	50.800			76.200	0
SW40	–	–	–	–	6	63.500	0	0	95.250	–22
SW48	–	–	–	–	6	76.200	–9	–15	114.300	
SW64	–	–	–	–	6	101.600	0/–10	0/–20	152.400	0/–25

L		B		W	D_1	eccentricity		radial clearance	basic load rating		mass	shaft diameter
mm	tolerance mm	mm	tolerance mm	mm	mm	precision μm	high μm	(maximum) μm	dynamic C N	static Co N	g	mm
12.700		9.35		0.710	7.370	–	8	– 2	59	76	2.8	3.175
14.275		10.95		0.710	8.940			– 3	91	110	3.6	4.763
19.050	0	12.98	0	0.992	11.906	8	12		206	265	9.5	6.350
22.225	–0.2	16.15	–0.2	0.992	14.935				225	314	15	9.525
31.750		24.46		1.168	20.853			– 4	510	784	42	12.700
38.100		28.04		1.422	26.899				774	1,180	85	15.875
41.275		29.61		1.422	29.870	10	15	– 6	862	1,370	104	19.050
57.150		44.57		1.727	37.306				980	1,570	220	25.400
66.675	0	50.92	0	1.727	47.904	12	20	– 8	1,570	2,740	465	31.750
76.200	–0.3	61.26	–0.3	2.184	56.870				2,180	4,020	720	38.100
101.600		81.07		2.616	72.085	17	25	–13	3,820	7,940	1,310	50.800
127.000		100.99		3.048	90.220				4,700	10,000	2,600	63.500
152.400	0	120.04	0	3.048	109.474			–20	7,350	16,000	4,380	76.200
203.200	–0.4	158.95	–0.4	3.530	145.923	20	30		14,100	34,800	10,200	101.600

1N≒0.102kgf

SW-AJ TYPE (Inch Standard)

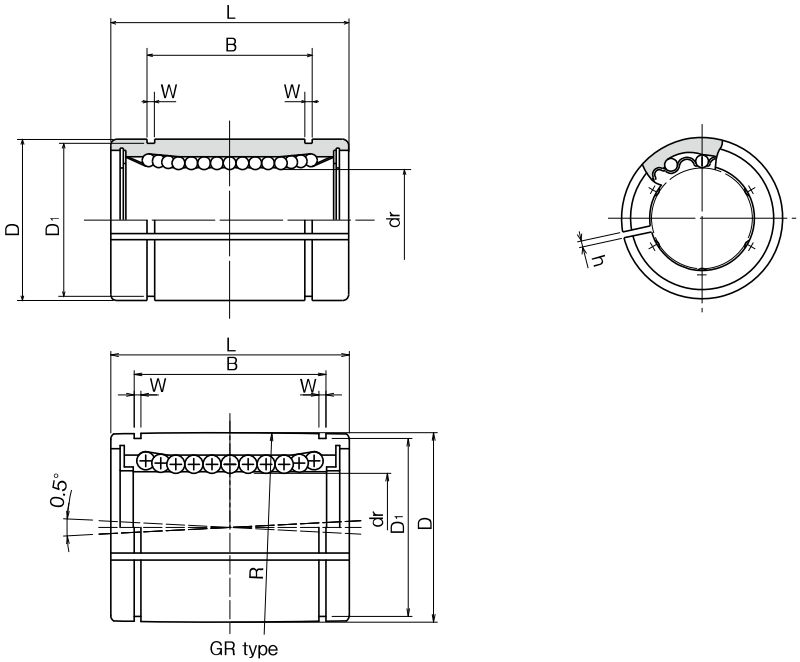
– Clearance Adjustable Type –



part number structure

example SWS 16 G R UU -AJ

- specification
  SW: standard
  SWS: anti-corrosion
- size
- retainer material
  blank: standard/steel
  anti-corrosion/stainless steel
  G: resin
- self aligning
  blank: non self aligning
  R: self aligning
- seal
  blank: without seal
  U: seal on one side
  UU: seals on both sides
- clearance-adjustable



GR type

part number					number of ball circuits	major dimensions dr		major dimensions D	
steel retainer	standard resin retainer		anti-corrosion stainless retainer	anti-corrosion resin retainer		mm	tolerance* μm	mm	tolerance* μm
–	SW 4G-AJ	–	–	SWS 4G-AJ	4	6.350	0 −9	12.700	0/−11
–	SW 6G-AJ	–	–	SWS 6G-AJ	4	9.525		15.875	0 −13
SW 8-AJ	SW 8G-AJ	SW 8GR-AJ	SWS 8-AJ	SWS 8G-AJ	4	12.700		22.225	
SW10-AJ	SW10G-AJ	SW10GR-AJ	SWS10-AJ	SWS10G-AJ	4	15.875		28.575	
SW12-AJ	SW12G-AJ	SW12GR-AJ	SWS12-AJ	SWS12G-AJ	5	19.050	0 −10	31.750	0 −16
SW16-AJ	SW16G-AJ	SW16GR-AJ	SWS16-AJ	SWS16G-AJ	6	25.400		39.688	
SW20-AJ	SW20G-AJ	SW20GR-AJ	SWS20-AJ	SWS20G-AJ	6	31.750	0 −12	50.800	0 −19
SW24-AJ	SW24G-AJ	SW24GR-AJ	SWS24-AJ	SWS24G-AJ	6	38.100		60.325	
SW32-AJ	SW32G-AJ	SW32GR-AJ	SWS32-AJ	SWS32G-AJ	6	50.800		76.200	0 −22
SW40-AJ	–	–	–	–	6	63.500	0 −15	95.250	
SW48-AJ	–	–	–	–	6	76.200		114.300	
SW64-AJ	–	–	–	–	6	101.600	0/−20	152.400	0/−25

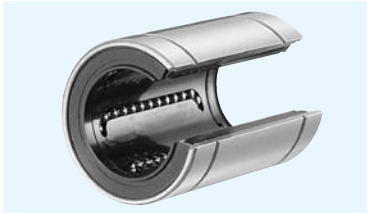
* Accuracy is measured prior to machining clearance slit.

L mm	L tolerance mm	B mm	B tolerance mm	W mm	D_1 mm	h mm	eccentricity* μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter mm
19.050	0 −0.2	12.98	0 −0.2	0.992	11.906	1	12	206	265	7.5	6.350
22.225		16.15		0.992	14.935	1		225	314	13.5	9.525
31.750		24.46		1.168	20.853	1.5		510	784	41	12.700
38.100		28.04		1.422	26.899	1.5		774	1,180	83	15.875
41.275		29.61		1.422	29.870	1.5	15	862	1,370	102	19.050
57.150	0 −0.3	44.57	0 −0.3	1.727	37.306	1.5		980	1,570	218	25.400
66.675		50.92		1.727	47.904	2.5	20	1,570	2,740	455	31.750
76.200		61.26		2.184	56.870	3		2,180	4,020	710	38.100
101.600		81.07		2.616	72.085	3	25	3,820	7,940	1,290	50.800
127.000		100.99		3.048	90.220	3		4,700	10,000	2,560	63.500
152.400	0 −0.4	120.04	0 −0.4	3.048	109.474	3		7,350	16,000	4,350	76.200
203.200		158.95		3.530	145.923	3	30	14,100	34,800	10,150	101.600

1N≒0.102kgf

SW-OP TYPE (Inch Standard)

