



我们为所有工业提供优质的产品

We provide quality products for all industries

嘉兴伯恩利精密机械有限公司

JIAXING BURNLEY PRECISION MACHINERY CO. LTD



公司简介

Introduction

嘉兴伯恩利精密机械有限公司是一家专业生产销售滚针轴承及无油滑动轴承的企业，产品畅销海内外。

我们的理念：质量，服务，价格！

质量：更好更稳定的产品质量！

服务：最大限度满足客户的需求！

价格：市场化的合理价格！

主要产品：冲压外圈滚针轴承、实体套圈滚针轴承、推力平面滚针轴承、无油润滑轴承、边界润滑轴承、JF双金属轴承、青铜卷制轴承、固体润滑轴承、青铜铸造轴套。

广泛使用在机械制造、汽车行业、工程机械、建筑机械、农业机械、林业机械、纺织机械、冶金行业、水利水电、轧钢设备、石油和采矿机械、办公自动化产品、健身器材、食品机械、印刷等多个领域。

Jiaxing Burnley Precision Machinery Co., Ltd. a professional manufactory and sales Needle roller bearing and oilless bearings. Now our products are exported to more than 15 countries and regions in EU, America, Asia, etc.

Quality: Better and stable quality!

Service: Meet the customer's requirement as possible as we can!

Price: Reasonable prices as the market

Main product: Drawn cup needle roller bearing, solid bushed needle roller bearing, Thrust bearing, oilless bearings, Boundary lubrication bearings, JF bimetal bearings, Bronze wrapped bearings, Solid lubricating bearings bronze Turned bearings etc.

The products are applied to metallurgy extensively, automobile, mine, petroleum, such various kinds of machinery as rolling mill, chemical industry, electrical machinery, shipping, printing, plastic machinery, office equipment, health and fitness facilities, light industry and machinery, irrigation works, hydraulic pressure machinery, locomotive, rotate, slip, etc.



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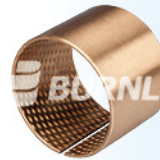
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SF-1自润滑复合轴承 Self-lubricating multilayer composite bearing

产品介绍

Product introduction

SF-1自润滑轴承，是以钢板为基体，中间烧结球形青铜粉，表面轧制聚四氟乙烯（PTFE）和纤维的混合物，卷制而成的滑动轴承。

特点：1. PTFE和纤维的混合物 0.01~0.03mm，可形成一层很好的转移膜保护对磨轴，提供了轴承的自润滑性能。2. 铜粉层0.20~0.30mm，具有很好的承载能力和耐磨性，良好的导热性能可及时转移轴承运作过程中产生的热量。复合材料可渗入到铜粉球的间隙中，提高了结合强度。3. 低碳钢，提供了很好的承载性能和热传递作用。产品已广泛应用于各种机械的滑动部位，如印刷机、升降机、纺织机、烟草机、健身器、液压搬运车、微电机、电磁阀、汽车、摩托车等。







SF-1 self-lubricating bearing, backed on mild steel sintered with bronze powder and coating with PTFE/Fibre mixture.

Characteristics: 1. PTFE/Fibre mixture 0.01~0.03mm, provides an excellent initial transfer film, which effectively coats the mating surface of the bearing assembly, forming an oxide type solid lubricant film. 2. Sintered bronze powder 0.20-0.30mm, provides good thermal conductivity away from the bearing surface, also serves as a reservoir for the PTFE-lead mixture. 3. Low-carbon steel, gives high load carrying capacity, excellent heat dissipation.

Application: textile machines, lift, tobacco machines, fitness equipment, hydraulic systems, automobiles, agricultural and forest machines and so on.

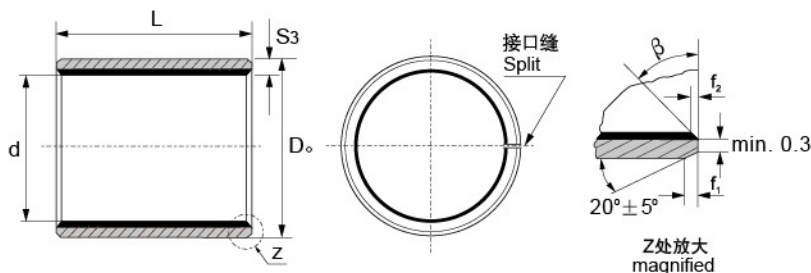
使用参数

The use of parameters

参数 Parameters	SF-1W 无铅轴承 Lead-Free Bushing	SF-1W 齿轮泵专用轴承 Gear Pump Bushing	SF-1P 往复运动轴承 Reciprocating Motion Bushing	SF-1B 青铜基轴承 Bronze-Based Bushing	SF-1D 液压专用轴承 Hydraulic Bushing	SF-1S 不锈钢耐蚀轴承 Stainless Steel Bushing
						
最大承载压力(动) Load capacity(Dynamic)	140 N/mm ²	140 N/mm ²	140 N/mm ²	140 N/mm ²	140 N/mm ²	140 N/mm ²
最大承载压力(静) Load capacity(Static)	250 N/mm ²	250 N/mm ²	250 N/mm ²	250 N/mm ²	250 N/mm ²	250 N/mm ²
摇摆运动 Oscillating	60 N/mm ²	60 N/mm ²	60 N/mm ²	60 N/mm ²	60 N/mm ²	60 N/mm ²
最高滑动速度(油润滑) Speed limit(Oil)	5 m/s	10 m/s	2.5 m/s	5 m/s	3 m/s	4.5 m/s
摩擦系数 μ Friction Coef.	0.04~0.20	0.04~0.20	0.04~0.20	0.03~0.18	0.04~0.20	0.04~0.20
最高PV值(干) PV limit(Dry)	3.6 N/mm ² .m/s	4.3 N/mm ² .m/s	3.6 N/mm ² .m/s	4.3 N/mm ² .m/s	3.8 N/mm ² .m/s	3.6 N/mm ² .m/s
最高PV值(油) PV limit(Oil)	50 N/mm ² .m/s	60 N/mm ² .m/s	50 N/mm ² .m/s	60 N/mm ² .m/s	50 N/mm ² .m/s	50 N/mm ² .m/s
工作温度 Temp. Limit	-295°C ~ +280°C	-195°C ~ +280°C	-195°C ~ +280°C	-195°C ~ +300°C	-195°C ~ +280°C	-295°C ~ +270°C
导热系数 Thermal conductivity	13 W/m·k	13 W/m·k	13 W/m·k	18 W/m·k	16 W/m·k	16 W/m·k
线膨胀系数 Linear expansion	11 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K	21 × 10 ⁻⁶ /K	15 × 10 ⁻⁶ /K	15 × 10 ⁻⁶ /K

SF-1 系列自润滑复合轴套

SF-1 Oilless Bushing



内外倒角 ID and OD chamfers

S_3	f_1	f_2	β
0.75	0.5 ± 0.3	0.25 ± 0.2	$30^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.3 ± 0.2	$30^\circ \pm 5^\circ$
1.50	0.7 ± 0.3	0.5 ± 0.3	$30^\circ \pm 5^\circ$

S_3	f_1	f_2	β
2.00	1.2 ± 0.4	0.5 ± 0.3	$30^\circ \pm 5^\circ$
2.50	1.8 ± 0.6	0.6 ± 0.3	$45^\circ \pm 5^\circ$

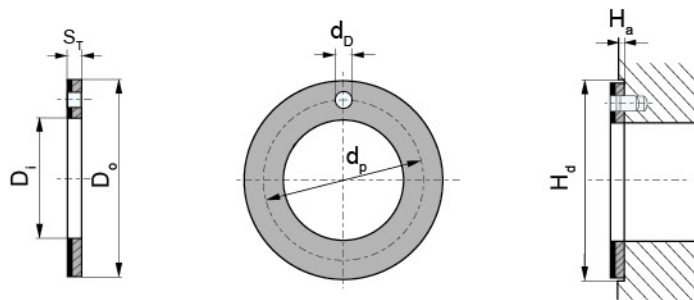
单位Unit: mm

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_o	壁厚 Wall thick- ness S_3	长度 L $\begin{matrix} 0 \\ -0.40 \end{matrix}$ ($\begin{matrix} d_s: \Phi 28 & L: 0.30 \\ d_h: \Phi 30 & L: 0.40 \end{matrix}$)															
						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	1.005 0.980	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	0.092 0.006		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						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	0.095 0.006				1610	1612	1615	1620	1625								
17	-0.016 -0.034	19 +0.021	19 +0.075 +0.035	17.061 16.990					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		0.112 0.010			2010	2012	2015	2020	2025	2030							
22	-0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990					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				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 系列自润滑复合轴套 SF-1 Oilless Bushing

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 D _O	壁厚 Wall thick- ness S ₃	长度 L ⁰ _{-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	2.505 2.460	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	0.170 0.020				5530	5540	5550	5560							
60 ^{-0.060} _{-0.030}	65 ^{+0.030}	65 ^{+0.100} _{+0.055}	60.110 59.990					6030	6040	6050	6060	6070						
65 ^{-0.060} _{-0.030}	70 ^{+0.030}	70 ^{+0.100} _{+0.055}	65.110 64.990					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	2.490 2.440				8040	8050	8060	8070	8080	80100				
85 ^{-0.054}	90 ^{+0.035}	90 ^{+0.120} _{+0.070}	85.155 85.020	0.209 0.020					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							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	2.465 2.415					12060	12070	12080	120100	120115				
125 ^{-0.063}	130 ^{+0.040}	130 ^{+0.170} _{+0.100}	125.210 125.070	0.273 0.070						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								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	2.465 2.415					18060	18070	18080	180100			
190 ^{-0.072}	195 ^{+0.046}	195 ^{+0.210} _{+0.130}	190.216 190.070	0.288 0.070						19060	19070	19080	190100					
200 ^{-0.072}	205 ^{+0.046}	205 ^{+0.210} _{+0.130}	200.016 200.070								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	2.465 2.415							25080	250100					
260 ^{-0.081}	265 ^{+0.052}	265 ^{+0.260} _{+0.170}	260.222 260.070	0.303 0.070									26080	260100				
280 ^{-0.081}	285 ^{+0.052}	285 ^{+0.260} _{+0.170}	280.222 280.070											28080	280100			
300 ^{-0.081}	305 ^{+0.052}	305 ^{+0.260} _{+0.170}	300.222 300.070											30080	300100			

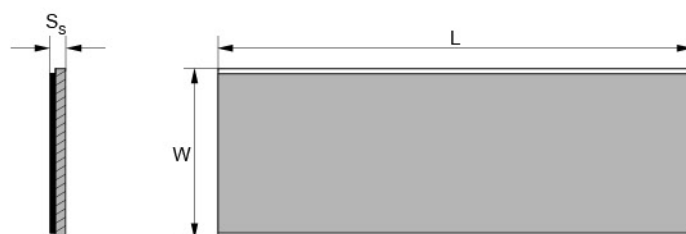
SF-1WC 垫片规格及公差 SF-1WC Thrust Washer Specification & Tolerance



单位Unit: mm

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

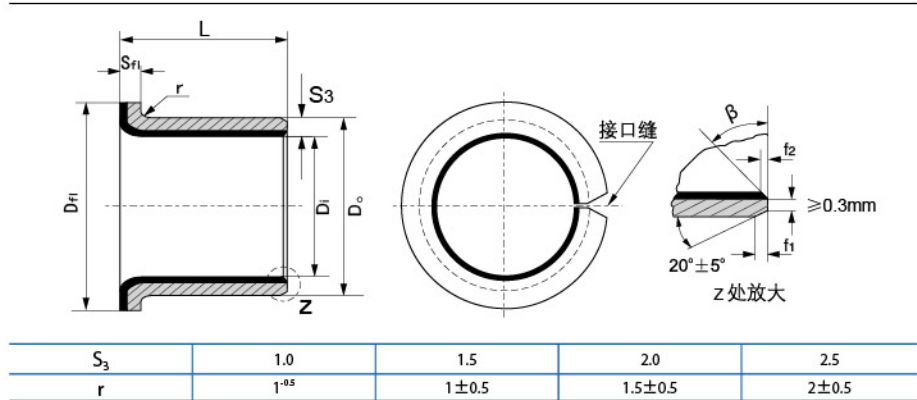
SF-1SP 板材规格及公差 SF-1SP Strip Specification & Tolerance



单位Unit: mm

型号规格 Standard No.	长度 $L \pm 1$	宽度 $W \pm 1$	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-1F 系列自润滑复合法兰轴套 SF-1F Oilless Flange Bushing



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	Designation 型号规格	Wall thickness 壁厚 S ₃	尺寸 Dimension					
							D _i	D _o	D _i ±0.5	L±0.25	S _H -0.2	
6	-0.013 -0.028	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000	6	8	12	4	1
											7	
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	1
											7.5	
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	1
											9	
											12	
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	1
											9	
											12	
											12	
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990	0.092 0.006	14	16	22	12	1
											17	
											17	
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990	0.092 0.006	15	17	23	9	1
											12	
											17	
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990	0.092 0.006	16	18	24	12	1
											17	
											17	
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	1
											17	
											20	
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990	0.112 0.010	20	23	30	11.5	1.5
											16.5	
											21.5	
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990	0.112 0.010	22	25	32	15	1.5
											20	
											21.5	
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990	0.112 0.010	25	28	35	11.5	1.5
											16.5	
											21.5	
30	-0.025 -0.050	34	+0.025	34	+0.075 +0.035	30.085 29.990	0.126 0.010	30	34	42	16	2
											26	
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	2
											26	
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990	0.135 0.015	40	44	53	26	2
											40	



SF-2 边界润滑轴套 Boundary Lubricating Bushing

产品介绍



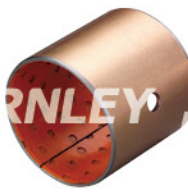

Product introduction

SF-2边界润滑轴承，是以钢板为基体、中间烧结球形青铜粉，表面轧制改性聚甲醛（POM），并含有储油坑。此产品的特点是：适用于边界润滑下长期使用而无需维护；适用于重载低速下的旋转运动和摇摆运动；优秀的承载能力，较低的摩擦系数和很好的耐磨性；无吸水性和吸油性，尺寸稳定；轴承在压装时可以进行再次加工以得到更好的公差。建议初始安装时加入油脂，轴承表面的储油坑可以保证最佳的油脂分布，而过程加油可以大大提高产品的使用寿命。产品广泛应用于：卡车踏板总成、平衡轴、制动钳、转向主销和尾板等；物流机械：搬运车、起重机、车载吊车；森林机械；包装机械等；以及农用机械等。

SF-2 pre-lubricating bushing, backed on mild steel sintered with bronze powder and coating with POM. The POM surface carries a pattern of regular indents for grease. The characteristics are: Suitable for rotary and oscillating movement, lower maintenance requirements, lower wear, lower susceptibility to edge loading, no absorption of water and therefore no swelling, good resistance to shock loads. Suggestion: add grease into the indents when assembling can make bushing maintenance free, add grease during working can increase bushing's life time. Application: Automotive suspension joints, king pin assemblies and stub axles of trucks, automobile driving joint hinges, steering and other linkages, truck tail, tractor, harvest machine, and so on.

