Linear Motion Ball Bearings

BRIEF INTRODUCTION

is a professional enterprise specializing in making Linear Motion Ball Bearing and related linear-motion series.

To pursue the higher goal, the company strictly carry out the ISO9002:2000 quality system and has passed the ISO9002 quality system certification. The company possess advanced state-of-art manufacturing equipments, testing instruments.

Moreover, numerous senior engineers and technicians have been introduced to develop and research new products. The products have been selling to Japan, U.K., Germany, Italy, Mid-east area and other countries and regions.

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TECHNICAL INFORMATION FOR LINEAR BUSHING

Load Rating

- **Basic Dynamic Load Rating (C)**
  This term is arrived at based on an evaluation of a number of identical linear systems individually run in the same conditions, if 90% of them can run with the load (with a constant value in a constant direction) for a distance of 50 km without damage caused by rolling fatigue. This is the basis of the rating.
- **Allowable Static Moment (M)**
  This term defines the allowable limit value of static moment load,with reference to the amount of permanent deformation similar to that used for evaluation of basic rated load (Co).
- **Static Safety Factor (fs)**
  This factor is used based on the application condition as shown in Table 1.

Rating Life

- **Rating Life of the Linear System**
  As long as the linear system reciprocates while being loaded,continuous stress acts on the linear system to cause flaking on the rolling bobies and planes because of material fatigue. The travelling distance of linear system until the fist flaking occurs is called the life of the systems of the same dimensions, structure,material,heat treatment and processing method, when used in the same conditions,This variation is brought about from the essential variations in the material fatigue itself. The rating life defined bellow is used as an index for the life expectancy of the linear system.
- **Rating Life (L)**
  Rating life is the total travelling distance that 90% of a group of systems of the same size can reach without causing any flaking when they operate under the same conditions.

The rating life can be obtained from the following equation with the basic dynamic load rating and the load on the linear system:

$$\text{For ball type: } L=\left(\frac{C}{P}\right)^{3}\cdot 50 \qquad (1)$$

L:rating life (km) C:Basic dynamic load rating (N)
P:Load (N)

- **Basic Static Load Rating (Co)**
  This term defines a static load such that, at the contacting position where the maximurn stress is exercised, the sum of the permanent deformation of the rolling elements and that of the rolling plane is 0.0001 time of the diameter of the rolling elements.
- **Table 1.Stactic Safety Factors**

Condition of use	Low limit of fs
When the shaft has less deflection and shock	1 to 2
When elastic deformation should be considered with respect to pinch load	2 to 4
When the equipment is subject to vibration and impacts	3 to 5

Consideration and influence of vibration impact loads and distribution of load should be taken into account when designing a linear motion system . it is difficult to calculate the actual load . The rating life is also affected by the operating temperature. In these conditions, the expression (1) is arranged as follows:

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

L:Rating life (km) fh:Hardness factor (See Fig.1)
C:Basic dynamic load rating (N)
fT:Temperatuer coefficient (See Fig.2) P:Load (N)
fC:Contact coefficient (See Table 2)
fw:Load coefficient (See Table 3)

The rating life in hours can be calculated by obtaining the travelling distance per unit time. The rating life in hours can be obtained from the following expression when the stroke length and the number of strokes are constant:

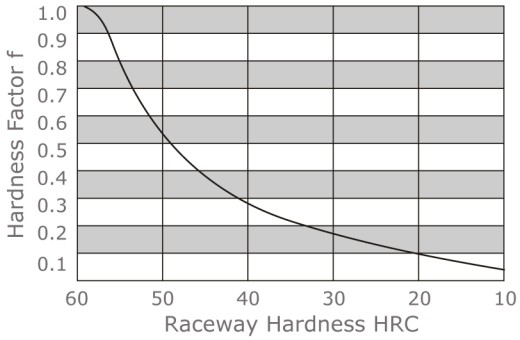
$$L_h=\frac{L\cdot 10^{3}}{2e_s\cdot n_1\cdot 60}$$

Lh:Rating life in hours (hr)
es:Stroke length (m)
L:Rating life (km)
n1:No.of strofes per minute (cpm)

Hardness Factor (fH)

The shaft must be sufficiently hardened when a linear bushing is used. If not properly hardened, permissible load is lowered and the life of the bushing will be shortened.

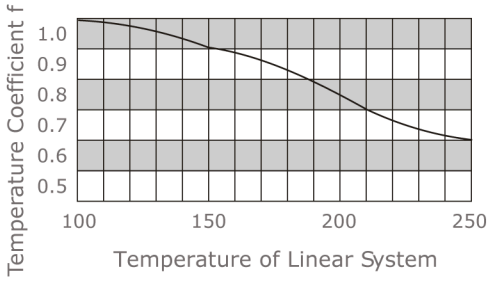
Fig.1 Hardness Factor



Temperature Coefficient (fT)

If the temperature of the linear system exceeds 100℃, hardness of the linear system and the shaft lowers to decrease the permissible load compared to that of the linear system used at room temperature. As a result, the abnormal temperature rise shortens the rating life.

Fig.1 Hardness Factor



Contact Coeffcient (fc)

Generally two or more linear bushings are used on one shaft. Thus, the load on each linear sysem differs depending on each processing accuracy. Because the linear bushings are not loaded equally, the number of linear bushings per shaft changes the permissible load of the system.

Table 2 Contact Coefficient

Number of linear systems per shaft	Contact coefficient fc
1	1.00
2	0.81
3	0.72
4	0.66
5	0.61

Load Coefficient (fw)

When calculating the load on the linear system, it is necessary to accurately obtain object weight, inertial force based on motion speed, moment load, and each transition as time passes. However, it is difficult to calculate those valuse accurately because reciprocating motion involves the repetition of start and stop as well as vibration and impact. A more practical approach is to obtain the load coefficient by taking the actual operating conditions into account.

Table 3 Load Coefficient

Opearating Conditions	fw
Operation at low speed(15 m/min. Or less) without impulsive shock from outside	1.0 to 1.5
Operation at intermediate speed (60 m/min. Or less) without impulsive shock	1.5 to 2.0
Operation at high speed (over 60 m/min.) With impulsive shock from outside	2.0 to 3.5

Frictional Resistance

The static frictional resistance of the linear system is so low as to be only slightly different from the kinetic frictional resistance, enabling smooth linear movement from low to high speeds. in general, the frictional resistance is expressed by the following equation.

$$F = \mu \cdot W + f$$

F:Frictional resistance μ:Coefficient of friction
W:Load weight f:Sealing resistance

The frictional resistance of each linear system depends on the model, load weight, speed, and lubricant. The sealing resistance depends on the lip interference and lubricant, regardless of the load.

Ambient Working Temperature

The ambient working temperature range for each linear system depends on the model. Consult on use outide the recommended temperature range.

Temperature conversion equation

$C = \frac{5}{9}(F-32)$

$F = 32 + \frac{5}{9}C$

Lubrication and Dust Prevention

Using linear systems without lubrication increases the abrasion of the rolling elements, shortening the life span, The linear systems therefore require appropriate lubrication. For lubrication recommends turbine oil conforming to ISO Standards G32 to G68 or lithium base soap grease NO.2. Some linear systems are sealed to biock dust out and seal lubricant in. If used in a harsh or corrosive environment, however, apply a protective cover to the part involving linear motion.

weight. The sealing resistance of one linear system is about 2000 to 500 gf. The coefficient of friction depends on the load weight. Moment load. And pre-load.Table 6 shows the coefficient of kinetic friction of each type of linear system which has been installed and lubricated properly and applied with normalload (P/C=0.2)

Table 5 Coefficient of Linear System Friction (u)

Linear System Type	Models	Coefficient of Friction (u)
Linear Bushing	LMLME LMB	0.002 to 0.003

Table 6 Ambient Working Temperature

Linear System Type	Models	Ambient Working Temperature
Linear Bushing	LMLME LMB	-20 to 80℃
Linear Bushing	LM-ALME-ALMB-A	-20 to 110℃

Structure and Features

- The linear bushing consists of an outer cylinder, ball retainer, balls and two end rings. The ball retainer which holds the balls in the recirculating tuucks in held inside the outer cylinder by end rings.
- Those parts are assembled to optimize their required functions.
  The outer cylinder is maintained sufficient hardness by heat treatment, therefore if ensures the bushings projected travel life and satisfactory duravbility.
- The ball retainer is made from steel or synthetics resin.
  The steel retainer has high rigidity, obtained by heat treat meant.
  The synthetics resin retainer can reduce running noise.
  The user can select the optimum type for meeting the user's service conditions.

1.High Precision and Rigidity

The linear bushing is produced from a solid steel outer cylinder and incorporates an industrial strength resin retainer.

2.Ease of Assembly

The standard type of linear bushing can be loaded from any direction. Precision control is Possible using only the shaft supporter, and the mounting surface can be machined easily.

3.Ease of Replacement

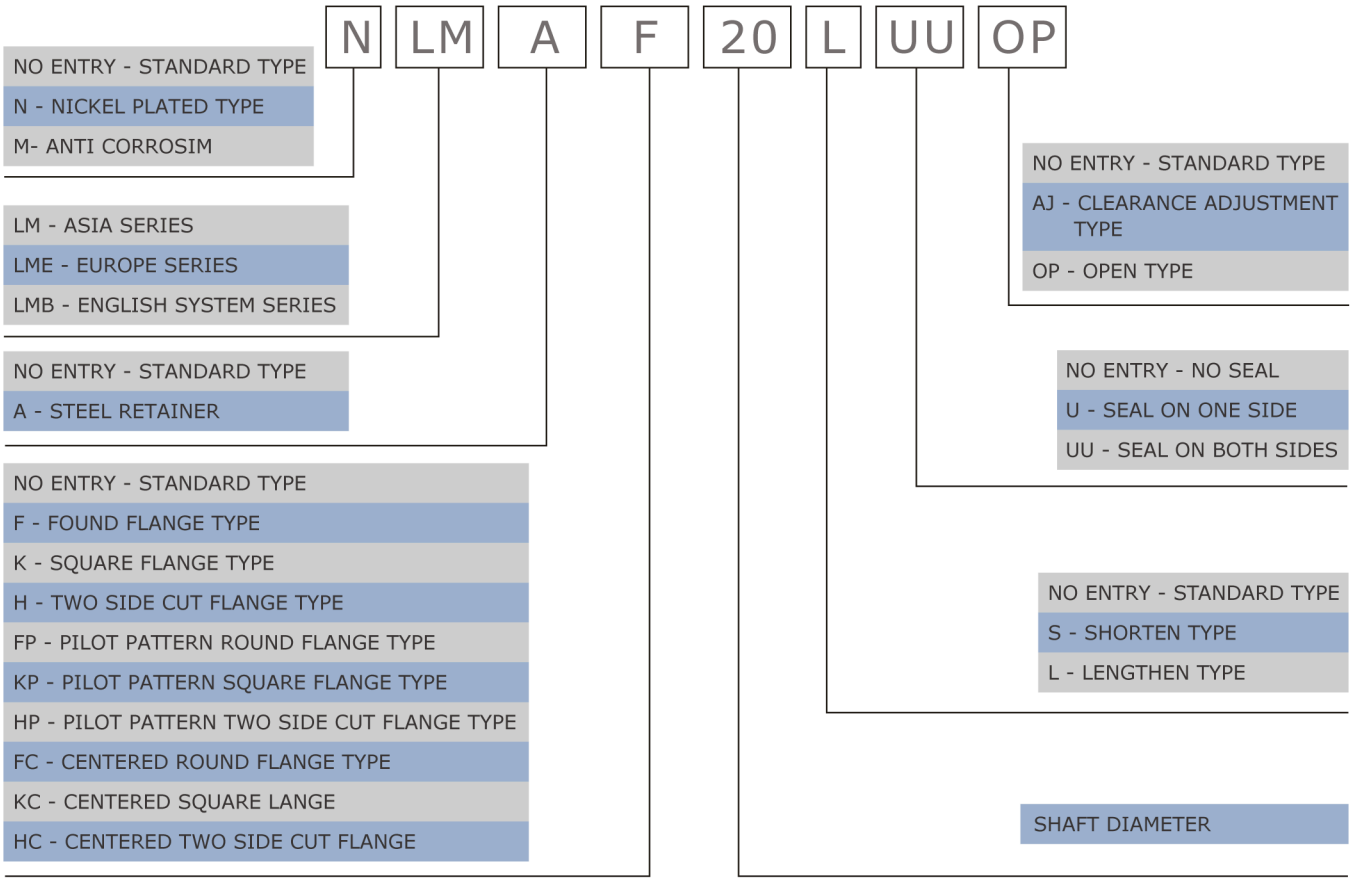
linear bushings of each type are completely interchangeable because of their standardized dimensions and strict precision control. Replacement because of wear or damage is therefore easy and accurate.

4.Veriety of Types

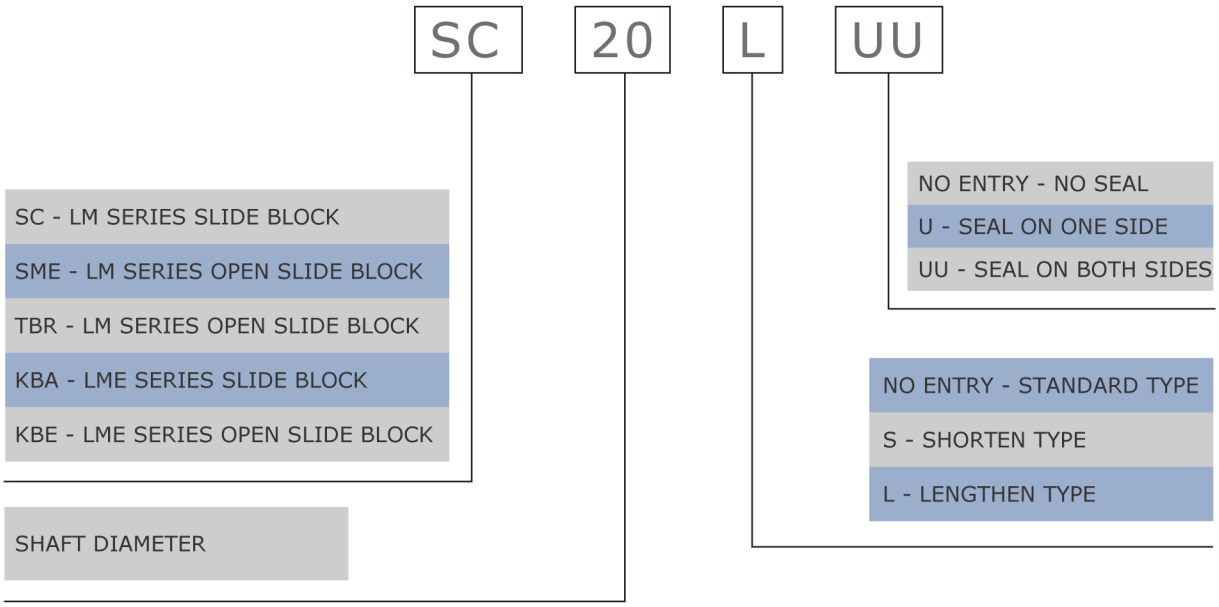
offers a full line of linear bushing: the standard, integral single-retainer closed types. The user can choose from among these according to the application requirements to be met.

Type number format

- **LINEAR BUSHING**



SLIDE UNIT



Tolerance

Note that precision of inscribed circle diameters and outside diameters for the clearance adjustable type (····-AJ) and the open type (····-OP) indicates the value obtained before the corresponding type is subjected to cutting process.