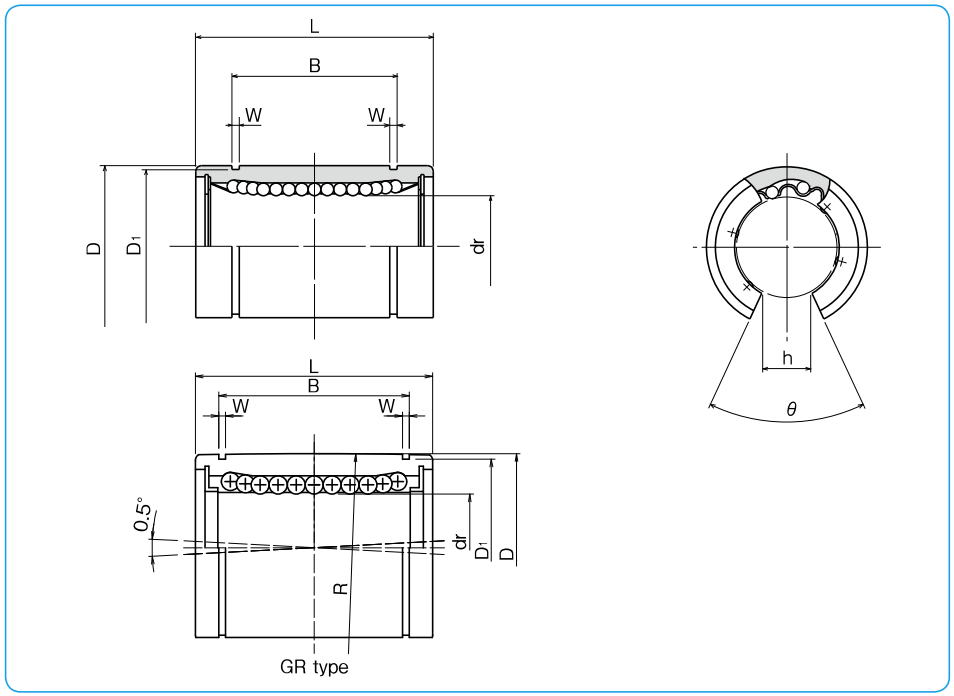
– Open Type –



part number structure

example SWS 16 G R UU -OP

- specification
  - SW: standard
  - SWS: anti-corrosion
- size
- retainer material
  - blank: standard/steel
  - anti-corrosion/stainless steel
  - G: resin
- self aligning
  - blank: non self aligning
  - R: self aligning
- seal
  - blank: without seal
  - U: seal on one side
  - UU: seals on both sides
- open type



part number: steel retainer	part number: standard resin retainer	part number: standard resin retainer	part number: anti-corrosion steel retainer	part number: anti-corrosion resin retainer	number of ball circuits	major dimensions: dr mm	dr tolerance* μm	D mm	D tolerance* μm
SW 8-OP	SW 8G-OP	SW 8GR-OP	SWS 8-OP	SWS 8G-OP	3	12.700	0	22.225	0
SW10-OP	SW10G-OP	SW10GR-OP	SWS10-OP	SWS10G-OP	3	15.875	−9	28.575	−13
SW12-OP	SW12G-OP	SW12GR-OP	SWS12-OP	SWS12G-OP	4	19.050	0	31.750	0
SW16-OP	SW16G-OP	SW16GR-OP	SWS16-OP	SWS16G-OP	5	25.400	−10	39.688	−16
SW20-OP	SW20G-OP	SW20GR-OP	SWS20-OP	SWS20G-OP	5	31.750	0	50.800	0
SW24-OP	SW24G-OP	SW24GR-OP	SWS24-OP	SWS24G-OP	5	38.100	−12	60.325	−19
SW32-OP	SW32G-OP	SW32GR-OP	SWS32-OP	SWS32G-OP	5	50.800		76.200	0
SW40-OP	–	–	–	–	5	63.500	0	95.250	−22
SW48-OP	–	–	–	–	5	76.200	−15	114.300	
SW64-OP	–	–	–	–	5	101.600	0/−20	152.400	0/−25

* Accuracy is measured prior to machining clearance slit.

L mm	L tolerance mm	B mm	B tolerance mm	W mm	D_1 mm	h mm	θ	eccentricity* μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter mm
31.750	0 −0.2	24.46	0 −0.2	1.168	20.853	7.9375	80°	12	510	784	32	12.700
38.100		28.04		1.422	26.899	9.5250	80°		774	1,180	64	15.875
41.275		29.61		1.422	29.870	11.1125	60°	15	862	1,370	86	19.050
57.150	0 −0.3	44.57	0 −0.3	1.727	37.306	14.2875	50°		980	1,570	190	25.400
66.675		50.92		1.727	47.904	15.8750	50°	20	1,570	2,740	390	31.750
76.200		61.26		2.184	56.870	19.0500	50°		2,180	4,020	610	38.100
101.600		81.07		2.616	72.085	25.4000	50°	25	3,820	7,940	1,120	50.800
127.000		100.99		3.048	90.220	31.7500	50°		4,700	10,000	2,230	63.500
152.400	0 −0.4	120.04	0 −0.4	3.048	109.474	38.1000	50°		7,350	16,000	3,750	76.200
203.200		158.95		3.530	145.923	50.8000	50°	30	14,100	34,800	8,740	101.600

1N≒0.102kgf

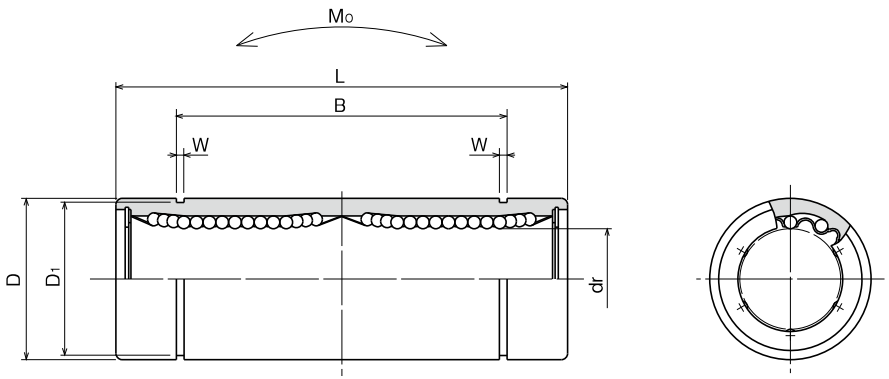
SW-W TYPE (Inch Standard)

– Double-Wide Type –

part number structure

example SWS 16 G W UU

- specification — SW: standard; SWS: anti-corrosion
- size
- retainer material — blank: standard/steel; anti-corrosion/stainless steel; G: resin
- seal — blank: without seal; UU: seals on both sides
- double-wide type



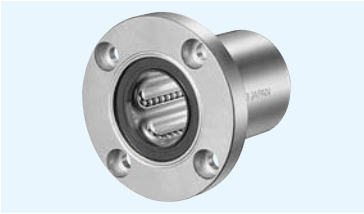
part number: standard steel retainer	part number: standard resin retainer	part number: anti-corrosion stainless retainer	part number: anti-corrosion resin retainer	number of ball circuits	major dimensions: dr mm	dr tolerance μm	D mm	D tolerance μm
SW 4W	SW 4GW	SWS 4W	SWS 4GW	4	6.350	0 −10	12.700	0/−13
SW 6W	SW 6GW	SWS 6W	SWS 6GW	4	9.525		15.875	0 −16
SW 8W	SW 8GW	SWS 8W	SWS 8GW	4	12.700		22.225	
SW10W	SW10GW	SWS10W	SWS10GW	4	15.875		28.575	
SW12W	SW12GW	SWS12W	SWS12GW	5	19.050	0 −12	31.750	0 −19
SW16W	SW16GW	SWS16W	SWS16GW	6	25.400		39.688	
SW20W	SW20GW	SWS20W	SWS20GW	6	31.750	0 −15	50.800	0 −22
SW24W	SW24GW	SWS24W	SWS24GW	6	38.100		60.325	
SW32W	SW32GW	SWS32W	SWS32GW	6	50.800		76.200	0/−25

