ZGPMT
Precision machinery technology

滑动轴承专业制造商
Professional manufacturer
of plain bearings

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浙江众高精密机械科技有限公司
ZHEJIANG ZHONGGAO PRECISION MACHINERY TECHNOLOGY CO., LTD.

为全球工业提供各种自润滑轴承解决方案
Your Partner for Self-lubricating Bearing Application

公司简介

浙江众高精密机械科技股份有限公司地处于长三角地区的嘉善县干窑镇，环境优美，交通便利。公司长期致力于无油自润滑轴承和实体浇铸铜套的开发与设计，目前公司主要产品有：SF无油润滑轴承、JF双金属轴承、FB青铜轴承、JDB镶嵌固体润滑轴承等16个系列产品，已在高温、高速等多种场合进行了使用。公司拥有一支高素质、强劲的技术队伍和齐全、精良的机械加工设备，配备有精密检验和试验设备，产品具有较强的市场竞争能力。配备有使产品质量得到有效保证各类加工和检测设备，同时提供了优质的售后服务，深受客户好评与信赖。

我们将本着“质量保证、诚信为本”的经营理念，在以后的发展历程中一如既往的为您提供优质的产品和完善的售后服务。

Introduction

ZHEJIANG ZHONGGAO PRECISION MACHINERY TECHNOLOGY CO., LTD. is located in Jiashan, Zhejiang Yangtze River Delta, which is of Beautiful environment, convenient transportation. We have been committed to design of oilless bushing and solid bronze production. At present our main products are related to 16 series, such as SF Boundary bushing, JF Bi-metal bushing, FB wrapped bronze bushing as well as JDB bronze bushing with graphite plugged-in, which are used in high-temperature and speed conditions. Our company is equipped with quality technicians' team, well-equipped production and inspection facilities. The products are of competitive pricing and high quality. We offer best service and being trustful supplier.

We promise to be in the "quality first, integrity-based" business philosophy, in the future course of development, as always, to provide you with quality products and perfect after-sales service.

卷制类轴承车间全景
Panoramic view of rolling bearing workshop

冲压机床
Stamping machine

PRODUCTION EQUIPMENT

Rigorous work attitude creates Huacheng's excellent quality

严谨的工作态度铸就众高优秀的品质

我们的承诺是始终不渝地创造新业绩，以维持我们在无油轴承领域卓越供应商的地位。

完善的品质保证体系，精密的检测设备，优秀的品质资源，三位一体的专业保障，构建众高轴承高品质的坚实的堡垒。

随着全球经济一体化的进程加速，众高人深知技术创新是企业发展的源泉与动力。雄厚的技术力量与自身的技术资源是众高不断壮大的坚实基础。

Our commitment is to unswervingly create new performance in order to maintain our position as an excellent supplier in the field of oil-free bearings.

A complete quality assurance system, sophisticated testing equipment, excellent quality resources, and three-in-one professional guarantee build a solid fortress of high-quality Zhonggao Precision.

全自动倒角机、卷圆机
Automatic chamfering machine, rolling machine

三坐标检验检测
Three coordinate inspection and detection

卷制类轴承车间全景
Panoramic view of rolling bearing workshop

As the process of global economic integration accelerates, Zhonggao people know that technological innovation is the source and driving force of enterprise development. The strong technical force and its own technical resources are the solid foundation for Zhonggao's continuous growth.

固体自润滑轴承生产车间
Solid self-lubricating bearing production workshop

马扎克加工设备
Processing equipment

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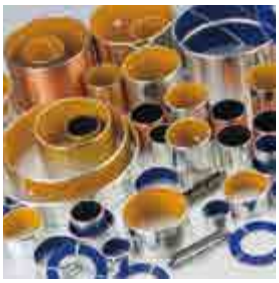
SF-1
金属塑料复合自润滑轴承
Metal-Polymer Self-Lubricating Composite Bearings

SF-1 / SF-1B / SF-1D / SF-1S / SF-1SS



SF-2
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Metal-Polymer Marginal Lubricating Bearings

SF-2 (黑) / SF-2Y (黄) / SF-2H (红) / SF-2L (蓝) / SF-2P (PEEK)

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Bi-Metallic Composite Bearings

JF-820 / JF-800 / JF-720 / JF-700 / JF-20 / FB08G

FB090
青铜卷制轴承
Bronze Wrapped Bearings

FB090 / FB091 / FB092 / FB094 / FB09G

JDB
固体自润滑轴承
Metallic Self-Lubricating Bearings

JDB-1 / JDB-2 / JDB-3 / JDB-4 / JDB-5

SF-1 金属塑料自润滑复合轴承
SF-1 Metal-polymer self-lubricating composite bearings

结构特性 Structure Characteristics

SF-1 金属复合自润滑材料以优质低碳钢为基板，中间烧结球形多孔铜粉层，表面扎制以 PTFE 为主的耐磨润滑材料作为轴承工作层，这种材料具有优异的机械承载能力，中间铜粉层不但可以及时传递轴承运行过程中产生的热量，同时也提高了塑料层与基板的结合强度。PTFE 设计适用于完全干摩擦状态，并根据润滑情况、摩擦系数和耐久性要求开发了多种材料。华承的 PTFE 金属复合材料在外部润滑或者不润滑的情况下，都能在最广泛的载荷、速度以及温度范围内提供最好的表现。

SF-1 Metal-polymer self-lubricating composite materials consist of metal backing sintered porous bronze with PTFE polymer as working layer. The metal backing provides mechanical strength, while the bronze sinter layer provides a strong mechanical bonding between the backing and the bearing lining, the PTFE polymer offers exceptional low friction even under dry condition and the thermoplastic polymer is generally designed to operate with marginal lubrication. The construction promotes dimensional stability and improves the thermal conductivity. This material meets the demanding criteria for long life and trouble-free performance with or without lubrication.

产品应用 Application

农业机械：拖拉机、联合收割机、农作物喷雾器、推土机、平地机等；
汽车行业：动力转向泵、转向器推力垫片、盘式制动器、减震器、门铰链、雨刮器、椅子调角器、空气阀以及电磁阀等；
办公商务机械：复印机、传真机、打印机、邮件处理机等；
液压元件和阀门：齿轮泵、柱塞泵、叶片泵，球阀、蝶阀，气缸、油缸以及其他液压元件等；
家用电器：冰箱、空调、吸尘器、缝纫机、清洗机、微波炉和健身器材等；
以及其它物流机械、包装机械、纺织机械、港口机械、矿产机械和森林机械等等。

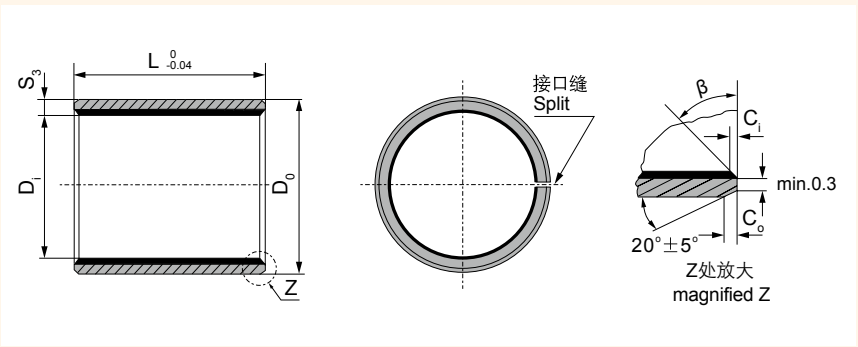
Automotive: tractors, crop sprayers, earthmovers, auto machines, specific uses in power steering cylinders, steering gear thrust washers, disc brakes, shock absorbers, windshield wiper motor...
Business machines: duplicator, fax machine, automatic printing devices, mail processing machinery...
Hydraulics and valves: pumps including gear, rotary, water, axial piston, and other types, ball, butterfly, poppet steam, and other valves and valve trunnions...
Home appliances: tape recorders, refrigerators, air conditioners, cleaners, polishers, sewing machines, ovens, dishwashers, clothes washing machines...And materials handling, marine engine, packaging, textile equipment, tools...etc.

实际运用中根据使用环境、工况和环保要求的不同，低碳钢板可以改为铜板或不锈钢板，内表面塑料层可以选择 PTFE 含铅或者不含铅材料以及其他高分子填充物，外表可以镀锡或者镀铜。产品范围包括：SF-1、SF-1B、SF-1D、SF-1S、SF-1SS。

According to the different working conditions and environmental protection, there are steel backing, bronze backing, stainless steel backing can be chosen, different type of alloy can be chosen, the PTFE layer with polymer filler and it is lead free, the Surface tin or copper plating. product range includes SF-1、SF-1B、SF-1D、SF-1S、SF-1SS.

有关数据 Date	代号 Grade	SF-1	SF-1B	SF-1D	SF-1S	SF-1SS
	材料 Materiai	碳钢/Steel+铜粉/Bronze+(PTFE+Pb+填料/Filler)	铜板/Bronze+铜粉/Bronze+(PTFE+Pb+填料/Filler)	碳钢/Steel+铜粉/Bronze+(PTFE+Pb+填料/Filler)	不锈钢Stainless+铜粉/Bronze+(PTFE+Pb+填料/Filler)	不锈钢Stainless+(PTFE+Pb+填料/Filler)喷涂
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。 We can also develop according to customers special request while out of this table.						
最大承载压力 P Load capacity P (干摩擦) (Dry friction)	静载 N/mm^2 Static load	250	250	250	250	250
	动载 N/mm^2 Dynamic load	140	140	140	140	140
	摇摆 N/mm^2 Oscoillation Load	60	60	60	60	60
最大线速度V Max line speed V	干摩擦 m/s Dry friction	2.5	2.5	2.5	2.5	2
	油润滑 m/s Oil lubrication	＞5	＞5	＞5	＞5	＞5
最高PV值 PV value limit (干摩擦) (Dry friction)	干摩擦 N/mm^2·m/s Dry friction	1.8	1.8	1.8	1.8	1.8
	油润滑 N/mm^2·m/s Oil lubrication	3.6	3.6	3.6	3.6	3.6
摩擦系数u Friction coef u	干摩擦 Dry friction	0.08~0.20	0.08~0.20	0.08~0.20	0.08~0.20	0.08~0.20
	油润滑 Oil lubrication	0.02~0.12	0.02~0.12	0.02~0.12	0.02~0.12	0.02~0.08
相配轴径 Mating Axis	硬度 HB Hardness	＞220	＞220	＞220	＞220	＞220
	粗糙度 Ra Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
工作温度 ℃ Working temperature		-200~+280	-200~+280	-200~+280	-200~+280	-200~+280
导热系数 W/mk Thermal conductivity		40	60	40	40	40
线膨胀系数（轴向） Coefficient of linear expansion		11×10^{-6}/K	18×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K
表面镀层 Surface Plating		铜或锡 copper/tin	无 /No	铜或锡 copper/tin	无 /No	无 /No
针对性运用领域 Pertinence applicaton		产品应用于印刷机械、纺织机械、烟草机械、健身器等。 Application: the printing, woven, tobacco and gymnastic machinery, etc.	产品应用于冶金机械、连铸机械、水泥机械等。 Application: metallurgical industry, continuous casting and rolling mill, concrete machinery and spiral conveyers, etc.	该产品主要于汽车减震器、摩托车减震器、液压油缸等。 Application: shock absorber of automobiles, motorcycles and pneumatic cylinder, etc.	该产品适用于食品饮料机械、化工泵阀、特药机械、印染机械、化工机械、海洋工业滑动部位等。 The product is suitable for food and beverage machinery, chemical pump valve, special medicine machinery, printing and dyeing machinery, chemical machinery, sliding parts of Marine industry, etc.	该产品适用于印染机械、海洋工业耐腐蚀部位等。 Application: the corrosion resistant part in dyeing machinery and ocean industry, etc.

SF-1 轴套规格及公差
SF-1 Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	35°±5°
1.00	0.6±0.3	0.30±0.2	35°±5°
1.50	0.7±0.3	0.50±0.3	35°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	35°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

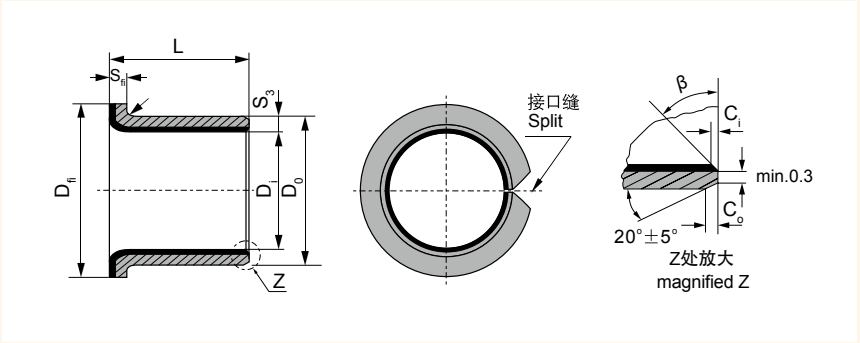
单位Unit: mm

轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thickness S_3	长度 L 0 -0.40 (d≤Φ28 L-0.30, d>Φ30 L-0.40) 6	8	10	12	15	20	25	30	40	50
6 -0.010 -0.022	8 +0.015	8 +0.055 +0.025	6.055 5.990	0.077 0.000		0606	0608	0610							
8 -0.013 -0.028	10 +0.015	10 +0.055 +0.025	8.055 7.990	0.083 0.003		0806	0808	0810	0812	0815					
10 -0.013 -0.028	12 +0.018	12 +0.065 +0.030	10.058 9.990	0.086 0.003		1006	1008	1010	1012	1015	1020				
12 -0.016 -0.034	14 +0.018	14 +0.065 +0.030	12.058 11.990			1206	1208	1210	1212	1215	1220	1225			
13 -0.016 -0.034	15 +0.018	15 +0.065 +0.030	13.058 12.990					1310	1312	1315	1320	1325			
14 -0.016 -0.034	16 +0.018	16 +0.065 +0.030	14.058 13.990	0.092 0.006	1.005 0.980			1410	1412	1415	1420	1425			
15 -0.016 -0.034	17 +0.018	17 +0.065 +0.030	15.058 14.990					1510	1512	1515	1520	1525			
16 -0.016 -0.034	18 +0.018	18 +0.065 +0.030	16.058 15.990					1610	1612	1615	1620	1625			
17 -0.016 -0.034	19 +0.021	19 +0.075 +0.035	17.061 16.990	0.095 0.006				1710	1712	1715	1720	1725			
18 -0.016 -0.034	20 +0.021	20 +0.075 +0.035	18.061 17.990					1810	1812	1815	1820	1825			
20 -0.020 -0.041	23 +0.021	23 +0.075 +0.035	20.071 19.990					2010	2012	2015	2020	2025	2030		
22 -0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990	0.112 0.010	1.505 1.475			2210	2212	2215	2220	2225	2230		
24 -0.020 -0.041	27 +0.021	27 +0.075 +0.035	24.071 23.990					2410	2412	2415	2420	2425	2430		
25 -0.020 -0.041	28 +0.021	28 +0.075 +0.035	25.071 24.990					2510	2512	2515	2520	2525	2530	2540	2550
28 -0.020 -0.041	32 +0.025	32 +0.085 +0.045	28.085 27.990	0.126 0.010					2812	2815	2820	2825	2830	2840	2850
30 -0.020 -0.041	34 +0.025	34 +0.085 +0.045	30.085 29.990						3012	3015	3020	3025	3030	3040	3050
32 -0.025 -0.050	36 +0.025	36 +0.085 +0.045	32.085 31.990	0.135 0.015	2.005 1.970				3212	3215	3220	3225	3230	3240	3250
35 -0.025 -0.050	39 +0.025	39 +0.085 +0.045	35.085 34.990						3512	3515	3520	3525	3530	3540	3550
38 -0.025 -0.050	42 +0.025	42 +0.085 +0.045	38.085 37.990						3812	3815	3820	3825	3830	3840	3850
40 -0.025 -0.050	44 +0.025	44 +0.085 +0.045	40.085 39.990						4012	4015	4020	4025	4030	4040	4050

