KBS Machinery Industry Co.,Ltd.

Catalogue KBS® 2021
Designed by KBS Machinery Industry Co.,Ltd.

KBS

KBS®

LINEAR BALL BUSHING

INTRODUCTION

Http://www.kbsbearings.com

KBS Machinery has endeavored in producing first-class linear ball bushing since 2000.Passed many strict inspection of customers all over the world, like 500 hours & 100,000 strokes non-stop running lifetime test, KBS Linear ball bushing has been proven successful over these years.

KBS Machinery is located in HangZhou China, in possession of 35,000M^2 workshop and staff of 280 people in total, including 16 engineers.

We make all spare parts by ourselves including every procedure, from turning to CNC machining, for our LM Bushing, KH compact bushing, aluminium linear case unit and Super-type bushing, And machinery tools & clamps and plastic moulds are all made by ourselves as well.

KBS always dedicates its full capabilities and resources including working staff, facilites, systems and technologies to two goals:

◆ producing world-class products.

◆ assuring customers' full satisfaction.

KBS
LINEAR BALL BUSHING

TÜV NORD

INTRODUCTION

KBS
LINEAR BALL BUSHIN


CERTIFICATE TÜV NORD

Management System as per
ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that

HANGZHOU SILVERSTONE MACHINERY INDUSTRY CO.,LTD.
951 North Qing Liu Road Xiao Shanjiang Dong Industrial Area
HangZhou Zhe Jiang P.R.China

applies a management system in line with the above standard for the following scope

Manufacture of Linear Motion Ball Bearings

Certificate Registration No. **44 100 092195**
Audit Report No. 2.5-6250/2009

Valid until 2016-10-8
(until 2012-04-05 in case of Upgrade to ISO 9001:2008)
Initial Certification 2015-10-8

Certification Body
at TÜV NORD CERT GmbH

Hong Kong, 2015-10-8

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstrasse 20 D - 45141 Essen www.tuev-nord-cert.com

IAF

SHG, FE6250, CA 0172/8

CONTENTS

KBS®

PRODUCING WORLD-CLASS PRODUCTS.
ASSURING CUSTOMERS'FULL SATISFACTION.

LINEAR BALL BUSHING

Linear bushing are linear bearings for unlimited backwards and forwards linear movement during which the balls are constantly returned to the loaded zone in closed circuits.

The bearings enable accurate linear guides to be constructed simply and economically.

The KBS Linear bushing is a high precision bushing which offers unlimited linear travel distance with minimum frictional resistance.

With high performance and a wide range of types,the KBS Linear bushing being used in many fields such as machine tools ,industrial machines,electrical equipments,food processing machines, and optical and measuring equipments.

The requisite linear ball bearing for a given linear guidance application is selected on the basis of its load carrying capacity in relation to the load being applied and the requirements in terms of operational life and reliability.

Built-in Synthetics Resin Retainer
合成树脂保持器直线轴承

Stainless Steel Retainer
整体不锈钢保持器直线轴承

KBS
LINEAR BALL BUSHING

KBS
LINEAR BALL BUSHING

LINEAR BALL BUSHING

Built-in Synthetics Resin Retainer
合成树脂保持器直线轴承

LM P.15
LME P.17
LMB P.19

LM-AJ P.15
LME-AJ P.17
LMB-AJ P.19

Stainless Steel Retainer
整体不锈钢保持器直线轴承

LM -OP P.15
LME -OP P.17
LMB -OP P.19

LM-L P.21
LME-L P.23
LMB-L P.25

FLANGED TYPE LINEAR BALL BUSHING

Built-in Synthetics Resin Retainer
合成树脂保持器直线轴承

LMF P.29
LMEF P.35
LMBF P.39

LMK P.31
LMEK P.37
LMBK P.41

Stainless Steel Retainer
整体不锈钢保持器直线轴承

LMH P.33

LMF-L P.43
LMEF-L P.49
LMBF-L P.53

LMK-L P.45
LMEK-L P.51
LMBK-L P.55

LMH-L P.47

FLANGED TYPE LINEAR BALL BUSHING

Built-in Synthetics Resin Retainer
合成树脂保持器直线轴承

LMFC P.65
LMEFC P.69
LMBFC P.71

LMKC P.65
LMEKC P.69
LMBKC P.71

Stainless Steel Retainer
整体不锈钢保持器直线轴承

LMHC P.67

LMF⋯UU-E P.57

LMK⋯UU-E P.57

LMH⋯UU-E P.59

LMF⋯LUU-E P.61

LMK⋯LUU-E P.61

LMH⋯LUU-E P.63

KH BUSHING

COMPACT RANGE
KH SERIES P.14

LBBR BUSHING

P.13

KBS
LINEAR BALL BUSHING

SUPER LINEAR BALL BUSHING

LMES P.79
LMBS P.81

LMES-OP P.80
LMBS-OP P.82

LINEAR BALL BUSHING CASE UNIT

SC P.85
SCE P.87

SC-W P.85
SCE-W P.87

SC-V P.85
SCE-V P.87

SCJ P.89

SUPPORT RAIL UNIT

SBS P.91

TBS P.92

SBR P.93

SUPPORT RAIL UNIT

TBR P.94

SBR-S P.93

TBR-S P.94

SHAFT SUPPORT

SHF P.96

SK P.97

FINE SHAFT

SF P.99

KBS
LINEAR BALL 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.

Basic Static Load Rating (Co)

This term defines a static load such that, at the contacting position where the maximum 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

Rating Life

Rating Life of the Lineat System

As long as the linear system reciprocates while being loaded, continuous stress acts on the linear system to cause flaking on the rolling bodies and planes because of material fatigue. The travelling distance of linear system until the fist flaking occurs is called the life of the systems. The life of the system varies even for the systems of the same dimenstions, 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. he 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 ystems 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:

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

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

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:

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 lift (km) fh: Hardness factor (See Fig. 1)
C: Basic dynamic load rating (N)
fT: Temperature 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:

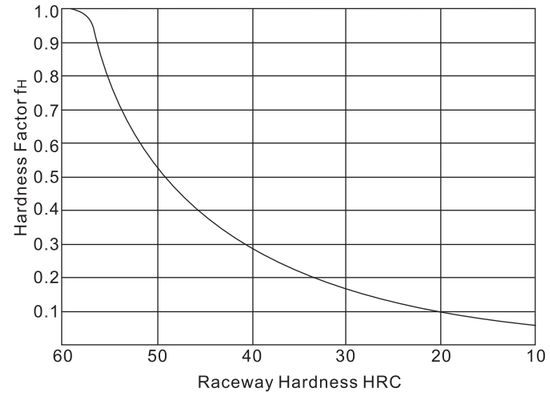
$$L_h=\frac{L \cdot 10^3}{2\ell_s \cdot n_1 \cdot 60}$$

Lh: Rating life in hours (hr)
ℓ_s: Stroke length (m)
L: Rating life (km)
n1: No. of strokes 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.

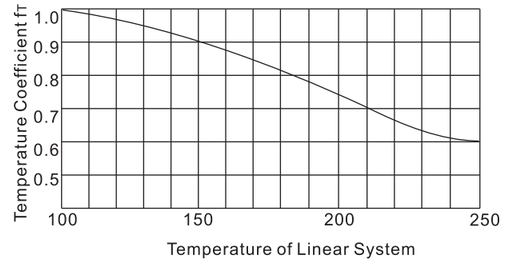
Fig. 1 Hardness Factor



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. 2 Temperature Coefficient



Contact Coeffcient (fc)

Generally two or more linear bushings are used on one shaft. Thus, the load on each linear system 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 off the system.

Table 2 Contact Coefficient

Number of linear systemsper 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 values 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

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

Frictional Resistance

The static frictional resistance of the KBS 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 KBS 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 weight. The sealing resistance of one linear system is about 200 to 500 gf. The coefficient of friction depends on the load weight, moment load, and preload. Table 6 shows the coefficient of kinetic friction of each type of linear system which has been installed and lubricated properly and applied with normal load （P/C=0.2）

Table 5 Coefficient of Linear System Friction （μ）

Linear System Type	Models	Coefficient of Friction (μ)
Linear Bushing	LM LME LMB	0.002 to 0.003

Ambient Working Temperature

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

Temperature conversion equation

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

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

Table 6 Ambient Working Temperature

Linear System Type	Models	Ambient Working Temperature
Linear Bushing	LM LME LMB	-20 to 80℃

Lubrication and Dust Prevention

Using KBS linear systems without lubrication increases the abrasion of the rolling elements, shortening the life span. The KBS linear systems therefore require appropriate lubrication. For lubrication KBS recommends turbine oil conforming to ISO Standards G32 to G68 or lithium base soap grease No.2. Some KBS linear systems are sealed to block 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.

Structure and Features

- The KBS linear bushing consists of an outer cylinder, ball retainer, balls and two end rings. The ball retainer which holds the balls in the recirculating trucks in held in side the outer cylinder by end rings.
- Those parts are assmbled 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 durability.
- 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 KBS 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 KBS 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

KBS 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.Variety of Types

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

Types and linear Bushing Number

Example

LM | 25 | A | F | UU | AJ

Type

LM	Metric dimension series most widely used in Japan
LME	Metric dimension series generally used in Europe
LMB	Inch dimension series used mainly in USA

Nominal Shaft Diameter

Stainless Steel Retainer
整体不锈钢保持器

Flange Type

F	Round type
K	Square type
H	Two side cut type

Modification

Symbol	Specification
No entry	Standard Type
AJ	Adjustable Type
OP	Open Type

Seal

Symbol	Specification
No entry	No seal
U	Seal on one side
UU	Seals on both sides

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

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

L: Rated life(km)
C: Basic dynamic load rating(N)
P: Working load(N)
f_W: Load coefficient
f_H: Hardness factor(See page5)
f_T: Temperature coefficient(See page5)
f_C: Contact coefficient(See page5)

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

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

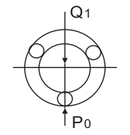
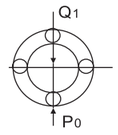
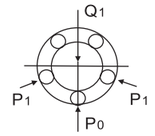
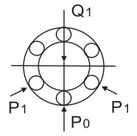
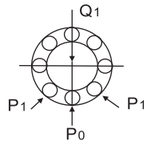
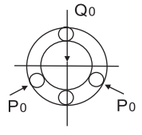
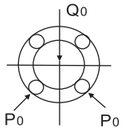
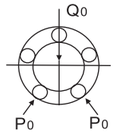
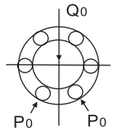
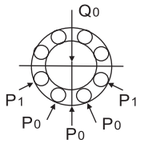
L_h: Lifespan(hr)
L: Rated life(km)
S: Stroke length (m)
n_1: Number of strokes per minute (cpm)

Relation between ball Circuits and load rating

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

The value the dimension table indicates the load rating when the load is placed on top of one ball circuit. If the KBS linear bushing is used will 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	 $Q_1=P_0$	 $Q_1=P_0$	 $Q_1=1.106P_0$	 $Q_1=1.354P_0$	 $Q_1=1.841P_0$
Row position	 $Q_0=P_0$	 $Q_0=1.414P_0$	 $Q_0=1.618P_0$	 $Q_0=1.732P_0$	 $Q_0=2.052P_0$
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 L_h of the KBS 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:

$$L=\left(\frac{f_H\cdot f_T\cdot f_c}{f_w}\cdot\frac{C}{P}\right)^3\cdot 50 \qquad F_H=F_T=F_C=F_W=1.0$$
$$=\left(\frac{882}{490}\right)^3\times 50 = 292\text{km}$$

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

$$L_h=\frac{L\times 10^3}{2\times es\times nl\times 60}=\frac{292\times 10^3}{2\times 0.05\times 50\times 60}=973\text{hr}$$

2. Selecting the linear bushing type satisfying the following conditions:
   - Number of linear bushing used: 4
   - Stroke length: 1m
   - Traveling speed: 10m/min
   - Number of strokes per minute: 5cpm
   - Lifespan: 10,000hr
   - Total load: 980N

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

$$L=2\times \ell_s\times n_1\times 60\times L_h=6{,}000\text{km}$$

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

$$C=\sqrt[3]{\frac{L}{50}}\cdot\left(\frac{f_w}{f_H\cdot f_T\cdot f_c}\right)\cdot P=1492\text{N}$$

Assume the following with a pair of shafts each with two linear bushings:
$f_C=0.81$, $f_W=f_T=f_H=1$
As a result, LM30 is selected from the dimension table as the KBS linear bushing type satisfying the value of C

Clearance and Fit

When a standard-type KBS linear bushing is used with a shaft, inadequate clearance, adjustment may cause early bush failure and/or poor, rough travelling. 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,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 KBS linear bushing high precision of the shaft and housing is required.

1.Shaft

The rolling balls in the KBS linear bushing are in point contact with the shaft surface. Therefore, the shaft dimensions, tolerance, surface finish, and hardness greatly affect the travelling 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 wear.
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.

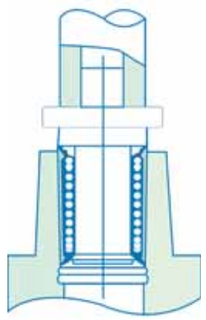
2. Housing

There is a wide range of housing 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 not 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 shafts.

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 designing and mounting, for reference.

Fig.2

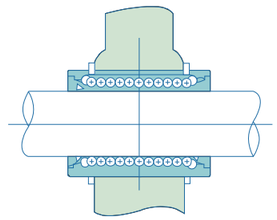


Fig.3

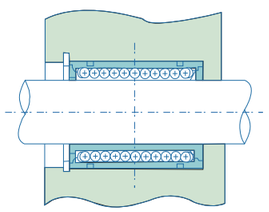


Fig.4

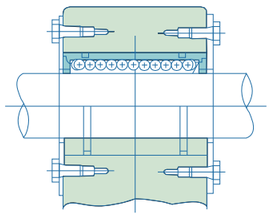


Fig.5

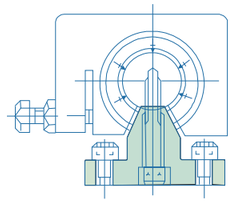
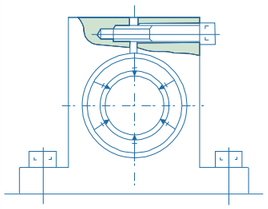
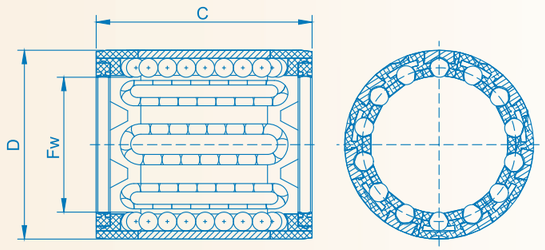


Fig.6



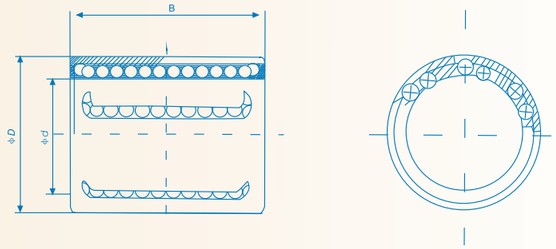
Compact linear ball bearing–LBBR type



Dimensions			No. of ball rows	Basic load ratings		Weight	Designations Linear ball bearings	
F_w	D	C		Dyn. C	Stat. C_0		standard design	with 2 double lip seals
mm			—	**N**	**N**	**kg**	—	
25	35	40	7	2 120	1 560	0,047	LBBR 25	LBBR 25-2LS
30	40	50	8	3 150	2 700	0,070	LBBR 30	LBBR 30-2LS
40	52	60	8	5 500	4 500	0,130	LBBR 40	LBBR 40-2LS

More models are under development

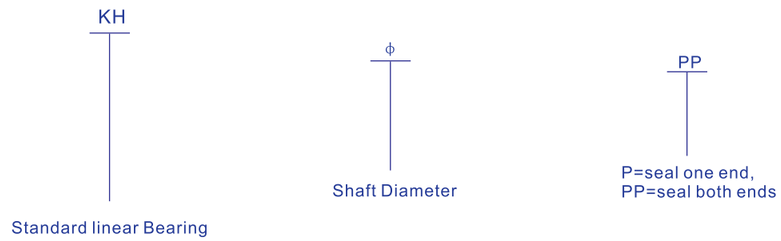
Compact linear ball bearing–KH type



Dimensions [mm] **Load Capacity [N]** **Weight [g]**

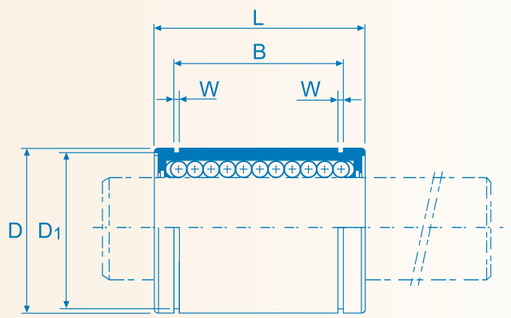
Part-No.	ϕd	ϕD	B	Dyn.	Stat.	
KH-0622	6	12	22	400	240	7
KH-0824	8	15	24	440	280	12
KH-1026	10	17	26	500	370	14.5
KH-1228	12	19	28	620	510	18.5
KH-1428	14	21	28	710	530	20.5
KH-1630	16	24	30	800	630	27.5
KH-2030	20	28	30	950	800	32.5
KH-2540	25	35	40	1990	1560	66
KH-3050	30	40	50	2900	2700	95
KH-4060	40	52	60	5100	4500	182
KH-5070	50	62	70	6950	6300	252

Ordering Example:

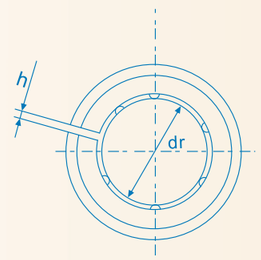


LM <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMA <Stainless Steel Retainer>
整体不锈钢保持器

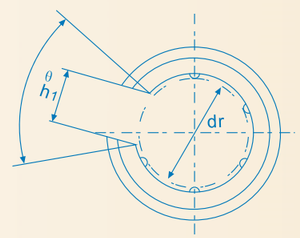
This type is a metric dimension series widely used in Japan and other countries



LM



LM・・・AJ

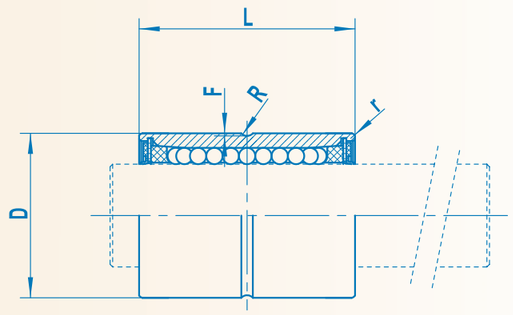


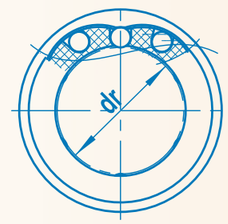
LM・・・OP

Nominal Part No.						Nominal Shaft Diameter (mm)		Major Dimensions and Tolerance (mm)									Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C(N) Co(N)		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	Adjustable Type	Open Type	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D1	h	h1	θ				
LM 3UU		4	1.4	———	———	3		7		10				—	—	—	—	—				LM 3
LM 4UU		4	2.0	———	———	4	0	8	0	12	0	—	—	—	—	—	—	—	69	105		LM 4
LM 5UU		4	4	———	———	5	-0.008	10	-0.009	15	-0.12	10.2	—	1.1	9.6	—	—	—	88	127		LM 5
																			167	206		
LM 6UU		4	8.5	LM 6-AJ	———	6		12		19		13.5		1.1	11.5	1	—	—			8	−3		LM 6
LM 8S UU		4	11	LM 8S-AJ	———	8		15	0	17		11.5		1.1	14.3	1	—	—	12	−3	206	265	LM 8S
LM 8UU	LM 8-A	4	17	LM 8-AJ	———	8		15	-0.011	24		17.5		1.1	14.3	1	—	—	12	−3	176	225	LM 8
																					265	402	
LM 10UU	LM 10-A	4	36	LM 10-AJ	———	10	0	19		29		22		1.3	18	1							LM 10
LM 12UU	LM 12-A	4	42	LM 12-AJ	LM 12-OP	12	-0.009	21	0	30	0	23	0	1.3	20	1.5	8	80°	12	−4	373	549	LM 12
LM 13UU		4	49	LM 13-AJ	LM 13-OP	13		23	-0.013	32	-0.2	23	-0.2	1.3	22	1.5	9	80°	12	−4	412	590	LM 13
																			12	−4	510	775	
LM 16UU	LM 16-A	5	76	LM 16-AJ	LM 16-OP	16		28		37		26.5		1.6	27	1.5	11	80°	12	−6	775	1180	LM 16
LM 20UU	LM 20-A	5	100	LM 20-AJ	LM 20-OP	20	0	32		42		30.5		1.6	30.5	1.5	11	60°	15	−6	863	1370	LM 20
LM 25UU	LM 25-A	6	240	LM 25-AJ	LM 25-OP	25	-0.010	40	0	59		41		1.85	38	2	12	50°	15	−6	980	1570	LM 25
									-0.016														
LM 30UU	LM 30-A	6	270	LM 30-AJ	LM 30-OP	30		45		64		44.5		1.85	43	2.5	15	50°	15	−8	1570	2750	LM 30
LM 35UU	LM 35-A	6	425	LM 35-AJ	LM 35-OP	35	0	52	0	70	0	49.5	0	2.1	49	2.5	17	50°	20	−8	1670	3140	LM 35
						38	-0.012		-0.019		-0.3		-0.3										
LM 40UU	LM 40-A	6	654	LM 40-AJ	LM 40-OP	40		60		80		60.5		2.1	57	3	20	50°	20	−10	2162	4020	LM 40
LM 50UU		6	1700	LM 50-AJ	LM 50-OP	50	0	80	0	100		74		2.6	76.5	3	25	50°	20	−13	3820	7940	LM 50
LM 60UU		6	2000	LM 60-AJ	LM 60-OP	60	-0.015	90	-0.022	110		85		3.15	86.5	3	30	50°	25	−13	4710	10000	LM 60

SI Unit 1N≒0.102kgf

LM VSUU

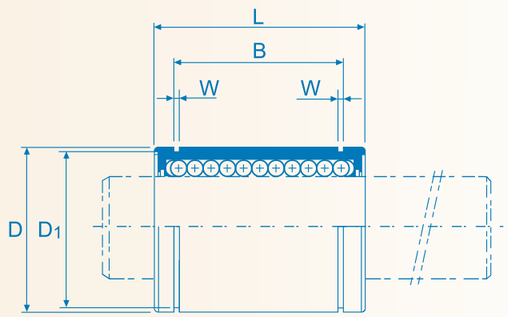




LM. . VSUU-超短型

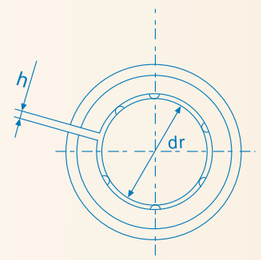
Nominal Part NO				Nominal Shaft Diameter (mm)									Eccentricity (max) μm	Basic Load Rating C(N)	Co(n)
StandardType	SealType	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	R	F	(r)			
LM6-VS	**LM6UU-VS**	4	6.6	6		12	0 -0.011	16		1	0.3	0.4	12	110	150
LM8-VS	**LM8UU-VS**	4	14.7	8		15		20		1.2	0.3	0.4	12	150	225
LM10-VS	**LM10UU-VS**	4	26.1	10		19		25		1.2	0.4	0.4	12	250	355
LM12-VS	**LM12UU-VS**	4	28.6	12	0 -0.009	21	0 -0.013	25	0 -0.2	1.2	0.4	0.8	12	315	405
LM13-VS	**LM13UU-VS**	4	36.3	13		23		25		1.2	0.4	0.8	12	320	410
LM16-VS	**LM16UU-VS**	5	60.0	16		28		30		1.2	0.5	0.8	12	580	720
LM20-VS	**LM20UU-VS**	5	81.6	20	0 -0.010	32	0 -0.016	35		1.5	0.5	0.8	15	775	1030

LME <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMEA <Stainless Steel Retainer>
整体不锈钢保持器

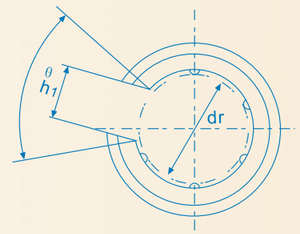


This type is a metric dimension series generally used in Europe.

LME



LME • • • AJ



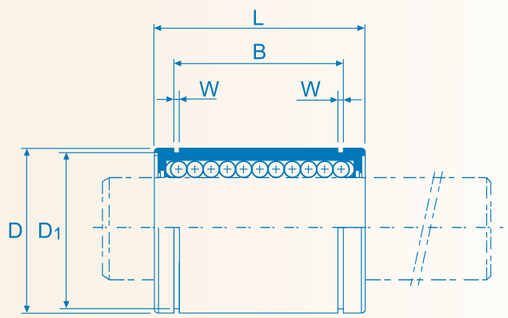
LME • • • OP

Nominal Part No.					Nominal Shaft Diameter (mm)		Major Dimensions and Tolerance (mm)										Eccentricity (max) μm	Radial Clearance (max) μm	Basic Load Rating C(N)	Basic Load Rating Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	Adjustable Type	Open Type	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D1	h	h1	θ				
LME 8UU	LME 8-A	4	22	LME 8-AJ		8	+0.008 0	16	0 -0.008	25		16.5		1.1	15.2	1			12	–3	265	402	LME 8
LME 12UU	LME 12-A	4	45	LME 12-AJ	LME 12-OP	12		22		32	0 -0.2	22.9	0 -0.2	1.3	21	1.5	7.5	78°	12	–4	510	784	LME 12
LME 16UU	LME 16-A	5	60	LME 16-AJ	LME 16-OP	16	+0.009 -0.001	26	-0.009	36		24.9		1.3	24.9	1.5	10	78°	12	–4	578	892	LME 16
LME 20UU	LME 20-A	5	102	LME 20-AJ	LME 20-OP	20		32		45		31.5		1.6	30.5	2	10	60°	15	–6	862	1370	LME 20
LME 25UU	LME 25-A	6	235	LME 25-AJ	LME 25-OP	25	+0.011	40	0 -0.011	58		44.1		1.85	38	2	12.5	60°	15	–6	980	1570	LME 25
LME 30UU	LME 30-A	6	360	LME 30-AJ	LME 30-OP	30	-0.001	47		68	0 -0.3	52.1	0 -0.3	1.85	44.5	2	12.5	50°	15	–8	1570	2740	LME 30
LME 40UU	LME 40-A	6	720	LME 40-AJ	LME 40-OP	40	+0.013 -0.002	62	0 -0.013	80		60.6		2.15	59	3	16.8	50°	17	–8	2160	4020	LME 40
LME 50UU		6	1570	LME 50-AJ	LME 50-OP	50		75		100		77.6		2.65	72	3	21	50°	17	–13	3820	7940	LME 50
LME 60UU		6	2220	LME 60-AJ	LME 60-OP	60		90	0 -0.015	125	0 -0.4	101.7	0 -0.4	3.15	86.5	3	27.2	54°	20	–13	4700	9800	LME 60

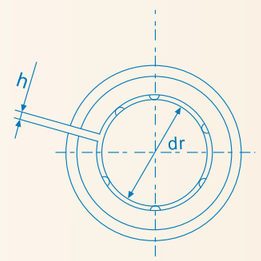
SI Unit 1N≒0.102kgf

LMB <Built-in Synthetics Resin Retainer>

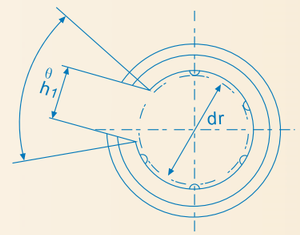
This type is an inch dimension series mainly used in the US.



LMB



LMB • • • AJ



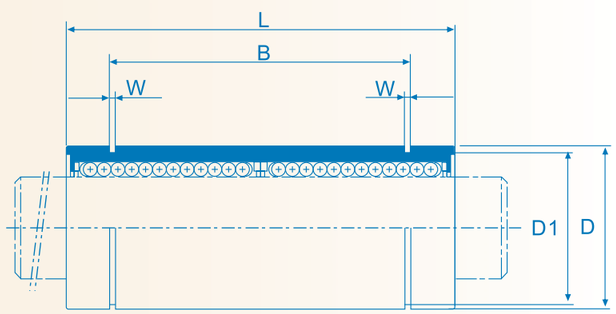
LMB • • • OP

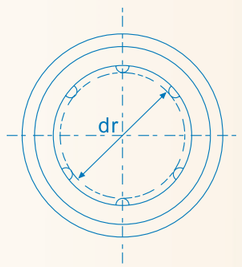
Nominal Shaft Diameter (Inch/mm)	Nominal Part No.						Nominal Shaft Diameter (Inch/mm)		Major Dimensions and Tolerance (Inch/mm)											Eccentricity (max) mch/μm	Radial Clearance (max) mch/μm	Basic Load Rating C(N)	Basic Load Rating Co(N)	Nominal Part No.
	Standard Type	Seal Type	Ball Circuit	Weight g	Adjustable Type	Open Type	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D1	h	h1	θ				
1/4 6.350	LMB 4	LMB 4UU	4	9.5	LMB 4-AJ	———	.2500 6.350		.5000 12.700	0 -.00045 0 -0.011	.7500 19.050		0.5110 12.98		.0390 0.992	.4687 11.906	.04 1	— —	—	-.0005 12	-.0001 -3	206	265	LMB 4
3/8 9.525	LMB 6	LMB 6UU	4	15	LMB 6-AJ	———	.3750 9.525	0 -0.040	.6250 15.875	0 -.00050	.8750 22.225	0 -.008	0.6358 16.15	0 -.008	.0390 0.992	.5880 14.935	.04 1	— —	—	-.0005 12	-.0001 -3	225	314	LMB 6
1/2 12.700	LMB 8	LMB 8UU	4	42	LMB 8-AJ	LMB 8-OP	.5000 12.700	0 -0.009	.8750 22.225		1.2500 31.750		0.9625 24.46		.0459 1.168	.8209 20.853	.06 1.5	.34 7.9375	80°	-.0005 12	-.0001 -4	510	784	LMB 8
5/8 15.875	LMB 10	LMB 10UU	4	85	LMB 10-AJ	LMB 10-OP	.6250 15.875		1.1250 28.575	0 -0.013	1.5000 38.100	0 -0.2	1.1039 28.04	0 -0.2	.0559 1.422	1.0590 26.899	.06 1.5	.375 9.525	80°	-.0005 12	-.0001 -4	774	1180	LMB 10
3/4 19.050	LMB 12	LMB 12UU	5	104	LMB 12-AJ	LMB 12-OP	.7500 19.050	0 -.0040	1.2500 31.750	0 -.00065	1.6250 41.275		1.1657 29.61		.0559 1.422	1.1760 29.870	.06 1.5	.4375 11.1125	60°	-.0006 15	-.0002 -6	862	1370	LMB 12
1 25.400	LMB 16	LMB 16UU	6	220	LMB 16-AJ	LMB 16-OP	1.0000 25.400	0 -0.010	1.5625 39.688	0 -0.016	2.2500 57.150		1.7547 44.57		.0679 1.727	1.4687 37.306	.06 1.5	.5625 14.2875	50°	-.0006 15	-.0002 -6	980	1570	LMB 16
1-1/4 31.750	LMB 20	LMB 20UU	6	465	LMB 20-AJ	LMB 20-OP	1.2500 31.750	0 -.0050	2.0000 50.800	0 -.00075	2.6250 66.675	0 -0.12	2.0047 50.92	0 -0.12	.0679 1.727	1.8859 47.904	.10 2.5	.625 15.875	50°	-.0008 20	-.0003 -8	1570	2740	LMB 20
1-1/2 38.100	LMB 24	LMB 24UU	6	720	LMB 24-AJ	LMB 24-OP	1.5000 38.100		2.3750 60.325	0 -0.019	3.0000 76.200		2.4118 61.26		.0859 2.184	2.2389 56.870	.12 3	.75 19.05	50°	-.0008 20	-.0003 -8	2180	4020	LMB 24
2 50.800	LMB 32	LMB 32UU	6	1310	LMB 32-AJ	LMB 32-OP	2.0000 50.800	0 -0.012	3.0000 76.200	0 -.00090 0 -0.022	4.0000 101.600	0 -0.3	3.1917 81.07	0 -0.3	.1029 2.616	2.8379 72.085	.12 3	1.0 25.40	50°	-.0010 25	-.0005 -13	3820	7940	LMB 32

SI Unit 1N≒0.225lbs
1kg≒2.205lbs

LM-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LM-LA <Stainless Steel Retainer>
整体不锈钢保持器

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





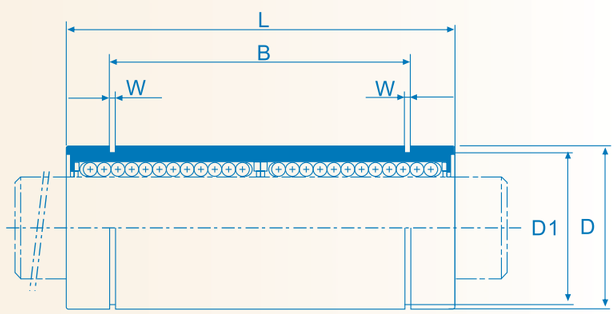
LM-L

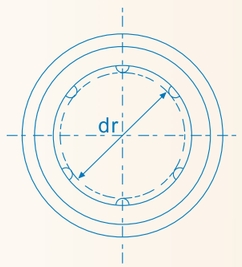
Nominal Part No.				Nominal Shaft Diameter (mm)		Major Dimensions and Tolerance (mm)								Eccentricity (max) μm	Basic Load Rating Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D1				
LM 4L UU		4	4.8	4	0 -0.010	8	0 -0.011	23						10	176	254	LM 4L
LM 5L UU		4	11	5		10		28		20.4	0 -0.3	1.1	9.6	10	256	412	LM 5L
LM 6L UU		4	16	6		12	0 -0.013	35		27		1.1	11.5	15	323	530	LM 6L
LM 8L UU	LM 8L-A	4	31	8		15		45		35		1.1	14.3	15	431	784	LM 8L
LM 10L UU	LM 10L-A	4	62	10	0 -0.010	19		55		44		1.3	18	15	588	1,100	LM 10L
LM 12L UU	LM 12L-A	4	80	12		21	0 -0.016	57	0 -0.3	46	0 -0.3	1.3	20	15	813	1,570	LM 12L
LM 13L UU	LM 13L-A	4	90	13		23		61		46		1.3	22	15	813	1,570	LM 13L
LM 16L UU	LM 16L-A	5	145	16		28		70		53		1.6	27	15	1,230	2,350	LM 16L
LM 20L UU	LM 20L-A	5	180	20		32	0 -0.019	80		61		1.6	30.5	20	1,400	2,740	LM 20L
LM 25L UU	LM 25L-A	6	440	25	0 -0.012	40		112		82		1.85	38	20	1,560	3,140	LM 25L
LM 30L UU	LM 30L-A	6	480	30		45		123		89		1.85	43	20	2,490	5,490	LM 30L
LM 35L UU	LM 35L-A	6	795	35		52	0 -0.022	135		99		2.1	49	25	2,650	6,270	LM 35L
LM 40L UU	LM 40L-A	6	1,170	40	0 -0.015	60		151	0 -0.4	121	0 -0.4	2.1	57	25	3,430	8,040	LM 40L
LM 50L UU		6	3,100	50		80		192		148		2.6	76.5	25	6,080	15,900	LM 50L
LM 60L UU		6	3,500	60	0 -0.020	90	0 -0.025	209		170		3.15	86.5	30	7,650	20,000	LM 60L