L mm	L tolerance mm	B mm	B tolerance mm	W mm	D1 mm	eccentricity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter mm
34.925	0 −0.3	25.959	0 −0.3	0.992	11.906	15	323	530	2.0	17.5	6.350
40.481		32.298		0.992	14.935		353	630	2.7	28	9.525
60.325		48.895		1.168	20.853		813	1,570	11.5	80	12.700
71.438		56.080		1.422	26.899		1,230	2,350	20.0	160	15.875
78.581		59.218		1.422	29.870	20	1,370	2,740	26.5	195	19.050
108.744	0 −0.4	89.139	0 −0.4	1.727	37.306		1,570	3,140	41.2	410	25.400
127.000		101.839		1.727	47.904	25	2,500	5,490	84.8	820	31.750
144.463		122.519		2.184	56.870		3,430	8,040	143	1,250	38.100
196.850		162.138		2.616	72.085	30	6,080	15,900	399	2,350	50.800

1N≒0.102kgf 1N・m≒0.102kgf・m

SWF TYPE (Inch Standard)

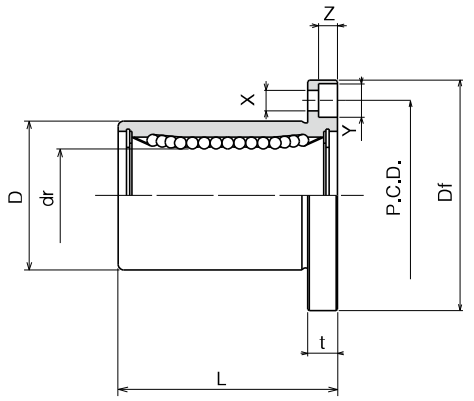
– Round Flange Type –

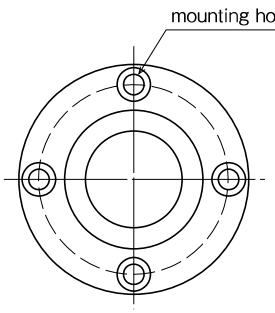


part number structure

example **SWSF 16 G UU-SK**

- specification
  - **SWF**: standard
  - **SWSF**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating





part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWF 4	**SWF 4G**	**SWSF 4**	**SWSF 4G**	4	6.350	0 −9	12.700	0/−13	19.050
SWF 6	**SWF 6G**	**SWSF 6**	**SWSF 6G**	4	9.525		15.875	0 −16	22.225
SWF 8	**SWF 8G**	**SWSF 8**	**SWSF 8G**	4	12.700		22.225		31.750
SWF10	**SWF10G**	**SWSF10**	**SWSF10G**	4	15.875		28.575		38.100
SWF12	**SWF12G**	**SWSF12**	**SWSF12G**	5	19.050	0 −10	31.750	0 −19	41.275
SWF16	**SWF16G**	**SWSF16**	**SWSF16G**	6	25.400		39.688		57.150
SWF20	**SWF20G**	**SWSF20**	**SWSF20G**	6	31.750	0 −12	50.800	0 −22	66.675
SWF24	**SWF24G**	**SWSF24**	**SWSF24G**	6	38.100		60.325		76.200
SWF32	**SWF32G**	**SWSF32**	**SWSF32G**	6	50.800		76.200	0 −25	101.600
SWF40	–	–	–	6	63.500	0 −15	95.250		127.000
SWF48	–	–	–	6	76.200		114.300		152.400
SWF64	–	–	–	6	101.600	0/−20	152.400	0/−29	203.200

Df mm	t mm	flange P.C.D. mm	X×Y×Z mm	eccentricity μm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	mass g	shaft diameter mm
31.750	5.556	22.225	3.969×6.350×3.572	12	12	206	265	32	6.350
38.100	6.350	26.988	4.763×7.541×4.366			225	314	47	9.525
44.450	6.350	33.338	4.763×7.541×4.366			510	784	88	12.700
50.800	6.350	39.688	4.763×7.541×4.366			774	1,180	140	15.875
55.563	7.938	43.660	5.556×8.731×5.159	15	15	862	1,370	190	19.050
63.500	7.938	51.594	5.556×8.731×5.159			980	1,570	325	25.400
79.375	9.525	65.088	7.144×10.319×6.747	20	20	1,570	2,740	665	31.750
95.250	12.700	77.788	8.731×12.700×8.334			2,180	4,020	1,100	38.100
111.125	12.700	93.662	8.731×12.700×8.334	25	25	3,820	7,940	1,760	50.800
136.525	19.050	115.887	10.319×15.875×9.525			4,700	10,000	3,570	63.500
155.575	19.050	134.937	10.319×15.875×9.525			7,350	16,000	5,600	76.200
203.200	22.225	177.800	12.700×18.097×12.700	30	30	14,100	34,800	12,000	101.600

1N≒0.102kgf

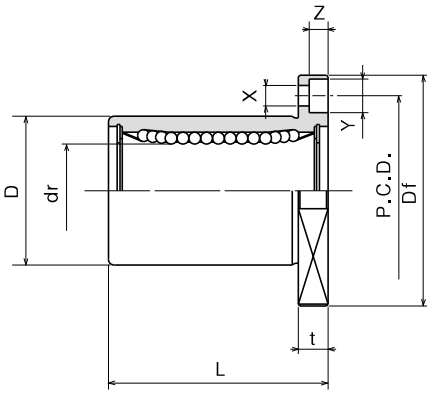
SWK TYPE (Inch Standard)

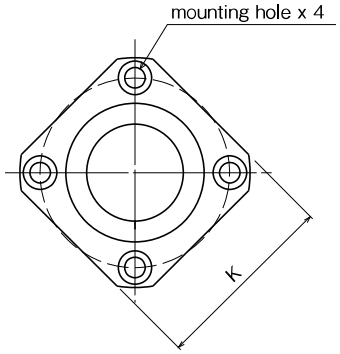
– Square Flange Type –

part number structure

example **SWSK 16 G UU - SK**

- specification
  - **SWK**: standard
  - **SWSK**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating





part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWK 4	SWK 4G	SWSK 4	SWSK 4G	4	6.350	0 −9	12.700	0/−13	19.050
SWK 6	SWK 6G	SWSK 6	SWSK 6G	4	9.525		15.875	0 −16	22.225
SWK 8	SWK 8G	SWSK 8	SWSK 8G	4	12.700		22.225		31.750
SWK10	SWK10G	SWSK10	SWSK10G	4	15.875		28.575		38.100
SWK12	SWK12G	SWSK12	SWSK12G	5	19.050	0 −10	31.750	0 −19	41.275
SWK16	SWK16G	SWSK16	SWSK16G	6	25.400		39.688		57.150
SWK20	SWK20G	SWSK20	SWSK20G	6	31.750	0 −12	50.800	0 −22	66.675
SWK24	SWK24G	SWSK24	SWSK24G	6	38.100		60.325		76.200
SWK32	SWK32G	SWSK32	SWSK32G	6	50.800		76.200	0 −25	101.600
SWK40	–	–	–	6	63.500	0 −15	95.250		127.000
SWK48	–	–	–	6	76.200		114.300		152.400
SWK64	–	–	–	6	101.600	0/−20	152.400	0/−29	203.200