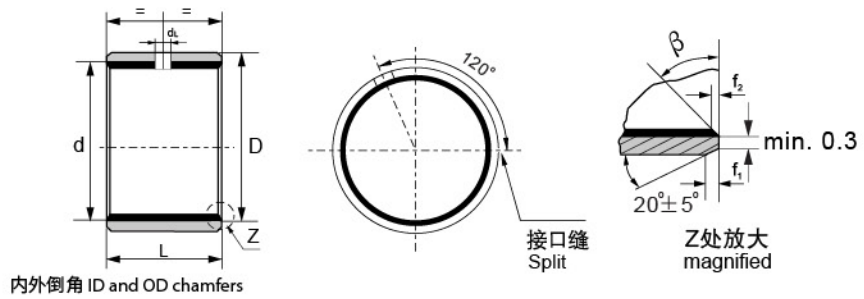
使用参数

The use of parameters

	SF-2 边界润滑轴承 Marginal Bearing	SF-2H 无铅边界润滑轴承 Lead Free Marginal Bearing	SF-2S 无铅边界润滑轴承 Lead Free Marginal Bearing	SF-2L 无铅边界润滑轴承 Lead Free Marginal Bearing
参数 Parameters				
最大承载压力P(静) Max load capacity P(Static)	250 N/mm ²	250 N/mm ²	250 N/mm ²	250 N/mm ²
最大承载压力P(动) Max load capacity P(Dynamic)	140 N/mm ²	140 N/mm ²	140 N/mm ²	140 N/mm ²
最大线速度 V(脂) Max line speed V(Grease)	2.5m/s	2.5m/s	2.5m/s	2.5m/s
最高 PV 值(脂) Max imum PV value(Grease)	3 N/mm ² .m/s	3 N/mm ² .m/s	3 N/mm ² .m/s	3 N/mm ² .m/s
摩擦系数 μ(脂) Friction coef μ(Grease)	0.05~0.25	0.05~0.25	0.05~0.25	0.05~0.25
工作温度 Working temperature	-40°C~+110°C	-40°C~+110°C	-40°C~+110°C	-40°C~+110°C
导热系数 Thermal conductivity	4 W/(m.k)	4 W/(m.k)	4 W/(m.k)	4 W/(m.k)
线膨胀系数 Coefficient of linear expansion	11 × 10 ⁻⁶ /k	11 × 10 ⁻⁶ /k	11 × 10 ⁻⁶ /k	11 × 10 ⁻⁶ /k

SF-2 系列边界润滑轴套

SF-2 Boundary Lubricating Bushing



S_3	f_1	f_2	β
1.0	0.6 ± 0.3	0.3 ± 0.2	$30^\circ \pm 5^\circ$
1.5	0.7 ± 0.3	0.5 ± 0.2	$30^\circ \pm 5^\circ$

S_3	f_1	f_2	β
2.00	1.2 ± 0.4	0.5 ± 0.3	$30^\circ \pm 5^\circ$
2.50	1.8 ± 0.6	0.8 ± 0.3	$45^\circ \pm 5^\circ$

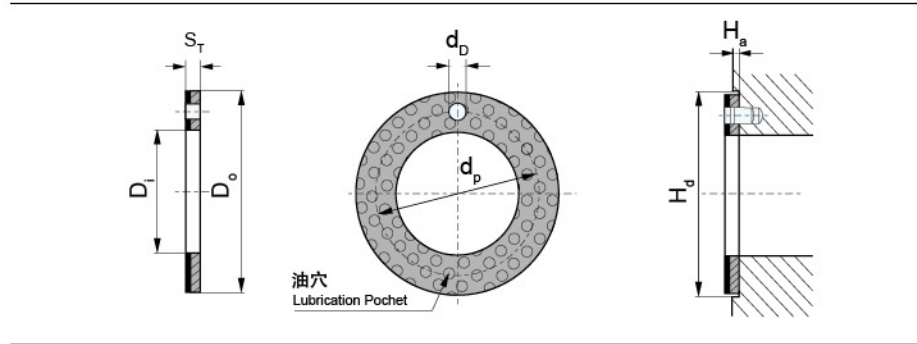
轴径 Shaft D_s h8	座孔 Housing H7 D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed D_{Ia}	配合间隙 Clearance D_O	壁厚 Wall thick- ness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$														
							10	15	20	25	30	35	40	45	50	60					
10 -0.022	12 +0.018	12 +0.065 +0.030	10.108 10.040	0.130 0.040	0.980 0.955	4	1010	1015	1020												
12 -0.027	14 +0.018	14 +0.065 +0.030	12.108 12.040	0.135 0.040			1210	1215	1220												
14 -0.027	16 +0.018	16 +0.065 +0.030	14.108 14.040				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				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	0.164 0.050			2015	2020	2025	2030											
22 -0.033	25 +0.021	25 +0.075 +0.035	22.131 22.050				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			1.970 1.935	6		2820	2825	2830									
30 -0.033	34 +0.025	34 +0.085 +0.045	30.155 30.060		3020	3025			3030	3035	3040										
35 -0.039	39 +0.025	39 +0.085 +0.045	35.155 35.060		3520	3525			3530	3535	3540										
40 -0.039	44 +0.025	44 +0.085 +0.045	40.155 40.060	0.194 0.060	2.460 2.415	8		4020	4025	4030	4035	4040	4045	4050							
45 -0.039	50 +0.025	50 +0.085 +0.045	45.195 45.080				4520	4525	4530	4535	4540	4545	4550								
50 -0.039	55 +0.030	55 +0.100 +0.055	50.200 50.080				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											

How to order: Part No. d L
 订单方式: SF-2 10 10

SF-2 系列边界润滑轴套 SF-2 Boundary Lubricating Bushing

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 _O	壁厚 Wall thick- ness S ₃	油孔 Oil hole d _t	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	2.450 2.385	9.5	8040	8050	8060	8080																				
85 _{-0.054}	90 ^{+0.035}	90 ^{+0.120} _{+0.070}	85.265 85.100	0.321 0.100			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					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							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											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	0.339 0.110												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																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		0.354 0.110															25050	25060	25080	25090	25095	250100	250110	250120			
260 _{-0.081}	265 ^{+0.052}	265 ^{+0.260} _{+0.170}	260.282 260.110																		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

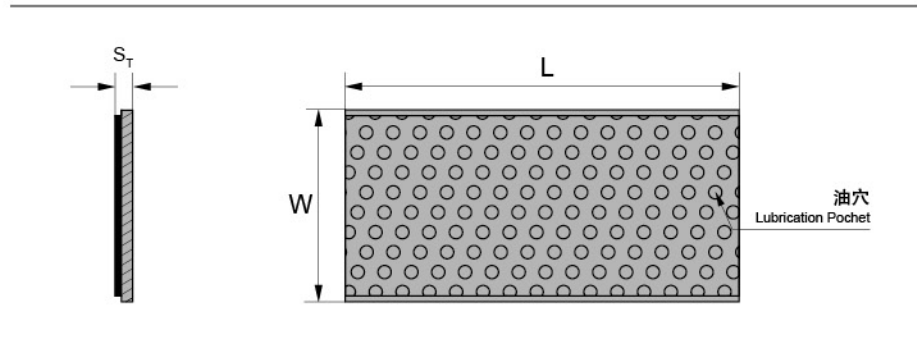
SF-2WC 垫片规格及公差 SF-2WC Thrust Washer Specification & Tolerance



单位Unit: mm

轴径 Shaft D _s	型号规格 Standard No.	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 _b ^{+0.4} / _{+0.1}	H _a ±0.2	H _b +0.12
8	W10	10	20	1.5	15	1.5	1	20
10	W12	12	24		18			
12	W14	14	26		20			
14	W16	16	30		23			
16	W18	18	32		25			
18	W20	20	36		28			
20	W22	22	38		30			
22	W24	24	42		33			
24	W26	26	44		35			
26	W28	28	48		38			
30	W32	32	54		43			
36	W38	38	62		50			
40	W42	42	66		54			
46	W48	48	74		61			
50	W52	52	78	2	65	1.5	78	
60	W62	62	90		76		90	

SF-2SP 板材规格及公差 SF-2SP Strip Specification & Tolerance



单位Unit: mm

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



JF 双金属轴套 Bimetal Bushing

产品介绍 Product introduction

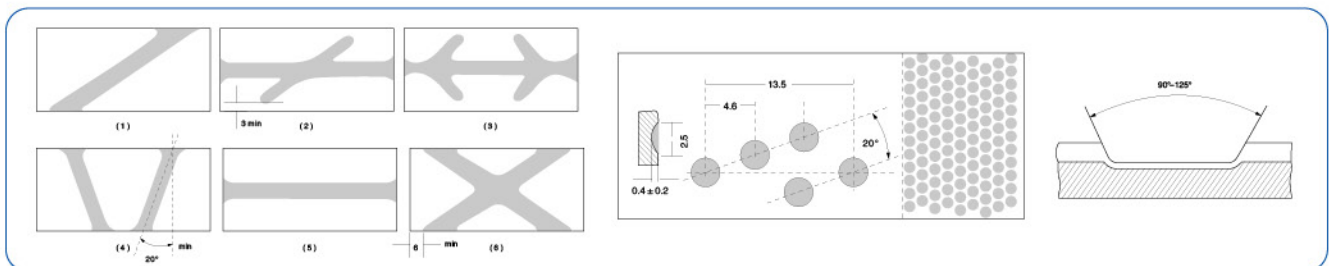
以优质碳钢为基体，表面烧结青铜粉；适用于高载低速下的摇摆运动、旋转运动，铜合金层表面可以根据工况需要加工出各种类型的油槽、储油坑，以适合于无法加油或难以加油的场合。具有摩擦系数低、耐磨性好、使用寿命长、抗咬合性能好等特点。产品广泛用于工程机械用支重轮、托带轮、张紧轮；卡车用平衡轴衬套、钢板衬套、转向节主肖轴套；发动机连杆轴套、气门摇臂轴套、凸轮轴轴套；止推垫片、柱塞泵侧片、齿轮泵侧片等。

JF-800 bi-metal bushing is backed on low carbon steel, sintered with CuPb10Sn10 or CuSn6Zn6Pb3 bronze powder, which has good wear resistance high load capacity and excellent fatigue properties. The inside surface can be machined with oil groove and pockets. Application: automotive, balance suspensions of heavy-duty trucks, power steering, pedal, king-pin, connecting rod, rock arm, mechanical handling, lifting equipment, track roller, auto chassis, agricultural machines, hydraulic pump side plates and so on.

