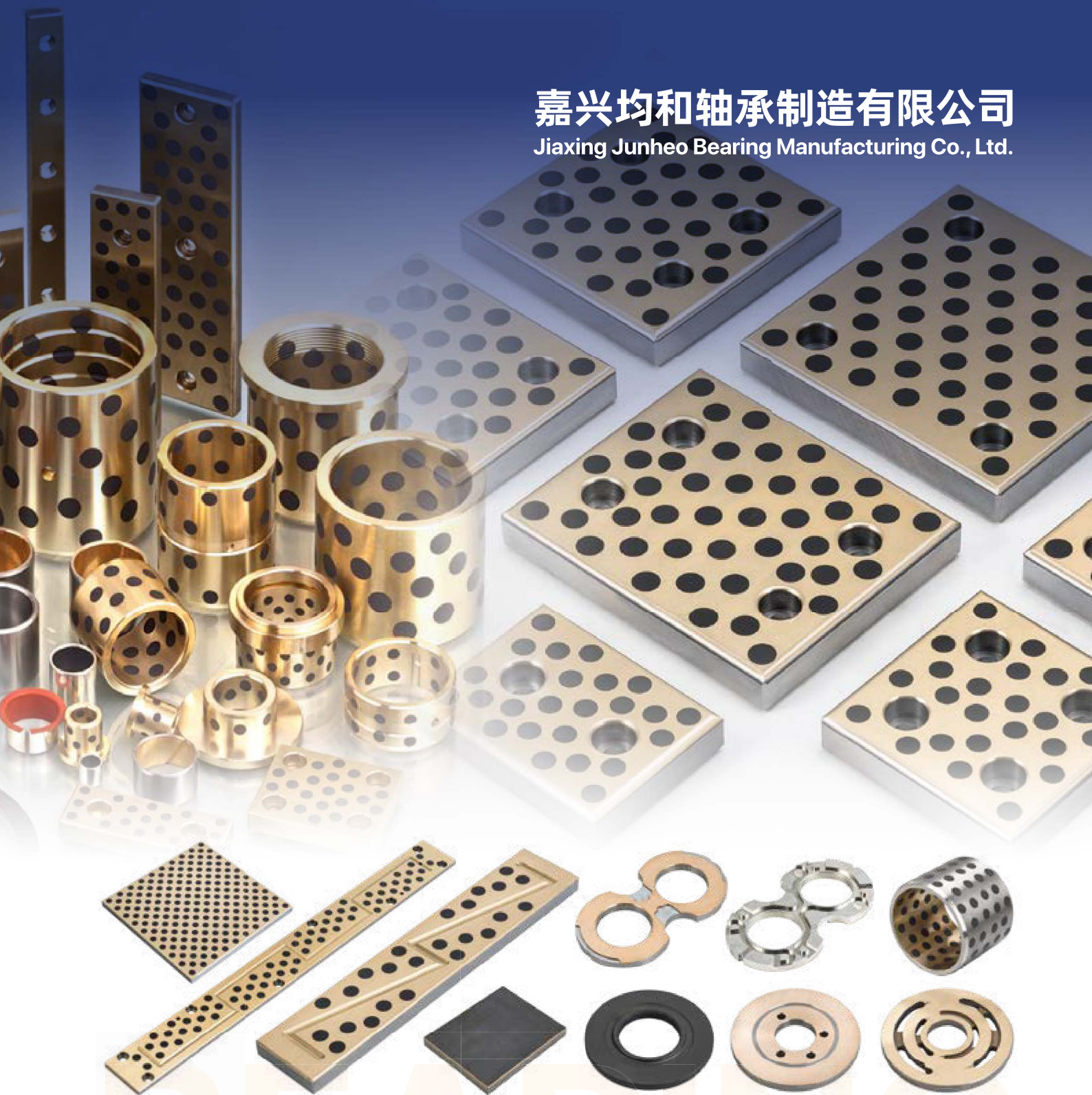


嘉兴均和轴承制造有限公司

Jiaxing Junheo Bearing Manufacturing Co., Ltd.