SI Unit 1N≒0.102kgf

LME-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LME-LA <Stainless Steel Retainer>
整体不锈钢保持器

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





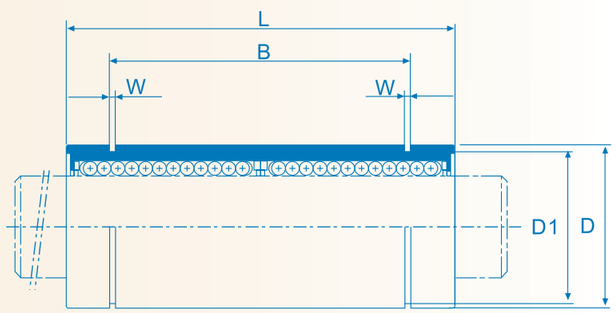
LME-L

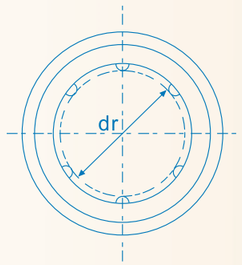
Nominal Part No.				Nominal Shaft Diameter (mm)		Major Dimensions and Tolerance (mm)								Eccentricity (max) μm	Basic Load Rating Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D_1				
LME 8L UU	LME 8L-A	4	40	8	+0.009 -0.001	16	0 -0.009	46		33		1.1	15.2	15	421	804	LME 8L
LME 12L UU	LME 12L-A	4	80	12		22	0 -0.011	61		45.8		1.3	21	15	813	1,570	LME 12L
LME 16L UU	LME 16L-A	5	115	16	+0.011	26		68	0 -0.3	49.8	0 -0.3	1.3	24.9	15	921	1,780	LME 16L
LME 20L UU	LME 20L-A	5	180	20	-0.001	32		80		61		1.6	30.5	17	1,370	2,740	LME 20L
LME 25L UU	LME 25L-A	6	430	25	+0.013 -0.002	40	0 -0.013	112		82		1.85	38	17	1,570	3,140	LME 25L
LME 30L UU	LME 30L-A	6	615	30		47		123		104.2		1.85	44.5	17	2,500	5,490	LME 30L
LME 40L UU	LME 40L-A	6	1,400	40	+0.016 -0.004	62	0 -0.015	151	0 -0.4	121.2	0 -0.4	2.15	59	20	3,430	8,040	LME 40L
LME 50L UU		6	2,320	50		75		192		155.2		2.65	72	20	6,080	15,900	LME 50L
LME 60L UU		6	3,500	60		90	0 -0.020	209		170		3.15	86.5	25	7,550	20,000	LME 60L

SI Unit 1N≒0.102kgf

LMB-L <Built-in Synthetics Resin Retainer>

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





LME-L

Nominal Part No.				Nominal Shaft Diameter (mm)		Major Dimensions and Tolerance (mm)								Eccentricity (max) μm	Basic Load Rating Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Standard Type	Seal Type	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D_1				
LMB 4L	**LMB 4L UU**	4	17.5	6.350	0 -0.010	12.700	0/−0.013	34.925	−0.3	25.959	−0.3	0.992	11.906	15	323	530	**LMB 4L**
LMB 6L	**LMB 6L UU**	4	28	9.525		15.875	0 -0.016	40.481		32.298		0.992	14.935	15	353	630	**LMB 6L**
LMB 8L	**LMB 8L UU**	4	80	12.700		22.225		60.325		48.895		1.168	20.853	15	813	1570	**LMB 8L**
LMB 10L	**LMB 10L UU**	4	160	15.875	0 -0.012	28.575	0 -0.019	71.438		56.080		1.422	26.899	15	1230	2350	**LMB 10L**
LMB 12L	**LMB 12L UU**	5	195	19.050		31.750		78.581		59.218		1.422	29.870	20	1370	2470	**LMB 12L**
LMB 16L	**LMB 16L UU**	6	410	25.400		39.688		108.744		89.139		1.727	37.306	20	1570	3140	**LMB 16L**
LMB 20L	**LMB 20L UU**	6	820	31.750	-0.015	50.800	0 −0.022	127.000	-0.4	101.839	-0.4	1.727	47.904	25	2500	5490	**LMB 20L**
LMB 24L	**LMB 24L UU**	6	1250	38.100		60.325		144.463		122.519		2.184	56.870	25	3430	8040	**LMB 24L**
LMB 32L	**LMB 32L UU**	6	2350	50.800		76.200	0/−0.025	196.850		162.138		2.616	72.085	30	6080	15900	**LMB 32L**

SI Unit 1N≒0.102kgf

<KBS Linear Ball Bushing System>
<FLANGED SLIDE BUSH>

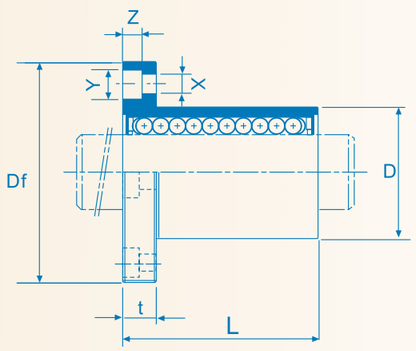
KBS
LINEAR BALL BUSHING

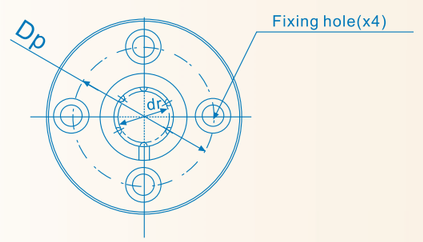
KBS®

<KBS Linear Ball Bushing System>
<FLANGED SLIDE BUSH>

LMF <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMFA <Stainless Steel Retainer>
整体不锈钢保持器

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





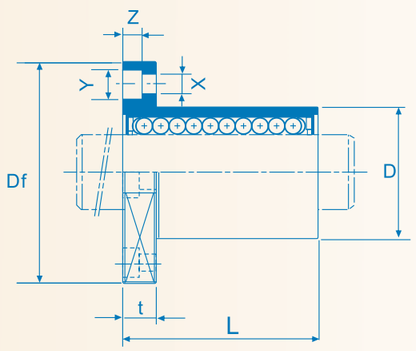
LMF

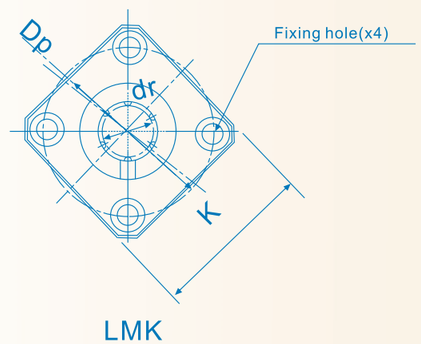
Nominal Part No.				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)						Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMF 6 UU		4	24	6	12 0 -0.013	19	28	5	20	3.5	6	3.1	12	12	206	265	**LMF 6**
LMF 8S UU		4	32	8	15	17	32	5	24	3.5	6	3.1	12	12	176	216	**LMF 8S**
LMF 8 UU	**LMF 8-A**	4	37	8 0 -0.009	15	24	32	5	24	3.5	6	3.1	12	12	274	392	**LMF 8**
LMF 10 UU	**LMF 10-A**	4	72	10	19	29	40	6	29	4.5	7.5	4.1	12	12	372	549	**LMF 10**
LMF 12 UU	**LMF 12-A**	4	76	12	21 0 -0.016	30	42	6	32	4.5	7.5	4.1	12	12	510	784	**LMF 12**
LMF 13 UU	**LMF 13-A**	4	88	13	23	32	43	6	33	4.5	7.5	4.1	12	12	510	784	**LMF 13**
LMF 16 UU	**LMF 16-A**	5	120	16	28	37	48	6	38	4.5	7.5	4.1	12	12	774	1,180	**LMF 16**
LMF 20 UU	**LMF 20-A**	5	180	20	32	42 ±0.3	54	8	43	5.5	9	5.1	15	15	882	1,370	**LMF 20**
LMF 25 UU	**LMF 25-A**	6	340	25 0 -0.010	40 0 -0.019	59	62	8	51	5.5	9	5.1	15	15	980	1,570	**LMF 25**
LMF 30 UU	**LMF 30-A**	6	470	30	45	64	74	10	60	6.6	11	6.1	15	15	1,570	2,740	**LMF 30**
LMF 35 UU	**LMF 35-A**	6	650	35	52	70	82	10	67	6.6	11	6.1	20	20	1,670	3,140	**LMF 35**
LMF 40 UU	**LMF 40-A**	6	1,060	40 0 -0.012	60 0 -0.022	80	96	13	78	9	14	8.1	20	20	2,160	4,020	**LMF 40**
LMF 50 UU		6	2,200	50	80	100	116	13	98	9	14	8.1	20	20	3,820	7,940	**LMF 50**
LMF 60 UU		6	3,000	60 0 -0.015	90 0 -0.025	110	134	18	112	11	17	11.1	25	25	4,700	10,000	**LMF 60**

SI Unit 1N≒0.102kgf

LMK <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMKA <Stainless Steel Retainer>
整体不锈钢保持器

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





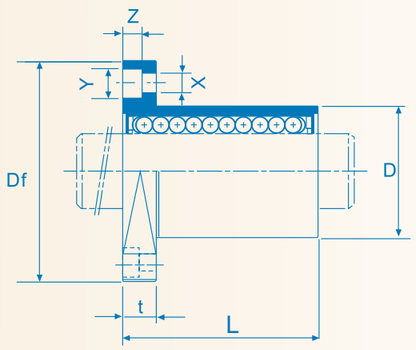
LMK

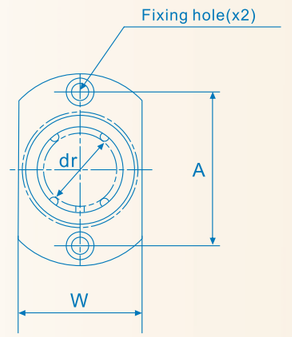
Nominal Part No.				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteelRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	K	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMK 6 UU		4	18	6	12 0 -0.013	19	28	22	5	20	3.5	6	3.1	12	12	206	265	**LMK 6**
LMK 8S UU		4	24	8	15	17	32	25	5	24	3.5	6	3.1	12	12	176	216	**LMK 8S**
LMK 8 UU	**LMK 8-A**	4	29	8 0 -0.009	15	24	32	25	5	24	3.5	6	3.1	12	12	274	392	**LMK 8**
LMK 10 UU	**LMK 10-A**	4	52	10	19	29	40	30	6	29	4.5	7.5	4.1	12	12	372	549	**LMK 10**
LMK 12 UU	**LMK 12-A**	4	57	12	21 0 -0.016	30	42	32	6	32	4.5	7.5	4.1	12	12	510	784	**LMK 12**
LMK 13 UU		4	72	13	23	32	43	34	6	33	4.5	7.5	4.1	12	12	510	784	**LMK 13**
LMK 16 UU	**LMK 16-A**	5	104	16	28	37	48	37	6	38	4.5	7.5	4.1	12	12	774	1,180	**LMK 16**
LMK 20 UU	**LMK 20-A**	5	145	20	32	42 ±0.3	54	42	8	43	5.5	9	5.1	15	15	882	1,370	**LMK 20**
LMK 25 UU	**LMK 25-A**	6	300	25 0 -0.010	40 0 -0.019	59	62	50	8	51	5.5	9	5.1	15	15	980	1,570	**LMK 25**
LMK 30 UU	**LMK 30-A**	6	375	30	45	64	74	58	10	60	6.6	11	6.1	15	15	1,570	2,740	**LMK 30**
LMK 35 UU	**LMK 35-A**	6	560	35	52	70	82	64	10	67	6.6	11	6.1	20	20	1,670	3,140	**LMK 35**
LMK 40 UU	**LMK 40-A**	6	880	40 0 -0.012	60 0 -0.022	80	96	75	13	78	9	14	8.1	20	20	2,160	4,020	**LMK 40**
LMK 50 UU		6	2000	50	80	100	116	92	13	98	9	14	8.1	20	20	3,820	7,940	**LMK 50**
LMK 60 UU		6	2560	60 0 -0.015	90 0 -0.025	110	134	106	18	112	11	17	11.1	25	25	4,700	10,000	**LMK 60**

SI Unit 1N≒0.102kgf

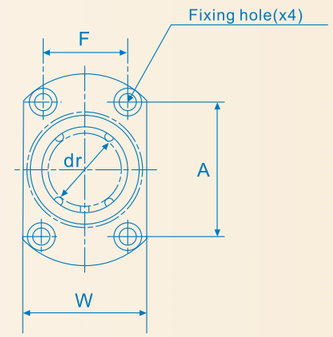
LMH <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMHA <Stainless Steel Retainer>
整体不锈钢保持器

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





LMH 13 or less



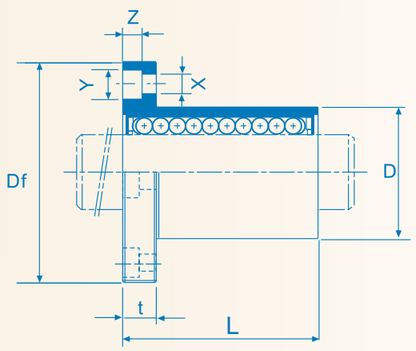
LMH 16 or more

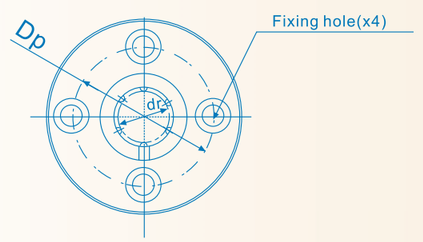
Nominal Part No.				Major Dimensions and Tolerance (mm)												Major Dimensions and Tolerance (mm)								Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance							Flange								μm	μm	Dynamic C(N)	Static Co(N)	
																Df	W	t	A	F	X	Y	Z					
LMH 5 UU		4		5		10		15								25	16	5	17	—	3.5	6	3.1	12	12	167	206	**LMH 5**
LMH 6 UU		4	21	6		12	0	19								28	18	5	20	—	3.5	6	3.1	12	12	206	265	**LMH 6**
LMH 8 UU	**LMH 8-A**	4	33	8		15	-0.013	24								32	21	5	24	—	3.5	6	3.1	12	12	274	392	**LMH 8**
LMH 10 UU	**LMH 10-A**	4	64	10		19		29								40	25	6	29	—	4.5	7.5	4.1	12	12	372	549	**LMH 10**
LMH 12 UU	**LMH 12-A**	4	68	12	0	21	0	30	±0.3							42	27	6	32	—	4.5	7.5	4.1	12	12	510	784	**LMH 12**
LMH 13 UU		4	81	13	-0.009	23	-0.016	32								43	29	6	33	—	4.5	7.5	4.1	12	12	510	784	**LMH 13**
LMH 16 UU	**LMH 16-A**	5	112	16		28		37								48	34	6	31	22	4.5	7.5	4.1	12	12	774	1,180	**LMH 16**
LMH 20 UU	**LMH 20-A**	5	167	20		32		42								54	38	8	36	24	5.5	9	5.1	15	15	882	1,370	**LMH 20**
LMH 25 UU	**LMH 25-A**	6	325	25	0	40	0	59								62	46	8	40	32	5.5	9	5.1	15	15	980	1,570	**LMH 25**
LMH 30 UU	**LMH 30-A**	6	388	30	-0.010	45	-0.019	64								74	51	10	49	35	6.6	11	6.1	15	15	1,570	2,740	**LMH 30**
LMH 40 UU	**LMH 40-A**	6	913	40		60										96	66	13	64	45	9	14	8.1	17	17	2,160	4,020	**LMH 40**
					0 -0.012		0 -0.022																					

SI Unit 1N≒0.102kgf

LME F <Built-in Synthetics Resin Retainer>
合成树脂保持器
LME FA <Stainless Steel Retainer>
整体不锈钢保持器

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





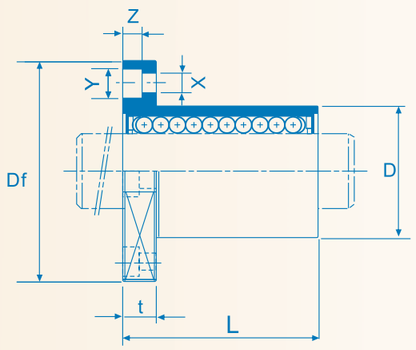
LME F

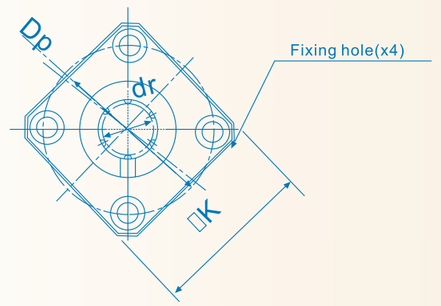
Nominal Part No.				Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteelRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Flange Df	t	Dp	X	Y	Z		μm	μm	Dynamic C(N)	Static Co(N)	
LME F 8 UU	**LME F 8-A**	4	41	8	+0.008 0	16	0 -0.013	25		32	5	24	3.5	6	3.1		12	12	265	402	**LME F 8**
LME F 12 UU	**LME F 12-A**	4	80	12		22		32		42	6	32	4.5	7.5	4.1		12	12	510	784	**LME F 12**
LME F 16 UU	**LME F 16-A**	5	103	16	+0.009 -0.001	26	-0.016	36		46	6	36	4.5	7.5	4.1		12	12	578	892	**LME F 16**
LME F 20 UU	**LME F 20-A**	5	182	20		32		45		54	8	43	5.5	9	5.1		15	15	862	1,370	**LME F 20**
LME F 25 UU	**LME F 25-A**	6	335	25	+0.011	40	0	58	±0.3	62	8	51	5.5	9	5.1		15	15	980	1,570	**LME F 25**
LME F 30 UU	**LME F 30-A**	6	560	30	-0.001	47	-0.019 0	68		76	10	62	6.6	11	6.1		15	15	1,570	2,740	**LME F 30**
LME F 40 UU	**LME F 40-A**	6	1,175	40		62	-0.022	80		98	13	80	9	14	8.1		17	17	2,160	4,020	**LME F 40**
LME F 50 UU		6	1,745	50	+0.013	75		100		112	13	94	9	14	8.1		17	17	3.820	7,940	**LME F 50**
LME F 60 UU		6	3,220	60	-0.002	90	0 -0.025	125		134	18	112	11	17	11.1		20	20	4,700	9,800	**LME F 60**

SI Unit 1N≒0.102kgf

LME K <Built-in Synthetics Resin Retainer>
合成树脂保持器
LME KA <Stainless Steel Retainer>
整体不锈钢保持器

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





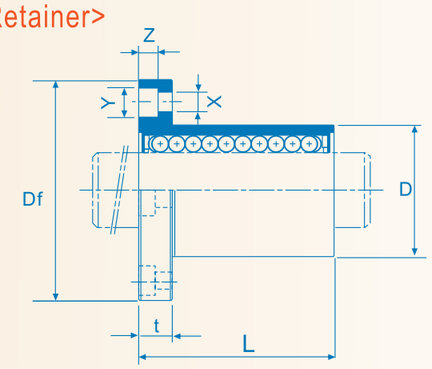
LME K

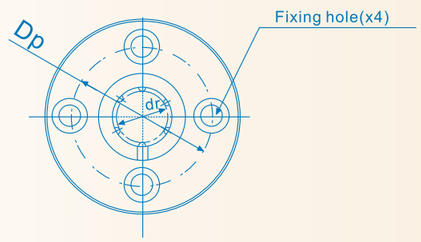
Nominal Part No.				Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteelRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Flange Df	K	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LME K 8 UU	LME K 8-A	4	33	8	+0.008 0	16	0 -0.013	25		32	25	5	24	3.5	6	3.1	12	12	265	402	LME K 5
LME K 12 UU	LME K 12-A	4	64	12	+0.008 0	22	0 -0.013	32		42	32	6	32	4.5	7.5	4.1	12	12	510	784	LME K 8
																					LME K 12
LME K 16 UU	LME K 16-A	5	90	16	+0.009 -0.001	26	-0.016	36		46	35	6	36	4.5	7.5	4.1	12	12	578	892	LME K 16
LME K 20 UU	LME K 20-A	5	147	20	+0.009 -0.001	32	-0.016	45		54	42	8	43	5.5	9	5.1	15	15	862	1,370	LME K 20
LME K 25 UU	LME K 25-A	6	295	25	+0.011	40	0	58	±0.3	62	50	8	51	5.5	9	5.1	15	15	980	1,570	LME K 25
LME K 30 UU	LME K 30-A	6	465	30	-0.001	47	-0.019	68		76	60	10	62	6.6	11	6.1	15	15	1,570	2,740	LME K 30
LME K 40 UU	LME K 40-A	6	975	40		62	0 -0.022	80		98	75	13	80	9	14	8.1	17	17	2,160	4,020	LME K 40
LME K 50 UU		6	1545	50	+0.013	75	0 -0.022	100		112	88	13	94	9	14	8.1	17	17	3.820	7,940	LME K 50
LME K 60 UU		6	2780	60	-0.002	90	0 -0.025	125		134	106	18	112	11	17	11.1	20	20	4,700	9,800	LME K 60

SI Unit 1N≒0.102kgf

LMB F <Built-in Synthetics Resin Retainer>

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





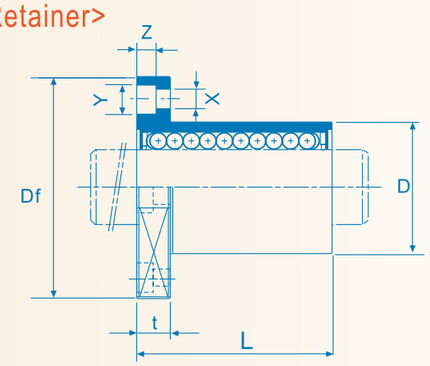
LMB F

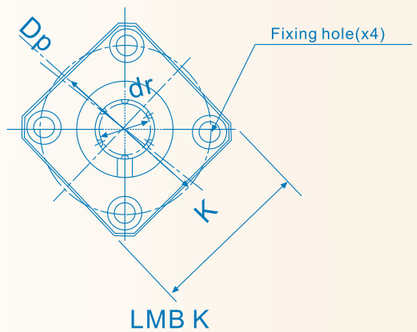
Nominal Shaft Diameter (Inch/mm)	Nominal Part No.				Major Dimensions and Tolerance (Inch/mm)				Major Dimensions and Tolerance (Inch/mm)									Eccentricity	Squareness	Basic Load Rating		Nominal shaft diameter
	Standard Type	Seal Type	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Flange									Dynamic C(N)	Static Co(N)	
											Df	t	Dp	X	Y	Z					
1/4 6.350	**LMB F 4**	**LMB F 4UU**	4	32	.2500 6.350		.5000 12.700	0 -.00050 0 -.13	.7500 19.050		1.2500 31.750	0.219 5.556	.8750 22.225	.1560 3.969	.2500 6.350	.1410 3.572	.0005 12	.0005 12	206	265	1/4 6.350
3/8 9.525	**LMB F 6**	**LMB F 6UU**	4	47	.3750 9.525	0 -.00040	.6250 15.875	0	.8750 22.225		1.5000 38.100	.2500 6.350	1.0620 26.988	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	225	314	3/8 9.525
1/2 12.700	**LMB F 8**	**LMB F 8UU**	4	88	.5000 12.700	0 -0.0090	.8750 22.225	-.00065 0	1.2500 31.750		1.7500 44.450	.2500 6.350	1.312 33.338	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	510	784	1/2 12.700
5/8 15.875	**LMB F 10**	**LMB F 10UU**	4	140	.6250 15.875		1.1250 28.575	-0.016	1.5000 38.100		2.0000 50.800	.2500 6.350	1.5620 39.688	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	774	1,180	5/8 15.875
3/4 19.050	**LMB F 12**	**LMB F 12UU**	5	190	.7500 19.050	0 -.00040	1.2500 31.750	0 -.00075	1.6250 41.275	±.012	2.1875 55.563	.3125 7.938	1.7180 43.660	.2187 5.556	.3440 8.731	.2030 5.159	.0006 15	.0006 15	862	1,370	3/4 19.050
1 25.400	**LMB F 16**	**LMB F 16UU**	6	325	1.0000 25.400	0 -0.0100	1.5625 39.688	0 -0.019	2.2500 57.150	±0.3	2.2500 63.500	.3125 7.938	2.0310 51.594	.2187 5.556	.3440 8.731	.2030 5.159	.0006 15	.0006 15	980	1,570	1 25.400
1-1/4 31.750	**LMB F 20**	**LMB F 20UU**	6	665	1.2500 31.750	0	2.0000 50.800	0 -.0009	2.6250 66.675		3.1250 79.375	.3750 9.525	2.5625 65.088	.2812 7.144	.4060 10.319	.2656 6.747	.0008 20	.0008 20	1,570	2,740	1-1/4 31.750
1-1/2 38.100	**LMB F 24**	**LMB F 24UU**	6	1,100	1.5000 38.100	-.00050 0	2.3750 60.325	0 -0.022	3.0000 76.200		3.7500 95.250	.5000 12.700	3.0625 77.788	.3440 8.731	.5000 12.700	.3280 8.334	.0010 20	.0010 20	2,180	4,020	1-1/2 38.100
2 50.800	**LMB F 32**	**LMB F 32UU**	6	1,760	2.0000 50.800	-0.0120	3.0000 76.200	0 -0.025	4.0000 101.600		4.3750 111.125	.5000 12.700	3.6875 93.662	.3440 8.731	.5000 12.700	.3280 8.334	.0010 25	.0010 25	3,820	7,940	2 50.800

SI Unit 1N≒0.225lbs
1kg≒2.205lbs

LMB K <Built-in Synthetics Resin Retainer>

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



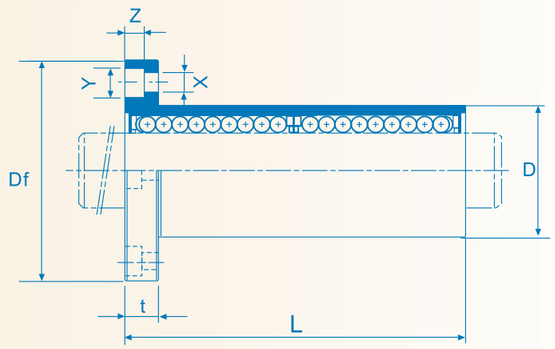


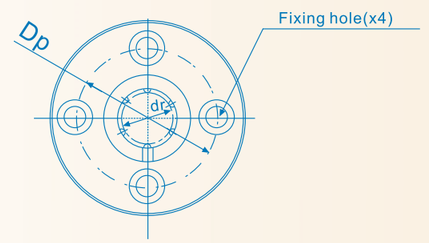
Nominal Shaft Diameter (Inch/mm)	Nominal Part No.				Major Dimensions and Tolerance (Inch/mm)				Major Dimensions and Tolerance (Inch/mm)										Eccentricity	Squareness	Basic Load Rating		Nominal shaft diameter
	Standard Type	Seal Type	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Flange								Inch/μm	Inch/μm	Dynamic C(N)	Static Co(N)	Inch/μm
											Df	k	t	Dp	X	Y	Z						
1/4 6.350	**LMB K 4**	**LMB K 4UU**	4	25	.2500 6.350		.5000 12.700	0 -.00050 0 -.13	.7500 19.050		1.2500 31.750	1.0000 25.400	0.219 5.556	.8750 22.225	.1560 3.969	.2500 6.350	.1410 3.572	.0005 12	.0005 12	206	265	1/4 6.350
3/8 9.525	**LMB K 6**	**LMB K 6UU**	4	32	.3750 9.525	0 -.00040	.6250 15.875	0	.8750 22.225		1.5000 38.100	1.2500 31.750	.2500 6.350	1.0620 26.988	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	225	314	3/8 9.525
1/2 12.700	**LMB K 8**	**LMB K 8UU**	4	68	.5000 12.700	0 -0.0090	.8750 22.225	-.00065 0	1.2500 31.750		1.7500 44.450	1.3750 34.925	.2500 6.350	1.312 33.338	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	510	784	1/2 12.700
5/8 15.875	**LMB K10**	**LMB K 10UU**	4	124	.6250 15.875		1.1250 28.575	-0.016	1.5000 38.100		2.0000 50.800	1.5000 38.100	.2500 6.350	1.5620 39.688	.1875 4.763	.2970 7.541	.1720 4.366	.0005 12	.0005 12	774	1,180	5/8 15.875
3/4 19.050	**LMB K12**	**LMB K 12UU**	5	150	.7500 19.050	0 -.00040	1.2500 31.750	0 -.00075	1.6250 41.275	±.012	2.1875 55.563	1.6875 42.863	.3125 7.938	1.7180 43.660	.2187 5.556	.3440 8.731	.2030 5.159	.0006 15	.0006 15	862	1,370	3/4 19.050
1 25.400	**LMB K16**	**LMB K16UU**	6	280	1.0000 25.400	0 -0.0100	1.5625 39.688	0 -0.019	2.2500 57.150	±0.3	2.5000 63.500	2.0000 50.800	.3125 7.938	2.0310 51.594	.2187 5.556	.3440 8.731	.2030 5.159	.0006 15	.0006 15	980	1,570	1 25.400
1-1/4 31.750	**LMB K20**	**LMB K 20UU**	6	580	1.2500 31.750	0	2.0000 50.800	0 -.0009	2.6250 66.675		3.1250 79.375	2.5000 63.500	.3750 9.525	2.5625 65.088	.2812 7.144	.4060 10.319	.2656 6.747	.0008 20	.0008 20	1,570	2,740	1-1/4 31.750
1-1/2 38.100	**LMB K24**	**LMB K 24UU**	6	930	1.5000 38.100	-.00050 0	2.3750 60.325	0 -0.022	3.0000 76.200		3.7500 95.250	3.0000 76.200	.5000 12.700	3.0625 77.788	.3440 8.731	.5000 12.700	.3280 8.334	.0010 25	.0010 25	2,180	4,020	1-1/2 38.100
2 50.800	**LMB K32**	**LMB K 32UU**	6	1580	2.0000 50.800	-0.0120	3.0000 76.200	0 -0.025	4.0000 101.600		4.3750 111.125	3.5000 88.900	.5000 12.700	3.6875 93.662	.3440 8.731	.5000 12.700	.3280 8.334	.0010 25	.0010 25	3,820	7,940	2 50.800

SI Unit 1N≒0.225lbs
1kg≒2.205lbs

LMF-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMF-LA <Stainless Steel Retainer>
整体不锈钢保持器

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





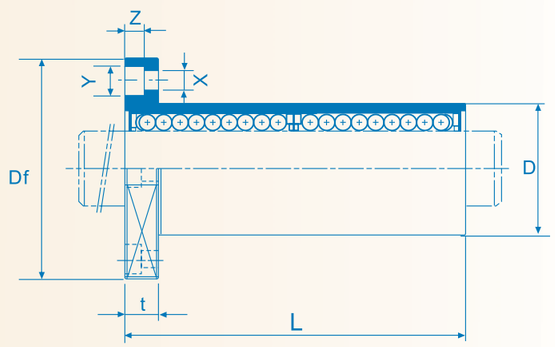
LMF-L

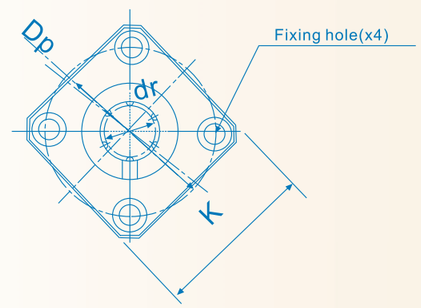
Nominal Part No.				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)						Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMF 6L UU		4	31	6	12 0 -0.013	35	28	5	20	3.5	6.5	3.1	15	15	323	530	**LMF 6L**
LMF 8L UU	**LMF 8L-A**	4	51	8	15	45	32	5	24	3.5	6.5	3.1	15	15	431	784	**LMF 8L**
LMF 10L UU	**LMF 10L-A**	4	98	10 0 -0.010	19	55	40	6	29	4.5	7.5	4.1	15	15	588	1,100	**LMF 10L**
LMF 12L UU	**LMF 12L-A**	4	110	12	21 0 -0.016	57	42	6	32	4.5	7.5	4.1	15	15	813	1,570	**LMF 12L**
LMF 13L UU		4	130	13	23	61	43	6	33	4.5	7.5	4.1	15	15	813	1,570	**LMF 13L**
LMF 16L UU	**LMF 16L-A**	5	190	16	28	70 ±0.3	48	6	38	4.5	7.5	4.1	15	15	1,230	2,350	**LMF 16L**
LMF 20L UU	**LMF 20L-A**	5	260	20	32	80	54	8	43	5.5	9	5.1	20	20	1,400	2,740	**LMF 20L**
LMF 25L UU	**LMF 25L-A**	6	540	25 0 -0.012	40 0 -0.019	112	62	8	51	5.5	9	5.1	20	20	1,560	3,140	**LMF 25L**
LMF 30L UU	**LMF 30L-A**	6	680	30	45	123	74	10	60	6.6	11	6.1	20	20	2,490	5,490	**LMF 30L**
LMF 35L UU	**LMF 35L-A**	6	1,020	35 0 -0.020	52 0 -0.025	135	82	10	67	6.6	11	6.1	25	25	2,650	6,270	**LMF 35L**
LMF 40L UU	**LMF 40L-A**	6	1,570	40	60	151	96	13	78	9	14	8.1	25	25	3,430	8,040	**LMF 40L**
LMF 50L UU		6	3,600	50	80	192	116	13	98	9	14	8.1	25	25	6,080	15,900	**LMF 50L**
LMF 60L UU		6	4,500	60	90	209	134	18	112	11	17	11.1	30	30	7,550	20,000	**LMF 60L**