Load Rating and Life Expectancy

The life (L) of a linear bushing can be obtained from the following equation with the basic dynamic load rating and the load applied to the busha:

$$L=\left(\frac{f_H \cdot f_T \cdot f_C}{f_W} \cdot \frac{C}{P}\right)^3 \cdot 50 \qquad (1)$$

L:Rated life (km)
C:Basic dynamic load rating (N)
P:Working load (N)
fw:Load coefficient
fH:Hardness factor (See page5)
fT:Temperature coefficient (See page5)
fc:Contact coefficient (See page5)

The lifespan (Ln) of a linear bushing in hours can be obtained by calculating the travelling distance per unit time.
The lifespan can be obtained from the following equation if the stroke length and the number of strokes are constant:

$$L_h=\left(\frac{L \cdot 10^3}{2 \cdot s \cdot n_1 \cdot 60}\right) \qquad (2)$$

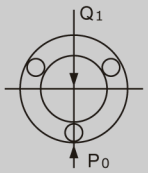
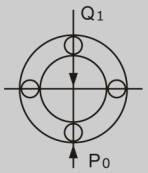
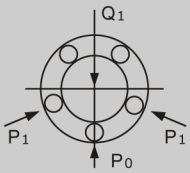
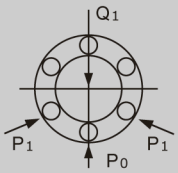
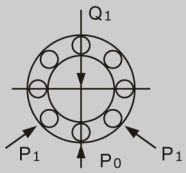
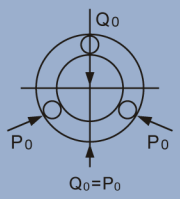
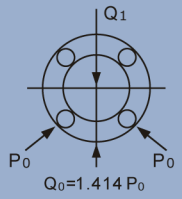
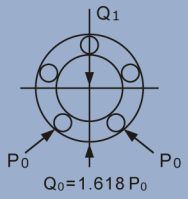
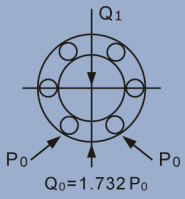
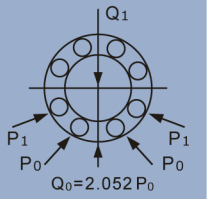
Lh:Lifespan
L:Rated life (km)
s:Stroke length (m)
n:Number of strokes per minute (cpm)

Relation between ball circuits and load rating

The linear bushing includes ball circuits that are spaced equally and circumferentially. The load rating varies according to the loaded position on the circumference.

The value in the dimension table indicates the load rating when the load is placed on top of one ball circuit. if the linear bushing is used with two ball circuits loaded uniformly, the load rating will be greater, The following table shows the values by the number of ball circuits in such cases:

Table 1

Row position load ratio \ Number of rows	3	4	5	6	8
Row position	 $Q_0=P_0$	 $Q_1=P_0$	 $Q_1=1.106\,P_0$	 $Q_1=1.354\,P_0$	 $Q_1=1.841\,P_0$
Row position	 $Q_0=P_0$	 $Q_0=1.414\,P_0$	 $Q_0=1.618\,P_0$	 $Q_0=1.732\,P_0$	 $Q_0=2.052\,P_0$
Load ratio	$Q_0/Q_1=1$	$Q_0/Q_1=1.414$	$Q_0/Q_1=1.463$	$Q_0/Q_1=1.280$	$Q_0/Q_1=1.115$

Sample Calculations

1.Obtaining the rated life L and lifespan Lh of the KOLMB linear bushing used in the following conditions:

- Linear bushing: LM20
- Stroke length: 50mm
- Number of strokes per minute: 50cpm
- Load per bush: 490N

The basic dynamic load rating of the linear bushing is 882N from the dimension table. From equation(1), therefore, the rated life L is obtained as follows:

$$L=\left(\frac{f_H\cdot f_T\cdot f_C}{f_W}\cdot\frac{C}{P}\right)^3\cdot 50 \qquad F_H=f_T=f_C=f_W=1.0$$
$$=\left(\frac{882}{490}\right)^3\times 50=292km$$

From equation(2), the lifespan Lh is obtained as follows:

$$L_h=\frac{L\times 10^3}{2xe_sxnlx60}=\frac{292\times 10^3}{2x0.05x50x60}=973hr$$

2.Selecting the linear bushing type satisfying the following conditions:

- Number of linear bushing used: 4
- Stroke length: lm
- Traveling speed: 10m/min
- Number of strokes per minute: 5cpm
- Lifespan: 10,000hr
- To talload: 980N

From equation(2), the travelling distance within the lifespan is obtained as follows:

$$L=2Xe_sXn1X60XL_h=6{,}000km$$

From equation(1), the basic dynamic load rating is obtained as follows:

$$C=\sqrt[3]{\frac{L}{50}}\cdot\left(\frac{f_W}{f_H\cdot f_T\cdot f_C}\right)\cdot p=1492N$$

Assume the following with a pair of shafts each with two linear bushings:

fc=0.81,fw=fT=fH=1

As a result, Lm30 is selected from the dimension table as the linear bushing type satisfying the value of C

Clearance and Fit

When a standard-type linear bushing is used with a shaft, inadequate clearance, adjustment may cause early bush failure and / or poor, rough traveling. The clearance adjustable linear bush and open linear bush can be clearance adjusted when assembled in the housing which can control the outside cylinder diameter. However, too much clearance adjustment increases the deformation of

The outside cylinder cylinder, to affect its precision and life. therefore, the appropriate clearance between the bush and shaft, and clearance between the bush and housing are required according to the application. Table 2 shows recommended fit of the bush:

Table 2

Model \ Division		Shaft		Housing	
		Normal fit	Transitional	loose fit	Tight fit
LM LMB	High class	g6	h6	H7	J7
LME	High class	h6	j6	H7	J7

Note: The clearance may be zero or negative. Please attention the movement.

Shaft and Housing

To optimize performance of the linear bushing high precision of the shaft and housing is required.

1.Shaft

The rolling balls in the linear bushing are in point contact with the shaft surface Therefore, the shaft dimensions, tolerance, surface finish, and hardness greatly affect the traveling performance of the bush. The shaft should be manufactured with due attention to the following points:

1. since the surface finish critically affects smooth rolling of balls, grind the shaft at 1.5 S or better
2. The best hardness of the shaft is HRC 60 to 64. Hardness less than HRC 60 decreases the life considerably, and hence reduces the permissible load. On the other hand, hardness over HRC 64 accelerates ball weer.
3. The shaft diameter for the clearance adjustable linear bush and open linear bush should as much as possible be of the lower value of the inscribed circle diameter in the specification table. Do not set the shaft diameter to the upper value.
4. Zero clearance or negative clearance increases the frictional resistance slightly. if the negative clearance is too tight, the deformation of the outside cylinder will become larger,to shorten the bush life.

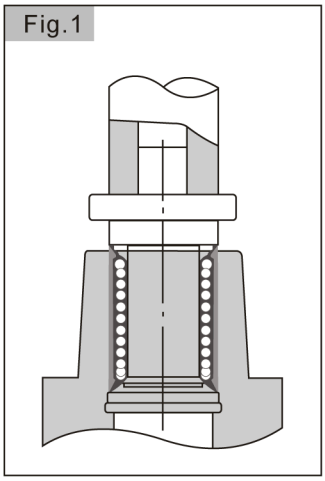
2.Housing

There is a wide range of housings differing in design, machining, and mounting. For the fitness and shapes of housings, see Table 2 and the following section on mounting.

Mounting

When inserting the linear bush into the housing, do not hit the linear bush on the side ring holding the retainer but apply the cylinder circumference with a proper jig and push the linear bush into the housing by hand or lightly knock it in. (See Fig.1) In inserting the shaft after mounting the bush, be careful nto to shock the balls. Note that if two shafts are used in parallel, the parallelism is the most important factor to assure the smooth linear movement. Take care in setting the shats.

Fig.1



Examples of Mounting

The popular way to mount a linear bush is to operate it with an appropriate interference. it is recommended, however, to make a loose fit in principle because otherwise precision is apt to be minimized. The following examples (Figs. 2 to 6) show assembling of the inserted bush in terms of desinging and mounting, for reference.

Fig.2

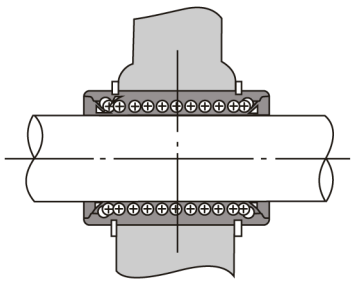


Fig.3

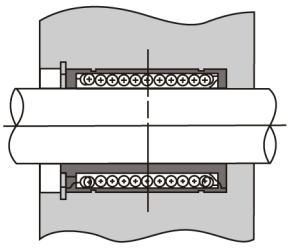


Fig.4

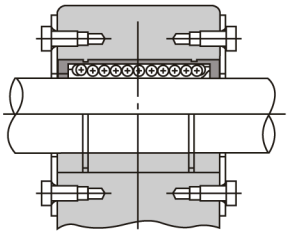


Fig.5

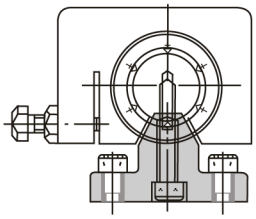
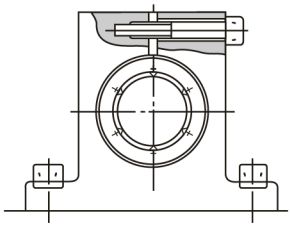


Fig.6



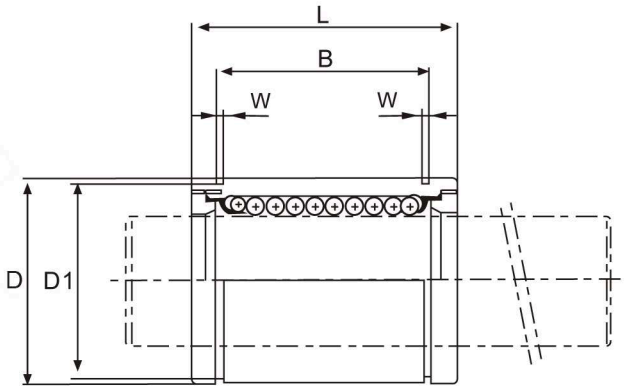
Linear Bush Series

LM Series
(SM Series)

LM

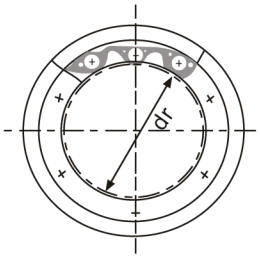
LM OP

LM AJ

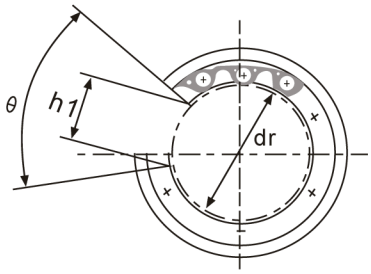


Part No.									
Seal Type	Ball Circuit	Open Type	Ball Circuit	Adjustable Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)
LM4	4	–	–	–	–	4	0 -8	8	0 -9
LM5UU	4	–	–	–	–	5		10	
LM6UU	4	–	–	LM6UUAJ	4	6	0 -9	12	0 -11
LM8SUU	4	–	–	LM8SUUAJ	4	8		15	
LM8UU	4	–	–	LM8UUAJ	4	8		15	
LM10UU	4	–	–	LM10UUAJ	4	10		19	0 -13
LM12UU	4	LM12UU-OP	3	LM12UUAJ	4	12		21	
LM13UU	4	LM13UU-OP	3	LM13UUAJ	4	13		23	
LM16UU	5	LM16UU-OP	4	LM16UUAJ	5	16		28	
LM20UU	5	LM20UU-OP	4	LM20UUAJ	5	20	0 -10	32	0 -16
LM25UU	6	LM25UU-OP	5	LM25UUAJ	6	25		40	
LM30UU	6	LM30UU-OP	5	LM30UUAJ	6	30		45	
LM35UU	6	LM35UU-OP	5	LM35UUAJ	6	35	0 -12	52	0 -19
LM40UU	6	LM40UU-OP	5	LM40UUAJ	6	40		60	
LM50UU	6	LM50UU-OP	5	LM50UUAJ	6	50		80	
LM60UU	6	LM60UU-OP	5	LM60UUAJ	6	60	0/-15	90	0/-22

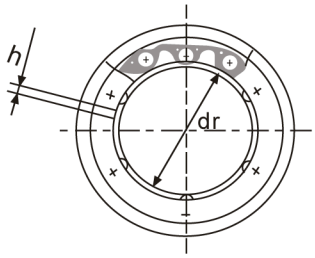
LM



LM -OP



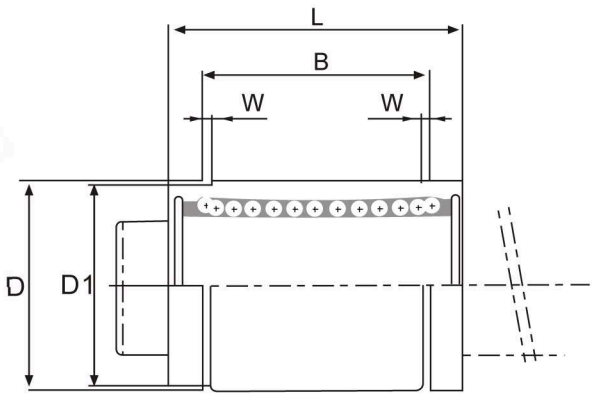
LM -AJ



Main Dimensions and Tolerance									Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating		Weight (g)	Part No.
L (mm)	Tolerance (μm)	B (mm)	Tolerance (μm)	W (mm)	D1 (mm)	h (mm)	h1 (mm)	θ			C N	Co N		
12	0 -120	-	0 -200	-	-	-	-	-	8	-3	88	127	2	LM4
15		10.2		1.1	9.6	-	-	-			167	206	4	LM5UU
19	0 -200	13.5		1.1	11.5	1.0	-	-	12		206	265	8.5	LM6UU
17		11.5		1.1	14.3	1.0	-	-			176	216	11	LM8SUU
24		17.5		1.1	14.3	1.0	-	-			274	392	17	LM8UU
29		22		1.3	18	1.0	6.8	80°		-4	372	549	36	LM10UU
30		23		1.3	20	1.5	8	80°			510	784	42	LM12UU
32		23		1.3	22	1.5	9	80°			510	784	49	LM13UU
37		26.5		1.6	27	1.5	11	80°		-6	774	1180	76	LM16UU
42		30.5		1.6	30.5	1.5	11	60°	15		882	1370	100	LM20UU
59	0 -300	41	0 -400	1.85	38	2	12	50°			980	1570	240	LM25UU
64		44.5		1.85	43	2.5	15	50°		-8	1570	2740	270	LM30UU
70		49.5		2.1	49	2.5	17	50°	20		1670	3140	425	LM35UU
80		60.5		2.1	57	3	20	50°		-10	2160	4020	654	LM40UU
100		74		2.6	76.5	3	25	50°		-13	3820	7940	1700	LM50UU
110		85		3.15	86.5	3	30	50°	25		4700	10000	2000	LM60UU

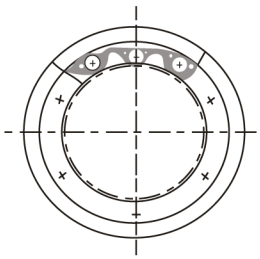
LME Series
(KB Series)

LME　　LME OP　　LME AJ

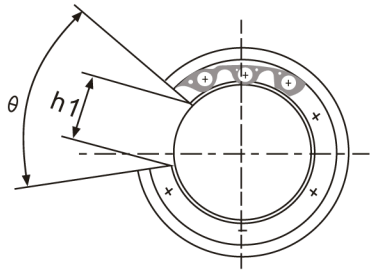


Part No.								
Seal Type	Ball Circuit	Open Type	Ball Circuit	Adjustable Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)
LME5UU	4	–	–	LME5UUAJ	4	5	+8 0	12
LME8UU	4	–	–	LME8UUAJ	4	8		16
LME12UU	4	LME12UU-OP	3	LME12UUAJ	4	12		22
LME16UU	5	LME16UU-OP	4	LME16UUAJ	5	16	+9 -1	26
LME20UU	5	LME20UU-OP	4	LME20UUAJ	5	20		32
LME25UU	6	LME25UU-OP	5	LME25UUAJ	6	25	+11 -1	40
LME30UU	6	LME30UU-OP	5	LME30UUAJ	6	30		47
LME40UU	6	LME40UU-OP	5	LME40UUAJ	6	40	+13 -2	62
LME50UU	6	LME50UU-OP	5	LME50UUAJ	6	50		75
LME60UU	6	LME60UU-OP	5	LME60UUAJ	6	60		90