BEARING

## 公司简介 / Company Profile

嘉兴均和轴承制造有限公司是一家专业生产各种系列无油滑动轴承的实体企业。我们的产品畅销海内外，公司位于国家规划长三角示范区内，独特的地域优势。

作为无油轴承生产制造企业，我们十分注重为全球工业领域提供各种自润滑轴承的解决方案，不断致力于新产品和新领域的探索与开发，着力打造公司自己的品牌，提升公司的品质，更好的回报客户。

公司主要产品有：自润滑铜套、钢套、铜导板、双金属耐磨板、锡青铜轴承、金属基复合轴承等。

产品主要应用于汽车行业（转向节衬套、摇臂衬套、助力转向泵衬套、减震器等）、阀门、升降机、液压机械、电动工具、纺织机械、塑料机械、金属成型设备、工程机械等 50 多个领域。

我们始终本着：以诚为本，以质取胜，开拓创新，做强做大的目标宗旨，欢迎各界朋友与我们建立业务关系，真诚合作共同发展，一起携手共创新未来。

**Jiaying Junheo Bearing Manufacturing Co., Ltd.** is a specialized manufacturing enterprise dedicated to the production of various series of oil-free sliding bearings. Our products enjoy robust sales both domestically and internationally. Strategically situated within the nationally designated Yangtze River Delta Demonstration Zone, our company benefits from a unique geographical advantage.

As a manufacturer of oil-free bearings, we place great emphasis on providing comprehensive self-lubricating bearing solutions to industrial sectors worldwide. We are continuously committed to the exploration and development of new products and emerging application fields, striving to build a strong proprietary brand, enhance product quality, and deliver superior value to our customers.

Our core product portfolio includes: self-lubricating bronze bushings, steel bushings, bronze guide plates, bi-metallic wear plates, tin-bronze bearings, metal-matrix composite bearings, and more.

Our products are widely utilized across more than 50 distinct sectors, including the automotive industry (specifically in steering knuckle bushings, rocker arm bushings, power steering pump bushings, shock absorbers, etc.), as well as in valves, lifting equipment, hydraulic machinery, power tools, textile machinery, plastics machinery, metal-forming equipment, and construction machinery.

Upholding the guiding principles of integrity, quality-driven excellence, pioneering innovation, and sustainable growth, we warmly welcome friends from all walks of life to establish business relationships with us. We look forward to sincere cooperation and mutual development, as we join hands to forge a brighter future together.

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P-09~13



**JQB**

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**JFB**

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Self-Lubricated Multilayer Compound Bearing

P-20~26




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Self-Lubricated Multilayer Compound Bearing

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<p>自润滑多层复合轴承</p>	<p>自润滑多层复合轴承</p>	<p>自润滑多层复合轴承</p>	<p>自润滑翻边轴承</p>
<p>Self-Lubricated Multilayer Compound Bearing</p>	<p>Self-Lubricated Multilayer Compound Bearing</p>	<p>Self-Lubricated Multilayer Compound Bearing</p>	<p>Self-Lubricated Flange Bearing</p>
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<p>复合止推垫片</p>	<p>增强四氟软带</p>	<p>边界润滑轴承</p>	<p>边界润滑轴承</p>
<p>Compound Thrust Washer</p>	<p>Bronze Wash with PTFE Bearing</p>	<p>Marginal Lubricating Bearing</p>	<p>Marginal Lubricating Bearing</p>
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<p><b>SF-2S</b></p>	<p><b>SF-2L</b></p>	<p><b>SF-2P</b></p>	<p><b>JF-800</b></p>
<p>边界润滑轴承</p>	<p>边界润滑轴承</p>	<p>边界润滑轴承</p>	<p>双金属自润滑轴承</p>
<p>Marginal Lubricating Bearing</p>	<p>Marginal Lubricating Bearing</p>	<p>Marginal Lubricating Bearing</p>	<p>Bimetal Self-Lubricating Bearing</p>
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Bimetal Self-Lubricating Bearing