flange					eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	g	mm
31.750	25.400	5.556	22.225	3.969×6.350×3.572	12	12	206	265	25	6.350
38.100	31.750	6.350	26.988	4.763×7.541×4.366			225	314	32	9.525
44.450	34.925	6.350	33.338	4.763×7.541×4.366			510	784	68	12.700
50.800	38.100	6.350	39.688	4.763×7.541×4.366			774	1,180	124	15.875
55.563	42.863	7.938	43.660	5.556×8.731×5.159	15	15	862	1,370	150	19.050
63.500	50.800	7.938	51.594	5.556×8.731×5.159			980	1,570	280	25.400
79.375	63.500	9.525	65.088	7.144×10.319×6.747	20	20	1,570	2,740	580	31.750
95.250	76.200	12.700	77.788	8.731×12.700×8.334			2,180	4,020	930	38.100
111.125	88.900	12.700	93.662	8.731×12.700×8.334	25	25	3,820	7,940	1,580	50.800
136.525	111.125	19.050	115.887	10.319×15.875×9.525			4,700	10,000	3,200	63.500
155.575	127.000	19.050	134.937	10.319×15.875×9.525			7,350	16,000	5,000	76.200
203.200	171.450	22.225	177.800	12.700×18.097×12.700	30	30	14,100	34,800	11,300	101.600

1N≒0.102kgf

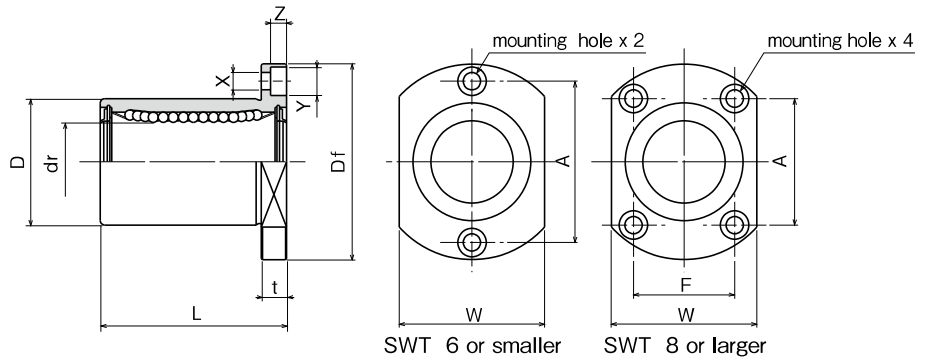
SWT TYPE (Inch Standard)

– Two Side Cut Flange Type –

part number structure

example **SWST 12 G UU-SK**

- specification
  SWT: standard
  SWST: anti-corrosion
- size
- retainer material
  blank: standard/steel
  anti-corrosion/stainless 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 (not available on anti-corrosion type)
  SC: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWT 4 UU	SWT 4G UU	SWST 4 UU	SWST 4G UU	4	6.350		12.700	0/−13	19.050
SWT 6 UU	SWT 6G UU	SWST 6 UU	SWST 6G UU	4	9.525	0	15.875		22.225
SWT 8 UU	SWT 8G UU	SWST 8 UU	SWST 8G UU	4	12.700	− 9	22.225	0 −16	31.750
SWT10 UU	SWT10G UU	SWST10 UU	SWST10G UU	4	15.875		28.575		38.100
SWT12 UU	SWT12G UU	SWST12 UU	SWST12G UU	5	19.050	0	31.750	0	41.275
SWT16 UU	SWT16G UU	SWST16 UU	SWST16G UU	6	25.400	−10	39.688	−19	57.150
SWT20 UU	SWT20G UU	SWST20 UU	SWST20G UU	6	31.750	0/−12	50.800	0/−22	66.675

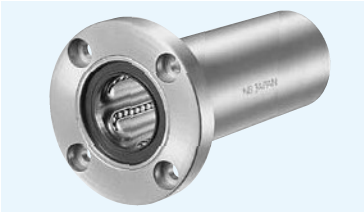
* UU type is standard.

flange						eccentricity	perpendicularity	basic load rating		mass	shaft diameter
Df mm	W mm	t mm	A mm	F mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	g	mm
31.750	19.050	5.556	22.225	—	3.969×6.350×3.572	12	12	206	265	25	6.350
38.100	22.225	6.350	26.988	—	4.763×7.541×4.366			225	314	32	9.525
44.450	28.575	6.350	28.575	17.463	4.763×7.541×4.366			510	784	68	12.700
50.800	34.925	6.350	31.750	23.813	4.763×7.541×4.366			774	1,180	124	15.875
55.563	38.100	7.938	34.925	25.400	5.556×8.731×5.159	15	15	862	1,370	150	19.050
63.500	47.625	7.938	39.688	33.338	5.556×8.731×5.159			980	1,570	280	25.400
79.375	60.325	9.525	47.625	44.450	7.144×10.319×6.747	20	20	1,570	2,740	580	31.750

1N≒0.102kgf

SWF-W TYPE (Inch Standard)

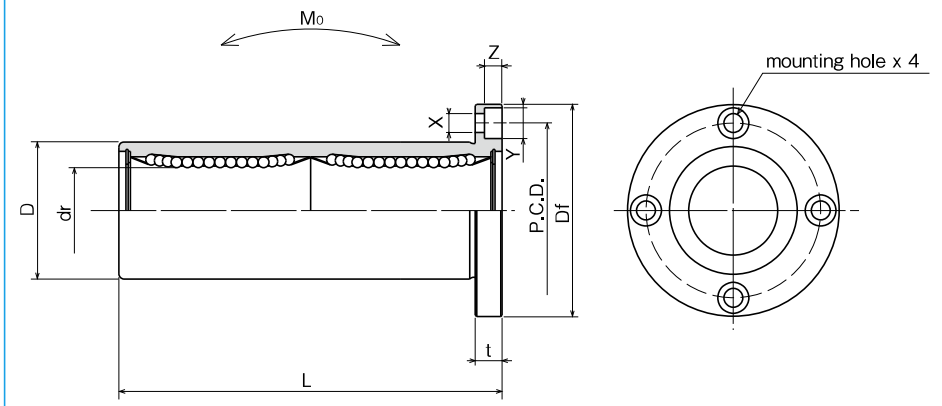
– Round Flange Double-Wide Type –



part number structure

example **SWSF 16 G W UU - SK**

- specification
  - **SWF**: standard
  - **SWSF**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless steel
  - **G**: resin
- double-wide type
- 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating