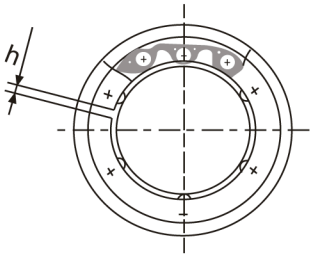
LME



LME -OP



LME -AJ

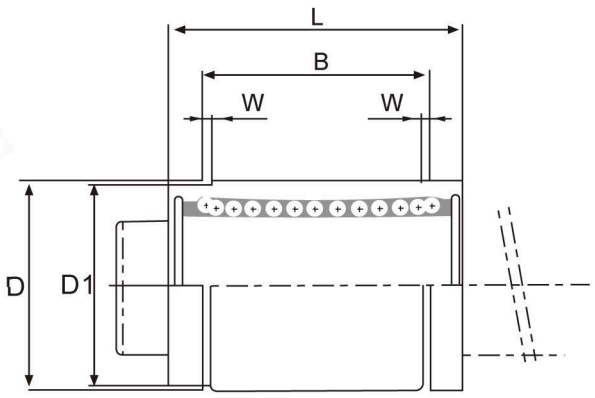


Main Dimensions and Tolerance										Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating		Weight (g)	Part No.
Tolerance (μm)	L (mm)	Tolerance (μm)	B (mm)	Tolerance (μm)	W (mm)	D1 (mm)	h (mm)	h1 (mm)	θ			C N	Co N		
0 -8	22	0 -200	14.5	0 -300	1.1	11.5	-	-	-	12	-3	206	265	11	LME5UU
	25		16.5		1.1	15.2	-	-	-			265	402	22	LME8UU
0 -9	32		22.9		1.3	21	1.5	7.5	78°		-4	510	784	45	LME12UU
	36		24.9		1.3	24.9	1.5	10	78°			578	892	60	LME16UU
0 -11	45		31.5		1.6	30.3	2	10	60°	15	-6	862	1370	102	LME20UU
	58	0 -300	44.1	0 -400	1.85	37.5	2	12.5	60°			980	1570	235	LME25UU
	68		52.1		1.85	44.5	2	12.5	50°		-8	1570	2740	360	LME30UU
0 -13	80		60.6		2.15	59	3	16.8	50°	17		2160	4020	770	LME40UU
	100		77.6		2.65	72	3	21	50°		-13	3820	7940	1250	LME50UU
0/-15	125	(0/-400)	101.7		3.15	86.5	3	27.2	54°	20		4700	9800	2220	LME60UU

LMB Series

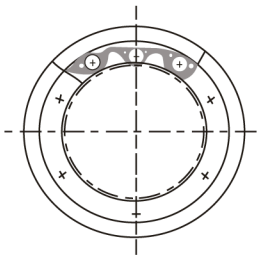
(SW Series)

LMB　　LMB OP　　LMB AJ

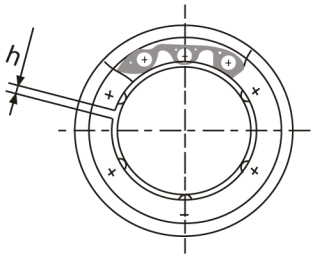


Part No.						dr inch/mm	Tolerance (μm)	D inch/mm	Tolerance (μm)	L inch/mm
Seal Type	Ball Circuit	Seal Type	Ball Circuit	Seal Type	Ball Circuit					
LMB04UU	3	—	—	—	3	1/4" 6.35	0 -9	0.5" 12.7	0 -11	0.75" 19.05
LMB06UU	4	—	—	—	4	3/8" 9.525		0.625" 15.875	0 -13	0.875" 22.225
LMB08UU	4	LMB08OP	3	LMB08AJ	4	1/2" 12.7		0.875" 22.225		1.25" 31.75
LMB10UU	4	LMB10OP	3	LMB10AJ	4	5/8" 15.875		1.125" 28.575		1.5" 38.1
LMB12UU	5	LMB12OP	4	LMB12AJ	5	3/4" 19.05	0 -10	1.25" 31.75	0 -16	1.625" 41.275
LMB16UU	5	LMB16OP	4	LMB16AJ	5	1" 25.4		1.5625" 39.688		2.25" 57.15
LMB20UU	6	LMB20OP	5	LMB20AJ	6	1-1/4" 31.75	0 -12	2" 50.8	0 -19	2.625" 66.675
LMB24UU	6	LMB24OP	5	LMB24AJ	6	1-1/2" 38.1		2.375" 60.325		3" 76.2
LMB32UU	6	LMB32OP	5	LMB32AJ	6	2" 50.8		3" 76.2	0 -22	4" 101.6

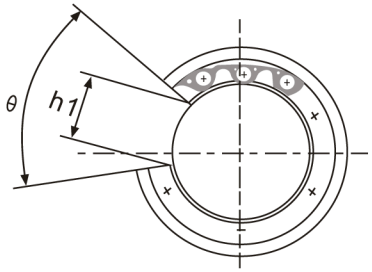
LMB



LMB -AJ



LMB -OP

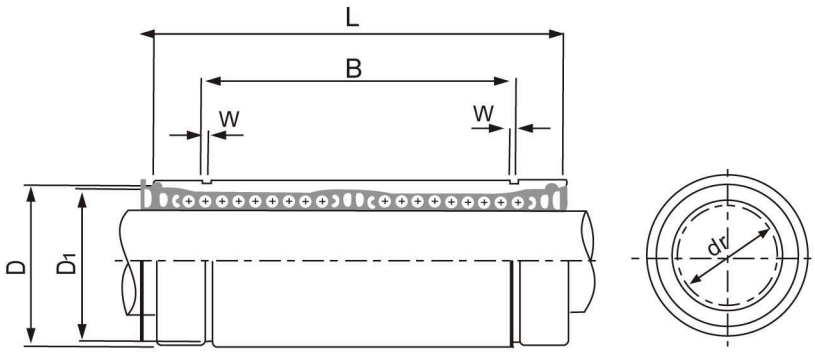


Main Dimensions and Tolerance								Eccen-tricity (max) (μm)	Radial Clearance (max) μm	Basic Load Rating		Weight (g)	Part No.
Tolerance (μm)	B inch/mm	Tolerance (μm)	D1 inch/mm	W inch/mm	h inch/mm	h1 inch/mm	θ			C N	Co N		
0 -200	0.511" 12.98	0 -200	0.4687" 11.906	0.039" 0.992	0.04" 1	—	—	12	-3	206	265	9.5	LMB04UU
	0.6385" 16.15		0.588" 14.935	0.039" 0.992	0.04" 1	—	—			225	314	15	LMB06UU
	0.9625" 24.46		0.8209" 20.853	0.0459" 1.168	0.06" 1.5	0.34" 7.9375	80°		-4	510	784	42	LMB08UU
	1.1039" 28.04		1.059" 26.899	0.0559" 1.422	0.06" 1.5	0.375" 9.525	80°			774	1180	85	LMB10UU
	1.1657" 29.61		1.176" 29.87	0.0559" 1.422	0.06" 1.5	0.4375" 11.1125	60°	15	-6	862	1370	104	LMB12UU
0 -300	1.7547" 44.57	0 -300	1.4687" 37.306	0.0679" 1.727	0.06" 1.5	0.5625" 14.2875	50°			980	1570	220	LMB16UU
	2.0047" 50.92		1.8859" 47.904	0.0679" 1.727	0.10" 2.5	0.625" 15.875	50°	20	-8	1570	2740	465	LMB20UU
	2.4118" 61.26		2.2389" 56.87	0.0859" 2.184	0.12" 3	0.75" 19.05	50°			2180	4020	720	LMB24UU
	3.1917" 81.07		2.8379" 72.085	0.1029" 2.616	0.12" 3	1" 25.4	50°	25	-13	3820	7940	1310	LMB32UU

LM L Series

(SM W Series)

LM L

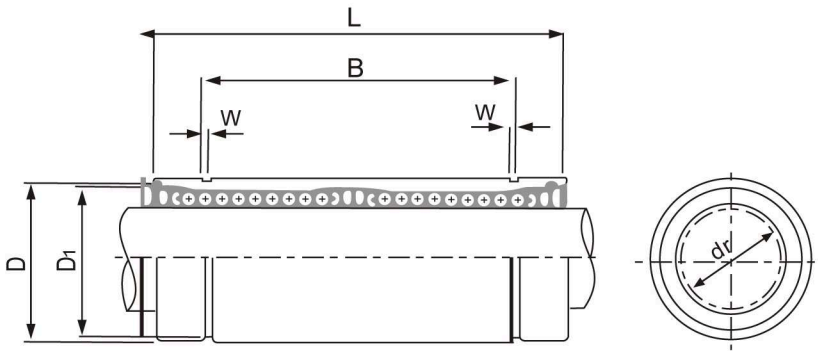


Part No.		Main dimensions and Tolerance										Basic Load Rating		Eccen-tricity	Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L (mm)	Tolerance (μm)	B (mm)	Tolerance (μm)	W (mm)	D1 (mm)	C N	Co N		
LM6LUU	4	6	0 -10	12	0 -13	35	0 -300	27	0 -400	1.1	11.5	323	530	15	16
LM8LUU	4	8		15		45		35		1.1	14.3	431	784		31
LM10LUU	4	10		19	0 -16	55		44		1.3	18	588	1100		62
LM12LUU	4	12		21		57		46		1.3	20	813	1570		80
LM13LUU	4	13		23		61		46		1.3	22	813	1570		90
LM16LUU	5	16		28		70		53		1.6	27	1230	2350		145
LM20LUU	5	20	0 -12	32	0 -19	80		61		1.6	30.5	1400	2740	20	180
LM25LUU	6	25		40		112	0 -400	82	0 -500	1.85	38	1560	3140		440
LM30LUU	6	30		45		123		89		1.85	43	2490	5490		480
LM35LUU	6	35	0 -15	52	0 -22	135		99		2.1	49	2650	6270	25	795
LM40LUU	6	40		60		151		121		2.1	57	3430	8040		1170
LM50LUU	6	50		80		192		148		2.6	76.5	6080	15900		3100
LM60LUU	6	60	0/-20	90	0/-25	209		170		3.15	86.5	7550	20000	30	3500

LME L Series

(KB W Series)

LME L

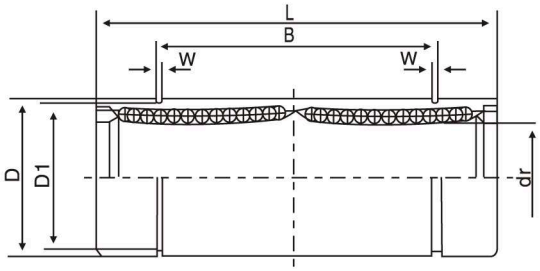


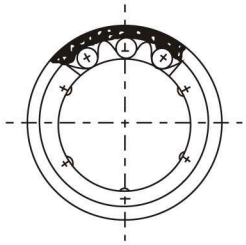
Part No.		Main dimensions and Tolerance										Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L (mm)	Tolerance (μm)	B (mm)	Tolerance (μm)	W (mm)	D1 (mm)		C N	Co N	
LME8LUU	4	8	+9 -1	16	0/-9	46	0 -300	33	0 -400	1.1	15.2	15	421	804	40
LME12LUU	4	12		22	0 -11	61		45.8		1.3	21		813	1570	80
LME16LUU	5	16	+11 -1	26		68		49.8		1.3	24.9		921	1780	115
LME20LUU	5	20		32	0 -13	80		61		1.6	30.5	17	1370	2740	180
LME25LUU	6	25	+13 -2	40		112	0 -400	82	0 -500	1.85	38		1570	3140	430
LME30LUU	6	30		47		123		104.2		1.85	44.5		2500	5490	615
LME40LUU	6	40	+16 -4	62	0 -15	151		121.2		2.15	59	20	3430	8040	1400
LME50LUU	6	50		75		192		155.2		2.65	72		6080	15900	2320
LME60LUU	6	60		90	0/-20	209		170		3.15	86.5	25	7550	20000	3900

LMB L Series

(SW W Series)

LMB L

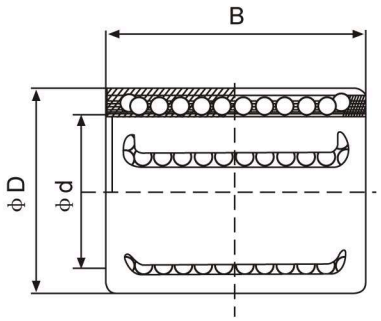


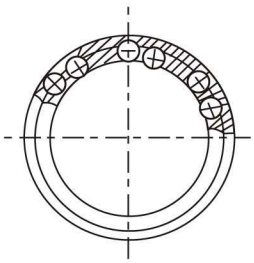


Part No.		Main dimensions and Tolerance										Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr inch/mm	Tolerance (μm)	D inch/mm	Tolerance (μm)	L inch/mm	Tolerance (μm)	B inch/mm	Tolerance (μm)	D1 inch/mm	W inch/mm		C N	Co N	
LMB04LUU	3	1/4 " 6.35	0 -10	0.5 " 12.7	0 -13	1.375 " 34.925	0 -300	1.022 " 25.959	0 -300	0.4687 " 11.906	0.039 " 0.992	15	323	530	17.5
LMB06LUU	4	3/8 " 9.525		0.625 " 15.875	0 -16	1.5938 " 40.481		1.2716 " 32.298		0.588 " 14.935	0.039 " 0.992		353	630	28
LMB08LUU	4	1/2 " 12.7		0.875 " 22.225		2.375 " 60.325		1.925 " 48.895		0.8209 " 20.853	0.0459 " 1.168		813	1570	80
LMB10LUU	4	5/8 " 15.875		1.125 " 28.575		2.8125 " 71.438		2.2079 " 56.08		1.0590 " 26.899	0.0559 " 1.422		1230	2350	160
LMB12LUU	5	3/4 " 19.05	0 -12	1.25 " 31.75	0 -19	3.0937 " 78.581		2.3314 " 59.218		1.176 " 29.87	0.0559 " 1.422	20	1370	2740	195
LMB16LUU	5	1 " 25.4		1.5625 " 39.688		4.2813 " 108.744		3.5094 " 89.139		1.4687 " 37.306	0.0679 " 1.727		1570	3140	410
LMB20LUU	6	1-1/4 " 31.75	0 -15	2 " 50.8	0 -22	5 " 127	0 -400	4.0094 " 101.839	0 -400	1.8859 " 47.904	0.0679 " 1.727	25	2500	5490	820
LMB24LUU	6	1-1/2 " 38.1		2.375 " 60.325		5.6875 " 144.463		4.8236 " 122.519		2.2389 " 56.87	0.0859 " 2.184		3430	8040	1250
LMB32LUU	6	2 " 50.8		3 " 76.2	0 -25	7.75 " 196.85		6.3834 " 162.138		2.8379 " 72.085	0.1029 " 2.616	30	6080	15900	2350

KH Series

KH





Part No.	Main Dimensions			Basic Load Rating C N	Basic Load Rating Co N	Weight (g)
	ϕd	ϕD	B			
KH-0622	6	12	22	400	239	7
KH-0824	8	15	24	435	280	12
KH-1026	10	17	26	500	370	14.5
KH-1228	12	19	28	620	510	18.5
KH-1428	14	21	28	620	520	20.5
KH-1630	16	24	30	800	620	27.5
KH-2030	20	28	30	950	790	32.5
KH-2540	25	35	40	1990	1670	66
KH-3050	30	40	50	2800	2700	95
KH-4060	40	52	60	4400	4450	182
KH-5070	50	62	70	5500	6300	252

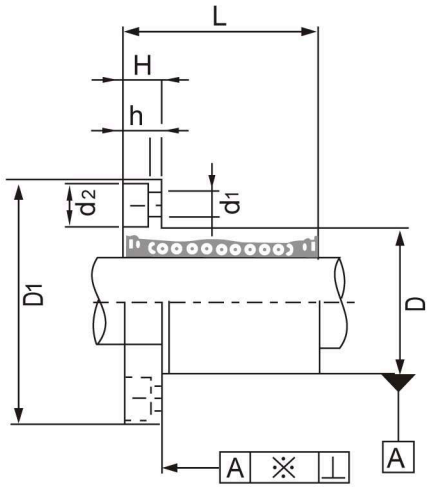
Type number format:

KH 20 30 PP

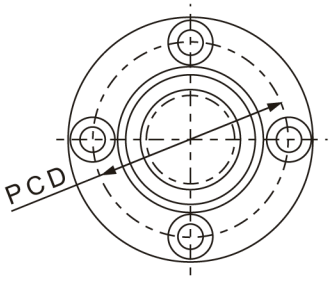
- **KH** — KH-Mini(Pressing Bush)Linear Bearing
- **20** — Shaft Diameter
- **30** — Length Dimension
- **PP** — P=seal one side.PP=seal both sides

LMF/K/ H Series

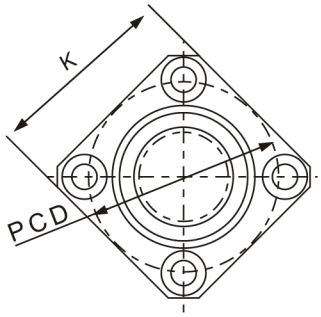
(SMF/K/T Series)