SI Unit 1N≒0.102kgf

LMK-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMK-LA <Stainless Steel Retainer>
整体不锈钢保持器

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





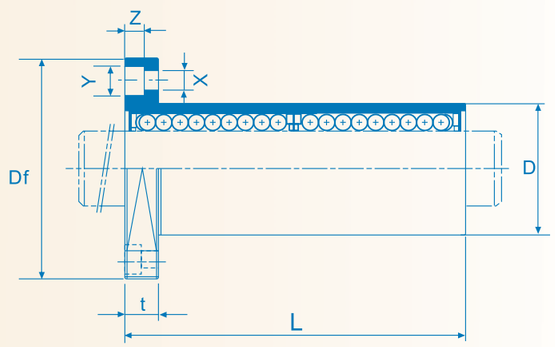
LMK-L

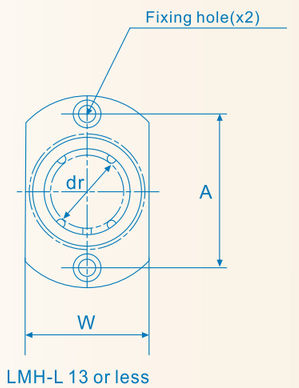
Nominal Part No.				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	K	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMK 6L UU		4	25	6	12	35	28	22	5	20	3.5	6	3.1	15	15	323	530	**LMK 6L**
LMK 8L UU	**LMK 8L-A**	4	43	8	15	45	32	25	5	24	3.5	6	3.1	15	15	431	784	**LMK 8L**
LMK 10L UU	**LMK 10L-A**	4	78	10	19	55	40	30	6	29	4.5	7.5	4.1	15	15	588	1,100	**LMK 10L**
LMK 12L UU	**LMK 12L-A**	4	90	12	21	57	42	32	6	32	4.5	7.5	4.1	15	15	813	1,570	**LMK 12L**
LMK 13L UU		4	108	13	23	61	43	34	6	33	4.5	7.5	4.1	15	15	813	1,570	**LMK 13L**
LMK 16L UU	**LMK 16L-A**	5	165	16	28	70	48	37	6	38	4.5	7.5	4.1	15	15	1,230	2,350	**LMK 16L**
LMK 20L UU	**LMK 20L-A**	5	225	20	32	80	54	42	8	43	5.5	9	5.1	20	20	1,400	2,740	**LMK 20L**
LMK 25L UU	**LMK 25L-A**	6	500	25	40	112	62	50	8	51	5.5	9	5.1	20	20	1,560	3,140	**LMK 25L**
LMK 30L UU	**LMK 30L-A**	6	590	30	45	123	74	58	10	60	6.6	11	6.1	20	20	2,490	5,490	**LMK 30L**
LMK 35L UU	**LMK 35L-A**	6	930	35	52	135	82	64	10	67	6.6	11	6.1	25	25	2,650	6,270	**LMK 35L**
LMK 40L UU	**LMK 40L-A**	6	1,380	40	60	151	96	75	13	78	9	14	8.1	25	25	3,430	8,040	**LMK 40L**
LMK 50L UU		6	3,400	50	80	192	116	92	13	98	9	14	8.1	25	25	6,080	15,900	**LMK 50L**
LMK 60L UU		6	4,060	60	90	209	134	106	18	112	11	17	11.1	30	30	7,550	20,000	**LMK 60L**

SI Unit 1N≒0.102kgf

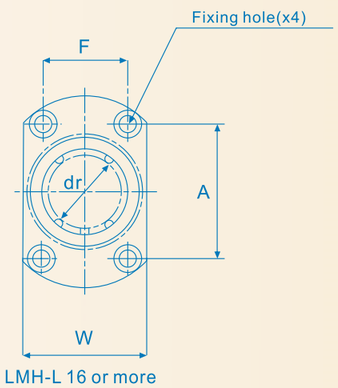
LMH-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMH-LA <Stainless Steel Retainer>
整体不锈钢保持器

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





LMH-L 13 or less



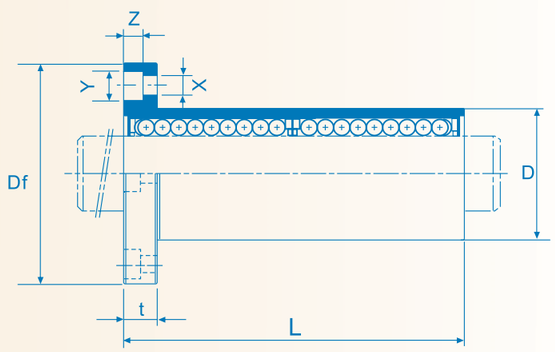
LMH-L 16 or more

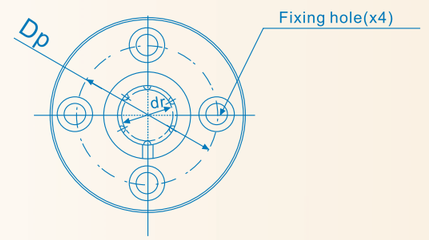
Nominal Part No.				Major Dimensions and Tolerance (mm)				Major Dimensions and Tolerance (mm)								Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance		Flange Df	W	t	A	F	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMH 6L UU		4	28	6	12 0 -0.013	35		28	18	5	20	—	3.5	6	3.1	15	15	323	530	LMH 6L
LMH 8L UU	LMH 8L-A	4	47	8	15	45		32	21	5	24	—	3.5	6	3.1	15	15	431	784	LMH 8L
LMH 10L UU	LMH 10L-A	4	90	10	19	55		40	25	6	29	—	4.5	7.5	4.1	15	15	588	1,100	LMH 10L
LMH 12L UU	LMH 12L-A	4	102	12 0 -0.010	21 0 -0.016	57		42	27	6	32	—	4.5	7.5	4.1	15	15	813	1,570	LMH 12L
LMH 13L UU		4	123	13	23	61	±0.3	43	29	6	33	—	4.5	7.5	4.1	15	15	813	1,570	LMH 13L
LMH 16L UU	LMH 16L-A	5	182	16	28	70		48	34	6	31	22	4.5	7.5	4.1	15	15	1,230	2,350	LMH 16L
LMH 20L UU	LMH 20L-A	5	247	20 0 -0.012	32 0 -0.019	80		54	38	8	36	24	5.5	9	5.1	20	20	1,400	2,740	LMH 20L
LMH 25L UU	LMH 25L-A	6	525	25	40	112		62	46	8	40	32	5.5	9	5.1	20	20	1,560	3,140	LMH 25L
LMH 30L UU	LMH 30L-A	6	645	30	45	123		74	51	10	49	35	6.6	11	6.1	20	20	2,490	5,490	LMH 30L
LMH 40L UU	LMH 40L-A	6	1423	40 0 -0.015	60 0 -0.022	151		96	66	13	64	45	9	14	8.1	25	25	3,430	8,040	LMH 40L
LMH 50L UU		6	3437	50	80	192		116	86	13	80	56	9	14	8.1	25	25	6,080	15,900	LMH 50L

SI Unit 1N≒0.102kgf

LME F-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LME F-A <Stainless Steel Retainer>
整体不锈钢保持器

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





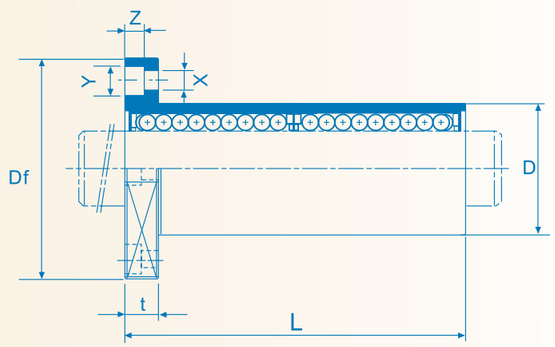
LME F-L

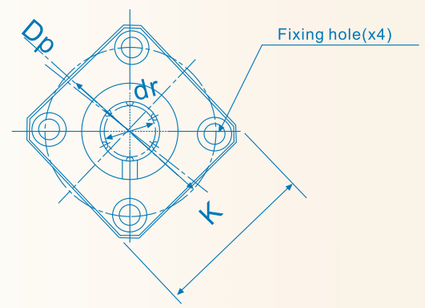
Nominal Part No.				Major Dimensions and Tolerance (mm)				Major Dimensions and Tolerance (mm)						Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Flange Df	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LME F 8L UU	LME F 8L-A	4	59	8	+0.009 -0.001	16	0 -0.013	46		32	5	24	3.5	6	3.1	15	15	421	804	LME F 8L
LME F 12L UU	LME F 12L-A	4	110	12		22	0	61		42	6	32	4.5	7.5	4.1	15	15	813	1,570	LME F 12L
LME F 16L UU	LME F 16L-A	5	160	16	+0.011 -0.001	26	-0.016	68		46	6	36	4.5	7.5	4.1	15	15	921	1,780	LME F 16L
LME F 20L UU	LME F 20L-A	5	260	20		32		80		54	8	43	5.5	9	5.1	17	17	1,370	2,740	LME F 20L
LME F 25L UU	LME F 25L-A	6	540	25	+0.013	40	0	112	±0.3	62	8	51	5.5	9	5.1	17	17	1,570	3,140	LME F 25L
LME F 30L UU	LME F 30L-A	6	815	30	-0.002	47	-0.019	123		76	10	62	6.6	11	6.1	17	17	2,500	5,490	LME F 30L
LME F 40L UU	LME F 40L-A	6	1,805	40		62	0	151		98	13	80	9	14	8.1	20	20	3,430	8,040	LME F 40L
LME F 50L UU		6	2,820	50	+0.016	75	-0.022	192		112	13	94	9	14	8.1	20	20	6,080	15,900	LME F 50L
LME F 60L UU		6	4,920	60	-0.004	90	0 -0.025	209		134	18	112	11	17	11.1	25	25	7,550	20,000	LME F 60L

SI Unit 1N≒0.102kgf

LME K-L <Built-in Synthetics Resin Retainer>
合成树脂保持器
LME K-A <Stainless Steel Retainer>
整体不锈钢保持器

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





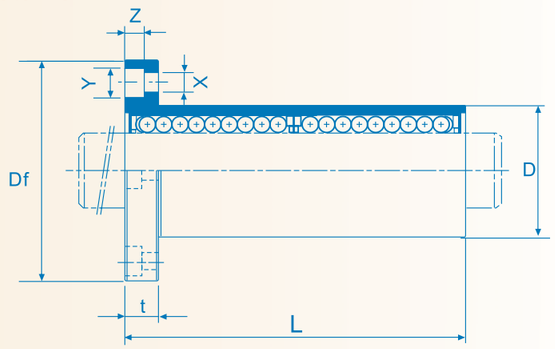
LME K-L

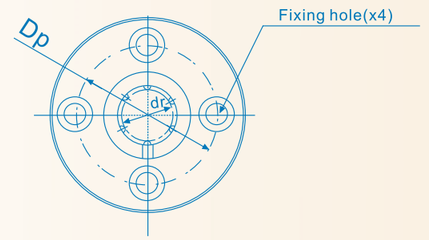
Nominal Part No.				Major Dimensions and Tolerance (mm)											Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance		D	Tolerance		L	Tolerance				Flange Df	K	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LME K 8L UU	LME K 8L-A	4	51	8	+0.009	-0.001	16	0	-0.013	46					32	25	5	24	3.5	6	3.1	15	15	421	804	LME K 8L
LME K 12L UU	LME K 12L-A	4	90	12			22		0	61					42	32	6	32	4.5	7.5	4.1	15	15	813	1,570	LME K 12L
LME K 16L UU	LME K 16L-A	5	135	16	+0.011	-0.001	26	-0.016		68					46	35	6	36	4.5	7.5	4.1	15	15	921	1,780	LME K 16L
LME K 20L UU	LME K 20L-A	5	225	20			32			80					54	42	8	43	5.5	9	5.1	17	17	1,370	2,740	LME K 20L
LME K 25L UU	LME K 25L-A	6	500	25		+0.013	40		0	112	±0.3				62	50	8	51	5.5	9	5.1	17	17	1,570	3,140	LME K 25L
LME K 30L UU	LME K 30L-A	6	720	30	-0.002		47	-0.019		123					76	60	10	62	6.6	11	6.1	17	17	2,500	5,490	LME K 30L
LME K 40L UU	LME K 40L-A	6	1,600	40			62		0	151					98	75	13	80	9	14	8.1	20	20	3,430	8,040	LME K 40L
LME K 50L UU		6	2,620	50		+0.016	75	-0.022		192					112	88	13	94	9	14	8.1	20	20	6,080	15,900	LME K 50L
LME K 60L UU		6	4,480	60	-0.004		90	0	-0.025	209					134	106	18	112	11	17	11.1	25	25	7,550	20,000	LME K 60L

SI Unit 1N≒0.102kgf

LMBF-L <Built-in Synthetics Resin Retainer>

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





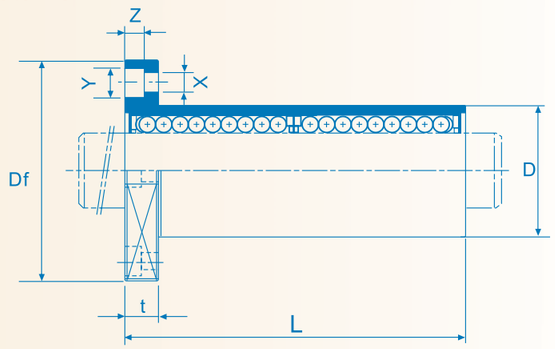
LMF-L

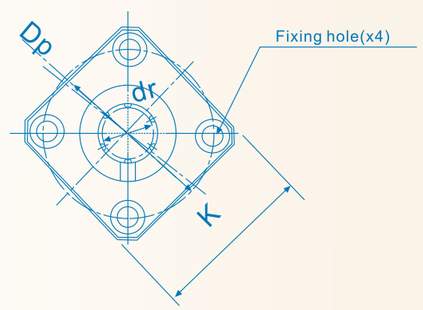
Nominal Part No.				Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
				dr		D		L		Flange									Dynamic	Static	
Standard Type	Seal Type	Ball Circuit	Weight g		Tolerance		Tolerance		Tolerance	Df	t	Dp	X	Y	Z		μm	μm	C(N)	Co(N)	
LMBF 4L	**LMBF 4L UU**	4	40	6.350		12.700	0/-0.013	34.925		31.750	5.556	22.225	3.969	6.350	3.572		15	15	323	530	**LMBF 4L**
LMBF 6L	**LMBF 6L UU**	4	60	9.525	0 -0.010	15.875	0 -0.016	40.481		38.100	6.350	26.988	4.763	7.541	4.366		15	15	353	630	**LMBF 6L**
LMBF 8L	**LMBF 8L UU**	4	126	12.700		22.225		60.325		44.450	6.350	33.338	4.763	7.541	4.366		15	15	813	1570	**LMBF 8L**
LMBF 10L	**LMBF 10L UU**	5	215	15.875		28.575		71.438		50.800	6.350	39.688	4.763	7.541	4.366		15	15	1230	2350	**LMBF 10L**
LMBF 12L	**LMBF 12L UU**	5	280	19.050	0 -0.012	31.750	0 -0.019	78.581		55.563	7.938	43.656	5.556	8.731	5.159		20	20	1370	2740	**LMBF 12L**
LMBF 16L	**LMBF 16L UU**	5	515	25.400		39.688		108.744	±0.3	63.500	7.938	51.594	5.556	8.731	5.159		20	20	1570	3140	**LMBF 16L**
LMBF 20L	**LMBF 20L UU**	5	1220	31.750		50.800		127.000		79.375	9.525	65.088	7.144	10.319	6.747		25	25	2500	5490	**LMBF 20L**
LMBF 24L	**LMBF 24L UU**	5	1630	38.100	-0.015	60.325	0 -0.022	144.463		95.250	12.700	77.788	8.731	12.700	8.334		25	25	3430	8040	**LMBF 24L**
LMBF 32L	**LMBF 32L UU**	5	2800	50.800		76.200	0/-0.025	196.850		111.125	12.700	93.662	8.731	12.700	8.334		30	30	6080	15900	**LMBF 32L**

SI Unit 1N≒0.102kgf

LMBK-L<Built-in Synthetics Resin Retainer>

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



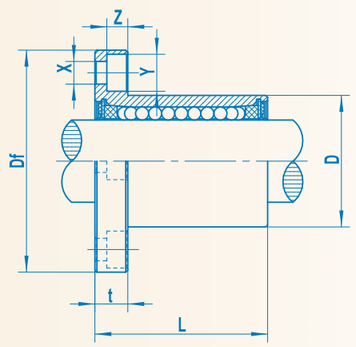


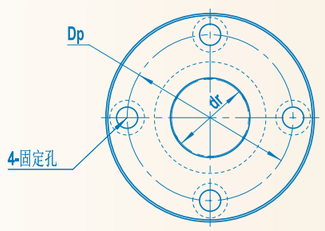
LME K-L

Nominal Part No.				Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)							Eccentricity	Squareness	Basic Load Rating		Nominal Part No.
Standard Type	Seal Type	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L Tolerance	Flange Df	K	t	Dp	X	Y	Z	μm	μm	Dynamic C(N)	Static Co(N)	
LMBK 4L	**LMBK 4L UU**	4	33	6.350		12.700	0/−0.013	34.925	31.750	25.400	5.556	22.225	3.969	6.350	3.572	15	15	323	530	**LMBK 4L**
LMBK 6L	**LMBK 6L UU**	4	45	9.525	0 -0.010	15.875	0 -0.016	40.481	38.100	31.750	6.350	26.988	4.763	7.541	4.366	15	15	353	630	**LMBK 6L**
LMBK 8L	**LMBK 8L UU**	4	106	12.700		22.225		60.325	44.450	34.925	6.350	33.338	4.763	7.541	4.366	15	15	813	1570	**LMBK 8L**
LMBK 10L	**LMBK 10L UU**	5	200	15.875		28.575		71.438	50.800	38.100	6.350	39.688	4.763	7.541	4.366	15	15	1230	2350	**LMBK 10L**
LMBK 12L	**LMBK 12L UU**	5	240	19.050	0 -0.012	31.750	0 -0.019	78.581	55.563	42.683	7.938	43.656	5.556	8.731	5.159	20	20	1370	2740	**LMBK 12L**
LMBK16L	**LMBK 16L UU**	5	470	25.400		39.688		108.744	63.500	50.800	7.938	51.594	5.556	8.731	5.159	20	20	1570	3140	**LMBK 16L**
LMBK 20L	**LMBK 20L UU**	5	935	31.750		50.800		127.000 ±0.3	79.375	63.500	9.525	65.088	7.144	10.319	6.747	25	25	2500	5490	**LMBK 20L**
LMBK 24L	**LMBK 24L UU**	5	1460	38.100	-0.015	60.325	0 −0.022	144.463	95.250	76.200	12.700	77.788	8.731	12.700	8.334	25	25	3430	8040	**LMBK 24L**
LMBK 32L	**LMBK 32L UU**	5	2620	50.800		76.200	0/−0.025	196.850	111.125	88.900	12.700	93.662	8.731	12.700	8.334	30	30	6080	15900	**LMBK 32L**

SI Unit 1N≒0.102kgf

LMF-UU-RB

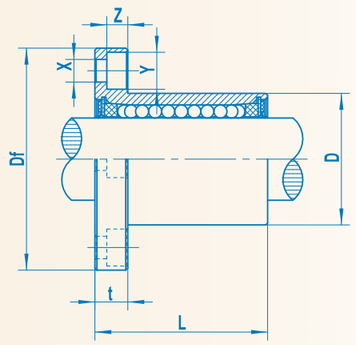


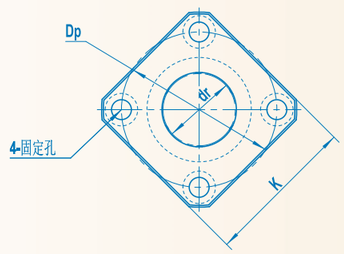


LMF..UU-RB反沉孔系列

Nominal Part No				Major Dimensions and Tolerance (mm)				Major Dimensions and Tolerance (mm)						Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance		Flange Df	t	Dp	X	Y	Z					
LMF8UU-RB	**LMF8-A-RB**	4	37	8	15	24		32	5	24	3.5	6	3.1	12	12	265	380	**LMF8-RB**
LMF10UU-RB	**LMF10-A-RB**	4	72	10	19	29		40	6	29	4.5	7.5	4.1	12	12	370	545	**LMF10-RB**
LMF12UU-RB	**LMF12-A-RB**	4	76	12 0 -0.009	21 0 -0.021	30		42	6	32	4.5	7.5	4.1	12	12	410	595	**LMF12-RB**
LMF16UU-RB	**LMF16-A-RB**	5	120	16	28	37	±0.3	48	6	38	4.5	7.5	4.1	12	12	775	1180	**LMF16-RB**
LMF20UU-RB	**LMF20-A-RB**	5	180	20	32	42		54	8	43	5.5	9	5.1	15	15	882	1370	**LMF20-RB**
LMF25UU-RB	**LMF25-A-RB**	6	340	25 0 -0.010	40 0 -0.025	59		62	8	51	5.5	9	5.1	15	15	980	1570	**LMF25-RB**
LMF30UU-RB	**LMF30-A-RB**	6	470	30	45	64		74	10	60	6.6	11	6.1	15	15	1570	2740	**LMF30-RB**

LMK-UU-RB

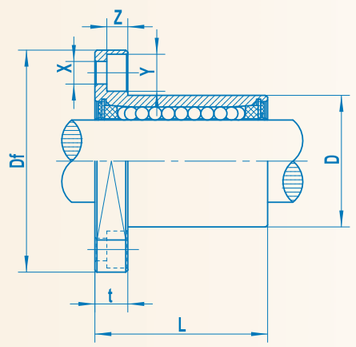


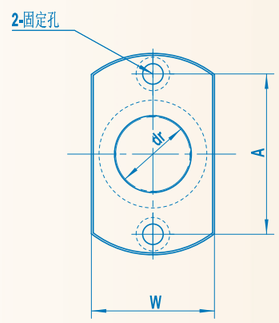


LMK. . UU-RB反沉孔系列

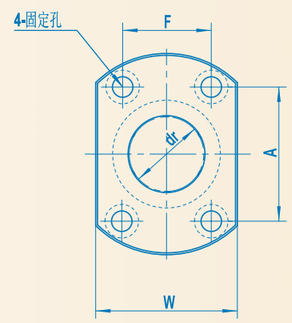
Nominal Part No				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
							Flange											
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Df	K	t	Dp	X	Y	Z					
LMK8UU-RB	**LMK8-A-RB**	4	29	8	15 0 -0.018	24	32	25	5	24	3.5	6	3.1	12	12	265	380	**LMK8-RB**
LMK10UU-RB	**LMK10-A-RB**	4	52	10	19	29	40	30	6	29	4.5	7.5	4.1	12	12	370	545	**LMK10-RB**
LMK12UU-RB	**LMK12-A-RB**	4	57	12 0 -0.009	21 0 -0.021	30	42	32	6	32	4.5	7.5	4.1	12	12	410	595	**LMK12-RB**
LMK16UU-RB	**LMK16-A-RB**	5	104	16	28	37 ±0.3	48	37	6	38	4.5	7.5	4.1	12	12	775	1180	**LMK16-RB**
LMK20UU-RB	**LMK20-A-RB**	5	145	20	32	42	54	42	8	43	5.5	9	5.1	15	15	882	1370	**LMK20-RB**
LMK25UU-RB	**LMK25-A-RB**	6	300	25 0 -0.010	40 0 -0.025	59	62	50	8	51	5.5	9	5.1	15	15	980	1570	**LMK25-RB**
LMK30UU-RB	**LMK30-A-RB**	6	375	30	45	64	74	58	10	60	6.6	11	6.1	15	15	1570	2740	**LMK30-RB**

LMH-UU-RB





LMH13-UU-RB
及以下

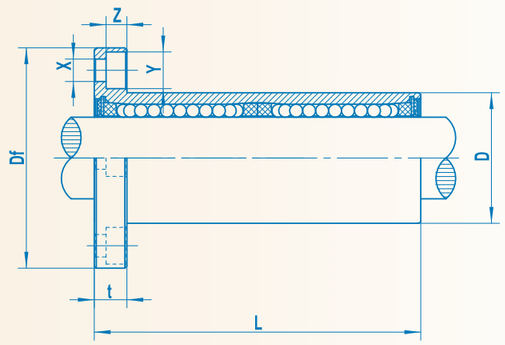


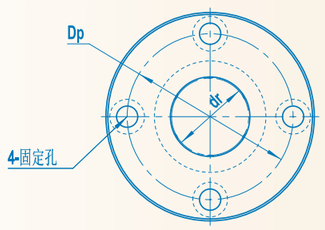
LMH16-UU-RB
及以上

LMH. . UU-RB反沉孔系列

Nominal Part No				Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
									Flange												
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L Tolerance	Df	W	t	A	F	X	F	Z					
LMH8UU-RB	**LMH8-A-RB**	4	33	8		15	0 -0.018	24	32	21	5	24	-	3.5	6	3.1	12	12	265	380	**LMH8-RB**
LMH10UU-RB	**LMH10-A-RB**	4	64	10		19		29	40	25	6	29	-	4.5	7.5	4.1	12	12	370	545	**LMH10-RB**
LMH12UU-RB	**LMH12-A-RB**	4	68	12	0 -0.009	21	0 -0.021	30	42	27	6	32	-	4.5	7.5	4.1	12	12	410	595	**LMH12-RB**
LMH16UU-RB	**LMH16-A-RB**	5	112	16		28		37 ±0.3	48	34	6	38	22	4.5	7.5	4.1	12	12	775	1180	**LMH16-RB**
LMH20UU-RB	**LMH20-A-RB**	5	167	20		32		42	54	38	8	43	24	5.5	9	5.1	15	15	882	1370	**LMH20-RB**
LMH25UU-RB	**LMH25-A-RB**	6	325	25	0 -0.010	40	0 -0.025	59	62	46	8	51	32	5.5	9	5.1	15	15	980	1570	**LMH25-RB**
LMH30UU-RB	**LMH30-A-RB**	6	388	30		45		64	74	51	10	60	35	6.6	11	6.1	15	15	1570	2740	**LMH30-RB**

LMF-LUU-RB

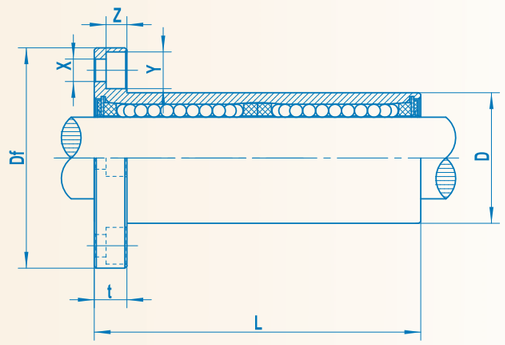


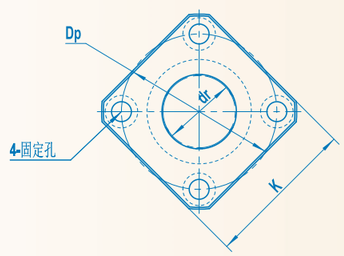


LMF..LUU-RB反沉孔系列

Nominal Part No				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)						Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	Dp	X	F	Z					
LMF8LUU-RB	**LMF8L-A-RB**	4	51	8	15 0 -0.018	45	32	5	24	3.5	6	3.1	15	15	430	780	**LMF8L-RB**
LMF10LUU-RB	**LMF10L-A-RB**	4	98	10	19	55	40	6	29	4.5	7.5	4.1	15	15	585	1100	**LMF10L-RB**
LMF12LUU-RB	**LMF12L-A-RB**	4	110	12 0 -0.009	21 0 -0.021	57	42	6	32	4.5	7.5	4.1	15	15	655	1200	**LMF12L-RB**
LMF16LUU-RB	**LMF16L-A-RB**	5	190	16	28	70 ±0.3	48	6	38	4.5	7.5	4.1	15	15	1230	2350	**LMF16L-RB**
LMF20LUU-RB	**LMF20L-A-RB**	5	260	20	32	80	54	8	43	5.5	9	5.1	20	20	1400	2740	**LMF20L-RB**
LMF25LUU-RB	**LMF25L-A-RB**	6	540	25 0 -0.010	40 0 -0.025	112	62	8	51	5.5	9	5.1	20	20	1560	3140	**LMF25L-RB**
LMF30LUU-RB	**LMF30L-A-RB**	6	680	30	45	123	74	10	60	6.6	11	6.1	20	20	2490	5490	**LMF30L-RB**

LMK-LUU-RB

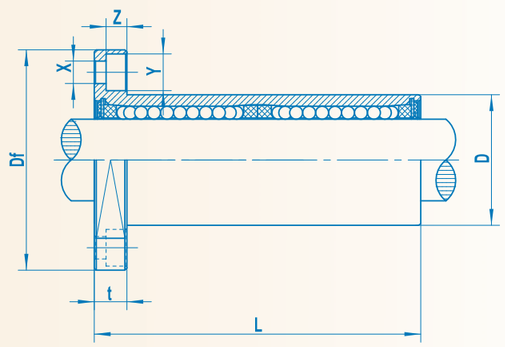


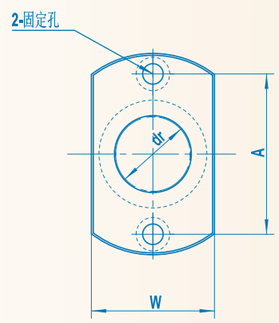


LMK..LUU-RB反沉孔系列

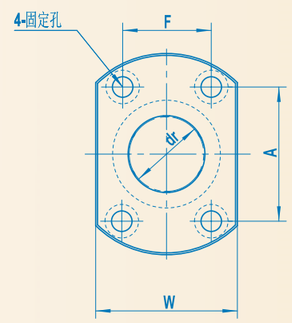
Nominal Part No				Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
							Flange											
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Df	K	t	DP	X	Y	Z					
LMK8LUU-RB	**LMK8L-A-RB**	4	43	8	15	45	32	25	5	24	3.5	6	3.1	15	15	430	780	**LMK8L-RB**
LMK10LUU-RB	**LMK10L-A-RB**	4	78	10	19	55	40	30	6	29	4.5	7.5	4.1	15	15	585	1100	**LMK10L-RB**
LMK12LUU-RB	**LMK12L-A-RB**	4	90	12 0 -0.009	21 0 -0.021	57	42	32	6	32	4.5	7.5	4.1	15	15	655	1200	**LMK12L-RB**
LMK16LUU-RB	**LMK16L-A-RB**	5	165	16	28	70 ±0.3	48	37	6	38	4.5	7.5	4.1	15	15	1230	2350	**LMK16L-RB**
LMK20LUU-RB	**LMK20L-A-RB**	5	225	20	32	80	54	42	8	43	5.5	9	5.1	20	20	1400	2740	**LMK20L-RB**
LMK25LUU-RB	**LMK25L-A-RB**	6	500	25 0 -0.010	40 0 -0.025	112	62	50	8	51	5.5	9	5.1	20	20	1560	3140	**LMK25L-RB**
LMK30LUU-RB	**LMK30L-A-RB**	6	590	30	45	123	74	58	10	60	6.6	11	6.1	20	20	2490	5490	**LMK30L-RB**

LMH-LUU-RB





LMH13-UU-RB
及以下



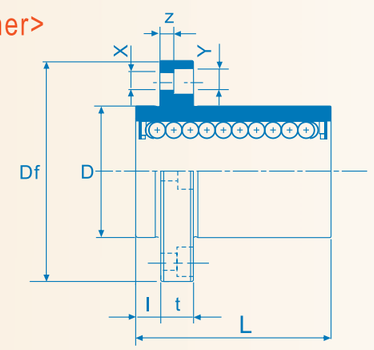
LMH16-UU-RB
及以上

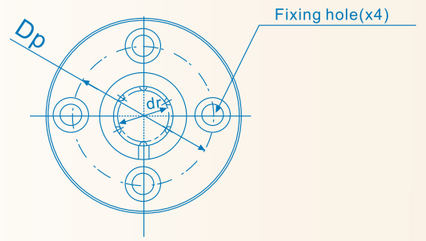
LMH..LUU-RB反沉孔系列

Nominal Part No				Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
									Flange												
Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L Tolerance	Df	K	t	DP	F	X	Y	Z					
LMH8LUU-RB	LMH8L-A-RB	4	43	8		15	0 -0.018	45	32	21	5	24	-	3.5	6	3.1	15	15	265	380	LMH8L-RB
LMH10LUU-RB	LMH10L-A-RB	4	90	10		19		55	40	25	6	29	-	4.5	7.5	4.1	15	15	370	545	LMH10L-RB
LMH12LUU-RB	LMH12L-A-RB	4	102	12	0 -0.009	21	0 -0.021	57	42	27	6	32	-	4.5	7.5	4.1	15	15	410	595	LMH12L-RB
LMH16LUU-RB	LMH16L-A-RB	5	182	16		28		70 ±0.3	48	34	6	38	22	4.5	7.5	4.1	15	15	775	1180	LMH16L-RB
LMH20LUU-RB	LMH20L-A-RB	5	247	20		32		80	54	38	8	43	24	5.5	9	5.1	20	20	882	1370	LMH20L-RB
LMH25LUU-RB	LMH25L-A-RB	6	525	25		40		112	62	46	8	51	32	5.5	9	5.1	20	20	980	1570	LMH25L-RB
LMH30LUU-RB	LMH30L-A-RB	6	645	30	0 -0.010	45	0 -0.025	123	74	51	10	60	35	6.6	11	6.1	20	20	1570	2740	LMH30L-RB

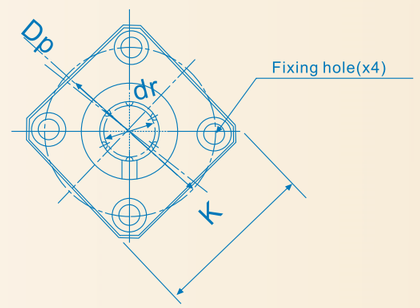
LMF/K-UU-E <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMF/K-E-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMF···UU-E



LMK···UU-E

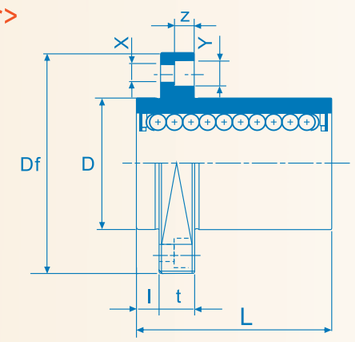
Part No.

