SONGSHENG Precision Bearings
松盛精密轴承

—— 提供滑动轴承综合解决方案

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诚信严谨的经营...

S&S Precision Bearing introduction

公司简介

浙江嘉善松盛精密轴承有限公司座落于“长三角”核心地带浙江省嘉善县。作为中国自润滑轴承的专业制造商（拥有自营进出口权），公司自创办以来，一直以“诚信做人，精心做事”为企业经营理念；以高质量、优服务为企业经营目标。公司规模不断壮大，现在形成固体镶嵌自润滑轴承、青铜轴承、双金属轴承、无油干式轴承等7大类100余种产品。产品广泛应用于工程机械、塑胶机械、船舶工业、新能源、汽车及军工业。

公司拥有一套完整自润滑轴承产业链，从原料到成品一条龙生产，缩短了生产周期并有效的控制了生产成本；公司以先进的管理模式及完善的检测设备确保产品质量。我们并一直致力于自润滑轴承、新材料的开发和推广，以得到广大用户的推崇。

一流的产品研发及销售团队为每一位“松盛”客户提供滑动轴承综合解决方案。

ISO9001-2000

RoHS

Jiashan Songsheng Precision Bearing Co.,Ltd. Is located in sliding bearing city-jiashan, zhejiang province-china. Specialized in manufacture for self-lubricate bearings(import and export directly), "honesty is the best policy" "elaborately to do our jobs" is our company operation principle. "High quality with best service" is always our operational objective.

Now we are producing sliding bearings of 7 differents series and more than 100 kinds including JDB solid lubricant embedded bearing, FB bronze, bimetal and sf oilless bearings etc.... They have been adopted in high temperature, high speed and many other applications. Our products is wide use for construction machinery, plastic machinery, shipping industry, wind power generation, autos and military industry etc...

Company has a set of complete self-lubricating bearing industry chain, from raw material to end products coordinated process production, reduced the production cycle and the effective control production cost; we've created a high level of quality and established a win-win relationship with cooperators. In order to satisfy customers further, we established improved quality management system in line with international standards on the basis of the previous management. And also we've made the quality policy: "quality is life of product, ensuring qualification and seeking for excellence, finding out problems and making better, benefiting our customer and establishing our brand S&S".

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JDB镶嵌式固体润滑轴承
Embeded Solid Lubricating Bearings

产品广泛应用于连铸扎机、注塑机械、汽车模具、桥梁机械、水利行业、扎钢设备、矿山机械、工程机械、传播、汽轮机、机械手、海上石油平台等。

Products are widely used in succesive casting macine, injection molding machine for plastics, automotive dies, irrigation industry, bridge engineering, mineral machine, ship, turbogenerators, machine hand, as well as oil platform on sea, etc.

注塑机械
Plastic Machinery

工程机械
Engineering Machinery

FB 青铜卷制轴承
Wrapped Bronze Bearings

产品主要应用于起重机械、建筑机械、汽车、拖拉机行业机床工业及采矿机械。

Products are mainly used in lifting machinery, construction machinery, automobile, tractor industry, machine tool industry and mining machinery.

JF 双金属轴承
Bimetal Bushing

产品主要应用于汽车发动机、变速箱、汽车底盘、转向节、平衡轴、钢板弹簧、摩托车离合器、齿轮泵摩擦片、起重设备等。

Products are widely applied in various automobile engines, transmission cases, vehicle chassis, redirection joints, balance shafts, steel plate springs, motorcycle clutches, rubbing plate of gear pumps, as well as hoisting machines, etc.

SF-1 自润滑轴承
Self-Lubricating Bearings

产品广泛应用于印刷机、纺织机、烟草机、健身器材、摩托车减震器、汽车、液压油缸、汽缸、齿轮油泵、叶片泵等。

Products widely used in print machine. woven machine, tobacco machine, gymnastic machine, gear pumps, vane pumps, shock absorber of automobiles & motorcycles, hydraulic and pneumatic cylinder, etc.

边界润滑轴承
Boundary Lubricating Bearings

产品广泛应用于汽车底盘，锻压机床，冶金机械，矿山机械，水利行业，以及轧钢机等。

Products are widely used in vehicle classis, forming machine tools, steel metallurgical machinery, mineral mountain machinery, hydraulic industry and rolling steel industry, etc.

JDB Solid-lubricant Inlaid Bearings

固体镶嵌润滑轴承

材料组织 MATERIAL STRUCTURE

JDB 固体镶嵌润滑轴承 Solid Lubricant Embedded Bushing （标准公差尺寸见第07页）

JDB固体镶嵌润滑轴承，是在自润耐磨铜的基体上，镶嵌石墨或MoS^2固体润滑剂的高性能固体润滑产品。它突破了一般轴承依靠油膜润滑的局限性。在使用过程中，通过摩擦热使固体润滑剂与轴摩擦，形成油、粉末并存润滑的优异条件，既保护轴不磨损，又使固体润滑特性永恒。它的硬度比一般铜套高一倍，耐磨性能也高一倍。目前已广泛运用于冶金连铸机，注塑机、列车支架、轧钢设备、矿山机械、船舶、气轮机等高温、高载、低速重载等场合使用。

JDB solid lubricant embedded bushing is a new type made from strong brass and homogeneously embedded with solid lubricant in its body It breaks through the limit of general bearing whose lubrication depends on oil film. So it is suitable for high temperature, heavy duty, anti-Corrosion. or where oil is hard to be introduced It performance doubles both on hardness and wear-friction. It is now widely applied in successive casting machines, steel rollers in metallography, mineral machine, ships. steam turbine. hydraulic turbines and injection molding machines for plastics.

※技术参数：Technical Data

性能指标 Performance index		数据 Data	
基体硬度 Bass Hardness	HB210-270	使用极限PV值 PV limit	干(Dry)1.65N/mm^2·m/s 油(Oil)3.25N/mm^2·m/s
摩擦系数 Friction coef (μ)	<0.16	极限动载荷 Dynamic load limit	100N/mm^2
最高使用温度 Temperature limit	-40℃~+300℃	最高滑动速度 Speed limit	干(Dry)0.5m/s 油(Oil)2m/s

主要技术指标 Main Techinal Index

型号 Type	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
基本材质 Base Material	CuZn25AL6Mn4	CuSn6Zn6Pb3	钢 CuSn6Zn6Pb3	HT-250	Gcr15
基本硬度 Base Hardness	HB210~250	HB80~120	HB60~90	HB180~230	HRC55~60
摩擦系数 Friction Coef. (μ)	< 0.16	< 0.15	< 0.14	< 0.17	< 0.17
最高使用温度 Temp Limit	300℃	350℃	300℃	400℃	350℃
极限载荷 Dynamic Load Limit	100N/mm^2	60N/mm^2	70N/mm^2	60N/mm^2	250N/mm^2
1m/mm的 极限载荷 Load Limit Under 1m/mm	25N/mm^2	15N/mm^2	20N/mm^2	15N/mm^2	70N/mm^2
最高滑动速度 Sliding Velocity Limit	干0.4m/s 油5m/s	2m/s	2m/s	0.5m/s	0.1m/s
允许极限PV值 PV Limit	3.8N/mm^2·m/s	0.5N/mm^2·m/s	0.6N/mm^2·m/s	0.8N/mm^2·m/s	2.5N/mm^2·m/s

固体润滑剂	特性	典型用途
高纯石墨 + 添加剂	很好的耐磨性和化学稳定性，使用温度 <400℃	适用于一般机械，在大气中使用
SL4+MOS^2 / PTFE+MOS^2+CF	极低的磨擦系数和很好的水润滑性，使用温度 <300℃	适用于水，海水润滑，如船舶，水工弧门，制药饮料机械等

材料组织 MATERIAL STRUCTURE

JDB-1U 油沟铜衬套 Oil Groove Bronze Bushing

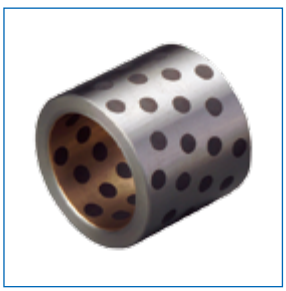
JDB-1U铜套，是一种以油沟涌油作为润滑的高力黄铜轴承。该产品具有传统的锡青铜轴承功能，由于采用高力黄铜(ZCuZn25Al6Fe3Mn4)后，它的HB硬度提高了一倍，所以在低速的场合使用该产品，比一般青铜套寿命可以延长一倍，而且其承载压力大，能适应重载的场合使用。并可按客户要求提供如下材质。

JDB-1U 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.

※技术参数：Technical Data

材料型号 Material type	高力黄铜 ZCuZn25Al6Fe3Mn4	锡青铜 ZCuSn5Pb5Zn5 5-5-5	锡青铜 ZCuSn6Zn6Pb3 6-6-3	锡青铜 ZCuSn10Pb1 10-1	特硬高力黄铜 ZCuZn25Al6Fe3Mn4	铅青铜 ZCuPb10Sn10 10-10
屈服强度 Yield point	>350	>90	>150	>170	>450	>140
抗拉强度 Tensile Strength	>750	>250	>270	>310	>800	>220
延伸率 Extension Rate	>12	>15	>15	>16	>4	>16
硬度 Hardness	210	70	95	88	250	68

型号 Type / 对应牌号 Corresponding brands	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
国际牌号 GB1776-87 China Brands GB1776-87	ZCuZn25 Al6Fe3Mn3	ZCuZn25 Al6Fe3Mn3	ZCuAl9Fe4 Ni4Mn2	GCr15	HT250
国际ISO1338 International ISO1338	GCuZn25 Al6Fe3Mn3	GCuZn25 Al6Fe3Mn3	GCuAl10 Fe3Ni5	B1	-
德国 DIN Germany DIN	G-CuZn25 Al5	G-CuZn25 Al5	G-CuAl10 Ni	100Cr6	-
日本JIS Japan JIS	HBsC4	HBsC4	AlBC3	SUJ2	FC250
美国 ASTM/UNS America ASTM/UNS	C86300	C86300	C95500	52100	Class40
英国标准（BS） England Standard	HTB2	HTB2	AB2	-	-



JDB-3 钢铜镶嵌轴套 Steel and Bronze Embedded Bushing

JDB-3钢板浇铸轴承，是在钢套的基体内，离心浇铸铜层后嵌入固体润滑剂的固体润滑产品，除具有JDB-1的功能外，还能节省成本，提高抗压强度。它的端面可以与基体焊接安装使用，因此适用于冶金机械、建筑机械和输油机械中等不可以加油的领域。

JDB-3 has almost the same constructure as JDB-1.Suitable for lowload position, wear performance worsens when under middle or high load. The mating layer is same as JDB-1 so that more cost-saving than JDB-1 whereas compression strength increases and weldable. Most suitable for dry position in construction, metallurgical machines, conveyor machines etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data	
基体硬度 Bass Hardness	HB60-90	使用极限PV值 PV limit	1.6N/mm^2·m/s
摩擦系数 Friction coef (μ)	<0.16	极限动载荷 Dynamic load limit	70N/mm^2
最高使用温度 Temperature limit	300℃	最高滑动速度 Speed limit	0.5m/s

材料组织 MATERIAL STRUCTURE

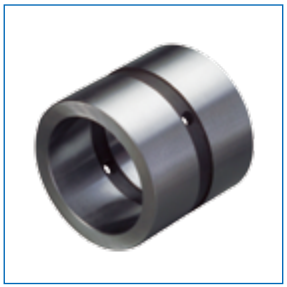
JDB-4 球墨铸铁镶嵌轴承 Nodular Cast Iron

JDB-4球墨铸铁镶嵌轴承，是以HT250为基材嵌入固体润滑剂的新产品，是一种典型的省材产品。若在压力<14.5N/mm^2。时或机械性能要求不是很高的场合，可作JDB-1材料的取代品。能大大地降低成本，满足使用要求。例如：模具导柱、注塑机模架等领域完全可以使用。

JDB-4 is based on cast iron HT250 and embedded with solid lubricant. Very good performance when under low load. Not suitable for middle and high load. A typical cost saving material, can substitute JDB-1 to be applied in the position without high requirements such as die guider, plastic injection machines etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data	
基体硬度 Bass Hardness	HB80-230	使用极限PV值 PV limit	0.8N/mm^2·m/s
摩擦系数 Friction coef (μ)	<0.18	极限动载荷 Dynamic load limit	60N/mm^2
最高使用温度 Temperature limit	400℃	最高滑动速度 Speed limit	0.5m/s



JDB-5 轴承钢钢套 Steel Embedded Bushing

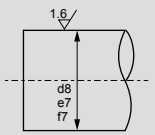
JDB-5钢基镶嵌轴承，是加强型产品，具有极高的抗压性能，在镶嵌石墨工作时排出润滑颗粒的情况下，使轴与套之间产生一层隔膜，起到了比单体油润滑抗咬合的优点。在起重机械的支撑部位特别适应。例：卷土机支撑、吊车支撑等，但不宜在水中或酸碱场合使用。

JDB-5 is reinforced product of JDB series. It is based steel GCr15 and embedded with solid lubricant. It is of high compress strength and particularly suitable of supporting position in hositing machines,e.g. Thesupport or stand of windlass and of crane. But it should not be appliedin water or in acid/alkali circumstance. Can be used under low, middle and highload. Due to its superb high hardness, when under high load, it overperforms than other JDB type. Not suitable for water, acid, alkali circumstances. Most suitable for the supporting position of hoisting machine,e.g. bulldozer supporter, hoister supporter, reeling machine supporter etc.