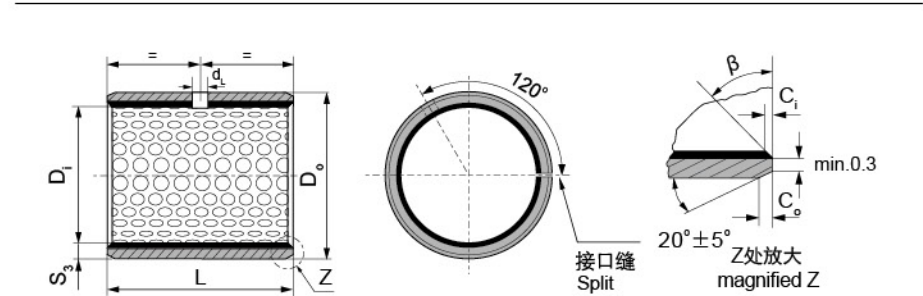
使用参数 The use of parameters

	JF 800 双金属轴套 Bimetal Bushing	JF 720 双金属轴套 Bimetal Bushing	JF 700 双金属轴套 Bimetal Bushing	JF 20 双金属轴套 Bimetal Bushing	FB08G 双金属轴套 Bimetal Bushing
参数 Parameters					
材料型号 Material type	CuPb10Sn10/ CuSn6Zn6Pb3	CuPb24Sn4	CuPb30	AlSn20Cu	CuPb10Sn10+Graphite
合金层硬度 Hardness of bronze alloy	70~100HB	45~70HB	30~45HB	30~40HB	60~90HB
最大荷载 Max. dynamic Load	65N/mm ²	38N/mm ²	25N/mm ²	30N/mm ²	90N/mm ²
“蓝宝石”疲劳级 Mpa Sapphire" fatigue class	125	115	105	105	-
摩擦系数 (油) Friction coefficient(oil)	0.06~0.14	0.06~0.16	0.08~0.16	0.08~0.17	<0.08
允许PV值(脂) PV limit(Grease)	2.8N/mm ² .M/s	2.8N/mm ² .M/s	2.5N/mm ² .M/s	-	2.8N/mm ² .M/s
允许PV值(油) PV limit(Oil)	10N/mm ² .M/s	10N/mm ² .M/s	8N/mm ² .M/s	6N/mm ² .M/s	10N/mm ² .M/s
最高使用温度 Max. temperature	260°C	200°C	170°C	150°C	200°C
最高静承载压力 Load limit	150N/mm ²	130N/mm ²	120N/mm ²	100N/mm ²	90N/mm ²
最高速度 (油) Speed limit v max.	5m/s	10m/s	15m/s	25m/s	5m/s
对磨轴硬度 Hardness of mating surface	53 HRC	50 HRC	270 HB	250 HB	53 HRC
拉伸强度 Tensile strength	150N/mm ²	150N/mm ²	200N/mm ²	200N/mm ²	185N/mm ²

双金属轴套的油槽油穴形式 Types for bimetal bushing grooves & indentations



JF 双金属轴套 JF Bimetal Bushing



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 ₁₃	配合间隙 Clearance C _o	壁厚 Wall thickness S ₃	油孔 Oil hole d _l	长度 L _{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}		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	1.490 1.430	6	1810	1815	1820	1825					
20	23	20 _{-0.033}	23 _{+0.021}	+0.161 +0.020	0.194 0.020			2010	2015	2020	2025					
22	25	22 _{-0.033}	25 _{+0.021}					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	8		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}								3215	3220	3225	3230	3240	
35	39	35 _{-0.039}	39 _{+0.025}		0.224 0.040							3520	3525	3530	3540	3550
38	42	38 _{-0.039}	42 _{+0.025}							3820	3825	3830	3840	3850		
40	44	40 _{-0.039}	44 _{+0.025}						4020	4025	4030	4040	4050			

JF 双金属轴套 JF Bimetal Bushing

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 After fixed D _{ia}	配合间隙 Clearance C _o	壁厚 Wall thickness S ₃	油孔 Oil hole d _L	长度 L ₀ 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}							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	0.303 0.080					12050	12060	12080	12090	120100		
125	130	125 _{-0.063}	130 ^{+0.040}							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			

FB 青铜卷制轴套 Bronze Wrapped Bushing

产品介绍 Product introduction

该系列轴套以CuSn8青铜为基材卷制而成的一种具有承载高，耐磨性好的经济型轴承。FB090产品工作表面布满规则的菱形油穴，FB092产品工作表面布满规则的油孔，起到储油的作用，在起始运动时能较容易的形成油膜从而降低起始摩擦系数。主要运用于农用机械、森林机械、建筑机械等高载低速场合。

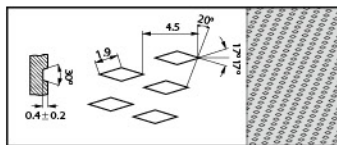
Bronze wrapped bushing, it is made of a cold formable homogenous bronze (CuSn8), which will obtain excellent material properties. FB090 is fitted with diamond shaped lubrication indents inside, and FB092 is fitted with regular holes on the bushing surface. These indents and holes serve as lubricant reservoirs to rapidly build up a lubrication film in the start movement and therewith reduce the start friction.

FB series bushings can be used in hoisting machines and other construction machines, automobile, tractor, truck, harvest machine, forest machine so on.

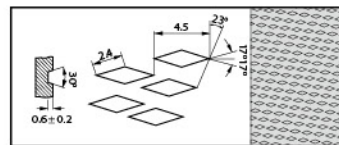
使用参数 The use of parameters

参数 Parameters	FB090 青铜卷制轴套 Bronze Wrapped Bushing	FB091 黄铜卷制轴套 Copper Wrapped Bushing	FB092 青铜布孔轴套 Bronze Wrapped Bushing	FB094 青铜布孔轴套带密封圈 Bronze Wrapped Bushing with Seals	FB09G 青铜嵌石墨卷制轴套 Bronze + Graphite Wrapped Bushing
	密度 Density	8.9g/cm ³	8.4g/cm ³	8.9g/cm ³	8.9g/cm ³
抗压强度 Pressure resistance strength	470N/mm ²	440N/mm ²	470N/mm ²	470N/mm ²	470N/mm ²
导热系数 Coefficient of heat conduction	60W/m.k	71W/m.k	60W/m.k	60W/m.k	58W/m.k
线膨胀系数 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
硬度 Hardness	90~120 HB	80~110 HB	90~120 HB	90~120 HB	90~120 HB
延伸率 Elongation	55%	30%	55%	55%	55%
材料名称 Alloy material	CuSn8P	CuZn31Si	CuSn8P	CuSn8P	CuSn8P
其它可选材料 Other material	CuSn6.5P		CuSn6.5P	CuSn6.5P	CuSn6.5P

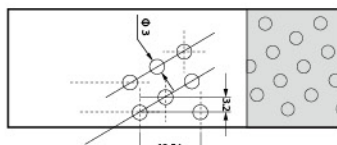
油穴设计 Types of oil pockets



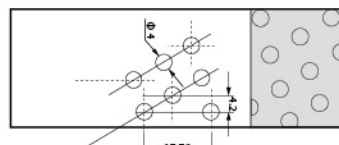
FB090油穴 (oil pockets)
适用内径≤φ22的轴承 (ID≤φ22)



FB090油穴 (oil pockets)
适用内径>φ22的轴承 (ID>φ22)

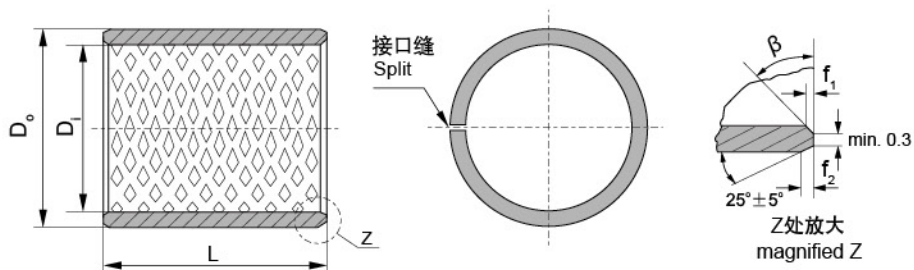
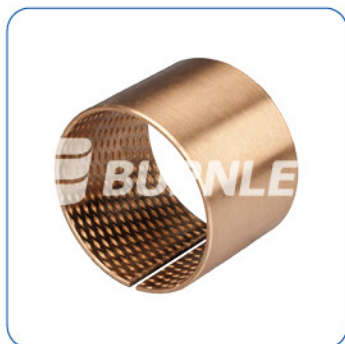


FB092球形油孔形式 (oil holes)
适用内径≤φ25的轴承 (ID≤φ25)



FB092球形油孔形式 (oil holes)
适用内径>φ25的轴承 (ID>φ25)

FB 系列青铜卷制轴套 FB Bronze Wrapped Bushing



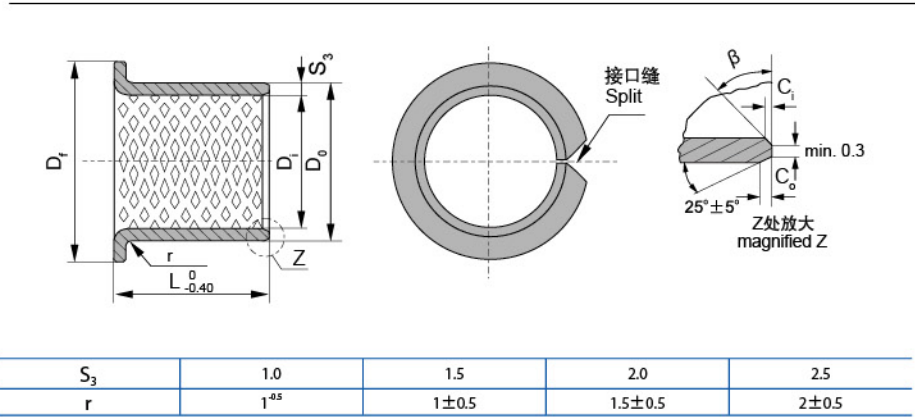
内外倒角 ID and OD chamfers

S ₃	f ₁	f ₂	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	f ₁	f ₂	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°

外径 D	座孔 Housing Bore (H7)	压入座孔后的 内径 I.D. after fixed	壁厚 Wall Thickness	轴径 Shaft Dia. f7	L															
					10	15	20	25	30	35	40	50	60	70	80	90	100			
12	+0.065 +0.030	12+0.018	10	+0.043 0	10	●	●	●												
14	+0.065 +0.030	14+0.018	12	+0.043 0	12	●	●	●												
16	+0.065 +0.030	16+0.018	14	+0.043 0	14	●	●	●	●											
17	+0.065 +0.030	17+0.018	15	+0.043 0	15	●	●	●	●											
18	+0.065 +0.030	18+0.018	16	+0.043 0	16	●	●	●	●											
20	+0.065 +0.030	20+0.021	18	+0.043 0	18	●	●	●	●											
23	+0.075 +0.035	23+0.021	20	+0.052 0	20	●	●	●	●											
25	+0.075 +0.035	25+0.021	22	+0.052 0	22	●	●	●	●											
27	+0.075 +0.035	27+0.021	24	+0.052 0	24		●	●	●	●										
28	+0.075 +0.035	28+0.021	25	+0.052 0	25		●	●	●	●										
32	+0.075 +0.035	32+0.021	28	+0.052 0	28		●	●	●	●										
34	+0.075 +0.035	34+0.025	30	+0.052 0	30		●	●	●	●	●									
36	+0.085 +0.045	36+0.025	32	+0.062 0	32		●	●	●	●	●	●								
39	+0.085 +0.045	39+0.025	35	+0.062 0	35		●	●	●	●	●	●								
44	+0.085 +0.045	44+0.025	40	+0.062 0	40		●	●	●	●	●	●	●							
50	+0.085 +0.045	50+0.025	45	+0.062 0	45		●	●	●	●	●	●	●							
55	+0.085 +0.045	55+0.025	50	+0.062 0	50		●	●	●	●	●	●	●	●						
60	+0.100 +0.055	60+0.025	55	+0.074 0	55		●	●	●	●	●	●	●	●						
65	+0.100 +0.055	65+0.030	60	+0.074 0	60		●	●	●	●	●	●	●	●	●					
70	+0.100 +0.055	70+0.030	65	+0.074 0	65		●	●	●	●	●	●	●	●	●					
75	+0.100 +0.055	75+0.030	70	+0.074 0	70		●	●	●	●	●	●	●	●	●	●				
80	+0.100 +0.055	80+0.030	75	+0.074 0	75		●	●	●	●	●	●	●	●	●	●				
85	+0.100 +0.055	85+0.030	80	+0.074 0	80		●	●	●	●	●	●	●	●	●	●	●			
90	+0.120 +0.070	90+0.025	85	+0.087 0	85		●	●	●	●	●	●	●	●	●	●	●	●		
95	+0.120 +0.070	95+0.025	90	+0.087 0	90		●	●	●	●	●	●	●	●	●	●	●	●	●	
100	+0.120 +0.070	100+0.025	95	+0.087 0	95		●	●	●	●	●	●	●	●	●	●	●	●	●	●
105	+0.120 +0.070	105+0.025	100	+0.087 0	100		●	●	●	●	●	●	●	●	●	●	●	●	●	●
110	+0.120 +0.070	110+0.025	105	+0.087 0	105		●	●	●	●	●	●	●	●	●	●	●	●	●	●
115	+0.120 +0.070	115+0.025	110	+0.087 0	110		●	●	●	●	●	●	●	●	●	●	●	●	●	●
120	+0.120 +0.070	120+0.025	115	+0.087 0	115		●	●	●	●	●	●	●	●	●	●	●	●	●	●
125	+0.120 +0.070	125+0.025	120	+0.087 0	120		●	●	●	●	●	●	●	●	●	●	●	●	●	●
130	+0.170 +0.100	130+0.040	125	+0.100 0	125		●	●	●	●	●	●	●	●	●	●	●	●	●	●
135	+0.170 +0.100	135+0.040	130	+0.100 0	130		●	●	●	●	●	●	●	●	●	●	●	●	●	●
140	+0.170 +0.100	140+0.040	135	+0.100 0	135		●	●	●	●	●	●	●	●	●	●	●	●	●	●
145	+0.170 +0.100	145+0.040	140	+0.100 0	140		●	●	●	●	●	●	●	●	●	●	●	●	●	●
150	+0.170 +0.100	150+0.040	145	+0.100 0	145		●	●	●	●	●	●	●	●	●	●	●	●	●	●
155	+0.170 +0.100	155+0.040	150	+0.100 0	150		●	●	●	●	●	●	●	●	●	●	●	●	●	●
160	+0.170 +0.100	160+0.040	155	+0.100 0	155		●	●	●	●	●	●	●	●	●	●	●	●	●	●

FB 青铜翻边轴套 FB Bronze Flange Bushing



内径 D_1 ϕd	外径 D_2 ϕD	法兰外径 D_3	长度 $L_{-0.40}^0$											
			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	



JDB 固体润滑轴承 Embedded Solid Lubricating Bearings

产品介绍 Product introduction

该系列产品是以高力黄铜、锡青铜、钢铜双金属、铸铁或轴承钢为基材，表面按一定的角度和密度镶嵌以石墨（SL1）或PTFE加二硫化钼（SL4）为主要成分的固体润滑剂，经精密加工而成。该系列产品机械强度和硬度高，适用于重载低速场合。SL4为水或海水中使用的固体润滑剂。

JDB solid lubricant bearing is a kind of finish machining bearing, which based on high strength brass, tin bronze, steel and brass alloy, cast iron or GCr15 steel, drilled proportionally and embedded with SL1(Graphite) or SL4(PTFE+MoS₂) solid lubricants. Due to the high mechanical strength and hardness, JDB bushings are broadly used for heavy load, low velocity application. SL4 solid lubricant can be used in water.