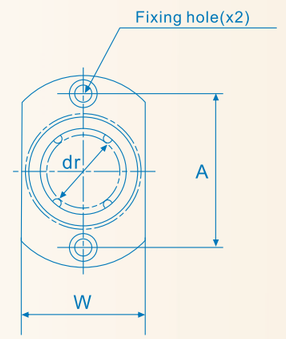
Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteelRetainer 整体不锈钢保持器	Major dimensions and tolerance						Major dimensions and tolerance							Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
			dr		D		L		Flange												
	LMF/K···UU-E	LMF/K···-E-A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	
6	LMF/K6UU-E		6	0 -9	12	0 -13	19	±300	5	28	22	5	20	3.5	6	3.1	12	12	206	265	24 18	6
8	LMF/K8UU-E	LMF/K8-E-A	8		15		24		5	32	25	5	24	3.5	6	3.1			274	392	37 29	8
10	LMF/K10UU-E	LMF/K10-E-A	10		19	0 -16	29		6	40	30	6	29	4.5	7.5	4.1			372	549	72 52	10
12	LMF/K12UU-E	LMF/K12-E-A	12		21		30		6	42	32	6	32	4.5	7.5	4.1			510	784	76 57	12
13	LMF/K13UU-E		13		23		32		6	43	34	6	33	4.5	7.5	4.1			510	784	88 72	13
16	LMF/K16UU-E	LMF/K16-E-A	16		28		37		6	48	37	6	38	4.5	7.5	4.1			774	1,180	120 104	16
20	LMF/K20UU-E	LMF/K20-E-A	20	0 -10	32	0 -19	42		8	54	42	8	43	5.5	9	5.1	15	15	882	1,370	180 145	20
25	LMF/K25UU-E	LMF/K25-E-A	25		40		59		8	62	50	8	51	5.5	9	5.1			980	1,570	340 300	25
30	LMF/K30UU-E	LMF/K30-E-A	30		45		64		10	74	58	10	60	6.6	11	6.1			1,570	2,740	470 375	30
35	LMF/K35UU-E	LMF/K35-E-A	35	0 -12	52	0 -22	70		10	82	64	10	67	6.6	11	6.1	20	20	1,670	3,140	650 560	35
40	LMF/K40UU-E	LMF/K40-E-A	40		60		80		13	96	75	13	78	9	14	8.1			2,160	4,020	1,060 880	40
50	LMF/K50UU-E		50		80		100		13	116	92	13	98	9	14	8.1			3,820	7,940	2,200 2,000	50
60	LMF/K60UU-E		60	0 -15	90	0 -25	110		18	134	106	18	112	11	17	11.1	25	25	4,700	10,000	3,000 2,560	60

SI Unit 1N≒0.102kgf

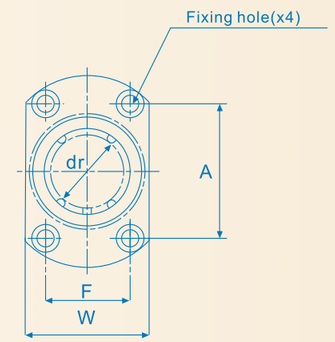
LMH-UU-E <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMH-E-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMH 13 or less



LMH 16 or more

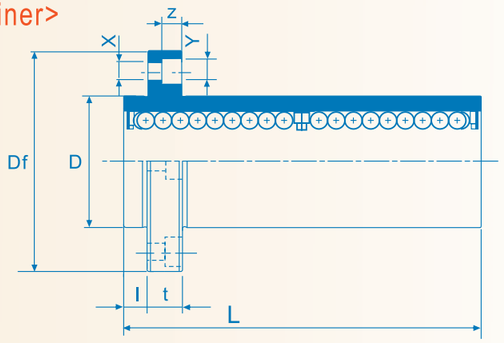
Part No.																							
Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance						Flange											Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
	LMH···UU-E	LMH···-E-A	dr mm	dr Tolerance μm	D mm	D Tolerance μm	L mm	L Tolerance μm	l mm	Df mm	W mm	t mm	A mm	F mm	X mm	Y mm	Z mm			dynamic C(N)	Static Co(N)	g	
6	LMH6UU-E		6	0 -9	12	0 -13	19	±300	5	28	18	5	20	—	3.5	6	3.1	12	12	206	265	21	6
8	LMH8UU-E	LMH8-E-A	8		15		24		5	32	21	5	24	—	3.5	6	3.1			274	392	33	8
10	LMH10UU-E	LMH10-E-A	10		19	0 -16	29		6	40	25	6	29	—	4.5	7.5	4.1			372	549	64	10
12	LMH12UU-E	LMH12-E-A	12		21		30		6	42	27	6	32	—	4.5	7.5	4.1			510	784	68	12
13	LMH13UU-E		13		23		32		6	43	29	6	33	—	4.5	7.5	4.1			510	784	81	13
16	LMH16UU-E	LMH16-E-A	16		28		37		6	48	34	6	31	22	4.5	7.5	4.1			774	1,180	112	16
20	LMH20UU-E	LMH20-E-A	20	0 -10	32	0 -19	42		8	54	38	8	36	24	5.5	9	5.1	15	15	882	1,370	167	20
25	LMH25UU-E	LMH25-E-A	25		40		59		8	62	46	8	40	32	5.5	9	5.1			980	1,570	325	25
30	LMH30UU-E	LMH30-E-A	30		45		64		10	74	51	10	49	35	6.6	11	6.1			1,570	2,740	388	30

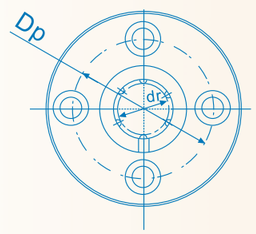
Note: All sizes of LMH-E type are sealed on both sides.

SI Unit 1N≒0.102kgf

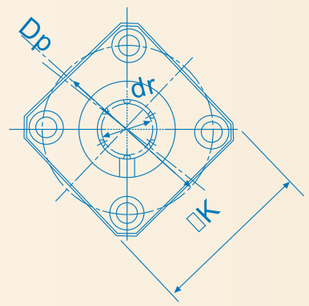
LMF/K-LUU-E <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMF/K-L-E-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMF···LUU-E



LMK···LUU-E

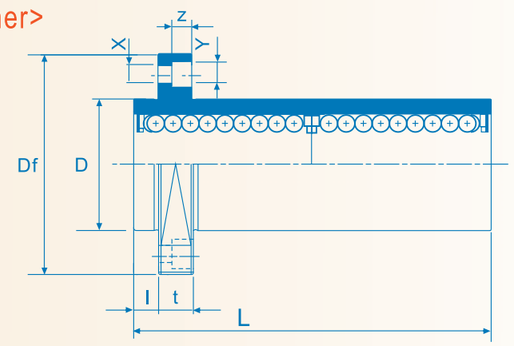
Part No.																					
Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance										Major dimensions and tolerance					Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
			dr		D		L		Flange				Flange										
	LMF/K···LUU-E	LMF/K···L-E-A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm		μm	μm	dynamic C(N)	Static Co(N)	g	
6	LMF/K6LUU-E		6		12	0 -13	35		5	28	22	5	20	3.5	6	3.1							
8	LMF/K8LUU-E	LMF/K8L-E-A	8		15		45		5	32	25	5	24	3.5	6	3.1							
10	LMF/K10LUU-E	LMF/K10L-E-A	10	0 -10	19	0 -16	55		6	40	30	6	29	4.5	7.5	4.1				323	530	31 25	6
12	LMF/K12LUU-E	LMF/K12L-E-A	12		21		57		6	42	32	6	32	4.5	7.5	4.1				431	784	51 43	8
13	LMF/K13LUU-E		13		23		61		6	43	34	6	33	4.5	7.5	4.1				588	1,100	98 78	10
16	LMF/K16LUU-E	LMF/K16L-E-A	16		28		70		6	48	37	6	38	4.5	7.5	4.1	15	15	15	813	1,570	110 90	12
20	LMF/K20LUU-E	LMF/K20L-E-A	20		32		80	±300	8	54	42	8	43	5.5	9	5.1				813	1,570	130 108	13
25	LMF/K25LUU-E	LMF/K25L-E-A	25	0 -12	40	0 -19	112		8	62	50	8	51	5.5	9	5.1				1,230	2,350	190 165	16
30	LMF/K30LUU-E	LMF/K30L-E-A	30		45		123		10	74	58	10	60	6.6	11	6.1				1,400	2,740	260 225	20
35	LMF/K35LUU-E	LMF/K35L-E-A	35		52		135		10	82	64	10	67	6.6	11	6.1				1,560	3,140	540 500	25
40	LMF/K40LUU-E	LMF/K40L-E-A	40	0 -15	60	0 -22	151		13	96	75	13	78	9	14	8.1				2,490	5,490	680 590	30
50	LMF/K50LUU-E		50		80		192		13	116	92	13	98	9	14	8.1				2,650	6,270	1,020 930	35
60	LMF/K60LUU-E		60	0 -20	90	0 -25	209		18	134	106	18	112	11	17	11.1	30	30	30	3,430	8,040	1,570 1,380	40
																				6,080	15,900	3,600 3,400	50
																				7,550	20,000	4,500 4,060	60

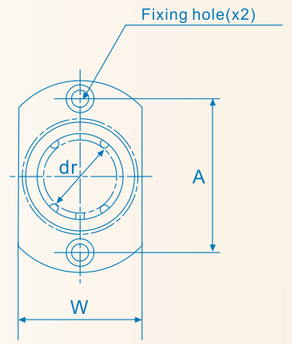
Note: All sizes of LMF-E/LMK-E type are sealed on both sides.

SI Unit 1N≒0.102kgf

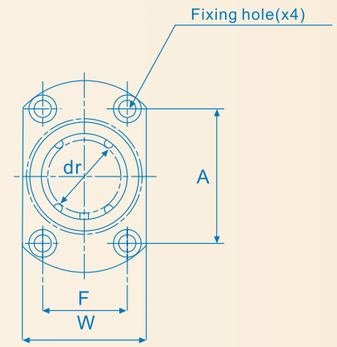
LMH-LUU-E <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMH-L-E-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMH 13 or less



LMH 16 or more

Part No.

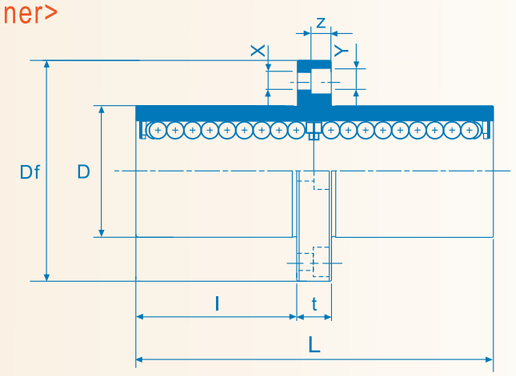
Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance						Flange				Major dimensions and tolerance					Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
				dr		D		L	Flange														
	LMH···LUU-E	LMH···L-E-A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	W mm	t mm	A mm	F mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	
6	LMH6LUU-E		6	0 -10	12	0 -13	35	±300	5	28	18	5	20	—	3.5	6	3.1	15	15	323	530	28	6
8	LMH8LUU-E	LMH8L-E-A	8		15		45		5	32	21	5	24	—	3.5	6	3.1			431	784	47	8
10	LMH10LUU-E	LMH10L-E-A	10		19	0 -16	55		6	40	25	6	29	—	4.5	7.5	4.1			588	1,100	90	10
12	LMH12LUU-E	LMH12L-E-A	12		21		57		6	42	27	6	32	—	4.5	7.5	4.1			813	1,570	102	12
13	LMH13LUU-E		13		23		61		6	43	29	6	33	—	4.5	7.5	4.1			813	1,570	123	13
16	LMH16LUU-E	LMH16L-E-A	16		28		70		6	48	34	6	31	22	4.5	7.5	4.1			1,230	2,350	182	16
20	LMH20LUU-E	LMH20L-E-A	20	0 -12	32	0 -19	80		8	54	38	8	36	24	5.5	9	5.1	20	20	1,400	2,740	247	20
25	LMH25LUU-E	LMH25L-E-A	25		40		112		8	62	46	8	40	32	5.5	9	5.1			1,560	3,140	525	25
30	LMH30LUU-E	LMH30L-E-A	30		45		123		10	74	51	10	49	35	6.6	11	6.1			2,490	5,490	645	30

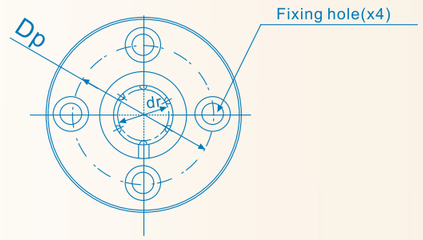
Note: All sizes of LMH-E type are sealed on both sides.

SI Unit 1N≒0.102kgf

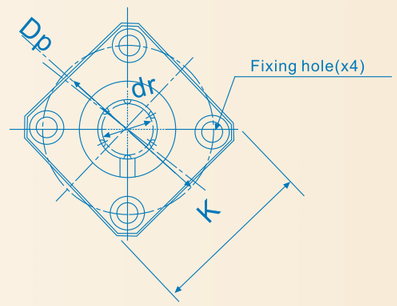
LMFC/KC-UU <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMFC/KC-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMFC



LMKC

Part No.

Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance						Major dimensions and tolerance								Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
			dr		D		L		Flange													
	LMFC/KC···UU	LMFC/KC···A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	
6	LMFC/KC6UU		6	0 -10	12	0 -13	35	±300	15	28	22	5	20	3.5	6	3.1	15	15	323	530	31 25	6
8	LMFC/KC8UU	LMFC/KC8-A	8		15		45		20	32	25	5	24	3.5	6	3.1			431	784	51 43	8
10	LMFC/KC10UU	LMFC/KC10-A	10		19	0 -16	55		24.5	40	30	6	29	4.5	7.5	4.1			588	1,100	98 78	10
12	LMFC/KC12UU	LMFC/KC12-A	12		21		57		25.5	42	32	6	32	4.5	7.5	4.1			813	1,570	110 90	12
13	LMFC/KC13UU		13		23		61		27.5	43	34	6	33	4.5	7.5	4.1			813	1,570	130 108	13
16	LMFC/KC16UU	LMFC/KC16-A	16		28		70		32	48	37	6	38	4.5	7.5	4.1			1,230	2,350	190 165	16
20	LMFC/KC20UU	LMFC/KC20-A	20	0 -12	32	0 -19	80		36	54	42	8	43	5.5	9	5.1	20	20	1,400	2,740	260 225	20
25	LMFC/KC25UU	LMFC/KC25-A	25		40		112		52	62	50	8	51	5.5	9	5.1			1,560	3,140	540 500	25
30	LMFC/KC30UU	LMFC/KC30-A	30		45		123		56.5	74	58	10	60	6.6	11	6.1			2,490	5,490	680 590	30
35	LMFC/KC35UU	LMFC/KC35-A	35	0 -15	52	0 -22	135		62.5	82	64	10	67	6.6	11	6.1	25	25	2,650	6,270	1,020 930	35
40	LMFC/KC40UU	LMFC/KC40-A	40		60		151		69	96	75	13	78	9	14	8.1			3,430	8,040	1,570 1,380	40
50	LMFC/KC50UU		50		80		192		89.5	116	92	13	98	9	14	8.1			6,080	15,900	3,600 3,400	50
60	LMFC/KC60UU		60	0 -20	90	0 -25	209		95.5	134	106	18	112	11	17	11.1	30	30	7,550	20,000	4,500 4,060	60

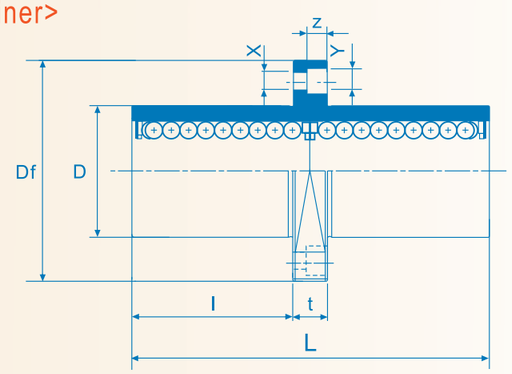
Seal type:
LMFC10 UU

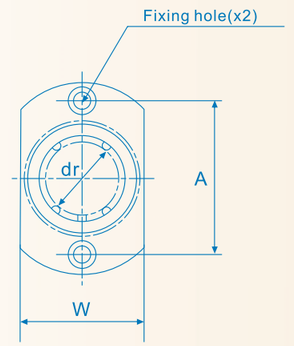
No entry	No seals
UU	Seals on both sides

SI Unit 1N≒0.102kgf

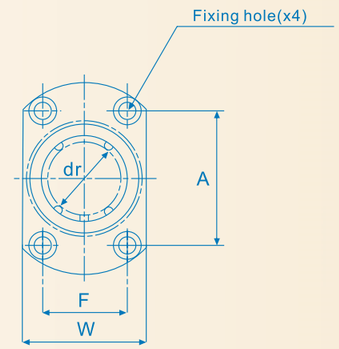
LMHC-UU <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMHC-UU-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMHC 13 or less



LMHC 16 or more

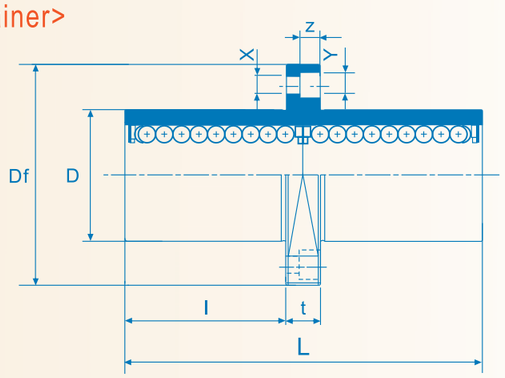
Part No.																						
Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance						Major dimensions and tolerance										Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
				dr		D		L	Flange				Flange								dynamic	Static		
	LMHC···UU	LMHC···A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	W mm	t mm	A mm	F mm	X mm	Y mm	Z mm		μm	μm	C(N)	Co(N)	g	
6	LMHC6UU		6	0 -10	12	0 -13	35	±300	15	28	18	5	20	—	3.5	6	3.1		15	15	323	529	28	6
8	LMHC8UU	LMHC8-A	8		15		45		20	32	21	5	24	—	3.5	6	3.1				431	784	47	8
10	LMHC10UU	LMHC10-A	10		19	0 -16	55		24.5	40	25	6	29	—	4.5	7.5	4.1				588	1,100	90	10
12	LMHC12UU	LMHC12-A	12		21		57		25.5	42	27	6	32	—	4.5	7.5	4.1				813	1,570	102	12
13	LMHC13UU		13		23		61		27.5	43	29	6	33	—	4.5	7.5	4.1				813	1,570	123	13
16	LMHC16UU	LMHC16-A	16		28		70		32	48	34	6	31	22	4.5	7.5	4.1				1,230	2,350	182	16
20	LMHC20UU	LMHC20-A	20	0 -12	32	0 -19	80		36	54	38	8	36	24	5.5	9	5.1		20	20	1,400	2,740	247	20
25	LMHC25UU	LMHC25-A	25		40		112		52	62	46	8	40	32	5.5	9	5.1				1,560	3,140	525	25
30	LMHC30UU	LMHC30-A	30		45		123		56.5	74	51	10	49	35	6.6	11	6.1				2,490	5,490	645	30

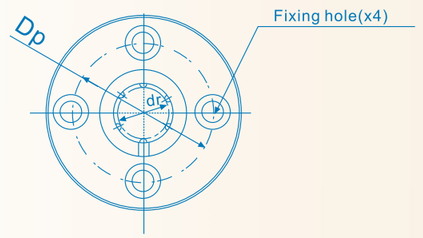
Note: All sizes of LMHC type are sealed on both sides.

SI Unit 1N≒0.102kgf

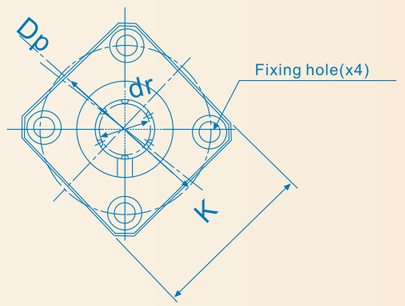
LMEFC/KC-UU <Built-in Synthetics Resin Retainer>
合成树脂保持器
LMEFC/KC-A <Stainless Steel Retainer>
整体不锈钢保持器

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





LMEFC



LMEKC

Part No.

Nominal shaft diameter mm	Resin Retainer 合成树脂保持器	StainlessSteetRetainer 整体不锈钢保持器	Major dimensions and tolerance										Major dimensions and tolerance					Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter mm
			dr		D		L		Flange				Flange										
	LMEFC/KC···UU	LMEFC/KC···A	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	
8	LMEFC/KC8UU	LMEFC/KC8-A	8	+9 -1	16	0 -13	45	±300	20.5	32	25	5	24	3.5	6	3.1	15	15	421	804	59 51	8
12	LMEFC/KC12UU	LMEFC/KC12-A	12		22	0 -16	61		27.5	42	32	6	32	4.5	7.5	4.1			813	1,570	110 90	12
16	LMEFC/KC16UU	LMEFC/KC16-A	16	+11 -1	26		70		31	46	35	6	36	4.5	7.5	4.1			921	1,780	160 135	16
20	LMEFC/KC20UU	LMEFC/KC20-A	20		32	0 -19	80		36	54	42	8	43	5.5	9	5.1	17	17	1,370	2,740	260 225	20
25	LMEFC/KC25UU	LMEFC/KC25-A	25	+13 -2	40		112		52	62	50	8	51	5.5	9	5.1			1,570	3,140	540 500	25
30	LMEFC/KC30UU	LMEFC/KC30-A	30		47		123		56.5	76	60	10	62	6.6	11	6.1			2,500	5,490	815 720	30
40	LMEFC/KC40UU	LMEFC/KC40-A	40	+16 -4	62	0 -22	151		69	98	75	13	80	9	14	8.1	20	20	3,430	8,040	1,805 1,600	40
50	LMEFC/KC50UU		50		75		192		89.5	112	88	13	94	9	14	8.1			6,080	15,900	2,820 2,620	50
60	LMEFC/KC60UU		60		90	0 -25	209		95.5	134	106	18	112	11	17	11.1	25	25	7,550	20,000	4,920 4,480	60

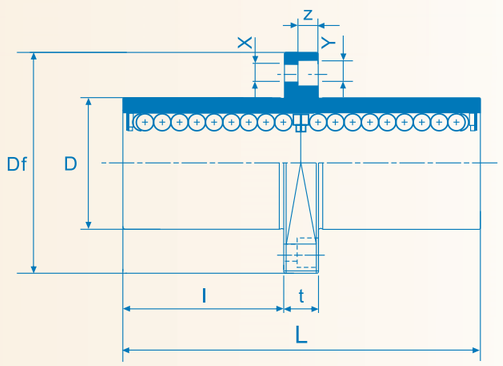
SI Unit 1N≒0.102kgf

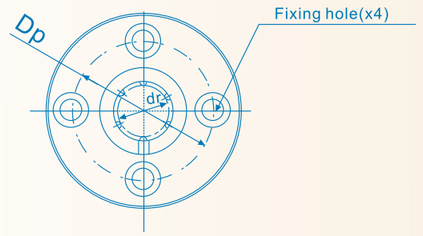
Seal type:
LMEFC10 UU

No entry	No seals
UU	Seals on both sides

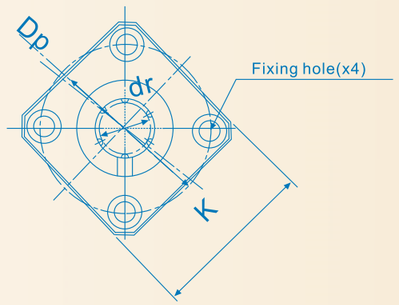
LMBFC/KC <Resin Retainer>

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





LMBFC



LMBKC

Nominal shaft diameter mm	Part No.		Major dimensions and tolerance						Major dimensions and tolerance								Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter Inch/mm
			dr		D		L		Flange													
	LMBFC	LMBKC	Inch/mm	Tolerance Inch/μm	Inch/mm	Tolerance Inch/μm	Inch/mm	Tolerance Inch/μm	ℓ Inch/mm	Df Inch/mm	K Inch/mm	t Inch/mm	Dp Inch/mm	X Inch/mm	Y Inch/mm	Z Inch/mm	Inch/μm	Inch/μm	dynamic C(N)	Static Co(N)	g	
1/4 6.350	LMBFC4	LMBKC4	.2500 6.350	0 -.00040	.5000 12.700	0 -.00050 -13	1.3750 34.925		.5781 14.684	1.2500 31.750	1.0000 25.400	.2188 5.556	.8750 22.225	.1563 3.969	.2500 6.350	.1406 3.572			323	530	40 33	1/4 6.350
3/8 9.525	LMBFC6	LMBKC6	.3750 9.525		.6250 15.875		1.5938 40.481		.6719 17.066	1.5000 38.100	1.2500 31.750	.2500 6.350	1.0620 26.988	.1875 4.763	.2969 7.541	.1719 4.366	.0006 15	.0006 15	353	630	60 45	3/8 9.525
1/2 12.700	LMBFC8	LMBKC8	.5000 12.700	0 -10	.8750 22.225	0 -.00065 -16	2.3750 60.325		1.0625 26.988	1.7500 44.450	1.3750 34.925	.2500 6.350	1.312 33.338	.1875 4.763	.2969 7.541	.1719 4.366			813	1,570	126 106	1/2 12.700
5/8 15.875	LMBFC10	LMBKC10	.6250 15.875		1.1250 28.575		2.8125 71.438		1.2813 32.544	2.0000 50.800	1.5000 38.100	.2500 6.350	1.5620 39.688	.1875 4.763	.2969 7.541	.1719 4.366			1,230	2,350	215 200	5/8 15.875
3/4 19.050	LMBFC12	LMBKC12	.7500 19.050	0 -.00050	1.2500 31.750	0 -.00075	3.0937 78.581	±.012 ±300	1.3906 35.322	2.1875 55.563	1.6875 42.863	.3125 7.938	1.7180 43.656	.2188 5.556	.3438 8.731	.2031 5.159	.0008 20	.0008 20	1,370	2,740	280 240	3/4 19.050
1 25.400	LMBFC16	LMBKC16	1.0000 25.400	0 -12	1.5625 39.688	0 -19	4.2813 108.744		1.9844 50.403	2.2500 63.500	2.0000 50.800	.3125 7.938	2.0310 51.594	.2188 5.556	.3438 8.731	.2031 5.159			1,570	3,140	515 470	1 25.400
1-1/4 31.750	LMBFC20	LMBKC20	1.2500 31.750		2.0000 50.800	0 -.00090	5.0000 127.000		2.3125 58.738	3.1250 79.375	2.5000 63.500	.3750 9.525	2.5625 65.088	.2813 7.144	.4063 10.319	.2656 6.747	.0010 25	.0010 25	2,500	5,490	1,020 935	1-1/4 31.750
1-1/2 38.100	LMBFC24	LMBKC24	1.5000 38.100	0 -.00059 0 -15	2.3750 60.325	0 -22	5.6875 144.463		2.5938 65.882	3.7500 95.250	3.0000 76.200	.5000 12.700	3.0625 77.788	.3437 8.731	.5000 12.700	.3281 8.334			3,430	8,040	1,630 1,460	1-1/2 38.100
2 50.800	LMBFC32	LMBKC32	2.0000 50.800		3.0000 76.200	0 -.00100 -25	7.7500 196.850		3.6250 92.075	4.3750 111.125	3.5000 88.900	.5000 12.700	3.6875 93.662	.3437 8.731	.5000 12.700	.3281 8.334	.0012 30	.0012 30	6,080	15,900	2,800 2,620	2 50.800

Seal type:
LMBFC10G UU

No entry	No seals
UU	Seals on both sides

SI Unit 1N≒0.225lbs
1kg≒2.205lbs

KBS®

<KBS Linear Ball Bushing System>
<Super Linear Ball Bushing>

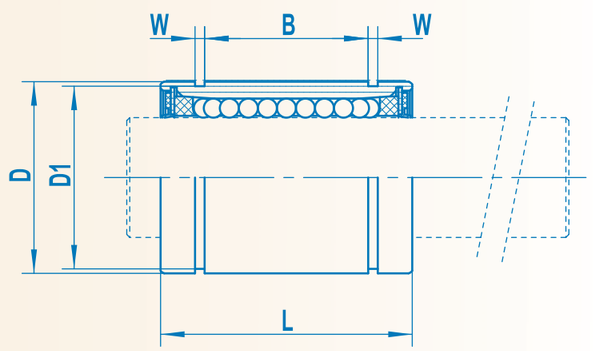
KBS offers Super Linear Ball Bushing as a new standard in linear motion bearings. This Super Linear Ball Bushing has 3 times load rating and 27 times travel life of conventional linear bushings. Also, KBS Super Linear Ball Bushing offers Alignment which can give you less installation time and can prolong the travel life by reducing the friction between the shaft and balls. Super Linear Ball Bushing is designed to meet any customer's demands such as factory automation equipments, industrial machines, electrical equipments, measuring instruments, and etc. KBS Super Linear Ball Bushing will give you the benefit of total cost reduction and improvement of your machine performance.