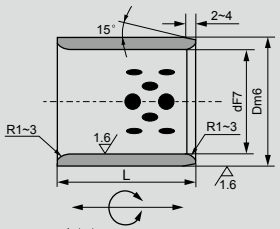
※技术参数：Technical Data

性能指标 Performance index		数据 Data	
基体硬度 Bass Hardness	HRC58-60	使用极限PV值 PV limit	2.5N/mm^2·m/s
摩擦系数 Friction coef (μ)	<0.17	极限动载荷 Dynamic load limit	250N/mm^2
最高使用温度 Temperature limit	350℃	最高滑动速度 Speed limit	0.1m/s

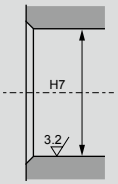
JDB 固体镶嵌润滑轴承
Solid-lubricating Inlaid Bearing



相配轴
Mating Shaft



运动方向 Sliding direction



相配座孔
Mating Housing

材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

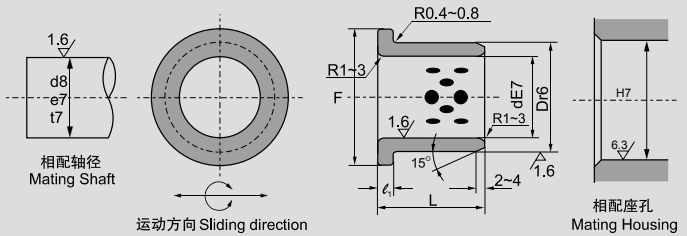
IDF7 (内径)		ODm6 (外径)		L -0.10 -0.30												
				8	10	12	15	16	20	25	30	35	40	50	60	70	80
8	+0.028 +0.013	12	+0.018 +0.007	081208	081210	081212	081215										
10		14		101408	101410	101412	101415		101420								
12	+0.034 +0.016	18			121810	121812	121815	121816	121820	121825	121830						
13		19	+0.021 +0.008		131910		131915	131916									
14		20			142010	142012	142015		142020	142025	142030						
15		21			152110	152112	152115	152116	152120	152125	152130						
16		22			162210	162212	162215	162216	162220	162225	162230	162235	162240				
18		24				182412	182415	182416	182420	182425	182430	182435	182440				
20	+0.041 +0.020	28			202810	202812	202815	202816	202820	202825	202830	202835	202840	202850			
22		32	+0.025 +0.009			223212	223215		223220	223225							
25		33				253312	253315	253316	253320	253325	253330	253335	253340	253350	253360		
30		38				303812	303815		303820	303825	303830	303835	303840	303850	303860		
35	+0.050 +0.025	45							354520	354525	354530	354535	354540	354550	354560		
40		50							405020	405025	405030	405035	405040	405050	405060	405070	405080
45		55	+0.030 +0.011								455530	455535	455540	455550	455560		
50		60									506030	506035	506040	506050	506060	506070	506080

注：除以上规格尺寸外，可按客户图纸制造。

单位unit:mm

IDF7 (内径)		ODm6 (外径)		L -0.10 -0.30											
				30	35	40	50	60	70	80	100	120	130	140	150
50	+0.050 +0.025	62	+0.030 +0.011	506230	506235	506240	506250	506260	506270						
50		65		506530		506540	506550	506560	506570	506580	5065100				
55	+0.060 +0.030	70				557040	557050	557060	557070						
60		74		607430	607435	607440	607450	607460	607470	607480					
60		75		607530	607535	607540	607550	607560	607570	607580	6075100				
63		75						637560	637570	637580					
65		80					658050	658060	658070	658080					
70		85	+0.035 +0.013		708535	708540	708550	708560	708570	708580	7085100				
70		90					709050	709060	709070	709080					
75		90						759060	759070	759080	7590100				
75		95						759560	759570	759580	7595100				
80		96				809640	809650	809660	809670	809680	8096100	8096120			
80		100				8010040	8010050	8010060	8010070	8010080	80100100	80100120		80100140	
90	+0.071 +0.036	110		9011030			9011050	9011060	9011070	9011080	90110100	90110120			
100		120						10012060	10012070	10012080	100120100	100120120		100120140	
110		130	+0.040 +0.015							11013080	110130100	110130120			
120		140								12014080	120140100	120140120		120140140	
125	+0.083 +0.043	145									125145100	125145120			
130		150									130150100		130150130		
140		160									140160100			140160140	
150		170									150170100				150170150
160		180									160180100				160180150

JDB 固体镶嵌润滑轴承
Solid-lubricating Inlaid Flanging Bearing

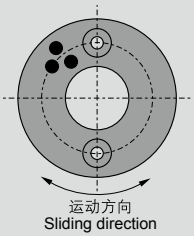


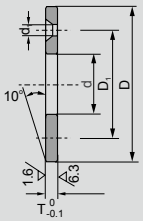
材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

IDE7 (内径)		ODr6 (外径)		F	ℓ_1 -0.10	L -0.10 -0.30									
						15	20	25	30	35	40	50	60	80	100
10	+0.040 +0.025	14	+0.034 +0.023	22	2	1015F	1020F								
12	+0.050 +0.032	18	+0.034 +0.023	25	3	1215F	1220F								
13		19	+0.041 +0.028	26		1315F	1320F								
14		20		27		1415F	1420F								
15		21		28		1515F	1520F	1525F	1530F						
16		22		29		1615F	1620F	1625F	1630F						
20	+0.061 +0.040	30		40	5	2015F	2020F	2025F	2030F		2040F				
25		35	+0.050 +0.034	45		2515F	2520F	2525F	2530F		2540F				
30		40		50			3020F	3025F	3030F	3035F	3040F	3050F			
31.5	+0.075 +0.050	40					3120F			3135F					
35		45		60			3520F		3530F		3540F	3550F			
40		50		65			4020F		4030F		4040F	4050F			
45		55	+0.060 +0.041	70					4530F		4540F	4550F	4560F		
50		60		75					5030F		5040F	5050F	5060F		
55	+0.090 +0.060	65		80							5540F		5560F		
60		75	+0.062 +0.043	90	7.5						6040F	6050F		6080F	
63		75		85										6367F	
70		85	+0.073 +0.051	105								7050F		7080F	
75		90		110									7560F		
80		100		120	10								8060F	8080F	80100F
90	+0.107 +0.072	110	+0.076 +0.054	130									9060F	9080F	
100		120		150										10080F	100100F
120		140	+0.088 +0.063	170										12080F	120100F

JTW 自润滑止推垫片
Oilless Thrust Washer



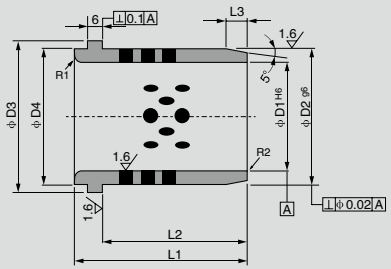


材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

规格 Standard No.	d	D	T 0 -0.1	螺栓 Bolt			
				D_1	数量 Q'ty	尺寸 size	d_1
JTW-10	10.2	30	3	---	---	---	---
JTW-12	12.2	40		28	2	M3	3.5
JTW-13	13.2						
JTW-14	14.2						
JTW-15	15.2	50		35			
JTW-16	16.2						
JTW-16N				---	---	---	---
JTW-18	18.2			35	2	M3	3.5
JTW-20	20.2		5			M5	6
JTW-20N				---	---	---	---
JTW-25	25.2	55		40	2	M5	6
JTW-25N				---	---	---	---
JTW-30	30.2	60		45	2	M5	6
JTW-35	35.2	70		50			
JTW-40	40.2	80	7	60		M6	7
JTW-45	45.3	90		67.5			
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			

JNA 自润滑模具导套
Oilless Guide Bushing

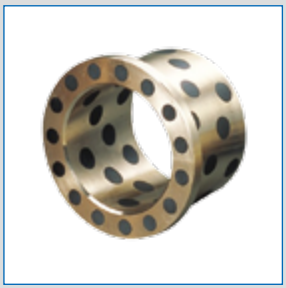


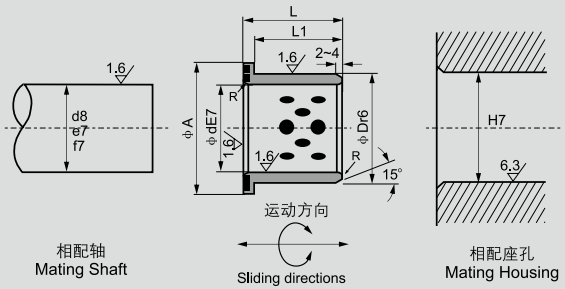
材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

规格 Standard No.	D1	H6	D2	g6	D3	D4	L1	L2	L3	R1
JNA32×50	32	+0.016 0	40	-0.009 -0.025	50	40	50	40	4	3
JNA40×63	40		50		63	50	63	50	5	3
JNA50×71	50		63	-0.010 -0.029	71	63	71	56	6	5
JNA63×80	63	+0.019 0	80		90	80	80	63	8	6
JNA80×100	80		100	-0.012 -0.034	112	100	100	80	10	8
JNA100×125	100	+0.022 0	125	-0.014 -0.039	140	125	125	106	12	10
JNA115×140	115		140		155	140	140	120	12	10

JDBB 自润滑翻边轴套
Oilless Flange Bushing



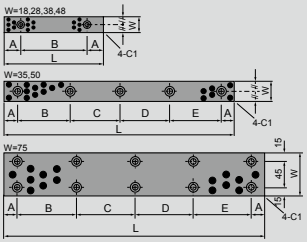


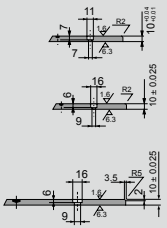
材质	高力黄铜＋石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

Stanard No. 规格	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	75	+0.062 +0.043	90	58	65

JSP 铜基自润滑板
Bronze Self Lubricating Plate



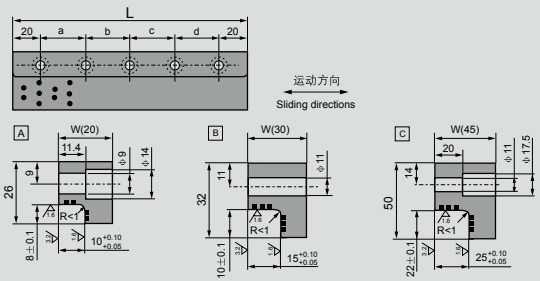


材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

型号规格 Standard No.	W	L	A	B	C	D	E	平头螺钉 Flat Head Screw	孔数 No. of Holes
JSP-1875	18	75	15	45				M6	2
JSP-18100		100	25	60					
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

JSL L型自润滑块
Oilless L Guide Plate

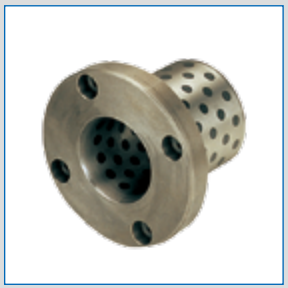


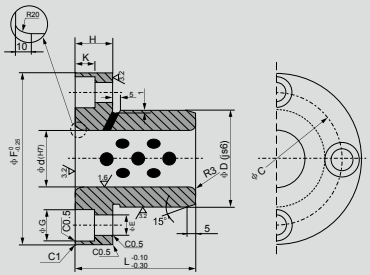
材质	高力黄铜＋石墨
Material	CuZn25Al6Mn4+ Graphite

单位unit:mm

规格 Standard No.	W	L	螺孔位置 Bole Hole				Bolt		Type
			a	b	c	d	螺栓 Size	数量 Number	
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		250	70	70	70	——		4	
JSL-45×200	45	200	55	50	55	——		4	C
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	

HGB250 自润滑导向套
Oilless Guide Bushing





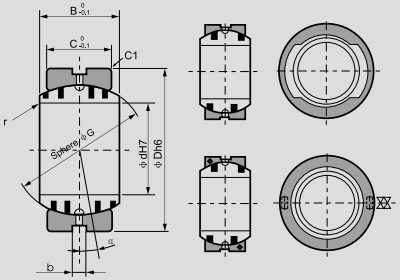
材质	高力黄铜＋石墨
Material	CuZn25Al6Mn4+ Graphite

材质	FC铸铁＋石墨
Material	HT250#+ Graphite

单位unit:mm

项目	代号	尺寸	ΦF	ΦD	Φd	H	L	ΦC	ΦE	ΦG	K
1	HGB250-30	90/50×30×50	90	50	30	20	50	70	11	17.5	10.8
2	HGB250-40	100/60×40×65	100	60	40	20	65	80	11	17.5	10.8
3	HGB250-50	125/75×50×80	125	75	50	20	80	100	11	17.5	10.8
4	HGB250-60	135/85×60×100	135	85	60	20	100	110	11	17.5	10.8
5	HGB250-80	170/110×80×130	170	110	80	25	130	140	14	20	13
6	HGB250-100	190/130×100×160	190	130	100	25	160	160	14	20	13

JQB 球形关节轴承
Sphere Oscillating Bearing

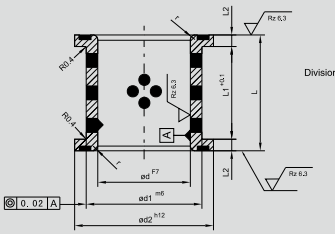


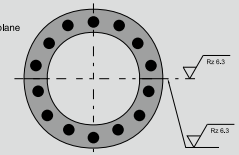
Inner ring	Material	CuZn25Al6Mn4+Gr
Outering	material	S45C
	Hardness	HRC25~30

Method of installing Inner ring:
Type A: JQB -015~090
Insertion with horizontal direction
Type B: JQB -100
Insertion by splitting
Recommend shaft & housing:
Housing: H7
Shaft: g6
For common use

单位unit:mm

规格 Standard No.	Dimension							Aligning angle 调整角度 σ°	Type
	φd	φD	B	C	φG	r	b		
JQB-015	15	26	12	9	22	R0.5	4	8	
JQB-020	20	32	16	14	28			4	
JQB-025	25	42	21	18	36			5	
JQB-030	30	50	27	23	44	R1		6	
JQB-035	35	55	30	26	49			5	
JQB-040	40	62	33	28	55			6	A
JQB-050	50	80	42	36	70			5	
JQB-060	60	100	53	45	90			6	
JQB-070	70	110	58	50	99			5	
JQB-080	80	130	70	60	115			6	
JQB-090	90	140	76	65	125			6	
JQB-100	100	160	88	75	145			6	B





材质	高力黄铜＋石墨
Material	CuZn25Al6Mn4+ Graphite

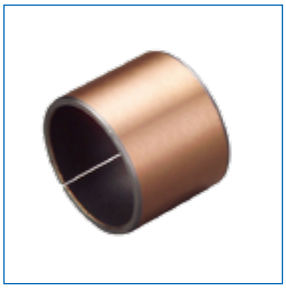
单位unit:mm

d	L	d1	d2	L1	L2	r
20	28	28	35	20	4	1
25	33	33	40	25		
30	40	38	48	30	5	2
40	50	50	60	40		
50	60	62	68	50		

SF-1 Self-lubricating Bearings

自润滑卷制轴承

材料组织 MATERIAL STRUCTURE



1.聚四氟乙烯与铅的混合物 PTFE with lead
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡）Tin-plating