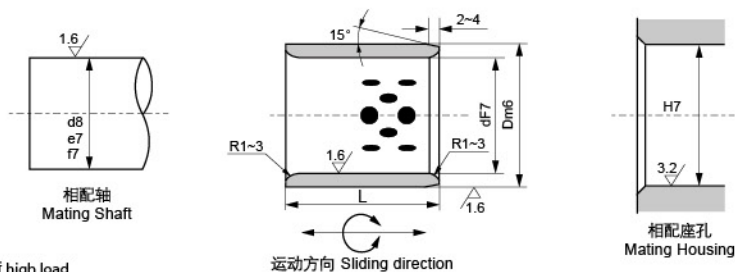
参数 Parameters	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings
成分牌号 Chemical Compositions	CuZn25Al6Fe3Mn3	CuSn6Zn6Pb3	Steel+CuSn6Zn6Pb3	HT250	GCr15
摩擦因数 Friction coef	<16μ	<15μ	<14μ	<18μ	<17μ
线膨胀系数 Dilatibility	1.6-2.0 10 ⁻⁵ /°C	1.6-2.0 10 ⁻⁵ /°C	1.6-2.0 10 ⁻⁵ /°C	1.7-1.9 10 ⁻⁵ /°C	1.6-1.8 10 ⁻⁵ /°C
硬度 Hardness	210-250HB	80-120HB	60-90HB	180-230HB	HRC55-60
最高滑动速度(无润滑) Velocity Max. (dry)	0.4 (m/s)	2 (m/s)	2 (m/s)	0.5 (m/s)	0.1 (m/s)
最高滑动速度(油润滑) Velocity Max. (Oil)	5 (m/s)	10 (m/s)	10 (m/s)	5 (m/s)	3 (m/s)
最高PV值(无润滑) Max PV Value (dry)	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s
最高PV值(油润滑) Max PV Value (Oil)	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s	1.8 N/mm ² - m/s
最高使用温度 Temperature Max.	300°C	350°C	300°C	400°C	350°C
适用情况 Applicable conditions	高载荷 High load 低速 Low speed 一般用 Commonly used	低载荷 Low load 高温 High Temp. 低速 Low speed	低载荷 Low load 高温 High Temp. 低速 Low speed 节约成本 Cost Saving	高载荷 High load 低速 low speed	低载荷 Low load 低速 Low speed

固体润滑剂 Solid Lubricant

固体润滑剂 Lubricant	特性 Features	典型用途 Typical application
高纯石墨+添加剂 SL1 Graphit+add	很好的耐磨性和化学稳定性，使用温度 <400°C Excellent resistance against chemical attacks and low friction, Temp limit 400°C	应用于一般机械，在大气中使用 Suit for general machines under atmosphere
SL4+MoS ₂ PTFE+MoS ₂ +CF	极低的摩擦系数和良好的水润滑性，使用温度 <300°C Lowest in friction and good of water Lubrication, Temp limit 300°C	应用于水、海水润滑、如船舶 Suit for water and seawater lubricating

JDB 黄铜基标准轴承

JDB Solid Lubricating Bearings



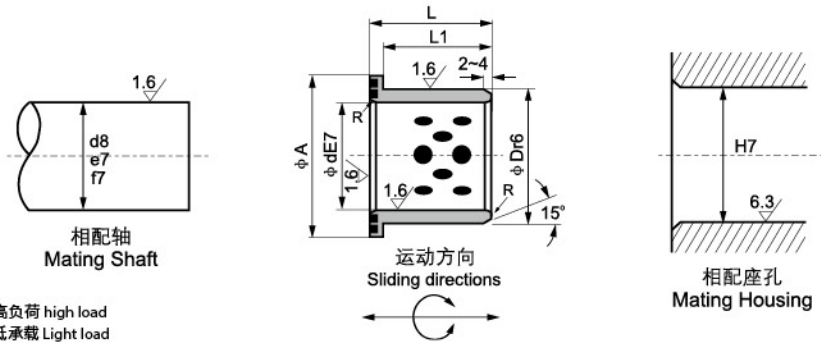
d8: 高负荷 high load
e8: 低承载 Light load
f7: 高精度 High precision

材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite

d	公差 (F7)	D	公差 (m6)	L																				
				8	10	12	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160	180	200	
8		12		●	●	●	●																	
10	+0.028 +0.013	14	+0.018 +0.007	●	●	●	●	●																
12		18		●	●	●	●	●	●															
14	+0.034 +0.016	20			●	●	●	●	●	●														
16		22	+0.021 +0.008		●	●	●	●	●	●	●													
20		28				●	●	●	●	●	●	●												
20		30				●	●	●	●	●	●	●	●											
25	+0.041 +0.020	33					●	●	●	●	●	●	●	●										
25		35					●	●	●	●	●	●	●	●	●									
30		38	+0.025 +0.009					●	●	●	●	●	●	●	●									
30		40						●	●	●	●	●	●	●	●	●								
35		45							●	●	●	●	●	●	●	●	●							
40		50								●	●	●	●	●	●	●	●	●						
40		55									●	●	●	●	●	●	●	●	●					
45	+0.050 +0.025	55										●	●	●	●	●	●	●	●	●				
45		56											●	●	●	●	●	●	●	●	●			
45		60												●	●	●	●	●	●	●	●	●		
50		60	+0.030 +0.011												●	●	●	●	●	●	●	●	●	
50		65														●	●	●	●	●	●	●	●	●
55		70															●	●	●	●	●	●	●	●
60		75																●	●	●	●	●	●	●
65		80																	●	●	●	●	●	●
70	+0.060 +0.030	85																		●	●	●	●	●
70		90																			●	●	●	●
75		90																				●	●	●
75		95																					●	●
75		95	+0.035 +0.013																					●
80		100																						●
85		100																						●
90		110																						●
100	+0.071 +0.036	120																						●
110		130																						●
120		140																						●
130		150	+0.040 +0.015																					●
140		160																						●
150	+0.083 +0.043	170																						●
160		180																						●
170		190																						●
180		200	+0.046 +0.017																					●
190	+0.096 +0.050	210																						●

How to order: Part No. d D L
订单方式: JDB 08 12 08

JDBB 自润滑翻边轴承 JDBB Oilless Flange Bushes



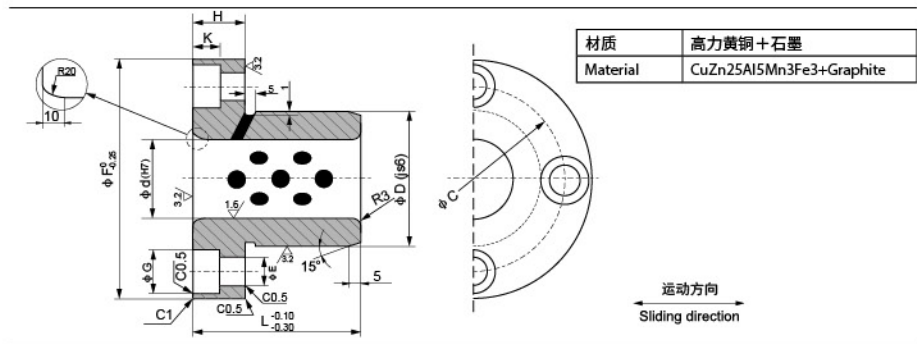
d8: 高负荷 high load
e8: 低承载 Light load
f7: 高精度 High precision

材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite

订货代号 Stanard 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		43	25	30
JDBB-30×35	30		38	+0.050 +0.034	48	30	35
JDBB-40×45	40	+0.075 +0.050	50		60	40	45
JDBB-50×55	50		62	+0.060 +0.041	75	49	55
JDBB-60×65	60	+0.090 +0.060	75	+0.062 +0.043	90	58	65

How to order: Part No. d D L
订单方式: JDBB 12 18 15

HGB 自润滑导向套 HGB Self-lubricant Guide Bushes



材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite

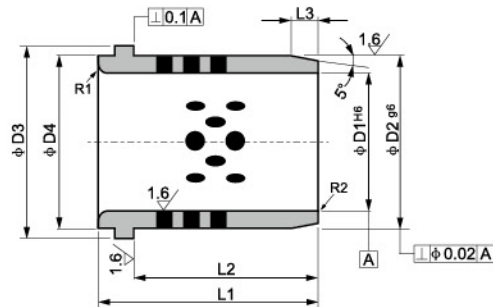
项目 NO.	代号 Code	尺寸 Spcification	ΦF	ΦD (js6)	Φd (H7)	H	L	ΦC	ΦE	ΦG	K
1	30	90×50×30×50	90	50	30	20	50	70	11	17.5	10.8
2	40	100×60×40×65	100	60	40	20	65	80	11	17.5	10.8
3	50	125×75×50×80	125	75	50	20	80	100	11	17.5	10.8
4	60	135×85×60×100	135	85	60	20	100	110	11	17.5	10.8
5	80	170×110×80×130	170	110	80	25	130	140	14	20	13
6	100	190×130×100×160	190	130	100	25	160	160	14	20	13

How to order: Part No. d D L
订单方式: JFB 30 50 50

JNA 自润导向套 JNA Oilless Guide Bushes



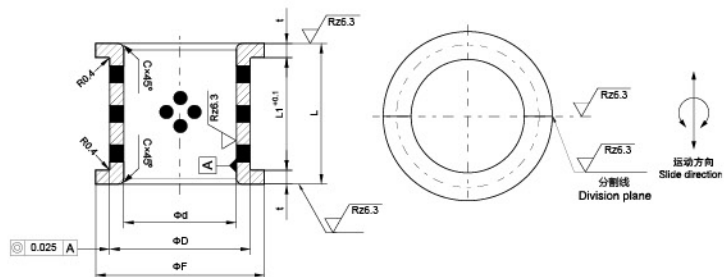
材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite



型号规格 Standard No.	D1	H6	D2	g6	D3	D4	L1	L2	L3	R1
JNA 32×50	32	+0.016 0	40	-0.009	50	40	50	40	4	3
JNA 40×63	40		50	-0.025	63	50	63	50	5	3
JNA 50×71	50		63	-0.010	71	63	71	56	6	5
JNA 63×80	63	+0.019 0	80	-0.029	90	80	80	63	8	6
JNA 80×100	80		100	-0.012 -0.034	112	100	100	80	10	8
JNA 100×125	100	+0.022 0	125	-0.014	140	125	125	106	12	10
JNA 115×140	115		140	-0.039	155	140	140	120	12	10

How to order: Part No. D1 L1
 订单方式: JNA 32 50

JFFB 自润滑轴瓦 Half-Bearing

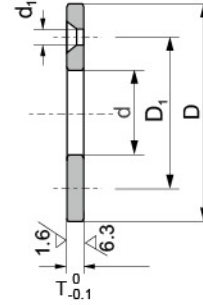
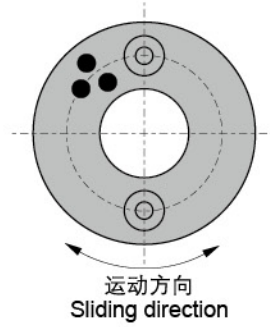


产品代号 Part No.	I.D. φd 内径 H7	O.D. φD 外径	φF d11	L h12	L1 +0.1 0	t	C
JFFB-030	30	38	s6	48	22	6	1
JFFB-035	35	45	"	55	32	6.5	"
JFFB-040	40	50	"	60	35	7.5	"
JFFB-045	45	55	"	65	40	7.5	"
JFFB-050	50	60	"	70	45	7.5	"
JFFB-060	60	70	"	80	50	10	2
JFFB-070	70	85	"	95	60	10	"
JFFB-080	80	95	"	110	70	12.5	"
JFFB-090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