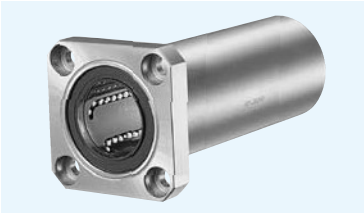
part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWF 4W	SWF 4GW	SWSF 4W	SWSF 4GW	4	6.350	0 −10	12.700	0/−13	34.925
SWF 6W	SWF 6GW	SWSF 6W	SWSF 6GW	4	9.525		15.875	0 −16	40.481
SWF 8W	SWF 8GW	SWSF 8W	SWSF 8GW	4	12.700		22.225		60.325
SWF10W	SWF10GW	SWSF10W	SWSF10GW	4	15.875		28.575		71.438
SWF12W	SWF12GW	SWSF12W	SWSF12GW	5	19.050	0 −12	31.750	0 −19	78.581
SWF16W	SWF16GW	SWSF16W	SWSF16GW	6	25.400		39.688		108.744
SWF20W	SWF20GW	SWSF20W	SWSF20GW	6	31.750	0 −15	50.800	0 −22	127.000
SWF24W	SWF24GW	SWSF24W	SWSF24GW	6	38.100		60.325		144.463
SWF32W	SWF32GW	SWSF32W	SWSF32GW	6	50.800		76.200	0/−25	196.850

flange				eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo N・m	g	mm
31.750	5.556	22.225	3.969×6.350×3.572	15	15	323	530	2.0	40	6.350
38.100	6.350	26.988	4.763×7.541×4.366			353	630	2.7	60	9.525
44.450	6.350	33.338	4.763×7.541×4.366			813	1,570	11.5	126	12.700
50.800	6.350	39.688	4.763×7.541×4.366			1,230	2,350	20.0	215	15.875
55.563	7.938	43.656	5.556×8.731×5.159	20	20	1,370	2,740	26.5	280	19.050
63.500	7.938	51.594	5.556×8.731×5.159			1,570	3,140	41.2	515	25.400
79.375	9.525	65.088	7.144×10.319×6.747	25	25	2,500	5,490	84.8	1,020	31.750
95.250	12.700	77.788	8.731×12.700×8.334			3,430	8,040	143	1,630	38.100
111.125	12.700	93.662	8.731×12.700×8.334	30	30	6,080	15,900	399	2,800	50.800

1N≒0.102kgf 1N・m≒0.102kgf・m

SWK-W TYPE (Inch Standard)

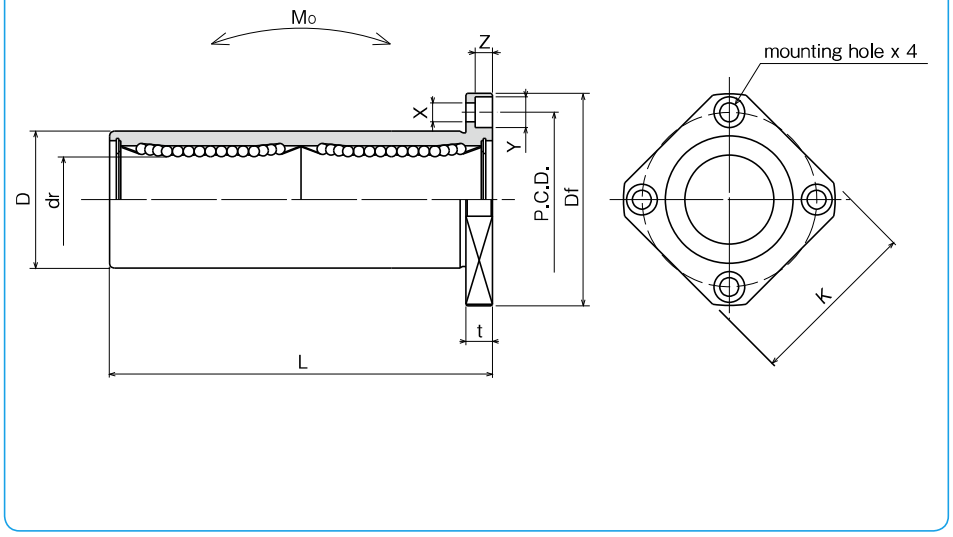
– Square Flange Double-Wide Type –



part number structure

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

- specification
  - **SWK**: standard
  - **SWSK**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless steel
  - **G**: resin
- double-wide type
- 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWK 4W	**SWK 4GW**	**SWSK 4W**	**SWSK 4GW**	4	6.350	0 −10	12.700	0/−13	34.925
SWK 6W	**SWK 6GW**	**SWSK 6W**	**SWSK 6GW**	4	9.525		15.875	0 −16	40.481
SWK 8W	**SWK 8GW**	**SWSK 8W**	**SWSK 8GW**	4	12.700		22.225		60.325
SWK10W	**SWK10GW**	**SWSK10W**	**SWSK10GW**	4	15.875		28.575		71.438
SWK12W	**SWK12GW**	**SWSK12W**	**SWSK12GW**	5	19.050	0 −12	31.750	0 −19	78.581
SWK16W	**SWK16GW**	**SWSK16W**	**SWSK16GW**	6	25.400		39.688		108.744
SWK20W	**SWK20GW**	**SWSK20W**	**SWSK20GW**	6	31.750	0 −15	50.800	0 −22	127.000
SWK24W	**SWK24GW**	**SWSK24W**	**SWSK24GW**	6	38.100		60.325		144.463
SWK32W	**SWK32GW**	**SWSK32W**	**SWSK32GW**	6	50.800		76.200	0/−25	196.850

flange					eccentricity	perpendicularity	basic load rating		allowable static moment	mass	shaft diameter
Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	Mo N・m	g	mm
31.750	25.400	5.556	22.225	3.969×6.350×3.572	15	15	323	530	2.0	33	6.350
38.100	31.750	6.350	26.988	4.763×7.541×4.366			353	630	2.7	45	9.525
44.450	34.925	6.350	33.338	4.763×7.541×4.366			813	1,570	11.5	106	12.700
50.800	38.100	6.350	39.688	4.763×7.541×4.366			1,230	2,350	20.0	200	15.875
55.563	42.863	7.938	43.656	5.556×8.731×5.159	20	20	1,370	2,740	26.5	240	19.050
63.500	50.800	7.938	51.594	5.556×8.731×5.159			1,570	3,140	41.2	470	25.400
79.375	63.500	9.525	65.088	7.144×10.319×6.747	25	25	2,500	5,490	84.8	935	31.750
95.250	76.200	12.700	77.788	8.731×12.700×8.334			3,430	8,040	143	1,460	38.100
111.125	88.900	12.700	93.662	8.731×12.700×8.334	30	30	6,080	15,900	399	2,620	50.800

1N≒0.102kgf　1N・m≒0.102kgf・m

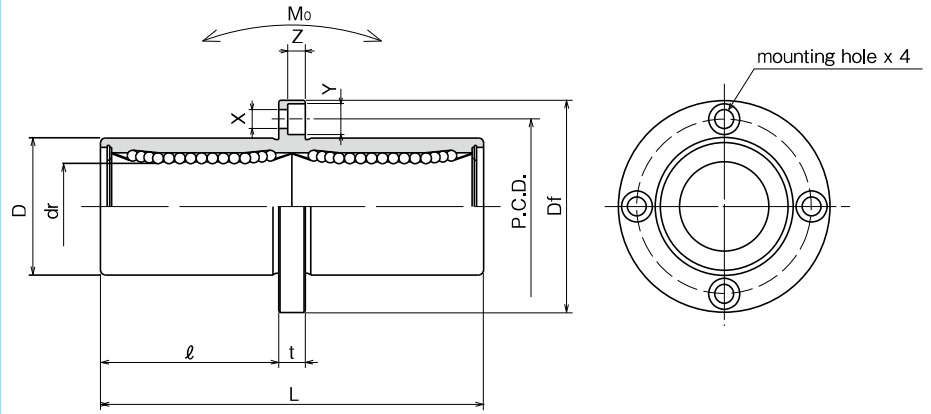
SWFC TYPE (Inch Standard)