SF-1 轴套规格及公差
SF-1 Sleeve Bushing Specification & Tolerance

轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thickness S_3	长度 L $^{0}_{-0.40}$ (d≤Φ28 L-0.30 / d>Φ30 L-0.40)									
						20	25	30	40	50	60	70	80	100	115
45 $^{-0.050}_{-0.025}$	50 $^{+0.025}$	50 $^{+0.085}_{+0.045}$	45.105 44.990	0.155 0.015		4520	4525	4530	4540	4550					
50 $^{-0.050}_{-0.025}$	55 $^{+0.030}$	55 $^{+0.100}_{+0.055}$	50.110 49.990	0.160 0.015		5020	5025	5030	5040	5050	5060				
55 $^{-0.060}_{-0.030}$	60 $^{+0.030}$	60 $^{+0.100}_{+0.055}$	55.110 54.990					5530	5540	5550	5560				
60 $^{-0.060}_{-0.030}$	65 $^{+0.030}$	65 $^{+0.100}_{+0.055}$	60.110 59.990		2.505 2.460			6030	6040	6050	6060	6070			
65 $^{-0.060}_{-0.030}$	70 $^{+0.030}$	70 $^{+0.100}_{+0.055}$	65.110 64.990	0.170 0.020				6530	6540	6550	6560	6570			
70 $^{-0.060}_{-0.030}$	75 $^{+0.030}$	75 $^{+0.100}_{+0.055}$	70.110 69.990					7030	7040	7050	7060	7070	7080		
75 $^{-0.060}_{-0.030}$	80 $^{+0.030}$	80 $^{+0.100}_{+0.055}$	75.110 74.990					7530	7540	7550	7560	7570	7580		
80 $^{}_{-0.045}$	85 $^{+0.035}$	85 $^{+0.120}_{+0.070}$	80.155 80.020	0.201 0.020					8040	8050	8060	8070	8080	80100	
85 $^{}_{-0.054}$	90 $^{+0.035}$	90 $^{+0.120}_{+0.070}$	85.155 85.020						8540	8550	8560	8570	8580	85100	
90 $^{}_{-0.054}$	95 $^{+0.035}$	95 $^{+0.120}_{+0.070}$	90.155 90.020						9040	9050	9060	9070	9080	90100	
95 $^{}_{-0.054}$	100 $^{+0.035}$	100 $^{+0.120}_{+0.070}$	95.155 95.020	0.209 0.020	2.490 2.440					9550	9560	9570	9580	95100	
100 $^{}_{-0.054}$	105 $^{+0.035}$	105 $^{+0.120}_{+0.070}$	100.155 100.020							10050	10060	10070	10080	100100	100115
105 $^{}_{-0.054}$	110 $^{+0.035}$	110 $^{+0.120}_{+0.070}$	105.155 105.020								10560	10570	10580	105100	105115
110 $^{}_{-0.054}$	115 $^{+0.035}$	115 $^{+0.120}_{+0.070}$	110.115 110.020								11060	11070	11080	110100	110115
120 $^{}_{-0.054}$	125 $^{+0.040}$	125 $^{+0.170}_{+0.100}$	120.210 120.070	0.264 0.070							12060	12070	12080	120100	120115
125 $^{}_{-0.063}$	130 $^{+0.040}$	130 $^{+0.170}_{+0.100}$	125.210 125.070								12560	12570	12580	125100	125115
130 $^{}_{-0.063}$	135 $^{+0.040}$	135 $^{+0.170}_{+0.100}$	130.210 130.070								13060	13070	13080	130100	130115
140 $^{}_{-0.063}$	145 $^{+0.040}$	145 $^{+0.170}_{+0.100}$	140.210 140.070	0.273 0.070	2.465 2.415						14060	14070	14080	140100	140115
150 $^{}_{-0.063}$	155 $^{+0.040}$	155 $^{+0.170}_{+0.100}$	150.210 150.070								15060	15070	15080	150100	150115
160 $^{}_{-0.063}$	165 $^{+0.040}$	165 $^{+0.170}_{+0.100}$	160.210 160.070								16060	16070	16080	160100	160115
180 $^{}_{-0.063}$	185 $^{+0.046}$	185 $^{+0.210}_{+0.130}$	180.216 180.070	0.279 0.070							18060	18070	18080	180100	
190 $^{}_{-0.072}$	195 $^{+0.046}$	195 $^{+0.210}_{+0.130}$	190.216 190.070								19060	19070	19080	190100	
200 $^{}_{-0.072}$	205 $^{+0.046}$	205 $^{+0.210}_{+0.130}$	200.016 200.070	0.288 0.070	2.465 2.415						20060	20070	20080	200100	
220 $^{}_{-0.072}$	225 $^{+0.046}$	225 $^{+0.210}_{+0.130}$	220.216 220.070								22060	22070	22080	220100	
250 $^{}_{-0.072}$	255 $^{+0.052}$	255 $^{+0.260}_{+0.170}$	250.222 250.070	0.294 0.070									25080	250100	
260 $^{}_{-0.081}$	265 $^{+0.052}$	265 $^{+0.260}_{+0.170}$	260.222 260.070										26080	260100	
280 $^{}_{-0.081}$	285 $^{+0.052}$	285 $^{+0.260}_{+0.170}$	280.222 280.070	0.303 0.070	2.465 2.415								28080	280100	
300 $^{}_{-0.081}$	305 $^{+0.052}$	305 $^{+0.260}_{+0.170}$	300.222 300.070										30080	300100	

SF-1F 翻边轴套规格及公差
SF-1F Flange Bushing Specifiction & Tolerance

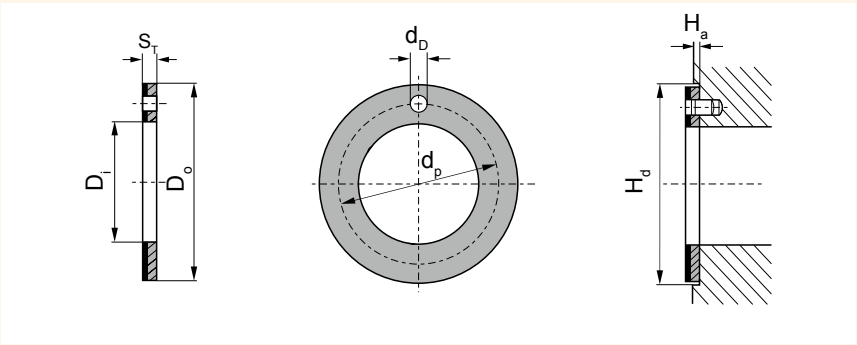


S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

Designation 型号规格	轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed D_{ia}	配合间隙 Clearance C_o	Wall thickness 壁厚 S_3	尺寸 Dimension D_i	D_o	D_{fl}±0.5	L±0.25	S_{fl}-0.2
SF-1F06040	6 -0.013 -0.028	8 +0.015	8 +0.055 +0.025	6.055 5.990	0.077 0.000	1.005 0.980	6	8	12	4	1
SF-1F06070										7	
SF-1F08055	8 -0.013 -0.028	10 +0.015	10 +0.055 +0.025	8.055 7.990	0.083 0.003		8	10	15	5.5	
SF-1F08075										7.5	
SF-1F10070	10 -0.016 -0.034	12 +0.018	12 +0.055 +0.025	10.058 9.990	0.086 0.003		10	12	18	7	
SF-1F10090										9	
SF-1F10120										12	
SF-1F12070	12 -0.016 -0.034	14 +0.018	14 +0.065 +0.030	12.058 11.990	0.092 0.006		12	14	20	7	
SF-1F12090										9	
SF-1F12120										12	
SF-1F14120	14 -0.016 -0.034	16 +0.018	16 +0.065 +0.030	14.058 13.990			14	16	22	12	
SF-1F14170										17	
SF-1F15090	15 -0.016 -0.034	17 +0.018	17 +0.065 +0.030	15.058 14.990			15	17	23	9	
SF-1F15120										12	
SF-1F15170										17	
SF-1F16120	16 -0.016 -0.034	18 +0.018	18 +0.065 +0.030	16.058 15.990			16	18	24	12	
SF-1F16170										17	
SF-1F18120	18 -0.016 -0.034	20 +0.021	20 +0.075 +0.035	18.061 17.990	0.095 0.006		18	20	26	12	
SF-1F18170										17	
SF-1F18200										20	
SF-1F20115	20 -0.020 -0.041	23 +0.021	23 +0.075 +0.035	20.071 19.990	0.112 0.010	1.505 1.475	20	23	30	11.5	1.5
SF-1F20165										16.5	
SF-1F20215										21.5	
SF-1F22150	22 -0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990			22	25	32	15	
SF-1F22200										20	
SF-1F25115	25 -0.020 -0.041	28 +0.021	28 +0.075 +0.035	25.071 24.990			25	28	35	11.5	
SF-1F25165										16.5	
SF-1F25215										21.5	
SF-1F30160	30 -0.025 -0.050	34 +0.025	34 +0.075 +0.035	30.085 29.990	0.126 0.010	2.005 1.970	30	34	42	16	2
SF-1F30260										26	
SF-1F35160	35 -0.025 -0.050	39 +0.025	39 +0.085 +0.045	35.085 34.990	0.135 0.015		35	39	47	16	
SF-1F35260										26	
SF-1F40260	40 -0.025 -0.050	44 +0.025	44 +0.085 +0.045	40.085 39.990			40	44	53	26	
SF-1F40400										40	

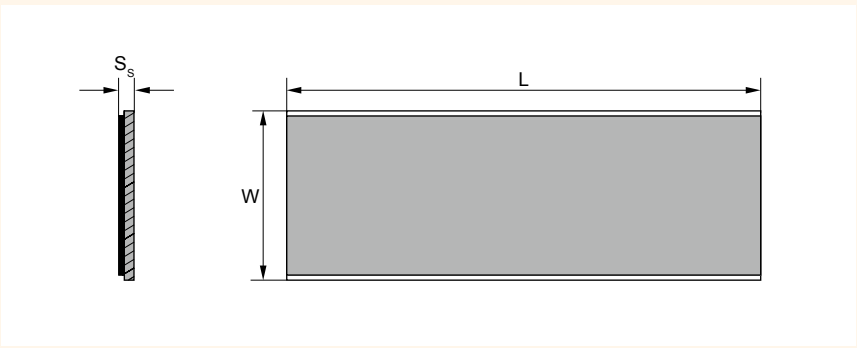
SF-1WC 垫片规格及公差
SF-1WC Thrust Washer Specification & Tolerance



单位Unit: mm

型号规格 Standard No.	轴径 Shaft D_s	垫片尺寸 Washer size				安装尺寸 Assemble size		
		D_i+0.25	D_o-0.25	S_T-0.05	d_p±0.125	$d_{D+0.1}^{+0.4}$	H_a±0.2	H_d+0.12
W10	8	10	20		15	1.5		20
W12	10	12	24		18			24
W14	12	14	26		20	2		26
W16	14	16	30		23			30
W18	16	18	32		25			32
W20	18	20	36		28	3	1	36
W22	20	22	38	1.5	30			38
W24	22	24	42		33			42
W26	24	26	44		35			44
W28	26	28	48		38	4		48
W32	30	32	54		43			54
W38	36	38	62		50			62
W42	40	42	66		54			66
W48	46	48	74		61		1.5	74
W52	50	52	78	2	65			78
W62	60	62	90		76			90

SF-1SP 板材标准公制尺寸
SF-1SP Strip Standard Metric Size



单位Unit: mm

型号规格 Standard No.	长度 L ±1	宽度 W ±1	厚壁 Wall thickness S_s -0.05
SP	500	150	1.0
SP	500	150	1.5
SP	500	150	2.0
SP	500	150	2.5

SF-2 金属塑料边界润滑轴承
SF-2 Metal-polymer marginal lubricating bearings

结构特性 Structure Characteristics

SF-2 金属复合边界润滑材料以优质低碳钢为基板，中间烧结球形多孔铜粉层，表面扎制以改性聚甲醛（POM）或聚醚醚酮（PEEK）为主的耐磨润滑材料作为轴承工作层，表面规则的油穴不但可以储存油脂，而且可以有效埋没外部入侵的粉尘，提高了轴承的使用寿命。这种材料具有优异的机械承载能力，中间铜粉层不但可以及时传递轴承运行过程中产生的热量，同时也提高了塑料层与基板的结合强度。以 POM 或 PEEK 为主的表面耐磨材料设计适用于油脂润滑工况，轴承表面有规律地排列着用于储存油脂的油穴以保证润滑剂在整个轴承表面的最佳分布。

SF-2 Metal-polymer marginal lubricating composite materials consist of metal backing sintered porous bronze with POM or PEEK polymer as working layer. Steel backing provides exceptionally high load carrying capacity, excellent heat dissipation. Sintered bronze powder provides thermal conductivity away from the bearing surface, also serves as a reservoir for the resin mixture. And the POM or PEEK polymer layer provides high wear resistance and low friction even with only minute volume of lubricant are supplied, this bearing surface carries a pattern of circular indents which should be filled with grease on assembly of the bearing.

产品应用 Application

产品广泛应用于：
汽车工业：踏板总成、平衡轴套、制动钳、转向主销轴套和卡车尾板轴套等；
物流机械：搬运车、起重机、车载吊车、森林机械、包装机械等；以及液压马达、液压油缸、气动元件、农用机械等。

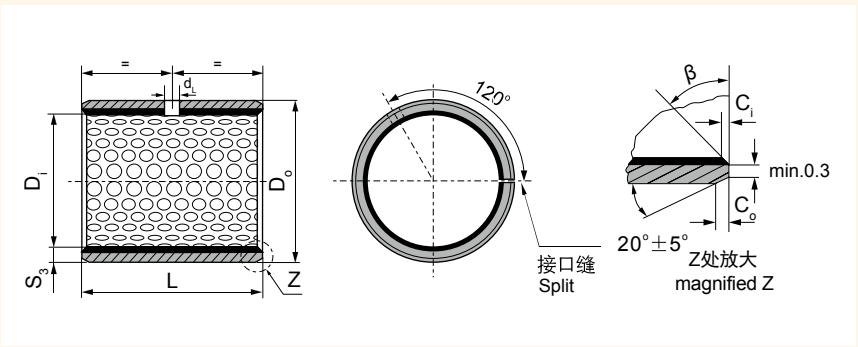
Recommended for applications involving intermittent operation or boundary lubrication...
Automotive: Pedal assembly, Balance shaft sleeve, Steering king pin shaft sleeve...
Logistics machine: carrier, chain block, Car crane, packaging machine....And hydraulic motor,Hydraulic cylinders, pneumatic element, agricultural machine...