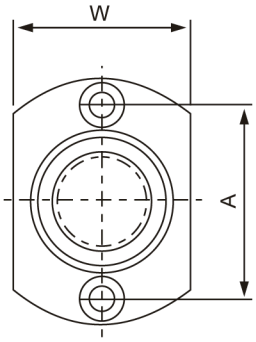
Part No.				Main Dimensions and Tolerance										
Seal Type			Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	D1 (mm)	H (mm)	PCD (mm)	K (mm)	W (mm)	A (mm)
LMF6UU	LMK6UU	LMH6UU	4	6	0 -9	12	0 -11	19	28	5	20	22	18	20
LMF8UU	LMK8UU	LMH8UU	4	8		15		24	32	5	24	25	21	24
LMF10UU	LMK10UU	LMH10UU	4	10		19	0 -13	29	40	6	29	30	25	29
LMF12UU	LMK12UU	LMH12UU	4	12		21		30	42	6	32	32	27	32
LMF13UU	LMK13UU	LMH13UU	4	13		23		32	43	6	33	34	29	33
LMF16UU	LMK16UU	LMH16UU	5	16		28		37	48	6	38	37	34	31
LMF20UU	LMK20UU	LMH20UU	5	20	0 -10	32	0 -16	42	54	8	43	42	38	36
LMF25UU	LMK25UU	LMH25UU	6	25		40		59	62	8	51	50	46	40
LMF30UU	LMK30UU	LMH30UU	6	30		45		64	74	10	60	58	51	49
LMF35UU	LMK35UU	–	6	35	0 -12	52	0 -19	70	82	10	67	64	–	–
LMF40UU	LMK40UU	–	6	40		60		80	96	13	78	75	–	–
LMF50UU	LMK50UU	–	6	50		80		100	116	13	98	92	–	–
LMF60UU	LMK60UU	–	6	60	0/-15	90	0/-22	110	134	18	112	106	–	–



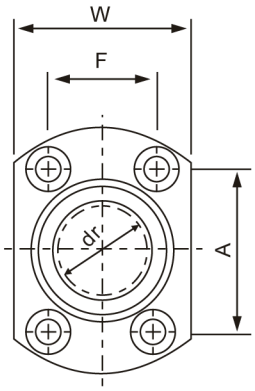
LMF



LMK



LMH13 or less



LMH16 or more

F (mm)	d1xd2xh (mm)	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
-	3.5x6x3.1	12	-3	206	265	24	LMF/K/H6UU
-	3.5x6x3.1			274	392	37	LMF/K/H8UU
-	4.5x7.5x4.1		-4	372	549	72	LMF/K/H10UU
-	4.5x7.5x4.1			510	784	76	LMF/K/H12UU
-	4.5x7.5x4.1			510	784	88	LMF/K/H13UU
22	4.5x7.5x4.1		-6	774	1180	120	LMF/K/H16UU
24	5.5x9x5.1	15		882	1370	180	LMF/K/H20UU
32	5.5x9x5.1			980	1570	340	LMF/K/H25UU
35	6.6x11x6.1		-8	1570	2740	470	LMF/K/H30UU
–	6.6x11x6.1	20		1670	3140	650	LMF/K35UU
–	9x14x8.1		-10	2160	4020	1060	LMF/K40UU
–	9x14x8.1		-13	3820	7940	2200	LMF/K50UU
–	11x17x11.1	25		4700	10000	3000	LMF/K60UU

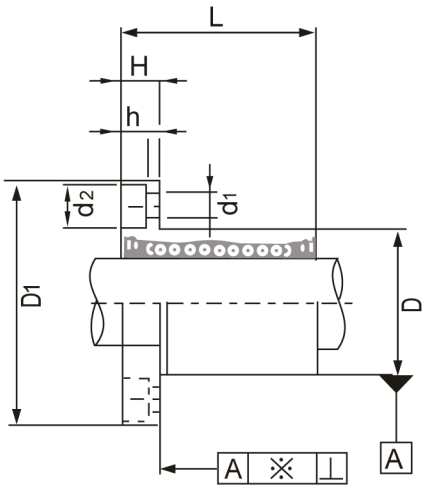
LMEF/K Series

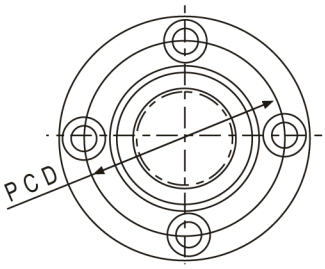
(KBF/K Series)

LMEF

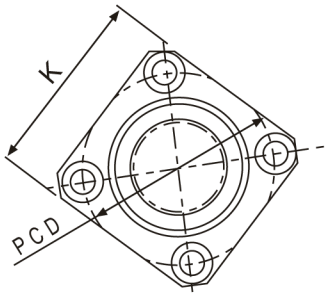
LMEK

Part No.			Main Dimensions and Tolerance					
Seal Type		Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	D1 (mm)
LMEF8UU	LMEK8UU	4	8	+8 0	16	0/-11	25	32
LMEF12UU	LMEK12UU	4	12		22	0 -13	32	42
LMEF16UU	LMEK16UU	5	16	+9 -1	26		36	46
LMEF20UU	LMEK20UU	5	20		32	0 -16	45	54
LMEF25UU	LMEK25UU	6	25	+11 -1	40		58	62
LMEF30UU	LMEK30UU	6	30		47		68	76
LMEF40UU	LMEK40UU	6	40	+13 -2	62	0 -19	80	98
LMEF50UU	LMEK50UU	6	50		75		100	112
LMEF60UU	LMEK60UU	6	60		90	0/-22	125	134





LMEF



LMEK

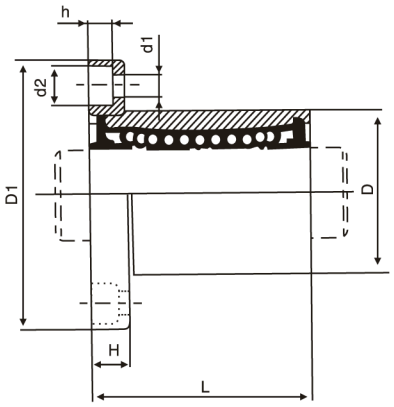
H (mm)	PCD (mm)	K (mm)	d1xd2xh (mm)	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
5	24	25	3.5x6x3.1	12	-3	265	402	41	LMEF/K/8UU
6	32	32	4.5x7.5x4.1		-4	510	784	80	LMEF/K/12UU
6	36	35	4.5x7.5x4.1			578	892	103	LMEF/K/16UU
8	43	42	5.5x9x5.1	15	-6	862	1370	182	LMEF/K/20UU
8	51	50	5.5x9x5.1			980	1570	335	LMEF/K/25UU
10	62	60	6.6x11x6.1		-8	1570	2740	560	LMEF/K/30UU
13	80	75	9x14x8.1	20		2160	4020	1175	LMEF/K/40UU
13	94	88	9x14x8.1		-13	3820	7940	1745	LMEF/K/50UU
18	112	106	11x17x11.1	25		4700	9800	3220	LMEF/K/60UU

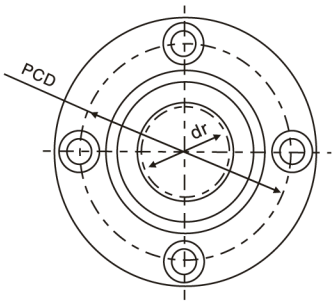
LMBF/K Series
(SWF/K Series)

LMBF

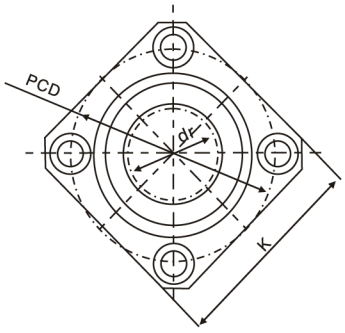
LMBK

Part No.			Main Dimensions and Tolerance						
Seal Type		Ball Circuit	dr (mm)	Tolerance (μm)	D inch/mm	Tolerance (μm)	L ±0.3 inch/mm	D1 inch/mm	K inch/mm
LMBF04UU	LMBK04UU	3	1/4" 6.35	0 -9	0.5" 12.7	0 -13	0.75" 19.05	1.25" 31.75	1" 25.4
LMBF06UU	LMBK06UU	4	3/8" 9.525		0.625" 15.875	0 -16	0.875" 22.225	1.5" 38.1	1.25" 31.75
LMBF08UU	LMBK08UU	4	1/2" 12.7		0.875" 22.225		1.25" 31.75	1.75" 44.45	1.375" 34.925
LMBF10UU	LMBK10UU	4	5/8" 15.875		1.125" 28.575	0 -19	1.5" 38.1	2" 50.8	1.5" 38.1
LMBF12UU	LMBK12UU	4	3/4" 19.05	0 -10	1.25" 31.75		1.625" 41.275	2.1875" 55.563	1.6875" 42.863
LMBF16UU	LMBK16UU	5	1" 25.4		1.5625" 39.688		2.25" 57.15	2.5" 63.5	2" 50.8
LMBF20UU	LMBK20UU	5	1-1/4" 31.75	0 -12	2" 50.8	0 -22	2.625" 66.675	3.125" 79.375	2.5" 63.5
LMBF24UU	LMBK24UU	6	1-1/2" 38.1		2.375" 60.325		3" 76.2	3.75" 95.25	3" 76.2
LMBF32UU	LMBK32UU	6	2" 50.8		3" 76.2	0 -25	4" 101.6	4.375" 111.125	3.5" 88.9





LMBF



LMBK

H inch/mm	PCD inch/mm	d1xd2xh inch/mm	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
0.219" 5.556	0.875" 22.225	0.156" x 0.25" x 0.141" 3.969x6.35x3.572	12	-3	206	265	32	LMBF/K04UU
0.25" 6.35	1.062" 26.988	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366		-4	225	314	47	LMBF/K06UU
0.25" 6.35	1.312" 33.338	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366			510	784	88	LMBF/K08UU
0.25" 6.35	1.562" 39.688	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366	15	-6	774	1180	140	LMBF/K10UU
0.3125" 7.938	1.718" 43.656	0.2187" x 0.344" x 0.203" 5.556x8.731x5.159			862	1370	190	LMBF/K12UU
0.3125" 7.938	2.031" 51.594	0.2187" x 0.344" x 0.203" 5.556x8.731x5.159			980	1570	325	LMBF/K16UU
0.375" 9.525	2.5625" 65.088	0.2187" x 0.406" x 0.2656" 7.144x10.319x6.747	20	-8	1570	2740	665	LMBF/K20UU
0.5" 12.7	3.0625" 77.788	0.344" x 0.5" x 0.328" 8.731x12.7x8.334			2180	4020	1100	LMBF/K24UU
0.5" 12.7	3.6875" 93.662	0.344" x 0.5" x 0.328" 8.731x12.7x8.334	25	-13	3820	7940	1760	LMBF/K32UU

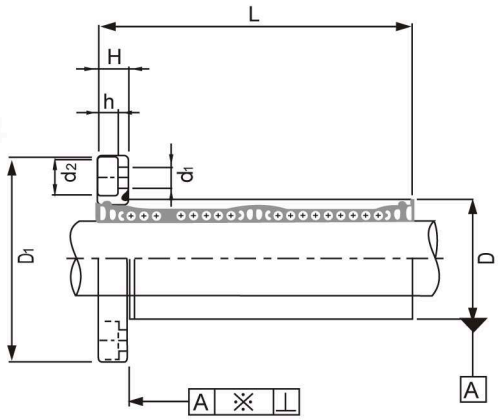
LMF/K/H L Series

(SMF/K/T W Series)

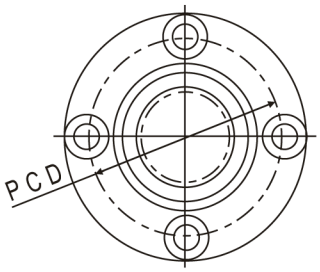
LMF□L

LMK L

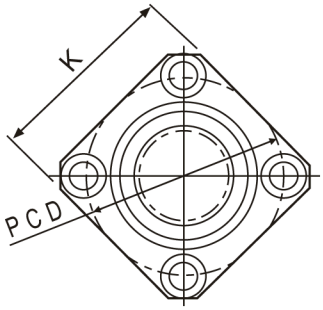
LMH L



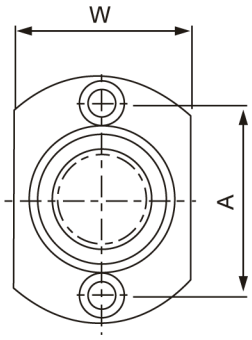
Part No.				Main Dimensions and Tolerance						
Seal Type			Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	D1 (mm)	H (mm)
LMF6LUU	LMK6LUU	LMH6LUU	4	6	0 -10	12	0 -13	35	28	5
LMF8LUU	LMK8LUU	LMH8LUU	4	8		15		45	32	5
LMF10LUU	LMK10LUU	LMH10LUU	4	10		19	0 -16	55	40	6
LMF12LUU	LMK12LUU	LMH12LUU	4	12		21		57	42	6
LMF13LUU	LMK13LUU	LMH13LUU	4	13		23		61	43	6
LMF16LUU	LMK16LUU	LMH16LUU	5	16		28		70	48	6
LMF20LUU	LMK20LUU	LMH20LUU	5	20	0 -12	32	0 -19	80	54	8
LMF25LUU	LMK25LUU	LMH25LUU	6	25		40		112	62	8
LMF30LUU	LMK30LUU	LMH30LUU	6	30		45		123	74	10
LMF35LUU	LMK35LUU	–	6	35	0 -15	52	0 -22	135	82	10
LMF40LUU	LMK40LUU	–	6	40		60		151	96	13
LMF50LUU	LMK50LUU	–	6	50		80		192	116	13
LMF60LUU	LMK60LUU	–	6	60	0/-20	90	0/-25	209	134	18



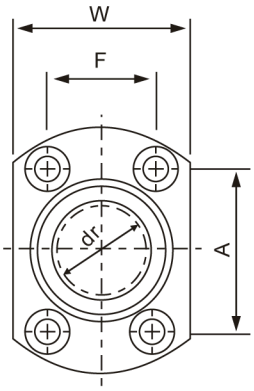
LMF L



LMK L



LMH13L or less



LMH16L or more

PCD (mm)	K (mm)	W (mm)	A (mm)	F (mm)	d1xd2xh (mm)	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
20	22	18	20	-	3.5x6x3.1	15	-3	323	529	31	LMF/K/H6LUU
24	25	21	24	-	3.5x6x3.1	15	-3	431	784	51	LMF/K/H8LUU
29	30	25	29	-	4.5x7.5x4.1	15	-4	588	1100	98	LMF/K/H10LUU
32	32	27	32	-	4.5x7.5x4.1	15	-4	813	1570	110	LMF/K/H12LUU
33	34	29	33	-	4.5x7.5x4.1	15	-4	813	1570	130	LMF/K/H13LUU
38	37	34	31	22	4.5x7.5x4.1	15	-6	1230	2350	190	LMF/K/H16LUU
43	42	38	36	24	5.5x9x5.1	20	-6	1400	2740	260	LMF/K/H20LUU
51	50	46	40	32	5.5x9x5.1	20	-6	1560	3140	540	LMF/K/H25LUU
60	58	51	49	35	6.6x11x6.1	20	-8	2490	5490	680	LMF/K/H30LUU
67	64	-	-	-	6.6x11x6.1	25	-8	2650	6270	1020	LMF/K35LUU
78	75	-	-	-	9x14x8.1	25	-10	3430	8040	1570	LMF/K40LUU
98	92	-	-	-	9x14x8.1	25	-13	6080	15900	3600	LMF/K50LUU
112	106	-	-	-	11x17x11.1	25	-13	7550	20000	4500	LMF/K60LUU

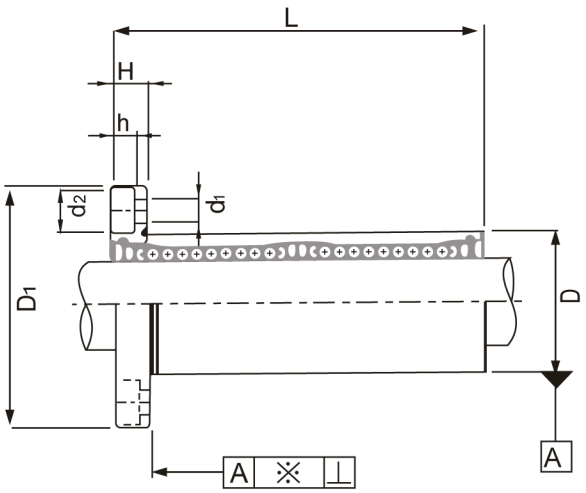
LMEF/K L Series

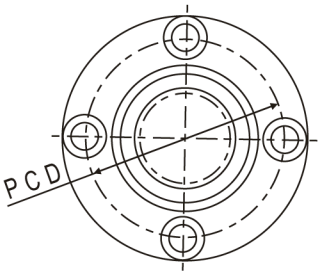
(KBF/K W Series)