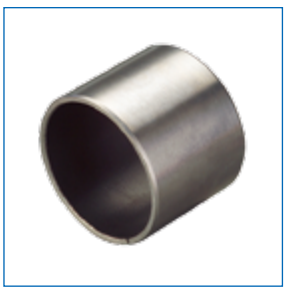
SF-1 无油润滑轴承 Oilless Bushing （标准公差尺寸见第23、24页）

该产品以优质低碳钢为基体，中间烧结球形青铜层，表面轧制改性聚四氟乙烯（PTFE）和铅的混合物。它具有较好的自润滑、耐磨损、摩擦系数低、走合性能好、低噪音等性能，产品广泛应用于各种机械的滑动部位，如纺织机、印刷机、液压搬运车、烟草机、健身器、农业机械等。

SF-1 Carbon Steel self-lubricating bearings used high quality low-carbon steel plate as base, sintered porous bronze as its interlayer and the Compound of PTFE and Lead as its surface. It offers the property of good self-lubrication, low wear, low friction good sliding characteristics, low noise. It has been widely applied to various mechanical sliding positions, such as textile machinery, printing machinery, hydraulic pressure transit vehicle, tobacco machinery, gymnastic instrument and agricultural machinery etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.6N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient	干摩擦 Dry friction	0.04～0.20
	油润滑 Oil lubrication	0.02～0.07
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K
热膨胀系数 Coefficient of thermal expansion		11×10^{-6}/K



1.聚四氟乙烯与铅及其他填充混合物
PTFE with lead
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡）Tin-plating

SF-1T 齿轮泵专用轴承 Gear Pump Bushing

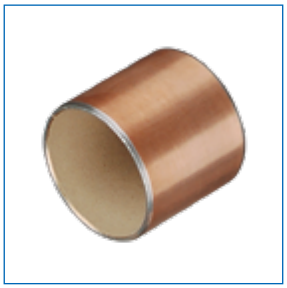
该产品与SF-1具有相同结构，是齿轮油泵专用轴承。根据齿轮油泵的高PV值条件而设计的特殊配方产品。它具有摩擦系数小而稳定，耐磨性能好，抗冲击的特点，产品广泛应用于齿轮油泵、柱塞泵、叶片泵等。

SF-1 Carbon Steel self-lubricating bearing (Gear pump) has the same structure as SF-1, it is special for gear pump. It is a special formula product devised by high PV value operational mode conditions of gear oil pump. Characterized by low friction factor, stability, well wearing performance and impact resistance, it has been widely applied to gear pumps, radial piston pumps and vane pumps etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	10m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	4.2N/mm^2·m/s
	油润滑 Oil lubrication	60N/mm^2·m/s
摩擦系数μ Friction coefficient		0.03～0.18
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K

材料组织 MATERIAL STRUCTURE



1.聚四氟乙烯与铜的混合物 PTFE with Cu
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡） Tin-plating

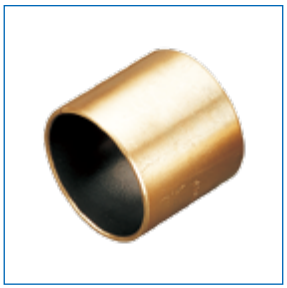
SF-1P 往复运动轴承 Reciprocating Motion Bushing

该产品与SF-1具有相同结构，是根据往复运动的特殊工况条件而设计的特殊配方产品，具有断油条件下润滑能力强，耐磨性能好，保持油膜的特点。产品广泛应用于汽车减震器、摩托车减震器、液压马达、气动元件等，其性能与国外DD2相似。

SF-1P Carbon Steel Pb-free self-lubricating bearing has the same structure as SF-1, particularly suitable for intermittent operation, reciprocating or oscillating movements. Characterized by good lubrication and wear performace in the conditions of dry operation of oil. It is applied to shock absorber of automobile, motorcycles and various hydraulic motors and pneumatic elements etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.6N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient		0.04～0.20
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K



1.聚四氟乙烯与铅的混合物 PTFE with lead
2.球形青铜粉 Porous bronze
3.铜背 Copper Back

SF-1B 铜基无给油轴承 Bronze Based Bushing

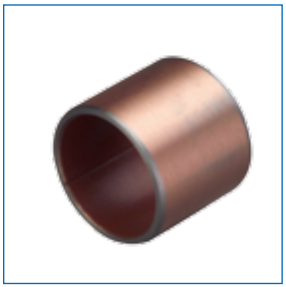
该产品以特殊配方铜合金为基体，中间烧结球形青铜层，表面轧制聚四氟乙烯和亲油性纤维的混合物。它具有较好的自润滑、耐磨损、摩擦系数低、耐腐蚀等性能，产品广泛应用于冶金机械、连铸轧机、水泥灌浆机械、螺旋式输送机等。

SF-1B Bronze Pb-free self-lubricating bearing used bronze alloy as base with special formulation, sintered porous bronze as its interlayer and the Compound of PTFE and lipophilicity fiber as its surface. It offers the property of good self-lubricating, low wear, low friction, corrosion resistence. It has been widely applied to metallurgy steel machinery, joined casting machinery, cement grout pump and spiral conveyer machinery etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.6N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient	干摩擦 Dry friction	0.03～0.08
	油润滑 Oil lubrication	0.02～0.07
使用温度 Working temperature		-195℃～+300℃
导热系数 Thermal conductivity		70W/m·K
热膨胀系数 Coefficient of thermal expansion		17×10^{-6}/K

材料组织 MATERIAL STRUCTURE



1.聚四氟乙烯与亲油性纤维混合物
PTFE with lead
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡） Tin-plating

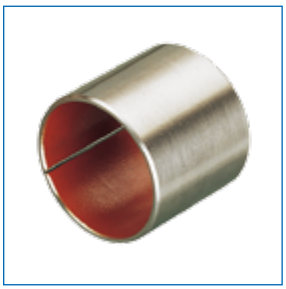
SF-1D 液压专用轴承 Hydraulic Bushing

该产品与SF-1具有相同结构，是液压专用轴承，是结合油缸及减震器的工作原理而设计的特殊配方产品。它具有SF-1P优点外，特别适用于往复频繁的大侧向力场合，产品适用于汽车减震器、摩托车减震器以及各种液压油缸等。

SF-1D has the same structure with SF-1, particularly suitable for hydraulic pump. It is a special formula designed by combining oil cylinder with the working principle of bumpers. Besides the advantages of SF-1P, it is particularly applicable for the situation of great cross range force of frequent to-and-fro. It is applicable for automobile shock absorbers, motorcycle bumper and various hydraulic pressure cylinders etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.8N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient		0.04～0.20
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K



1.聚四氟乙烯与亲油性纤维混合物
PTFE with lead
2.球形青铜粉 Porous bronze
3.不锈钢背 Stainless Steel Back

SF-1S 不锈钢耐腐蚀轴承 Stainless Steel Bushing

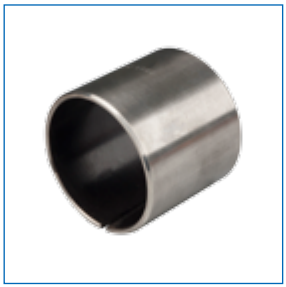
该产品以不锈钢为基体，中间烧结球形青铜层，表面轧制聚四氟乙烯和铅的混合物。它具有较好的自润滑、耐磨损、摩擦系数低、耐腐蚀等性能。产品广泛应用于印染机械、化工机械、海洋工业耐腐蚀部位等。

SF-1SS Stainless steel self-lubricating bearing uses stainless steel as base, sintered porous bronze as its interlayer and the Compound of PTFE and Lead as its surface. It offer the property of good self-lubrication, low wear, low friction, corrosion resistence. It has been widely applied to dyeing machinery, chemical engineering machinery and marine industry etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.8N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient		0.04～0.20
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		50W/m·K

材料组织 MATERIAL STRUCTURE



1.聚四氟乙烯与亲油性纤维混合物
PTFE with Fiber
2.不锈钢背 Stainless Steel Back

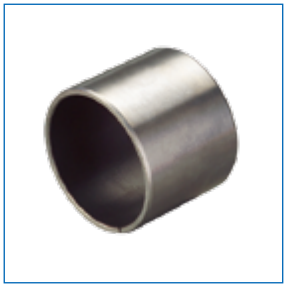
SF-1SS 不锈钢喷塑轴承 Lining-Sprayed Stainless Steel Bushing

该产品以不锈钢为基体，表面喷涂聚四氟乙烯。它具有较好的耐酸、耐碱、耐海水、环保等特点。产品广泛应用于化工中酸碱流量计、泵、阀以及海洋工业耐腐蚀部位等。

SF-1S Stainless steel Pb-free self-lubricating bearing used stainless steel material as base, spray painting PTFE on the surface. It is characterized by acid-resistant, alkaline-resistant, ocean water resistant and environmental protection. It is t is used widely as fluid valve of measuring acid and alkalizing flow in chemical industry, and corrosion resisting sliding position in marine industry.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity		100N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.0m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3N/mm^2·m/s
	油润滑 Oil lubrication	40N/mm^2·m/s
摩擦系数μ Friction coefficient	干摩擦 Dry friction	0.08～0.20
	油润滑 Oil lubrication	0.02～0.07
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K
热膨胀系数 Coefficient of thermal expansion		15×10^{-6}/K



1.聚四氟乙烯与纤维混合物 PTFE with fibre
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡）Tin-plating

SF-1W 无铅环保轴承 Lead-Free Bushing

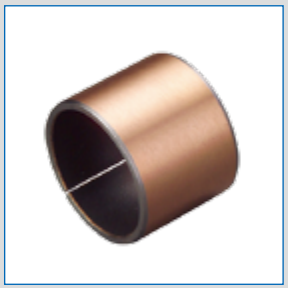
SF-1W无铅轴承，是在SF-1材料基础上根据国际环保要求而开发的一种新产品。该产品除广泛适用于一般通用机械外，对食品机械、制药机械、烟草机械尤其适用，无铅效果符合欧洲卫生标准，是无油润滑轴承发展的方向。

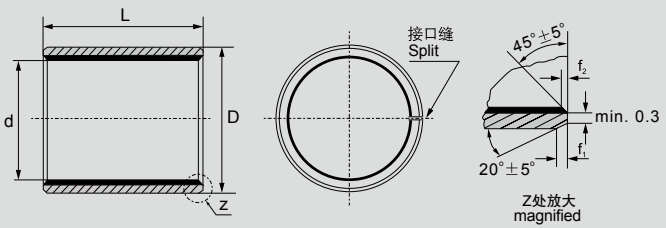
SF-1W is a new type bushing without lead composition which is developed aiming at increasing demands on environmental protection. Besides its wide application on general machines, SF-1 is particularly suitable for food machine, Pharmaceutical machine, tobacco, machine etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	干摩擦 Dry friction	2.5m/s
	油润滑 Oil lubrication	5.0m/s
最高PV值 Max PV Value Limit	干摩擦 Dry friction	3.6N/mm^2·m/s
	油润滑 Oil lubrication	50N/mm^2·m/s
摩擦系数μ Friction coefficient	干摩擦 Dry friction	0.08～0.20
	油润滑 Oil lubrication	0.02～0.07
使用温度 Working temperature		-195℃～+280℃
导热系数 Thermal conductivity		42W/m·K
热膨胀系数 Coefficient of thermal expansion		11×10^{-6}/K

SF-1/1W/1B/1S/1T/1P/1D/1SS 标准公差尺寸表
Standard Metric Size





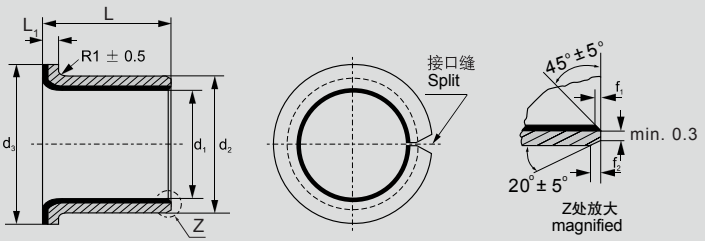
轴径 D_s	座孔 H7 D_H	外径公差 D_O	压装后内孔公差 $D_{i,a}$	壁厚 S_3	f_1	f_2	L $^{0}_{-0.40}$ (d≤Φ28 L-0.30 / d>Φ30 L-0.40)									
							6	8	10	12	15	20	25	30	40	50
2 $^{0}_{-0.006}$	3.5 $^{+0.008}_{}$	3.5 $^{+0.055}_{+0.025}$	2.055 1.990	0.750 0.730	0.4	0.3										
4 $^{0}_{-0.008}$	5.5 $^{+0.008}_{}$	5.5 $^{+0.055}_{+0.025}$	4.055 3.990				0406	0408								
5 $^{-0.010}_{-0.022}$	7 $^{+0.015}_{}$	7 $^{+0.055}_{+0.025}$	5.055 4.990	1.005 0.980	0.6	0.3	0506	0508	0510							
6 $^{-0.010}_{-0.022}$	8 $^{+0.015}_{}$	8 $^{+0.055}_{+0.025}$	6.055 5.990				0606	0608	0610							
8 $^{-0.013}_{-0.028}$	10 $^{+0.015}_{}$	10 $^{+0.055}_{+0.025}$	8.055 7.990				0806	0808	0810	0812	0815					
10 $^{-0.013}_{-0.028}$	12 $^{+0.018}_{}$	12 $^{+0.065}_{+0.030}$	10.058 9.990				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			1320				
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						1610	1612	1615	1620	1625			
17 $^{-0.016}_{-0.034}$	19 $^{+0.021}_{}$	19 $^{+0.075}_{+0.035}$	17.061 16.990						1710	1712		1720				
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	1.505 1.475	0.6	0.4			2010	2012	2015	2020	2025	2030		
22 $^{-0.020}_{-0.041}$	25 $^{+0.021}_{}$	25 $^{+0.075}_{+0.035}$	22.071 21.990						22010	2212	2215	2220	2225	2230		
24 $^{-0.020}_{-0.041}$	27 $^{+0.021}_{}$	27 $^{+0.075}_{+0.035}$	24.071 23.990								2415	2420	2425	2430		
25 $^{-0.020}_{-0.041}$	28 $^{+0.021}_{}$	28 $^{+0.075}_{+0.035}$	25.071 24.990						25010	2512	2515	2520	2525	2530	2540	2550
28 $^{-0.020}_{-0.041}$	32 $^{+0.025}_{}$	32 $^{+0.085}_{+0.045}$	28.085 27.990	2.005 1.970	1.2	0.4					2815	2820	2825	2830	2840	
30 $^{-0.020}_{-0.041}$	34 $^{+0.025}_{}$	34 $^{+0.085}_{+0.045}$	30.085 29.990							3012	3015	3020	3025	3030	3040	
32 $^{-0.025}_{-0.050}$	36 $^{+0.025}_{}$	36 $^{+0.085}_{+0.045}$	32.085 31.990									3220		3230	3240	
35 $^{-0.025}_{-0.050}$	39 $^{+0.025}_{}$	39 $^{+0.085}_{+0.045}$	35.085 34.990							2512	2515	2520	2525	2530	2540	3550
38 $^{-0.025}_{-0.050}$	42 $^{+0.025}_{}$	42 $^{+0.085}_{+0.045}$	38.085 37.990								3815			3830	3840	
40 $^{-0.025}_{-0.050}$	44 $^{+0.025}_{}$	44 $^{+0.085}_{+0.045}$	40.085 39.990							4012		4020	4025	4030	4040	4050