实际运用中根据使用环境、工况和环保要求的不同，表面塑料层POM/PEEK里可以添加不同的填充材料。产品范围包括：SF-2（黑）、SF-2Y（黄）、SF-2H（红）、SF-2L（蓝）、SF-2P（PEEK）。

According to the different working conditions and environmental protection, the POM or PEEK layer with different polymer filler, Surface tin or copper plating. product range includes SF-2(Black)、SF-2Y(Yellow)、SF-2H(Red)、SF-2L(Blue)、SF-2P(PEEK).

有关数据 Data	代号 Grade	SF-2（黑）(Lead free)	SF-2Y（黄）(Lead free)	SF-2H（红）(Lead free)	SF-2L（蓝）(Lead free)	SF-2P（黑）(Without lead)
	材料 Materiai	碳钢/Steel+铜粉/Bronze+(POM+Pb)	碳钢/Steel+铜粉/Bronze+POM	碳钢/Steel+铜粉/Bronze+POM	碳钢/Steel+铜粉/Bronze+POM	碳钢/Steel+铜粉/Bronze +(PTFE+PEEK)
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。We can also develop according to customers special request while out of this table.						
最大承载压力P Max load capacity P	静载 N/mm² Static load	140	140	110	140	140
	动载 N/mm² Dynamic load	70	70	45	70	100
最大线速度V m/s Max line speed V	脂润滑 Greaes lubrication	2.5	2.5	2.5	2.5	2.5
最高PV值 N/mm²·m/s PV value limit		2.8	2.8	2.8	2.8	2.5
摩擦系数u Friction coef u		0.06~0.12	0.06~0.12	0.05~0.1	0.06~0.12	0.08~0.12
相配轴径 Mating Axis	硬度 HB Hardness	>270	>270	>270	>270	>270
	粗糙度 Ra Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
工作温度 °C Working temperature		-40~+120	-40~+120	-60~+120	-60~+120	-150~+250
导热系数 W/mk Thermal conductivity		52	52	52	52	52
线膨胀系数（轴向）Coefficient of linear xpansion		11×10⁻⁶/K	11×10⁻⁶/K	11×10⁻⁶/K	11×10⁻⁶/K	11×10⁻⁶/K
针对性运用领域 Pertinence applicaton		产品应用于汽车底盘、锻压机床、冶金机械、矿山机械、水利行业、轧钢行业等。It's used in vehicle chassis, forming machine tools, steel metallurgical machinery, mineral mountain machinery, hydraulic industry and rolling steel industry, etc.				产品应用于锻压机床、冶金机械、矿山机械、液压马达等高端应用。The product is applied in forging press, metallurgy machine, mine machine, irrigation industry, hydraulic moto high-end application, etc.

SF-2 轴承规格及公差
SF-2 Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
1.0	0.6±0.3	0.30±0.2	30°±5°
1.5	0.7±0.3	0.50±0.2	30°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.80±0.3	45°±5°

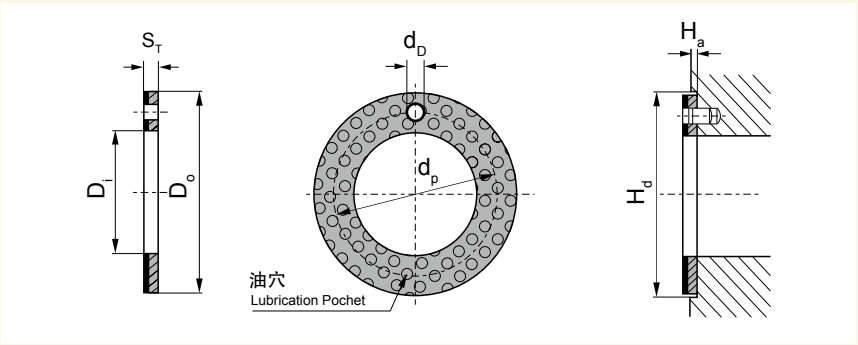
单位Unit: mm

轴径 Shaft D_s h8	座孔 Housing H7 D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thick-ness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$ 10	15	20	25	30	35	40	45	50	60
10 -0.022	12 +0.018	12 +0.065 +0.030	10.108 10.040	0.130 0.040			1010	1015	1020							
12 -0.027	14 +0.018	14 +0.065 +0.030	12.108 12.040				1210	1215	1220							
14 -0.027	16 +0.018	16 +0.065 +0.030	14.108 14.040	0.135 0.040	0.980 0.955			1415	1420							
15 -0.027	17 +0.018	17 +0.065 +0.030	15.108 15.040					1515	1520	1525						
16 -0.027	18 +0.018	18 +0.065 +0.030	16.108 16.040			4		1615	1620	1625						
18 -0.027	20 +0.021	20 +0.075 +0.035	18.111 18.040	0.138 0.040				1815	1820	1825						
20 -0.033	23 +0.021	23 +0.075 +0.035	20.131 20.050					2015	2020	2025	2030					
22 -0.033	25 +0.021	25 +0.075 +0.035	22.131 22.050	0.164 0.050	1.475 1.445			2215	2220	2225	2230					
25 -0.033	28 +0.021	28 +0.075 +0.035	25.131 25.050					2515	2520	2525	2530					
28 -0.033	32 +0.025	32 +0.085 +0.045	28.155 28.060	0.188 0.060					2820	2825	2830					
30 -0.033	34 +0.025	34 +0.085 +0.045	30.155 30.060		1.970 1.935	6			3020	3025	3030	3035	3040			
35 -0.039	39 +0.025	39 +0.085 +0.045	35.155 35.060	0.194 0.060					3520	3525	3530	3535	3540			
40 -0.039	44 +0.025	44 +0.085 +0.045	40.155 40.060						4020	4025	4030	4035	4040	4045	4050	
45 -0.039	50 +0.025	50 +0.085 +0.045	45.195 45.080	0.234 0.080					4520	4525	4530	4535	4540	4545	4550	
50 -0.039	55 +0.030	55 +0.100 +0.055	50.200 50.080	0.239 0.080	2.460 2.415	8					5030	5035	5040	5045	5050	5060
55 -0.046	60 +0.030	60 +0.100 +0.055	55.200 55.080	0.246 0.080							5530	5535	5540	5545	5550	5560
60 -0.046	65 +0.030	65 +0.100 +0.055	60.200 60.080								6030	6035	6040	6045	6050	6060

SF-2 轴承规格及公差
SF-2 Sleeve Bushing Specification & Tolerance

轴径 Shaft D_s h8	座孔 Housing H7 D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$ 40	50	60	80	90	95	100	110	120
65 -0.046	70 +0.030	70 +0.100 +0.055	65.200 65.080	0.246 0.080	2.460 2.415	8	6540	6550	6560						
70 -0.046	75 +0.030	75 +0.100 +0.055	70.200 70.080				7040	7050	7060	7080					
75 -0.046	80 +0.030	80 +0.100 +0.055	75.200 75.080				7540	7550	7560	7580					
80 -0.046	85 +0.035	85 +0.120 +0.070	80.265 80.100	0.313 0.100			8040	8050	8060	8080					
85 -0.054	90 +0.035	90 +0.120 +0.070	85.265 85.100				8540	8550	8560	8580					
90 -0.054	95 +0.035	95 +0.120 +0.070	90.265 90.100				9040	9050	9060	9080	9090				
100 -0.054	105 +0.035	105 +0.120 +0.070	100.265 100.100	0.321 0.100				10050	10060	10080	10090	10095			
105 -0.054	110 +0.035	110 +0.120 +0.070	105.265 105.100					10550	10560	10580	10590	10595	105100	105110	
110 -0.054	115 +0.035	115 +0.120 +0.070	110.265 110.110			9.5		11050	11060	11080	11090	11095	110100	110110	
120 -0.054	125 +0.040	125 +0.170 +0.100	120.270 120.110	0.324 0.100				12050	12060	12080	12090	12095	120100	120110	
125 -0.063	130 +0.040	130 +0.170 +0.100	125.270 125.110					12550	12560	12580	12590	12595	125100	125110	
130 -0.063	135 +0.040	135 +0.170 +0.100	130.270 130.110					13050	13060	13080	13090	13095	130100	130110	
140 -0.063	145 +0.040	145 +0.170 +0.100	140.270 140.110					14050	14060	14080	14090	14095	140100	140110	
150 -0.063	155 +0.040	155 +0.170 +0.100	150.270 150.110		2.450 2.385			15050	15060	15080	15090	15095	150100	150110	
160 -0.063	165 +0.040	165 +0.170 +0.100	160.270 160.110					16050	16060	16080	16090	16095	160100	160110	
170 -0.063	175 +0.040	175 +0.170 +0.100	170.270 170.110					17050	17060	17080	17090	17095	170100	170110	
180 -0.063	185 +0.046	185 +0.210 +0.130	180.276 180.110			9.5		18050	18060	18080	18090	18095	180100	180110	
190 -0.072	195 +0.046	195 +0.210 +0.130	190.276 190.110					19050	19060	19080	19090	19095	190100	190110	190120
200 -0.072	205 +0.046	205 +0.210 +0.130	200.276 200.110	0.339 0.110				20050	20060	20080	20090	20095	200100	200110	200120
220 -0.072	225 +0.046	225 +0.210 +0.130	220.276 220.110					22050	22060	22080	22090	22095	220100	220110	220120
240 -0.072	245 +0.046	245 +0.210 +0.130	240.276 240.110					24050	24060	24080	24090	24095	240100	240110	240120
250 -0.072	255 +0.052	255 +0.260 +0.170	250.282 250.110			9.5		25050	25060	25080	25090	25095	250100	250110	250120
260 -0.081	265 +0.052	265 +0.260 +0.170	260.282 260.110	0.354 0.110				26050	26060	26080	26090	26095	260100	260110	260120
280 -0.081	285 +0.052	285 +0.260 +0.170	280.282 280.110					28050	28060	28080	28090	28095	280100	280110	280120
300 -0.081	305 +0.052	305 +0.260 +0.170	300.282 300.110					30050	30060	30080	30090	30095	300100	300110	300120

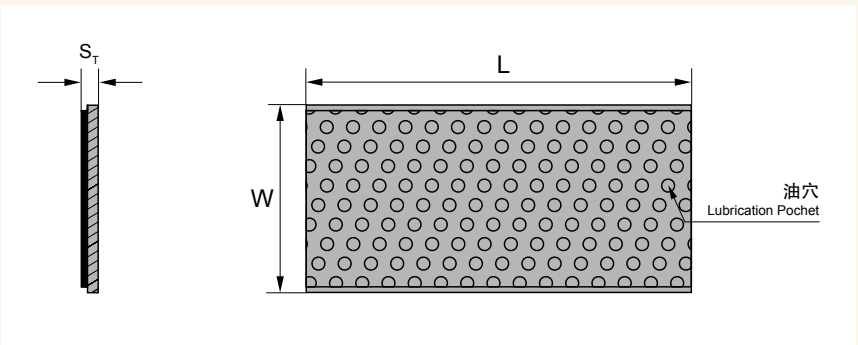
SF-2WC 垫片规格及公差
SF-2WC Thrust Washer Specification & Tolerance



单位Unit: mm

型号规格 Standard No.	轴径 Shaft D_s	垫片尺寸 Washer size				安装尺寸 Assemble size		
		D_i+0.25	D_o-0.25	S_T-0.05	d_p±0.125	$d_{D}^{+0.4}_{+0.1}$	H_a±0.2	H_d+0.12
W10	8	10	20	1.5	15	1.5	1	20
W12	10	12	24		18			24
W14	12	14	26		20	2		26
W16	14	16	30		23			30
W18	16	18	32		25			32
W20	18	20	36		28	3		36
W22	20	22	38		30			38
W24	22	24	42		33			42
W26	24	26	44		35			44
W28	26	28	48		38	4		48
W32	30	32	54		43			54
W38	36	38	62		50			62
W42	40	42	66		54			66
W48	46	48	74	2	61		1.5	74
W52	50	52	78		65			78
W62	60	62	90		76			90

SF-2SP 板材标准公制尺寸
SF-2SP Strip Standard Metric Size



单位Unit: mm

型号规格 Standard No.	长度 L ±1	宽度 W ±1	厚壁 Wall thickness S_s -0.05
SP	500	150	1.0
SP	500	150	1.5
SP	500	150	2.0
SP	500	150	2.5

JF-800 双金属复合轴承
JF-800 Bi-metallic composite bearings

结构特性 Structure Characteristics

JF-800 双金属复合轴承以优质低碳钢为基体，表面烧结具有低摩擦特性的铜合金（CuPb10Sn10、CuPb6Sn6Zn3、CuPb24Sn4、CuPb30、AlSn20Cu、CuSn8Ni）作为轴承的耐磨层，铜合金表面可以根据使用工况需要加工出各种类型的油槽、油孔、油穴等，以适合于无法持续加油或者难以加油的场合。材料通过二次烧结二次挤压可以得到很好的接合强度和最佳的承载能力。

JF-800 Bi-metallic composite bearing material consists of steel backing with lead bronze or lead-free copper alloy（CuPb10Sn10、CuPb6Sn6Zn3、CuPb24Sn4、CuPb30、AlSn20Cu）lining, bearing material for oil/grease lubricated applications. The copper alloy forms a continuously frame for thermal conductivity. These bearing structures are with high load capacity and good fatigue property. Higher tolerance can be achieved after re-machined from the customers. Lead-free bronze lining bearing material conforms to the European RoHS directive.

产品应用 Application

工程机械：底盘行走机构支重轮轴套、拖带轮轴套、张紧轮轴套；
汽车行业：平衡轴衬套、钢板销衬套、转向节主肖轴套、连杆轴套、气门摇臂轴套、凸轮轴轴套、差速器轴套、变速箱轴套、内燃机主轴瓦、止推垫片；以及柱塞泵侧片，齿轮泵侧片等。

Angineering machine: underpan, thrust wheel, Towing wheel, Steering knuckle,tension pulley...
Automotive:trunnion shaft, connecting rod, valve rocker, camshaft, gear box, internal-combustion engine, and Plunger pump friction plate, gear pump friction plate...

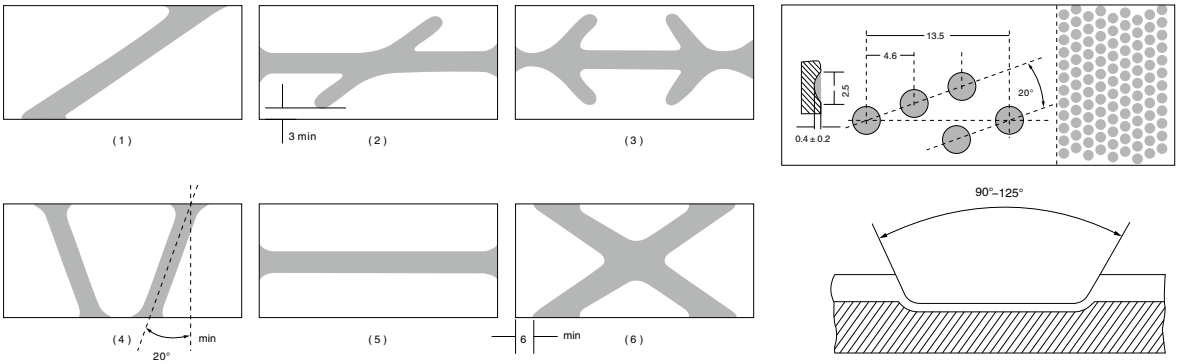
实际运用中根据使用工况的不同，表面可以烧结不同牌号的合金，产品范围包括：JF-820、JF-800、JF-720、JF-700、JF-20、FB08G。

According to the different working conditions, different alloy material (CuPb10Sn10、CuPb6Sn6Zn3、CuPb24Sn4、CuPb30、AlSn20Cu、CuSn8Ni) can be sintered on steel backing. product range includes JF-820、JF-800、JF-720、JF-700、JF-20、FB08G.