How to order: Part No. d D L
 订单方式: JFFB 30 38 34

JTW 止推垫片

JTW Metric Thrust Washer



材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite

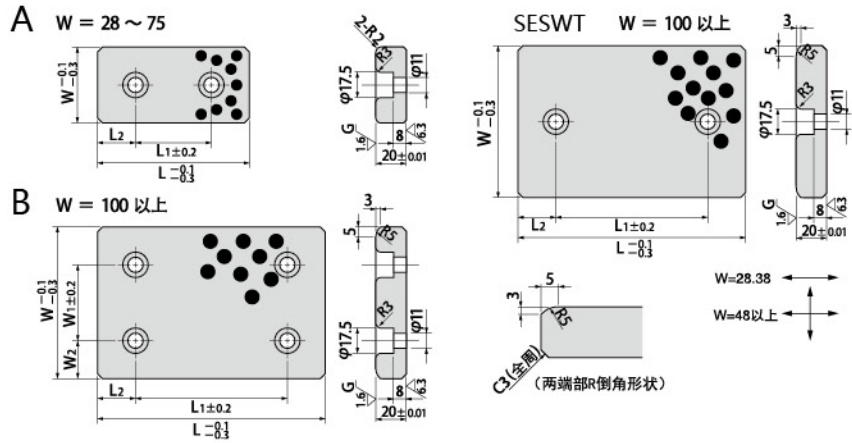
订货代号 Designation	d	D	T	螺丝孔 Screw Holes			
				D ₁	数量 Q'ty	尺寸 size	d ₁
JTW-0603	6.2	25		15	2	M3	3.5
JTW-0803	8.2	28		18			
JTW-1003	10.2	30		20			
JTW-1203	12.2	40		28			
JTW-1203N	12.2	40		Without flat head screw hole 无平头螺丝孔			
JTW-1303	13.2	40	3	28	2	M3	3.5
JTW-1403	14.2	40					
JTW-1503	15.2	50		35			
JTW-1603	16.2	50		Without flat head screw hole 无平头螺丝孔			
JTW-1603N	16.2	50		Without flat head screw hole 无平头螺丝孔			
JTW-1803	18.2	50		35		M3	3.5
JTW-2005	20.2	50		40	2	M5	6
JTW-2505	25.2	55	5	45			
JTW-3005	30.2	60	0 -0.1	50			
JTW-3505	35.2	70		60	7	M6	7
JTW-4007	40.2	80		67.5			
JTW-4507	45.2	90		75	8	M8	9
JTW-5008	50.3	100		85			
JTW-5508	55.3	110		90			
JTW-6008	60.3	120		95			
JTW-6508	65.3	125		100	4	M8	9
JTW-7010	70.3	130		110			
JTW-7510	75.3	140		120			
JTW-8010	80.3	150		140			
JTW-9010	90.5	170		160	M10	11	
JTW-10010	100.5	190		175			
JTW-12010	120.5	200					

How to order: Part No. d
 订单方式: JTW 10

SWSW 20mm 厚度自润滑导板 SWSW 20mm Oilless Wear Plate



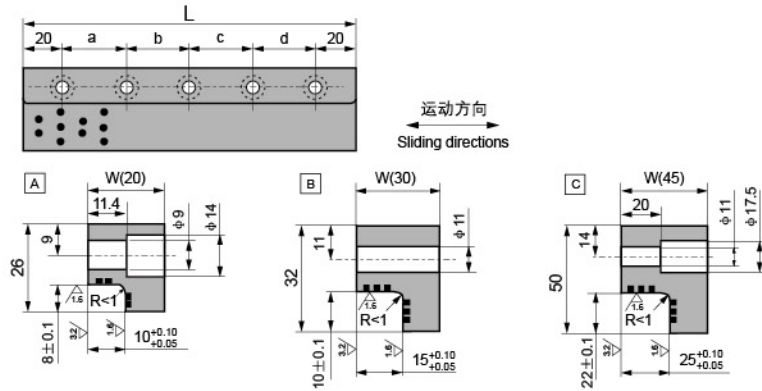
材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite



产品代号 Part No.	W	L	W ₁	L ₁	L ₂	Column 7	Column 8
SESW - 2875	28	75	-	45	15	A	SESW
SESW - 28100		100	-	50	25		
SESW - 28150		150	-	100	25		
SESW - 3875	38	75	-	45	15		
SESW - 38100		100	-	50	25		
SESW - 38150		150	-	100	25		
SESW - 4875	48	75	-	45	15		
SESW - 48100		100	-	50	25		
SESW - 48125		125	-	75	25		
SESW - 48150		150	-	100	25		
SESW - 48200	58	200	-	150	25		
SESW - 5875		75	-	45	15		
SESW - 58100		100	-	50	25		
SESW - 58150	75	150	-	100	25		
SESW - 7575		75	-	25	25		
SESW - 75100		100	-	50	25		
SESW - 75125		125	-	75	25		
SESW - 75150	100	150	-	100	25		
SESW - 75200		200	-	150	25		
SESW - 100100		100	50	50	25		
SESW - 100125		125	50	75	25		
SESW - 100150	125	150	50	100	25		
SESW - 100200		200	50	150	25		
SESW - 100250		250	50	200	25		
SESW - 100300	150	300	50	200	50		
SESW - 125125		125	50	75	25		
SESW - 125150		150	50	100	25		
SESW - 125200		200	50	150	25		
SESW - 125250	125	250	50	200	25		
SESW - 125300		300	50	200	50		
SESW - 125350		350	50	200	75		
SESW - 150150	150	150	100	100	25		
SESW - 150200		200	100	150	25		
SESW - 150250		250	100	200	25		

How to order: Part No. W L
 订单方式: SESW 28 75

JSL 滑板标准公制尺寸 JSL Wear Plate Standard Metric Size



材质	高力黄铜+石墨
Material	CuZn25Al5Mn3Fe3+Graphite

单位Unit: mm

型号规格 Standard No.	W	L	螺孔 Bolt Hole				螺孔 Size	数量 Q'ty	图示 Sketch
			a	b	c	d			
JSL-20×100	20	100	60	—	—	—	M8	2	A
JSL-20×150		150	55	55	—	—		3	
JSL-20×200		200	55	50	55	—		4	
JSL-30×100	30	100	60	—	—	—	M10	2	B
JSL-30×150		150	55	55	—	—		3	
JSL-30×200		200	55	50	55	—		4	
JSL-30×250	45	250	70	70	70	—	M10	4	C
JSL-45×200		200	55	50	55	—		4	
JSL-45×250		250	70	70	70	—		4	
JSL-45×300		300	65	65	65	65		5	
JSL-45×350		350	80	75	75	80		5	

How to order: Part No. W L
 订单方式: JSL 20 100



FR 增强四氟软带 BORNZE SELF- LUBRICATING BEARING

结构特性及用途 Structure Characteristics and Applications



FR 以金属网为基材，表面附着以PTFE为主的耐磨材料。产品广泛运用化工行业、食品工业、汽机车、办公机械、纺织机械、汽车门铰链风轻载但需要自润滑材料，可运用于不同的领域。这种产品更容易于安装。

FR soft strip material consists of a bronze mesh shell, laminated with compounded PTFE tape. It is widely used in car door hinges, joint bearings, medical industries, food industries, textile machines etc. The standard wall thickness is 0.48+/-0.02 mm.

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	350N/mm ²
	动载 Dynamic load	180N/mm ²
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	0.5m/s
	油润滑 Oil lubrication	2.5m/s
最高PV值 Max PV Value Limit		3.6N/mm ² ·m/s
摩擦系数 μ Friction coefficient		0.03~0.20
使用温度 Working temperature		-50°C~+250°C



FD 含铜四氟软带 PTFE SOFT STRIPS

结构特性及用途

Structure Characteristics and Applications



FD-1 含铜四氟软带 Copper PTFE soft strip

该产品是以聚四氟乙烯为主要原料，填充铜粉等耐磨材料，经模具压制烧结而成，具有良好的耐磨性，摩擦系数低，在有润滑油和无油润滑条件下都能正常使用。产品被广泛应用于汽车减震器，汽车活塞环。

FD-1 Copper PTFE soft strip as main material is made of filling copper powder and wear resistance material pressing and agglomeration, it has low wear resistance and low friction, it can work with or without oil. The products have been widely used in automobile shake absorber and piston rings.

性能指标 Performance index		数据 Data	性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	80N/mm ²	延伸率 Extension Rate	100%	
	动载 Dynamic load	40N/mm ²	摩擦系数 μ Friction coefficient	≤0.25	
最高线速度 V Max Sliding Speed		1.5m/s	使用温度 Working temperature	-100°C~+250°C	
抗拉强度 Tensile Strength		18N/mm ²	热膨胀系数 Coefficient of thermal expansion	8 × 10 ⁻⁵ /K	



FD-2 含铜四氟软带 Copper PTFE soft strip

该产品是以聚四氟乙烯为主要原料，填充石墨等耐磨材料，经模具压制烧结而成，具有良好的韧性，耐磨性。产品被广泛应用于汽车减震器。

Graphite PTFE soft strip with PTFE as main material is made though filling wear proof material such as graphite though polishing, pressing and agglomeration, it has good tenacity and wearing performance. The products have been widely used in automobile absorber.

性能指标 Performance index		数据 Data	性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	80N/mm ²	延伸率 Extension Rate	200%	
	动载 Dynamic load	40N/mm ²	摩擦系数 μ Friction coefficient	≤0.25	
最高线速度 V Max Sliding Speed		1.5m/s	使用温度 Working temperature	-100°C~+250°C	
抗拉强度 Tensile Strength		13.2N/mm ²	热膨胀系数 Coefficient of thermal expansion	8 × 10 ⁻⁵ /K	



FD-3 含铜四氟软带 Copper PTFE soft strip

该产品是以聚四氟乙烯为主要原料，填充特殊的耐磨材料，经模具压制烧结而成，具有良好的耐磨性，耐冲击性及密封性能。产品被广泛应用于加油机流量泵，或密封环使用。

FD-3 modified soft strip is based on PTFE and filled into specific lubricant through a combination of mold pressing and sintering. It is of high wear resistance; good anti impact ness and good performance in airproof. at present it is widely applied in flow pump of the greasing machinery and ring seal etc.

性能指标 Performance index		数据 Data	性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	80N/mm ²	延伸率 Extension Rate	250%	
	动载 Dynamic load	40N/mm ²	摩擦系数 μ Friction coefficient	≤0.25	
最高线速度 V Max Sliding Speed		1.5m/s	使用温度 Working temperature	-100°C~+250°C	
抗拉强度 Tensile Strength		20N/mm ²	热膨胀系数 Coefficient of thermal expansion	8 × 10 ⁻⁵ /K	



FU 粉末冶金含油轴承 POWDER METALLURGY OIL-RETAINING BEARING

产品介绍 Product introduction

FU-1 铜基含油轴承，是以锡青铜粉末为原料，经过模具压制，在高温中烧结后整形而成。它的基体有细微、均布的孔隙，经润滑油真空浸渍后形成含油状态。该产品具有短期不加油润滑，使用成本低，内外径尺寸可变化等特点，适应于中速、低载荷的场所使用。产品已广泛应用于家用电机、电动工具、纺织机械、化工机械、汽车工业和办公设备等场合。

FU-1 its copper oil-retaining bearing, bronze powder in zion as raw material, through the mould pressing, sintering temperature after in plastic. It is fine, the matrix of the pore, oil vacuum macerate formed after oil. This product has the short-term oil lubrication, using low cost, can change od characteristics, such as low speed, suitable for use of load. The products have been widely applied in household motor, electric tools, textiles machinery, chemical machinery, automobile industry and office equipment etc.

FU-2 铁基含油轴承具有生产效力高、加工工时少、花费成本低、耗损材料省等优点。用一般切削加工法制造零件时材料利用率为40-50%甚至更低，而粉末冶金法的材料利用率可达95%以上并且在许多情况下可用铁基粉末冶金轴套代替铜合金轴套，从而节省大量有色金属，而且生产的制品零件性能平稳、耐磨、精度要求高，与其它金属切削方法制造的零件具有明显的经济效益。

FU-2 iron-based oil bearing has several advantages, such as high production efficiency, less processing time, cost-efficient, and less wear and tear. With the general method of manufacturing machining parts, material utilization can be 40-50% or even lower, while the powder metallurgy method of material utilization uses up to 95% and in many cases can be used instead of iron-based powder metallurgy copper alloy sleeve bushings , thus saving a lot of non-ferrous metals, and the production of products, parts, steady performance, wear resistance, high precision, and other parts made of metal cutting method has obvious economic benefits.