SF-1/1W/1B/1S/1T/1P/1D/1SS 标准公差尺寸表
Standard Metric Size

S&S oilless bearing

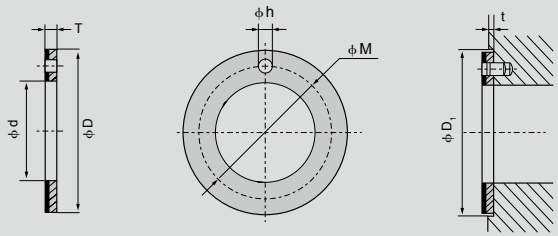
轴径 D_s	座孔 H7 D_H	外径公差 D_O	压装后内孔公差 $D_{i,a}$	壁厚 S_3	f_1	f_2	L $^{0}_{-0.40}$ (d≤Φ28 L-0.30 ; d>Φ30 L-0.40)									
							20	25	30	40	50	60	70	80	100	115
45 $^{-0.050}_{-0.025}$	50 $^{+0.025}$	50 $^{+0.085}_{+0.045}$	45.105 44.990	2.505 2.460	1.8	0.6	4520	4525	4530	4540	4550					
50 $^{-0.050}_{-0.025}$	55 $^{+0.030}$	55 $^{+0.100}_{+0.055}$	50.110 49.990				5020		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						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							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	2.490 2.440	1.8	0.6				8040	8050	8060	8070	8080	80100	
85 $^{-0.054}$	90 $^{+0.035}$	90 $^{+0.120}_{+0.070}$	85.155 85.020							8540		8560		8580	85100	
90 $^{-0.054}$	95 $^{+0.035}$	95 $^{+0.120}_{+0.070}$	90.155 90.020							9040	9050	9060		9080	90100	
95 $^{-0.054}$	100 $^{+0.035}$	100 $^{+0.120}_{+0.070}$	95.155 95.020								9550	9560		9580	95100	
100 $^{-0.054}$	105 $^{+0.035}$	105 $^{+0.120}_{+0.070}$	100.155 100.020								10050	10060		10080		100115
105 $^{-0.054}$	110 $^{+0.035}$	110 $^{+0.120}_{+0.070}$	105.155 105.020									10560		10580		105115
110 $^{-0.054}$	115 $^{+0.035}$	115 $^{+0.120}_{+0.070}$	110.115 110.020									11060		11080		110115
120 $^{-0.054}$	125 $^{+0.040}$	125 $^{+0.170}_{+0.100}$	120.210 120.070	2.465 2.415	1.8	0.6						12060		12080	120100	
125 $^{-0.063}$	130 $^{+0.040}$	130 $^{+0.170}_{+0.100}$	125.210 125.070									12560			125100	125115
130 $^{-0.063}$	135 $^{+0.040}$	135 $^{+0.170}_{+0.100}$	130.210 130.070									13060		13080	130100	
140 $^{-0.063}$	145 $^{+0.040}$	145 $^{+0.170}_{+0.100}$	140.210 140.070									14060		14080	140100	
150 $^{-0.063}$	155 $^{+0.040}$	155 $^{+0.170}_{+0.100}$	150.210 150.070									15060		15080	150100	
160 $^{-0.063}$	165 $^{+0.040}$	165 $^{+0.170}_{+0.100}$	160.210 160.070									16060		16080	160100	160115
180 $^{-0.063}$	185 $^{+0.046}$	185 $^{+0.210}_{+0.130}$	180.216 180.070	2.465 2.415	1.8	0.6								18080	180100	
190 $^{-0.072}$	195 $^{+0.046}$	195 $^{+0.210}_{+0.130}$	190.216 190.070											19080	190100	
200 $^{-0.072}$	205 $^{+0.046}$	205 $^{+0.210}_{+0.130}$	200.016 200.070											20080	200100	
220 $^{-0.072}$	225 $^{+0.046}$	225 $^{+0.210}_{+0.130}$	220.216 220.070									20060		22080	220100	
250 $^{-0.072}$	255 $^{+0.052}$	255 $^{+0.260}_{+0.170}$	250.222 250.070	2.465 2.415	1.8	0.6								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											28080	280100	
300 $^{-0.081}$	305 $^{+0.052}$	305 $^{+0.260}_{+0.170}$	300.222 300.070													

SF-1F 无油翻边轴套标准尺寸表
Oil-Flanged Bushes Standard Metric Size



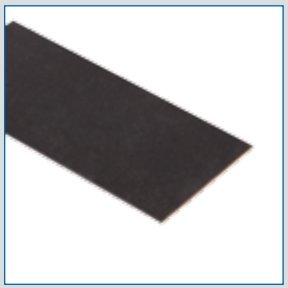
轴径 Shaft Dia.	座孔 Housing H7	规格标志 Desc.	尺寸 Size					f_1	f_2
			d_1	d_2	d_3±0.5	L±0.25	L_1±0.2		
6 -0.013 -0.028	8 +0.015	SF-1F 06040	6	8	12	4	1	0.5	0.4
		SF-1F 06070				7			
8 -0.013 -0.028	10 +0.015	SF-1F 08055	8	10	15	5.5			
		SF-1F 08075				7.5			
10 -0.016 -0.034	12 +0.018	SF-1F 10070	10	12	18	7			
		SF-1F 10090				9			
		SF-1F 10120				12			
12 -0.016 -0.034	14 +0.018	SF-1F 12070	12	14	20	7			
		SF-1F 12090				9			
		SF-1F 12120				12			
14 -0.016 -0.043	16 +0.018	SF-1F 14120	14	16	22	12			
		SF-1F 14170				17			
15 -0.016 -0.034	17 +0.018	SF-1F 15090	15	17	23	9			
		SF-1F 15120				12			
		SF-1F 15170				17			
16 -0.016 -0.034	18 +0.018	SF-1F 16120	16	18	24	12			
		SF-1F 16170				17			
18 -0.016 -0.034	20 +0.021	SF-1F 18120	18	20	26	12			
		SF-1F 18170				17			
		SF-1F 18200				20			
20 -0.020 -0.041	23 +0.021	SF-1F 20115	20	23	30	11.5	1.5	0.8	0.4
		SF-1F 20165				16.5			
		SF-1F 20215				21.5			
22 -0.020 -0.041	25 +0.021	SF-1F 22150	22	25	32	15			
		SF-1F 22200				20			
25 -0.020 -0.041	28 +0.021	SF-1F 25115	25	28	35	11.5			
		SF-1F 25165				16.5			
		SF-1F 25215				21.5			
30 -0.025 -0.050	34 +0.025	SF-1F 30160	30	34	42	16	2	1.0	0.5
		SF-1F 30260				26			
35 -0.025 -0.050	39 +0.025	SF-1F 35160	35	39	47	16			
		SF-1F 35260				26			
40 -0.025 -0.050	44 +0.025	SF-1F 40260	40	44	53	26			
		SF-1F 40400				40			

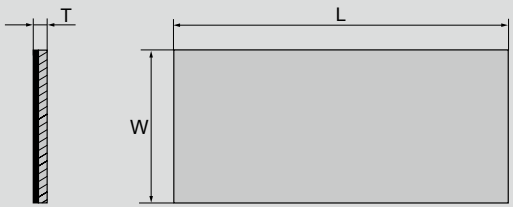
SF-1WC 复合止推垫片标准公差尺寸表
Compound Standard Metric Size



型号规格 Designation	相配轴径 Axle	垫片尺寸 Washer Dimension				安装尺寸 Installation Size		
		φD $^{0}_{-0.25}$	φd $^{+0.25}_{0}$	T $^{0}_{-0.050}$	φM±0.125	φh $^{+0.40}_{+0.10}$	t±0.20	φD$_1$ $^{+0.12}_{0}$
SF-1WC 10	8	20	10	1.5	15	1.5	1.0	20
SF-1WC 12	10	24	12		18			24
SF-1WC 14	12	26	14		20	2.0		26
SF-1WC 16	14	30	16		23			30
SF-1WC 18	16	32	18		25			32
SF-1WC 20	18	36	20		28	3.0		36
SF-1WC 22	20	38	22		30			38
SF-1WC 24	22	42	24		33			42
SF-1WC 26	24	44	26		35			44
SF-1WC 28	26	48	28		38	4.0		48
SF-1WC 32	30	54	32		43			54
SF-1WC 38	36	62	38		50			62
SF-1WC 42	40	66	42		54			66
SF-1WC 48	46	74	48	2.0	61		1.5	74
SF-1WC 52	50	78	52		65			78
SF-1WC 62	60	90	62		76			90

SF-1/W/1B/1S/1T/1P/1D/1SS 滑板标准公差尺寸表
Strip Standard Metric Size





型号规格 Designation	长度 Length $L^{+5.0}_{0}$	宽度 Width $W^{+2.0}_{0}$	厚度 Thickness $T^{0}_{-0.050}$
SF-1SP 010130	500	130	1.0
SF-1SP 015130	500	130	1.5
SF-1SP 020130	500	130	2.0
SF-1SP 025130	500	130	2.5

SF-2 Marginal Pb-free Self-lubricating Bearings

边界润滑轴承

材料组织 MATERIAL STRUCTURE

1.聚甲醛与纤维混合物 POM with fiber
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡）Tin-plating

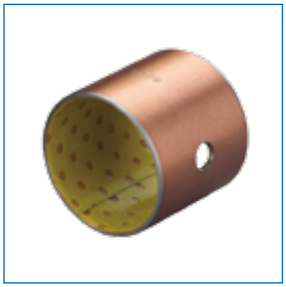
SF-2 边界润滑轴承 Marginal Lubrication Bushing （标准公差尺寸见第30页）

该产品以优质低碳钢为基体，中间烧结球形青铜层，表面轧制改性聚甲醛(POM)。在边界润滑条件下可长期使用而不加油，耐磨层表面有储油坑。产品广泛应用于冶金机械、矿山机械、水利机械、汽车、建筑机械、农用机械、轧钢行业等。

SF-2 Marginal Pb-free self-lubricating bearing is used steel-backing as its structure, sintered porous bronze as its interlayer, surface inlaid the modified POM. Suitable for marginally lubricated and dry operation on the conditions of lubrication indents grease. It has been widely applied to metallurgical machinery, Mine machinery, water conservancy machinery, vapor locomotive, building machinery, agriculture machinery, steel rolling industry etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	150N/mm^2
最高线速度 V Max Sliding Speed	脂润滑 Grease lubrication	2.5m/s
最高PV值 Max PV Value Limit	脂润滑 Grease lubrication	2.8N/mm^2·m/s
摩擦系数μ Friction coefficient	脂润滑 Grease lubrication	0.05～0.25
使用温度 Working temperature		-40℃～+130℃
导热系数 Thermal conductivity		4W/m·K
热膨胀系数 Coefficient of thermal expansion		12×10^{-6}/K



1.聚甲醛与纤维混合物 POM with fiber
2.球形青铜粉 Porous bronze
3.钢背 Steel backing
4.电镀层（铜或锡）Tin-plating

SF-2Y 边界润滑无铅轴承 Marginal Lubricating Lead-Free Bushing

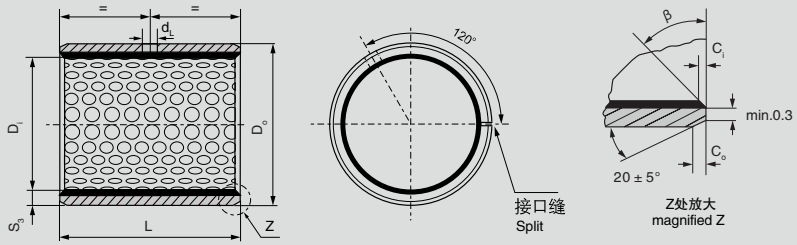
该产品与SF-2具有相同结构和使用性能，同时具有环保功能，在边界润滑条件下可长期使用而不加油，耐磨层表面有储油坑。产品广泛应用于冶金机械、矿山机械、水利机械、汽机车、建筑机械、农用机械、轧钢行业、食用机械、制药机械、烟草机械等。

SF-2Y has the same structure and functional performance with SF-2. It can work long time without oil in the condition of prelubricated with lubrication indents.Widely applied to metallurgy machinery, Mining machinery, water conservancy machinery, automobile, building machinery, agriculture machinery, rolling steel industry etc.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静 载 Static load	250N/mm^2
	动 载 Dynamic load	150N/mm^2
最高线速度 V Max Sliding Speed	脂润滑 Grease lubrication	2.5m/s
最高PV值 Max PV Value Limit	脂润滑 Grease lubrication	3.6N/mm^2·m/s
摩擦系数μ Friction coefficient	脂润滑 Grease lubrication	0.05～0.25
使用温度 Working temperature		-40℃～+130℃
导热系数 Thermal conductivity		4W/m·K
热膨胀系数 Coefficient of thermal expansion		12×10^{-6}/K