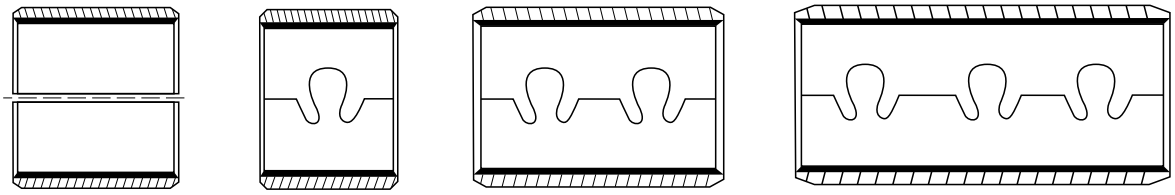
有关数据 Data	代号 Grade	JF-820 (lead free)	JF-800	JF-720	JF-700	JF-20	FB08G
	材料 Materiai	碳钢/Steel＋CuSn8Ni	碳钢/Steel＋$CuPb_{10}Sn_{10}$	碳钢/Steel＋$CuPb_{24}Sn_4$	碳钢/Steel＋$CuPb_{30}$	碳钢/Steel＋$AlSn_{20}Cu$	碳钢/Steel＋$CuPb_{10}Sn_{10}$ ＋石墨/Graphite
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。We can also develop according to customers special request while out of this table.							
最大动载 P N/mm^2 Max dynamic Load P		140	140	140	120	120	90
最大线速度 V m/s Max line speed V	脂润滑 Greaes lubrication	2.5	2.5	2.5	2.5	——	——
最高PV值 $N/mm^2 \cdot m/s$ Max PV value		2.8	2.8	2.8	2.8	——	——
摩擦系数u Friction coef u		0.05~0.12	0.05~0.15	0.05~0.15	0.05~0.15	——	——
最大线速度 V m/s Max line speed V		2.5	10	10	15	20	——
最高PV值 $N/mm^2 \cdot m/s$ Max PV value	油脂润滑 Greaes lubrication	2.8	10	10	8	15	——
摩擦系数 Friction	油润滑 Oil lub.	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	——
最高温度 °C Max Working temperature	油脂润滑 Greaes lubrication	150	150	150	150	150	150
	油润滑 Oil lub.	250	250	250	250	250	——
相配轴径 Mating Axis	硬度 HRC Hardness	≥53	≥53	≥45	≥48	≥270	≥53
	粗糙度 Ra Roughness	0.32~0.63	0.32~0.63	0.32~0.63	0.16~0.63	0.16~0.63	0.16~0.63
合金层硬度 HB Alloy layer hardness		69~90	70~100	45~70	35~45	30~40	60~90
导热系数 W/mk Thermal conductivity		47	47	60	60	47	47
线膨胀系数（轴向） Coefficient of linear expansion		18×10^{-6}/K	18×10^{-6}/K	18×10^{-6}/K	19×10^{-6}/K	19×10^{-6}/K	18×10^{-6}/K
针对性运用领域 Pertinence applicaton		适用于中等负载，以及有大的冲击载荷的轴承，如发动机连杆轴套、转向销轴套等。Lead free, For use in medium load conditions, such as the engine connecting rod bushings, steering pin covers.	产品适用于汽车发动机连轩，工程机械、农业机械等。Application: con-rod of automobile engines, engineering and agriculture machinery, heavy duty construction machinery etc.	产品适用于高速、重载的内燃机主轴和变速齿轮。Application: High speed, heavy load engine main shaft and ransmission gearbox, etc.	用作高速、中低载荷的内燃机主轴瓦、连杆衬套、摇臂衬套,油汞侧摩擦片。high speed and middle load working situation, as engine main bearing, connect-rod bushing, rocket arm bushing and oil pump side plate.	产品适用于内燃机主轴和连杆轴承、空压机机、制冷机用轴承。Application: High speed, heavy load engine main shaft and air compressor, cooling machine.etc.	产品适用于启动马达机械。Application: starting motor.

JF-800 双金属复合轴承
JF-800 Bi-metallic composite bearings

双金属自润滑轴承的油槽油穴形式 Type for Bi-Metaltic Bushing Grooves and Indents



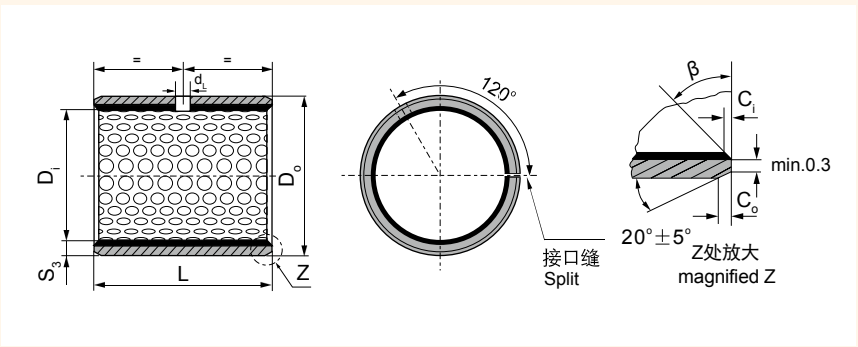
双金属轴承的搭扣形式 Lock Types for Bi-Metaltic Bushing



材料特性 Material Characterisitc

材料牌号 Material Trademark	合金成份 Alloy Composition	合金硬度 Alloy Hardness	国际标准 International Standard
JF-800	CuPb10Sn10	70～100HB	SAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B. D57. Federal Mogul HF2. Glacier SY. Glyco66. Miba2. 1010.Taiho HF2. Kar l Schmiat KS940SSAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B D57. Federal Mogul HF2 Glacier SY. Glyco66. Miba2. 1010. Taiho HF2. Karl Schmiat Ks940s
JF-720	CuPb24Sn4	45～70HB	SAE=799. GLYCO 68. JIS-LBC6. DAIDO L23. Claciersx. ACLF250
JF-700	CuPb30	30～45HB	SAE-783. GLYCO74. JIS-AJL
JF-20	AlSn20Cu	30～40HB	SAE-48. JIS-KJ3
JF-820	CuSn8Ni	69～90HB	

JF-800 双金属轴承规格及公差
JF-800 Bimetal Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	35°±5°
1.00	0.6±0.3	0.30±0.2	35°±5°
1.50	0.7±0.3	0.50±0.3	35°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	35°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

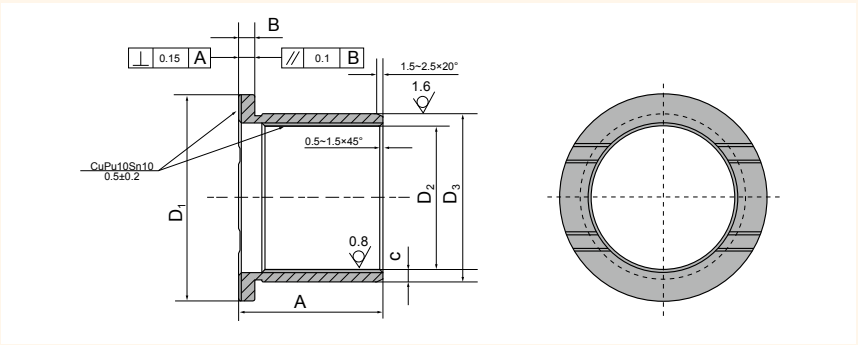
单位unit:mm

内径 D_i φd	外径 D_O φD	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$						
								10	15	20	25	30	40	50
10	12	10 $^{}_{-0.022}$	12 $^{+0.018}$	+0.148 +0.010	0.170 0.010	0.995 0.935	4	1010	1015	1020				
12	14	12 $^{}_{-0.027}$	14 $^{+0.018}$		0.175 0.010			1210	1215	1220				
14	16	14 $^{}_{-0.027}$	16 $^{+0.018}$					1410	1415	1420				
15	17	15 $^{}_{-0.027}$	17 $^{+0.018}$					1510	1515	1520				
16	18	16 $^{}_{-0.027}$	18 $^{+0.018}$					1610	1615	1620				
18	20	18 $^{}_{-0.027}$	20 $^{+0.021}$	+0.151 +0.010	0.178 0.010			1810	1815	1820	1825			
20	23	20 $^{}_{-0.033}$	23 $^{+0.021}$	+0.161 +0.020	0.194 0.020	1.490 1.430		2010	2015	2020	2025			
22	25	22 $^{}_{-0.033}$	25 $^{+0.021}$				6	2210	2215	2220	2225			
24	27	24 $^{}_{-0.033}$	27 $^{+0.021}$					2410	2415	2420	2425	2430		
25	28	25 $^{}_{-0.033}$	28 $^{+0.021}$						2515	2520	2525	2530		
26	30	26 $^{}_{-0.033}$	30 $^{+0.021}$	+0.181 +0.040	0.214 0.040	1.980 1.920			2615	2620	2625	2630		
28	32	28 $^{}_{-0.033}$	32 $^{+0.025}$	+0.185 +0.040	0.218 0.040				2815	2820	2825	2830	2840	
30	34	30 $^{}_{-0.033}$	34 $^{+0.025}$						3015	3020	3025	3030	3040	
32	36	32 $^{}_{-0.039}$	36 $^{+0.025}$		0.224 0.040				3215	3220	3225	3230	3240	
35	39	35 $^{}_{-0.039}$	39 $^{+0.025}$							3520	3525	3530	3540	3550
38	42	38 $^{}_{-0.039}$	42 $^{+0.025}$				8			3820	3825	3830	3840	3850
40	44	40 $^{}_{-0.039}$	44 $^{+0.025}$							4020	4025	4030	4040	4050

JF-800 双金属轴承规格及公差
JF-800 Bimetal Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_O ϕD	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$ 25	30	40	50	60	80	90	100
45	50	45 $^{}_{-0.039}$	50 $^{+0.025}$	+0.225 +0.080	0.264 0.080	2.460 2.400	8	4525	4530	4540	4550				
50	55	50 $^{}_{-0.039}$	55 $^{+0.030}$	+0.230 +0.080	0.269 0.080				5030	5040	5050	5060			
55	60	55 $^{}_{-0.046}$	60 $^{+0.030}$		0.276 0.080				5530	5540	5550	5560			
60	65	60 $^{}_{-0.046}$	65 $^{+0.030}$						6030	6040	6050	6060			
65	70	65 $^{}_{-0.046}$	70 $^{+0.030}$						6530	6540	6550	6560			
70	75	70 $^{}_{-0.046}$	75 $^{+0.030}$						7030	7040	7050	7060	7080		
75	80	75 $^{}_{-0.046}$	80 $^{+0.030}$				9.5		7530	7540	7550	7560	7580		
80	85	80 $^{}_{-0.046}$	85 $^{+0.035}$	+0.235 +0.080	0.281 0.080				8030	8040	8050	8060	8080	8090	
85	90	85 $^{}_{-0.054}$	90 $^{+0.035}$		0.289 0.080				8530	8540	8550	8560	8580	8590	85100
90	95	90 $^{}_{-0.054}$	95 $^{+0.035}$							9040	9050	9060	9080	9090	90100
95	100	95 $^{}_{-0.054}$	100 $^{+0.035}$								9550	9560	9580	9590	95100
100	105	100 $^{}_{-0.054}$	105 $^{+0.035}$								10050	10060	10080	10090	100100
105	110	105 $^{}_{-0.054}$	110 $^{+0.035}$								10550	10560	10580	10590	105100
110	115	110 $^{}_{-0.054}$	115 $^{+0.035}$								11050	11060	11080	11090	110100
115	120	115 $^{}_{-0.054}$	120 $^{+0.035}$								11550	11560	11580	11590	115100
120	125	120 $^{}_{-0.054}$	125 $^{+0.040}$	+0.240 +0.080							12050	12060	12080	12090	120100
125	130	125 $^{}_{-0.063}$	130 $^{+0.040}$		0.303 0.080							12560	12580	12590	125100
130	135	130 $^{}_{-0.063}$	135 $^{+0.040}$									13060	13080	13090	130100
135	140	135 $^{}_{-0.063}$	140 $^{+0.040}$									13560	13580	13590	135100
140	145	140 $^{}_{-0.063}$	145 $^{+0.040}$									14060	14080	14090	140100
150	155	150 $^{}_{-0.063}$	155 $^{+0.040}$									15060	15080	15090	150100

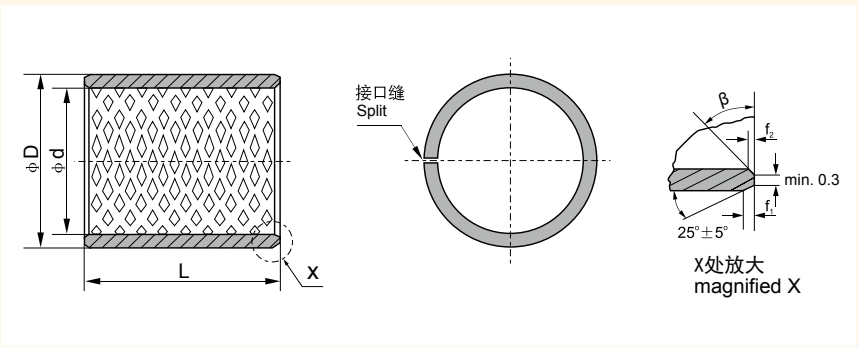
JF-800F 双金属翻边轴承规格及公差
JF-800F Bimetal Flange Bushing Specification & Tolerance



单位Unit: mm

D_1	B	D_3	D_2	A	C
42	3.5	37	30	30	3.5
43	2	34	30	28	2
44	3.5	39	32	35	3.5
47	3.5	39	32	50	3.5
48	2	39	35	37	2
52	3	41	35	35	3
55	3.5	42	35	35	3.5
55	3.5	45	38	35	3.5
55	3.5	45	38	40	3.5
60	3	41	35	42	3
60	3	46	40	62	3
63	3.5	47	40	40	3.5
65	3.5	52	45	40	3.5
68	3.5	54	47	35	3.5
70	3.5	54	47	40	3.5
70	3.5	57	50	48	3.5
72	3.5	57	50	45	3.5
72	3.5	57	50	50	3.5
75	3.5	57	50	50	3.5
77	3	60	54	55	3
83	3.5	66	59	53	3.5
85	3.5	65	58	60	3.5
87	3.5	67	60	53	3.5
87	3.5	67	60	60	3.5
87	3.5	67	60	65	3.5
87	4	68	60	60	4
94	3.5	72	65	60	3.5
87	3.5	72	65	65	3.5
87.5	1.95	69.12	65.22	64.5	2
88	3.5	67	60	60	3.5
88	3.5	72	65	65	3.5
92	3.5	77	70	67	3.5
93	3.5	75	68	60	3.5
94	3.5	77	70	70	3.5
95	3.5	77	70	65	3.5
95	4	78	70	70	4
97	3.48	77.14	70.18	62	3.5
97	3.5	82	75	74	3.5
100	5	85	75	70	5
103	3.525	70.8	63.75	73	3.5
105	3.5	82	75	75	3.5
105	3.5	87	80	70	3.5
107	4	83	75	74	4
115	5	100	90	75	5
128	3.8	92.6	85	103	4
108	3.5	72	65	75	3.5
108	3.5	77	70	98	3.5
108	5	80	70	90	5