LMEF L

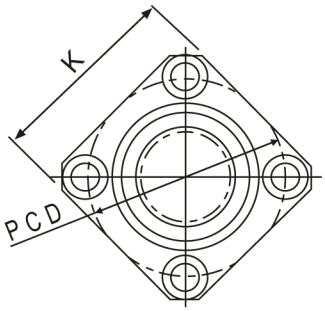
LMEK L

Part No.		Main Dimensions and Tolerance							
Seal Type		Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	D1 (mm)	H (mm)
LMEF8LUU	LMEK8LUU	4	8	+9 -1	16	0/-13	46	32	5
LMEF12LUU	LMEK12LUU	4	12		22	0 -16	61	42	6
LMEF16LUU	LMEK16LUU	5	16	+11 -1	26		68	46	6
LMEF20LUU	LMEK20LUU	5	20		32	0 -19	80	54	8
LMEF25LUU	LMEK25LUU	6	25	+13 -2	40		112	62	8
LMEF30LUU	LMEK30LUU	6	30		47		123	76	10
LMEF40LUU	LMEK40LUU	6	40	+16 -4	62	0 -22	151	98	13
LMEF50LUU	LMEK50LUU	6	50		75		192	112	13
LMEF60LUU	LMEK60LUU	6	60		90	0/-25	209	134	18





LMEF L



LMEK L

PCD (mm)	K (mm)	d1xd2xh (mm)	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
24	25	3.5x6x3.1	15	-3	421	804	59	LMEF/K8LUU
32	32	4.5x7.5x4.1	15	-4	813	1570	110	LMEF/K12LUU
36	35	4.5x7.5x4.1	15		921	1780	160	LMEF/K16LUU
43	42	5.5x9x5.1	17	-6	1370	2740	260	LMEF/K20LUU
51	50	5.5x9x5.1	17		1570	3140	540	LMEF/K25LUU
62	60	6.6x11x6.1	17	-8	2500	5490	815	LMEF/K30LUU
80	75	9x14x8.1	20		3430	8040	1805	LMEF/K40LUU
94	88	9x14x8.1	25	-13	6080	15900	2820	LMEF/K50LUU
112	106	11x17x11.1	25		7550	20000	4920	LMEF/K60LUU

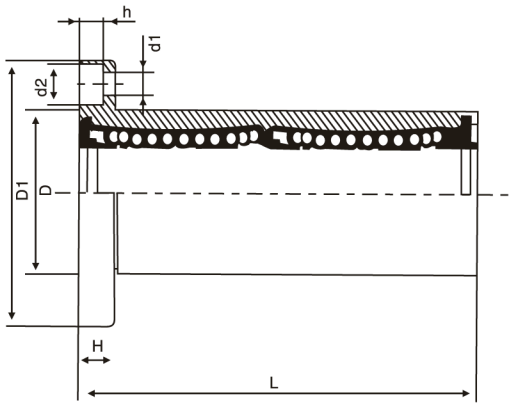
LMBF/K L Series

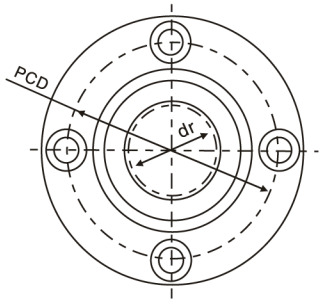
(SWF/K W Series)

LMBF L

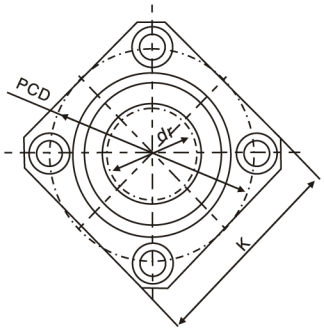
LMBK L

Part No.			Main Dimensions and Tolerance						
Seal Type		Ball Circuit	dr inch/mm	Tolerance (μm)	D inch/mm	Tolerance (μm)	L ±0.3 inch/mm	D1 inch/mm	K inch/mm
LMBF04LUU	LMBK04L	3	1/4" 6.35	0 -10	0.5" 12.7	0 -13	1.375" 34.925	1.25" 31.75	1" 25.4
LMBF06LUU	LMBK06L	4	3/8" 9.525		0.625" 15.875	0 -16	1.5938" 40.481	1.5" 38.1	1.25" 31.75
LMBF08LUU	LMBK08L	4	1/2" 12.7		0.875" 22.225		2.375" 60.325	1.75" 44.45	1.375" 34.925
LMBF10LUU	LMBK10L	4	5/8" 15.875		1.125" 28.575	0 -19	2.8125" 71.438	2" 50.8	1.5" 38.1
LMBF12LUU	LMBK12L	4	3/4" 19.05	0 -12	1.25" 31.75		3.0937" 78.581	2.1875" 55.563	1.6875" 42.863
LMBF16LUU	LMBK16L	5	1" 25.4		1.5625" 39.688		4.2813" 108.744	2.5" 63.5	2" 50.8
LMBF20LUU	LMBK20L	5	1-1/4" 31.75	0 -15	2" 50.8	0 -22	5" 127.00	3.125" 79.375	2.5" 63.5
LMBF24LUU	LMBK24L	6	1-1/2" 38.1		2.375" 60.325		5.6875" 144.463	3.75" 95.25	3" 76.2
LMBF32LUU	LMBK32L	6	2" 50.8		3" 76.2	0 -25	7.75" 196.85	4.375" 111.125	3.5" 88.9





LMBF L

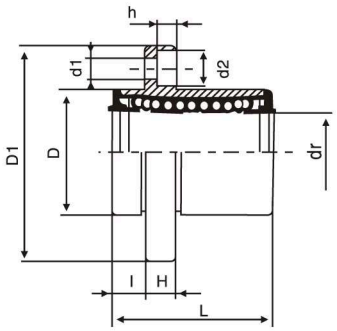


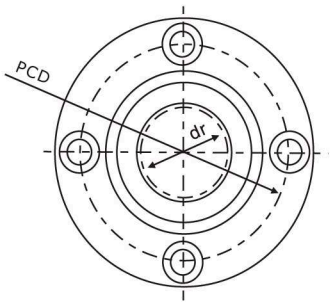
LMBK L

H inch/mm	PCD inch/mm	d1xd2xh inch/mm	Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C N	Basic Load Rating Co N	Weight (g)	Part No.
0.219" 5.556	0.875" 22.225	0.156" x 0.25" x 0.141" 3.969x6.35x3.572	12	-3	323	530	40	LMBF/K04LUU
0.25" 6.35	1.062" 26.988	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366		-4	353	630	60	LMBF/K06LUU
0.25" 6.35	1.312" 33.338	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366			813	1570	126	LMBF/K08LUU
0.25" 6.35	1.562" 39.688	0.1875" x 0.297" x 0.172" 4.763x7.541x4.366	15		1230	2350	215	LMBF/K10LUU
0.3125" 7.938	1.718" 43.656	0.2187" x 0.344" x 0.203" 5.556x8.731x5.159		-6	1370	2740	280	LMBF/K12LUU
0.3125" 7.938	2.031" 51.594	0.2187" x 0.344" x 0.203" 5.556x8.731x5.159			1570	3140	515	LMBF/K16LUU
0.375" 9.525	2.5625" 65.088	0.2187" x 0.406" x 0.2656" 7.144x10.319x6.747	20	-8	2500	5490	1020	LMBF/K20LUU
0.5" 12.7	3.0625" 77.788	0.344" x 0.5" x 0.328" 8.731x12.7x8.334			3430	8040	1630	LMBF/K24LUU
0.5" 12.7	3.6875" 93.662	0.344" x 0.5" x 0.328" 8.731x12.7x8.334	25	-13	6080	15900	2800	LMBF/K32LUU

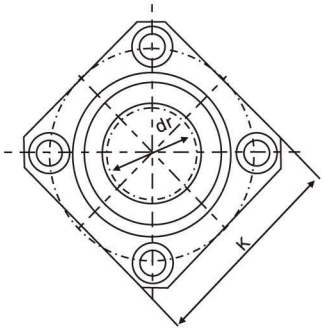
LMF/KP Series

(SMF/K-E Series)





LMFP

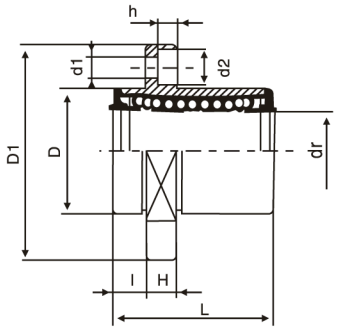


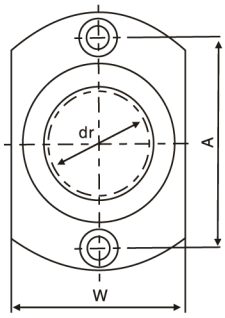
LMKP

Part No.		Main Dimensions and Tolerance											Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	K (mm)	H (mm)	PCD (mm)	d1xd2x h (mm)		C N	Co N	
LMFP6UU	4	6	0 -9	12	0 -13	19	5	28	22	5	20	3.5x6x3.1	12	206	265	24
LMKP6UU																
LMFP8UU	4	8		15		24	5	32	25	5	24	3.5x6x3.1		274	392	37
LMKP8UU																
LMFP10UU	4	10		19	0 -16	29	6	40	30	6	29	4.5x7.5x4.1		372	549	72
LMKP10UU																
LMFP12UU	4	12		21		30	6	42	32	6	32	4.5x7.5x4.1		510	784	76
LMKP12UU																
LMFP13UU	4	13		23		32	6	43	34	6	33	4.5x7.5x4.1		510	784	88
LMKP13UU																
LMFP16UU	5	16		28		37	6	48	37	6	38	4.5x7.5x4.1		774	1180	120
LMKP16UU																
LMFP20UU	5	20	0 -10	32	0 -19	42	8	54	42	8	43	5.5x9x5.1	15	882	1370	180
LMKP20UU																
LMFP25UU	6	25		40		59	8	62	50	8	51	5.5x9x5.1		980	1570	340
LMKP25UU																
LMFP30UU	6	30		45		64	10	74	58	10	60	6.6x11x6.1		1570	2740	470
LMKP30UU																
LMFP35UU	6	35	0 -12	52	0 -22	70	10	82	64	10	67	6.6x11x6.1	20	1670	3140	650
LMKP35UU																
LMFP40UU	6	40		60		80	13	96	75	13	78	9x14x8.1		2160	4020	1060
LMKP40UU																
LMFP50UU	6	50		80		100	13	116	92	18	98	9x14x8.1		3820	7940	2200
LMKP50UU																
LMFP60UU	6	60	0 -15	90	0 -25	110	18	134	106	18	112	11x17x11.1	25	4700	10000	3000
LMKP60UU																

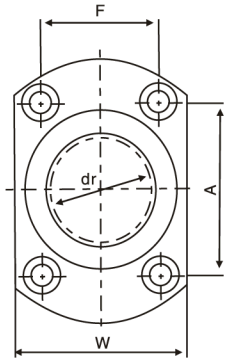
LMHP Series

(SMT-E Series)





LMHP6~LMHP13

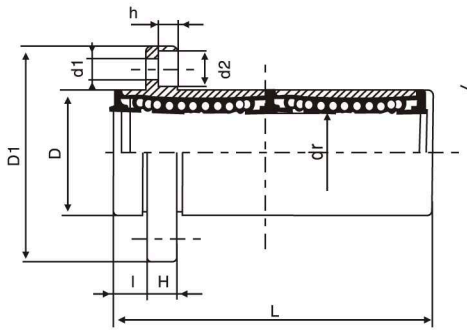


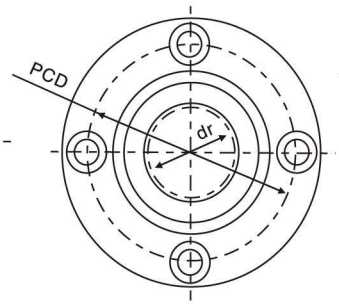
LMHP16~LMHP30

Part No.		Main Dimensions and Tolerance												Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	W (mm)	H (mm)	A (mm)	F (mm)	D1xd2xh (mm)		C N	Co N	
LMHP6UU	4	6	0 -9	12	0 -13	19	5	28	18	5	20	-	3.5x6x3.1	12	206	265	21
LMHP8UU	4	8		15		24	5	32	21	5	24	-	3.5x6x3.1		274	392	33
LMHP10UU	4	10		19	0 -16	29	6	40	25	6	29	-	4.5x7.5x4.1		372	549	64
LMHP12UU	4	12		21		30	6	42	27	6	32	-	4.5x7.5x4.1		510	784	68
LMHP13UU	4	13		23		32	6	43	29	6	33	-	4.5x7.5x4.1		510	784	81
LMHP16UU	5	16		28		37	6	48	34	6	31	22	4.5x7.5x4.1		774	1180	112
LMHP20UU	5	20	0 -10	32	0 -19	42	8	54	38	8	36	24	5.5x9x5.1	15	882	1370	167
LMHP25UU	6	25		40		59	8	62	46	8	40	32	5.5x9x5.1		980	1570	325
LMHP30UU	6	30		45		64	10	74	51	10	49	35	6.6x11x6.1		1570	2740	388

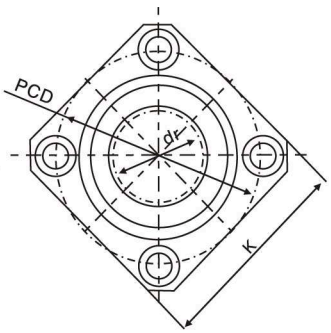
LMF/KP L Series

(SMF/K W–E Series)





LMFP L

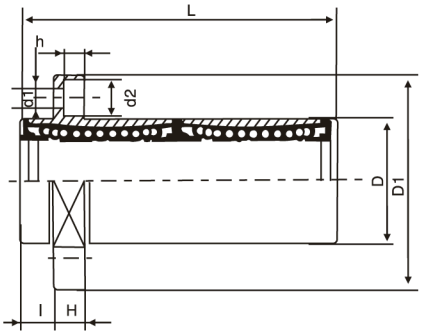


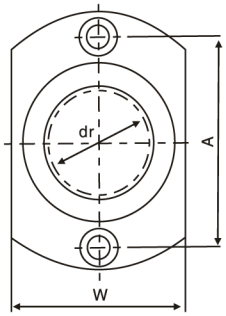
LMKP L

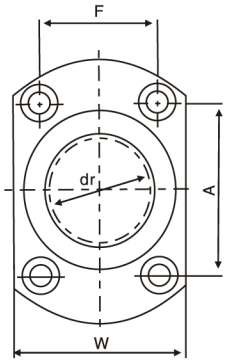
Part No.		Main Dimensions and Tolerance											Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	K (mm)	H (mm)	PCD (mm)	d1xd2xh (mm)		C N	Co N	
LMFP6LUU	4	6	0 -10	12	0 -13	35	5	28	22	5	20	3.5x6x3.1	15	323	529	31
LMKP6LUU																
LMFP8LUU	4	8		15		45	5	32	25	5	24	3.5x6x3.1		431	784	51
LMKP8LUU																
LMFP10LUU	4	10		19	0 -16	55	6	40	30	6	29	4.5x7.5x4.1		588	1100	98
LMKP10LUU																
LMFP12LUU	4	12		21		57	6	42	32	6	32	4.5x7.5x4.1		813	1570	110
LMKP12LUU																
LMFP13LUU	4	13		23		61	6	43	34	6	33	4.5x7.5x4.1		813	1570	130
LMKP13LUU																
LMFP16LUU	5	16		28		70	6	48	37	6	38	4.5x7.5x4.1		1230	2350	190
LMKP16LUU																
LMFP20LUU	5	20	0 -12	32	0 -19	80	8	54	42	8	43	5.5x9x5.1	20	1400	2740	260
LMKP20LUU																
LMFP25LUU	6	25		40		112	8	62	50	8	51	5.5x9x5.1		1560	3140	540
LMKP25LUU																
LMFP30LUU	6	30		45		123	10	74	58	10	60	6.6x11x6.1		2490	5490	680
LMKP30LUU																
LMFP35LUU	6	35	0 -15	52	0 -22	135	10	82	64	10	67	6.6x11x6.1	25	2650	6270	1020
LMKP35LUU																
LMFP40LUU	6	40		60		151	13	96	75	13	78	9x14x8.1		3430	8040	1570
LMKP40LUU																
LMFP50LUU	6	50		80		192	13	116	92	13	98	9x14x8.1		6080	15900	3600
LMKP50LUU																
LMFP60LUU	6	60	0 -20	90	0 -25	209	18	134	106	18	112	11x17.5x10.8		7550	20000	4500
LMKP60LUU																