FU-1技术参数 Technical Parameters

性能指标 Performance index		数据 Data
最大承载压力	The maximum load pressure	35 N/mm ²
最高温度	The highest temperature	- 80 ~+160°C
最高滑动速度	Maximum sliding speed	2.5 m/s
合金材质	Alloy material	CuSn6-6-3
最高PV值	The highest PV value	2.45N/mm ² . m/s

FU-2 技术参数 Technical Parameters

性能指标 Performance index		数据 Data
最大承载压力	The maximum load pressure	35 N/mm ²
最高温度	The highest temperature	- 80 ~+160°C
最高滑动速度	Maximum sliding speed	2.5 m/s
合金材质	Alloy material	CuSn6-6-3
最高PV值	The highest PV value	2.45N/mm ² . m/s

FZ 钢球保持架 FZ Ball Retainer



FZH 铜基钢球保持架 Bronze Ball Retainer

该产品以铜基，配以优质钢球，按一定的角度和密度有序地排列，采用特殊工艺加工而成。产品适用于冷冲模具，精密机床等。

The baCBLment of this product is copper. With the high quality roller being arranged orderly in certain angle and density, it is produced by special workmanship. This kind of products is uCBLd in punching mold and high-precision machine tools.

技术参数：Technical Data

最大承载压力 The maximum load	30N/mm ²	装配过盈 Assembly interference	0.01mm~0.02mm
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FZL 铝基钢球保持架 Aluminium Ball Retainer

该产品以铝基为基体，配以优质钢球，按一定的角度和密度有序地排列，采用特殊工艺加工而成。产品适用于冷冲模具，精密机床等。

The baCBLment of this product is aluminum. With the high quality roller being arranged orderly in certain angle and density, it is produced by special workmanship. This kind of products is uCBLd in punching mold and high-precision machine tools.

技术参数：Technical Data

最大承载压力 The maximum load	25N/mm ²	装配过盈 Assembly interference	0.01mm~0.02mm
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FZP 树脂基钢球保持架 Resin Ball Retainer

该产品以POM为基体，配以优质钢球，按一定的角度和密度有序地排列，采用特殊工艺加工而成。产品适用于冷冲模具，精密机床等。

The baCBLment of this product is POM. With the high quality roller being arranged orderly in certain angle and density, it is produced by special workmanship. This kind of products is uCBLd in punching mold and high-precision machine tools.

技术参数：Technical Data

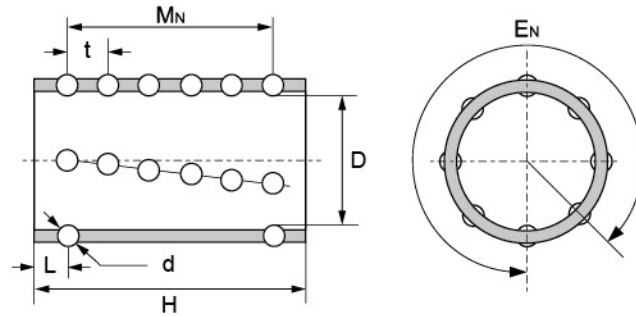
最大承载压力 The maximum load	20N/mm ²	装配过盈 Assembly interference	0.01mm~0.02mm
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球状误差和表面粗糙度：Error and the spherical surface roughnessData

单位：μm

等级 Grade	球直径变动量 V _{DWS} (max)	球形误差 max	表面粗糙度 R _s (max)
G10	0.25	0.25	0.020
G16	0.4	0.4	0.025
G20	0.5	0.5	0.032

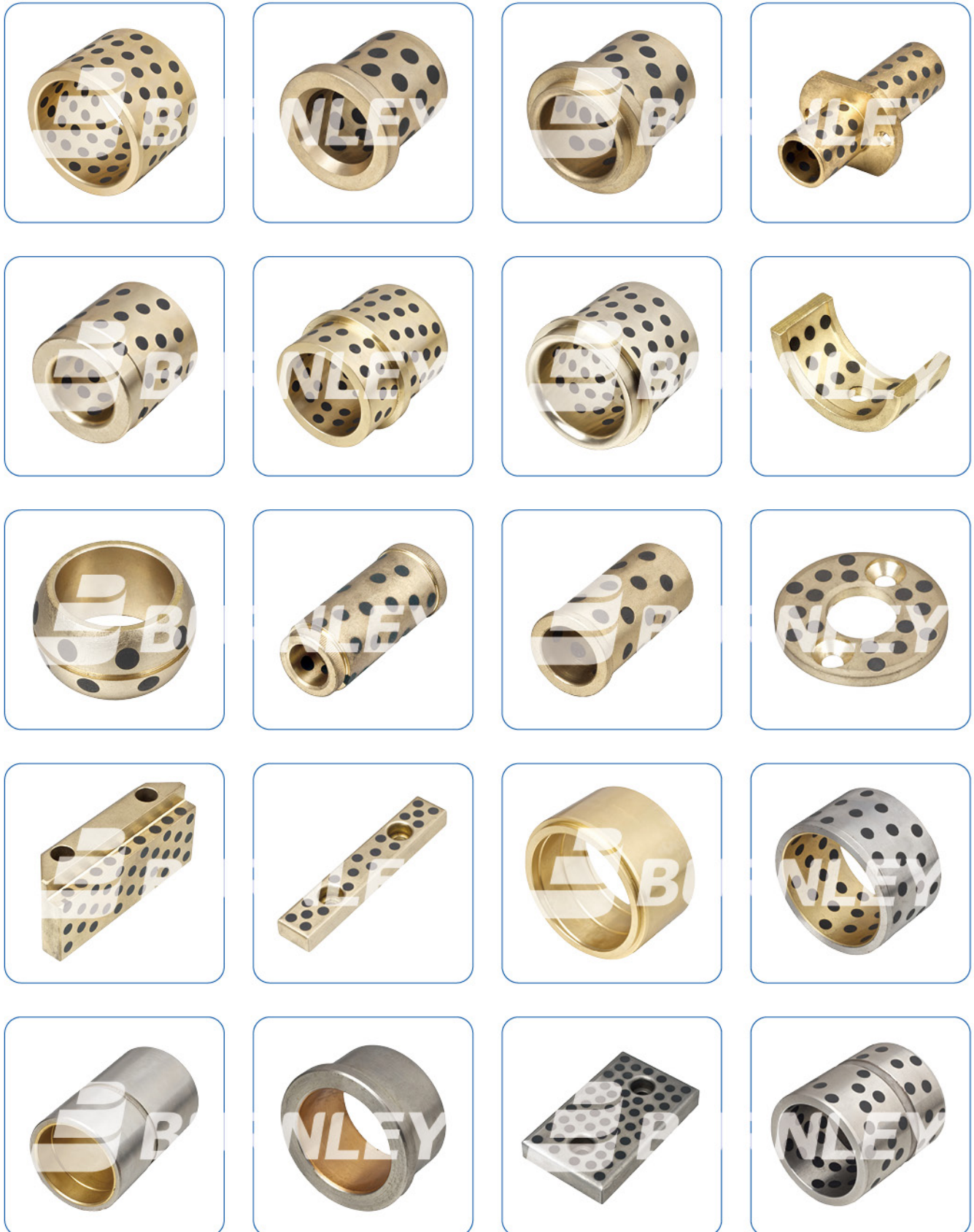
FZ 保持架系列 FZ Ball Retainer Standard Metric Sizes



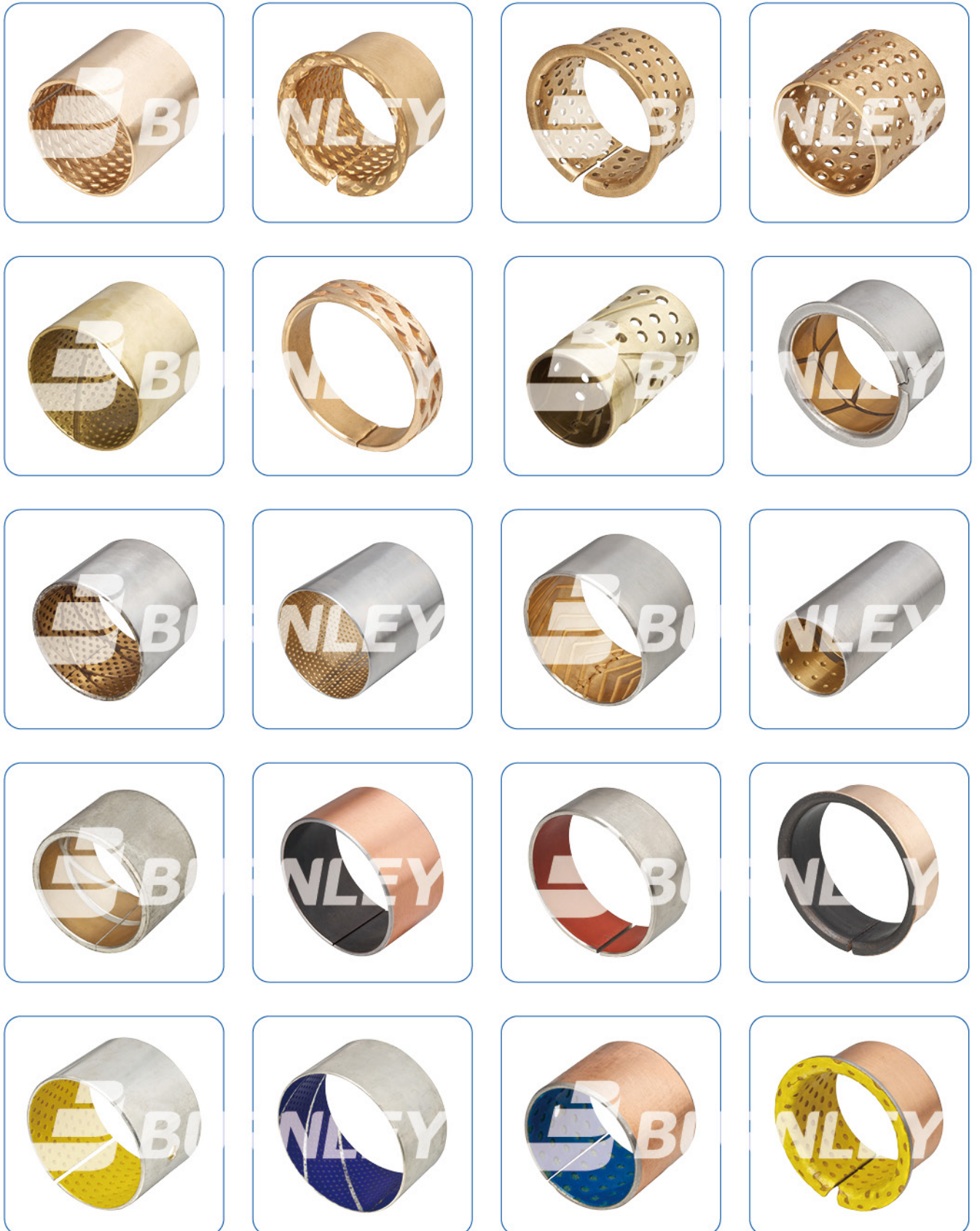
单位Unit: mm

型号规格 Designation	ϕD	H	ϕd	E_N	M_N	钢球数量 Balls	t	L
FZ□ 1950	19	50	3	12	8	96	5.5	5.75
FZ□ 1960		60			10	120		5.25
FZ□ 2050	20	50			8	96		5.75
FZ□ 2060		60				10		120
FZ□ 2250	22	50		14	8	112		5.75
FZ□ 2260		60			10	140		5.25
FZ□ 2360		23			60	10	140	5.25
FZ□ 2475	24	75		16	13	208	5.45	4.80
FZ□ 2550	25	50			8	128	5.5	5.75
FZ□ 2560		60			10	160	5.25	
FZ□ 2775	27	75			13	208	5.45	4.80
FZ□ 2860	28	60		4	14	8	112	6.5
FZ□ 2875		75	11			154	5.0	
FZ□ 3060	30	60	8			112	7.25	
FZ□ 3075		75				11	154	
FZ□ 3260	32	60	16		8	128	7.25	
FZ□ 3275		75			11	176	5.0	
FZ□ 3685	36	85			12	192	6.75	
FZ□ 3690		90			13	208	6.0	
FZ□ 3870	38	70	18		8	128	8.0	7.0
FZ□ 3890		90			11	176	5.5	
FZ□ 4090	40	90			11	176	7.9	5.5
FZ□ 4590	45	90			20	11	195	5.5
FZ□ 45110		110	13	234		8.0	7.0	
FZ□ 5090	50	90	22	11	220	7.9	5.5	
FZ□ 50110		110		13	260	8.0	7.0	
FZ□ 6090	60	90	28	11	242	7.9	5.5	
FZ□ 60110		110		13	286	8.0	7.0	
FZ□ 80130	80	130		15	420	8.0	9.0	

自润滑轴承
Self-lubricating Bearing



自润滑轴承
Self-lubricating Bearing



卷制类轴承尺寸公差检测方法 Wrapped Bushing Dimensional Inspection

卷制类产品的制造工艺决定了开口缝的存在,使得产品在自由状态下没有很好的圆整度,同时轴套外径和座孔之间为过盈配合,轴套要最大限度地适应座孔的形状,因此不能在自由状态下直接测量产品的内外径而必须使用特殊的测量仪和设备才能检测; ISO3547标准第2部分中对卷制类产品的公差检验作了明确的规定,包括:

检验方法A: 哈夫规检验外径;

检验方法B: 止通规检验外径;

检验方法C: 止通规检验内径;

检验方法D: 测量尺检验大规格产品外径

以及替代检验方法C的壁厚检验方法,壁厚检验方法和检验方法C不能同时使用。

Rolled products in the manufacturing process determine the existence of open joints, making products in the free state not have a good whole circle shape, while sleeve diameter and the seat for the interference fit between the holes, sleeve adapted to maximize Block hole shape can not be directly measured in the free state the inner/outside diameter of the product only can be by a special measuring instrument; In ISO3547 standards measured Part 2 of the rolled products made clear tolerance test requirements, including :

Test Method A: Huff regulatory test outside diameter;

Test method B: use stop-pass gauge to test the outside diameter;

Test method C: use stop-pass gauge to test the inside diameter;

Test method D: Measure the outer diameter of large scale product and use wall-thickness test to replace test method C. (Wall-thickness test and test method C can not be used at the same time.)