FB08G 固体润滑轴承规格及公差
FB08G Solid-lubricant Bushing Specification & Tolerance



单位Unit: mm

d	D	f_1	f_2	$L\ ^{0}_{-0.40}$												
				10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	0.3	0.5	1010	1015	1020										
12	14			1210	1215	1220										
14	16			1410	1415	1420	1425									
15	17			1510	1515	1520	1525									
16	18			1610	1615	1620	1625									
18	20			1810	1815	1820	1825									
20	23	0.8	0.4	2010	2015	2020	2025									
22	25			2210	2215	2220	2225	2230								
24	27				2415	2420	2425	2430								
25	28				2515	2520	2525	2530								
28	32	1.0	0.6		2815	2820	2825	2830								
30	34				3015	3020	3025	3030	3035	3040						
32	36				3215	3220	3225	3230	3235	3240						
35	39				3515	3520	3525	3530	3535	3540						
40	44					4020	4025	4030	4035	4040	4050					
45	50	1.2	0.8			4520	4525	4530	4535	4540	4550					
50	55					5020	5025	5030	5035	5040	5050	5060				
55	60					5520	5525	5530	5535	5540	5550	5560				
60	65						6025	6030	6035	6040	6050	6060	6070			
65	70							6530	6535	6540	6550	6560	6570			
70	75							7030	7035	7040	7050	7060	7070	7080		
75	80							7530	7535	7540	7550	7560	7570	7580		
80	85	1.4						8030	8035	8040	8050	8060	8070	8080		
85	90									8540	8550	8560	8570	8580	8590	
90	95									9040	9050	9060	9070	9080	9090	
95	100										9550	9560	9570	9580	9590	95100
100	105										10050	10060	10070	10080	10090	100100
105	110										10550	10560	10570	10580	10590	105100
110	115										11050	11060	11070	11080	11090	110100
115	120										11550	11560	11570	11580	11590	115100
120	125											12060	12070	12080	12090	120100
125	130											12560	12570	12580	12590	125100
130	135											13060	13070	13080	13090	130100
135	140											13560	13570	13580	13590	135100
140	145											14060	14070	14080	14090	140100
145	150											14560	14570	14580	14590	145100
150	155											15060	15070	15080	15090	150100
155	160											15560	15570	15580	15590	155100
160	165											16060	16070	16080	16090	160100

FB090 青铜卷制轴承
FB090 Bronze-Wrapped Bearing

结构特性 Structure Characteristics

以 CuSn8 青铜作为基板卷制而成的一种具有高承载、高耐磨的经济型薄壁铜基卷制轴承。根据不同的润滑条件，我们可以提供菱形油穴和油孔两种形式，菱形油穴用于油脂的润滑，通孔用于流体润滑，这样的设计可以确保在轴承运行初期就能建立润滑油膜，因此可以降低起始摩擦系数。

The bearing is made with CuSn8 bronze alloy which is featured with high load capacity and good anti-wearing characteristics. The diamond shape indents on the surface of the bearing serve as oil reservoir to generate oil film for the lubricating during the initial running. The bearings are mainly suitable for agriculture machineries and construction machineries applications.

产品应用 Application

农用机械、建筑机械、起重机、卡车底盘部件、输送机、升降机、卷扬机、校平机等。

Agricultural machine, construction machine, crane, underpan parts, conveyor, elevator, winch, planing machine...

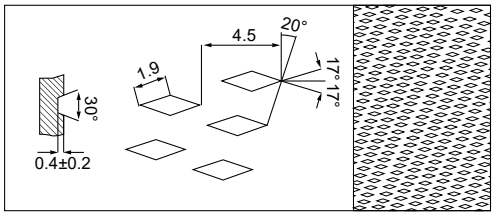
实际运用中根据使用工况的不同，基体可以采用不同牌号的合金，表面可以加工成其他形式的油孔和油槽。产品范围包括：FB090、FB091、FB092、FB094、FB09G。

According to the different working conditions, different grades of alloy can be used in the substrate, and the surface can be processed into other forms of oil holes and oil grooves. Product range includes: FB090、FB091、FB092、FB094、FB09G.

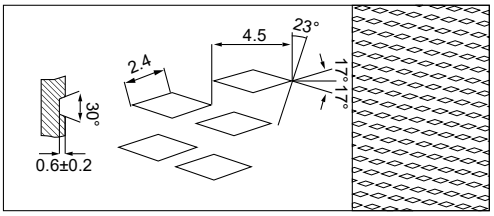
有关数据 Data	代号Grade	FB090	FB091	FB092	FB094	FB09G
	材料名称 Material	CuSn8P (Qsn8-0.3)	CuZn31Si (H68)	CuSn8P (Qsn8-0.3)	CuSn8P (Qsn8-0.3)	CuSn8P+石墨 (Qsn8-0.3+graphite)
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。We can also develop according to customers special request while out of this table.						
密度 g/cm^3 Density		8.8	8.4	8.8	8.8	8.3
最大动载 N/mm^2 Max Dynamic Load		40	90	40	40	40
最高线速度(脂润滑) m/s Max Linear Velocity（Grease）		2.5	1.5	2.5	2.5	2.5
最高PV值(脂润滑) N/mm^2·m/s Max PV value（Grease）		2.8	1.65	2.8	2.8	2.8
抗拉强度 N/mm^2 Pressure strength		>460	>440	>460	>460	>460
屈服强度 N/mm^2 Yield Strength		>260	>230	>260	>260	>230
硬度 HB hardness		90~150	80~120	90~150	90~150	90~150
相配轴 Mating Axis	硬度 HRC Hardness	≥50	≥50	≥50	≥50	≥50
	粗糙度 Roughness	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0
适用温度 °C Working Temperature		-40~150	-40~150	-40~150	-40~150	-40~150
摩擦系数 Friction Coefficient		0.06~0.15	0.06~0.15	0.06~0.15	0.06~0.15	0.03~0.1
导热系数 W/m·K coefficient of heat conduction		58	71	58	58	58
线膨胀系数（轴向） Linear expansion coefficient		18.5×10^{-6}/K	19.2×10^{-6}/K	18.5×10^{-6}/K	18.5×10^{-6}/K	18.5×10^{-6}/K
针对性运用领域 Pertinence applicaton		产品适用于起重机械、建筑机械、采矿机械，农业机械，森林机械等。Application: Hoisting, mining machinery. Forest machinery, agricultural machinery etc.	产品运用于建筑机械、汽车制动系统机床工业等。Application: construction machinery and machine tool, Brake system of Automobile etc.	产品广泛运用于农业机械、建筑机械、工程机械等。Application: Agricultural Machinery Foresty machinery, Heavy duty construction machinery etc	它具有防止油脂倒漏，延长润滑时间，防止灰尘、沙等物质的渗透等优点。产品广泛运用于农业机械、建筑机械、工程机械等。Can protect the grease leak from the bushing, prevent dust Application: Agricultural	它具有很低的摩擦系数，较好的耐磨性等优点，能在无油或少油的条件下工作。产品广泛应用于启动马达起升机，工程机械，汽车，卡车，拖拉机等。Application: Starting motor hoisting machines and other construction machines, automobiles, tractors, trucks, machines tools and some mineral engines

FB090 系列青铜卷制轴套
FB090 Bronze-Wrapped Bushes

油穴型式 Oil Sockets Format

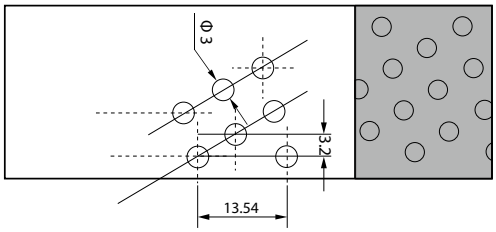


内径 ≤22

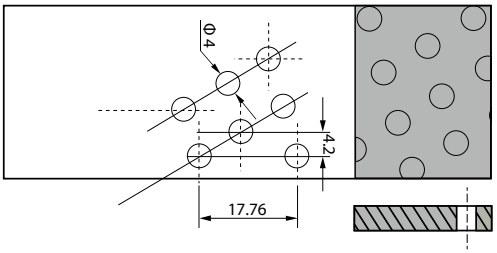


内径 >22

通孔型式 Oil Apertures Format



内径 Inside Dia. ≤ Φ25

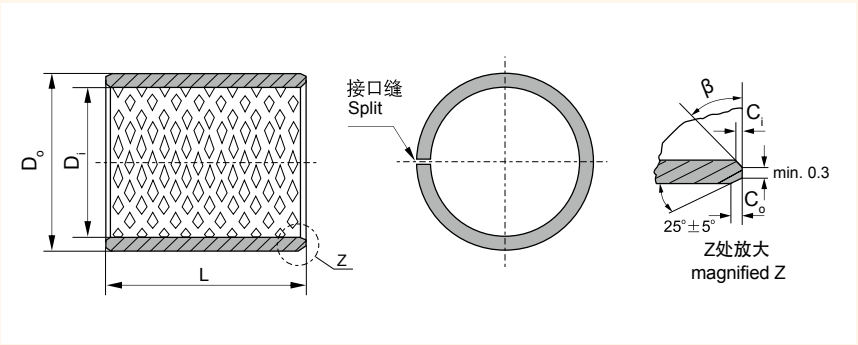


内径 Inside Dia. > Φ25

标准衬套公差 (依据 DIW W91/1503547)
Standard tolerance for bushes (As per to DIW W91/1503547)

标准直径 Standard Dia.	衬套外径尺寸 O.D.Size	相配座孔 Housing Bore	衬套内径尺寸 I.D.Size	相配轴径 Axle
10~18	+0.065 +0.030	+0.018 0	+0.046 0	- 0.016 - 0.043
18~30	+0.075 +0.035	+0.021 0	+0.052 0	- 0.020 - 0.020
30~50	+0.085 +0.045	+0.025 0	+0.062 0	- 0.025 - 0.064
50~80	+0.100 +0.055	+0.030 0	+0.074 0	- 0.030 - 0.076
80~120	+0.120 +0.070	+0.035 0	+0.087 0	- 0.036 - 0.090
120~180	+0.170 +0.100	+0.400 0	+0.100 0	- 0.043 - 0.106
180~250	+0.210 +0.130	+0.046 0	+0.115 0	- 0.050 - 0.122
250~315	+0.260 +0.170	+0.052 0	+0.130 0	- 0.056 - 0.137

FB090 青铜轴套规格及公差
FB090 Bronze Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	35°±5°
1.00	0.6±0.3	0.30±0.2	35°±5°
1.50	0.7±0.3	0.50±0.3	35°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	35°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

单位Unit: mm

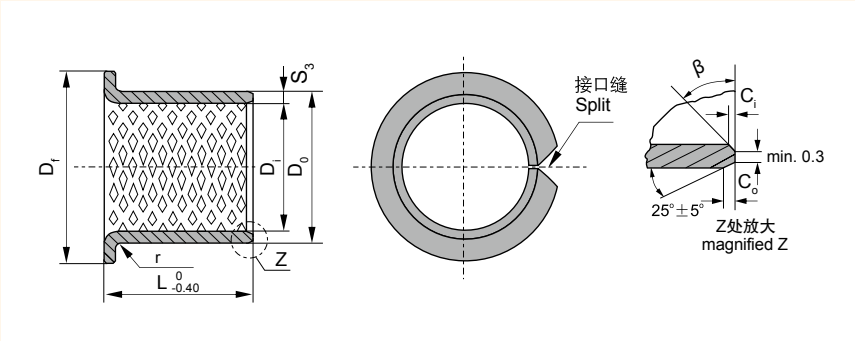
内径 D_i φd	外径 D_O φD	长度 L $^{0}_{-0.40}$												
		10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	1010	1015	1020										
12	14	1210	1215	1220										
14	16	1410	1415	1420	1425									
15	17	1510	1515	1520	1525									
16	18	1610	1615	1620	1625									
18	20	1810	1815	1820	1825									
20	23	2010	2015	2020	2025									
22	25	2210	2215	2220	2225	2230								
24	27		2415	2420	2425	2430								
25	28		2515	2520	2525	2530								
28	31		2815	2820	2825	2830								
30	34		3015	3020	3025	3030	3035	3040						
32	36		3215	3220	3225	3230	3235	3240						
35	39		3515	3520	3525	3530	3535	3540						
40	44			4020	4025	4030	4035	4040	4050					
45	50			4520	4525	4530	4535	4540	4550					
50	55			5020	5025	5030	5035	5040	5050	5060				
55	60			5520	5525	5530	5535	5540	5550	5560				
60	65				6025	6030	6035	6040	6050	6060	6070			
65	70					6530	6535	6540	6550	6560	6570			
70	75					7030	7035	7040	7050	7060	7070	7080		
75	80					7530	7535	7540	7550	7560	7570	7580		
80	85					8030	8035	8040	8050	8060	8070	8080		
85	90					8530	8535	8540	8550	8560	8570	8580	8590	
90	95					9030	9035	9040	9050	9060	9070	9080	9090	
95	100							9540	9550	9560	9570	9580	9590	95100

FB090 青铜轴套规格及公差
FB090 Bronze Sleeve Bushing Specification & Tolerance

单位Unit: mm

内径 D_i φd	外径 D_O φD	长度 L $^{0}_{-0.40}$									
		25	30	35	40	50	60	70	80	90	100
100	105					10050	10060	10070	10080	10090	100100
105	110					10550	10560	10570	10580	10590	105100
110	115					11050	11060	11070	11080	11090	110100
115	120					11550	11560	11570	11580	11590	115100
120	125						12060	12070	12080	12090	120100
125	130						12560	12570	12580	12590	125100
130	135						13060	13070	13080	13090	130100
135	140						13560	13570	13580	13590	135100
140	145						14060	14070	14080	14090	140100
145	150						14560	14570	14580	14590	145100
150	155						15060	15070	15080	15090	150100
155	160						15560	15570	15580	15590	155100
160	165						16060	16070	16080	16090	160100
165	170						16560	16570	16580	16590	165100
170	175						17060	17070	17080	17090	170100
175	180						17560	17570	17580	17590	175100
180	185						18060	18070	18080	18090	180100
185	190						18560	18570	18580	18590	185100
190	195						19060	19070	19080	19090	190100
195	200						19560	19570	19580	19590	195100
200	205						20060	20070	20080	20090	200100
205	210						20560	20570	20580	20590	205100
215	220						21560	21570	21580	21590	215100
225	230						22560	22570	22580	22590	225100
230	235						23060	23070	23080	23090	230100
240	245						24060	24070	24080	24090	240100
250	255						25060	25070	25080	25090	250100
260	265						26060	26070	26080	26090	260100
270	275						27060	27070	27080	27090	270100
280	285						28060	28070	28080	28090	280100
290	295						29060	29070	29080	29090	290100
300	305						30060	30070	30080	30090	300100