– Center Mount Round Flange Type –

part number structure

example **SWSFC 16 G UU-SK**

- specification
  - **SWFC**: standard
  - **SWSFC**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWFC 4	**SWFC 4G**	**SWSFC 4**	**SWSFC 4G**	4	6.350	0 −10	12.700	0/−13	34.925
SWFC 6	**SWFC 6G**	**SWSFC 6**	**SWSFC 6G**	4	9.525		15.875	0 −16	40.481
SWFC 8	**SWFC 8G**	**SWSFC 8**	**SWSFC 8G**	4	12.700		22.225		60.325
SWFC10	**SWFC10G**	**SWSFC10**	**SWSFC10G**	4	15.875		28.575		71.438
SWFC12	**SWFC12G**	**SWSFC12**	**SWSFC12G**	5	19.050	0 −12	31.750	0 −19	78.581
SWFC16	**SWFC16G**	**SWSFC16**	**SWSFC16G**	6	25.400		39.688		108.744
SWFC20	**SWFC20G**	**SWSFC20**	**SWSFC20G**	6	31.750	0 −15	50.800	0 −22	127.000
SWFC24	**SWFC24G**	**SWSFC24**	**SWSFC24G**	6	38.100		60.325		144.463
SWFC32	**SWFC32G**	**SWSFC32**	**SWSFC32G**	6	50.800		76.200	0/−25	196.850

flange					eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
ℓ mm	Df mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo N・m	g	mm
14.684	31.750	5.556	22.225	3.969×6.350×3.572	15	15	323	530	2.0	40	6.350
17.066	38.100	6.350	26.988	4.763×7.541×4.366			353	630	2.7	60	9.525
26.988	44.450	6.350	33.338	4.763×7.541×4.366			813	1,570	11.5	126	12.700
32.544	50.800	6.350	39.688	4.763×7.541×4.366			1,230	2,350	20.0	215	15.875
35.322	55.563	7.938	43.656	5.556×8.731×5.159	20	20	1,370	2,740	26.5	280	19.050
50.403	63.500	7.938	51.594	5.556×8.731×5.159			1,570	3,140	41.2	515	25.400
58.738	79.375	9.525	65.088	7.144×10.319×6.747	25	25	2,500	5,490	84.8	1,020	31.750
65.882	95.250	12.700	77.788	8.731×12.700×8.334			3,430	8,040	143	1,630	38.100
92.075	111.125	12.700	93.662	8.731×12.700×8.334	30	30	6,080	15,900	399	2,800	50.800

1N≒0.102kgf　1N・m≒0.102kgf・m

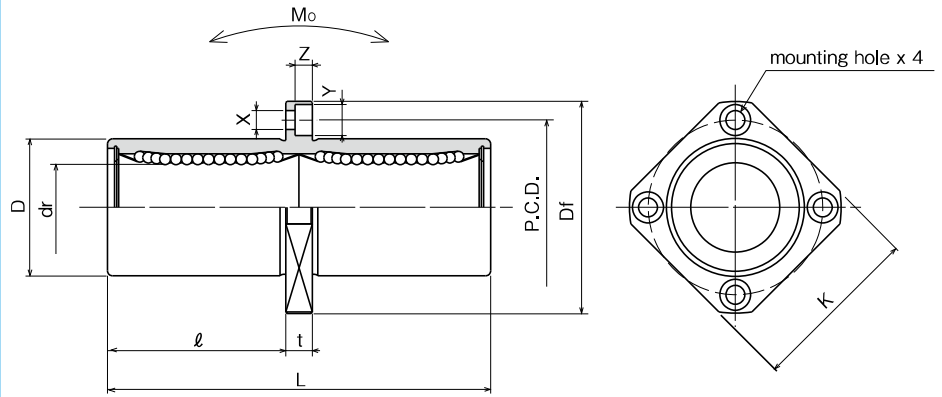
SWKC TYPE (Inch Standard)

– Center Mount Square Flange Type –

part number structure

example **SWSKC 16 G UU -SK**

- specification
  - **SWKC**: standard
  - **SWSKC**: anti-corrosion
- size
- retainer material
  - **blank**: standard/steel
  - anti-corrosion/stainless 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 (not available on anti-corrosion type)
  - **SC**: industrial chrome plating



part number				number of ball circuits	major dimensions				
standard		anti-corrosion			dr		D		L
steel retainer	resin retainer	stainless retainer	resin retainer		mm	tolerance μm	mm	tolerance μm	±0.3 mm
SWKC 4	SWKC 4G	SWSKC 4	SWSKC 4G	4	6.350	0 −10	12.700	0/−13	34.925
SWKC 6	SWKC 6G	SWSKC 6	SWSKC 6G	4	9.525		15.875	0 −16	40.481
SWKC 8	SWKC 8G	SWSKC 8	SWSKC 8G	4	12.700		22.225		60.325
SWKC10	SWKC10G	SWSKC10	SWSKC10G	4	15.875		28.575		71.438
SWKC12	SWKC12G	SWSKC12	SWSKC12G	5	19.050	0 −12	31.750	0 −19	78.581
SWKC16	SWKC16G	SWSKC16	SWSKC16G	6	25.400		39.688		108.744
SWKC20	SWKC20G	SWSKC20	SWSKC20G	6	31.750	0 −15	50.800	0 −22	127.000
SWKC24	SWKC24G	SWSKC24	SWSKC24G	6	38.100		60.325		144.463
SWKC32	SWKC32G	SWSKC32	SWSKC32G	6	50.800		76.200	0/−25	196.850

flange						eccentricity	perpendicularity	basic load rating		allowable	mass	shaft diameter
ℓ mm	Df mm	K mm	t mm	P.C.D. mm	X×Y×Z mm	μm	μm	dynamic C N	static Co N	static moment Mo N・m	g	mm
14.684	31.750	25.400	5.556	22.225	3.969×6.350×3.572	15	15	323	530	2.0	33	6.350
17.066	38.100	31.750	6.350	26.988	4.763×7.541×4.366			353	630	2.7	45	9.525
26.988	44.450	34.925	6.350	33.338	4.763×7.541×4.366			813	1,570	11.5	106	12.700
32.544	50.800	38.100	6.350	39.688	4.763×7.541×4.366			1,230	2,350	20.0	200	15.875
35.322	55.563	42.863	7.938	43.656	5.556×8.731×5.159	20	20	1,370	2,740	26.5	240	19.050
50.403	63.500	50.800	7.938	51.594	5.556×8.731×5.159			1,570	3,140	41.2	470	25.400
58.738	79.375	63.500	9.525	65.088	7.144×10.319×6.747	25	25	2,500	5,490	84.8	935	31.750
65.882	95.250	76.200	12.700	77.788	8.731×12.700×8.334			3,430	8,040	143	1,460	38.100
92.075	111.125	88.900	12.700	93.662	8.731×12.700×8.334	30	30	6,080	15,900	399	2,620	50.800

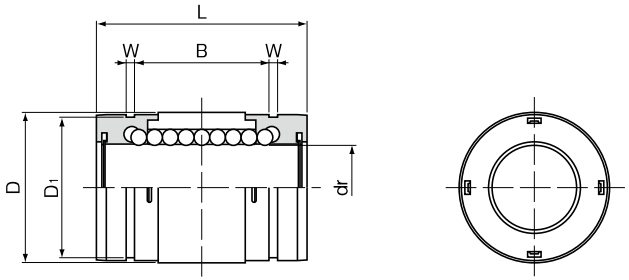
1N≒0.102kgf 1N・m≒0.102kgf・m

GM TYPE
– Single Type –

part number structure

example **GM 25 UU**

- GM type
- inner contact diameter (dr)
- seal: **blank**: without seal; **UU**: seals on both sides

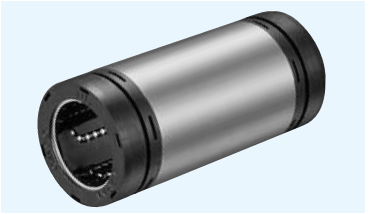


part number	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L mm	B mm	W mm	D1 mm	basic load rating dynamic C N	basic load rating static Co N	mass g
GM 6	4	6	0 −9	12	0 −11	19	11.3	1.1	11.5	206	265	5
GM 8	4	8		15		24	15.3	1.1	14.3	274	392	10
GM10	4	10		19	0 −13	29	19.4	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 (clearance adjustable type) is also manufactured. Please contact NB for details.