LMHP L Series

(SMT W-E Series)





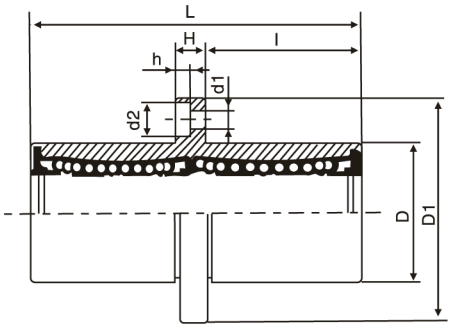


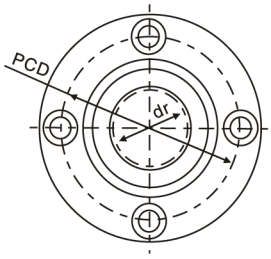
LMHP6L~LMHP13L LMHP16L~LMHP30L

Part No.		Main Dimensions and Tolerance												Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	W (mm)	H (mm)	A (mm)	F (mm)	d1 x d2 x h (mm)		C N	Co N	
LMHP6LUU	4	6	0 -10	12	0 -13	35	5	28	18	5	20	-	3.5x6x3.1	15	323	529	28
LMHP8LUU	4	8		15		45	5	32	21	5	24	-	3.5x6x3.1		431	784	47
LMHP10LUU	4	10		19	0 -16	55	6	40	25	6	29	-	4.5x7.5x4.1		588	1100	90
LMHP12LUU	4	12		21		58	6	42	27	6	32	-	4.5x7.5x4.1		813	1570	102
LMHP13LUU	4	13		23		61	6	43	29	6	33	-	4.5x7.5x4.1		813	1570	123
LMHP16LUU	5	16		28		70	6	48	34	6	31	22	4.5x7.5x4.1		1230	2350	182
LMHP20LUU	5	20	0 -12	32	0 -19	80	8	54	38	8	36	24	5.5x9x5.1	20	1400	2740	247
LMHP25LUU	6	25		40		112	8	62	46	8	40	32	5.5x9x5.1		1560	3140	525
LMHP30LUU	6	30		45		123	10	74	51	10	49	35	6.6x11x6.1		2490	5490	645

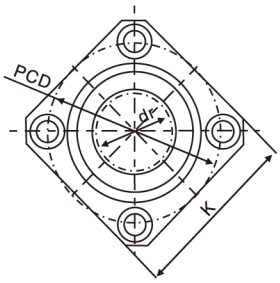
LMF/KC Series

(SMF/KC Series)





LMFC

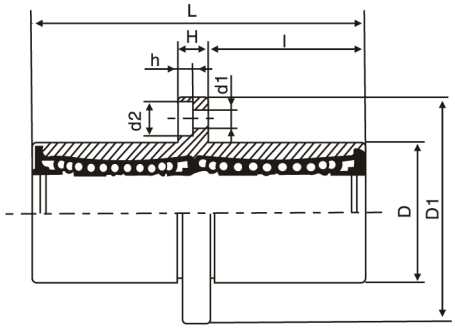


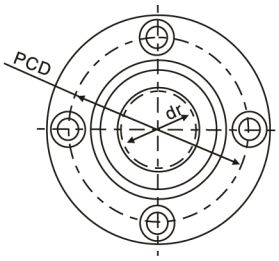
LMKC

Part No.		Main Dimensions and Tolerance											Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	K (mm)	H (mm)	PCD (mm)	d1xd2xh (mm)		C N	Co N	
LMFC6UU	4	6	0 -10	12	0 -13	35	15	28	22	5	20	3.5x6x3.1	15	323	529	31
LMKC6UU																
LMFC8UU	4	8		15		45	20	32	25	5	24	3.5x6x3.1		431	784	51
LMKC8UU																
LMFC10UU	4	10		19	0 -16	55	24.5	40	30	6	29	4.5x7.5x4.1		588	1100	98
LMKC10UU																
LMFC12UU	4	12		21		57	25.5	42	32	6	32	4.5x7.5x4.1		813	1570	110
LMKC12UU																
LMFC13UU	4	13		23		61	27.5	43	34	6	33	4.5x7.5x4.1		813	1570	130
LMKC13UU																
LMFC16UU	5	16		28		70	32	48	37	6	38	4.5x7.5x4.1		1230	2350	190
LMKC16UU																
LMFC20UU	5	20	0 -12	32	0 -19	80	36	54	42	8	43	5.5x9x5.1	20	1400	2740	260
LMKC20UU																
LMFC25UU	6	25		40		112	52	62	50	8	51	5.5x9x5.1		1560	3140	540
LMKC25UU																
LMFC30UU	6	30		45		123	56.5	74	58	10	60	6.6x11x6.1		2490	5490	680
LMKC30UU																
LMFC35UU	6	35	0 -15	52	0 -22	135	62.5	82	64	10	67	6.6x11x6.1	25	2650	6270	1020
LMKC35UU																
LMFC40UU	6	40		60		151	69	96	75	13	78	9x14x8.1		3430	8040	1570
LMKC40UU																
LMFC50UU	6	50		80		192	89.5	116	92	13	98	9x14x8.1		6080	15900	3600
LMKC50UU																
LMFC60UU	6	60	0 -20	90	0 -25	209	95.5	134	106	18	112	11x17x11.1	30	7550	20000	4500
LMKC60UU																

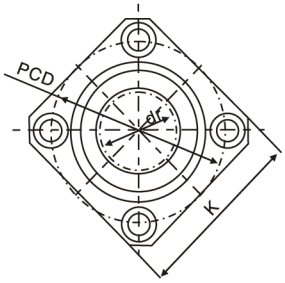
LMEF/KC Series

(KBF/KC Series)





LMEFC

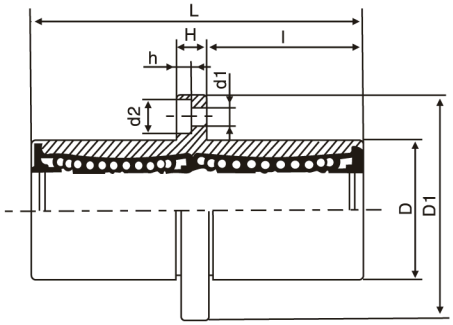


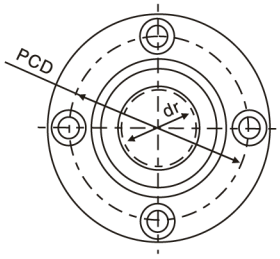
LMEKC

Part No.		Main Dimensions and Tolerance											Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr (mm)	Tolerance (μm)	D (mm)	Tolerance (μm)	L ±0.3 (mm)	I (mm)	D1 (mm)	K (mm)	H (mm)	PCD (mm)	d1xd2xh (mm)		C N	Co N	
LMEFC8UU	4	8	+9 -1	16	0 -13	46	20.5	32	25	5	24	3.5x6x3.1	15	431	804	59
LMEKC8UU																
LMEFC12UU	4	12		22	0 -19	61	27.5	42	32	6	32	4.5x7.5x4.1		813	1570	110
LMEKC12UU																
LMEFC16UU	5	16	+11 -1	26		68	31	46	35	6	36	4.5x7.5x4.1		921	1780	160
LMEKC16UU																
LMEFC20UU	5	20		32	0 -19	80	36	54	42	8	43	5.5x9x5.1	17	1370	2740	260
LMEKC20UU																
LMEFC25UU	6	25	+13 -2	40		112	52	62	50	8	51	5.5x9x5.1		1570	3140	540
LMEKC25UU																
LMEFC30UU	6	30		47		123	56.5	76	60	10	62	6.6x11x6.1		2500	5490	815
LMEKC30UU																
LMEFC40UU	6	40	+16 -4	62	0 -22	151	69	98	75	13	80	9x14x8.1	20	3430	8040	1805
LMEKC40UU																
LMEFC50UU	6	50		75		192	89.5	112	88	13	94	9x14x8.1		6080	15900	2820
LMEKC50UU																
LMEFC60UU	6	60		90	0 -25	209	95.5	134	106	18	112	11x17x11.1	25	7550	20000	4920
LMEKC60UU																

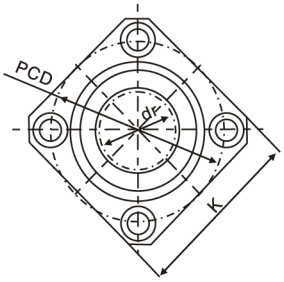
LMBF/KC Series

(SWF/KC Series)





LMBFC



LMBKC

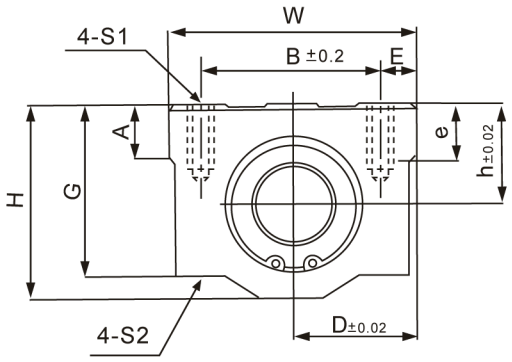
Part No.		Main Dimensions and Tolerance											Eccen-tricity	Basic Load Rating		Weight (g)
Seal Type	Ball Circuit	dr inch/mm	Tolerance (um)	D inch/mm	Tolerance (um)	L ±0.3 inch/mm	I inch/mm	D1 inch/mm	K inch/mm	H inch/mm	PCD inch/mm	d1xd2xh inch/mm		C N	Co N	
LMBFC04LUU LMBKC04LUU	3	1/4 " 6.35	0 -10	0.5 " 12.7	0 -13	1.375 " 34.925	0.5781 " 14.684	1.25 " 31.75	1 " 25.4	0.219 " 5.556	0.875 " 22.225	0.156 " x 0.25 " x 0.141 " 3.969x6.35x3.572	15	323	530	40
LMBFC06LUU LMBKC06LUU	4	3/8 " 9.525		0.625 " 15.875	0 -16	1.5938 " 40.481	0.6719 " 17.066	1.5 " 38.1	1.25 " 31.75	0.25 " 6.35	1.062 " 26.988	0.1875 " x 0.297 " x 0.172 " 4.763x7.541x4.366		353	630	60
LMBFC08LUU LMBKC08LUU	4	1/2 " 12.7		0.875 " 22.225		2.375 " 60.325	1.0625 " 26.988	1.75 " 44.45	1.375 " 34.925	0.25 " 6.35	1.312 " 33.338	0.1875 " x 0.297 " x 0.172 " 4.763x7.541x4.366		813	1570	126
LMBFC10LUU LMBKC10LUU	4	5/8 " 15.875		1.125 " 28.575		2.8125 " 71.438	1.2813 " 32.544	2 " 50.8	1.5 " 38.1	0.25 " 6.35	1.562 " 39.688	0.1875 " x 0.297 " x 0.172 " 4.763x7.541x4.366		1230	2350	215
LMBFC12LUU LMBKC12LUU	4	3/4 " 19.05	0 -12	1.25 " 31.75	0 -19	3.0937 " 78.581	1.3906 " 35.322	2.1875 " 55.563	1.6875 " 42.863	0.3125 " 7.938	1.718 " 43.656	0.2187 " x 0.344 " x 0.203 " 5.556x8.731x5.159	20	1370	2740	280
LMBFC16LUU LMBKC16LUU	5	1 " 25.4		1.5625 " 39.688		4.2813 " 108.744	1.9844 " 50.403	2.5 " 63.5	2 " 50.8	0.3125 " 7.938	2.031 " 51.594	0.2187 " x 0.344 " x 0.203 " 5.556x8.731x5.159		1570	3140	515
LMBFC20LUU LMBKC20LUU	5	1-1/4 " 31.75	0 -15	2 " 50.8	0 -22	5 " 127.00	2.3125 " 58.738	3.125 " 79.375	2.5 " 63.5	0.375 " 9.525	2.5625 " 65.088	0.2187 " x 0.406 " x 0.2656 " 7.144x10.319x6.747	25	2500	5490	1020
LMBFC24LUU LMBKC24LUU	6	1-1/2 " 38.1		2.375 " 60.325		5.6875 " 144.463	2.5938 " 65.882	3.75 " 95.25	3 " 76.2	0.5 " 12.7	3.0625 " 77.788	0.344 " x 0.5 " x 0.328 " 8.731x12.7x8.334		3430	8040	1630
LMBFC32LUU LMBKC32LUU	6	2 " 50.8		3 " 76.2	0 -25	7.75 " 196.85	3.625 " 92.075	4.375 " 111.125	3.5 " 88.9	0.5 " 12.7	3.6875 " 93.662	0.344 " x 0.5 " x 0.328 " 8.731x12.7x8.334	30	6080	15900	2800

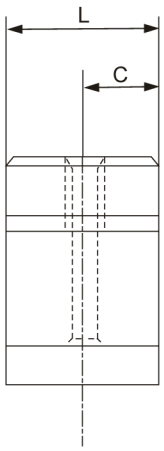
Slide Unit Series

Slide unit SC S Series

(SMA S Type)

SC S

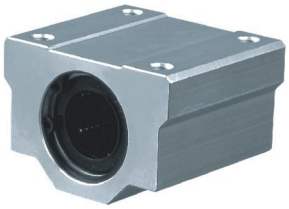




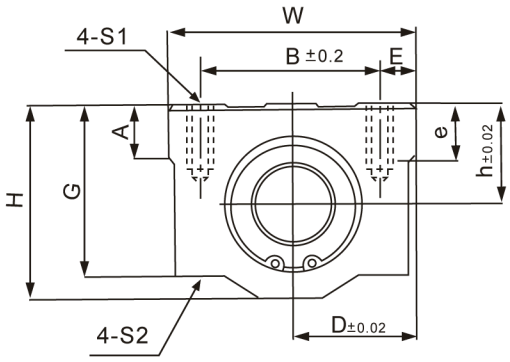
Part No.	Main dimensions （mm）												Basic Load Rating		Weight （g）
	h	D	W	H	G	A	B	E	S1xe	S2	C	L	C N	Co N	
SC8SUU	11	17	34	22	18	6	24	5	M4X8	3.4	7.7	15.4	274	392	27
SC10SUU	13	20	40	26	21	8	28	6	M5X12	4.3	9.95	19.9	372	549	53
SC12SUU	15	21	42	28	24	8	30.5	5.75	M5X12	4.3	10.45	20.9	510	784	60
SC13SUU	15	22	44	30	24.5	8	33	5.5	M5X12	4.3	10.45	20.9	510	784	64
SC16SUU	19	25	50	38.5	32.5	9	36	7	M5X12	4.3	12	24	774	1180	110
SC20SUU	21	27	54	41	35	11	40	7	M6X12	5.2	14	28	882	1370	144
SC25SUU	26	38	76	51.5	42	12	54	11	M8X18	7	18.9	37.8	980	1570	340
SC30SUU	30	39	78	59.5	49	15	58	10	M8X18	7	20.65	41.3	1574	2740	424
SC35SUU	34	45	90	68	54	18	70	10	M8X18	7	22.65	45.3	1670	3140	626
SC40SUU	40	51	102	78	62	20	80	11	M10X25	8.7	28.15	56.3	2160	4020	1000
SC50SUU	52	61	122	102	80	25	100	11	M10X25	8.7	34.4	68.8	3820	7940	2100

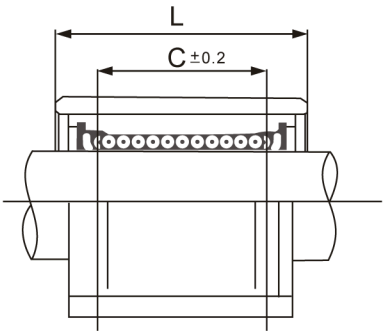
Slide unit SC Series

(SMA Type)