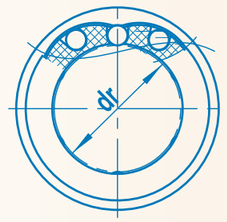
KBS
LINEAR BALL BUSHING

KBS®

<KBS Linear Ball Bushing System>
<Super Linear Ball Bushing>

LM-UU-UD

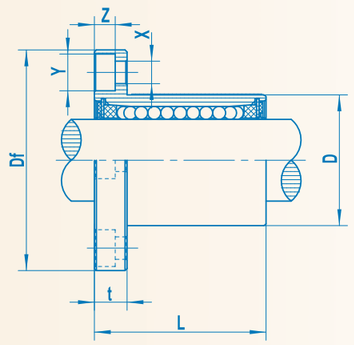


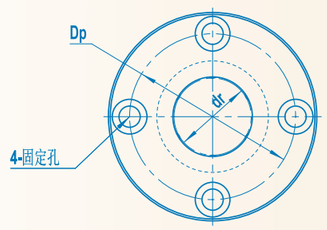


LM. . UU-UD

Nominal Part NO		Ball Circuit	Weight g	Nominal Shaft Diameter (mm) dr	Tolerance	Major Dimensions and Tolearance (mm) D	Tolerance	L	Tolerance	B	Tolerance	W	D1	Eccentricity (max) μm	Basic Load Dynamic C(N)	Rating Static Co(N)
LM6UU-UD	LM6-UD	4	12	6	0 -0.010	12	0 -0.013	29	0 -0.3	20	0 -0.5	1.1	11.5	15	225	305
LM8UU-UD	LM8-UD	4	27	8		15		37		25		1.3	14.5	15	305	450
LM10UU-UD	LM10-UD	4	49	10		19		47		30		1.3	18.0	15	505	715
LM12UU-UD	LM12-UD	4	54	12		21	0 -0.016	47		30		1.3	20.0	15	630	810
LM13UU-UD	LM13-UD	4	69	13		23		47		30		1.3	22.0	15	640	826
LM16UU-UD	LM16-UD	5	112	16		28		56		35		1.6	27.0	15	1160	1445
LM20UU-UD	LM20-UD	5	152	20	0 -0.012	32	0 -0.019	65		40	0 -0.6	1.6	30.5	20	1550	2065
LM25UU-UD	LM25-UD	6	332	25		40		83		55		1.85	38.0	20	1720	3065
LM30UU-UD	LM30-UD	6	433	30		45		90		71.3		1.85	42.5	20	2440	3974

LMF-UU-UD





LMF. . UU-UD

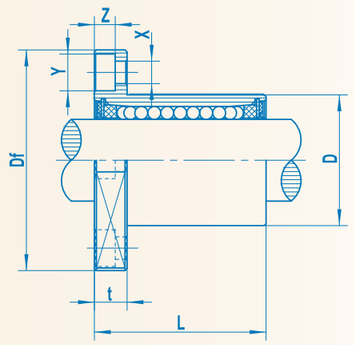
Nominal Part NO			Major Dimensions and Tolearance (mm)			Major Dimensions and Tolearance (mm)						Eccentricity μm	Squareness μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Df	t	DP	X	Y	Z					
LMF6UU-UD	4	27	6	12	29	28	5	20	3.5	6	3.1	15	15	225	305	**LMF6-UD**
LMF8UU-UD	4	47	8	15	37	32	5	24	3.5	6	3.1	15	15	305	450	**LMF8-UD**
LMF10UU-UD	4	85	10	19	47	40	6	29	4.5	7.5	4.1	15	15	505	715	**LMF10-UD**
LMF12UU-UD	4	89	12	21	47	42	6	32	4.5	7.5	4.1	15	15	630	810	**LMF12-UD**
LMF13UU-UD	4	109	13	23	47	43	6	33	4.5	7.5	4.1	15	15	640	826	**LMF13-UD**
LMF16UU-UD	5	157	16	28	56	48	6	38	4.5	7.5	4.1	15	15	1160	1445	**LMF16-UD**
LMF20UU-UD	5	232	20	32	65	54	8	43	5.5	9	5.1	20	20	1550	2065	**LMF20-UD**
LMF25UU-UD	6	479	25	40	83	62	8	51	5.5	9	5.1	20	20	1720	3065	**LMF25-UD**
LMF30UU-UD	6	559	30	45	90	74	10	60	6.6	11	6.1	20	20	2440	3974	**LMF30-UD**

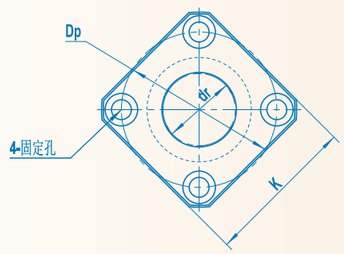
dr Tolerance: 6, 8, 10 → 0 / -0.010; 12, 13, 16 → 0 / -0.010; 20, 25, 30 → 0 / -0.012

D Tolerance: 12, 15, 19 → 0 / -0.013; 21, 23, 28 → 0 / -0.016; 32, 40, 45 → 0 / -0.019

L Tolerance: 29, 37, 47 → ; 47, 56 → ±0.3; 65, 83, 90 →

LMK-UU-UD





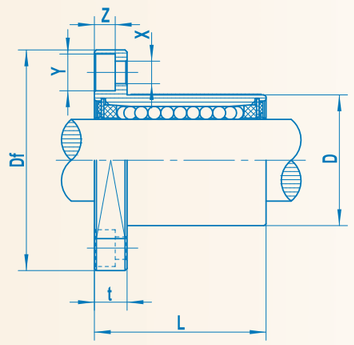
LMK. . UU-UD

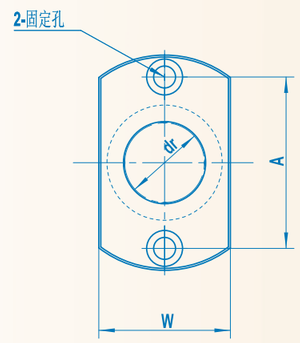
Nominal Part NO			Major Dimensions and Tolearance (mm)			Major Dimensions and Tolearance (mm)							Eccentricity μm	Squareness μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Df	t	DP	K	X	Y	Z					
LMK6UU-UD	4	21	6	12	29	28	5	20	22	3.5	6	3.1	15	15	225	305	**LMK6-UD**
LMK8UU-UD	4	39	8	15	37	32	5	24	25	3.5	6	3.1	15	15	305	450	**LMK8-UD**
LMK10UU-UD	4	65	10	19	47	40	6	29	30	4.5	7.5	4.1	15	15	505	715	**LMK10-UD**
LMK12UU-UD	4	69	12	21	47	42	6	32	32	4.5	7.5	4.1	15	15	630	810	**LMK12-UD**
LMK13UU-UD	4	87	13	23	47	43	6	33	34	4.5	7.5	4.1	15	15	640	826	**LMK13-UD**
LMK16UU-UD	5	132	16	28	56	48	6	38	37	4.5	7.5	4.1	15	15	1160	1445	**LMK16-UD**
LMK20UU-UD	5	197	20	32	65	54	8	43	42	5.5	9	5.1	20	20	1550	2065	**LMK20-UD**
LMK25UU-UD	6	440	25	40	83	62	8	51	50	5.5	9	5.1	20	20	1720	3065	**LMK25-UD**
LMK30UU-UD	6	481	30	45	90	74	10	60	58	6.6	11	6.1	20	20	2440	3974	**LMK30-UD**

dr Tolerance: 0 / -0.010 (6–10); ±0.3 (12–16); 0 / -0.012 (20–30)

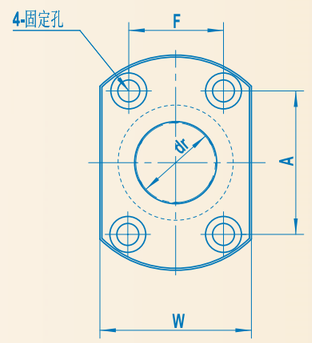
D Tolerance: 0 / -0.013 (12–19); 0 / -0.016 (21–28); 0 / -0.019 (32–45)

LMH-UU-UD





LMH13-UD及以下



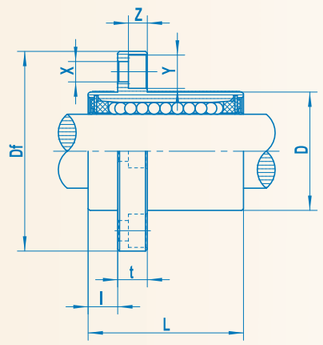
LMH16-UD及以上

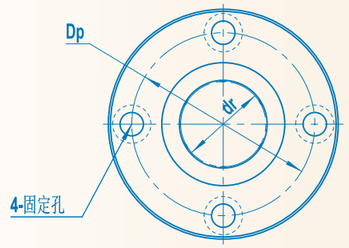
LMH. . UU-UD

Nominal Part NO			Major Dimensions and Tolearance (mm)			Major Dimensions and Tolearance (mm)								Eccentricity μm	Squareness μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Df	t	F	W	A	X	Y	Z					
LMH6UU-UD	4	21	6	12	29	28	5	-	18	20	3.5	6	3.1	15	15	225	305	**LMH6-UD**
LMH8UU-UD	4	39	8	15	37	32	5	-	21	24	3.5	6	3.1	15	15	305	450	**LMH8-UD**
LMH10UU-UD	4	65	10	19	47	40	6	-	25	29	4.5	7.5	4.1	15	15	505	715	**LMH10-UD**
LMH12UU-UD	4	69	12	21	47	42	6	-	27	32	4.5	7.5	4.1	15	15	630	810	**LMH12-UD**
LMH13UU-UD	4	87	13	23	47	43	6	-	29	33	4.5	7.5	4.1	15	15	640	826	**LMH13-UD**
LMH16UU-UD	5	132	16	28	56	48	6	22	34	31	4.5	7.5	4.1	15	15	1160	1445	**LMH16-UD**
LMH20UU-UD	5	197	20	32	65	54	8	24	38	36	5.5	9	5.1	20	20	1550	2065	**LMH20-UD**
LMH25UU-UD	6	440	25	40	83	62	8	32	46	40	5.5	9	5.1	20	20	1720	3065	**LMH25-UD**
LMH30UU-UD	6	481	30	45	90	74	10	35	51	49	6.6	11	6.1	20	20	2440	3974	**LMH30-UD**

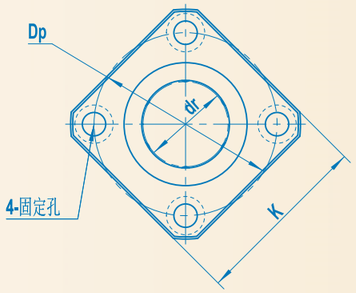
Tolerance: dr 0 -0.010 / -0.012; D 0 -0.013 / -0.016 / -0.019; L ±0.3

LMF/K-UU-E-UD





LMF...UU-E-UD

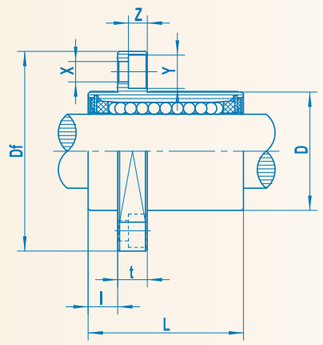


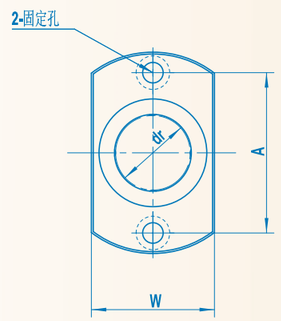
LMK...UU-E-UD

LMF/K..UU-E-UD

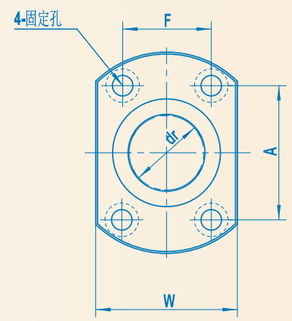
	Major Dimensions and Tolerance						Major Dimensions and Tolerance								Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
	dr		D		L		Flange				Flange									
	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMF/K6UU-E-UD	6	0 -10	12	0 -18	29	±300	5	28	22	5	20	3.5	6	3.1	15	15	225	305	27 21	6
LMF/K8UU-E-UD	8		15		37		5	32	25	5	24	3.5	6	3.1			305	450	47 39	8
LMF/K10UU-E-UD	10		19	0 -21	47		6	40	30	6	29	4.5	7.5	4.1			505	715	85 65	10
LMF/K12UU-E-UD	12		21		47		6	42	32	6	32	4.5	7.5	4.1			630	810	89 69	12
LMF/K13UU-E-UD	13		23		47		6	43	34	6	33	4.5	7.5	4.1			640	826	109 87	13
LMF/K16UU-E-UD	16		28		56		6	48	37	6	38	4.5	7.5	4.1			1160	1445	157 132	16
LMF/K20UU-E-UD	20	0 -12	32	0 -25	65		8	54	42	8	43	5.5	9	5.1	20	20	1550	2065	232 197	20
LMF/K25UU-E-UD	25		40		83		8	62	50	8	51	5.5	9	5.1			1720	3065	481 442	25
LMF/K30UU-E-UD	30		45		90		10	74	58	10	60	6.6	11	6.1			2435	3970	560 482	30

LMH-UU-E-UD





LMH...UU-E-UD
13及以下

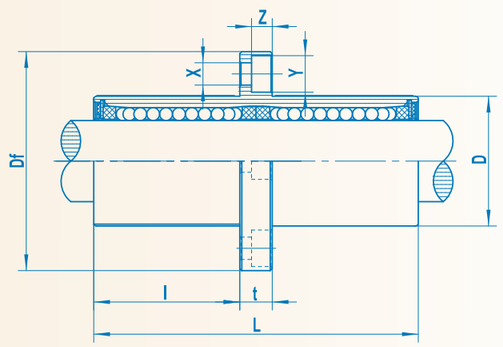


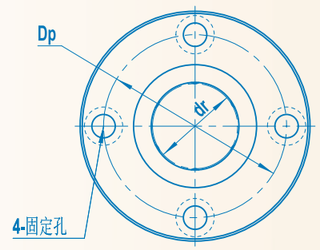
LMH...UU-E-UD
16及以上

LMH..UU-E-UD

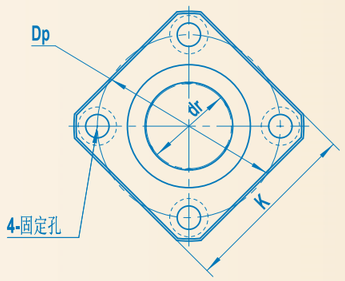
Major Dimensions and Tolerance							Major Dimensions and Tolerance									Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
	dr		D		L		Flange				Flange										
	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	W mm	t mm	A mm	F mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMH6UU-E-UD	6	0 -10	12	0 -18	29	300 -300	5	28	18	5	20	-	3.5	6	3.1	15	15	225	305	24	6
LMH8UU-E-UD	8		15		37		5	32	21	5	24	-	3.5	6	3.1			305	450	43	8
LMH10UU-E-UD	10		19	0 -21	47		6	40	25	6	29	-	4.5	7.5	4.1			505	715	77	10
LMH12UU-E-UD	12		21		47		6	42	27	6	32	-	4.5	7.5	4.1			630	810	81	12
LMH13UU-E-UD	13		23		47		6	43	29	6	33	-	4.5	7.5	4.1			640	826	102	13
LMH16UU-E-UD	16		28		56		6	48	34	6	31	22	4.5	7.5	4.1			1160	1445	149	16
LMH20UU-E-UD	20	0 -12	32	0 -25	65		8	54	38	8	36	24	5.5	9	5.1	20	20	1550	2065	219	20
LMH25UU-E-UD	25		40		83		8	62	46	8	40	32	5.5	9	5.1			1720	3065	452	25
LMH30UU-E-UD	30		45		90		10	74	51	10	49	35	6.6	11	6.1			2435	3970	494	30

LMFC/KC-UU-UD





LMFC...UU-UD

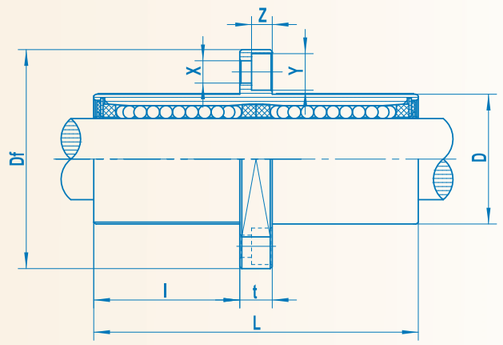


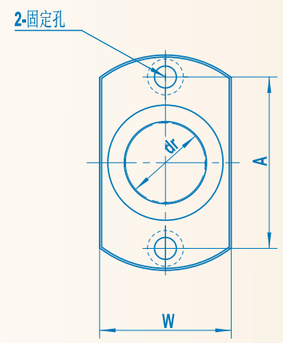
LMKC...UU-UD

LMFC/KC..UU-UD

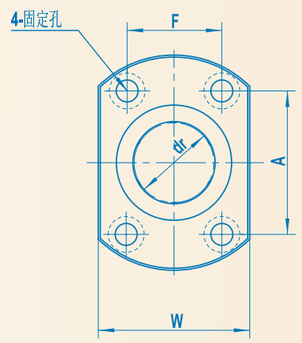
Major Dimensions and Tolerance											Major Dimensions and Tolerance				Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
	dr		D		L		Flange				Flange									
	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	K mm	t mm	Dp mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMFC/KC6UU-UD	6	0 -10	12	0 -18	29	300 -300	12	28	22	5	20	3.5	6	3.1	15	15	225	305	27 21	6
LMFC/KC8UU-UD	8		15		37		16	32	25	5	24	3.5	6	3.1			305	450	47 39	8
LMFC/KC10UU-UD	10		19	0 -21	47		20.5	40	30	6	29	4.5	7.5	4.1			505	715	85 65	10
LMFC/KC12UU-UD	12		21		47		20.5	42	32	6	32	4.5	7.5	4.1			630	810	89 69	12
LMFC/KC13UU-UD	13		23		47		20.5	43	34	6	33	4.5	7.5	4.1			640	826	109 87	13
LMFC/KC16UU-UD	16		28		56		25	48	37	6	38	4.5	7.5	4.1			1160	1445	157 132	16
LMFC/KC20UU-UD	20	0 -12	32	0 -25	65		28.5	54	42	8	43	5.5	9	5.1	20	20	1550	2065	232 197	20
LMFC/KC25UU-UD	25		40		83		37.5	62	50	8	51	5.5	9	5.1			1720	3065	481 442	25
LMFC/KC30UU-UD	30		45		90		40	74	58	10	60	6.6	11	6.1			2435	3970	560 482	30

LMHC-UU-UD





LMHC 13及以下

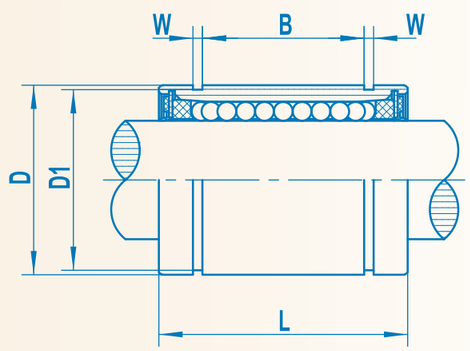


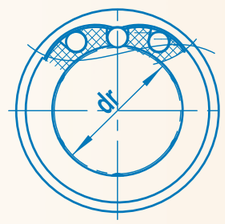
LMHC 16及以上

LMHC..UU-UD

	Major Dimensions and Tolerance						Major Dimensions and Tolerance									Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
		dr	D		L		Flange				Flange										
	mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	l mm	Df mm	W mm	t mm	A mm	F mm	X mm	Y mm	Z mm	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMHC6UU-UD	6	0 -10	12	0 -18	29	300 -300	12	28	18	5	20	-	3.5	6	3.1	15	15	225	305	24	6
LMHC8UU-UD	8		15		37		16	32	21	5	24	-	3.5	6	3.1			305	450	43	8
LMHC10UU-UD	10		19	0 -21	47		20.5	40	25	6	29	-	4.5	7.5	4.1			505	715	77	10
LMHC12UU-UD	12		21		47		20.5	42	27	6	32	-	4.5	7.5	4.1			630	810	81	12
LMHC13UU-UD	13		23		47		20.5	43	29	6	33	-	4.5	7.5	4.1			640	826	102	13
LMHC16UU-UD	16		28		56		25	48	34	6	31	22	4.5	7.5	4.1			1160	1445	149	16
LMHC20UU-UD	20	0 -12	32	0 -25	65		28.5	54	38	8	36	24	5.5	9	5.1	20	20	1550	2065	219	20
LMHC25UU-UD	25		40		83		37.5	62	46	8	40	32	5.5	9	5.1			1720	3065	452	25
LMHC30UU-UD	30		45		90		40	74	51	10	49	35	6.6	11	6.1			2435	3970	494	30

LM-UU-TH

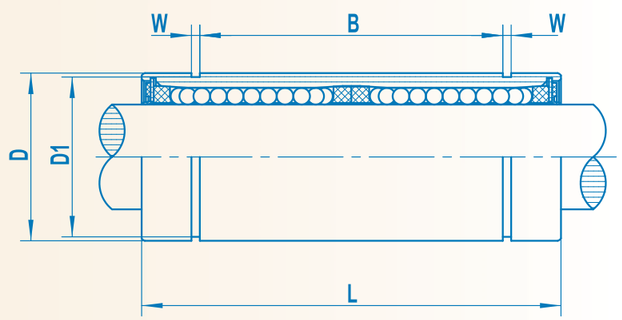


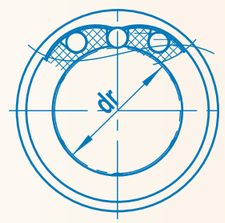


LM. . UU-TH系列

Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	Nominal Shaft Diameter (mm) dr	Nominal Shaft Diameter (mm) Tolerance	Major Dimensions and Tolearance (mm) D	D Tolerance	L	L Tolerance	B	B Tolerance	W	D1	Eccentricity µm	Basic Load Rating C(N)	Basic Load Rating Co(n)
LM6UU-TH	6	6	6		10	0 -0.009	19		11.3		1.15	9.6	12	130	150
LM8UU-TH	6	12	8		13	0 -0.011	24		15.3		1.15	12.4	12	230	275
LM10UU-TH	6	26	10	0 -0.009	17		29	0 -0.2	19.4	0 -0.4	1.15	16.2	12	365	430
LM12UU-TH	6	32	12		19	0 -0.013	30		20.4		1.35	18	12	380	445
LM16UU-TH	5	58	16		26		37		23.4		1.35	24.9	12	605	715

LM-LUU-TH

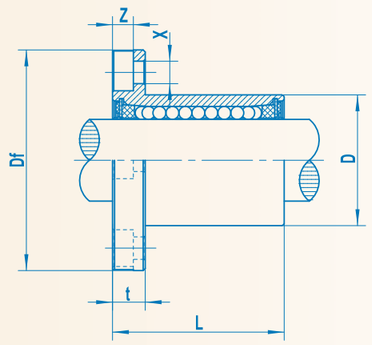


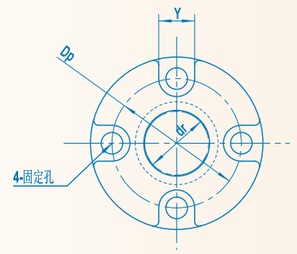


LM. . LUU-TH系列

Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	Nominal Shaft Diameter (mm) dr	Tolerance	Major Dimensions and Tolearance (mm) D	Tolerance	L	Tolerance	B	Tolerance	W	D1	Eccentricity µm	Basic Load Rating C(N)	Co(n)
LM6LUU-TH	6	12	6		10	0 -0.009	35		24.8		1.15	9.6	15	205	305
LM8LUU-TH	6	25	8		13	0 -0.011	45		32.8		1.15	12.4	15	380	550
LM10LUU-TH	6	52	10	0 -0.010	17		55	0 -0.3	41.4	0 -0.5	1.15	16.2	15	580	865
LM12LUU-TH	6	65	12		19	0 -0.013	57		43.4		1.35	18	15	605	895
LM16LUU-TH	5	116	16		26		70		49.8		1.35	24.9	15	960	1430

LMF-UU-TH

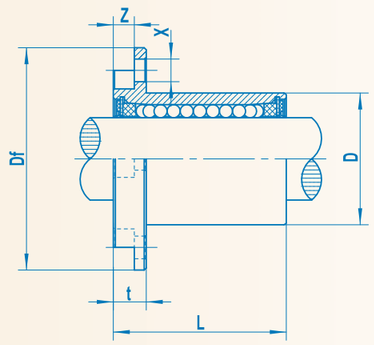


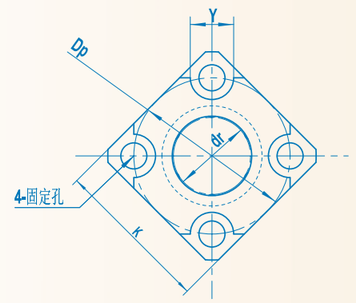


LMF..UU-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	DP	X	Y	Z						
LMF6UU-TH	6	17	6	10 0 -0.011	19	25	5	19	3.5	6	3.1				130	154	**LMF6-TH**
LMF8UU-TH	6	25	8	13 0 -0.013	24	28	5	22	3.5	6	3.1		12	12	234	275	**LMF8-TH**
LMF10UU-TH	6	50	10 0 -0.009	17	29 ±0.3	35	6	27	4.5	7.5	3.85		12	12	365	430	**LMF10-TH**
LMF12UU-TH	6	65	12	19 0 -0.016	30	38	6	30	4.5	7.5	3.85		12	12	380	445	**LMF12-TH**
LMF16UU-TH	5	95	16	26	37	44	6	36	4.5	7.5	3.85		12	12	605	715	**LMF16-TH**

LMK-UU-TH

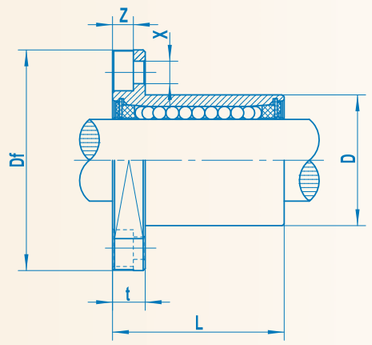


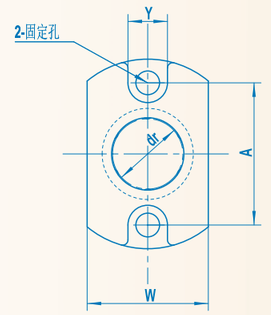


LMK..UU-TH系列

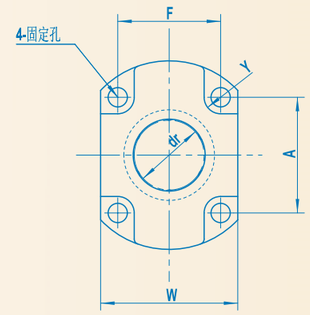
Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	K	t	DP	X	Y	Z					
LMK6UU-TH	6	15	6	10 0 -0.011	19	25	20	5	19	3.5	6	3.1			130	154	**LMK6-TH**
LMK8UU-TH	6	20	8	13 0 -0.013	24	28	23	5	22	3.5	6	3.1	12	12	234	275	**LMK8-TH**
LMK10UU-TH	6	40	10 0 -0.009	17	29 ±0.3	35	27	6	27	4.5	7.5	3.85	12	12	365	430	**LMK10-TH**
LMK12UU-TH	6	51	12	19 0 -0.016	30	38	29	6	30	4.5	7.5	3.85	12	12	380	445	**LMK12-TH**
LMK16UU-TH	5	75	16	26	37	44	34	6	36	4.5	7.5	3.85	12	12	605	715	**LMK16-TH**

LMH-UU-TH





LMH...UU-TH
12及以下

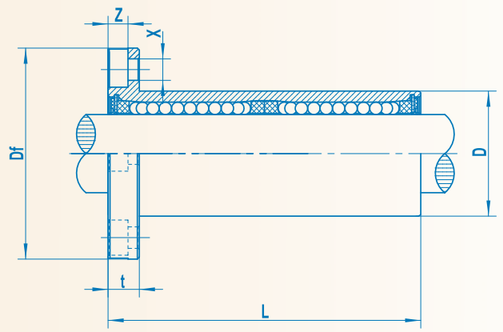


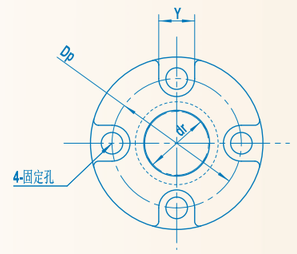
LMH...UU-TH
16及以上

LMH..UU-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	W	A	F	X	Y	Z					
LMH6UU-TH	6	14	6	10 0 -0.011	19	25		16	19		3.5	6	3.1			130	154	**LMH6-TH**
LMH8UU-TH	6	25	8	13 0 -0.013	24	28	5	19	22	-	3.5	6	3.1	12	12	234	275	**LMH8-TH**
LMH10UU-TH	6	45	10 0 -0.009	17	29 ±0.3	35	6	23	27	-	4.5	7.5	3.85	12	12	365	430	**LMH10-TH**
LMH12UU-TH	6	54	12	19 0 -0.016	30	38	6	25	30	-	4.5	7.5	3.85	12	12	380	445	**LMH12-TH**
LMH16UU-TH	5	82	16	26	37	44	6	32	27	24	4.5	7.5	3.85	12	12	605	715	**LMH16-TH**

LMF-LUU-TH

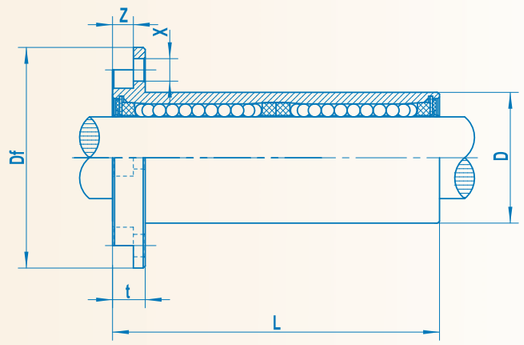


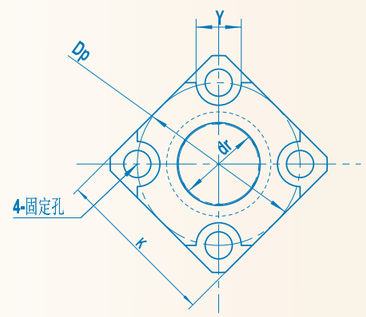


LMF..LUU-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)						Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	DP	X	Y	Z					
LMF6LUU-TH	6	25	6	10 0 -0.011	35	25	5	19	3.5	6	3.1			205	305	**LMF6L-TH**
LMF8LUU-TH	6	35	8	13 0 -0.013	45	28	5	22	3.5	6	3.1	15	15	380	556	**LMF8L-TH**
LMF10LUU-TH	6	80	10 0 -0.010	17	55 ±0.3	35	6	27	4.5	7.5	3.85	15	15	586	865	**LMF10L-TH**
LMF12LUU-TH	6	98	12	19 0 -0.016	57	38	6	30	4.5	7.5	3.85	15	15	605	900	**LMF12L-TH**
LMF16LUU-TH	5	155	16	26	70	44	6	36	4.5	7.5	3.85	15	15	966	1430	**LMF16L-TH**

LMK-LUU-TH

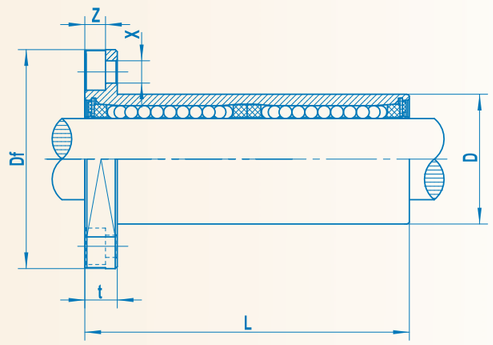


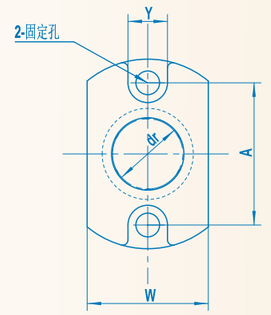


LMK..LUU-TH系列

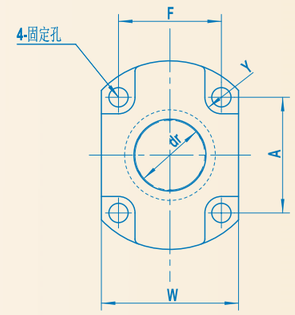
Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	K	t	DP	X	Y	Z					
LMK6LUU-TH	6	21	6	10 0 -0.011	35	25	20	5	19	3.5	6	3.1			205	305	**LMK6L**
LMK8LUU-TH	6	35	8	13 0 -0.013	45	28	23	5	22	3.5	6	3.1	15	15	380	556	**LMK8L**
LMK10LUU-TH	6	65	10 0 -0.010	17	55 ±0.3	35	27	6	27	4.5	7.5	3.85	15	15	586	865	**LMK10L**
LMK12LUU-TH	6	85	12	19 0 -0.016	57	38	29	6	30	4.5	7.5	3.85	15	15	605	900	**LMK12L**
LMK16LUU-TH	5	136	16	26	70	44	34	6	36	4.5	7.5	3.85	15	15	966	1430	**LMK16L**

LMH-LUU-TH





LMH...UU-TH
12及以下

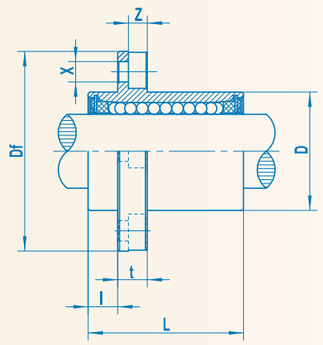


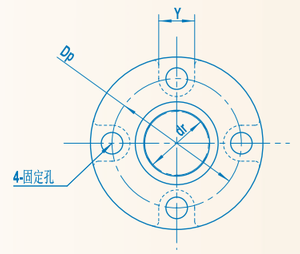
LMH...UU-TH
16及以上

LMH..LUU-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange Df	t	W	A	F	X	Y	Z					
LMH6LUU-TH	6	20	6	10 0 -0.011	35	25	5	16	19		3.5	6	3.1			205	305	**LMH6L**
LMH8LUU-TH	6	36	8	13 0 -0.013	45	28	5	19	22	-	3.5	6	3.1	15	15	380	556	**LMH8L**
LMH10LUU-TH	6	75	10 0 -0.010	17	55 ±0.3	35	6	23	27	-	4.5	7.5	4.1	15	15	586	865	**LMH10L**
LMH12LUU-TH	6	85	12	19 0 -0.016	57	38	6	25	30	-	4.5	7.5	4.1	15	15	605	900	**LMH12L**
LMH16LUU-TH	5	140	16	26	70	44	6	32	27	24	4.5	7.5	4.1	15	15	966	1430	**LMH16L**

LMF-UUE-TH

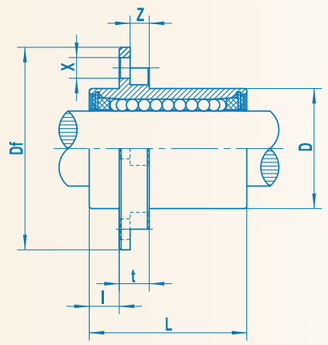


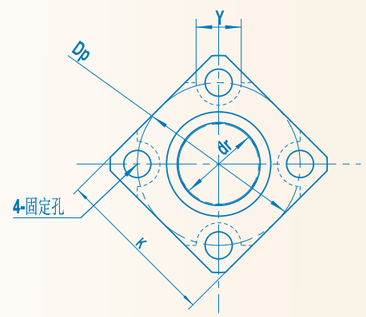


LMF..UUE-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
						Flange													
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	l	DF	t	DP	X	Y	Z							
LMF6UUE-TH	6	17	6	10 0 -0.015	19	5	25	5	19	3.5	6	3.1			12	12	130	154	**LMF6E-TH**
LMF8UUE-TH	6	25	8	13 0 -0.018	24	5	28	5	22	3.5	6	3.1			12	12	234	275	**LMF8E-TH**
LMF10UUE-TH	6	50	10 0 -0.009	17	29 ±0.3	6	35	6	27	4.5	7.5	4.1			12	12	365	430	**LMF10E-TH**
LMF12UUE-TH	6	65	12	19 0 -0.021	30	6	38	6	30	4.5	7.5	4.1			12	12	380	445	**LMF12E-TH**
LMF16UUE-TH	5	95	16	26	37	6	44	6	36	4.5	7.5	4.1			12	12	605	715	**LMF16E-TH**

LMK-UUE-TH

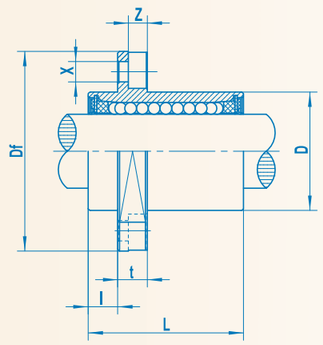


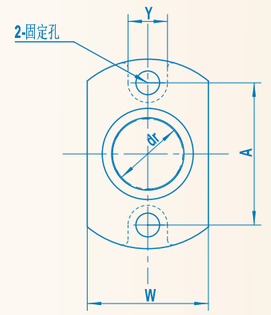


LMK..UUE-TH系列

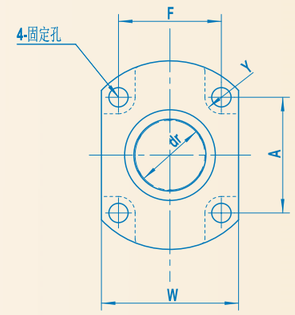
Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange l	DF	t	DP	K	X	Y	Z					
LMK6UUE-TH	6	15	6	10	19	5	25	5	19	20	3.5	6	3.1	12	12	130	154	**LMK6E-TH**
LMK8UUE-TH	6	20	8	13	24	5	28	5	22	23	3.5	6	3.1	12	12	234	275	**LMK8E-TH**
LMK10UUE-TH	6	40	10 0 -0.009	17 0 -0.018	29 ±0.3	6	35	6	27	27	4.5	7.5	4.1	12	12	365	430	**LMK10E-TH**
LMK12UUE-TH	6	51	12	19	30	6	38	6	30	29	4.5	7.5	4.1	12	12	380	445	**LMK12E-TH**
LMK16UUE-TH	5	75	16	26 0 -0.021	37	6	44	6	36	34	4.5	7.5	4.1	12	12	605	715	**LMK16E-TH**