1N≒0.102kgf

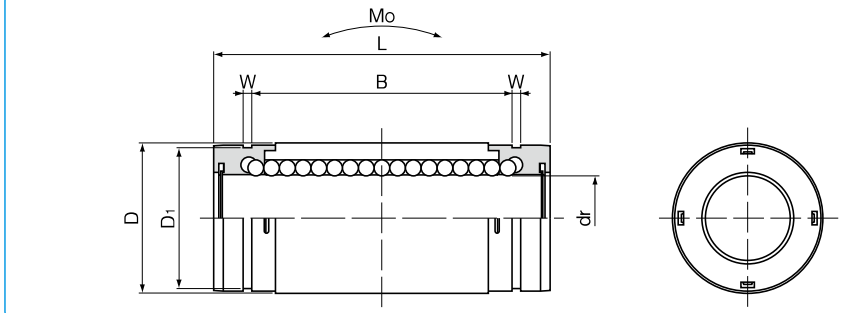
GM-W TYPE
– Double-Wide Type –



part number structure

example **GM 25 W UU**

- GM type
- inner contact diameter (dr)
- seals on both sides
- double-wide type



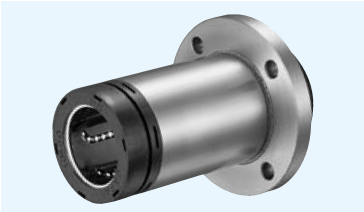
part number	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L mm	B mm	W mm	D1 mm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N·m	mass g
GM 6W UU	4	6	0 −10	12	0 −13	28	20.3	1.1	11.5	323	530	1.5	9
GM 8W UU	4	8		15		36	27.3	1.1	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

*UU type is standard.

1N≒0.102kgf 1N・m≒0.102kgf・m

GMF-W TYPE

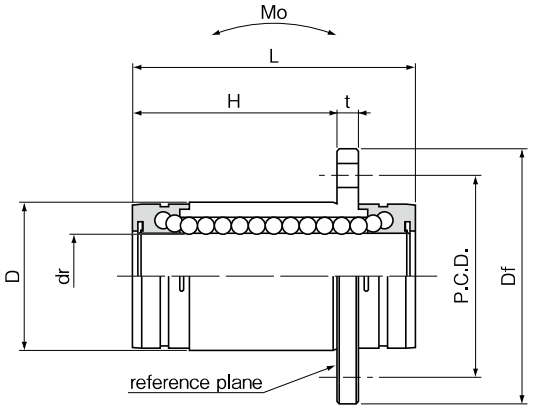
– Round Flange Double-Wide Type –

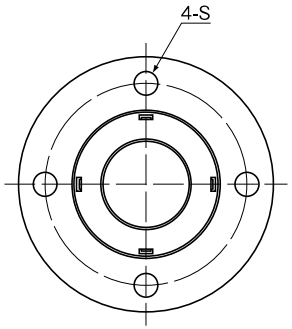


part number structure

example GMF 25 W UU

- GMF type
- inner contact diameter (dr)
- double-wide type
- seals on both sides





part number	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	major dimensions L mm	major dimensions H 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

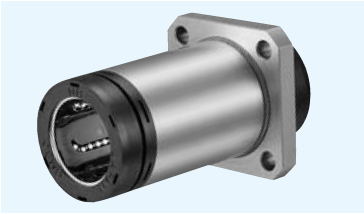
*UU type is standard.

flange Df mm	flange t mm	flange P.C.D. mm	flange S mm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

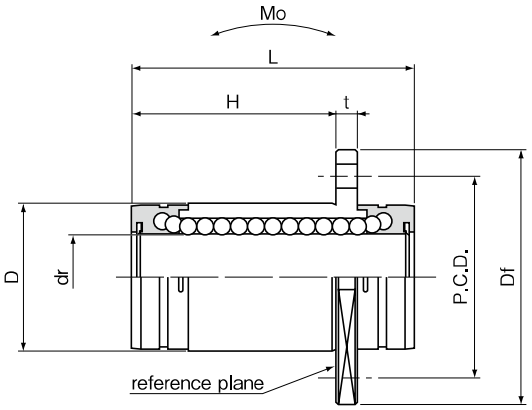
– Square Flange Double-Wide Type –

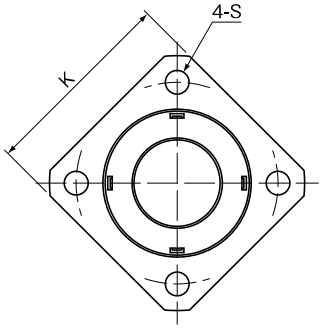


part number structure

example GMK 25 W UU

- GMK type
- inner contact diameter (dr)
- double-wide type
- seals on both sides





part number	number of ball circuits	major dimensions dr mm	dr tolerance μm	D mm	D tolerance μm	L mm	H 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

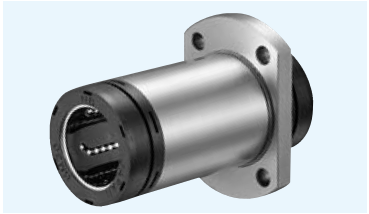
*UU type is standard.

Df mm	t mm	flange P.C.D. mm	K mm	S mm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

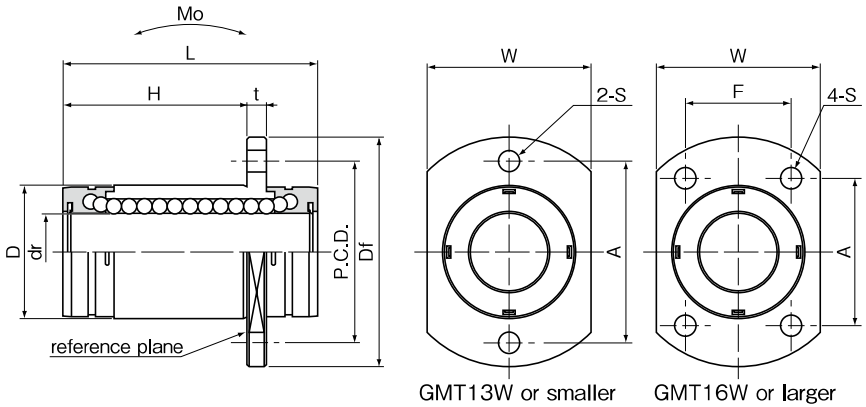
– Two Side Cut Double-Wide Flange Type –



part number structure

example GMT 25 W UU

- GMT type
- inner contact diameter (dr)
- double-wide type
- seals on both sides



part number	number of ball circuits	dr		D		major dimensions 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

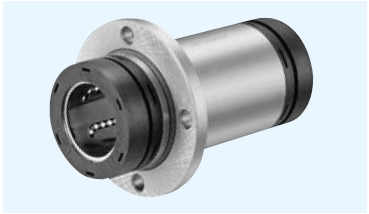
*UU type is standard.

flange Df mm	t mm	W mm	A mm	F mm	S mm	perpendicularity μm	basic load rating dynamic C N	static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