SC

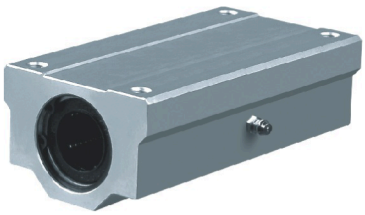




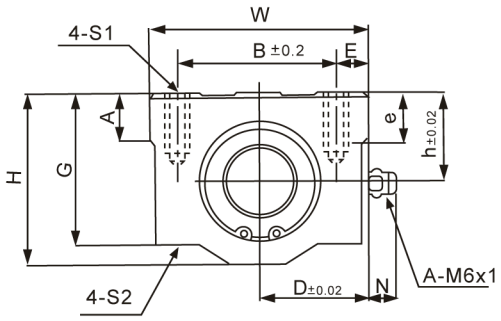
Part No.	Main dimensions （mm）												Basic Load Rating		Weight （g）
	h	D	W	H	G	A	B	E	S1xe	S2	C	L	C N	Co N	
SC8UU	11	17	34	22	18	6	24	5	M4X8	3.4	18	30	274	392	52
SC10UU	13	20	40	26	21	8	28	6	M5X12	4.3	21	35	372	549	92
SC12UU	15	21	42	28	24	8	30.5	5.75	M5X12	4.3	26	36	510	784	102
SC13UU	15	22	44	30	24.5	8	33	5.5	M5X12	4.3	26	39	510	784	120
SC16UU	19	25	50	38.5	32.5	9	36	7	M5X12	4.3	34	44	774	1180	200
SC20UU	21	27	54	41	35	11	40	7	M6X12	5.2	40	50	882	1370	255
SC25UU	26	38	76	51.5	42	12	54	11	M8X18	7	50	67	980	1570	600
SC30UU	30	39	78	59.5	49	15	58	10	M8X18	7	58	72	1574	2740	735
SC35UU	34	45	90	68	54	18	70	10	M8X18	7	60	80	1670	3140	1100
SC40UU	40	51	102	78	62	20	80	11	M10X25	8.7	60	90	2160	4020	1590
SC50UU	52	61	122	102	80	25	100	11	M10X25	8.7	80	110	3820	7940	3340

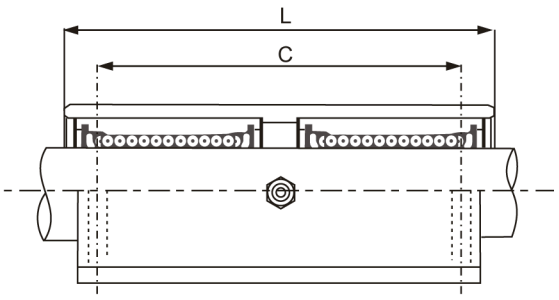
Slide unit SC L Series

(SMA W Type)



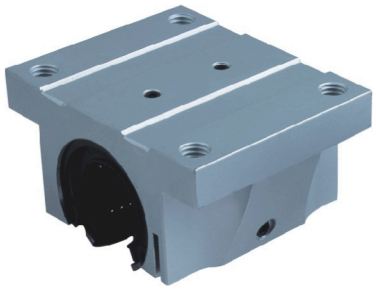
SC L



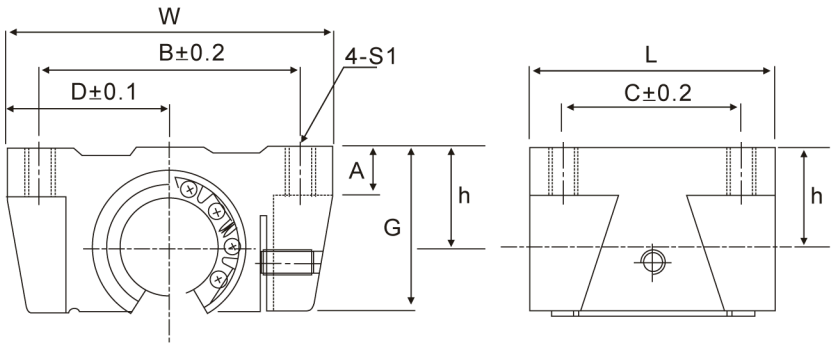


Part No.	Main dimensions （mm）													Basic Load Rating		Weight （g）
	h	D	W	H	G	N	A	B	E	S1xe	S2	C	L	C N	Co N	
SC8LUU	11	17	34	22	18	7	6	24	5	M4x8	3.4	42	58	431	784	102
SC10LUU	13	20	40	26	21	7	8	28	6	M5X12	4.3	46	68	588	1100	180
SC12LUU	15	21	42	28	24	6.5	8	30.5	5.75	M5X12	4.3	50	70	813	1570	250
SC13LUU	15	22	44	30	24.5	6.5	8	33	5.5	M5X12	4.3	50	75	813	1570	240
SC16LUU	19	25	50	38.5	32.5	6	9	36	7	M5X12	4.3	60	85	1230	2350	400
SC20LUU	21	27	54	41	35	7	11	40	7	M6X12	5.2	70	96	1410	2740	570
SC25LUU	26	38	76	51.5	42	4	12	54	11	M8X18	7	100	130	1610	3140	1200
SC30LUU	30	39	78	59.5	49	5	15	58	10	M8X18	7	110	140	2450	5490	1480
SC35LUU	34	45	90	68	54	5.5	18	70	10	M8X18	7	120	155	2650	6270	2200
SC40LUU	40	51	102	78	62	5	20	80	11	M10X25	8.7	140	175	3430	8040	3200
SC50LUU	52	61	122	102	80	5	25	100	11	M10X25	8.7	160	215	6080	15900	6700

Slide Unit TBR Series

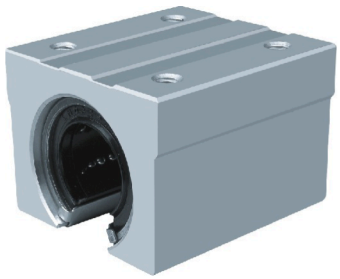


TBR

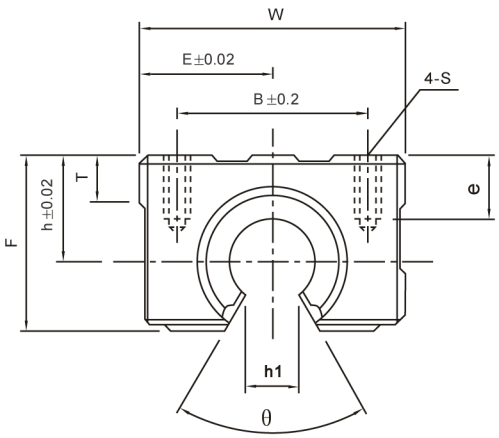


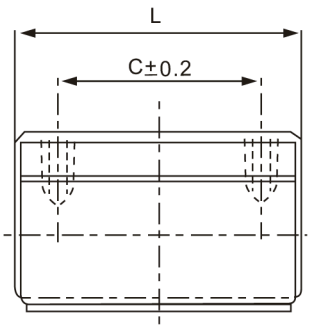
Part No.	Main dimensions (mm)									Basic Load Rating		Weight
	W	G	A	L	B	D	C	h	S1	C N	Co N	(g)
TBR16UU	62	26	8	42	50	31	30	18	M5	392	490	180
TBR20UU	68	31	10	51	54	34	37	21	M6	784	1176	300
TBR25UU	82	41	12	65	65	41	50	28	M8	1568	2352	600
TBR30UU	91	48	12	75	75	45.5	60	33.5	M8	1764	2940	900

Slide Unit SME Series



SME

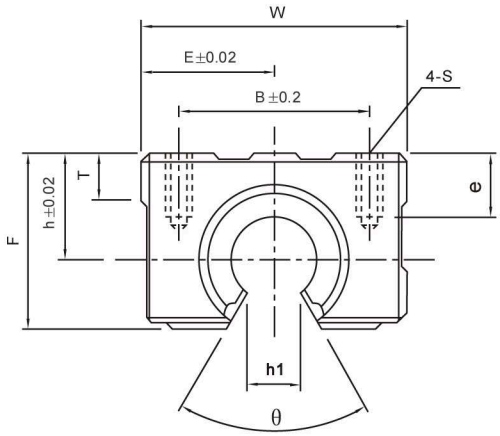


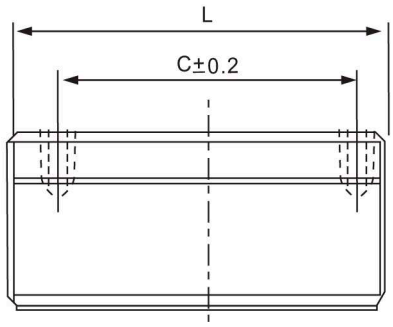


Part No.	Main dimensions（mm）											Slide Bush	Basic Load Rating		Weight
	h	D	W	L	F	T	h1	θ	B	C	Sxe		C N	Co N	（g）
SME16UU	20	22.5	45	45	33	9	10	80°	32	30	M5x12	LM16UU-OP	774	1180	150
SME20UU	23	24	48	50	39	11	10	60°	35	35	M6x12	LM20UU-OP	882	1370	200
SME25UU	27	30	60	65	47	14	11.5	50°	40	40	M6x12	LM25UU-OP	980	1570	450
SME30UU	33	35	70	70	56	15	14	50°	50	50	M8x18	LM30UU-OP	1570	2740	630
SME35UU	37	40	80	80	63	18	16	50°	55	55	M8x18	LM35UU-OP	1670	3140	925
SME40UU	42	45	90	90	72	20	19	50°	65	65	M10x20	LM40UU-OP	2160	4020	1330
SME50UU	53	60	120	110	92	25	23	50°	94	80	M10x20	LM50UU-OP	3820	7940	3000

Slide Unit SME L Series

SME L

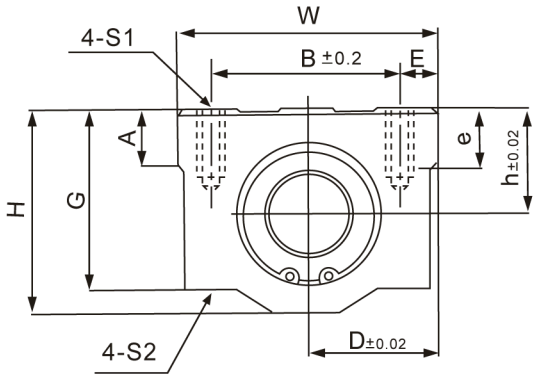


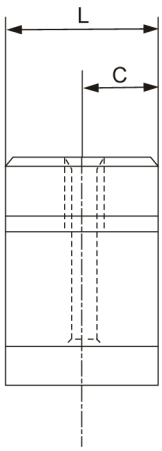


Part No.	Main dimensions（mm）											Slide Bush	Basic Load Rating		Weight
	h	D	W	L	F	T	h1	θ	B	C	Sxe		C N	Co N	（g）
SME16LUU	20	22.5	45	85	33	9	10	80°	32	60	M5x12	LM16UU-OPx2	1230	2350	300
SME20LUU	23	24	48	95	39	11	10	60°	35	70	M6x12	LM20UU-OPx2	1400	2740	400
SME25LUU	27	30	60	130	47	14	11.5	50°	40	90	M6x12	LM25UU-OPx2	1560	3140	900
SME30LUU	33	35	70	140	56	15	14	50°	50	100	M8x18	LM30UU-OPx2	2490	5490	1260

Slide unit KBA S Series

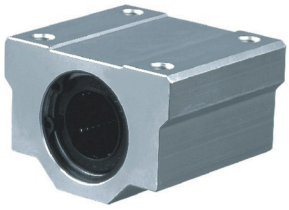
KBA S



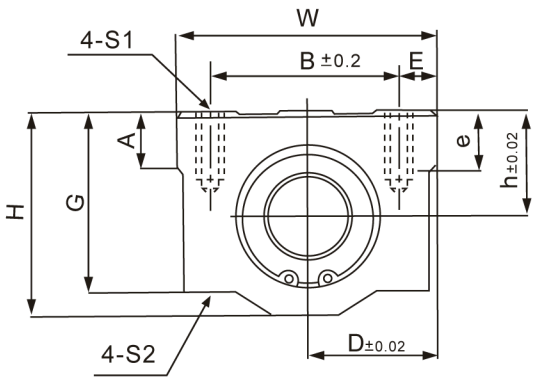


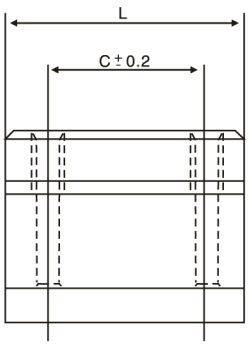
Part No.	Main dimensions （mm）												Basic Load Rating		Weight （g）
	h	D	W	H	G	A	B	E	S1xe	S2	C	L	C N	Co N	
KBA8SUU	11	17	34	22	18	6	24	5	M4X8	3.4	7.2	14.4	274	392	25
KBA12SUU	15	22	44	30	24.5	8	33	5.5	M5X12	4.3	10.4	20.8	510	784	65
KBA16SUU	19	25	50	38.5	32.5	9	36	7	M5X12	4.3	11.2	22.4	774	1180	100
KBA20SUU	21	27	54	41	35	11	40	7	M6X12	5.2	14.5	29	882	1370	148
KBA25SUU	26	38	76	51.5	42	12	54	11	M8X18	7	20.45	40.9	980	1570	368
KBA30SUU	30	39	78	59.5	49	15	58	10	M8X18	7	24.45	48.9	1574	2740	500
KBA40SUU	40	51	102	78	62	20	80	11	M10X25	8.7	28.2	56.4	2160	4020	1000
KBA50SUU	52	61	122	102	80	25	100	11	M10X25	8.7	36.2	72.4	3820	7940	2205

Slide Unit KBA Series



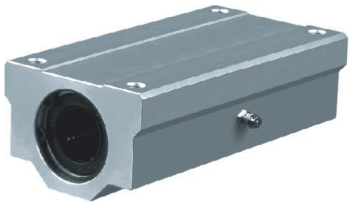
KBA



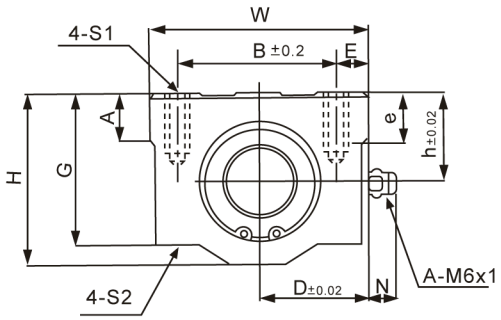


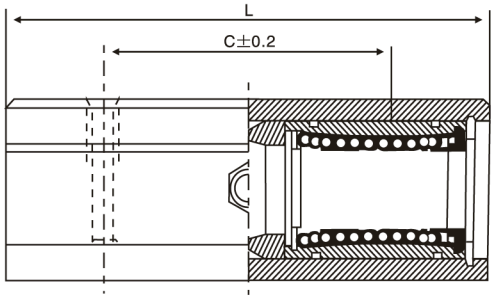
Part No.		Main Dimensions（mm）												Weight
Seal Type	Shaft Diameter	h	D	W	L	F	G	T	B	C	E	S1xe	S2	（g）
KBA10UU	10	13	20	40	35	26	21	8	28	21	6	M5x12	4.3	92
KBA12UU	12	15	22	44	39	30	24.5	8	33	26	5.5	M5x12	4.3	120
KBA16UU	16	19	25	50	44	38.5	32.5	9	36	34	7	M5x12	4.3	200
KBA20UU	20	21	27	54	53	41	35	11	40	40	7	M6x12	5.2	270
KBA25UU	25	26	38	76	67	51.5	42	12	54	50	11	M8x18	7	600
KBA30UU	30	30	39	78	76	59.5	49	15	58	58	10	M8x18	7	776
KBA40UU	40	40	51	102	90	78	62	20	80	60	11	M10x25	8.7	1590
KBA50UU	50	52	61	122	110	102	80	25	100	80	11	M10x25	8.7	3340
KBA60UU	60	58	66	132	137	114	94	30	108	90	12	M12x25	10.7	4800