FB090F 青铜翻边轴套规格及公差
FB090F Bronze Flange Bushing Specification & Tolerance

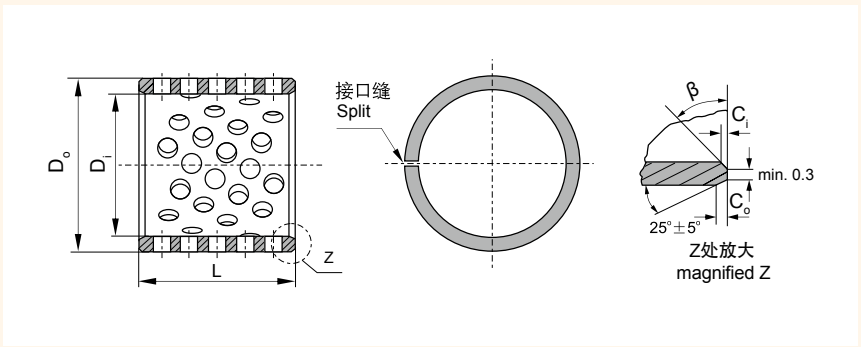


S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

内径 D_i φd	外径 D_O φD	法兰外径 D_{fl}	长度 L $^{0}_{-0.40}$										
			15	20	25	30	35	40	50	60	70	80	90
25	28	35	25150	25200	25250								
30	34	45		30200	30250	30300							
35	39	50		35200	35250	35300	35350						
40	44	55			40250	40300	40350	40400					
45	50	60				45300	45350	45400	45500				
50	55	65				50300	50350	50400	50500				
55	60	70				55300	55350	55400	55500				
60	65	75				60300	60350	60400	60500	60600			
65	70	80				65300	65350	65400	65500	65600			
70	75	85					70350	70400	70500	70600	70700		
75	80	90					75350	75400	75500	75600	75700		
80	85	100					80350	80400	80500	80600	80700	80800	
90	95	110							90500	90600	90700	90800	90900
100	105	120							100500	100600	100700	100800	100900
110	115	130							110500	110600	110700	110800	110900
120	125	140							120500	120600	120700	120800	120900
130	135	155								130600	130700	130800	130900
140	145	165								140600	140700	140800	140900
150	155	180								150600	150700	150800	150900
160	165	190								160600	160700	160800	160900
170	175	200								170600	170700	170800	170900
180	185	215								180600	180700	180800	180900
190	195	225								190600	190700	190800	190900
200	205	235								200600	200700	200800	200900
225	230	260								225600	225700	225800	225900
250	255	290								250600	250700	250800	250900
265	270	305								265600	265700	265800	265900
285	290	325								285600	285700	285800	285900
300	305	340								300600	300700	300800	300900

FB092 青铜轴套规格及公差
FB092 Bronze Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	35°±5°
1.00	0.6±0.3	0.30±0.2	35°±5°
1.50	0.7±0.3	0.50±0.3	35°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	35°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

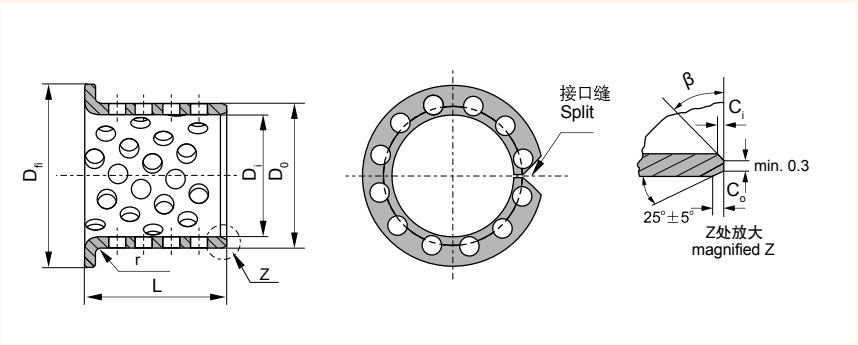
单位Unit: mm

内径 D_i φd	外径 D_o φD	长度 L $^{0}_{-0.40}$												
		10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	1010	1015	1020										
12	14	1210	1215	1220										
14	16	1410	1415	1420	1425									
15	17	1510	1515	1520	1525									
16	18	1610	1615	1620	1625									
18	20	1810	1815	1820	1825									
20	23	2010	2015	2020	2025									
22	25	2210	2215	2220	2225	2230								
24	27		2415	2420	2425	2430								
25	28		2515	2520	2525	2530								
28	31		2815	2820	2825	2830								
30	34		3015	3020	3025	3030	3035	3040						
32	36		3215	3220	3225	3230	3235	3240						
35	39		3515	3520	3525	3530	3535	3540						
40	44			4020	4025	4030	4035	4040	4050					
45	50			4520	4525	4530	4535	4540	4550					
50	55			5020	5025	5030	5035	5040	5050	5060				
55	60			5520	5525	5530	5535	5540	5550	5560				
60	65				6025	6030	6035	6040	6050	6060	6070			
65	70					6530	6535	6540	6550	6560	6570			
70	75					7030	7035	7040	7050	7060	7070	7080		
75	80					7530	7535	7540	7550	7560	7570	7580		
80	85					8030	8035	8040	8050	8060	8070	8080		
85	90					8530	8535	8540	8550	8560	8570	8580	8590	
90	95					9030	9035	9040	9050	9060	9070	9080	9090	
95	100							9540	9550	9560	9570	9580	9590	95100

FB092 青铜轴套规格及公差
FB092 Bronze Sleeve Bushing Specification & Tolerance

内径 D_i φd	外径 D_o φD	长度 L $^{0}_{-0.40}$									
		25	30	35	40	50	60	70	80	90	100
100	105					10050	10060	10070	10080	10090	100100
105	110					10550	10560	10570	10580	10590	105100
110	115					11050	11060	11070	11080	11090	110100
115	120					11550	11560	11570	11580	11590	115100
120	125						12060	12070	12080	12090	120100
125	130						12560	12570	12580	12590	125100
130	135						13060	13070	13080	13090	130100
135	140						13560	13570	13580	13590	135100
140	145						14060	14070	14080	14090	140100
145	150						14560	14570	14580	14590	145100
150	155						15060	15070	15080	15090	150100
155	160						15560	15570	15580	15590	155100
160	165						16060	16070	16080	16090	160100
165	170						16560	16570	16580	16590	165100
170	175						17060	17070	17080	17090	170100
175	180						17560	17570	17580	17590	175100
180	185						18060	18070	18080	18090	180100
185	190						18560	18570	18580	18590	185100
190	195						19060	19070	19080	19090	190100
195	200						19560	19570	19580	19590	195100
200	205						20060	20070	20080	20090	200100
205	210						20560	20570	20580	20590	205100
215	220						21560	21570	21580	21590	215100
225	230						22560	22570	22580	22590	225100
230	235						23060	23070	23080	23090	230100
240	245						24060	24070	24080	24090	240100
250	255						25060	25070	25080	25090	250100
260	265						26060	26070	26080	26090	260100
270	275						27060	27070	27080	27090	270100
280	285						28060	28070	28080	28090	280100
290	295						29060	29070	29080	29090	290100
300	305						30060	30070	30080	30090	300100

FB092F 青铜翻边轴套规格及公差
FB092F Bronze Flange Bushing Specification & Tolerance



S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

内径 D_i φd	外径 D_O φD	法兰外径 D_{fl}	长度 L $^{0}_{-0.40}$										
			15	20	25	30	35	40	50	60	70	80	90
25	28	35	25150	25200	25250								
30	34	45		30200	30250	30300							
35	39	50		35200	35250	35300	35350						
40	44	55			40250	40300	40350	40400					
45	50	60				45300	45350	45400	45500				
50	55	65				50300	50350	50400	50500				
55	60	70				55300	55350	55400	55500				
60	65	75				60300	60350	60400	60500	60600			
65	70	80				65300	65350	65400	65500	65600			
70	75	85					70350	70400	70500	70600	70700		
75	80	90					75350	75400	75500	75600	75700		
80	85	95					80350	80400	80500	80600	80700	80800	
90	95	110							90500	90600	90700	90800	90900
100	105	120							100500	100600	100700	100800	100900
110	115	130							110500	110600	110700	110800	110900
120	125	140							120500	120600	120700	120800	120900
130	135	165								130600	130700	130800	130900
140	145	165								140600	140700	140800	140900
150	155	180								150600	150700	150800	150900
160	165	190								160600	160700	160800	160900
170	175	200								170600	170700	170800	170900
180	185	215								180600	180700	180800	180900
190	195	225								190600	190700	190800	190900
200	205	235								200600	200700	200800	200900
225	230	260								225600	225700	225800	225900
250	255	290								250600	250700	250800	250900
265	270	305								265600	265700	265800	265900
285	290	325								285600	285700	285800	285900
300	305	340								300600	300700	300800	300900

其它产品
Other products

				
SF-1(翻卷)	SF-1L	SF-TEX	TF	SF-2L
				
SF-2G	JF-800	JF-800F	JF-20	FB094
				
FB08G	FB08G	FB09G	FB090	FB090WC
				
FB09GWC	FU-1	FU-2	FU-3	FZH
				
FZL	FZL	FZP	FR	FD

JDB 固体自润滑轴承
JDB Metallic self-lubricating bearings

结构特性 Structure Characteristics

JDB 系列固体自润滑轴承以高强度铜合金为基体并按工况需要有规律的排布一定比列的固体润滑剂，这种铜基镶嵌式固体润滑轴承结合了铜合金的高承载高耐磨及固体润滑剂的自润滑性能，使其在使用过程中大大降低了轴承和设备的维护成本。在此基础上开发了适合于经济型和耐冲击型运用的 JDB550 钢基铜合金镶嵌型固体润滑轴承、JDB250 铸铁镶嵌型固体润滑轴承和 JDB850 弥散型固体润滑轴承。

JDB solid self-lubricating bearing materials consist of high strength metal with solid lubricants embedded, the metal has high load capacity and solid lubricants provided low friction during the operation, this construction reduces maintenance cost for both bearing and machinery. Based on the above technique theory, we developed JDB550 steel shell cast bronze with graphite plug bearings for economic and impact load application, JDB250 steel with graphite plug bearings and JDB850 dispersed solid lubrication bearings for lower friction applications.

材料特点 Material Properties

●可以长期使用而无需维护；
●设计用于很高的静承载和动承载；
●具有很低的且平稳的摩擦系数，无“粘着”现象；
●具有耐粉尘、耐腐蚀、耐冲击和耐边缘负载能力；
●金属基材具有很好的吸震能力；
●能够在很宽的温度范围内使用；
●适合于往复、旋转和摆动等启动频繁又难以形成油膜的场合；
●具有极低的磨损率，使用寿命长。

● Allows maintenance-free and long-life operation;
● Suitable for high static and dynamic loads;
● With low and smoothly coefficient of friction and without stick-slip effects;
● Suitable for dirty, corrosion, impact load and edge loading;
● The base material provided a good shock-absorbing capacity;
● Can be used over a large temperature range;
● Suitable for reciprocating, rotating and oscillating movement with start frequency and difficulty to form oil film occasions;
● With low wear rate and long life service.

产品应用 Application

注塑机模架、汽车模具、工程机械、液压油缸、大型齿轮箱、冶金连铸机、列车支架、轧钢设备、矿山机械、船舶、气轮机、吊车支撑、食品机械、水轮机轴承等。

Injection molding machine, automotive moulds, hydrocylinder, gear case, gas turbine, water turbine, Crane support...

实际运用中根据使用工况的不同，基体可以采用不同牌号的合金，产品范围包括：JDB-1、JDB-2、JDB-3、JDB-4、JDB-5各系列产品。

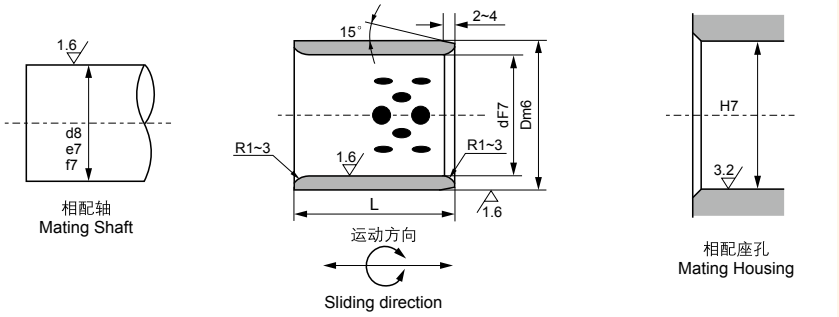
According to the different working conditions, different type of alloy can be chosen, product range includes JDB-1、JDB-2、JDB-3、JDB-4、JDB-5.

代号 Grade	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。 We can also develop according to customers special request while out of this table.					
材料 Material	CuZn25Al5Mn4Fe3	CuSn5Pb5Zn5	钢/Steel+ CuZn25Al5Mn4Fe3	铸铁/HT250	钢/Gcr15
密度 g/cm^3 Density	8.0	8.0	7.6	7.3	7.8
硬度 HB Hardness	210-250	80-120	60-90	180-230	55-60
抗拉强度 N/mm^2 Tensile strength	>600	>200	>500	>250	>1500
延伸率 % Elongation	>10	> 4	> 10	-	-
线胀系数 10^{-5}/°C Coefficient of linear expansion	1.6-2.0	1.6-2.0	1.6-2.0	1.7-1.9	1.6-1.8
最高使用温度 °C Max Working Temperature	300	350	300	400	350
最大动承载 P (N/mm^2) Max Move Load Capacity	100	60	70	60	250
最大滑动速度 V (m/s) Max Sliding Speed	干0.4 油5	2	2	0.5	0.1
最高PV值 (N/mm^2·m/s) Max PV Value Limit	3.8	0.5	0.6	0.8	2.5
摩擦系数μ Friction coefficient	油润滑: 0.03 Oil Lubrication: 0.03			干摩擦: 0.16 Dry Friction: 0.16	

固体润滑剂 Solid Lubricants

固体润滑剂 Lubricant		特性 Features	典型用途 Typical application
高纯石墨+添加剂 Graphite+add		很好的耐磨性和化学稳定性，使用温度＜400°C Good wear performance and chemical stability, temperature limit 400°C	应用于一般机械，在大气中使用 Suit for general machines and under atmosphere
PTFE+添加剂 PTFE+add		极低的摩擦系数和很好的水润滑性，使用温度＜300°C Lowest friction coefficient and good water lubrication, temperature limit 300°C	应用于水、海水润滑，如船舶 Suit for water and seawater lubricant, such as ship