SF-2 边界润滑轴承标准公制尺寸
Marginal-lubricationg Bearing Stangdard Metric Size



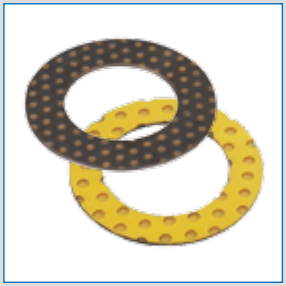
轴径 D_s h8	座孔 H7 D_H	外径公差 D_O	压装后内孔公差 $D_{i,a}$	配合间隙 C_D	壁厚 S_3	油孔 d_L	$L\ ^{0}_{-0.40}$									
							10	15	20	25	30	35	40	45	50	60
10 -0.022	12 +0.018	12 +0.065 +0.030	10.108 10.040	0.130 0.040			1010	1015	1020							
12 -0.027	14 +0.018	14 +0.065 +0.030	12.108 12.040				1210	1215	1220							
14 -0.027	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		2225						
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		2830					
30 -0.033	34 +0.025	34 +0.085 +0.045	30.155 30.060			6			3020	3025	3030		3040			
35 -0.039	39 +0.025	39 +0.085 +0.045	35.155 35.060	0.194 0.060	1.970 1.935				3520		3530	3535	3540			
40 -0.039	44 +0.025	44 +0.085 +0.045	40.155 40.060						4020		4030		4040		4050	
45 -0.039	50 +0.025	50 +0.085 +0.045	45.195 45.080	0.234 0.080					4520		4530		4540	4545	4550	
50 -0.039	55 +0.030	55 +0.100 +0.055	50.200 50.080	0.239 0.080		8					5030		5040		5050	5060
55 -0.046	60 +0.030	60 +0.100 +0.055	55.200 55.080	0.246 0.080	2.460 2.415						5530		5540		5550	5560
60 -0.046	65 +0.030	65 +0.100 +0.055	60.200 60.080								6030		6040		6050	6060

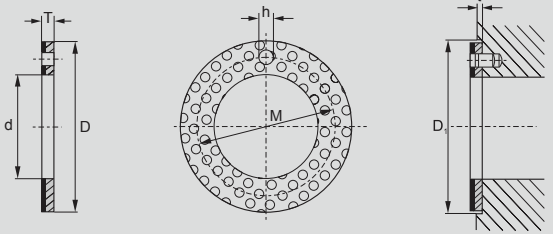
SF-2 边界润滑轴承标准公制尺寸
Marginal-lubricationg Bearing Stangdard Metric Size

S&S oilless bearing

轴径 D_S h8	座孔 H7 D_H	外径公差 D_O	压装后内孔公差 $D_{i,a}$	配合间隙 C_D	壁厚 S_3	油孔 d_L	$L\ ^{0}_{-0.40}$								
							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		6560						
70 -0.046	75 +0.030	75 +0.100 +0.055	70.200 70.080				7040	7050		7080					
75 -0.046	80 +0.030	80 +0.100 +0.055	75.200 75.080				7540		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		8060	8080					
85 -0.054	90 +0.035	90 +0.120 +0.070	85.265 85.100	0.321 0.100			8540		8560	8580					
90 -0.054	95 +0.035	95 +0.120 +0.070	90.265 90.100				9040		9060	9080	9090				
100 -0.054	105 +0.035	105 +0.120 +0.070	100.265 100.100					10050		10080		10095			
105 -0.054	110 +0.035	110 +0.120 +0.070	105.265 105.100						10560	10580		10595		105110	
110 -0.054	115 +0.035	115 +0.120 +0.070	110.265 110.110						11060	11080		11095		110110	
120 -0.054	125 +0.040	125 +0.170 +0.100	120.270 120.110	0.324 0.100					12060	12080				120110	
125 -0.063	130 +0.040	130 +0.170 +0.100	125.270 125.110						12560					125110	
130 -0.063	135 +0.040	135 +0.170 +0.100	130.270 130.110					13050	13060	13080			130100		
140 -0.063	145 +0.040	145 +0.170 +0.100	140.270 140.110					14050	14060	14080			140100		
150 -0.063	155 +0.040	155 +0.170 +0.100	150.270 150.110					15050	15060	15080			150100		
160 -0.063	165 +0.040	165 +0.170 +0.100	160.270 160.110			9.5		16050	16060	16080			160100		
170 -0.063	175 +0.040	175 +0.170 +0.100	170.270 170.110					17050		17080			170100		
180 -0.063	185 +0.046	185 +0.210 +0.130	180.270 180.110	0.339 0.110				18050	18060	18080			180100		
190 -0.072	195 +0.046	195 +0.210 +0.130	190.276 190.110					19050	19060	19080			190100		190120
200 -0.072	205 +0.046	205 +0.210 +0.130	200.276 200.110					20050	20060	20080			200100		200120
220 -0.072	225 +0.046	225 +0.210 +0.130	220.276 220.110			9.5		22050	22060	22080			220100		220120
240 -0.072	245 +0.046	245 +0.210 +0.130	240.276 240.110					24050	24060	24080			240100		240120
250 -0.072	255 +0.052	255 +0.260 +0.170	250.282 250.110	0.354 0.110				25050	25060	25080			250100		250120
260 -0.081	265 +0.052	265 +0.260 +0.170	260.282 260.110					26050	26060	26080			260100		260120
280 -0.081	285 +0.052	285 +0.260 +0.170	280.282 280.110					28050	28060	28080			280100		280120
300 -0.081	305 +0.052	305 +0.260 +0.170	300.282 300.110					30050	30060	30080			300100		300120

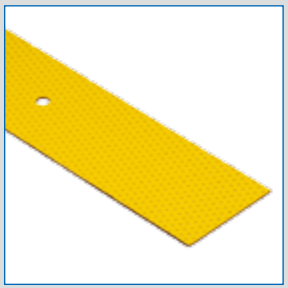
SF-2WC 边界润滑止推垫片标准公差尺寸表
Marginal Lubricating Thrust Washer Standard Metric Size

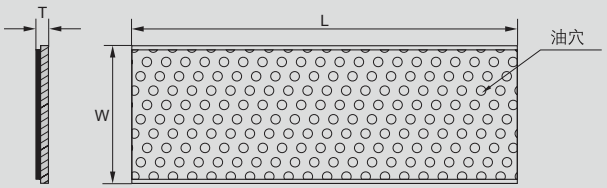




型号规格 Designation	相配轴径 Axle	垫片尺寸 Washer Dimension				安装尺寸 Installation Size		
		φD $^{0}_{-0.25}$	φd $^{+0.25}_{0}$	T $^{0}_{-0.050}$	φM±0.125	φh $^{+0.40}_{+0.10}$	t±0.20	φD$_1$
SF-2WC 10	8	20	10	1.5	15	1.5	1.0	20
SF-2WC 12	10	24	12		18			24
SF-2WC 14	12	26	14		20	2.0		26
SF-2WC 16	14	30	16		23			30
SF-2WC 18	16	32	18		25			32
SF-2WC 20	18	36	20		28	3.0		36
SF-2WC 22	20	38	22		30			38
SF-2WC 24	22	42	24		33			42
SF-2WC 26	24	44	26		35			44
SF-2WC 28	26	48	28		38	4.0		48
SF-2WC 32	30	54	32		43			54
SF-2WC 38	36	62	38		50			62
SF-2WC 42	40	66	42		54			66
SF-2WC 48	46	74	48	2.0	61		1.5	74
SF-2WC 52	50	78	52		65			78
SF-2WC 62	60	90	62		76			90

SF-SP 滑板标准公差尺寸表
Strip Standard Metric Size





型号规格 Designation	长度 Length $L^{+5.0}_{0}$	宽度 Width $W^{+2.0}_{0}$	厚度 Thickness $T^{0}_{-0.050}$
SF-2SP 010130	500	130	1.0
SF-2SP 015130	500	130	1.5
SF-2SP 020130	500	130	2.0
SF-2SP 025130	500	130	2.5

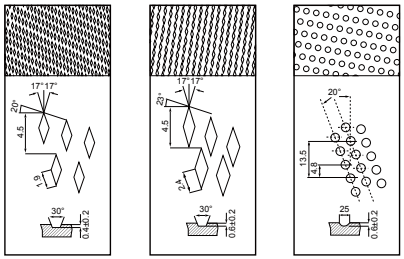
FB Bronze Self-lubricating bearings

青铜卷制轴承

材料组织 MATERIAL STRUCTURE

采用高密度青铜卷制成形，球形油袋或油穴特殊合成内部表面以减少磨损延长使用时间并且很好的做到防腐功能。

High-density bronze is rolled into shape or oil bags and oil holes are specially integrated into the inner surface to reduce the wearing and prolong the service hours. Besides, it has excellent anti-corrosion functions.



轴衬套内
Inside the bush of the shaft
菱形油穴r≤φ22
Rhomb oil holes rsφ22

轴衬套内
Inside the bush of the shaft
菱形油穴r>φ22
Rhomb oil holes rφ22

形成菱形
Forming a rhomb

应用范围 Application scope

此系列轴承广泛应用与农用、建设机械以及工程机械等。
This series of bearing is widely applied to agricultural, construction and engineering machineries, etc.
油穴类别（依据 DIN1494/ISO3547)。
Categories of oil holes (As per to DIN1494/ISO3547)。

化学成分 Chemical Composition

材料 Material	铜 Cu	锡 Sn	磷 P	铅 Pb	锌 Zn
CuSn6.5P0.1	93.4	6.5	0.1	-	-

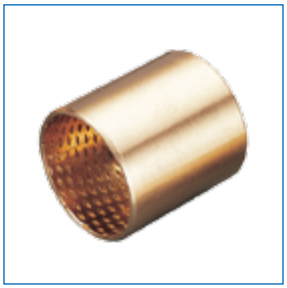
物理特性 Physical Property

型号 Type	密度 Density	散热热涨 Heat emission and expansion	热传导 Heat conducting	硬度 Hardness	抗压强度 Extensile	延伸率 Extensile
FB090/092	8.8g/cm^3	18.5×10^{-6}×K^{-1}	58W(m·k)	90~120HB	470N/mm^2	40%

标准衬套公差 (依据 DIN 1494/3547) Standard tolerance for bushes (As per to DIN 1494/3547)

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 Matching shaft diameter
10~18	+0.065 +0.030	+0.018 0	+0.043 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

材料组织 MATERIAL STRUCTURE



FB090 青铜卷制轴承 Wrapped Bronze Bushing （标准公差尺寸见第37页）

该产品以特殊配方的高密度铜合金带材为基体，表面轧制菱形油穴或半球形的油穴，具有密度高，承载压力大，耐磨性能好，使用寿命长。产品被广泛应用于起重机械、建筑机械、机床工业、采矿机械等领域。

FB090 Bronze self-lubricating bearings used a kind of high density broze alloy of special compositions as base, surface of alloy is rolled diamond type of the oil indents or half ball oil indents, this kind of bearing has higher density, load capacity, well wearing performance, longer lifetime. It has been widely used in many fields, such as hoist machines, building machinery, machine tool industry and mining machinery.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	120N/mm^2
	动载 Dynamic load	40N/mm^2
最高线速度 V Max Sliding Speed		2.5m/s
最高PV值 Max PV Value Limit		2.8N/mm^2·m/s
摩擦系数μ Friction coefficient		0.08～0.25
使用温度 Working TEMP		-100℃～+200℃
导热系数 Thermal conductivity		60W/m·K
热膨胀系数 Coefficient of thermal expansion		15×10^{-6}/K

※材料特性 Material Characterisitc

材料 Material	化学成份 Chemica Composition			机械性能 Machine Performance		
	Cu%	Sn%	P%	抗拉强度 Tensile Strength	屈服强度 Yield Point	延伸率 Elongation
CuSn8	Rest	7.0～9.0	0.03～0.45	450N/mm^2	250N/mm^2	40%

FB092 青铜布孔轴承 Wrapped Hole Bronze Bushing （标准公差尺寸见第37页）

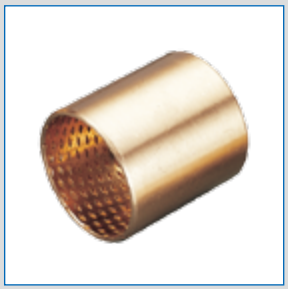
该产品CuSn6.5为基体，工作表面布满有规则油孔，具有承载高、耐磨性能好、摩擦系数低。产品被广泛应用于输送机、升降机、卷扬机、农用机械等。

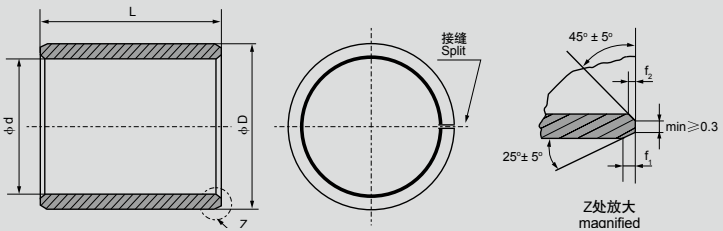
FB092 Bronze punch hole self-lubricating bearing used CuSn6.5 as base, designed regular oil holes bestrewn working surface, it has high load capacity, well wearing resistance and low friction coefficient, it has been widely applied to transportation machinery, elevator, coiling machinery and agriculture equipment.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	110N/mm^2
	动载 Dynamic load	30N/mm^2
最高线速度 V Max Sliding Speed		2.5m/s
最高PV值 Max PV Value Limit		2.8N/mm^2·m/s
摩擦系数μ Friction coefficient		0.08～0.25
使用温度 Working TEMP		-100℃～+200℃
导热系数 Thermal conductivity		60W/m·K
热膨胀系数 Coefficient of thermal expansion		15×10^{-6}/K