Slide Unit KBA L Series



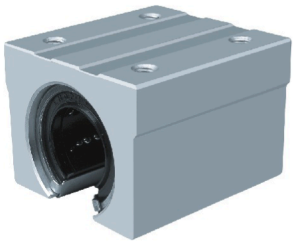
KBA L



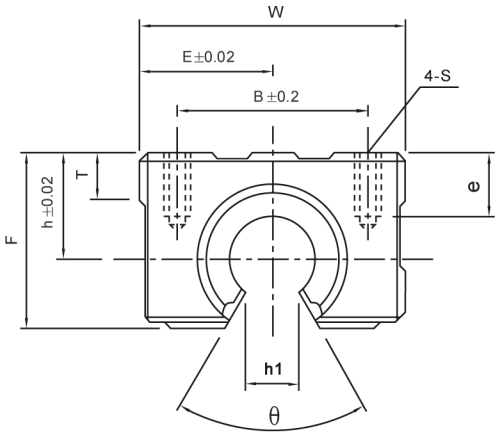


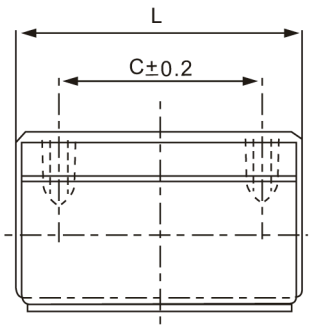
Part No.		Main Dimensions（mm）												Weight
Seal Type	Shaft Diameter	h	D	W	L	F	G	T	B	C	E	S1xe	S2	（g）
KBA10LUU	10	13	20	40	68	26	21	8	28	46	6	M5x12	4.3	180
KBA12LUU	12	15	22	44	77	30	24.5	8	33	64	5.5	M5x12	4.3	237
KBA16LUU	16	19	25	50	89	38.5	32.5	9	36	79	7	M5x12	4.3	405
KBA20LUU	20	21	27	54	100	41	35	11	40	90	7	M6x12	5.2	510
KBA25LUU	25	26	38	76	136	51.5	42	12	54	119	11	M8x18	7	1220
KBA30LUU	30	30	39	78	154	59.5	49	15	58	132	10	M8x18	7	1580
KBA40LUU	40	40	51	102	180	78	62	20	80	150	11	M10x25	8.7	3180
KBA50LUU	50	52	61	122	230	102	80	25	100	200	11	M10x25	8.7	6990

Slide Unit KBE Series



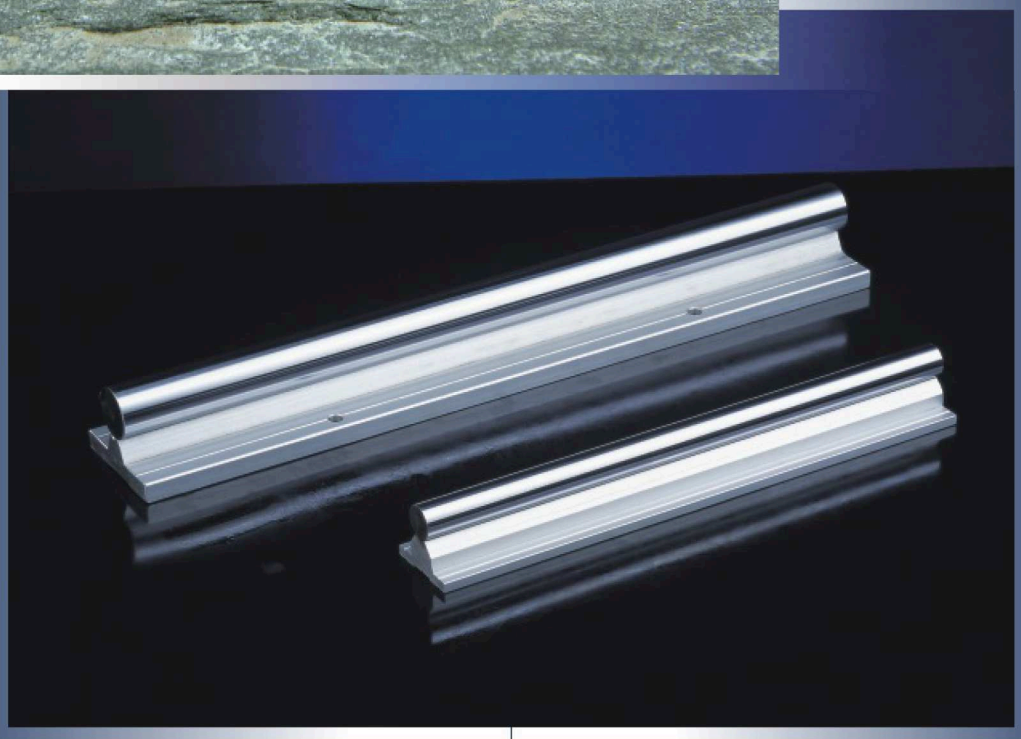
KBE





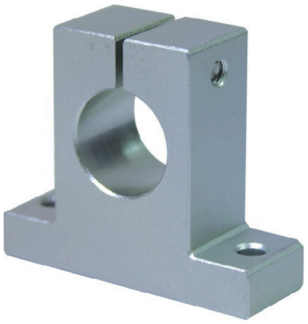
Part No.		Main Dimensions（mm）											Basic Load Rating		Weight
Seal Type	Shaft Diameter	h	D	W	L	F	T	h1	θ	B	C	Sxe	C N	Co N	(g)
KBE16UU	16	20	22.5	45	45	33	9	10	80°	32	30	M5x12	774	1180	150
KBE20UU	20	23	24	48	50	39	11	10	60°	35	35	M6x12	882	1370	200
KBE25UU	25	27	30	60	65	47	14	11.5	60°	40	40	M6x12	980	1570	450
KBE30UU	30	33	35	70	70	56	15	14	60°	50	50	M8x18	1570	2740	630
KBE40UU	40	42	45	90	90	72	20	19	60°	65	65	M10x20	2160	4020	1330
KBE50UU	50	53	60	120	110	92	25	23	60°	94	80	M10x20	3820	7940	3000

Shaft Support Serise

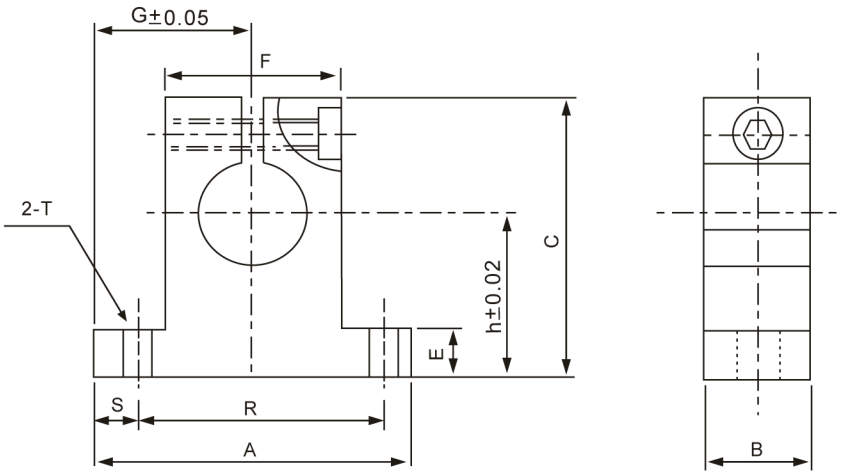


Slide Unit SK series

(SH–A Type)



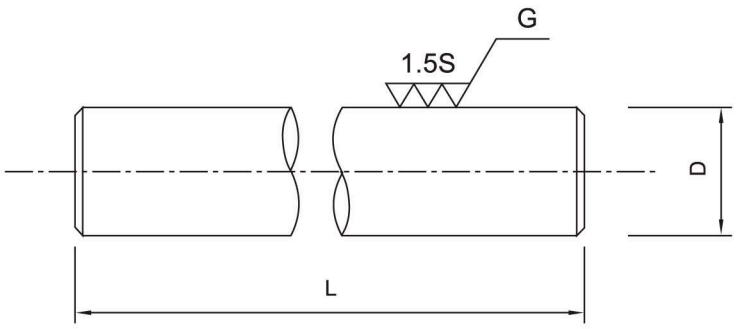
SK



Part No.	Shaft diameter	Main dimensions（mm）										Clamping bolt designation	Mounting bolt designation	Weight（g）
		h	G	A	B	C	E	F	R	S	T			
SK-8	8	20	21	42	14	32.8	6	18	32	5	5.5	M4	M5	24
SK-10	10	20	21	42	14	32.8	6	18	32	5	5.5	M4	M5	24
SK-12	12	23	21	42	14	37.5	6	20	32	5	5.5	M4	M5	30
SK-13	13	23	21	42	14	37.5	6	20	32	5	5.5	M4	M5	30
SK-16	16	27	24	48	16	44	8	25	38	5	5.5	M4	M5	40
SK-20	20	31	30	60	20	51	10	30	45	7.5	6.6	M5	M6	70
SK-25	25	35	35	70	24	60	12	38	56	7	6.6	M6	M6	130
SK-30	30	42	42	84	28	70	12	44	64	10	9	M6	M8	180
SK-35	35	50	49	98	32	82	15	50	74	12	11	M8	M10	270
SK-40	40	60	57	114	36	96	15	60	90	12	11	M8	M10	420
SK-50	50	70	63	126	40	120	18	74	100	13	14	M12	M12	750

SHAFT With Mounting Holes

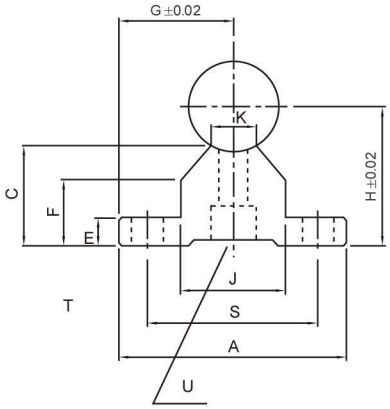
SF

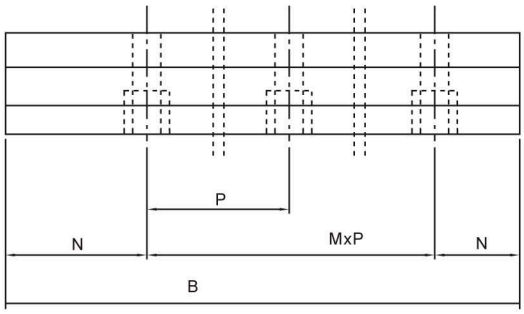


Part No.	Diameter ΦD(mm)	Public errand of the circular degree G6/μm	Public errand of the straight line μm	Round shelter degree S/M	Surface roughness		Harden the depth mm	Both ends chamfer mm	Whorl I	Weight kg/m
					Standard S	Accurate S				
SF6	6	-4～-12	60～-100/m	Smaller than 0.6/m	0.8～1.6	0.4～0.8	Greater than 1.0	0.3	—	0.23
SF8	8	-5～-14						0.5	—	0.40
SF10	10		100～-150/m	Smaller than 1.0/m					—	0.62
SF12	12	-6～-17							—	0.89
SF16	16						Greater than 1.5	0.7	M5x0.8	1.58
SF20	20	-7～-20							M6x1	2.47
SF25	25									3.85
SF30	30						Greater than 2.0	1.0	M8x1.25	5.55
SF35	35	-9～-25		Smaller than 1.4/m						7.55
SF40	40						Greater than 2.5			9.87
SF50	50							1.0～1.5	M10x1.5	15.4
SF60	60	-10～-29					Greater than 3.0		M12x1.5	22.2

Slide Unit SA Series

SA

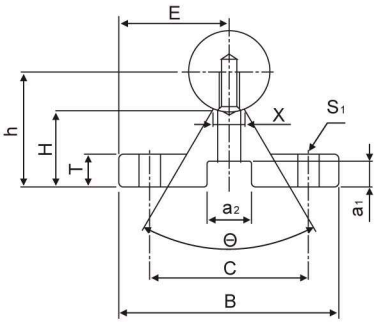


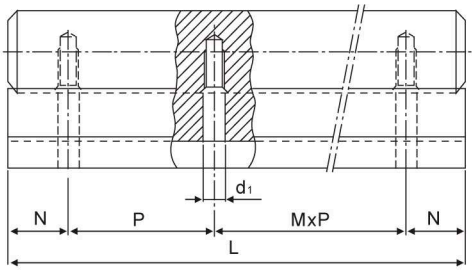


Part No.	Shaft Dia	Main dimensions（mm）														Weight (g)
		H	G	A	B	C	E	F	J	K	L	N	MxP	S	T	U	
SA16-200L	16	25	20	40	200	17.8	5	11.7	18.5	8	80°	25	1x150	30	5.5	M5	200
SA16-300L					300							75	1x150				300
SA16-400L					400							50	2x150				400
SA16-500L					500							25	3x150				500
SA16-600L					600							75	3x150				600
SA20-200L	20	27	22.5	45	200	17.7	5	10	19	8	50°	25	1x150	30	5.5	M6	200
SA20-300L					300							75	1x150				300
SA20-400L					400							50	2x150				400
SA20-500L					500							25	3x150				510
SA20-600L					600							75	3x150				610
SA25-300L	25	33	27.5	55	300	21	6	12	21.5	8	50°	50	1x200	35	6.5	M6	430
SA25-400L					400							100	1x200				580
SA25-500L					500							50	2x200				730
SA25-600L					600							100	2x200				880
SA30-300L	30	37	30	60	300	22.8	7	13	26.5	103	50°	50	1x200	40	6.5	M8	550
SA30-400L					400							100	1x200				730
SA30-500L					500							50	2x200				920
SA30-600L					600							100	2x200				1100
SA35-300L	35	43	32.5	65	300	26.5	8	15.5	28	13	50°	50	1x200	45	9	M8	700
SA35-400L					400							100	1x200				950
SA35-500L					500							50	2x200				1190
SA35-600L					600							100	2x200				1420

Slide Unit TA Series

TA





Part No.	Shaft Diameter	Dimensions (mm)								Mounting Dimension(mm)							Weight (g)
		E	h	B	L	H	T	X	θ	C	N	MxP	S_1	a_1	a_2	d_1	
TA16	ϕ16	25	22.14	50	190	14.84	6	8	60°	37	20	1x150	5.5	6	9.5	5.5	200
					340							2x150					360
					640							4x150					670
					940							6x150					980
TA20	ϕ20	27.5	29.01	55	340	19.64	8	8	50°	40	20	2x150	5.5	6.5	11	6.5	365
					640							4x150					690
					940							6x150					1015
					1240							8x150					1340
TA25	ϕ25	32.5	31.97	65	250	20	10	8	50°	45	25	1x200	6.6	6.5	11	6.6	400
					450							2x200					715
					850							4x200					1350
					1250							6x200					1990
TA30	ϕ30	37.5	36.52	75	450	22.28	12	10.3	50°	55	25	2x200	6.6	8.5	14	9	900
					850							4x200					1680
					1250							6x200					2500
					1450							7x200					2900

Type number format:

TA □ 190L

TA SHAFT SUPPORTING TRACK
--USE IN TBR TYPE

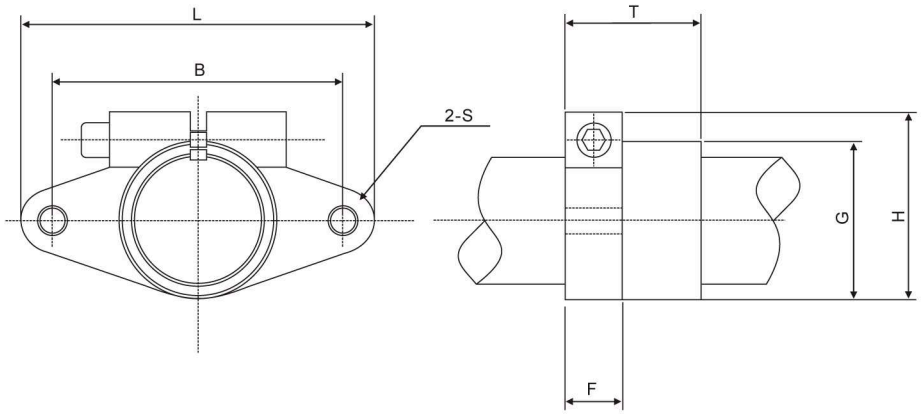
SA SHAFT SUPPORTING TRACK
--USE IN SME、KBE TYPE

LENGTH OF THE TRACK

SHAFT DIAMETER

Slide Unit SHF Series

SHF



Part No.	Shaft diameter	Main dimensions（mm）							Clamping bolt designation	Mounting bolt designation	Weight（g）
		L	T	F	B	G	H	S			
SHF-10	10	43	10	5	32	20	24	5.5	M5	M4	13
SHF-12	12	47	13	7	36	25	28	5.5	M5	M4	20
SHF-13	13	47	13	7	36	25	28	5.5	M5	M4	20
SHF-16	16	50	16	8	40	28	31	5.5	M5	M4	27
SHF-20	20	60	20	8	48	34	37	7	M6	M5	40
SHF-25	25	70	25	10	56	40	42	7	M6	M5	60
SHF-30	30	80	30	12	64	46	50	9	M8	M6	110
SHF-35	35	92	35	14	72	50	58	12	M10	M8	380
SHF-40	40	105	40	16	80	56	67	12	M10	M10	510
SHF-50	50	122	50	19	96	70	83	14	M12	M12	890