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**JF-803**

双金属自润滑轴承

Bimetal Self-Lubricating Bearing

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**JF-804**

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Bimetal Self-Lubricating Bearing

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**FB-090**

青铜卷制轴承

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**FB-09G**

青铜卷制轴承

Bronze-Wrapped Bearing

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**FB-091**

青铜卷制轴承

Bronze-Wrapped Bearing

P-39~45



**FB-092**

青铜卷制轴承

Bronze-Wrapped Bearing

P-39~45



**FB-094**

青铜卷制轴承

Bronze-Wrapped Bearing

P-39~45



**FB-090F**

青铜翻边轴承

Bronze Flange Bearing

P-46

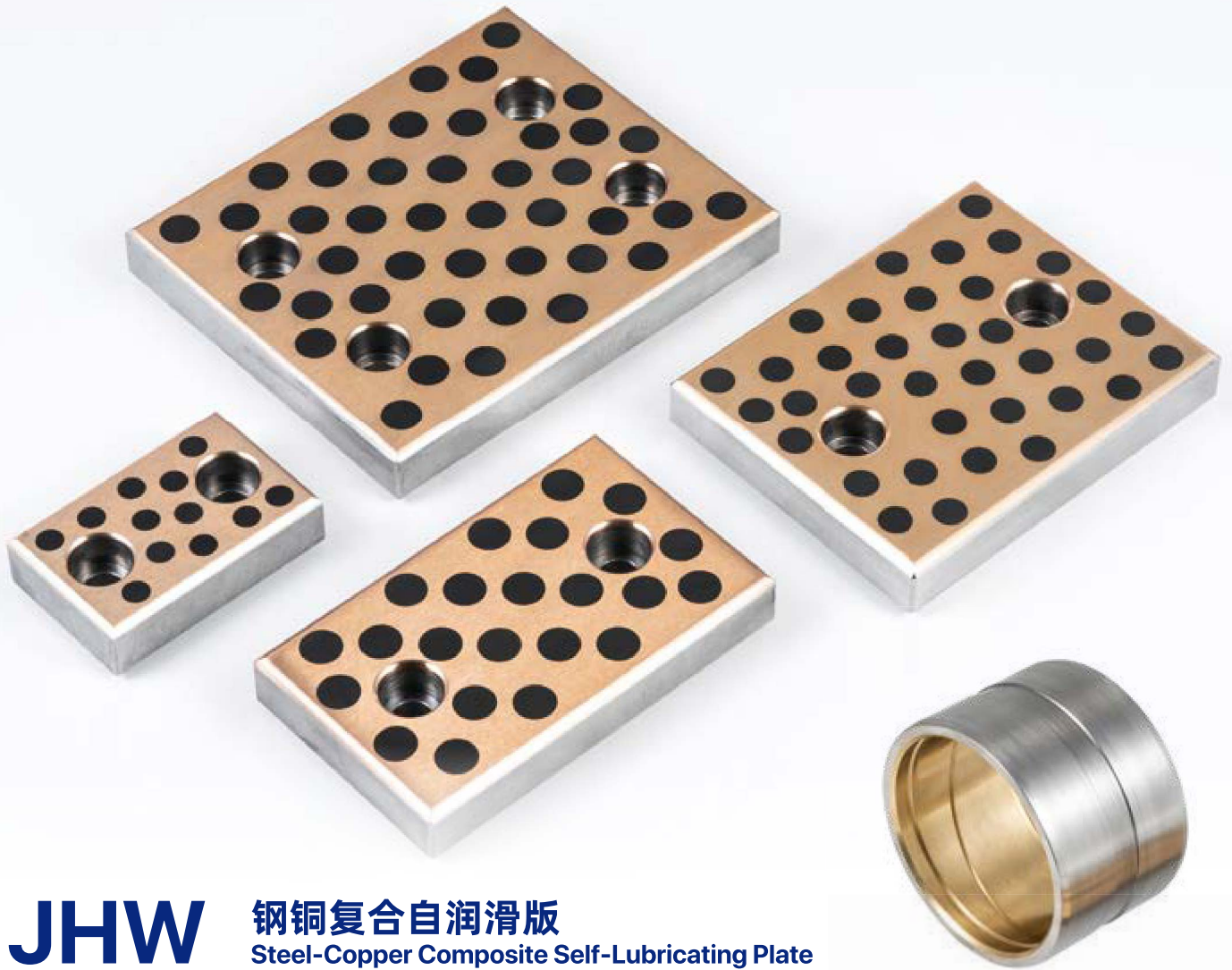


**FB-092F**

青铜翻边轴承

Bronze Flange Bearing

P-46



**JHW** 钢铜复合自润滑版  
Steel-Copper Composite Self-Lubricating Plate

应用领域 / Application



# JHW 钢铜复合自润滑版 Steel-Copper Composite Self-Lubricating Plate

## 材料介绍 / Material Introduction

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

## 基材特征 / Structure

以优质碳钢板为基材表面烧结或浇铸高强度铜合金，根据使用工况在其工作面弥散型烧结或镶嵌固体润滑剂。这种制造工艺使得铜和钢结合面达到完全的冶金结合，相对比传统整体铜合金的产品具有更强的耐磨性和润滑性且成本更低，底部钢基体稳定性更强，整体使用寿命更长。在降低了材料成本的同时也提高了其承载能力。

Using high-quality carbon steel plates as the base material, high-strength copper alloys are sintered or cast on the surface. Solid lubricants are dispersed or embedded on the working surface according to operational conditions. This manufacturing process achieves complete metallurgical bonding at the copper-steel interface, offering superior wear resistance and lubricity compared to traditional solid copper alloy products, while also reducing costs. The steel base provides enhanced stability, resulting in longer overall service life. By lowering material costs, the load-bearing capacity is also improved.

1. Combined with the resistance of copper alloy and high mechanical strength properties of steel;
2. Different cast copper alloy material is available according to work condition, including lower friction lead bronze;
3. The different coefficient of friction of the inner and outer material can protect the axial and rotating movement of the bearing in the housing under extremely high load with low speed;
4. The solid lubricant plug can be embedded to achieve the self-lubricating performance;
5. Compare with pure bronze bearing, the cost is reduced obviously;
6. The steel backing allowed to heat treatment to get high hardness, meanwhile the in layer can be re-machined if necessary;
7. The bronze layer can be casted on one or more layers to complex structure;
8. This material have same characteristic as pure bronze bearing, suitable for wide temperature range, different oil condition;
9. The JF850 have better mechanical load performance compare with bronze material, especially the impact strength.