FB090/092 标准公制轴承
Metric Standard Bushing

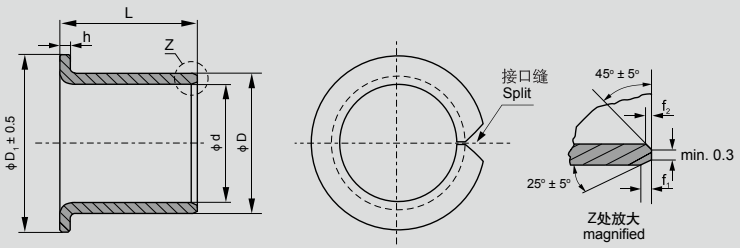




型号 Type	外径 φD	内径 φd	相配轴径 Axle	相配座孔 Housing	f_1	f_2	L±0.25						
							10	15	20	25	30	40	50
FB	12	10	10 $^{-0.013}_{-0.028}$	12 $^{+0.018}_{0}$	0.6	0.3	1010	1015	1020				
FB	14	12	12 $^{-0.016}_{-0.034}$	14 $^{+0.018}_{0}$			1210	1215	1220				
FB	16	14	14 $^{-0.016}_{-0.034}$	16 $^{+0.018}_{0}$				1415	1420				
FB	17	15	15 $^{-0.016}_{-0.034}$	17 $^{+0.018}_{0}$				1515	1520	1525			
FB	18	16	16 $^{-0.016}_{-0.034}$	18 $^{+0.018}_{0}$				1615	1620	1625			
FB	19	17	17 $^{-0.016}_{-0.034}$	19 $^{+0.021}_{0}$				1715	1720	1725			
FB	20	18	18 $^{-0.016}_{-0.034}$	20 $^{+0.021}_{0}$				1815	1820	1825			
FB	23	20	20 $^{-0.020}_{-0.041}$	23 $^{+0.021}_{0}$	0.8	0.4		2015	2020	2025	2030		
FB	25	22	22 $^{-0.020}_{-0.041}$	25 $^{+0.021}_{0}$				2215	2220	2225	2230		
FB	27	24	24 $^{-0.020}_{-0.041}$	27 $^{+0.021}_{0}$					2420	2425	2430		
FB	28	25	25 $^{-0.020}_{-0.041}$	28 $^{+0.021}_{0}$					2520	2525	2530		
FB	32	28	28 $^{-0.020}_{-0.041}$	32 $^{+0.025}_{0}$	1.2	0.6			2820	2825	2830		
FB	34	30	30 $^{-0.020}_{-0.041}$	34 $^{+0.025}_{0}$					3020	3025	3030	3040	
FB	36	32	35 $^{-0.025}_{-0.050}$	36 $^{+0.025}_{0}$					3220	3225	3230	3240	
FB	39	35	35 $^{-0.030}_{-0.060}$	39 $^{+0.025}_{0}$					3520	3525	3530	3540	
FB	44	40	40 $^{-0.025}_{-0.050}$	44 $^{+0.025}_{0}$					4020	4025	4030	4040	
FB	50	45	45 $^{-0.025}_{-0.050}$	50 $^{+0.025}_{0}$	1.6	0.8			4520	4525	4530	4540	
FB	55	50	50 $^{-0.025}_{-0.050}$	55 $^{+0.030}_{0}$							5030	5040	5050
FB	60	55	55 $^{-0.030}_{-0.060}$	60 $^{+0.030}_{0}$							5530	5540	5550
FB	65	60	60 $^{-0.030}_{-0.060}$	65 $^{+0.030}_{0}$							6030	6040	6050
FB	70	65	65 $^{-0.030}_{-0.060}$	70 $^{+0.030}_{0}$							6530	6540	6550
FB	75	70	70 $^{-0.030}_{-0.060}$	75 $^{+0.030}_{0}$							7030	7040	7050

型号 Type	外径 φD	内径 φd	相配轴径 Axle	相配座孔 Housing	f_1	f_2	L±0.25					
							40	50	60	80	100	120
FB	80	75	$75^{-0.030}_{-0.060}$	$80^{+0.030}_{0}$	1.6	0.8	7540	7550	7560			
FB	85	80	$80^{-0.030}_{-0.060}$	$85^{+0.035}_{0}$			8040	8050	8060			
FB	90	85	$85^{-0.036}_{-0.071}$	$90^{+0.035}_{0}$			8540	8550	8560			
FB	95	90	$90^{-0.036}_{-0.071}$	$95^{+0.035}_{0}$				9050	9560	9580		
FB	100	95	$95^{-0.036}_{-0.071}$	$100^{+0.035}_{0}$				9550	9560	9580		
FB	105	100	$100^{-0.036}_{-0.071}$	$105^{+0.035}_{0}$				10050	10060	10080	100100	
FB	110	105	$105^{-0.036}_{-0.071}$	$110^{+0.035}_{0}$				10550	10560	10580	105100	
FB	115	110	$110^{-0.036}_{-0.071}$	$115^{+0.035}_{0}$				11050	11060	11080	110100	
FB	120	115	$115^{-0.036}_{-0.071}$	$120^{+0.035}_{0}$				11550	11560	11580	115100	
FB	125	120	$120^{-0.036}_{-0.071}$	$125^{+0.040}_{0}$					12060	12080	12100	
FB	130	125	$125^{-0.043}_{-0.083}$	$130^{+0.040}_{0}$					12560	12580	125100	
FB	135	130	$130^{-0.043}_{-0.083}$	$135^{+0.040}_{0}$					13060	13080	130100	
FB	140	135	$135^{-0.043}_{-0.083}$	$140^{+0.040}_{0}$					13560	13580	135100	
FB	145	140	$140^{-0.043}_{-0.083}$	$145^{+0.040}_{0}$					14060	14080	140100	
FB	150	145	$145^{-0.043}_{-0.083}$	$150^{+0.040}_{0}$					14560	14580	145100	
FB	160	155	$155^{-0.043}_{-0.083}$	$160^{+0.040}_{0}$						15580	155100	155120
FB	170	165	$165^{-0.043}_{-0.083}$	$170^{+0.040}_{0}$						16580	165100	165120
FB	180	175	$175^{-0.043}_{-0.083}$	$180^{+0.040}_{0}$						17580	175100	175120
FB	190	185	$185^{-0.050}_{-0.096}$	$190^{+0.046}_{0}$						18580	185100	185120
FB	200	195	$195^{-0.050}_{-0.096}$	$200^{+0.046}_{0}$						19580	195100	195120
FB	210	205	$205^{-0.050}_{-0.096}$	$210^{+0.046}_{0}$						20580	205100	205120
FB	220	215	$215^{-0.050}_{-0.096}$	$220^{+0.046}_{0}$						21580	215100	215120
FB	230	225	$225^{-0.050}_{-0.096}$	$230^{+0.046}_{0}$						22580	225100	225120
FB	240	235	$235^{-0.050}_{-0.096}$	$240^{+0.046}_{0}$						23580	235100	235120
FB	250	245	$245^{-0.050}_{-0.096}$	$250^{+0.046}_{0}$						24580	245100	245120
FB	265	260	$260^{-0.056}_{-0.108}$	$265^{+0.052}_{0}$						26080	260100	260120
FB	285	280	$280^{-0.056}_{-0.108}$	$285^{+0.052}_{0}$						28080	280100	280120
FB	305	300	$300^{-0.056}_{-0.108}$	$305^{+0.052}_{0}$						30080	300100	300120

FB090F/092F 青铜卷制翻边轴承
Wrapped Bronze Flanged Bushing



型号 Type	内径 φd	外径 φD	法兰外径 $\varphi D_1 \pm 0.5$	法兰壁厚 $h\ ^{0}_{-0.20}$	高度 L±0.25	f_1	f_2	相配轴径 Axle	相配座孔 Housing
FB F 2520	25	28	35	1.5	20	0.8	0.4	25 $^{-0.020}_{-0.041}$	28 $^{+0.021}_{0}$
FB F 2525					25				
FB F 3020	30	34	45	2.0	20	1.2	0.6	30 $^{-0.020}_{-0.041}$	34 $^{+0.025}_{0}$
FB F 3025					25				
FB F 3030					30				
FB F 3530	35	39	50		30			35 $^{-0.025}_{-0.050}$	39 $^{+0.025}_{0}$
FB F 3540					40				
FB F 3550					50				
FB F 4030	40	44	55		30			40 $^{-0.025}_{-0.050}$	44 $^{+0.025}_{0}$
FB F 4040					40				
FB F 4050					50				
FB F 5030	50	55	65	2.5	30	1.6	0.8	50 $^{-0.025}_{-0.050}$	55 $^{+0.030}_{0}$
FB F 5040					40				
FB F 5050					50				
FB F 5530	55	60	70		30			55 $^{-0.030}_{-0.060}$	60 $^{+0.030}_{0}$
FB F 5540					40				
FB F 5550					50				
FB F 6040	60	65	75		40			60 $^{-0.030}_{-0.060}$	65 $^{+0.030}_{0}$
FB F 6050					50				
FB F 6060					60				
FB F 8050	80	85	100		50			80 $^{-0.030}_{-0.060}$	85 $^{+0.035}_{0}$
FB F 8060					60				
FB F 8080					80				
FB F 10050	100	105	120		50			100 $^{-0.036}_{-0.071}$	105 $^{+0.035}_{0}$
FB F 10060					60				
FB F 10080					80				
FB F 16060	160	165	190		60			160 $^{-0.043}_{-0.083}$	165 $^{+0.040}_{0}$
FB F 16080					80				
FB F 20060	200	205	235		60			200 $^{-0.050}_{-0.096}$	205 $^{+0.046}_{0}$
FB F 20080					80				

JF-800 Bi-metal Self-lubricating bearings

双金属轴承

材料组织 MATERIAL STRUCTURE

JF-800 双金属轴承 Bimetallic Self-Lubricating Bering

JF-800双金属轴承，是以低碳钢板为基体材料，表面烧结CuSn6Zn6Pb3或CuPb10Sn10材料的钢铜合金产品。该产品是双合金轴承中承载能力最强的一种，重型车的平衡桥衬套，均使用该产品。它是一种用途很广的高载荷低速运动轴承。

JF-800 bimetal bearing, is a low-carbon steel as the base material, the surface of the material sintered CuSn6Zn6Pb3 or CuPb10Sn10 steel and copper alloy products. The product is a two-alloy bearings in the bearing capacity of the strongest one, the balance of the bridge sleeve heavy vehicles are using the product. It is a very versatile and any low speed high load bearings.

※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	120N/mm^2
	动载 Dynamic load	60N/mm^2
最高线速度 V Max Sliding Speed		2m/s
最高PV值 Max PV Value Limit		2.8N/mm^2·m/s
抗剪切强度 Shear Strength		350N/mm^2
屈服强度 Yield Strength		240N/mm^2
摩擦系数μ Friction coefficient		0.08～0.20
使用温度 Working TEMP		-40℃～+250℃
导热系数 Thermal conductivity		60W/m·K
热膨胀系数 Coefficient of thermal expansion		14×10^{-6}/K^{-1}

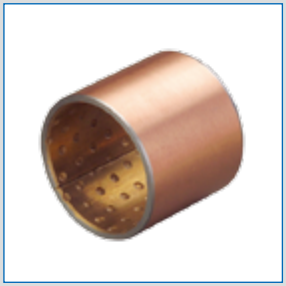
JF-800 标准公制轴套
Metric Standard Bushing

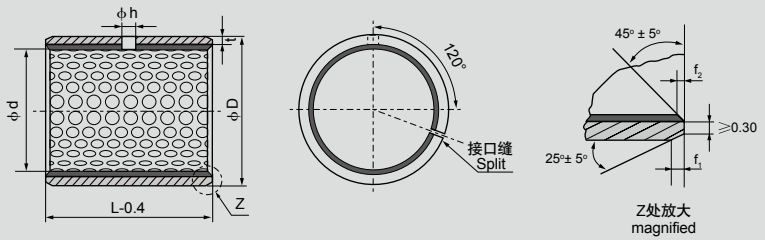
轴套外径公差表
Bushing O.D.Tolerances Table

外径φD Outer DiameterφD	外径公差 Outer Diameter Tolerance
φD≤10	$^{+0.055}_{+0.025}$
10＜φD≤18	$^{+0.065}_{+0.030}$
18＜φD≤30	$^{+0.075}_{+0.035}$
30＜φD≤50	$^{+0.085}_{+0.045}$
50＜φD≤80	$^{+0.100}_{+0.055}$
80＜φD≤120	$^{+0.120}_{+0.070}$
120＜φD≤180	$^{+0.170}_{+0.100}$

轴套壁厚公差
Bushing Wall Thickness Tolerances Table

内径φd Inner Diameter φd	壁厚公差t Wall Thickness Tolerance
8＜φd≤18	1.0 $^{0}_{-0.030}$
18＜φd≤25	1.5 $^{0}_{-0.030}$
25＜φd＜45	2.0 $^{0}_{-0.035}$
45≤φd≤150	2.5 $^{0}_{-0.050}$





型号 Type	外径 φD	内径 φd	相配轴径 Axle	相配座孔 Housing H7	Hole φh	f_1	f_2	L -0.4					
								15	20	25	30	40	50
JF800	12	10	10 -0.013 -0.028	12 +0.018 0	φ4	0.6	0.3	1015	1020				
JF800	14	12	12 -0.016 -0.034	14 +0.018 0				1215	1220				
JF800	16	14	14 -0.016 -0.034	16 +0.018 0				1415	1420				
JF800	17	15	15 -0.016 -0.034	17 +0.018 0				1515	1520	1525			
JF800	18	16	16 -0.016 -0.034	18 +0.018 0				1615	1620	1625			
JF800	19	17	17 -0.016 -0.034	19 +0.021 0				1715	1720	1725			
JF800	20	18	18 -0.016 -0.034	20 +0.021 0				1815	1820	1825			
JF800	23	20	20 -0.020 -0.041	23 +0.021 0		0.8	0.4	2015	2020	2025			
JF800	25	22	22 -0.020 -0.041	25 +0.021 0	φ6				2220	2225	2230		
JF800	27	24	24 -0.020 -0.041	27 +0.021 0					2420	2425	2430		
JF800	28	25	25 -0.020 -0.041	28 +0.021 0					2520	2525	2530		
JF800	30	26	26 -0.020 -0.041	30 +0.021 0					2620	2625	2630		
JF800	32	28	28 -0.020 -0.041	32 +0.025 0		1.2	0.6		2820	2825	2830		
JF800	34	30	30 -0.020 -0.041	34 +0.025 0					3020	3025	3030		
JF800	36	32	32 -0.025 -0.050	36 +0.025 0					3220	3225	3230	3240	
JF800	39	35	35 -0.025 -0.050	39 +0.025 0					3520	3525	3530	3540	
JF800	42	38	38 -0.025 -0.050	42 +0.025 0	φ8				3820	3825	3830	3840	
JF800	44	40	40 -0.025 -0.050	44 +0.025 0						4025	4030	4040	
JF800	50	45	45 -0.025 -0.050	50 +0.025 0		1.6	0.8			4525	4530	4540	
JF800	55	50	50 -0.025 -0.050	55 +0.025 0							5030	5040	5050
JF800	60	55	55 -0.030 -0.060	60 +0.030 0							5530	5540	5550