LMH-UUE-TH





LMH...UU-TH
12及以下

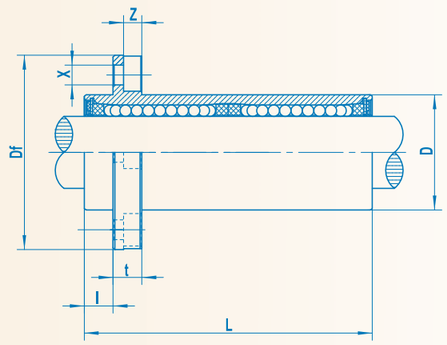


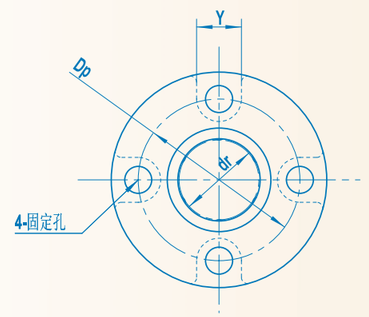
LMH...UU-TH
16及以上

LMH..UUE-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
						Flange													
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	l	DF	t	A	W	F	X	Y	Z					
LMH6UUE-TH	6	14	6	10 $^{0}_{-0.015}$	19	5	25	5	19	16		3.5	6	3.1	12	12	130	154	**LMH6E-TH**
LMH8UUE-TH	6	25	8	13 $^{0}_{-0.018}$	24	5	28	5	22	19	-	3.5	6	3.1	12	12	234	275	**LMH8E-TH**
LMH10UUE-TH	6	45	10 $^{0}_{-0.009}$	17	29 ±0.3	6	35	6	27	23	-	4.5	7.5	4.1	12	12	365	430	**LMH10E-TH**
LMH12UUE-TH	6	54	12	19 $^{0}_{-0.021}$	30	6	38	6	30	25	-	4.5	7.5	4.1	12	12	380	445	**LMH12E-TH**
LMH16UUE-TH	5	82	16	26	37	6	44	6	36	32	24	4.5	7.5	4.1	12	12	605	715	**LMH16E-TH**

LMF-LUUE-TH

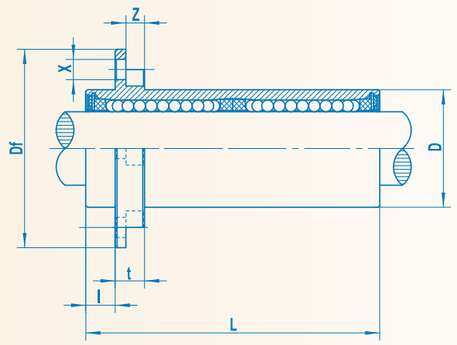


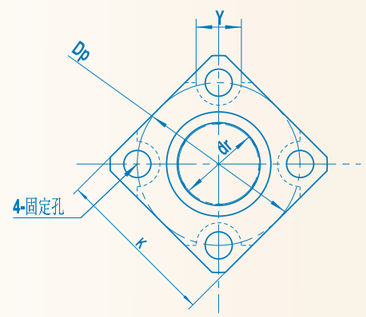


LMF..LUUE-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
						Flange													
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	l	DF	t	DP	X	Y	Z							
LMF6LUUE-TH	6	25	6	10 0 -0.015	35	5	25	5	19	3.5	6	3.1			12	12	205	305	**LMF6LE-TH**
LMF8LUUE-TH	6	35	8	13	45	5	28	5	22	3.5	6	3.1			12	12	380	556	**LMF8LE-TH**
LMF10LUUE-TH	6	80	10 0 -0.010	17 0 -0.018	55 ±0.3	6	35	6	27	4.5	7.5	4.1			12	12	586	865	**LMF10LE-TH**
LMF12LUUE-TH	6	98	12	19	57	6	38	6	30	4.5	7.5	4.1			12	12	605	900	**LMF12LE-TH**
LMF16LUUE-TH	5	155	16	26 0 -0.021	70	6	44	6	36	4.5	7.5	4.1			12	12	966	1430	**LMF16LE-TH**

LMK-KUUE-TH

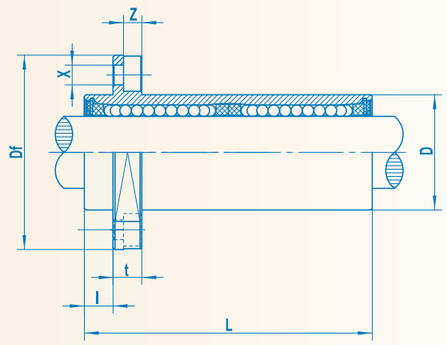


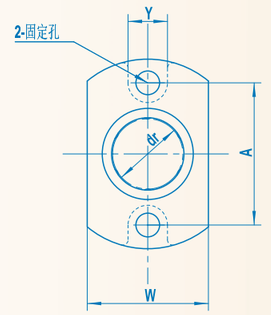


LMK..LUUE-TH系列

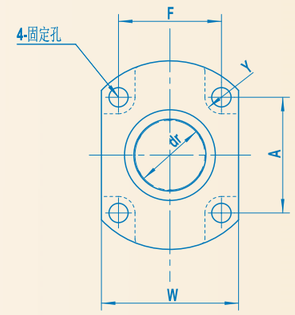
Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange l	DF	t	DP	K	X	Y	Z					
LMK6LUUE-TH	6	21	6	10	35	5	25	5	19	20	3.5	6	3.1	12	12	205	305	**LMK6LE-TH**
LMK8LUUE-TH	6	35	8	13	45	5	28	5	22	23	3.5	6	3.1	12	12	380	556	**LMK8LE-TH**
LMK10LUUE-TH	6	65	10 0 -0.010	17 0 -0.018	55 ±0.3	6	35	6	27	27	4.5	7.5	4.1	12	12	586	865	**LMK10LE-TH**
LMK12LUUE-TH	6	85	12	19	57	6	38	6	30	29	4.5	7.5	4.1	12	12	605	900	**LMK12LE-TH**
LMK16LUUE-TH	5	136	16	26 0 -0.021	70	6	44	6	36	34	4.5	7.5	4.1	12	12	966	1430	**LMK16LE-TH**

LMH-LUUE-TH





LMH...UU-TH
12及以下

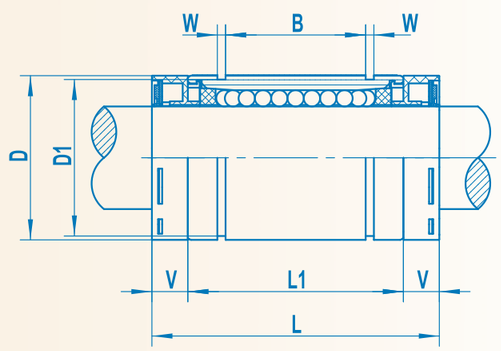


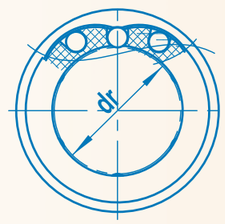
LMH...UU-TH
16及以上

LMH..LUUE-TH系列

Nominal Part No			Major Dimensions and Tolerance (mm)			Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)	Nominal Part No.
						Flange													
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	l	DF	t	A	W	F	X	Y	Z					
LMH6LUUE-TH	6	20	6	10	35	5	25	5	19	16		3.5	6	3.1	12	12	205	305	**LMH6LE-TH**
LMH8LUUE-TH	6	36	8	13	45	5	28	5	22	19	-	3.5	6	3.1	12	12	380	556	**LMH8LE-TH**
LMH10LUUE-TH	6	75	10 0 -0.010	17 0 -0.018	55 ±0.3	6	35	6	27	23	-	4.5	7.5	4.1	12	12	586	865	**LMH10LE-TH**
LMH12LUUE-TH	6	85	12	19	57	6	38	6	30	25	-	4.5	7.5	4.1	12	12	605	900	**LMH12LE-TH**
LMH16LUUE-TH	5	140	16	26 0 -0.021	70	6	44	6	36	32	24	4.5	7.5	4.1	12	12	966	1430	**LMH16LE-TH**

LM-UU-OL

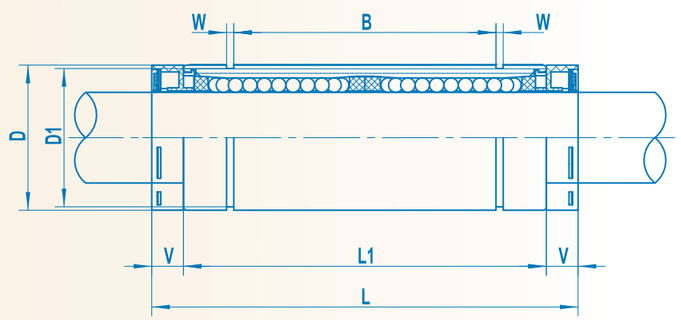


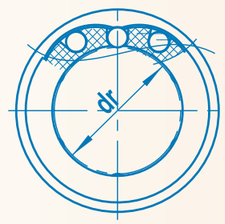


LM. . UU-OL系列

Nominal Part No				Nominal Shaft Diameter (mm)		Major Dimensions and Tolearance (mm)								Eccentricity (max) μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)
		Ball Circuit	Weight g	dr Tolerance		D Tolerance		L	L2 Tolerance		B Tolerance		U	W	D1			
LM10UU-OL	**LM10-OL**	4	28	10	0 -0.009	19	0 -0.013	39	29	0 -0.2	10.4	1.3	5	1.3	18	12	370	545
LM12UU-OL	**LM12-OL**	4	31	12		21		41	30		20.4		5.6	1.3	20	12	410	595
LM16UU-OL	**LM16-OL**	5	71	16		28		49	37		23.3	1.6	6	1.6	27	12	770	1175
LM20UU-OL	**LM20-OL**	5	95	20	0 -0.010	32	0 -0.016	56	42	0 -0.3	27.3	1.85	7	1.6	30.5	15	880	1365
LM25UU-OL	**LM25-OL**	6	214	25		40		77	59		37.3		9	1.85	38	15	975	1565
LM30UU-OL	**LM30-OL**	6	250	30		45		84	64		40.8		10	1.85	43	15	1565	2735

LM-LUU-OL

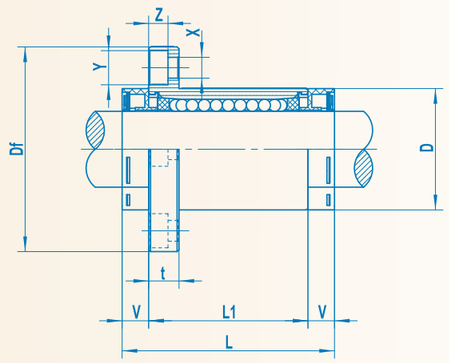


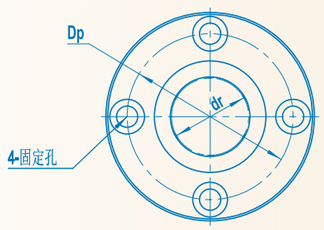


LM. . LUU-OL系列

Nominal Part No				Nominal Shaft Diameter (mm)		Major Dimensions and Tolearance (mm)								Eccentricity (max) μm	Basic Load Dynamic C(N)	Basic Load Rating Static Co(N)
		Ball Circuit	Weight g	dr Tolerance		D Tolerance		L	L2	Tolerance	B Tolerance		U	W	D1			
LM10UU-OL	LM10-OL	4	52	10	0 -0.010	19	0 -0.021	65	55	0 -0.3	10.4	0 -0.5	5	1.3	18	15	585	1095
LM12UU-OL	LM12-OL	4	56	12		21		68	57		20.4		5.6	1.3	20	15	655	1195
LM16UU-OL	LM16-OL	5	132	16		28		82	70		23.3		6	1.6	27	15	1225	2345
LM20UU-OL	LM20-OL	5	176.5	20	0 -0.012	32	0 -0.025	94	80	0 -0.4	27.3	0 -0.6	7	1.6	30.5	20	1395	2735
LM25UU-OL	LM25-OL	6	419	25		40		130	112		37.3		9	1.85	38	20	1555	3135
LM30UU-OL	LM30-OL	6	471	30		45		143	123		40.8		10	1.85	43	20	2485	5485

LMFUU-OL

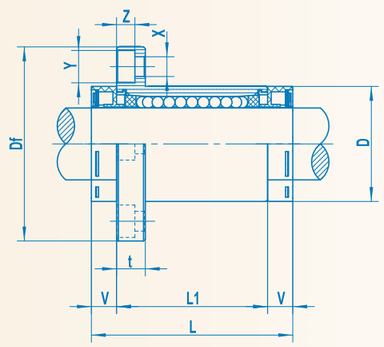


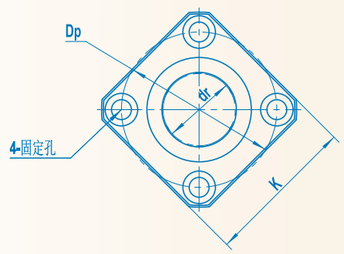


LMFUU-OL系列

Nominal Part No			Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance		L	L1 Tolerance	Flange V	Df	t	DP	X	Y	Z					
LMF10UU-OL	4	76	10	19		39	29	5	40	6	29	4.5	7.5	4.1	12	12	372	549	**LMF10-MX**
LMF12UU-OL	4	80	12 0 -0.009	21 0 -0.016		41	30	5.5	42	6	32	4.5	7.5	4.1	12	12	412	598	**LMF12-MX**
LMF16UU-OL	5	127	16	28		49	37	6	48	6	38	4.5	7.5	4.1	12	12	775	1180	**LMF16-MX**
LMF20UU-OL	5	191	20	32		56	42	7	54	8	43	5.5	9	5.1	15	15	882	1370	**LMF20-MX**
LMF25UU-OL	6	359	25 0 -0.010	40 0 -0.019		77	59 ±0.3	9	62	8	51	5.5	9	5.1	15	15	980	1570	**LMF25-MX**
LMF30UU-OL	6	494	30	45		84	64	10	74	10	60	6.6	11	6.1	15	15	1570	2740	**LMF30-MX**
LMF35UU-OL	6	678	35	52		92	70	11	82	10	67	6.6	11	6.1	20	20	1670	3140	**LMF35-MX**
LMF40UU-OL	6	1093	40 0 -0.012	60 0 -0.022		104	80	12	96	13	78	9	14	8.1	20	20	2160	4020	**LMF40-MX**
LMF50UU-OL	6	2263	50	80		128	100	14	116	13	98	9	14	8.1	20	20	3820	7940	**LMF45-MX**

LMKUU-OL

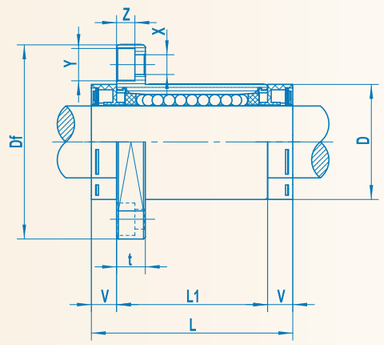


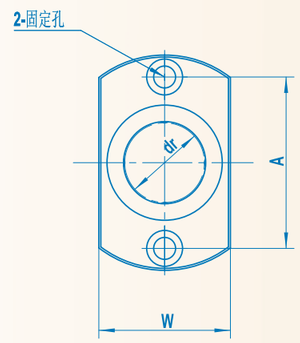


LMKUU-OL系列

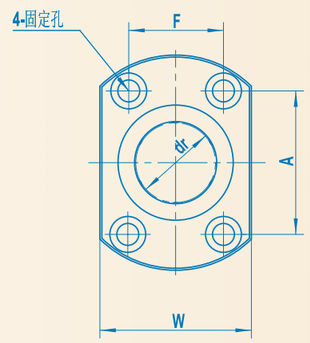
Nominal Part No			Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L	L1 Tolerance		Flange V	Df	K	t	DP	X	Y	Z					
LMK10UU-OL	4	56	10 0 -0.009	19 0 -0.016	39	29		5	40	30	6	29	4.5	7.5	4.1	12	12	372	549	**LMK10-MX**
LMK12UU-OL	4	61	12	21	41	30		5.5	42	32	6	32	4.5	7.5	4.1	12	12	412	598	**LMK12-MX**
LMK16UU-OL	5	111	16	28	49	37		6	48	37	6	38	4.5	7.5	4.1	12	12	775	1180	**LMK16-MX**
LMK20UU-OL	5	156	20 0 -0.010	32 0 -0.019	56	42		7	54	42	8	43	5.5	9	5.1	15	15	882	1370	**LMK20-MX**
LMK25UU-OL	6	319	25	40	77	59	±0.3	9	62	50	8	51	5.5	9	5.1	15	15	980	1570	**LMK25-MX**
LMK30UU-OL	6	399	30	45	84	64		10	74	58	10	60	6.6	11	6.1	15	15	1570	2740	**LMK30-MX**
LMK35UU-OL	6	588	35 0 -0.012	52 0 -0.022	92	70		11	82	64	10	67	6.6	11	6.1	20	20	1670	3140	**LMK35-MX**
LMK40UU-OL	6	913	40	60	104	80		12	96	75	13	78	9	14	8.1	20	20	2160	4020	**LMK40-MX**
LMK50UU-OL	6	2063	50	80	128	100		14	116	92	13	98	9	14	8.1	20	20	3820	7940	**LMK45-MX**

LMHUU-OL





LMH13-OL及以下

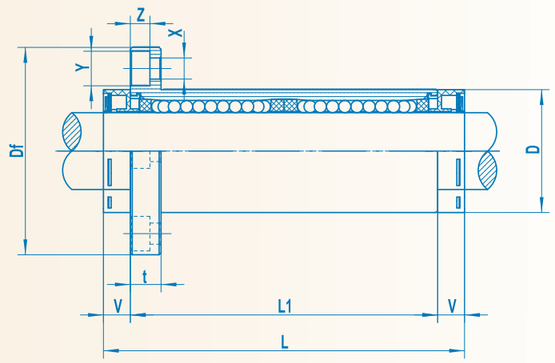


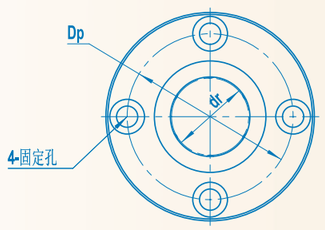
LMH16-OL及以上

LMHUU-OL系列

Nominal Part No			Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	L1	Tolerance	Flange V	Df	W	t	A	F	X	Y	Z					
LMH10UU-OL	4	68	10	0 -0.009	19	0 -0.016	39	29		5	40	25	6	29	-	4.5	7.5	4.1	12	12	372	549	LMH10-MX
LMH12UU-OL	4	72	12		21		41	30		5.5	42	27	6	32	-	4.5	7.5	4.1	12	12	412	598	LMH12-MX
LMH16UU-OL	5	119	16		28		49	37		6	48	34	6	31	22	4.5	7.5	4.1	12	12	775	1180	LMH16-MX
LMH20UU-OL	5	178	20	0 -0.010	32	0 -0.019	56	42		7	54	38	8	36	24	5.5	9	5.1	15	15	882	1370	LMH20-MX
LMH25UU-OL	6	344	25		40		77	59	±0.3	9	62	46	8	40	32	5.5	9	5.1	15	15	980	1570	LMH25-MX
LMH30UU-OL	6	412	30		45		84	64		10	74	51	10	49	35	6.6	11	6.1	15	15	1570	2740	LMH30-MX
LMH35UU-OL	-	603	35	0 -0.012	52	0 -0.022	92	70		11	82	58	10	55	38	6.6	11	6.1	17	17	1670	3140	LMH35-MX
LMH40UU-OL	6	942	40		60		104	80		12	96	66	13	64	45	9	14	8.1	-	-	2160	4020	LMH40-MX
LMH50UU-OL	-	2100	50		80		128	100		14	116	86	13	80	56	9	14	8.1	-	-	3820	7940	LMH45-MX

LMF-FUU-OL

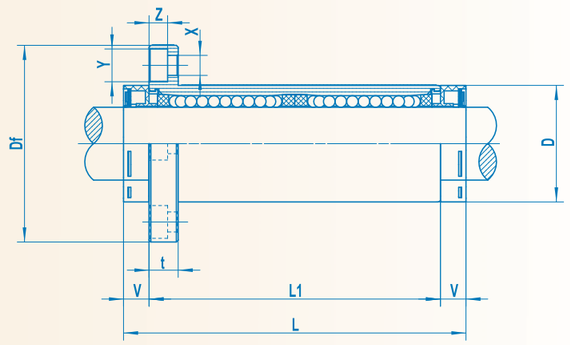


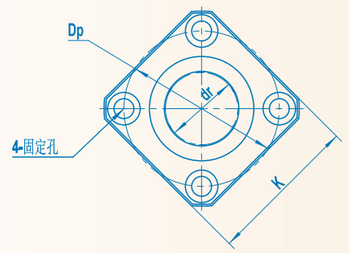


LMF..LUU-OL系列

Nominal Part No			Major Dimensions and Tolerance (mm)					Major Dimensions and Tolerance (mm)							Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	L1	Tolerance	Flange V	Df	t	DP	X	Y	Z					
LMF10LUU-OL	4	102	10	0 -0.010	19	0 -0.016	65	55		5	40	6	29	4.5	7.5	4.1	15	15	588	1100	**LMF10L-MX**
LMF12LUU-OL	4	114	12		21		68	57		5.5	42	6	32	4.5	7.5	4.1	15	15	657	1200	**LMF12L-MX**
LMF16LUU-OL	5	197	16		28		82	70		6	48	6	38	4.5	7.5	4.1	15	15	1230	2350	**LMF16L-MX**
LMF20LUU-OL	5	271	20	0 -0.012	32	0 -0.019	94	80		7	54	8	43	5.5	9	5.1	20	20	1400	2740	**LMF20L-MX**
LMF25LUU-OL	6	559	25		40		130	112	±0.3	9	62	8	51	5.5	9	5.1	20	20	1560	3140	**LMF25L-MX**
LMF30LUU-OL	6	704	30		45		143	123		10	74	10	60	6.6	11	6.1	20	20	2490	5490	**LMF30L-MX**
LMF35LUU-OL	6	1048	35	0 -0.015	52	0 -0.022	157	135		11	82	10	67	6.6	11	6.1	25	25	2650	6270	**LMF35L-MX**
LMF40LUU-OL	6	1603	40		60		175	151		12	96	13	78	9	14	8.1	25	25	3430	8040	**LMF40L-MX**
LMF50LUU-OL	6	3663	50		80		220	192		14	116	13	98	9	14	8.1	25	25	6080	15900	**LMF45L-MX**

LMK-LUU-OL

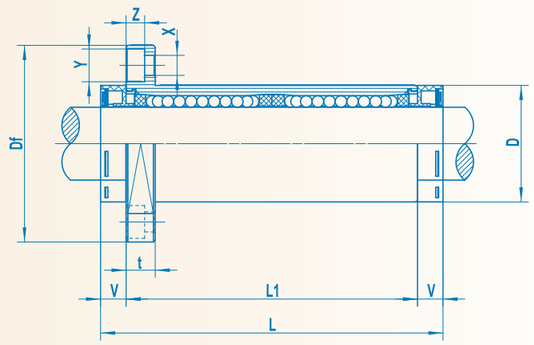


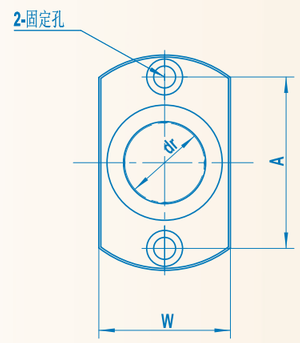


LMK..LUU-OL系列

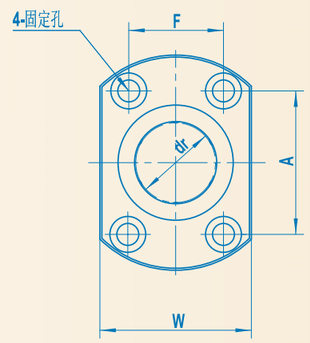
Nominal Part No			Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)								Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	L1	Tolerance	Flange V	Df	K	t	DP	X	Y	Z				
LMK10LUU-OL	4	82	10	0 -0.010	19	0 -0.016	65	55		5	40	30	6	29	4.5	7.5	4.1	15	15	588	1100	**LMK10L-MX**
LMK12LUU-OL	4	94	12		21		68	57		5.5	42	32	6	32	4.5	7.5	4.1	15	15	657	1200	**LMK12L-MX**
LMK16LUU-OL	5	172	16		28		82	70		6	48	37	6	38	4.5	7.5	4.1	15	15	1230	2350	**LMK16L-MX**
LMK20LUU-OL	5	236	20	0 -0.012	32	0 -0.019	94	80		7	54	42	8	43	5.5	9	5.1	20	20	1400	2740	**LMK20L-MX**
LMK25LUU-OL	6	519	25		40		130	112	±0.3	9	62	50	8	51	5.5	9	5.1	20	20	1560	3140	**LMK25L-MX**
LMK30LUU-OL	6	614	30		45		143	123		10	74	58	10	60	6.6	11	6.1	20	20	2490	5490	**LMK30L-MX**
LMK35LUU-OL	6	958	35	0 -0.015	52	0 -0.022	157	135		11	82	64	10	67	6.6	11	6.1	25	25	2650	6270	**LMK35L-MX**
LMK40LUU-OL	6	1413	40		60		175	151		12	96	75	13	78	9	14	8.1	25	25	3430	8040	**LMK40L-MX**
LMK50LUU-OL	6	3463	50		80		220	192		14	116	92	13	98	9	14	8.1	25	25	6080	15900	**LMK45L-MX**

LMH-LUU-OL





LMH13-OL及以下

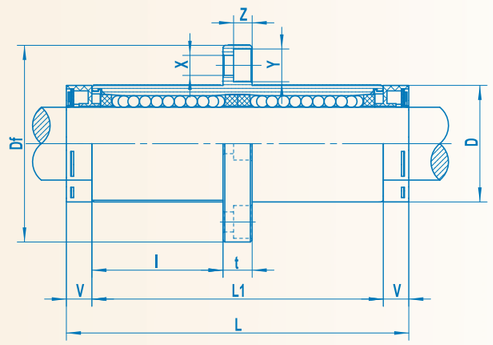


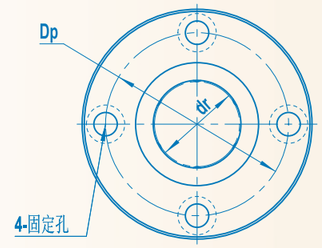
LMH16-OL及以上

LMH..LUU-OL系列

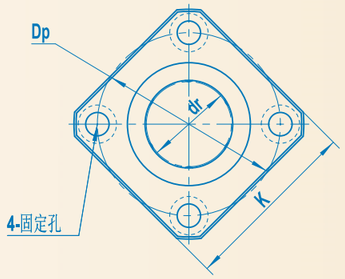
Nominal Part No			Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)									Eccentricity μm	Eccentricity μm	Basic Load Dynamic C(N)	Rating Static Co(N)	Nominal Part No.
Resin Retainer 合成树脂保持器	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	L1	Tolerance	Flange V	Df	W	t	A	F	X	Y	Z				
LMH10LUU-OL	4	94	10	0 -0.010	19	0 -0.016	65	55		5	40	25	6	29	-	4.5	7.5	4.1	15	15	588	1100	**LMH10L-MX**
LMH12LUU-OL	4	106	12		21		68	57		5.5	42	27	6	32	-	4.5	7.5	4.1	15	15	657	1200	**LMH12L-MX**
LMH16LUU-OL	5	189	16		28		82	70		6	48	34	6	31	22	4.5	7.5	4.1	15	15	1230	2350	**LMH16L-MX**
LMH20LUU-OL	5	258	20	0 -0.012	32	0 -0.019	94	80		7	54	38	8	36	24	5.5	9	5.1	20	20	1400	2740	**LMH20L-MX**
LMH25LUU-OL	6	544	25		40		130	112	±0.3	9	62	46	8	40	32	5.5	9	5.1	20	20	1560	3140	**LMH25L-MX**
LMH30LUU-OL	6	669	30		45		143	123		10	74	51	10	49	35	6.6	11	6.1	20	20	2490	5490	**LMH30L-MX**
LMH35LUU-OL	-	973	35	0 -0.015	52	0 -0.022	157	135		11	82	58	10	55	38	6.6	11	6.1	25	25	2650	6270	**LMH35L-MX**
LMH40LUU-OL	6	1456	40		60		175	151		12	96	66	13	64	45	9	14	8.1	25	25	3430	8040	**LMH40L-MX**
LMH50LUU-OL	6	3500	50		80		220	192		14	116	86	13	80	56	9	14	8.1	25	25	6080	15900	**LMH45L-MX**

LMFC/KC-UU-OL





LMFC...UU-OL

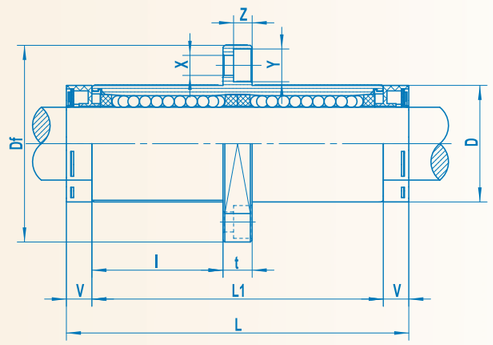


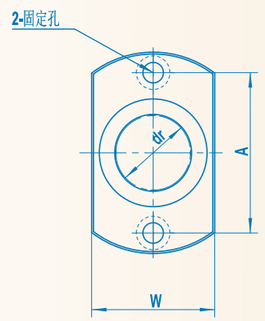
LMKC...UU-OL

LMFC/KC..UU-OL系列

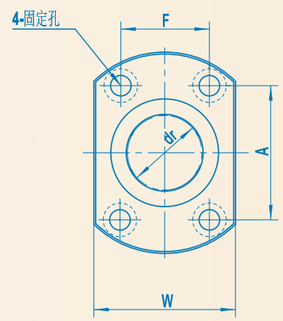
Resin Retainer 合成树脂保持器	Major Dimensions and Tolerance (mm) dr	Tolerance	D	Tolerance	L	L1	Tolerance	Major Dimensions and Tolerance (mm) Flange V	I	Df	K	t	Dp	X	Y	Z	Eccentricity μm	Squareness μm	Basic load rating dynamic C(N)	Static Co(N)	Weight g	Nominal shaft diameter mm
LMFC/KC10UU-OL	10	0 -0.010	19	0 -0.016	65	55		5	24.5	40	30	6	29	4.5	7.5	4.1	15	15	588	1100	102/82	10
LMFC/KC12UU-OL	12		21		68	57		5	25.5	42	32	6	32	4.5	7.5	4.1	15	15	657	1200	114/94	12
LMFC/KC16UU-OL	16		28		82	70		6	32	48	37	6	38	4.5	7.5	4.1	15	15	1230	2350	197/172	16
LMFC/KC20UU-OL	20	0 -0.012	32	0 -0.019	94	80		7	36	54	42	8	43	5.5	9	5.1	20	20	1400	2740	271/236	20
LMFC/KC25UU-OL	25		40		130	112	±0.3	9	52	62	50	8	51	5.5	9	5.1	20	20	1560	3140	559/519	25
LMFC/KC30UU-OL	30		45		143	123		10	56.5	74	58	10	60	6.6	11	6.1	20	20	2490	5490	704/614	30
LMFC/KC35UU-OL	35	0 -0.014	52	0 -0.022	157	135		11	62.5	82	64	10	67	6.6	11	6.1	25	25	2650	6270	1048/958	35
LMFC/KC40UU-OL	40		60		175	151		12	69	96	75	13	78	9	14	8.1	25	25	3430	8040	1603/1413	40
LMFC/KC50UU-OL	50		80		220	192		14	89.5	116	92	13	98	9	14	8.1	25	25	6080	15900	3663/3463	50

LMHC-UU-OL





LMHC...UU-OL
13及以下

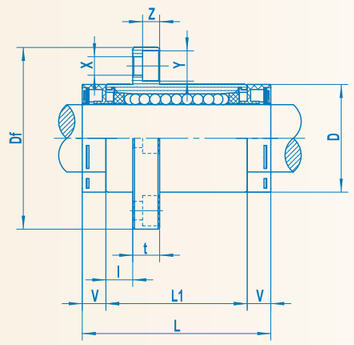


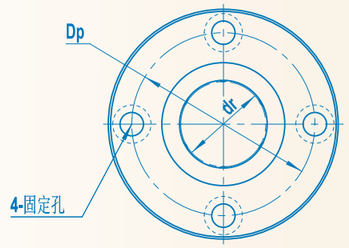
LMHC...UU-OL
16及以上

LMHC..UU-OL系列

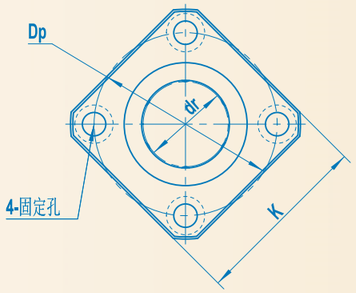
	Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)										Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
Resin Retainer 合成树脂保持器	dr	Tolerance	D	Tolerance	L	L1	Tolerance	Flange V	I	Df	W	t	A	F	X	Y	Z	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMFHC10UU-OL	10	0 -0.010	19	0 -0.016	65	55		5	24.5	40	25	6	29	-	4.5	7.5	4.1	15	15	588	1100	94	10
LMFHC12UU-OL	12		21		68	57		5	25.5	42	27	6	32	-	4.5	7.5	4.1	15	15	657	1200	106	12
LMFHC16UU-OL	16		28		82	70		6	32	48	34	6	31	22	4.5	7.5	4.1	15	15	1230	2350	189	16
LMFHC20UU-OL	20	0 -0.012	32	0 -0.019	94	80		7	36	54	38	8	36	24	5.5	9	5.1	20	20	1400	2740	258	20
LMFHC25UU-OL	25		40		130	112	±0.3	9	52	62	46	8	40	32	5.5	9	5.1	20	20	1560	3140	544	25
LMFHC30UU-OL	30		45		143	123		10	56.5	74	51	10	49	35	6.6	11	6.1	20	20	2490	5490	669	30
LMFHC35UU-OL	35	0 -0.014	52	0 -0.022	157	135		11	62.5	82	58	10	55	38	6.6	11	6.1	25	25	2650	6270	973	35
LMFHC40UU-OL	40		60		175	151		12	69	96	66	13	64	45	9	14	8.1	25	25	3430	8040	1456	40
LMFHC50UU-OL	50		80		220	192		14	89.5	116	86	13	80	56	9	14	8.1	25	25	6080	15900	3500	50