## 4 大优势 / Advantages

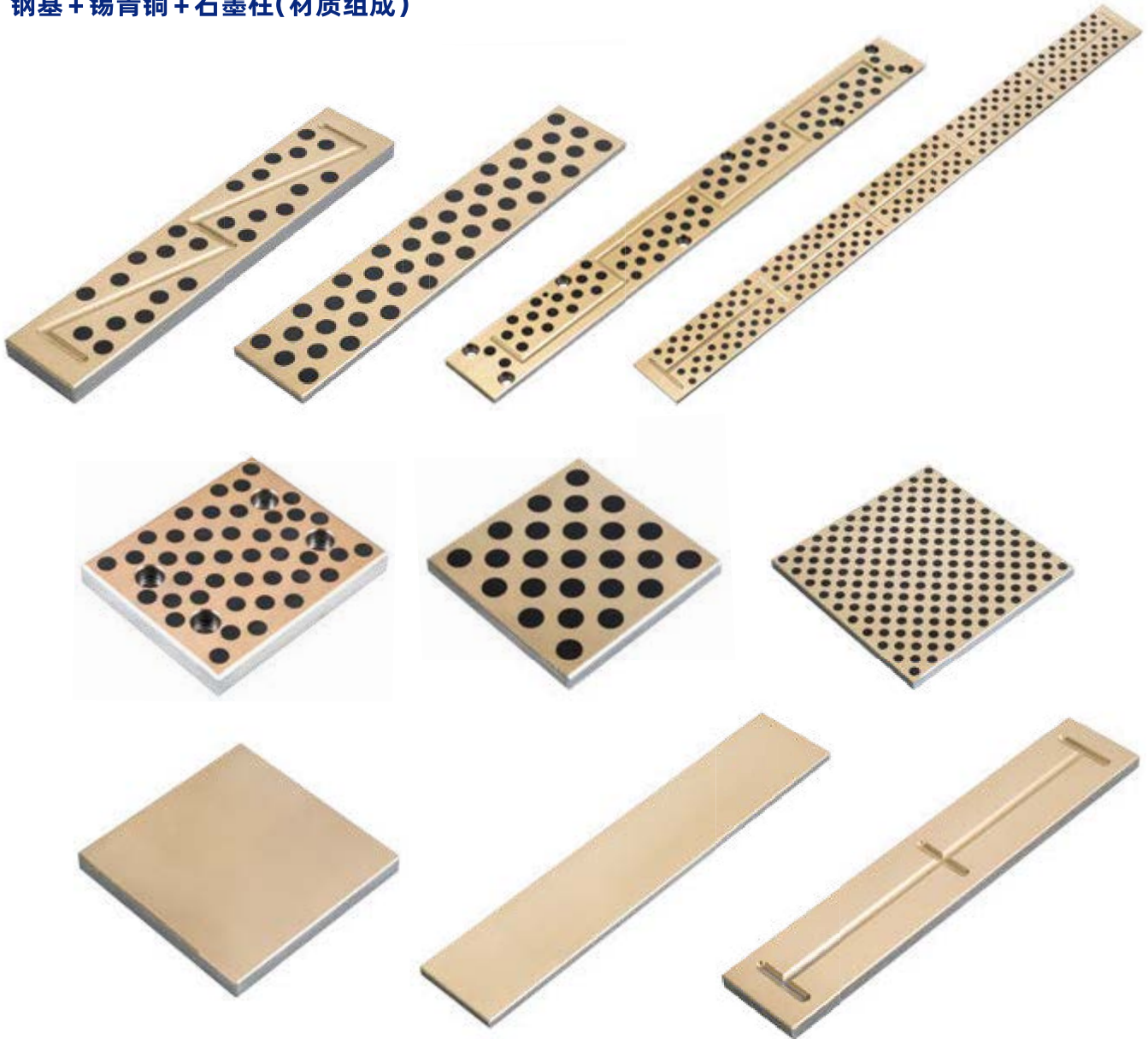
1. 采用钢基体、工作面为高强度铜合金的双合金新型导板，节约成本 35% 以上！
2. 嵌入优质石墨柱，应用自主研发的独特石墨排列技术和石墨孔加工方式，配合先进的真空浸油技术，使其自润滑导向性能发挥的淋漓尽致。
3. 均和双合金导板采用多次烧结复合工艺，能够让原子紧密结合，增加了产品强度，使用时更加耐磨。
4. 铜合金表面硬度检测达标，HB80~100 以上；平行度、平面度可以保证；耐热试验，证明形状无任何改变，膨胀系数极小；抗弯试验，正面、反面均无剥落现象发生；可以根据客户来图定制。



# JHW 钢铜复合自润滑版

Steel-Copper Composite Self-Lubricating Plate

钢基 + 锡青铜 + 石墨柱 (材质组成)



铜基 + 锡青铜 + 喷涂式耐磨层 (材质组成)

铜基 + 锡青铜 + 石墨粉 (材质组成)