型号 Type	外径 φD	内径 φd	相配轴径 Axle	相配座孔 Housing H7	Hole φh_1	f_1	f_2	L -0.4					
								40	50	60	70	80	100
JF800	65	60	60 $^{-0.030}_{-0.060}$	65 $^{+0.030}_{0}$	φ8	1.6	0.8	6040	6050	6060			
JF800	70	65	65 $^{-0.030}_{-0.060}$	70 $^{+0.030}_{0}$				6540	6550	6560			
JF800	80	75	75 $^{-0.030}_{-0.060}$	80 $^{+0.030}_{0}$	φ9.5			7540	7550	7560			
JF800	85	80	80 $^{-0.030}_{-0.060}$	85 $^{+0.035}_{0}$				8040	8050	8060			
JF800	90	85	85 $^{-0.036}_{-0.071}$	90 $^{+0.035}_{0}$					8550	8560	8570		
JF800	95	90	90 $^{-0.036}_{-0.071}$	95 $^{+0.035}_{0}$					9050	9060	9070		
JF800	100	95	95 $^{-0.036}_{-0.071}$	100 $^{+0.035}_{0}$					9550	9560	9570		
JF800	105	100	100 $^{-0.036}_{-0.071}$	105 $^{+0.035}_{0}$					10050	10060	10070		
JF800	110	105	105 $^{-0.036}_{-0.071}$	110 $^{+0.035}_{0}$					10550	10560	10570		
JF800	115	110	110 $^{-0.036}_{-0.071}$	115 $^{+0.035}_{0}$					11050	11060	11070		
JF800	120	115	115 $^{-0.036}_{-0.071}$	120 $^{+0.035}_{0}$						11560	11570	11580	
JF800	125	120	120 $^{-0.036}_{-0.071}$	125 $^{+0.040}_{0}$						12060	12070	12080	
JF800	130	125	125 $^{-0.043}_{-0.083}$	130 $^{+0.040}_{0}$						12560	12570	12580	
JF800	135	130	130 $^{-0.043}_{-0.083}$	135 $^{+0.040}_{0}$						13060	13070	13080	
JF800	140	135	135 $^{-0.043}_{-0.083}$	140 $^{+0.040}_{0}$								13580	135100
JF800	150	145	145 $^{-0.043}_{-0.083}$	150 $^{+0.040}_{0}$								14580	145100
JF800	155	150	150 $^{-0.043}_{-0.083}$	155 $^{+0.040}_{0}$								15080	150100

材料组织 MATERIAL STRUCTURE

FU-1 铜基含油粉末冶金轴承 Sintered Bronze Bushing

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 sintered bronze bushing powder is mold pressed under high pressure and then sintered under high temperature, and oil is soaked into the homogeneously spreaded tiny pores of the metal under vacuum. Fu bearing can withstand dry condition in medium speed and low load for sometime. Moreover it is cheap and stable in dimension. This is widely used in domestic electric and electronic machines, electric tools, textile machines, chemical engineering machines, automobiles and official business machines.

※技术参数：Technical Data

性能指标 Performance Index	有关数据 Data
最大承载压力 P Max Load Capacity P	45N/mm^2
工作温度 Working Temperature	-60℃~+160℃
最高滑动速度 Max.Sliding Speed V	2.5m/s
材质 Material	CuSn6-6-3
允许最高PV值 Maximum PV Value	2.45N/mm^2·m/s

FU-2 铁基含油粉末冶金轴承 Sintered Iron Bushing

FU-2铁基含油轴承，是一种铁基粉末冶金产品，由于含油的作用，可以防止咬轴现象。在低载荷的情况下，可以有与铜粉末冶金相似的耐磨性能。该产品广泛应用于纺织机械、汽车、摩托车减震器和电动工具的滑动部位。在静态使用的环境下可用作导向定位轴套的基座.

FU-2 sintered iron power bearing, it can avoid seizing shaft due to the oil content in the bushing. Same as bronze power bushings, FU-2 bushing has good performance of anti-friction if it works under low load. It can be widely used in sliding part of textile machines, electric tools, shock absorbers of automobile and motorcycle. Under static condition, it can be used as base housing for guiding and fixing position.

※技术参数：Technical Data

性能指标 Performance Index	有关数据 Data
最大承载压力 P Max Load Capacity P	45N/mm^2
工作温度 Working Temperature	-60℃~+160℃
最高滑动速度 Max.Sliding Speed V	2.5m/s
材质 Material	Fe
允许最高PV值 Maximum PV Value	1.6N/mm^2·m/s

材料组织 MATERIAL STRUCTURE

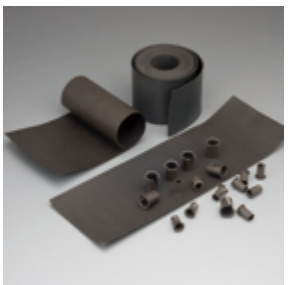
FU-3 铜铁合基含油粉末冶金轴承 Sintered Bronze-Iron Bushing

FU-3铜铁含油轴承，是一种集FU-1和FU-2合而为一的粉末冶金产品，其Fe与Cu的配比完全可以按顾客的使用要求而确定，既考虑满足生产条件，又考虑降低成本，是机械零部件中，满足顾客个性化需求最理想的专用产品。

FU-3 sintered bronze & iron bearing has advantages of FU-1 and FU-2. The proportion of iron and bronze can be decided by customers' actual application. The bushing is of low cost but it can satisfy customers' variety requirement better.

※技术参数：Technical Data

性能指标 Performance Index	有关数据 Data
最大承载压力 P Max Load Capacity P	45N/mm^2
工作温度 Working Temperature	-60℃~+160℃
最高滑动速度 Max.Sliding Speed V	2.5m/s
材质 Material	Cu+Fe
允许最高PV值 Maximum PV Value	1.8N/mm^2·m/s



FR 四氟软带轴承 PTFE Soft Strips

该产品以青铜丝网为基体，通过特殊工艺，表面轧制聚四氟乙烯和亲油性纤维。它具有较低的摩擦系数、较好的耐磨性以及柔软性好。产品广泛应用于纺织机械关节轴承、汽车门铰链、汽车操纵杆等场合。

FR Bronze Pb-free self-lubricating bearing uses bronze mesh as its structure, by means of special technology, rolled by PTFE at the surface and lipophilicity fiber. It performs well with lower friction and well anti-wear good pliability. It has been widely used in linkage of textile machinery, tailgate hinges, automotive steering and so on.

※技术参数：Technical 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
	动载 Dynamic load	40N/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		1.6N/mm^2·m/s
摩擦系数μ Friction coefficient		0.03~0.20
使用温度 Working temperature		-50℃ ~ +250℃

材料组织 MATERIAL STRUCTURE

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 basement 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 used in punching mold and high-precision machine tools.

※技术参数：Technical Data

最大承载压力	30N/mm^2	装配过盈	0.01mm~0.02mm
最高线速度	6m/s	钢球直径偏差	<0.002mm
摩擦系数	0.01~0.08		

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 basement 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 used in punching mold and high-precision machine tools.

※技术参数：Technical Data

最大承载压力	25N/mm^2	装配过盈	0.01mm~0.02mm
最高线速度	6m/s	钢球直径偏差	<0.002mm
摩擦系数	0.01~0.08		

FZP 树脂基钢球保持架 Resin Ball Retainer

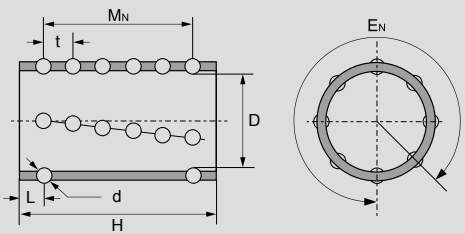
该产品以POM为基体，配以优质钢球，按一定的角度和密度有序地排列，采用特殊工艺加工而成。产品适用于冷冲模具，精密机床等。

The basement 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 used in punching mold and high-precision machine tools.

※技术参数：Technical Data

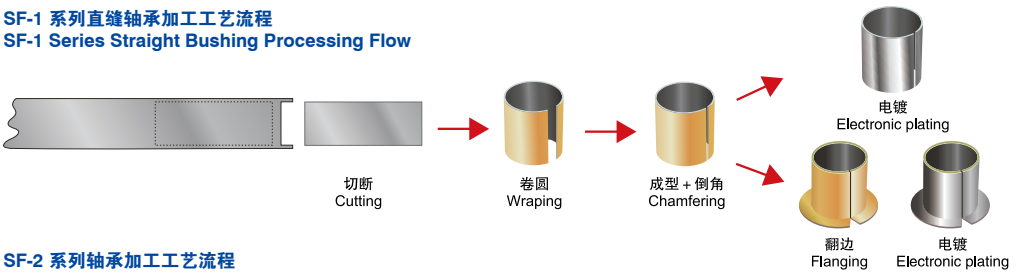
最大承载压力	20N/mm^2	装配过盈	0.01mm~0.02mm
最高线速度	6m/s	钢球直径偏差	<0.002mm
摩擦系数	0.01~0.08		

FZ 钢球保持架标准尺寸
Ball Retainer Standard Metric Sizes

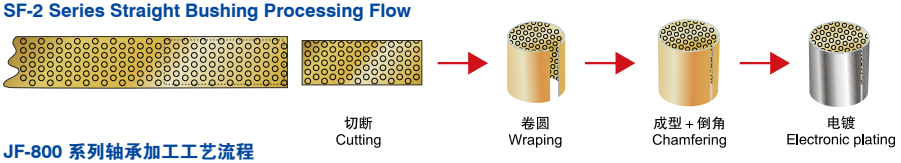


型号规格 Designation	φD	H	φd	E_N	M_N	钢球数量 Balls	t	L
FZ 1950	19	50	3	12	8	96	5.5	5.75
FZ 1960		60			10	120		5.25
FZ 2050	20	50			8	96		5.75
FZ 2060		60			10	120		5.25
FZ 2250	22	50		14	8	112		5.75
FZ 2260		60			10	140		5.25
FZ 2360	23	60			10	140		5.25
FZ 2475	24	75		16	13	208	5.45	4.80
FZ 2550	25	50			8	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	7.25
FZ 2875		75			11	154		5.0
FZ 3060	30	60			8	112		7.25
FZ 3075		75			11	154		5.0
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	5		8	128	8.0	7.0
FZ 3890		90			11	176	7.9	5.5
FZ 4090	40	90			11	176		5.5
FZ 4590	45	90		18	11	195		5.5
FZ 45110		110			13	234	8.0	7.0
FZ 5090	50	90		20	11	220	7.9	5.5
FZ 50110		110			13	260	8.0	7.0
FZ 6090	60	90		22	11	242	7.9	5.5
FZ 60110		110			13	286	8.0	7.0
FZ 80130	80	130		28	15	420		9.0

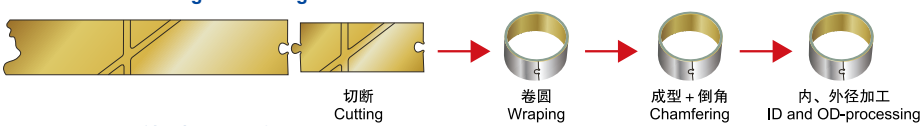
SF-1 系列直缝轴承加工工艺流程
SF-1 Series Straight Bushing Processing Flow



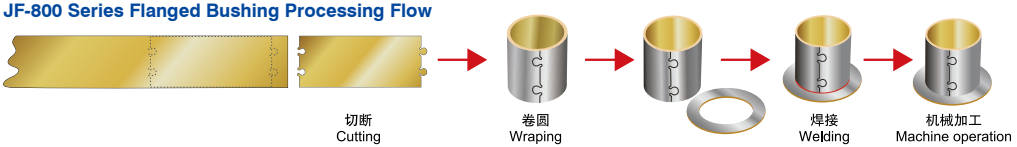
SF-2 系列轴承加工工艺流程
SF-2 Series Straight Bushing Processing Flow



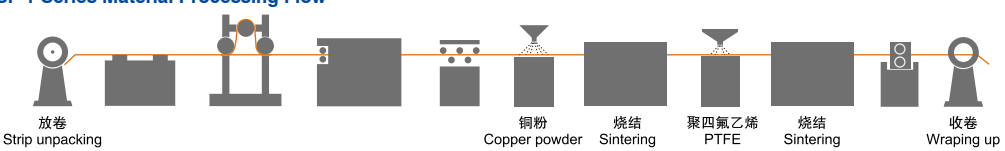
JF-800 系列轴承加工工艺流程
JF-800 Series Bushing Processing Flow



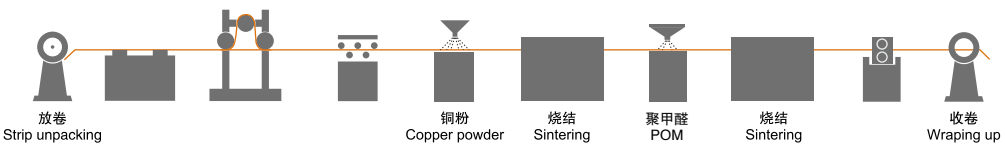
JF-800 系列法兰轴承加工工艺流程
JF-800 Series Flanged Bushing Processing Flow



SF-1 系列材料加工工艺流程
SF-1 Series Material Processing Flow



SF-2 系列材料加工工艺流程
SF-2 Series Material Processing Flow



轴承选型 Bearing Selection

滑动轴承根据不同的工况条件设计了不同的轴承材料。用户在使用和设计时应当根据轴承的使用温度、轴承的承载面压、线速度、耐磨性能要求、运动类型、安装情况、轴承成本等各方面因素综合考虑。

Bush have developed kinds of bearing material according to difference work condition, the user can select the material base on bearing work environment, load, speed, wear, resistance request, moving method, installation, the cost of the material etc.

面压计算 Bearing Load

直套、翻边轴承 Cylidrncal bushes、flange bushes

$$P = \frac{F}{dL} \ (N/mm^2)$$

F = 轴承载值 Load (N)
d = 轴径 Shaft (mm)
L = 轴承长度 Bearing Leagth (mm)

止推垫片 Thrust Washer

$$P = \frac{4F}{(D^2-d^2)\pi} \ (N/mm^2)$$

F = 垫片承载值 Load (N)
D = 垫片外径 Washer OD (mm)
d = 垫片内径 Washer ID (mm)

由于受配合间隙、材料强度、轴承倒角、内部 油槽等原因的影响，轴承的真正承载面压（Pact）会大于理论计算值（Pmean）。

As the factor of clearance, bushes chamfer, oil groove etc. The actually load (Pact) is higher than theory of calculation(P_{mean}).