LMF/K-UU-E-OL





LMF...UU-E-OL

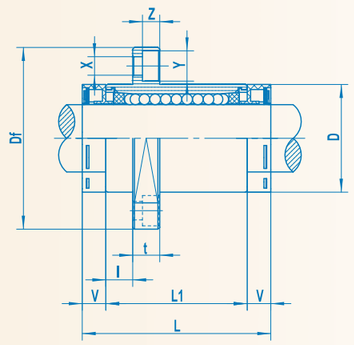


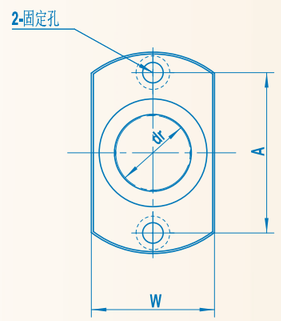
LMK...UU-E-OL

LMF/K..UU-E-OL系列

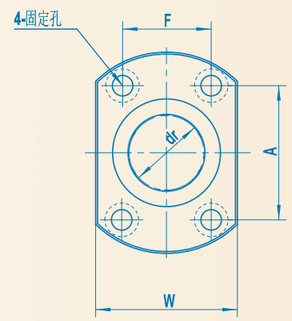
Resin Retainer 合成树脂保持器	Major Dimensions and Tolerance (mm) dr	Tolerance	D	Tolerance	L	L1	Tolerance	Major Dimensions and Tolerance (mm) Flange V	I	Df	K	t	Dp	X	Y	Z	Eccentricity μm	Squareness μm	Basic load rating dynamic C(N)	Static Co(N)	Weight g	Nominal shaft diameter mm
LMF/K10UU-E-OL	10	0 -0.009	19	0 -0.016	39	29		5	6	40	30	6	29	4.5	7.5	4.1	12	12	372	549	75/56	10
LMF/K12UU-E-OL	12		21		41	30		5.5	6	42	32	6	32	4.5	7.5	4.1	12	12	412	598	80/61	12
LMF/K16UU-E-OL	16		28		49	37		6	6	48	37	6	38	4.5	7.5	4.1	12	12	775	1180	127/111	16
LMF/K20UU-E-OL	20	0 -0.010	32	0 -0.019	56	42	±0.3	7	8	54	42	8	43	5.5	9	5.1	15	15	882	1370	191/156	20
LMF/K25UU-E-OL	25		40		77	59		9	8	62	50	8	51	5.5	9	5.1	15	15	980	1570	359/319	25
LMF/K30UU-E-OL	30		45		84	64		10	10	74	58	10	60	6.6	11	6.1	15	15	1570	2740	494/399	30
LMF/K35UU-E-OL	35	0 -0.012	52	0 -0.022	92	70		11	10	82	64	10	67	6.6	11	6.1	20	20	1670	3140	678/588	35
LMF/K40UU-E-OL	40		60		104	80		12	13	96	75	13	78	9	14	8.1	20	20	2160	4020	1093/913	40
LMF/K50UU-E-OL	50		80		128	100		14	13	116	92	13	98	9	14	8.1	20	20	3820	4940	2263/2063	50

LMHUU-E-OL





LMH...UU-E-OL
13及以下

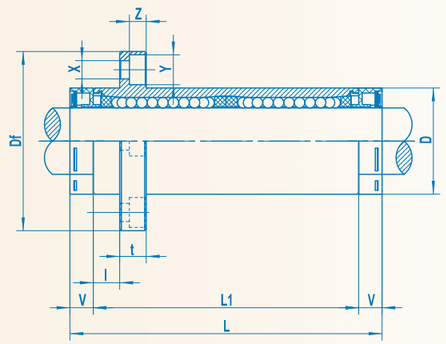


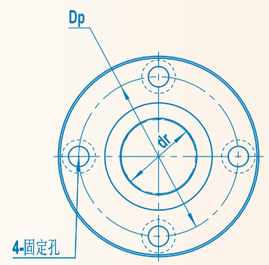
LMH...UU-E-OL
16及以上

LMH..UU-E-OL系列

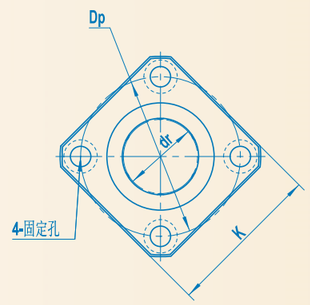
	Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)										Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
							Flange															
Resin Retainer 合成树脂保持器	dr	Tolerance	D	Tolerance	L	L1	Tolerance	V	l	Df	W	t	A	F	X	Y	Z	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMH10UU-E-OL	10	0 -0.009	19	0 -0.016	39	29		5	6	40	25	6	29	-	4.5	7.5	4.1	12	12	372	549	68	10
LMH12UU-E-OL	12		21		41	30		5.5	6	42	27	6	32	-	4.5	7.5	4.1	12	12	412	598	72	12
LMH16UU-E-OL	16		28		49	37		6	6	48	34	6	31	22	4.5	7.5	4.1	12	12	775	1180	119	16
LMH20UU-E-OL	20	0 -0.010	32	0 -0.019	56	42	±0.3	7	8	54	38	8	36	24	5.5	9	5.1	15	15	882	1370	178	20
LMH25UU-E-OL	25		40		77	59		9	8	62	46	8	40	32	5.5	9	5.1	15	15	980	1570	344	25
LMH30UU-E-OL	30		45		84	64		10	10	74	51	10	49	35	6.6	11	6.1	15	15	1570	2740	412	30
LMH35UU-E-OL	35	0 -0.012	52	0 -0.022	92	70		11	10	82	58	10	55	38	6.6	11	6.1	-	-	1670	3140	603	35
LMH40UU-E-OL	40		60		104	80		12	13	96	66	13	64	45	9	14	8.1	-	-	2160	4020	946	40
LMH50UU-E-OL	50		80		128	100		14	13	116	86	13	80	56	9	14	8.1	-	-	3820	4940	2100	50

LMF/K-LUU-E-OL





LMF...LUU-E-OL

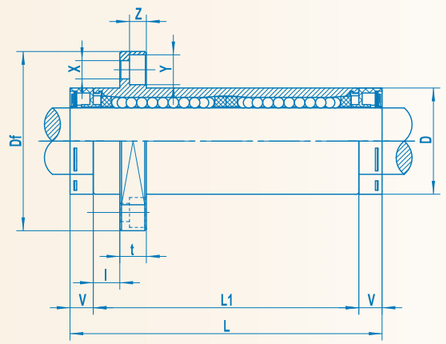


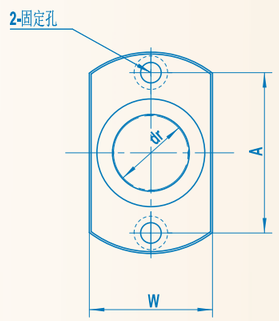
LMK...LUU-E-OL

LMF/K..LUU-E-OL系列

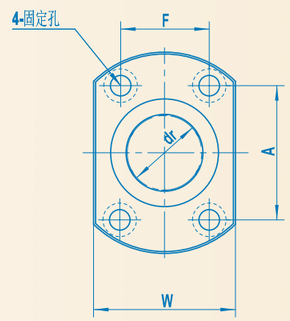
Resin Retainer 合成树脂保持器	Major Dimensions and Tolerance (mm) dr	Tolerance	D	Tolerance	L	L1	Tolerance	Major Dimensions and Tolerance (mm) Flange V	I	Df	K	t	Dp	X	Y	Z	Eccentricity μm	Squareness μm	Basic load rating dynamic C(N)	Static Co(N)	Weight g	Nominal shaft diameter mm
LMF/K10LUU-E-OL	10	0 -0.010	19	0 -0.016	65	55		5	6	40	30	6	29	4.5	7.5	4.1	15	15	588	1100	102/82	10
LMF/K12LUU-E-OL	12		21		68	57		5.5	6	42	32	6	32	4.5	7.5	4.1	15	15	657	1200	114/94	12
LMF/K16LUU-E-OL	16		28		82	70		6	6	48	37	6	38	4.5	7.5	4.1	15	15	1230	2350	197/172	16
LMF/K20LUU-E-OL	20	0 -0.012	32	0 -0.019	94	80		7	8	54	42	8	43	5.5	9	5.1	20	20	1400	2740	271/236	20
LMF/K25LUU-E-OL	25		40		130	112	±0.3	9	8	62	50	8	51	5.5	9	5.1	20	20	1560	3140	559/519	25
LMF/K30LUU-E-OL	30		45		143	123		10	10	74	58	10	60	6.6	11	6.1	20	20	2490	5490	704/614	30
LMF/K35LUU-E-OL	35	0 -0.015	52	0 -0.022	157	135		11	10	82	64	10	67	6.6	11	6.1	25	25	2650	6270	1048/958	35
LMF/K40LUU-E-OL	40		60		175	151		12	13	96	75	13	78	9	14	8.1	25	25	3430	8040	1603/1413	40
LMF/K50LUU-E-OL	50		80		220	192		14	13	116	92	13	98	9	14	8.1	25	25	6080	15900	3663/3463	50

LMH-LUU-E-OL





LMH...LUU-E-OL
13及以下



LMH...LUU-E-OL
16及以上

LMH..LUU-E-OL系列

	Major Dimensions and Tolerance (mm)						Major Dimensions and Tolerance (mm)										Eccentricity	Squareness	Basic load rating		Weight	Nominal shaft diameter
							Flange															
Resin Retainer 合成树脂保持器	dr	Tolerance	D	Tolerance	L	L1	Tolerance	V	I	Df	W	t	A	F	X	Y	Z	μm	μm	dynamic C(N)	Static Co(N)	g	mm
LMH10LUU-E-OL	10	0 -0.010	19	0 -0.016	65	55		5	6	40	25	6	29	-	4.5	7.5	4.1	15	15	588	1100	94	10
LMH12LUU-E-OL	12		21		68	57		5.5	6	42	27	6	32	-	4.5	7.5	4.1	15	15	657	1200	106	12
LMH16LUU-E-OL	16		28		82	70		6	6	48	34	6	31	22	4.5	7.5	4.1	15	15	1230	2350	189	16
LMH20LUU-E-OL	20	0 -0.012	32	0 -0.019	94	80	±0.3	7	8	54	38	8	36	24	5.5	9	5.1	20	20	1400	2740	258	20
LMH25LUU-E-OL	25		40		130	112		9	8	62	46	8	40	32	5.5	9	5.1	20	20	1560	3140	544	25
LMH30LUU-E-OL	30		45		143	123		10	10	74	51	10	49	35	6.6	11	6.1	20	20	2490	5490	669	30
LMH35LUU-E-OL	35	0 -0.015	52	0 -0.022	157	135		11	10	82	58	10	55	38	6.6	11	6.1	25	25	2650	6270	973	35
LMH40LUU-E-OL	40		60		175	151		12	13	96	66	13	64	45	9	14	8.1	25	25	3430	8040	1456	40
LMH50LUU-E-OL	50		80		220	192		14	13	116	86	13	80	56	9	14	8.1	25	25	6080	15900	3500	50

Super Linear Ball Bushing Features

Higher Load Ratings

Uniquely designed ball plate is made by hardened steel, and the precisely ground groove is slightly larger than the ball size which provides greater contact area between the ball and the ball plate. And, this design provides 3 times higher load ratings of the conventional linear bushing.

Self Alignment

Ball plate has a convex shape to provide a pivot point at the center which allows self alignment up to 0.5° . This self alignment capability eliminates any possibility of edge pressure caused by inaccurate machining, errors on mounting, or shaft deflection.

Longer Travel Life

KBS Super Linear Ball Bushing offer three times the load rating or 27 times travel life of conventional linear bushing.

Smooth And Silent Motion

Super Linear Ball Bushing has extremly smooth motion due to the uniquely designed ball ratainer and the outer sleeve. They are made of engineering polymer, which has light weight, low friction, and high wear-resistance. Due to them, smooth and silent motion can be obtained.

Clearance Adjustment

Super Linear Ball Bushing's ball plates are designed to float in the outer sleeve. This allows the clearance between the balls and shaft to be adjusted for the best applicantion environment by using with the Clearance Adjustable housing.

Interchangeability

Super Linear Ball Bushing is designed to be fully Interchangeable with conventional linear bushing.

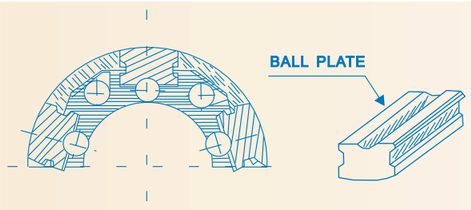


Fig.20.Cross-section of Super Linear Ball Bushing

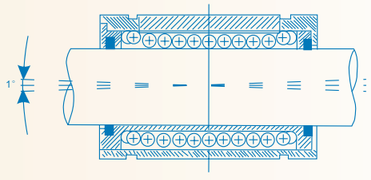


Fig.21.Super Linear Ball Bushing′ s self-alignment featlure

Cost Effectiveness

Lower Cost

Self alignment feature can compensate the in accurate machining of the base. so less installation time and lower cost can be obtained.

Higher Load Rating And Longer Travel Life

Compared to the same size conventional linear bushing, Super Linear Ball Bushing offers higher load rating and longer travel life.

Reduction of Material Cost

Super Linear Ball Bushing's higher load rating enables the use of smaller components, and reducing material cost.

Energy Saving

Super Linear Ball Bushing is deaigned to be light weight, lower inertia, and low friction, So it enables the moving parts to have rapid motion with lower driving power.

Super Linear Ball Bushing

Standard type (not Sealed)

Floating ball plate features offer self alignment and clearance adjustment, and light weight retainer and outer sleeve offers silent operation.

Open Type

One ball circuit is removed from the outer sleeve to be used with bottom supported shaft for deflection free movement. This open type Super Linear Ball Bushing also has self alignment and clearance adjustment.

Standard type (Sealed)

Specially designed integral wiper seals create a free floating action in the outer sleeve. It provides perfect sealing ability during self aligning operation.

Part Number Notation

Super Linear Ball Bushing's part number notation is as follows:

LM □ S | 25 | UU | OP

Model
- E:ISO Standard(metic)
- B:Imperial Standard(inch)

LM Shaft Diameter

Type
- - :Standard Type
- OP:Open Type

Seal
- - :No seal
- UU :Seals on both sides

Load Ratings and Travel Life

Super Linear Ball Bushing's load ratings give an influence to travel life with load direction, ball circuit orientation, and hardness of the shaft.

Basic Dynamic Load Rating (C) and Travel life

The travel life of a Super Linear Ball Bushing is determined largely by t he quality of the shaft. The basic dynamic load rating is maximum continuous load that can be applied to the Super Linear Ball Bushing with 90% of reliability achieving after 50km operation under normal conditions. The nominal travel life can be calculated by following equation.

$$L=\left(\frac{C}{P}\right)^3\times 50 \qquad L_{100}=\left(\frac{C_{100}}{P}\right)^3\times 100$$

L :Nominal life of 50km (km)
L_{100}:Nominal life of 100km (km)
C :Basic dynamic load rating of 50km (N)
C_{100}:Basic dynamic load rating of 100km (N)
P :Applied load (N)

Practically, other factors will affect life as follows:

$$L=\left(\frac{f_H}{f_W}\times\frac{C}{P}\right)^3\times 50 \qquad L=\left(\frac{f_H}{f_W}\times\frac{C_{100}}{P}\right)^3\times 100$$

f_H:Hardness factor (See Fig.1)
f_W: Load factor (See Table 3)

From the above equations, when the stroke and frequency are constant, the travel life can be calculated by following equation:

$$L_h=\frac{L}{2\times Ls\times N\ell\times 60}$$

L_H:Travel life (hr)
Ls:Stroke (km)
Nℓ:Number of strokes per minute (cpm)

Calculation example:

The Maximum applied load and the travel life are the most important factor for choosing a proper size of Super Linear Bal l Bushing. Belows are the sample calculation of the expecting travel life and choosing a proper size of Super Linear Ball Bushing.

—— Working conditions ——
- Applied load: 250N（P）
- Stroke : 0.250m（Ls）
- Number of strokes per minute : 60（Nℓ）
- Shaft hardness : HRC 60（f_H=1.0）
- Operating speed :

$$V=2\times Ls\times N\ell$$
$$=2\times 0.250\times 60$$
$$=30m/min \qquad (f_W=1.6)$$

other factors （f_C、f_T）are considered as 1.0

Calculation of expected travel life:

Assuming the basic dynamic load rating is based on travel life of 50km and all other factors are 1.0, you choose the Super Linear Ball Bushing size that you can expect travel life. Let's try LMES20UU with the above working conditions.

$$L=\left(\frac{1.0\times 1.0\times 1.0}{1.6}\times\frac{2,580}{250}\right)^3\times 50$$
$$\fallingdotseq 13,417km$$

$$L_h=\frac{13,417\times 10^3}{2\times 0.250\times 60\times 60}$$
$$\fallingdotseq 7,454 \text{ hours}$$

Choosing a proper Super Linear Ball Bushing

Let's assume our design travel life is 15,000 hours:

$$L=15,000\times 2\times 0.250\times 10^{-3}\times 60\times 60=27,000km$$

$$L=\frac{250\times 1.6}{1.0\times 1.0\times 1.0}\times\sqrt[3]{\frac{27,000}{50}}$$
$$=3,257N$$

So, the proper Super Linear Ball Bushing for above condition is LMES25UU which has 3,800N as the basic dynamic load rating.

Housing and Shaft

To optimize the performance of the KBS Super Linear Ball Bushing, high precision shaft and housing are required.

Housing

For Super Linear Ball Bushing's application, housing is required, and the tolorance of housing bore will affect the life and the accuracy of application. See Table 9 and 10.

Shaft

Because the balls in KBS Super Linear Ball Bushing as rolling elements are running directly on the shaft surface, the hardness, surface finishing, and tolerance of shaft will largely affect the travelling performance of Super Linear Ball Bushing.

The shaft must have following conditions:

1)Hardness

The hardness must be HRC 58 to 64.
The shaft hardness below HRC 58 will lead decreasing of travel life and permissible load.

2) Surface Finishing

The Surface finishing must be 1.6S or better for the smooth operation.

3) Tolerance

The correct tolerance of the shaft diameter is recommended as shown on Table 9 and Table 10.

Fitting

Recommended fittings between Super Linear Ball Bushing and shaft are shown in Table 9 and Table 10.
Please note when the housing bore tolerance is H7, there are tight fit at the both ends of outer sleeve of metric type.

Table 9 Recommended toleranced between shaft and housing (ISO Standard)

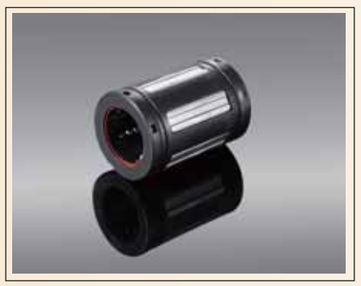
Part Number	shaft		Housing	
	Shaft Dia. d(mm)	Tol.(h6) μm	Housing Bore D(mm)	Tol.(H7) μm
LMES10	10	0 -9	19	+21 0
LMES12	12	0 -11	22	
LMES16	16		26	
LMES20	20	0 -13	32	+25 0
LMES25	25		40	
LMES30	30		47	
LMES40	40	0 -16	62	+30 0
LMES50	50		75	

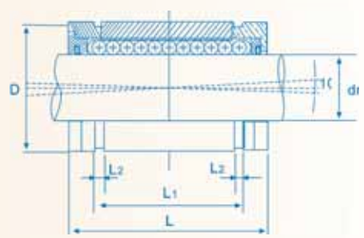
Table 10 Recommended toleranced between shaft and housing (Imperial Standard)

unit: inch

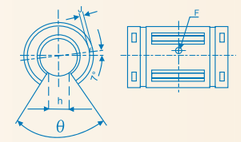
Part Number	shaft		Housing	
	Shaft Dia.	Tol.(g6)	Housing Bore	Tol.(h7)
LMBS4	.2500	-.0002 to -.0006	.5000	0 to +.0007
LMBS6	.3750	-.0002 to -.0006	.6250	0 to +.0007
LMBS8	.5000	-.0002 to -.0007	.8750	0 to +.0008
LMBS10	.6250	-.0002 to -.0007	1.1250	0 to +.0008
LMBS12	.7500	-.0003 to -.0008	1.2500	0 to +.0010
LMBS16	1.0000	-.0003 to -.0008	1.5625	0 to +.0010
LMBS20	1.2500	-.0004 to -.0010	2.0000	0 to +.0012
LMBS24	1.5000	-.0004 to -.0010	2.3750	0 to +.0012
LMBS32	2.0000	-.0004 to -.0012	3.0000	0 to +.0012

LMES Series

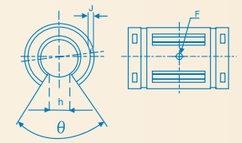




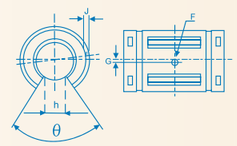
LMES12-OP



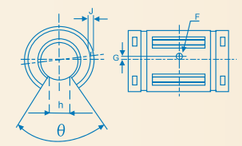
LMES16-OP LMES20-OP



LMES25-OP



LMES30-OP LMES40-OP LMES50-OP



Shaft Dia. (mm)	Standard Type				Dimensions (mm)				Diameteral Clearance		Basic Load Ratings	
	Part number		No.of Ball circuit	Wgt. (g)	D[1]	L ±0.2	L_1 ±0.2	L_2 min	dr (mm)	Tol. (μm)	Dynamic C (N)	Static Co (N)
	w/o seal	with seal										
10	LMES 10	LMES 10UU	5	17	19	29	21.7	1.35	10	+8 0	750	935
12	LMES 12	LMES 12UU	5	23	22	32	22.7	1.35	12		1020	1290
16	LMES 16	LMES 16UU	5	28	26	36	24.7	1.35	16	+9 1	1250	1550
20	LMES 20	LMES 20UU	6	61	32	45	31.3	1.65	20		2090	2630
25	LMES 25	LMES 25UU	6	122	40	58	43.8	1.90	25	+11 1	3780	4720
30	LMES 30	LMES 30UU	6	185	47	68	51.8	1.90	30		5470	6810
40	LMES 40	LMES 40UU	6	360	62	80	60.4	2.20	40	+13 2	6590	8230
50	LMES 50	LMES 50UU	6	580	75	100	77.4	2.70	50		10800	13500

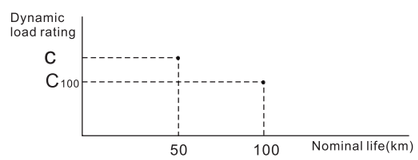
[1] Based on nominal housing bore

note） Reference of dynamic load rating

Dynamic load rating is based on the nominal life of 50km. In case of 100km, C on the table need to be devided by 1.26.

ex）LME20 C：2,580N C_{100}：2,040N

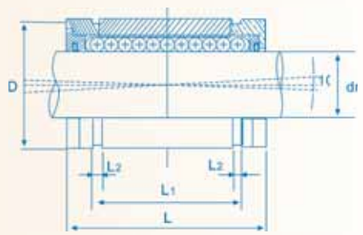
$$L=\left(\frac{C}{P}\right)^3\times 50km \qquad L=\left(\frac{C_{100}}{P}\right)^3\times 100km$$

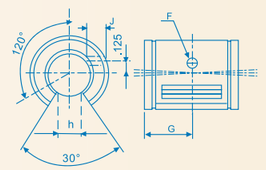


Shaft Dia. (mm)	Open Type				Dimensions (mm)								Basic Load Ratings	
	Part number		No.of Ball circuit	Wgt. (g)	D[1]	L ±0.2	L_2	h	θ (°)	F	G	J	Dynamic C (N)	Static Co (N)
	w/o seal	with seal												
12	LMES 12OP	LMES 12UUOP	4	18	22	32	1.35	6.5	66	3.0	—	0.7	1020	1290
16	LMES 16OP	LMES 16UUOP	4	22	26	36	1.35	9	68		—	0.7	1250	1550
20	LMES 20OP	LMES 20UUOP	5	51	32	45	1.65	9	55		—	0.9	2090	2630
25	LMES 25OP	LMES 25UUOP	5	102	40	58	1.90	11.5	57		1.5	1.4	3780	4720
30	LMES 30OP	LMES 30UUOP	5	155	47	68	1.90	14	57		2.0	2.2	5470	6810
40	LMES 40OP	LMES 40UUOP	5	300	62	80	2.20	19.5	56		1.5	2.7	6590	8230
50	LMES 50OP	LMES 50UUOP	5	480	75	100	2.70	22.5	54		2.5	2.3	10800	13500

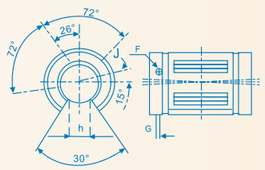
1N≒0.102kgf

LMBS Series

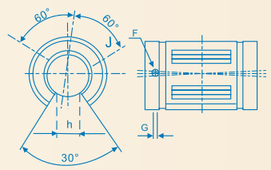




LMBS08-OP



LMBS10-OP



LMBS12-OP through LMBS32-OP

Shaft Dia. (inch)	Standard Type				Dimensions (inch)						Basic Load Ratings	
	Part number		No.of Ball circuit	Wgt. (lbf)	Working Bore Diameter		D[1]	L	L_1	L_2 min	Dynamic C (lbf)	Static Co (lbf)
	w/o seal	with seal			dr	Tol.						
1 / 4	LMBS 4	LMBS 4UU	4	0.01	0.2500	0 -0.0005	0.5000	0.750/0.735	0.511/0.501	0.039	60	80
3 / 8	LMBS 6	LMBS 6UU	4	0.02	0.3750		0.6250	0.875/0.860	0.699/0.689	0.039	95	120
1 / 2	LMBS 8	LMBS 8UU	4	0.05	0.5000		0.8750	1.250/1.230	1.032/1.012	0.050	230	290
5 / 8	LMBS 10	LMBS 10UU	5	0.08	0.6250		1.1250	1.500/1.480	1.105/1.095	0.056	400	500
3 / 4	LMBS 12	LMBS 12UU	6	0.14	0.7500		1.2500	1.625/1.605	1.270/1.250	0.056	470	590
1	LMBS 16	LMBS 16UU	6	0.29	1.0000		1.5625	2.250/2.230	1.884/1.864	0.070	850	1060
1-1 / 4	LMBS 20	LMBS 20UU	6	0.40	1.2500	0 -0.0006	2.0000	2.625/2.600	2.004/1.984	0.068	1230	1530
1-1 / 2	LMBS 24	LMBS 24UU	6	0.80	1.5000		2.3750	3.000/2.970	2.410/2.390	0.086	1480	1850
2	LMBS 32	LMBS 32UU	6	1.38	2.0000	0 -0.0008	3.0000	4.000/3.960	3.193/3.163	0.105	2430	3040

[1] Based on nominal housing bore

Shaft Dia. (inch)	Open Type				Dimensions (inch)							Basic Load Ratings	
	Part number		No.of Ball circuit	Wgt. (lbf)	D[1]	L	F	G	J	L_2 (min)	h	Dynamic C (lbf)	Static Co (lbf)
	w/o seal	with seal											
1 / 2	LMBS 8OP	LMBS 8UUOP	3	0.03	0.8750	1.250/1.230	0.14	0.63	Thru	0.050	0.32	230	290
5 / 8	LMBS 10OP	LMBS 10UUOP	4	0.06	1.1250	1.500/1.480	0.11	0.13	0.039	0.056	0.38	400	500
3 / 4	LMBS 12OP	LMBS 12UUOP	5	0.11	1.2500	1.625/1.605	0.14	0.13	0.059	0.056	0.43	470	590
1	LMBS 16OP	LMBS 16UUOP	5	0.21	1.5625	2.250/2.230	0.14	0.13	0.047	0.070	0.56	850	1060
1-1 / 4	LMBS 20OP	LMBS 20UUOP	5	0.35	2.0000	2.625/2.600	0.20	0.19	0.090	0.068	0.63	1230	1530
1-1 / 2	LMBS 24OP	LMBS 24UUOP	5	0.67	2.3750	3.000/2.970	0.20	0.19	0.090	0.086	0.75	1480	1850
2	LMBS 32OP	LMBS 32UUOP	5	1.10	3.0000	4.000/3.960	0.27	0.31	Thru	0.105	1.00	2430	3040

[1] Based on nominal housing bore

<KBS Linear Ball Bushing System>
<KBS Case Unit>

KBS offer various types Linear Bushing Case Units for designing of linear motion systems. Precisely machined Aluminum Cases are standardized for providing interchangeablity, less cost and less designing time.

Case Unit

The case is compact and light weight, and the standard type Linear Bushing is assembled inside.

SC（E）type

Standard type Aluminum Case Unit.
Simple mounting with mounting bolt to the table.

SC(E)□V type

Short type Aluminum Case Unit with a standard type Linear Bushing.
More compact design than SC(E) type is available.

SC(E)□W type

Assembled with double standard type Linear Bushing in a long Aluminum Case.

SCJ type

Clearance adjustable type Aluminum Case Unit by slotting in axial direction.
If high precise positioning is required, SCJ type can minimize the effect of clearance between shaft and Case Unit.

Part Number Notation

SC □ 20 □ UU(N)

Case Unit

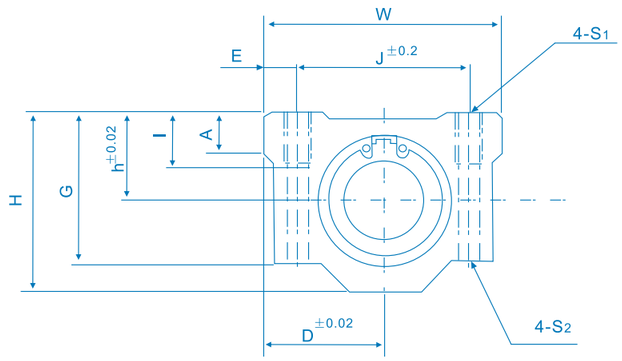
Model
- :Asian standard type
E:European type
J:Clearance adjustable type

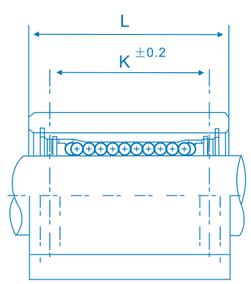
LM Shaft Diameter

Seal
--:No seal
UU:Seals on both sides

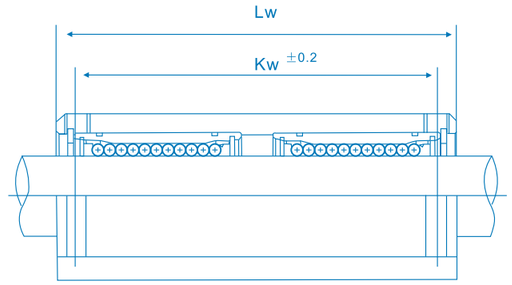
Type
- :Standard type
W:Long type
V:Short type

SC Series

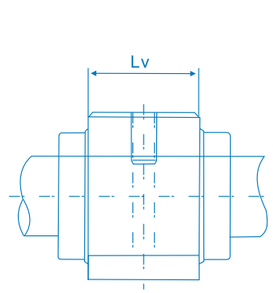




SC□N



SC□WN

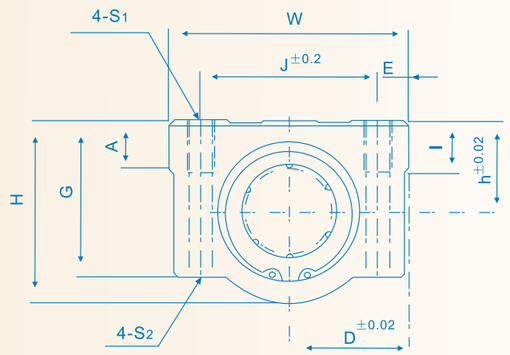


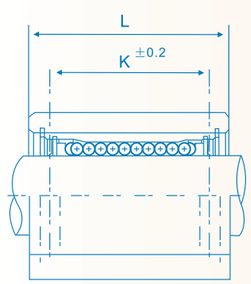
SC□VN

Standard Type					Long Type					Short Type					Dimensions(mm)																	Part Number
Part Number	Installed L/B	Load Ratings		Wgt. (g)	Part Number	Installed L/B	Load Ratings		Wgt. (g)	Part Number	Installed L/B	Load Ratings		Wgt. (g)	Shaft Dia.	Common											SC		SC□W		SC□V	
		C (N)	Co (N)				C (N)	Co (N)				C (N)	Co (N)			h	D	W	H	G	A	J	E	S1×I	S2	K	L	Kw	Lw	Lv	
SC6UUN	LM6UU														⌀6	9±0.02	15±0.02	30	18	15	6	20	5	M4×8	Φ3.4	15	25				
SC8UUN	LM8UU	274	392	52	**SC8WUUN**	2×LM8UU	431	784	102	**SC8VUUN**	LM8UU	260	400	36	⌀8	11	17	34	22	18	6	24	5	M4×8	Φ3.4	18	30	42	58	15.4	**SC8UUN**
SC10UUN	LM10UU	372	549	92	**SC10WUUN**	2×LM10UU	588	1100	180	**SC10VUUN**	LM10UU	370	540	63	⌀10	13	20	40	26	21	8	28	6	M5×12	Φ4.3	21	35	46	68	19.5	**SC10UUN**
SC12UUN	LM12UU	510	784	102	**SC12WUUN**	2×LM12UU	813	1570	205	**SC12VUUN**	LM12UU	410	590	74	⌀12	15	21	42	28	24	8	30.5	5.75	M5×12	Φ4.3	26	36	50	70	20.5	**SC12UUN**
SC13UUN	LM13UU	510	784	120	**SC13WUUN**	2×LM13UU	813	1570	240	**SC13VUUN**	LM13UU	500	770	85	⌀13	15	22	44	30	24.5	8	33	5.5	M5×12	Φ4.3	26	39	50	75	20.5	**SC13UUN**
SC16UUN	LM16UU	774	1180	200	**SC16WUUN**	2×LM16UU	1230	2350	400	**SC16VUUN**	LM16UU	770	1170	132	⌀16	19	25	50	38.5	32.5	9	36	7	M5×12	Φ4.3	34	44	60	85	23.5	**SC16UUN**
SC20UUN	LM20UU	882	1370	255	**SC20WUUN**	2×LM20UU	1400	2740	570	**SC20VUUN**	LM20UU	860	1370	170	⌀20	21	27	54	41	35	11	40	7	M6×12	Φ5.2	40	50	70	96	27.4	**SC20UUN**
SC25UUN	LM25UU	980	1570	600	**SC25WUUN**	2×LM25UU	1560	3140	1200	**SC25VUUN**	LM25UU	980	1560	405	⌀25	26	38	76	51.5	42	12	54	11	M8×18	Φ7.0	50	67	100	130	37.4	**SC25UUN**
SC30UUN	LM30UU	1570	2740	735	**SC30WUUN**	2×LM30UU	2490	5490	1480	**SC30VUUN**	LM30UU	1560	2740	495	⌀30	30	39	78	59.5	49	15	58	10	M8×18	Φ7.0	58	72	110	140	40.9	**SC30UUN**
SC35UUN	LM35UU	1670	3140	1100	**SC35WUUN**	2×LM35UU	2650	6270	2200	**SC35VUUN**	LM35UU	1660	3130	790	⌀35	34	45	90	68	54	18	70	10	M8×18	Φ7.0	60	80	120	155	45.4	**SC35UUN**
SC40UUN	LM40UU	2160	4020	1590	**SC40WUUN**	2×LM40UU	3430	8040	3200	**SC40VUUN**	LM40UU	2150	4010	1220	⌀40	40	51	102	78	62	20	80	11	M10×25	Φ8.7	60	90	140	175	56.4	**SC40UUN**
SC50UUN	LM50UU	3820	7940	3340	**SC50WUUN**	2×LM50UU	6080	15900	6700	**SC50VUUN**	LM50UU	3820	7390	2300	⌀50	52	61	122	102	80	25	100	11	M10×25	Φ8.7	80	110	160	215	68.9	**SC50UUN**