外径检验方法 External diameter test methods

检验方法A (ISO3547-2: Test A)

采用如右视图的上下两哈夫规对外径进行检验,检验时产品的开口缝朝上哈夫规相向施加检验载荷 F_{ch} , 该载荷使卷制轴套能够按符合要求的方式就位于检验模。检验中,由于弹性变形卷制轴套外径会变小但不会产生永久变形。产品的外径可以通过检验模之间的距离 Z 的变化量 ΔZ 来计算。

Test A of ISO 3547 Part 2

Check the outside diameter of a wrapped bush using measuring equipment as shown to the right, with a checking block consisting of upper and lower halves and setting plugs, at a determined checking load of F_{ch} , during the test the outside diameter of the bush is made smaller by the elastic reduction, however it is not a permanent deformation. The bushes outside diameter can be calculated from the difference in the value of z (Z)

检验方法B (ISO3547-2: Test B)

检验采用两个环规即通规和止规,用手以最大力250N可将轴套推入并通过通规;在相同情况下无法进入和通过止规。在某些情况下检验精度可能受到影响,比如轴套不圆或闭合开口缝的力本身已超过250N,此时建议采用检验方法A或测压入力或壁厚相结合的检验方法。

Test B of ISO 3547 Part 2

The test is carried out with two ring gaugs, a Go gauge and a No Go gauge whose diameter Shall be chosen empirically from with Table 6 of ISO3547-1:1999 and agreed upon. It shall be possible to press the bushes into the GO gauge and then push them through with hand pressure (maximum force 250N). On the other hand with the same force, it shall not be possible for them to go into and through the NO GO gauge (See ISO 12307-1)

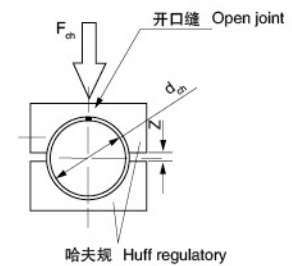
检验方法D (ISO3547-2: Test D)

采用精确的测量尺来测量外径,一般针对大规格的轴套外径检测。

Test D (ISO 3547-2)

The test is carried out by means of a precision measuring tape.

检验方法A Test A of ISO



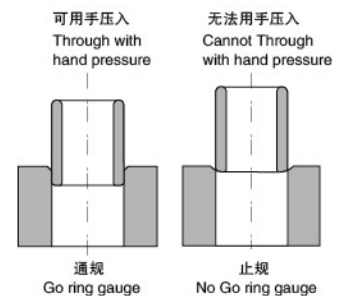
哈夫规和芯棒 $d_{cn} = \text{---} \text{mm}$
Checking block and setting mandrel

检验压力 $F_{ch} = \text{---} \text{N}$
Torce test

极限值 $\Delta z = \text{---} \text{ and } \text{---} \text{mm}$
Limiting value

外径公差 $D_o = \text{---} \text{ to } \text{---} \text{mm}$
OD tolerance

检验方法B Test B of ISO



卷制类轴承尺寸公差检测方法 Wrapped Bushing Dimensional Inspection

内径检验方法 Internal diameter test methods

检验方法C (ISO3547-2: Test C)

将轴套压入基准环规后检查轴套的内径，内径的检测可以采用三点测量装置或通、止塞规检验。从实际使用考虑一般建议采用通、止塞规检验，此时在用手最大推力不超过250N时通端塞规可以通过轴套内孔，在相同情况下止端塞规应当无法通过轴套内孔。当轴套压入基准环规后，轴套外径可能会引起永久变形而无法正常使用。

Test C (ISO3547-2: Test C)

To check the inside diameter, the bush is to be pressed into a ring gauge, whose nominal diameter corresponds to the dimension specified in ISO3547-1:1999. The inside diameter shall be measured with a 3-point measuring instrument or checked with a GO and NO GO plug gauge. The GO plug gauge shall be inserted by a minimum effort; the NO GO plug gauge shall not be inserted by manual pressure (maximum force 250N). In order to enable the manufacturer and the customer to compare results of this test it should be agreed whether results should be obtained by measuring or by gauging.

止推片检验方法 Thrust washer test method

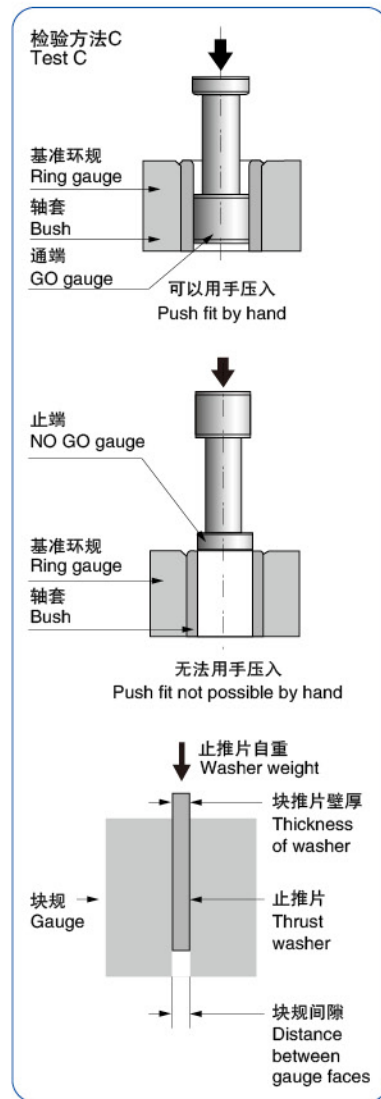
除了厚度公差以外，垫片的平行度对于垫片和对磨件的使用寿命同样重要。我们使用比较有效的检验方法来检测垫片的平行度，让垫片依靠自重来通过两个平行块；当然平行块必须大于垫片本身的规格。

Beside the thickness, the flatness of washer is also important for washer and grinding parts' usage age. We use very helpful test in which the washer falls through the gap between two plain parallel plates of a gauge under its dead weight. The plates must be big enough to cover the whole washer.

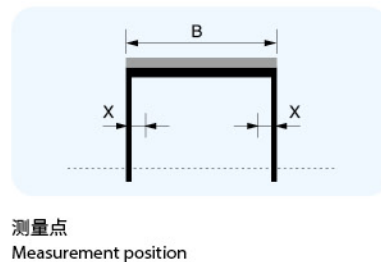
壁厚检测方法 Wall Thickness test method

作为检验方法C的替代方案两则不能同时使用，壁厚根据轴套尺寸在轴向进行测量。

The wall thickness is measured at once, two or three positions axially according to the bearing dimensions. The wall thickness and the inside diameter shall not be specified together on the same drawing.

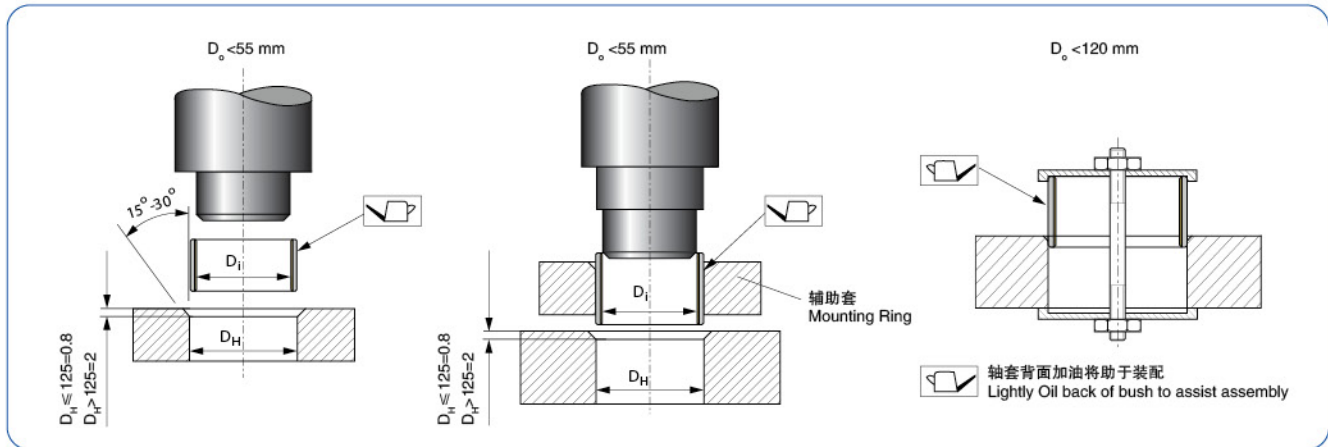


B[mm]	X[mm]	测量点 measurement position
$B \leq 15$	$B/2$	1
$15 < B \leq 50$	4	2
$50 < B \leq 90$	6 and $B/2$	3
$B > 90$	8 and $B/2$	3

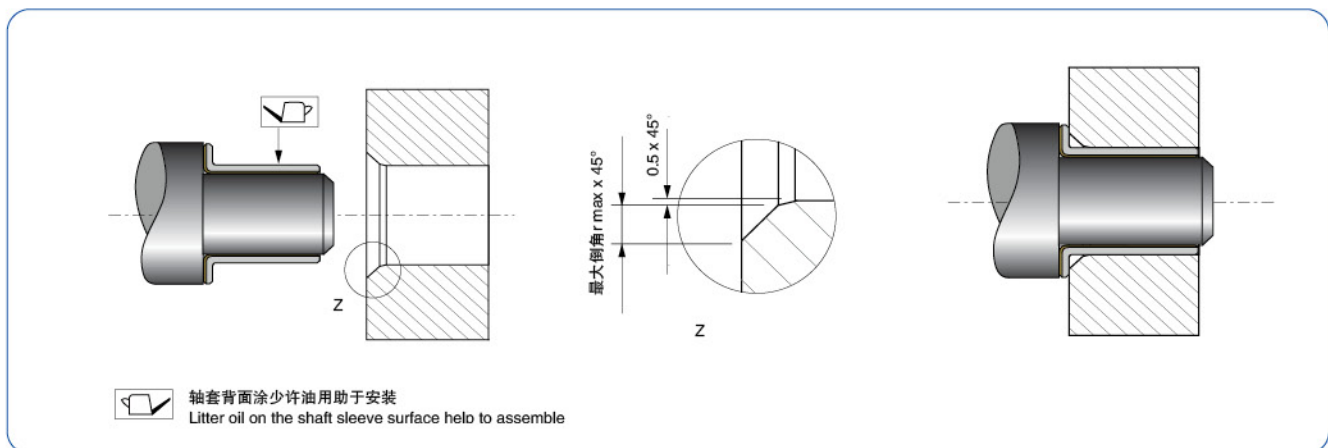


卷制类轴承的安装 Wrapped Bushing Installation

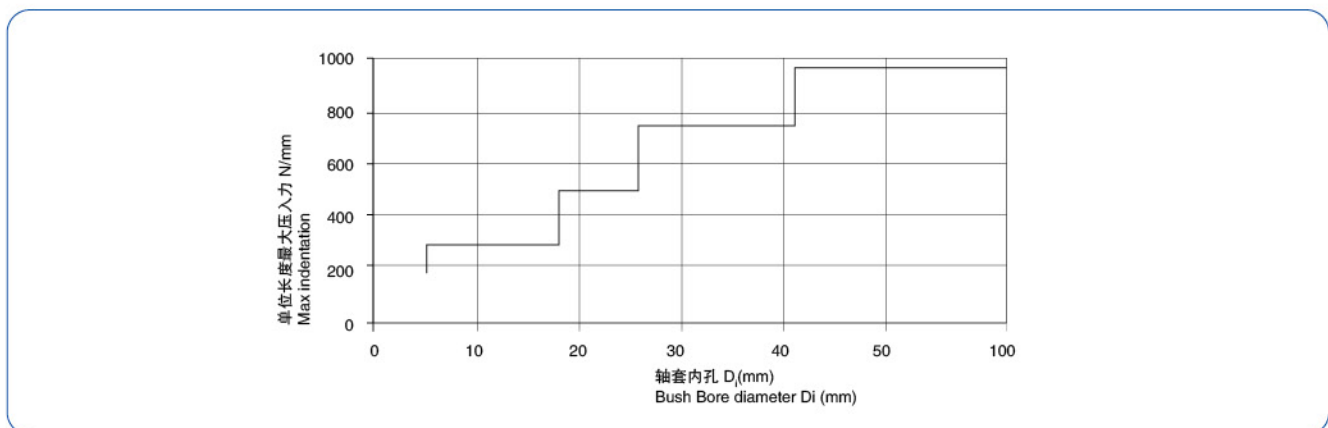
直套安装 Straight set of installation



翻边套安装 Flange set of installation



压入力计算 Indentation Calculation



卷制类轴承的安装 Wrapped Bushing Installation

同轴度 Concentricity

精确的同轴度对于轴承的正常使用非常重要，要求轴套在一个或者两个长度内的不同轴度以及在翻边或止推片直径内的不同轴度控制在0.02mm内。

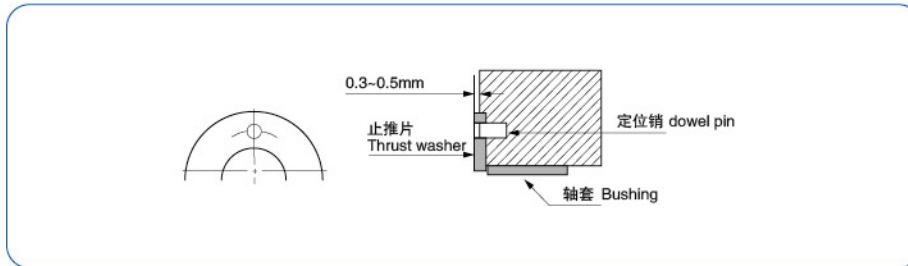
Degree of precision coaxial bearing the normal use for a very important requirement sleeve length in one or two degrees of the different axes and in the flange or thrust washer diameter of the different degree of control shaft within 0.02mm.