线速度计算 Velocity

旋转运动 Rotating motion

$$V = \frac{dn\pi}{1000\times60} \ (m/s)$$

d = 轴径 Shaft (mm)
n = 转数/分 Rpm

摇摆运动 Oscillating motion

$$V = \frac{dc\theta\pi}{1000\times360\times60} \ (m/s)$$

d = 轴径 Shaft (mm)
c = 摇摆频率 Frepuency（次数/分）
θ= 摇摆角度 Oscillating angle

往复运动 Reciprocating motion

$$V = \frac{2sc}{60} \ (m/s)$$

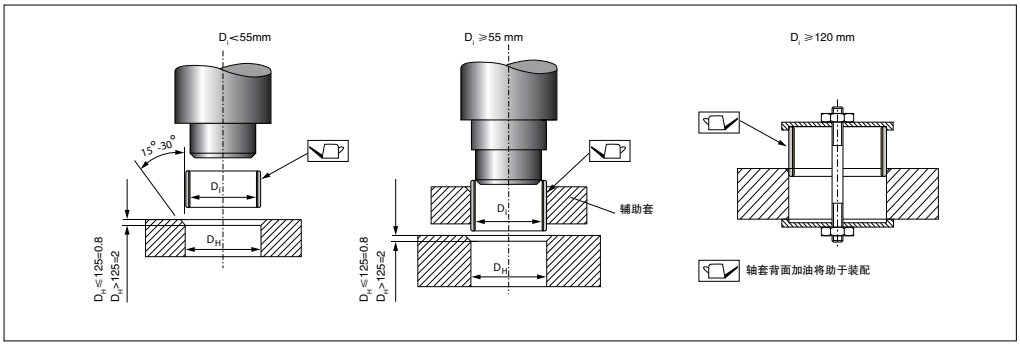
s = 行程长度 (m)
c = 往复频率 Frepuency（次数/分）

PV值计算 PV=P×V ($N/mm^2\times m/s$)

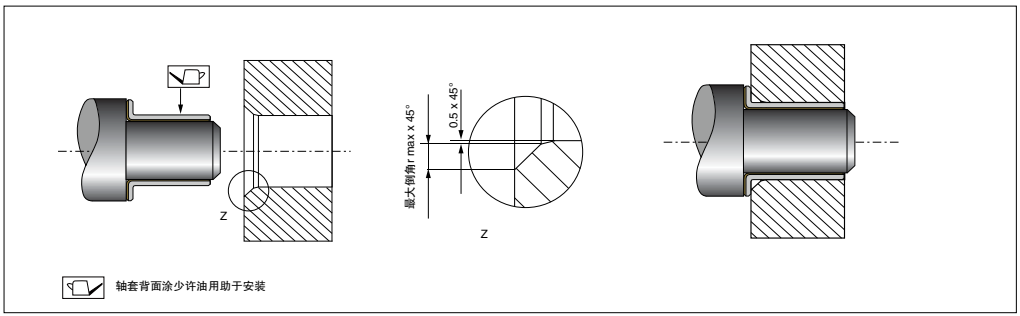
PV是指轴承在一定的承载和线速度条件下的乘积之和。设备的PV值与轴承的使用寿命承反比关系，因此建议设计时设备的PV取值尽量使用比较低的安全PV值，以确保轴承会有更长的使用寿命。同时也要考虑设备上轴承实际的承载、线速度、使用温度等不能超过所选择材料的极限值，并尽可能地小。

PV is the product ot the specific bearing load P and the sliding speed V which is very important design data. We recommend design lower PV value will lead to longer serive life. Also don't exceed the max. Of material load, speed, temp. And lower if possible.

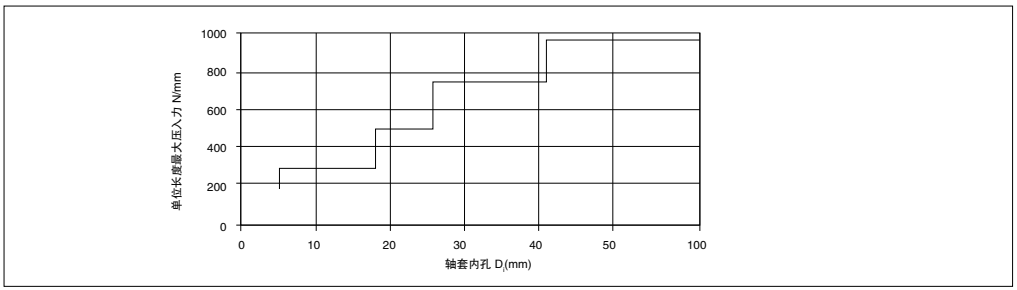
直套安装 Straight sets to install



翻边套安装 Installation flange set



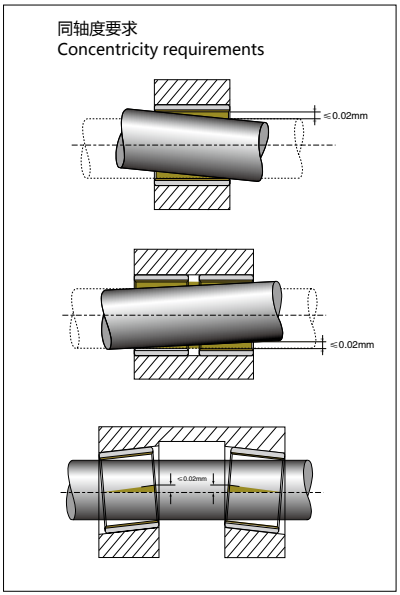
压入力计算 Indentation Calculation



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.

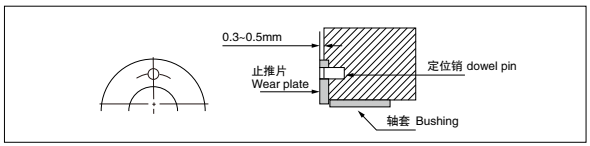


垫片和滑板的安装
Gasket and slide installation

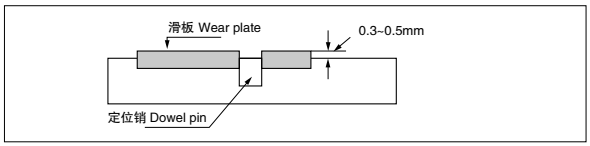
建议垫片和滑板安装在凹陷的座孔内， 为了避免移动，同时建议采用定位销加以固定。

Recommended installation of gaskets and slide the bracket hole in the Depression, in order to avoid the move, also proposed to be fixed with pins.

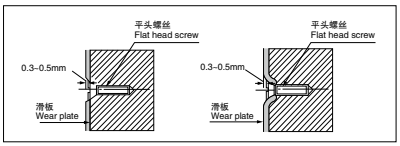
1. 定位销在垫片上的使用 Pins used on the gasket



2. 定位销在滑板上的使用 Pins in the slide with the use



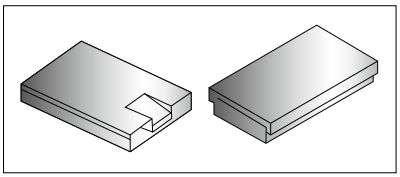
3. 平头螺丝的使用 The use of flat head screws



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℃）的方法加以固定；此时必须主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 ℃) method to be fixed; idea to use this time to the temperature of not more than bearing material itself can withstand the scope of sleeve face prevent contact with adhesives.



PTFE基轴承的加工和安装注意事项
PTFE–based bearing the processing and installation considerations

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 ,卷制类轴承内径的整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℃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。

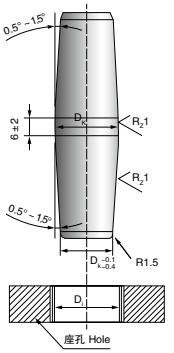
PTFE-based bearing are generally finished parts, assembled in the hole is no longer the hinge, boring, and other processing, if the bore size of the recommended process, the rolling type bearings with bore roundness can meet the requirements;

If the client can accept a significant reduction of dry friction behavior can be installed on the PTFE-based bearing in the hole 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 pressure than small or small and required to run a smooth swing, you can increase the working space, when used at high temperatures, is increased by 100 ℃, the proposed reduction of shaft diameter 0.008mm; if the bearing material 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, bearing bearing diameter is usually 1.5 times the 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 You can cut, water jet cutting, laser cutting and other methods.

PTFE 基轴承安装后内孔挤压



内孔 D_i Bore D_i	挤压芯棒 D_k Extrusion Mandrel D_k	使用寿命 Life
D_i	D_k	100%
< 55+0.02	< 55+0.06	80%
≥ 55+0.03	≥ 55+0.08	60%
≥ 120+0.04	≥ 120+0.10	30%

热塑性聚合物边界润滑轴承的加工和安装注意事项
Boundary lubrication bearing thermoplastic polymer processing and installation notes

SF-2 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；如果装配需要，可以对此类轴承在安装后进行内孔加工以达到更高的精度，加工的方式可以采用铰、镗和拉刀等方法，此时需要注意塑料层可加工的厚度不能大于 0.12mm 以确保油穴的存在，另外需要注意在加工时注意塑料层出现毛刺而影响轴承的使用，具体请咨询工程师。在高温下使用时，需要增加轴与内孔的配合间隙，建议每升高 20℃时建议轴径减少 0.005mm; 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；轴承需要加工时，为了避免毛刺的产生建议从塑料层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。

SF-2 bearing are generally finished parts, assembled in the hole is no longer the hinge, boring, and other processing, if the bore size of the recommended process, the rolling type bearings with bore roundness can meet the requirements;

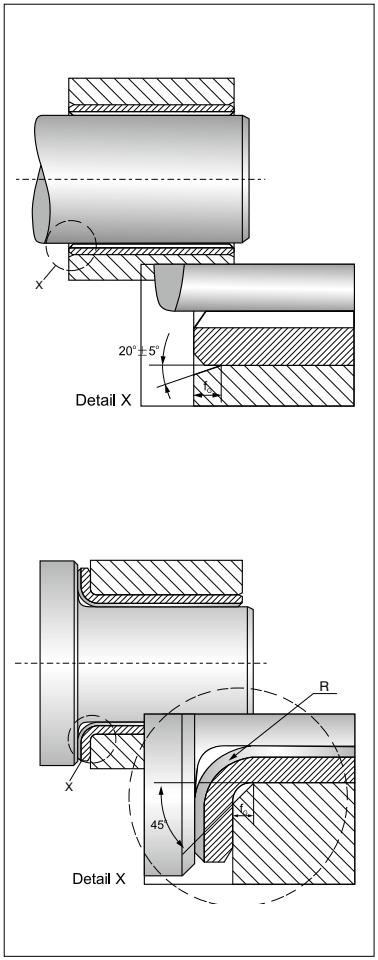
If you need the assembly can be of such bearings in the hole after installation in order to achieve higher precision machining and processing methods can be used hinge, boring and other methods broach, can be processed at this time to note the thickness of plastic layer can not be greater than 0.12mm hole to ensure the presence of oil, the other to note the attention in the processing of plastic bearing layer appears to affect the use of glitches, please contact the specific engineer. When used at high temperatures, need to increase the shaft and the hole with the gap, the proposed recommendations for every increase of 20℃, less shaft diameter 0.005mm; If the bearing material 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, bearing bearing diameter is usually 1.5 times the diameter, thin-walled bore need to consider when using press-fit and use of the deformation; bearings need processing, in order to avoid the generation of burrs from the plastic layer 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 You can cut, water jet cutting, laser cutting and other methods.

直套 Straight sets

压装前座孔必须在内径上进行有效的倒角，倒角的大小需要根据轴套尺寸进行调整。

There should be chamfers on the housing bore during the assembly. A chamfer $F_g \times 25° \pm 5°$ is important for the easier pressing of the bushing into the housing.

座孔内尺寸 d_G Housing bore diameter d_G	座孔内倒角f_G Chamfer with f_G
$d_G \leq 30$	0.8±0.3
$30 < d_G \leq 80$	1.2±0.4
$80 < d_G \leq 180$	1.8±0.8
$d_G > 180$	2.5±1.0



翻边套 Flange cover

在翻边轴套的安装过程中，必须注意轴套的翻边角度R对于轴在使用时的影响；座孔倒角可以使得轴套能够容易贴合在座孔端面上，同时可以承受轴向推力。

The radius at the transition from the radial to the axial component must be taken into consideration for flange bushes. A sufficiently large chamfer must be provided on the housing to prevent the flanged bushes fouling in the area of the radius. Sufficient support must be provided for the flange in applications with axial loading.

座孔内尺寸 d_G Housing bore diameter d_G	座孔内倒角f_G Chamfer with f_G
$d_G \leq 10$	1.2±0.2
$d_G > 10$	1.7±0.2

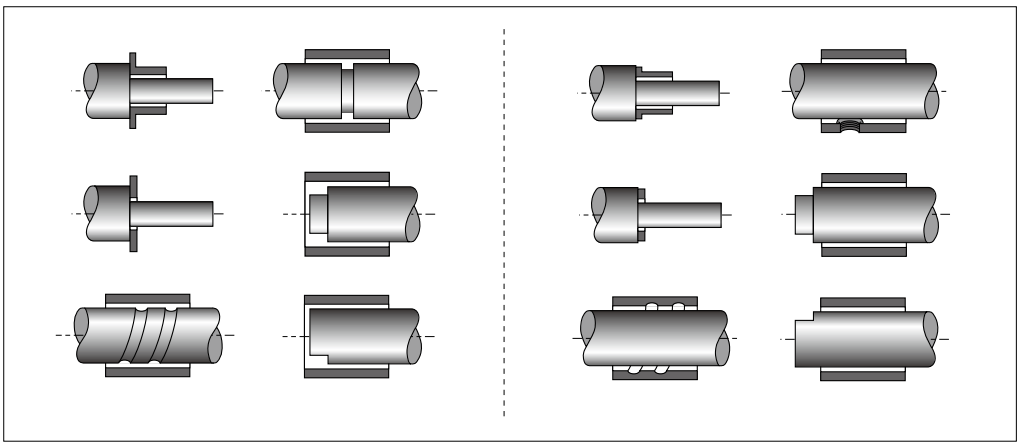
对磨轴 The shaft

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 for the life of bearing a great impact, in general, we recommend that the hardness of the shaft HRC> 50, surface roughness Ra0.4 below; in damp or recommended where corrosive stainless steel, hard chrome plating.

不正确的设计
Incorrect design

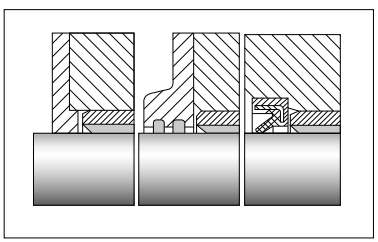
正确的设计
Correct design



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碾磨型物质进入时应当安装合适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.



■ 电子万能材料试验机
Instron 5567 material testing

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Oscillation motion testing machine

■ 摆锤式冲击测试机
Dynatup pendulum impact machine

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MMD testing machine

■ 耐候试验机
Accelerated weathering tester

Landoo 朗动
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