## 侧板 / 滑盘 / 斜盘 Side Plate / Slide Plate / Inclined Plate

### 侧板 / Side Plate



### 滑盘 / Sliding Plate



### 斜盘 / Swing Vane





# JDB 固体镶嵌自润滑轴承

Solid Lubricating Inlaid Bearing

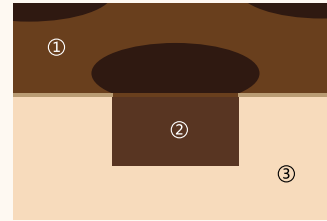
## 应用领域 / Application



# JDB 固体镶嵌自润滑轴承 Solid Lubricating Inlaid Bearing



## 材料组织 Material Structure



1. 固体润滑膜  
Solid lubricant film
2. 固体润滑剂  
Solid lubricant plug
3. 铜合金基体  
Bronze backing

## 结构特性 Structure Characteristics

铜合金镶嵌式固体润滑剂自润滑轴承，结合了铜合金的耐磨性及固体润滑剂的自润滑性能，使其在使用过程中无需加油维护。产品被广泛应用于高载、间歇性或摇摆运动，如汽机车生产流水线、水轮机、水库工作 / 事故门、塑胶机械、冲床周边设备等。根据使用的工况，可以提供各种类型的铜合金。

This bearing is a combination of wear resistance and self-lubricating properties of solid copper alloy body of lubricants to use in the process without refueling maintenance. Products are widely used in high load, intermittent or oscillating motion, such as automotive products line, water wheels machine, a reservoir / incident doors, plastic machinery, punch peripherals. Depending on the conditions, the material can be provided with various types of copper alloy.

## 产品应用 Application

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

Injection molding machine mold, auto mold, engineering machinery, hydraulic cylinders, large gear boxes, metallurgy continuous casting machine, train bracket, steel rolling equipment, mining machinery, shipbuilding, gas turbines, crane support, food machinery, turbine bearings... etc

## 材料特点 Material Properties

- 可以长期使用而无需维护；
- 设计用于很高的静承载和动承载；
- 具有很低的且平稳的摩擦系数，无“粘着”现象；
- 具有耐粉尘、耐腐蚀、耐冲击和耐边缘负载能力；
- 金属基材具有很好的吸震能力；
- 能够在很宽的温度范围内使用；
- 适合于往复、旋转和摆动等启动频繁又难以形成油膜的场合；
- 具有极低的磨损率，使用寿命长。
- Allows maintenance-free and long-life operation;
- Suitable for high static and dynamic loads;
- With low and smoothly coefficient of friction and without stick-slip effects;
- Suitable for dirty, corrosion, impact load and edge loading;
- The base material provided a good shock-absorbing capacity;
- Can be used over a large temperature range;
- Suitable for reciprocating, rotating and oscillating movement with start frequency and difficulty to form oil film occasions;
- With low wear rate and long life service.