JDB 自润滑直套轴承标准公制尺寸
JDB Self-lubricating Sleeve Bearings Standard Metric Size



材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

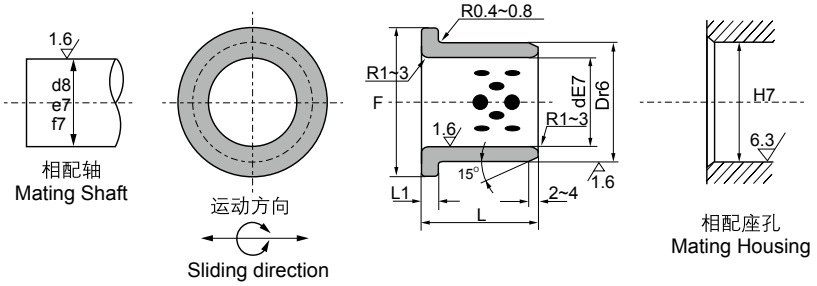
单位unit:mm

d	D	d F7		D m6		L -0.10 -0.30													
						8	10	12	15	16	20	25	30	35	40	50	60	70	80
8	12	8	+0.028 +0.013	12	+0.018 +0.007	081208	081210	081212	081215										
10	14	10		14		101408	101410	101412	101415	101416	101420								
12	18	12	+0.034 +0.016	18			121810	121812	121815	121816	121820	121825	121830						
13	19	13		19			131910	131912	131915	131916	131920	131925	131930						
14	20	14		20			142010	142012	142015	142016	142020	142025	142030						
15	21	15		21			152110	152112	152115	152116	152120	152125	152130	152135					
16	22	16		22	+0.021 +0.008		162210	162212	162215	162216	162220	162225	162230	162235	162240				
18	24	18		24			182410	182412	182415	182416	182420	182425	182430	182435	182440				
20	28	20	+0.041 +0.020	28			202810	202812	202815	202816	202820	202825	202830	202835	202840	202850			
22	32	22		32				223212	223215	223216	223220	223225	223230	223235	223240	223250			
25	33	25		33				253312	253315	253316	253320	253325	253330	253335	253340	253350	253360		
30	38	30		38				303812	303815	303816	303820	303825	303830	303835	303840	303850	303860		
35	45	35	+0.050 +0.025	45	+0.025 +0.009						354520	354525	354530	354535	354540	354550	354560	354570	
40	50	40		50							405020	405025	405030	405035	405040	405050	405060	405070	405080
45	55	45		55									455530	455535	455540	455550	455560	455570	455580
50	60	50		60									506030	506035	506040	506050	506060	506070	506080

JDB 自润滑直套轴承标准公制尺寸
JDB Self-lubricating Sleeve Bearings Standard Metric Size

d	D	d F7		D m6		L -0.10 -0.30											
						30	35	40	50	60	70	80	100	120	130	140	150
50	62	50	+0.050 +0.025	62	+0.030 +0.011	506230	506235	506240	506250	506260	506270						
50	65	50		65		506530	506535	506540	506550	506560	506570	506580	5065100				
55	70	55	+0.060 +0.030	70		557030	557035	557040	557050	557060	557070	557080	5570100				
60	74	60		75		607430	607435	607440	607450	607460	607470	607480	6074100				
60	75	60		75		607530	607535	607540	607550	607560	607570	607580	6075100				
63	75	63		75			637535	637540	637550	637560	637570	637580	6375100				
65	80	65		80			658035	658040	658050	658060	658070	658080	6580100				
70	85	70		85	+0.035 +0.013		708535	708540	708550	708560	708570	708580	7085100				
70	90	70		90			709035	709040	709050	709060	709070	709080	7090100				
75	90	75		90				759040	759050	759060	759070	759080	7590100				
75	95	75		95				759540	759550	759560	759570	759580	7595100	7595120			
80	96	80		96				809640	809650	809660	809670	809680	8096100	8096120	8096130		
80	100	80		100				8010040	8010050	8010060	8010070	8010080	80100100	80100120	80100130	80100140	
90	110	90	+0.071 +0.036	110					9011050	9011060	9011070	9011080	90110100	90110120	90110130	90110140	
100	120	100		120						10012060	10012070	10012080	100120100	100120120	100120130	100120140	
110	130	110		130	+0.040 +0.015							11013080	110130100	110130120	110130130	110130140	
120	140	120		140								12014080	120140100	120140120	120140130	120140140	
125	145	125	+0.083 +0.043	145									125145100	125145120	125145130	125145140	
130	150	130		150									130150100	130150120	130150130	130150140	130150150
140	160	140		160									140160100	140160120	140160130	140160140	140160150
150	170	150		170									150170100	150170120	150170130	150170140	150170150
160	180	160		180									160180100	160180120	160180130	160180140	160180150

JFB 自润滑翻边轴承标准公制尺寸
JFB Self-lubricating Flange Bearings Standard Metric Size

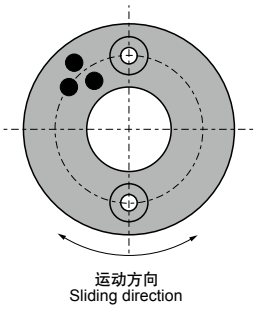


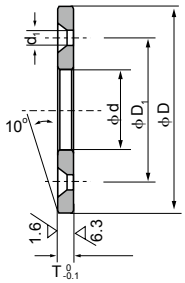
材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

单位unit:mm

d	D	d E7		D r6		F	L_1	L -0.10 -0.30									
								15	20	25	30	35	40	50	60	80	100
10	14	10	+0.040 +0.025	14	+0.034 +0.023	22	2	1015	1020								
12	18	12		18		25		1215	1220								
13	19	13		19		26		1315	1320								
14	20	14	+0.050 +0.032	20		27	3	1415	1420	1425							
15	21	15		21	+0.041 +0.028	28		1515	1520	1525	1530						
16	22	16		22		29		1615	1620	1625	1630						
20	30	20		30		40			2020	2025	2030	2035					
25	35	25	+0.061 +0.040	35		45			2520	2525	2530	2535	2540				
30	40	30		40	+0.050 +0.034	50			3020	3025	3030	3035	3040	3050			
35	45	35		45		60	5			3525	3530	3535	3540	3550			
40	50	40	+0.075 +0.050	50		65					4030	4035	4040	4050			
45	55	45		55		70					4530	4535	4540	4550	4560		
50	60	50		60	+0.060 +0.041	75						5035	5040	5050	5060		
55	65	55		65		80							5540	5550	5560		
60	75	60		75	+0.062 +0.043	90							6040	6050	6060	6080	
70	85	70	+0.090 +0.060	85		105	7.5							7050	7060	7080	
75	90	75		90	+0.073 +0.051	110								7550	7560	7580	75100
80	100	80		100		120									8060	8080	80100
90	110	90		110	+0.076 +0.054	130	10								9060	9080	90100
100	120	100	+0.107 +0.072	120		150									10060	10080	100100
120	140	120		140	+0.088 +0.063	170									12060	12080	120100

JTW 自润滑止推垫片标准公制尺寸
JTW Self-lubricating Thrust Washer Standard Metric Size



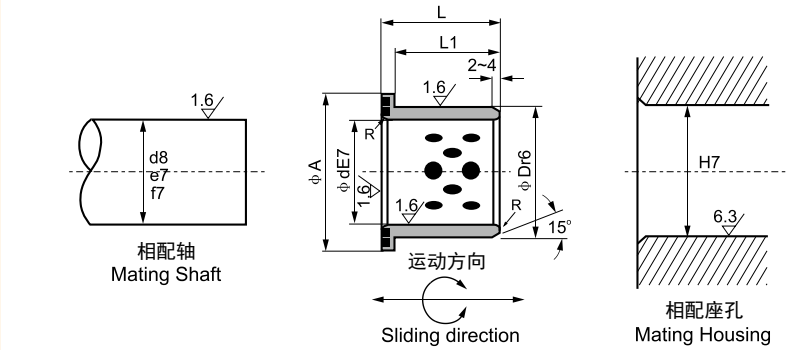


材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

单位Unit: mm

型号规格 Standard No.	Φd	ΦD	T $^{0}_{-0.10}$	螺孔 Bolt Hole			
				ΦD_1	平头螺钉 Crop Bolt	Φd_1	孔数 Bore Number
JTW-10	10.2	30	3	20	M3	3.5	2
JTW-12	12.2	40		28			
JTW-13	13.2						
JTW-14	14.2						
JTW-15	15.2	50		35			
JTW-16	16.2						
JTW-18	18.2						
JTW-20	20.2		5		M5	6	
JTW-25	25.2	55		40			
JTW-30	30.2	60		45			
JTW-35	35.2	70		50	M6	7	
JTW-40	40.2	80	7	60			
JTW-45	45.3	90		70			
JTW-50	50.3	100	8	75			4
JTW-55	55.3	110		85			
JTW-60	60.3	120		90	M8	9	
JTW-65	65.3	125		95			
JTW-70	70.3	130	10	100			
JTW-75	75.3	140		110			
JTW-80	80.3	150		120			
JTW-90	90.5	170		140	M10	11	
JTW-100	100.5	190		160			
JTW-120	120.5	200		175			

JDBB 自润滑翻边轴套标准公制尺寸
JDBB Self-lubricant Flange Bushings Standard Metric Size

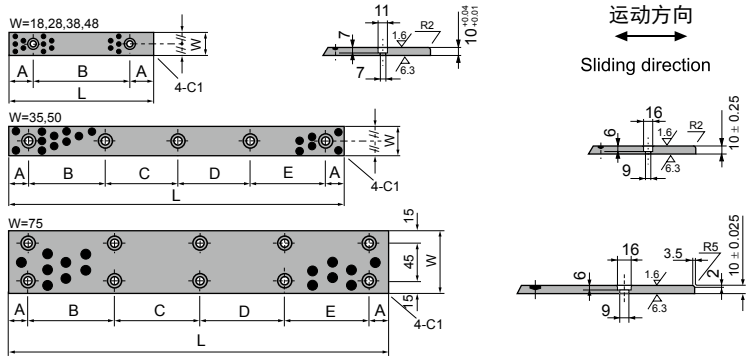


材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

单位unit:mm

型号规格 Standard No.	ϕd E7		ϕD r6		ϕA	L1	L
JDBB-12×15	12	+0.050 +0.032	18	+0.034 +0.023	25	11	15
JDBB-16×20	16		22	+0.041 +0.028	30	15	20
JDBB-20×25	20	+0.061 +0.040	28		36	20	25
JDBB-25×30	25		33	+0.050 +0.034	43	25	30
JDBB-30×35	30	+0.075 +0.050	38		48	30	35
JDBB-40×45	40		50		60	40	45
JDBB-50×55	50		62	+0.060 +0.041	75	49	55
JDBB-60×65	60	+0.090 +0.060	74	+0.062 +0.043	90	58	65

JSP 滑板标准公制尺寸
JSP Wear Plates Standard Metric Size

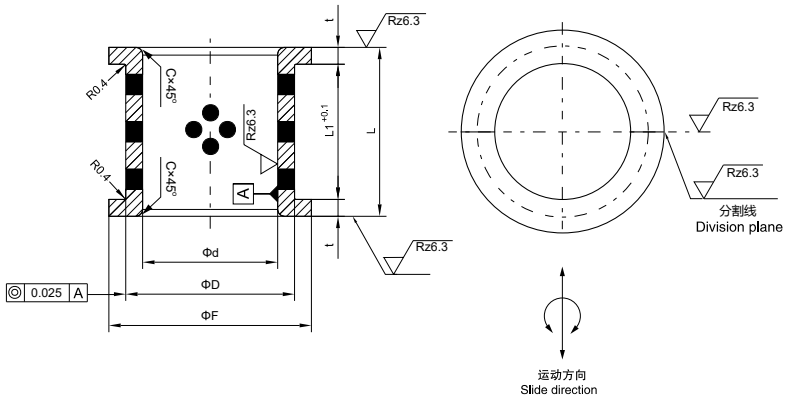


材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

单位Unit: mm

型号规格 Standard No.	W	L	A	B	C	D	E	平头螺钉尺寸 Flat Head Screw Size	孔数 Q'ty of holes
JSP-1875	18	75	15	45				M6	2
JSP-18100		100	25	50					
JSP-18125		125		75					
JSP-18150		150		100					
JSP-2875	28	75	15	45					
JSP-28100		100	25	50					
JSP-28125		125		75					
JSP-28150		150		100					
JSP-35100	35	100	20	60				M8	
JSP-35150		150		55	55				3
JSP-35200		200		55	50	55			4
JSP-35250		250		70	70	70			4
JSP-35300		300		65	65	65	65		5
JSP-35350		350		80	75	75	80		5
JSP-3875	38	75	15	45				M6	2
JSP-38100		100	25	50					
JSP-38125		125		75					
JSP-38150		150		100					
JSP-4875	48	75	15	45					
JSP-48100		100	25	50					
JSP-48125		125		75					
JSP-48150		150		100					
JSP-50100	50	100	20	60				M8	
JSP-50150		150		55	55				3
JSP-50200		200		55	50	55			4
JSP-50250		250		70	70	70			4
JSP-50300		300		65	65	65	65		5
JSP-50400		400		90	90	90	90		5
JSP-75150	75	150		110					4
JSP-75200		200		80	80				6
JSP-75250		250		105	105				6
JSP-75300		300		85	90	85			8
JSP-75400		400		120	120	120			8
JSP-75500		500		115	115	115	115		10

JFFB 自润滑轴瓦
JFFB Half-Bearing



材料：高力黄铜+固体润滑剂
Material: CuZn25Al5Mn4Fe3
+Graphite (650#SP)

单位unit:mm

产品代号 Part No.	I.D. Φd 内径 H7	O.D. ΦD 外径		ΦF d11	L h12	L1 +0.1 0	t	C
JFFB-030	30	38	s6	48	34	22	6	1
JFFB-035	35	45	"	55	45	32	6.5	"
JFFB-040	40	50	"	60	50	35	7.5	"
JFFB-045	45	55	"	65	55	40	7.5	"
JFFB-050	50	60	"	70	60	45	7.5	"
JFFB-060	60	70	"	80	70	50	10	2
JFFB-070	70	85	"	95	80	60	10	"
JFFB-080	80	95	"	110	95	70	12.5	"
JFFB-090	90	105	"	120	105	80	12.5	"
JFFB-100	100	115	"	130	115	90	12.5	"
JFFB-110	110	125	r6	140	125	100	12.5	"
JFFB-120	120	135	"	150	140	110	15	"
JFFB-140	140	160	"	175	160	120	20	"
JFFB-160	160	180	"	200	180	140	20	"

JDB600 油沟铜衬套
JDB600 Oil Groove Bronze Bushing

JDB600铜套，是一种以油沟涌油作为润滑的高力黄铜轴承。该产品具有传统的锡青铜轴承功能，由于采用高力黄铜(ZCuZn25Al6Fe3Mn3)后，它的HB硬度提高了一倍，所以在低速的场合使用该产品，比一般青铜套寿命可以延长一倍，而且其承载压力大，能适应重载的场合使用。并可按客户要求提供如下材质。

JDB600 copper sleeve, is a kind of groove Bay oil as lubrication oil of high strength brass bearings. The product has a function of the traditional bronze bearings, the use of high strength brass (ZCuZn25Al6Fe3Mn4), its hardness HB doubling the occasion so low to use the product, than the average life span can be extended twice bronze sets, and its bearing pressure, can adapt to overloaded occasions.