垫片和滑板的安装 Thrust washers and sliding plates installation

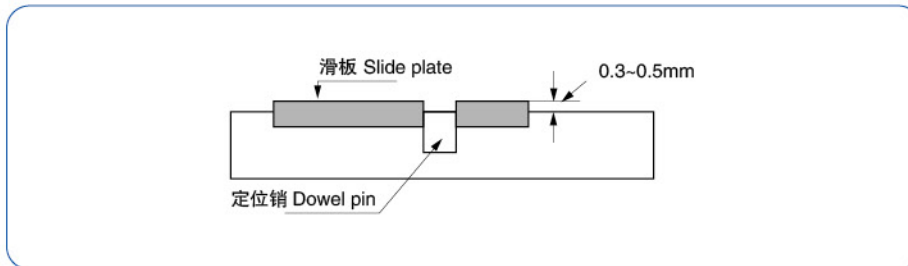
建议垫片和滑板安装在凹陷的座孔内，为了避免移动，同时建议采用定位销加以固定。

It is recommended to install the thrust washers and sliding plates with the hollow indented housing. To avoid the moving of such parts, a Dowel pins is recommended to be installed.

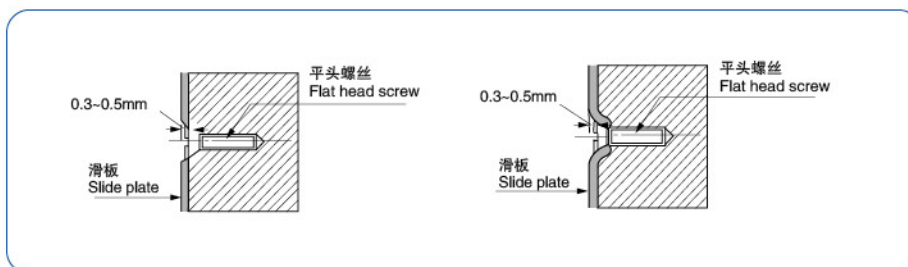
1. 定位销在垫片上的使用 Dowel pin application (thrust washer)



2. 定位销在滑板上的使用 Dowel pin used on slide plate



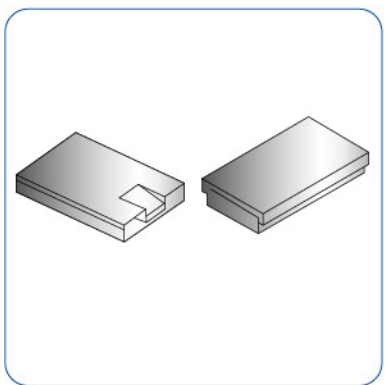
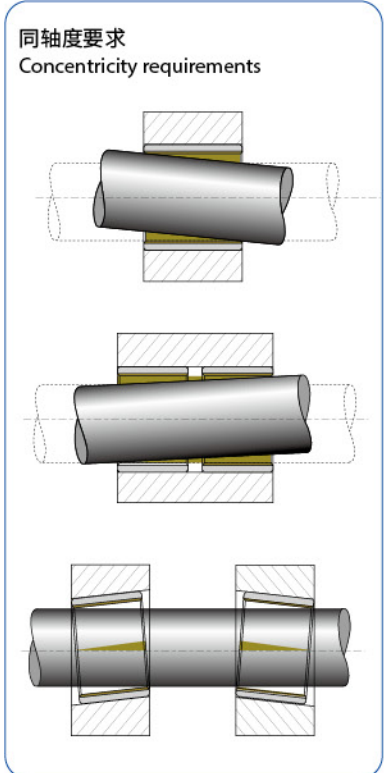
3. 平头螺丝的使用 Flat head screw application



其他固定方法 Other fixation methods

当无法使用定位销时，可以采用激光焊接，粘结剂和钎焊（温度<320°C）的方法加以固定；此时必须注意使用的温度不能超过轴承材料本身能够承受的范围，轴套工作面防止与粘合剂等接触。

When the pin is not available, you can use laser welding, adhesives and brazing (temperature < 320 °C) method to be fixed; while do in this way, temperature used must not higher then the bearing material itself can be standed, the cleave face should be prevent from contacting with adhesives.



卷制类轴承的安装 Wrapped Bushing Installation

PTFE基轴承的加工和安装注意事项 Processing and installation considerations of PTFE-based bearing

PTFE基轴承一般都是成品零件, 组装后内孔不再进行铰、镗等加工, 若座孔按推荐的尺寸加工时, 卷制类轴承内径的真圆度完全能满足使用要求;

如果客户可以接受干摩擦性能大幅度降低, 可以对PTFE基轴承在安装后进行内孔挤压以达到更高的精度, 强烈建议对挤压芯棒表面进行热处理(深度0.6mm, HRC>55)并抛光处理至Rz1;

当轴承的比压力小或摆动小而要求运行平稳时, 可以增大工作间隙, 在高温下使用时, 每升高100°C时建议轴径减少0.008mm;

若轴承座材质是青铜、铝或锌合金时, 建议减少轴承座孔以增加轴承装配过盈量; 为保证轴承座的刚性, 轴承座外径通常为轴承外径的1.5倍, 薄壁座孔使用时需要考虑压装和使用过程的产生的变形;

PTFE轴承需要加工时, 为了避免毛刺的产生建议从PTFE一侧进行加工或钻孔, 在钻孔过程中轴套应当有足够的支撑已确保不会由于钻孔压力导致变形; 带材的加工方法可以通过剪切、水切割、激光切割等方法。

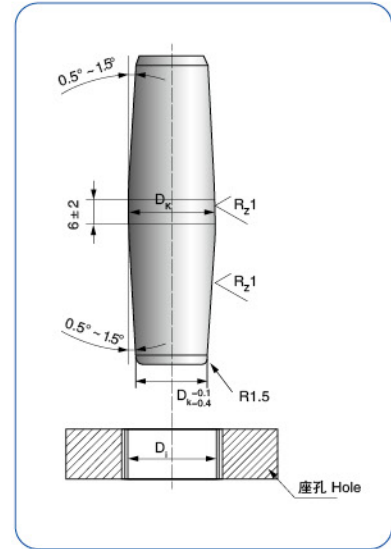
PTFE-based bearings are generally finished parts, assembled in the hole without the hinge, and other processing, if the bore size of the recommended process, the rolling type bearings with bore roundness can meet the requirements;

If the client can accept a significant reduction of dry friction, extruding the inner holes on the PTFE-based bearing after the compression to achieve higher accuracy, we strongly recommend the extrusion mandrel surface treatment (depth of 0.6mm, HRC>55) and polished to Rz1;

When the bearing's specific pressure is small and required to run a smooth swing, you can increase the working space, when used at high temperatures, it is increased by 100 °C, the proposed reduction of shaft diameter 0.008mm;

If the material of bearing is bronze, aluminum or zinc alloy, it is recommended to reduce the bearing hole to increase the amount of interference bearing assembly; to ensure the bearing rigidity, The base of bearing's diameter is usually 1.5 times to the bearing's diameter, thin-walled bore with pressure to consider when installed and used in the process of the deformation;

PTFE bearings need processing, in order to avoid the generation of burrs from the PTFE side of the proposed processing or drilling in the drilling process should have sufficient support sleeve has been to ensure that no pressure leads to deformation of the borehole; processing methods strip can cut, water jet cutting, laser cutting and other methods.



内孔D _i Bore D _i	挤压芯棒D _k Extrusion Mandrel D _k	使用寿命 Life
D _i	—	100%
D _i +0.02	D _k +0.06	80%
D _i +0.03	D _k +0.08	60%
D _i +0.04	D _k +0.10	30%

卷制类轴承的安装 Wrapped Bushing Installation

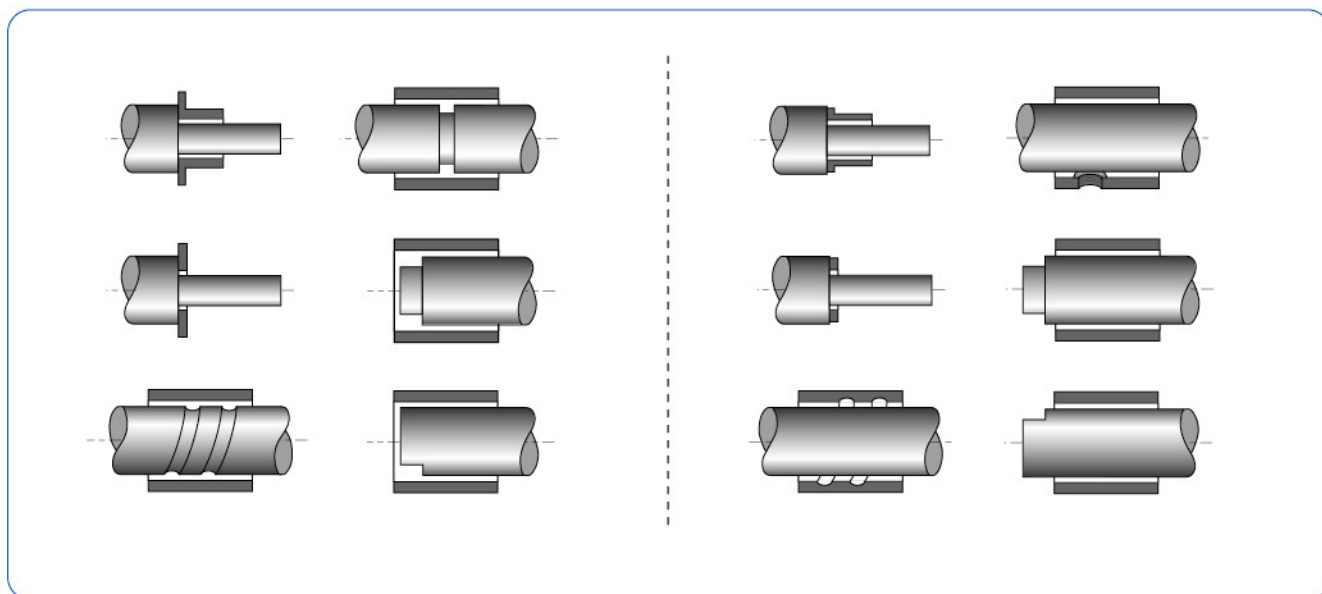
对磨轴 The shaft

对磨件的材料、表面硬度、表面粗糙度以及表面处理方式对于轴承的使用寿命的影响很大，一般情况下我们建议轴的硬度在HRC>50，表面粗糙度Ra0.4以下；在潮湿或易腐蚀的场合建议使用不锈钢、硬质铬镀层。

Grinding pieces of material, surface hardness, surface roughness and surface treatments have a great impact on the life of bearing, in general, we recommend that the hardness of the shaft HRC>50, surface roughness below Ra0.4; We suggest using stainless steel, hard chrome plating in the wet or corrosive place.

不正确的设计
Incorrect design

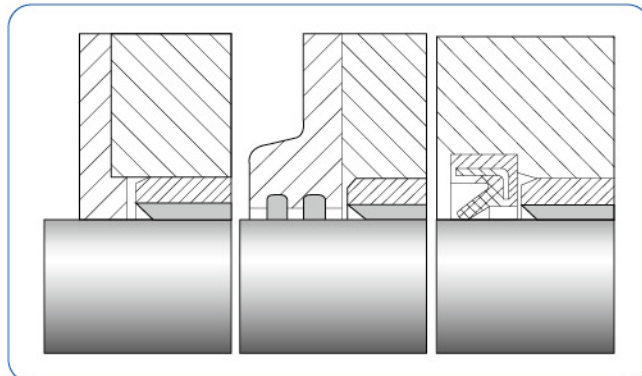
正确的设计
Correct design



密封 Seal

金属塑料基自润滑轴承允许一些不会损害轴承表面材料的异物进入，但当异物的侵入增加或高磨损型物质进入时应当安装核实的密封圈以提高轴承的使用寿命。

If increased levels of contamination occur or the bearing is used in an aggressive environment, the bearing section should be protected from dust and containment. The normal solution is to re-design the surrounding structure so that the contamination cannot reach the bearing section. If the contamination is critical, a collar of grease or a shaft seal is recommended.





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