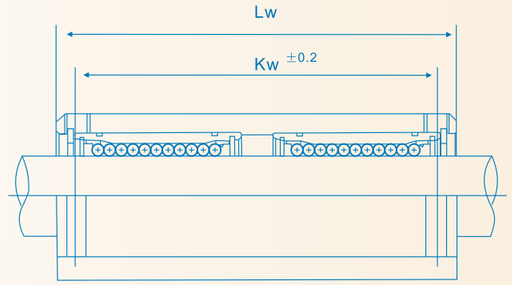
1N≒0.102kgf

SCE Series

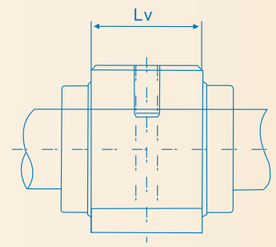




SCE



SCE□ W



SCE□ V

Standard Type					Long Type					Short Type					Dimensions(mm)																	Part Number
Part Number	Installed L/B	Basic Load Ratings		Wgt. (g)	Part Number	Installed L/B	Basic Load Ratings		Wgt. (g)	Part Number	Installed L/B	Basic Load Ratings		Wgt. (g)	Shaft Dia.	Common											SC		SCE□W		SCE□V	
		C (N)	Co (N)				C (N)	Co (N)				C (N)	Co (N)			h	D	W	H	G	A	J	E	S1×I	S2	K	L	Kw	Lw	Lv	
SCE8UU	LME8UU	260	400	60	**SCE8WUU**	2×LME8UU	410	800	98	**SCE8VUU**	LME8UU	260	400	40	⌀8	11	17	34	22	18	6	24	5	M4×8	Φ3.4	18	30	42	58	15.4	**SCE8UU**
SCE12UU	LME12UU	410	590	118	**SCE12WUU**	2×LME12UU	650	1180	232	**SCE12VUU**	LME12UU	410	590	82	⌀12	15	22	44	30	24.5	8	33	5.5	M5×10	Φ4.3	26	36	50	70	20.5	**SCE12UU**
SCE16UU	LME16UU	770	1170	180	**SCE16WUU**	2×LME16UU	1230	2340	360	**SCE16VUU**	LME16UU	770	1170	122	⌀16	19	25	50	38.5	32.5	9	36	7	M5×12	Φ4.3	34	44	60	85	23.5	**SCE16UU**
SCE20UU	LME20UU	860	1370	245	**SCE20WUU**	2×LME20UU	1370	2740	490	**SCE20VUU**	LME20UU	860	1370	176	⌀20	21	27	54	41	35	11	40	7	M6×12	Φ5.2	40	53	70	96	27.4	**SCE20UU**
SCE25UU	LME25UU	980	1560	550	**SCE25WUU**	2×LME25UU	1560	3120	1100	**SCE25VUU**	LME25UU	980	1560	400	⌀25	26	38	76	51.5	41	12	54	11	M8×18	Φ6.8	50	67	100	130	37.4	**SCE25UU**
SCE30UU	LME30UU	1560	2740	760	**SCE30WUU**	2×LME30UU	2490	5480	1525	**SCE30VUU**	LME30UU	1560	2740	570	⌀30	30	39	78	59.5	49	15	58	10	M8×18	Φ6.8	58	72	110	140	40.9	**SCE30UU**
SCE40UU	LME40UU	2150	4010	1700	**SCE40WUU**	2×LME40UU	3440	8020	3400	**SCE40VUU**	LME40UU	2150	4010	1320	⌀40	40	51	102	78	62	20	80	11	M10×25	Φ8.6	60	90	140	175	56.4	**SCE40UU**
SCE50UU	LME50UU	3820	7930	2950	**SCE50WUU**	2×LME50UU	6110	15860	5920	**SCE50VUU**	LME50UU	3820	7930	1900	⌀50	52	61	122	102	80	24	100	11	M10×25	Φ8.6	80	110	160	215	68.9	**SCE50UU**

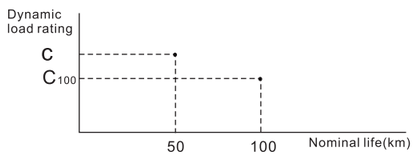
1N≒0.102kgf

note） Reference of dynamic load rating

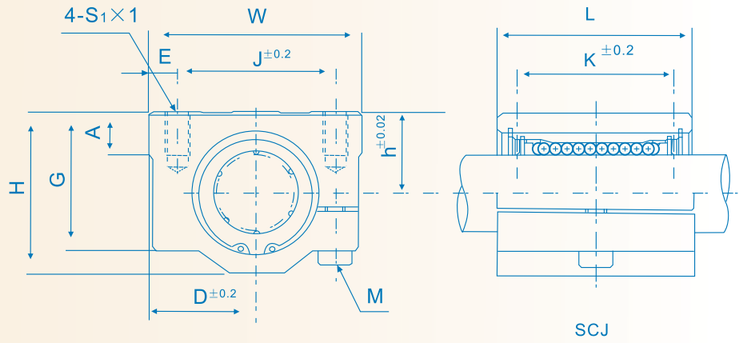
Dynamic load rating is based on nominal life of 50km. In case of 100km, C on the table need to be devided by 1.26.

ex）LME20　C：860N　C_{100}：682N

$$L=\left(\frac{C}{P}\right)^3\times 50km \qquad L=\left(\frac{C_{100}}{P}\right)^3\times 100km$$



SCJ Series



Part Number	Installed L/B	Load Ratings C (N)	Load Ratings Co (N)	Shaft Dia.	Dimensions(mm) h	D	W	H	G	A	J	E	S1×l	K	L	M	Wgt. (g)
SCJ10UU	LM10UUAJ	372	549	⌀ 10	13	20	40	26	21	8	28	6	M5×12	21	35	M4	92
SCJ12UU	LM12UUAJ	510	784	⌀ 12	15	21	42	28	24	8	30.5	5.75	M5×12	26	36	M4	102
SCJ13UU	LM13UUAJ	510	784	⌀ 13	15	22	44	30	24.5	8	33	5.5	M5×12	26	39	M4	120
SCJ16UU	LM16UUAJ	774	1180	⌀ 16	19	25	50	38.5	32.5	9	36	7	M5×12	34	44	M4	200
SCJ20UU	LM20UUAJ	882	1370	⌀ 20	21	27	54	41	35	11	40	7	M6×12	40	50	M5	255
SCJ25UU	LM25UUAJ	980	1570	⌀ 25	26	38	76	51.5	41	12	54	11	M8×18	50	67	M6	600
SCJ30UU	LM30UUAJ	1570	2740	⌀ 30	30	39	78	59.5	49	15	58	10	M8×18	58	72	M6	735
SCJ35UU	LM35UUAJ	1670	3140	⌀ 35	34	45	90	68	54	18	70	10	M8×18	60	80	M6	1100
SCJ40UU	LM40UUAJ	2160	4020	⌀ 40	40	51	102	78	62	20	80	11	M10×25	60	90	M8	1590
SCJ50UU	LM50UUAJ	3820	7940	⌀ 50	52	61	122	102	80	25	100	11	M10×25	80	110	M8	3340

1N≒0.102kgf

<KBS Linear Ball Bushing System>
<KBS Support Rail Unit>

KBS Support Rail Unit is assembled by of Support Rail, LM Shaft, and Open type Linear Bushing installed Case. All components are standardized for providing interchangebility, and less cost and less designing time.

Support Rail （SBS、TBS）

Support Rail provides maximum rigidity and stiffness to the shaft throughout the whole stroke, and ensure the performance of the unit.

Case （SBR、TBR、SMD）

Effective for High load or long stroke application with maximum rigidity and excelent motion in combination with Open type Lineat Bushing. Moreover, preload can be applied on TBR&SMD series for high precision performance.

Support Rail Unit （SBR-S、TBR-S）

SBR-S and TBR-S type are optimum guide units for high precision and deflection free sliding system with smooth motion and maximum rigidity, and less cost and time.

KBS
LINEAR BALL BUSHING

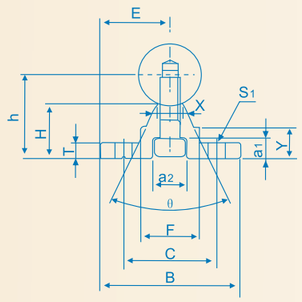
SBS Series

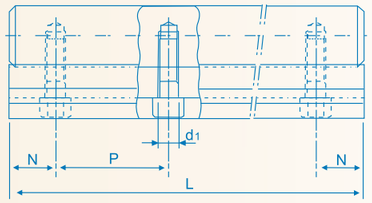
Part Number Notation

SB □ □ -1000L

- SB: Support Rail for SBR Unit
- Shaft
  - S:Shaft include
  - - :Shaft not include
- Support Rail Length*
- LM Shaft Diameter.

*Standard lengths are recommended on the table below.
Drawing should be received with the order for customer design.





Part Number	Shaft Dia.	Dimensions(mm)														Wgt. (Kg)/m
		E	h	B	H	T	F	X	Y	C	θ	S1	a1	a2	d1	
SBS16	⌀16	20	25	40	17.8	5	18.5	8	11.7	30	80°	⌀5.5	6	9.5	5.5	2.56
SBS20	⌀20	22.5	27	45	17.7	5	19	8	10	30	50°	⌀5.5	6.5	11	6.6	3.50
SBS25	⌀25	27.5	33	55	21	6	21.5	8	12	35	50°	⌀6.6	6.5	11	6.6	5.30
SBS30	⌀30	30	37	60	22.8	7	26.5	10.3	13	40	50°	⌀6.6	8.5	14	9	7.38
SBS35	⌀35	32.5	43	65	26.6	8	28	13	15.5	45	50°	⌀9	8.5	14	9	9.68
SBS40	⌀40	37.5	48	75	29.4	9	38	16	17	55	50°	⌀9	8.5	14	9	12.69
SBS50	⌀50	47.5	62	95	38.8	11	45	20	21	70	50°	⌀11	12.5	19	11	20.46

Standard Length of Support Rail and Dimensions

Part Number	SBS16	SBS20	SBS25	SBS30	SBS35	SBS40	SBS50
Standard Length (L)	190 340 640 940	340 640 940 1240	250 450 850 1250	450 850 1250 1450	460 660 860 1060	460 660 860 1060	470 670 870 1070 1270
N	20	20	25	25	30	30	35
Pitch(P)	150	150	200	200	200	200	200
Max.Length	1390	1390	1850	1850	1860	1860	2070

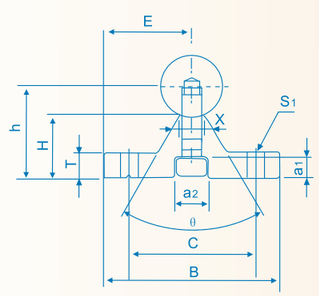
TBS Series

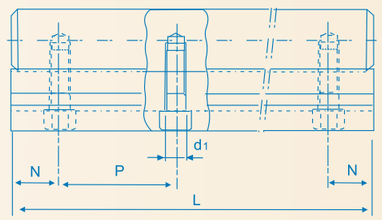
Part Number Notation

TB □ □ -1000L

- TB: Support Rail for TBR Unit
- Shaft
  - S:Shaft include
  - - :Shaft not include
- Support Rail Length*
- LM Shaft Diameter.

*Standard lengths are recommended on the table below.
Drawing should be received with the order for customer design.





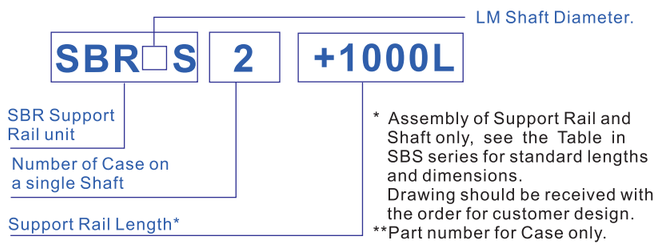
Part Number	Shaft Dia.	Dimensions(mm)												Wgt. (Kg)/m
		E	h	B	H	T	X	C	θ	S1	a1	a2	d1	
TBS16	⌀16	25	22	50	14.84	6	8	37	60°	⌀5.5	6	9.5	5.5	2.66
TBS20	⌀20	27.5	29	55	19.64	8	8	40	50°	⌀5.5	6.5	11	6.6	4.23
TBS25	⌀25	32.5	32	65	20	10	8	45	50°	⌀6.6	6.5	11	6.6	5.85
TBS30	⌀30	37.5	36.5	75	22.28	12	10.3	55	50°	⌀6.6	8.5	14	9	8.28

Standard Length of Support Rail and Dimensions

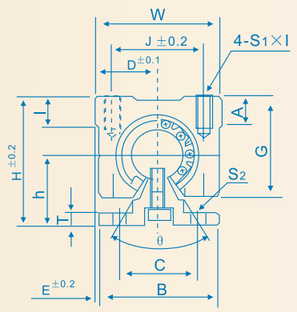
Part Number	TBS16	TBS20	TBS25	TBS30
Standard Length (L)	190 340 640 940	340 640 940 1240	250 450 850 1250	450 850 1250 1450
N	20	20	25	25
Pitch(P)	150	150	200	200
Max.Length	1390	1390	1850	1850

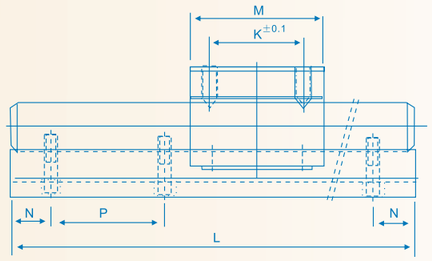
SBR□S Series

Part Number Notation



* Assembly of Support Rail and Shaft only, see the Table in SBS series for standard lengths and dimensions.
Drawing should be received with the order for customer design.
**Part number for Case only.





Part Number		Shaft Dia.	Basic Load Ratings		Weight		Dimensions(mm)				
Unit	Case*		Dynamic C(N)	Static Co(N)	Case(kg)	Rail(kg/m)	D	h	H	E	θ
SBR16S	SBR16UU	⌀16	770	1170	0.15	2.55	22.5	25	45	2.5	80°
SBR20S	SBR20UU	⌀20	860	1370	0.20	3.50	24	27	50	1.5	60°
SBR25S	SBR25UU	⌀25	980	1560	0.45	5.30	30	33	60	2.5	50°
SBR30S	SBR30UU	⌀30	1560	2740	0.63	7.40	35	37	70	5	50°
SBR35S	SBR35UU	⌀35	1660	3130	0.92	10.05	40	43	80	7.5	50°
SBR40S	SBR40UU	⌀40	2150	4010	1.33	13.10	45	48	90	7.5	50°
SBR50S	SBR50UU	⌀50	3820	7930	3.00	20.65	60	62	115	12.5	50°

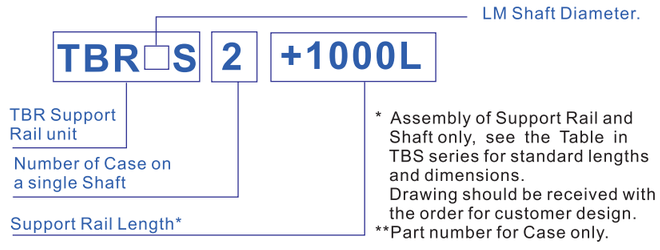
Part Number	Dimensions(mm)												
	W	G	A	B	T	M	S1×l	J	K	S2	C	N*	P*
SBR16S	45	33	9	40	5	45	M5×12	32	30	⌀5.5	30	20	150
SBR20S	48	39	11	45	5	50	M6×12	35	35	⌀5.5	30	20	150
SBR25S	60	47	14	55	6	65	M6×12	40	40	⌀6.6	35	25	200
SBR30S	70	56	15	60	7	70	M8×18	50	50	⌀6.6	40	25	200
SBR35S	80	63	18	65	8	80	M8×18	55	55	⌀9	45	30	200
SBR40S	90	72	20	75	9	90	M10×20	65	65	⌀9	55	30	200
SBR50S	120	91	25	95	11	110	M10×20	94	80	⌀11	70	35	200

*:Standard

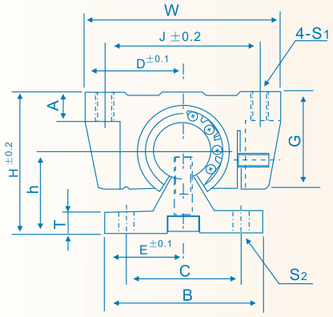
1N≒0.102kgf

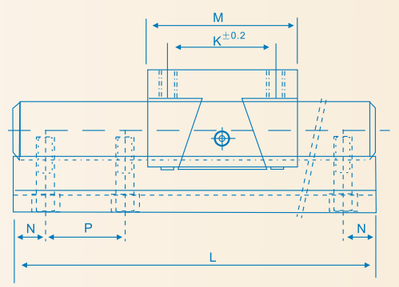
TBR□S Series

Part Number Notation



* Assembly of Support Rail and Shaft only, see the Table in TBS series for standard lengths and dimensions.
Drawing should be received with the order for customer design.
**Part number for Case only.





Part Number		Shaft Dia.	Basic Load Ratings		Weight		Dimensions(mm)			
Unit	Case**		Dynamic C(N)	Static Co(N)	Case(kg)	Rail(kg/m)	D	h	H	E
TBR16S	TBR16UU	⌀16	392	490	0.18	2.45	31	22.14	40	25
TBR20S	TBR20UU	⌀20	784	1176	0.30	3.60	34	29.01	50	27.5
TBR25S	TBR25UU	⌀25	1568	2352	0.60	5.60	41	31.97	60	32.5
TBR30S	TBR30UU	⌀30	1764	2940	0.90	8.00	45.5	36.52	70	37.5

Part Number	Dimensions(mm)												
	W	G	A	B	T	M	S1	J	K	S2	C	N*	P*
TBR16S	62	26	8	50	6	42	M5	50	30	⌀5.5	37	20	150
TBR20S	68	31	10	55	8	51	M6	54	37	⌀5.5	40	20	150
TBR25S	82	41	12	65	10	65	M8	65	50	⌀6.6	45	25	200
TBR30S	91	48	12	75	12	75	M8	75	60	⌀6.6	55	25	200

*:Standard

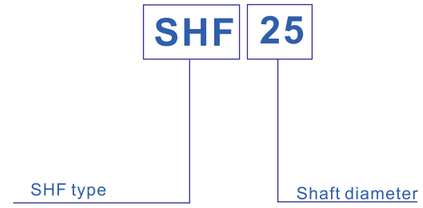
1N≒0.102kgf

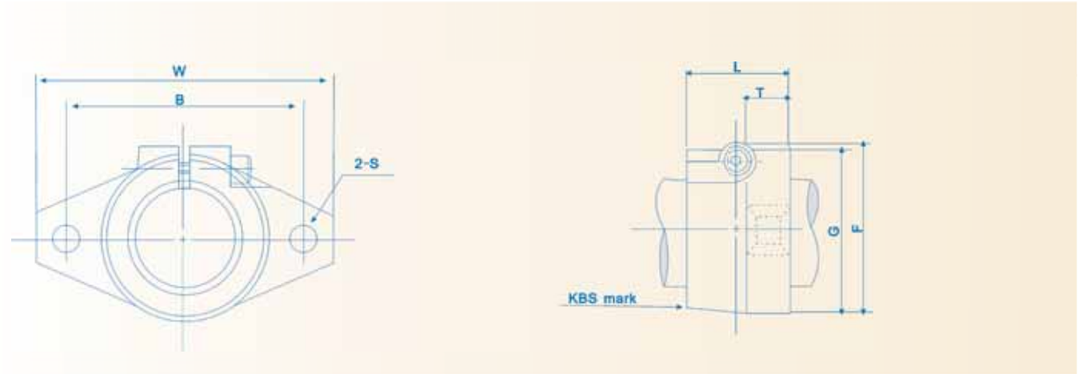
KBS®

<KBS Linear Ball Bushing System>
<KBS Shaft Support>

SHF Type

Part number structure example



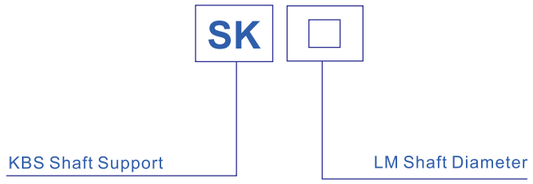


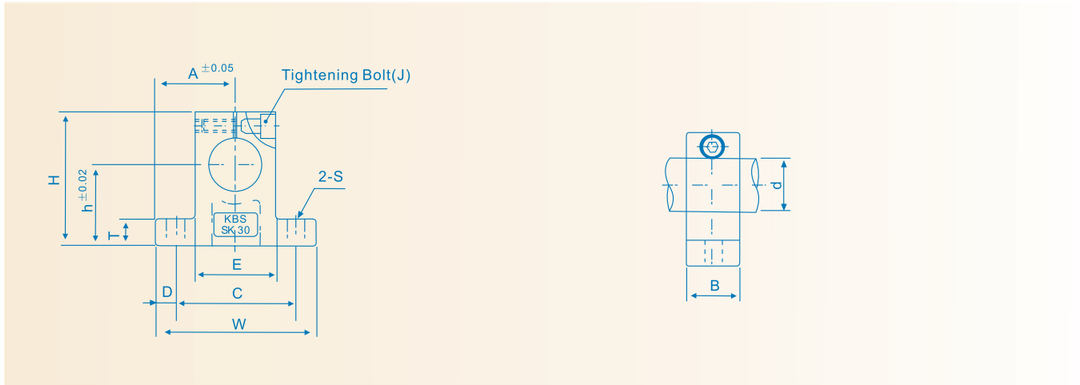
Part Number	Shaft Diameter mm	Major Dimensions							Adjusting Bolt Size	Wgt. g
		W mm	L mm	T mm	F mm	G mm	B mm	S (Bolt Size) mm		
SHF 10	10	43	10	5	24	20	32	5.5(M5)	M 4	13
SHF 12	12	47	13	7	28	25	36	5.5(M5)	M 4	20
SHF 13	13	47	13	7	28	25	36	5.5(M5)	M 4	20
SHF16	16	50	16	8	31	28	40	5.5(M5)	M 4	27
SHF 20	20	60	20	8	37	34	48	7(M6)	M 5	40
SHF 25	25	70	25	10	42	40	56	7(M6)	M 5	60
SHF 30	30	80	30	12	50	46	64	9(M8)	M 6	110
SHF 35	35	92	35	14	58	50	72	12(M10)	M 8	380
SHF 40	40	102	40	16	67	56	80	12(M10)	M 10	510
SHF 50	50	122	50	19	83	70	96	14(M12)	M 12	890
SHF 60	60	140	60	23	95	82	112	14(M12)	M 12	1,500

Shaft Support

Support for Shaft ends. KBS Shaft Support is made of Aluminium with compact design, and able to fix the LM Shaft by tightening bolt at the axial direction slot.

KBS Shaft Support SK Series





Part Number	Shaft Dia.	Dimensions(mm)											Wgt. (g)
		h	A	W	H	T	E	D	C	B	S	J	
SK8	⌀8	20	21	42	32.8	6	18	5	32	14	⌀5.5	M4	24
SK10	⌀10	20	21	42	32.8	6	18	5	32	14	⌀5.5	M4	24
SK12	⌀12	23	21	42	38	6	20	5	32	14	⌀5.5	M4	30
SK13	⌀13	23	21	42	38	6	20	5	32	14	⌀5.5	M4	30
SK16	⌀16	27	24	48	44	8	25	5	38	16	⌀5.5	M4	40
SK20	⌀20	31	30	60	51	10	30	7.5	45	20	⌀6.6	M5	70
SK25	⌀25	35	35	70	60	12	38	7	56	24	⌀6.6	M6	130
SK30	⌀30	42	42	84	70	12	44	10	64	28	⌀9	M6	180
SK35	⌀35	50	49	98	85	15	50	12	74	32	⌀11	M8	270
SK40	⌀40	60	57	114	96	15	60	12	90	36	⌀11	M8	420
SK50	⌀50	70	63	126	120	18	74	13	100	40	⌀14	M14	750
SK60	⌀60	80	74	148	136	18	90	14	120	45	⌀14	M12	1100

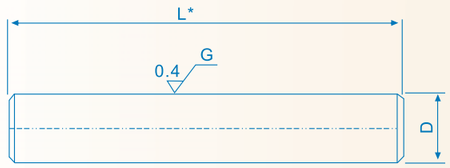
KBS®

<KBS Linear Ball Bushing System>
<KBS LM Shaft>

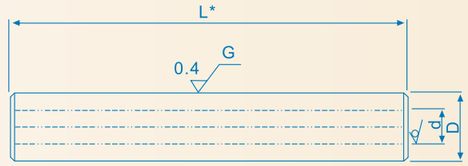
Fine Shaft

The KBS fine shaft is standardized as the most frequently used slide shafts with the KBS linear bush. The diversification of industrial needs for rationalization, energy conservation, lower cost, etc. is proceeding rapidly. In such an environment, KBS Fine Shafts are mass produced to maintain the highest quality and accuracy while lowering the component cost.

SF/SFH

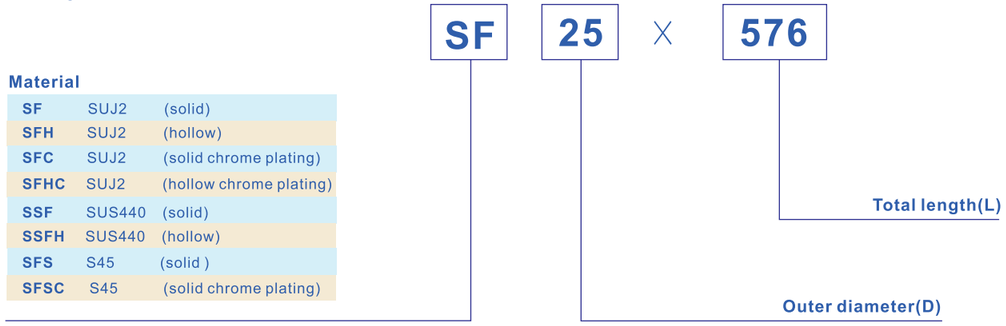


SFH/SFHC



*JISB0405 coarse-grade applies to lenght(L).

Part number structure example



Fine Shaft(SF Type)

Part Number	Outer Diameter D mm	Tolerance g6 μm	Length L mm 100	200	300	400	500	600	800	1000	1200	1500	1800	2000	Mass kg/m
SF 6	6	-4/-12	100					600							0.23
SF 8	8	-5							800						0.40
SF 10	10	-14			200					1000					0.62
SF 12	12	-6										1500			0.89
SF 13	13	-17													1.04
SF 16	16					300								2000	1.58
SF 20	20	-7													2.47
SF 25	25	-20					400								3.85
SF 30	30														5.55
SF 35	35	-9						500							7.55
SF 40	40	-25													9.87
SF 50	50								600						15.4

Material:high-carbon chromium bearing steel(SUJ2) hardness:HV697(60HRC) or more

Pipe Fine Shaft (SFH Type)

Part Number	Outer Diameter D mm	Tolerance g6 μm	Inner diameter d mm	Length L mm 100	200	300	400	500	600	800	1000	1200	1500	1800	2000	Mass kg/m
SFH 6	6	-4/-12	2		100		400									0.20
SFH 8	8	-5	3						600							0.34
SFH 10	10	-14	4			200					1000					0.52
SFH 12	12	-6	5										1500			0.73
SFH 13	13	-17	6													0.82
SFH 16	16		8				300								2000	1.18
SFH 20	20	-7	10													1.85
SFH 25	25	-20	15					400								2.46
SFH 30	30		16													3.97
SFH 35	35	-9	19						500							5.32
SFH 40	40	-25	20													7.39
SFH 50	50		26							600						11.3

Material:high-carbon chromium bearing steel(SUJ2) hardness:HV697(60HRC) or more

Stainless Fine Shaft (SSF & SSFH Type)

Part Number	Outer Diameter D mm	Tolerance g6 μm	Length L mm 100	200	300	400	500	600	800	1000	1200	1500	1800	2000	Mass kg/m
SSF 6	6	-4/-12	100					600							0.33
SSF 8	8	-5							800						0.39
SSF 10	10	-14		200						1000					0.61
SSF 12	12	-6										1500			0.88
SSF 13	13	-17													1.03
SSF 16	16				300									2000	1.56
SSF 20	20	-7													2.43
SSF 25	25	-20				400									3.80
SSF 30	30														5.48
SSF 35	35	-9					500								7.23
SSF 40	40	-25													9.44
SSF 50	50							600							15.2

Material:Matensite stainless steel(equivalent to SUS 440C)
hardness:HV653(58HRC) or more, HV613(56HRC) or more for ⌀3-6

Fine Shaft S45C Material (SFS & SFSC)

Part Number	Outer Diameter D mm	Tolerance g6 μm	Length L mm 500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	Mass kg/m
SFS/SFSC	2	-2													0.02
SFS/SFSC	3	-8													0.06
SFS/SFSC	4	-4 -12													0.10
SFS/SFSC	5														0.16
SFS/SFSC	6														0.23
SFS/SFSC	7	-5 -14													0.30
SFS/SFSC	8														0.40
SFS/SFSC	9														0.50
SFS/SFSC	10														0.62
SFS/SFSC	11														0.75
SFS/SFSC	12														0.89
SFS/SFSC	13														1.04
SFS/SFSC	14														1.21
SFS/SFSC	15														1.39
SFS/SFSC	16														1.56
SFS/SFSC	17														1.78
SFS/SFSC	18														2.00
SFS/SFSC	19	-17 -20													2.23
SFS/SFSC	20														2.47
SFS/SFSC	22														2.98
SFS/SFSC	25	-7													3.85
SFS/SFSC	28	-16													4.83
SFS/SFSC	30														5.55
SFS/SFSC	32	-9													6.31
SFS/SFSC	35														7.55
SFS/SFSC	38	-25													8.90
SFS/SFSC	40														9.87
SFS/SFSC	45														12.50
SFS/SFSC	50														15.40
SFS/SFSC	55	-10													18.70
SFS/SFSC	60														22.20
SFS/SFSC	65														26.65
SFS/SFSC	70	-29													30.20
SFS/SFSC	75														34.70
SFS/SFSC	80														39.40
SFS/SFSC	85	-12													44.50
SFS/SFSC	90														50.00
SFS/SFSC	95	-34													55.60
SFS/SFSC	100														61.70

Chemical composition of S45C Material

S45C	C	Si	Mn	P	S	Cu	Ni	Cr	Mo
	0.42∽0.48	0.15∽0.35	0.6∽0.9	0.03∽0.012	0.01∽0.03	0.1∽0.3	0.06∽0.2	0.06∽0.2	0.145

Rockwell：HRC 54—56
RoughNess：0.6S—1.5S Rmax（μm）
Tolerance：96
Out Diameter：φ2-φ100

Order Lenght：500mm—3000 mm（6.000 mm）
Straigtness：60μm/m（30μm/m）
Roundess：96（6—17μm/m）
Cylindericity：4-14μm（φ2— φ100）

KBS Linear Ball Bushing-Interchangeability List

KBS
LINEAR BALL BUSHI

Ball Bushing-Compact Type

KBS	NTN	STAR	INA	SKF	FAG
KH..	KH..	0658-0..-00	KH..	LBBR..	LNA..
			(LBBS..)		(LNA..)
KH.. PP	KH.. LL	0658-2..-40	KH.. PP	LBBR..2LS	LNA..2RS
			(LBBS..2LS)		(LFA..2RS)

Ball Bushing-Resin Retainer

KBS	NB	THK	EASE
LM..	SM..G	LM..	SDM..
LM..UU	SM..GUU	LM..UU	SDM..UU
LM..AJ	SM..GAJ	LM..AJ	SDM..AJ
LM..UUAJ	SM..GUUAJ	LM..UUAJN	SDM..UUAJ
LM..OP	SM..GOP	LM..OP	SDM..OP
LM..UUOP	SM..GUUOP	LM..UUOP	SDM..UUOP

The above types are metric dimension series generally used in Japan and other countries.

KBS	NB	THK	EASE
LMB..	SW..G	LMB..	SDB..
LMB..UU	SW..GUU	LMB..UU	SDB..UU
LMB..AJ	SW..GAJ	LMB..AJ	SDB..AJ
LMB..UUAJ	SW..GUUAJ	LMB..UUAJ	SDB..UUAJ
LMB..OP	SW..GOP	LMB..OP	SDB..OP
LMB..UUOP	SW..GUUOP	LMB..UUOP	SDB..UUOP

The above types are inch dimension series generally used in US.

KBS	NB	INA	SKF	THK	IKO	IKO	EASE
LME..	KB..G	KB..	LBAR/LBCR..	LME..	LBE..	MA M..	SDE..
LME..UU	KB..GUU	KB..PP	LBAR/LBCR..2LS	LME..UU	LBE..UU	MA M..WW	SDE..UU
LME..AJ	KB..GAJ	KBS..	LBAS..	LME..AJ	LBE..AJ	MA M..ADJ	SDE..AJ
LME..UUAJ	KB..GUUAJ	KBS..PP	LBAS..2LS	LME..UUAJ	LBE..UUAJ	MA M..ADJ WW	SDE..UUAJ
LME..OP	KB..GOP	KBO..	LBAT/LBCT..	LME..OP	LBE..OP	MA M..OPN	SDE..OP
LME..UUOP	KB..GUUOP	KBO..PP	LBAT/LBCT..2LS	LME..UUOP	LBE..UUOP	MA M..OPN WW	SDE..UUOP

The above types are metric dimension series generally used in Europe.