材料型号 Material type		600#Strong Cast bronze 高力黄铜	600S1 CuSn5Zn5Pb5	600S2 CuAl10Ni5Fe5	600S3 CuSn12	600S4 CuSn10Pb10	600S5 CuZn25Al5
化学元素 Chemical elements	Cu	65	85	80	88	80	65
	Sn		5		12	10	
	Pb		5			10	
	Zn	25	5				25
	Ni			5			
	Al	6		10			6
	Fe			5			
	Mn	4					4
密度 Density		8.0	8.8	7.6	8.8	8.9	8.0
屈服强度 Yield point		>350	>90	>260	>150	>100	>450
抗拉强度 Tensile Strength		>750	>250	>500	>270	>210	>800
延伸率 Extension Rate		>12	>15	>10	>5	>8	>8
硬度 Hardness		210	70	150	95	75	250

JDB600精加工铜合金轴套提供了简单、经济的轴承运用方式，具有承载高，耐腐蚀性好，尺寸加工任意性等特点。同时HCOB可以根据不同的使用情况提供不同牌号的铜合金，并按照要求加工出不同的形式，它比卷制类铜轴承具有更高尺寸精度。

Machined st bronze bearings offer technically and economically favorable bearings solutions. It is with high load pability, low weight and good corrosion sistance. HCOB can offer diffe-ant types of bronze alloys accoring to the required life time, service etc. The tolerance is much tighter than wrapped bronze bushes.

技术参数 Technical Parameters

最大承载压力	250N/mm^2	最高适用温度	300°C
最高线速度	5m/s	硬度	HB ＞ 180
摩擦系数	<0.14	允许最高 PV 值 (干)	1.65N/mm^2·m/s

可供形式 Available

直套 Cylindrical bushes　垫片 Flange bushes
翻边 Thrust washers　滑板 Plate

JDB600可以根据客户要求加工，公差参照标准的JDB尺寸表。
JDB600 supplied by customer ordering, the tolerance is according to JDB standard dimension.

油槽 OilGroove

JDB-3 钢基铜合金镶嵌型固体润滑轴承
JDB-3 Steel Shell Cast Bronze With Graphite Plug Bushes

材料特点 Material Properties

1. 结合了铜合金的耐磨性和钢的高机械强度性能；
2. 可以根据工况要求铸造不同的铜合金材料包括低摩擦性能的铅铜合金；
3. 由于内外层材料具有的不同摩擦系数，可以防止轴承在高载低速工况下的窜动和走外圆；
4. 可以根据需要在工作面覆盖或镶嵌固体润滑剂以达到自我润滑的目的；
5. 相比纯铜套更具有成本优势，节约利用资源；
6. 可以进行后期加工，比如钢基体的热处理、合金层车加工等；
7. 可以根据设计需要在不同的面或者复杂的面上进行一层或多层的铜合金铸造；
8. 与传统的铜套在使用特性上具有类似的特性，可以适合于不同温度下不同润滑条件下的工况；
9. 相比纯铜套具有更好的机械承载性能，特别是抗冲击强度。

1. Combined with the resistance of copper alloy and high mechanical streegth properties of steel;
2. Different cast copper alloy material is available according to work condition, including lower friction lead bronze;
3. The different coefficient of friction of the inner and outer material can protect the axil and rotating movement of the bearing in the housing under extremely high load with low speed;
4. The solid lubricant plug can be embedded to achieve the self-lubricating performance;
5. Compare with pure bronze bearing, the cost is reduced obviously;
6.The steel backing allowed to heat treatment to get high hardness, meanwhile the in layer can be re-machined if necessary;
7. The bronze layer can be casted on one or more layers to complex structure;
8. This material have same characteristic as pure bronze bearing, suitable for wide temperature range, different oil condition;
9. The CRB650GT have better mechanical load preformance compare with bronze material, especially the impact strength.

JDB-3 钢基铜合金镶嵌型固体润滑轴承
JDB-3 Steel shell cast bronze with graphite plug bushes



基材特征 Structure

在优质碳钢表面浇铸高强度铜合金作为轴承的基础材料，这种制造工艺使得铜和钢结合面达到完全的冶金结合，在降低了材料成本的同时也提高了其承载能力；而根据使用工况在其工作面镶嵌固体润滑剂大大降低了轴承的摩擦系数并达到了自我润滑的目的。

Steel shell with cast bronze bearing material liner with specially formulated solid lubricants embedded into the holes in the liner material. The process of casting bronze on steel achieves an integral metallurgical structure between bronze and steel with an increased carrying capacity while the material cost is considerably reduced. The solid lubricant can reduce the coefficient of friction and performs the self-lubricating function.

金相组织 Features

石墨镶嵌方式 Graphite Mosaic


A: 内径（ID)≤100


B: 内径（ID)≥100

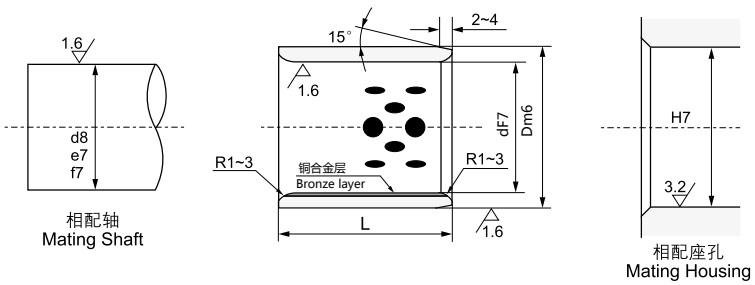
材料特点 Material Properties

从金相图可以看出临界区的钢与铜合金之间产生了相互扩散，这种在铸造过程中产生的扩散层大约在3μ~5μ之间使得两种材料达到了完全的冶金结合形成了很好的结合强度，在任何情况下这种机械强度超过了铜合金本身。
钢和铜相互之间扩散的组织结构提供了这种材料优秀的机械性能，同时可将轴承运作过程中产生的热量及时转移。薄壁的铜合金层使得这种双层材料的热膨胀系数相近，因此JDB-3材料可以在铸造后根据需要进行热处理，也就是说这种新型的材料可以确保在使用过程中保持很高的精度和机械配合。
结合了铜合金的耐磨性和钢的高机械强度性能;
- 可以根据工况要求铸造不同的铜合金材料包括低摩擦性能的铅铜合金；
- 由于内外层材料具有的不同摩擦系数，可以防止轴承在高载低速工况下的窜动和走外圆；
- 可以根据需要在工作面覆着或镶嵌固体润滑剂以达到自我润滑的目的；
- 相比纯铜套更具有成本优势，节约利用资源；
- 可以进行后期加工，比如钢基体的热处理、合金层车加工等；
- 可以根据设计需要在不同的面或者复杂的面上进行一层或多层的铜合金铸造；
- 与传统的铜套在使用特性上具有类似的特性，可以适合于不同温度下不同润滑条件下的工况；
- 相比纯铜套具有更好的机械承载性能，特别是抗冲击强度。

JDB-3 combines the advantages of a metallic bearing and the self lubricating of graphite. It is particularly good for low-speed and high load applications, where external lubrication is not practical. The new based material provides economic solution and even good resistance to shock loads.
- Cylindrical bushes
- Thrust washers
- Flange bushes
- Non-standard parts as design
- JDB-3 supplied by customer ordering, the tolerance
- is according to JDB-3 standard dimension.

This type of products can be widely used under high temperature and high load with low speed conditions, such as successive casting machinery, mineral machinery, injection molding machinery, dock machinery and so on

JDB-3 钢基铜合金镶嵌型固体润滑轴承
JDB-3 Steel shell cast bronze with graphite plug bushes



OD 外径: S45C
ID 内径: KSOB550铜合金+石墨
Graphite

单位unit:mm

ID	F7	OD	m6	Wall Thick 壁厚	Bronze Thick 铜层厚	L-0.10/0.30													
						30	35	40	50	60	70	80	90	100	120	130	140	150	200
50	+0.050 +0.025	60	+0.030 +0.011	5	1.5	●	●	●	●	●	●	●							
"	"	65	"	7.5	"	●	●	●	●	●	●	●	●	●					
55	+0.060 +0.030	70	"	"	"	●	●	●	●	●	●	●							
60	"	75	"	"	"	●	●	●	●	●	●	●	●	●					
65	"	80	"	"	"				●	●	●	●							
70	"	85	+0.035 +0.013	"	"		●	●	●	●	●	●	●	●					
"	"	90	"	10	"				●	●	●	●							
75	"	90	"	7.5	"					●	●	●	●	●					
"	"	95	"	10	"					●	●	●	●	●					
80	"	95	"	7.5	"			●	●	●	●	●	●	●	●				
"	"	100	"	10	"			●	●	●	●	●	●	●	●	●	●		
85	+0.071 +0.036	100	"	7.5	"			●	●	●	●	●	●	●	●	●	●		
90	"	110	"	10	2				●	●	●	●	●	●	●	●	●		
100	"	120	"	"	"					●	●	●	●	●	●	●	●		
110	"	130	+0.040 +0.015	"	"							●	●	●	●	●	●		
120	"	140	"	"	"							●	●	●	●	●	●		
125	+0.083 +0.043	145	"	"	"									●	●	●	●		
130	"	150	"	"	"									●	●	●	●		
140	"	160	"	"	"							●	●	●	●	●	●		
150	"	170	"	"	"									●	●	●	●		
160	"	180	"	"	"									●	●	●	●	●	
170	"	190	+0.046 +0.017	"	"									●	●	●	●	●	
180	"	200	"	"	"									●	●	●	●	●	●
190	+0.096 +0.050	210	"	"	"									●	●	●	●	●	●
200	"	230	"	15	3										●	●	●	●	●
225	"	255	+0.046 +0.017	"	"										●	●	●	●	●
250	"	280	"	"	"										●	●	●	●	●
280	+0.108 +0.056	320	+0.057 +0.021	20	4										●	●	●	●	●
300	"	340	"	"	"											●	●	●	●
350	+0.119 +0.062	390	"	"	"											●	●	●	●
400	"	450	+0.063 +0.023	25	5												●	●	●
450	+0.131 +0.068	500	"	"	"												●	●	●

其它产品
Other products

				
JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
				
JDB	JFBB	JTW	JFFB	JSP
				
JSL	JDBS	JDBS	JGB	JDB (PTFE)
				
JEGB / JEGBK	SHTZ/SHTNZ	MPTZ/MPTSZ/ MPTNZ	MPIZ/MPIZ	MPCZ/MPCTZ
				
DIN9834	JEFW	JPBW/JPBF	2087.72	2087.70

其它产品
Other products

				
JDB	2081.75	2081.74	HGB250	模架铜片
				
JPW	JFRP	JESW	JTLP	JTWP
				
JUCF/JCUS	HCRB	JCBS	JCBSP	塑胶模具用导板
				
JSPW	JSPS	JDB600	JDB600	JDB600
				
JDB600	JDB600	JDB600	JDB600	JDB600

其它产品
Other products

LIN 系列	LIN-LMF	LIN-11RF	LIN-LMK	LIN-11RT
				
	亚标圆法兰直线轴承	欧标圆法兰直线轴承	亚标方法兰直线轴承	欧标方法兰直线轴承
LIN-LMH	LIN-11RH	LIN-LMFL	LIN-11RFL	LIN-LMKL
				
亚标双切法兰直线轴承	欧标双切法兰直线轴承	亚标圆法兰加长型直线轴承	欧标圆法兰加长型直线轴承	亚标方法兰加长型直线轴承
LIN-11RTL	LIN-LMHL	LIN-11RHL	LIN-12RFM	LIN-12RTM
				
欧标方法兰加长型直线轴承	亚标双切边法兰加长型直线轴承	欧标双切边法兰加长型直线轴承	中圆法兰型直线轴承	中方法兰型直线轴承
LIN-LM	LIN-11R	LIN-LM-OP	LIN-11RK	LIN-12R
				
封闭式亚标铝合金直线轴承	封闭式欧标铝合金直线轴承	开口式亚标铝合金直线轴承	开口式欧标铝合金直线轴承	短型直线滑动轴承
LIN-12	LIN-LML	LIN-11RL	LIN-01	LIN-02
				
压配合全塑料直线轴承	封闭式加长亚标铝合金直线轴承	封闭式加长欧标铝合金直线轴承	欧标长型滑动膜	欧标短型滑动膜

其它产品
Other products

LIN-01K	LIN-03	LIN-03K	LIN-11	LIN-00
				
欧标开口长型滑动膜	亚标滑动膜	亚标开口滑动膜	亚标全塑料直线轴承	欧标全塑料直线轴承

LIN-11K	LIN-00K	LIN-03R	LIN-03RK	LIN-11R-ES
				
亚标全塑料开口直线轴承	欧标全塑料开口直线轴承	调心封闭型直线轴承	调心开口型直线轴承	不锈钢直线滑动轴承

LIN 内扣导向弹性直线轴承	OB 系列	OP	OB	OBL
				
内扣导向弹性直线轴承		开口型自润滑线性轴承	封闭型自润滑线性轴承	加长型封闭自润滑线性轴承

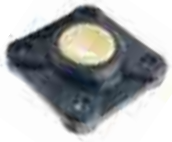
OBF	OBFL	OBK	OBKL	OBH
				
圆法兰型自润滑线性轴承	圆法兰加长型自润滑线性轴承	方法兰型自润滑线性轴承	方法兰加长型自润滑线性轴承	双切边法兰型自润滑线性轴承

OBHL	OBF09G	OBK09G	OBH09G	PSM
				
双切法兰加长型自润滑线性轴承	圆法兰型青铜基自润滑线性轴承	方法兰型青铜基自润滑线性轴承	自润滑直线轴承	高精度自润滑线性轴承

其它产品
Other products

QL-FL	QL-FLN	QL-FJ	QL-FJN	QL-FM
				
封闭型英制自润滑线性轴承	开口型英制自润滑线性轴承	封闭型公制自润滑线性轴承	开口型公制自润滑线性轴承	封闭型欧标自润滑线性轴承

QL-FMN	QL-FMT	QL-AWMP	QL 塑料轴套系列	LIN-GSM
				
开口型欧标自润滑线性轴承	薄壁型欧标自润滑线性轴承	精密铝合金轴		轴套

LIN-GFM	LIN-JSM	LIN-JFM	LIN-GTM	LIN-EFSM
				
翻边轴套	轴套	翻边轴套	垫片	带四个安装孔法兰球体轴承

LIN-EFOM	LIN-ESTM	LIN-KSTM	LIN-KGLM	QL 直线滑座系列
				
带二个安装孔法兰球体轴承	基座轴承	基座轴承	角支轴承	

LIN-SC	LIN-SCL	LIN-SBR	LIN-SBRL	LIN-SCV
				
亚标封闭型直线滑座	亚标加长型直线滑座	亚标开口型直线滑座	亚标加长开口型直线滑座	亚标窄型直线滑座

其它产品
Other products

QL-SCV-OB	LIN-RJUM-05	LIN-RJUM-05E	LIN-TJUM-05	LIN-RJUMT-05
				
封闭短型箱式滑座	短型直线滑座	间隙可调节直线滑座	可拆卸式直线滑座	加长型直线滑座

LIN-OJUM-06	LIN-RJUM-06	LIN-RGA	LIN-OGA	LIN-RTA
				
开口型直线滑座	直线滑座	全封闭式直线轴承座	开口式直线轴承座	全封闭式直线轴承座

LIN-OTA	LIN-WJ200UM-01	LIN-WS-01	LIN-WW	LIN-WS-02
				
封闭短型箱式滑座	圆形铝合金滑块	单圆直线导轨	圆导轨滑台	双圆直线导轨

QL-HGR	QL-HGH	QL-HGW	QL-SC-OB	QL-SBR-OP
				
工程塑料高组四方滑座导轨	工程塑料高组四方滑座	工程塑料高组法兰滑座	封闭型箱式滑座	开口型箱式滑座

QL-SC-OBL	QL-SBR-OPL
	
封闭加长型箱式滑座	封闭加长型开口箱式滑座

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