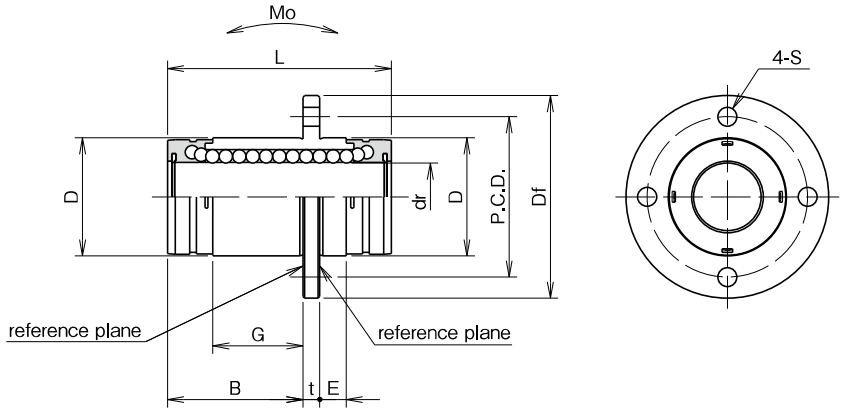
— Round Flange Double-Wide Type with pilot end—



part number structure

example GMF 25 W UU -E

- GMF type
- inner contact diameter (dr)
- double-wide type
- seals on both sides
- with pilot end



*Both sides of the flange can be used as a reference plane.

part number	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	major dimensions L mm	B mm	G mm	E 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

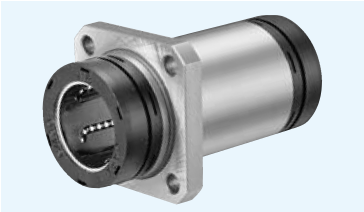
*UU type is standard.

flange Df mm	flange t mm	flange P.C.D. mm	flange S mm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

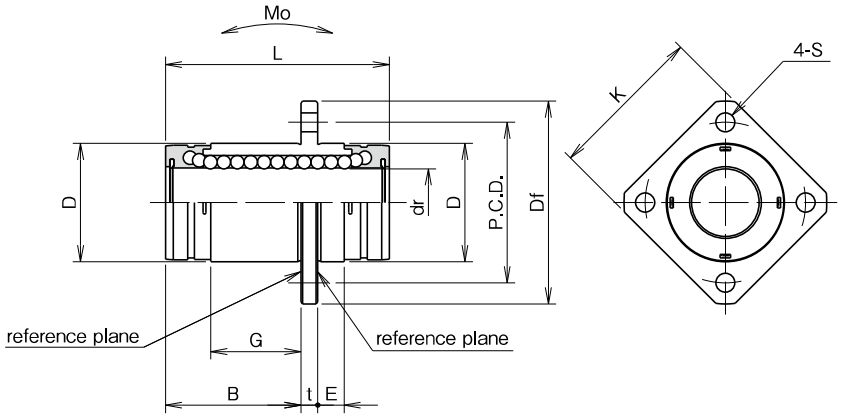
— Square Flange Double-Wide Type with pilot end—



part number structure

example GMK 25 W UU -E

- GMK type
- inner contact diameter (dr)
- double-wide type
- seals on both sides
- with pilot end



*Both sides of the flange can be used as a reference plane.

part number	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	major dimensions L mm	B mm	G mm	E 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

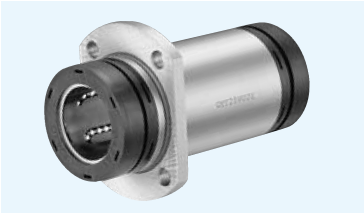
*UU type is standard.

Df mm	t mm	flange P.C.D. mm	K mm	S mm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

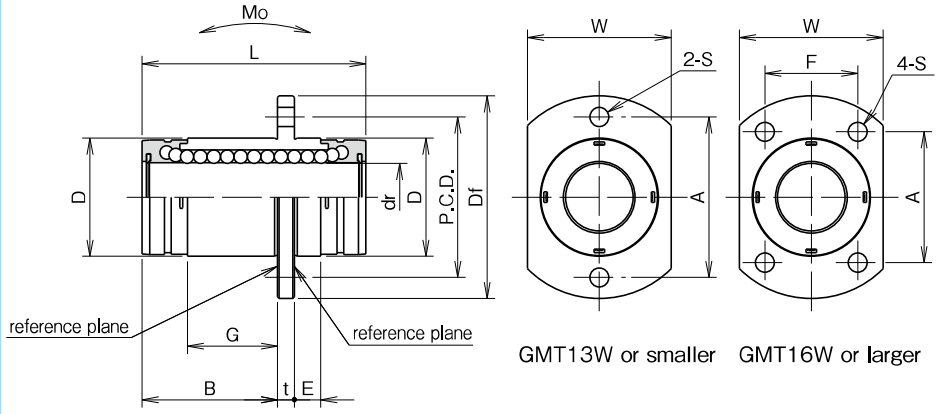
— Two Side Cut Double-Wide Flange Type with pilot end —



part number structure

example GMT 25 W UU -E

- GMT type
- inner contact diameter (dr)
- double-wide type
- seals on both sides
- with pilot end



GMT13W or smaller GMT16W or larger

*Both sides of the flange can be used as a reference plane.

part number	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	major dimensions L mm	B mm	G mm	E 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

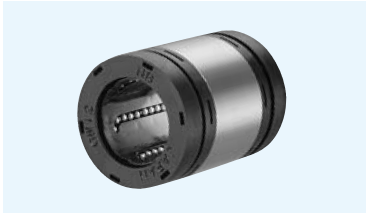
*UU type is standard.

flange Df mm	flange t mm	flange W mm	flange A mm	flange F mm	flange S mm	perpendicularity μm	basic load rating dynamic C N	basic load rating static Co N	allowable static moment Mo N・m	mass g	shaft diameter 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

GW TYPE (Inch Standard)

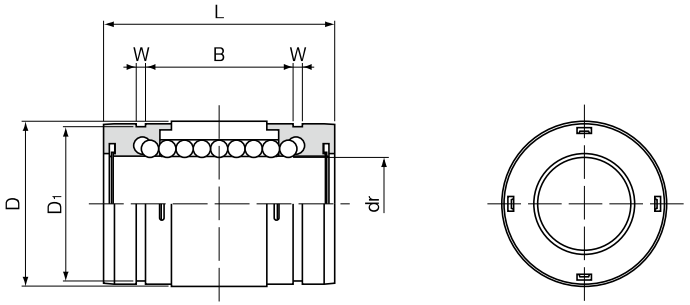
– Single Type –



part number structure

example GW 16 UU

- GW type
- size
- seal
  - blank: without seal
  - UU: seals on both sides



part number	number of ball circuits	dr mm	dr tolerance μm	D mm	D tolerance μm	major dimensions L mm
GW 4	4	6.350	0 −10	12.700	0/−11	19.050
GW 6	4	9.525		15.875	0 −13	22.225
GW 8	4	12.700		22.225		31.750
GW10	4	15.875		28.575		38.100
GW12	6	19.050		31.750	0 −16	41.275
GW16	6	25.400		39.688		57.150
GW20	6	31.750	0/−12	50.800	0/−19	66.675

B mm	W mm	D1 mm	basic load rating dynamic C N	basic load rating static Co N	mass g
10.996	0.992	11.906	206	265	5.4
14.166	0.992	14.935	225	314	7.8
22.123	1.168	20.853	510	784	26
25.197	1.422	26.899	774	1,180	51
26.767	1.422	29.870	862	1,370	72
41.115	1.727	37.306	980	1,570	138
47.465	1.727	47.904	1,570	2,740	269

1N≒0.102kgf