# JDB 固体镶嵌自润滑轴承 Solid Lubricating Inlaid Bearing

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

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

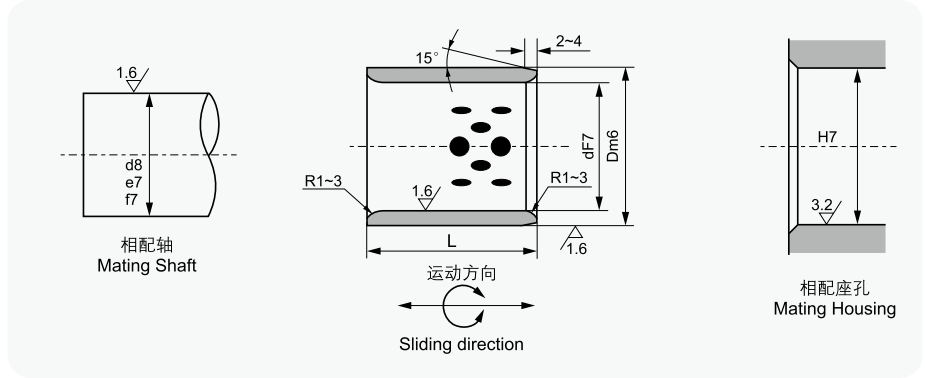
标准 Standard	650#Strong cast bronze 高力黄铜	650S1 CuSn5Zn5Pb5	650S2 CuAl10Ni5Fe5	650S3 CuSn12	650S4 CuSn10Pb10	650S5 CuZn25Al5
Cu%	65	85	80	88	80	65
Sn%		5		12	10	
Pb%		5			10	
Zn%	25	5				25
Ni%			5			
Al%	6		10			6
Fe%			5			
Mn%	4					4
密度 Density	8.0	8.8	7.6	8.8	8.9	8.0
硬度 Hardness HB	>210	>70	>150	>80	>75	>250
抗拉强度 Tensile Strength N/mm	>750	>200	>500	>360	>210	>800
伸长率 Elongation%	>12	>15	>10	>8	>8	>4
热胀系数 Coefficient of linear expansion	$1.9 \times 10^{-5} / ^\circ \text{C}$	$1.8 \times 10^{-5} / ^\circ \text{C}$	$1.6 \times 10^{-5} / ^\circ \text{C}$	$1.8 \times 10^{-5} / ^\circ \text{C}$	$1.8 \times 10^{-5} / ^\circ \text{C}$	$1.9 \times 10^{-5} / ^\circ \text{C}$
温度 Limit Temp.	300° C	400° C	400° C	400° C	400° C	300° C
最大动承载 Max.Load N/mm <sup>2</sup>	100	60	50	70	60	150
最大线速度 (Dry) Max.Speed m/min	无润滑 dry 0.4m/s 油润滑 oil 5m/s	10	20	10	10	10
最大 PV Max.PV N/mm*m/min	200	200	200	200	200	200
压缩永久变形量 400N/mm	<0.01	<0.01	<0.05	<0.04	<0.01	<0.05

## 固体润滑剂 Solid Lubricants

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

### JDB 固体镶嵌自润滑轴承标准公制尺寸

### JDB Solid Self-Lubricating Inlaid Bearing Standard Metric Size



单位Unit: mm

d	D	dF7	Dm6	L <sup>-0.10</sup> / <sub>-0.30</sub>														
				8	10	12	15	16	20	25	30	35	40	50	60	70	80	
8	12	8	12	+0.028 +0.013	081208	081210	081212	081215										
10	14	10			14	+0.018 +0.007	101408	101410	101412	101415	101416	101420						
12	18	12	18	+0.034 +0.016		121810	121812	121815	121816	121820	121825	121830						
13	19	13	19			131910	131912	131915	131916	131920	131925	131930						
14	20	14	20			142010	142012	142015	142016	142020	142025	142030						
15	21	15	21			152110	152112	152115	152116	152120	152125	152130	152135					
16	22	16	22		+0.021 +0.008	162210	162212	162215	162216	162220	162225	162230	162235	162240				
18	24	18	24			182410	182412	182415	182416	182420	182425	182430	182435	182440				
20	28	20	28			202810	202812	202815	202816	202820	202825	202830	202835	202840	202850			
22	32	22	32		+0.041 +0.020		223212	223215	223216	223220	223225	223230	223235	223240	223250			
25	33	25	33					253312	253315	253316	253320	253325	253330	253335	253340	253350	253360	
30	38	30	38					303812	303815	303816	303820	303825	303830	303835	303840	303850	303860	
35	45	35	45	+0.025 +0.009					354520	354525	354530	354535	354540	354550	354560	354570		
40	50	40	50							405020	405025	405030	405035	405040	405050	405060	405070	405080
45	55	45	55		+0.050 +0.025							455530	455535	455540	455550	455560	455570	455580
50	60	50	60									506030	506035	506040	506050	506060	506070	506080

## JDB 固体镶嵌自润滑轴承标准公制尺寸

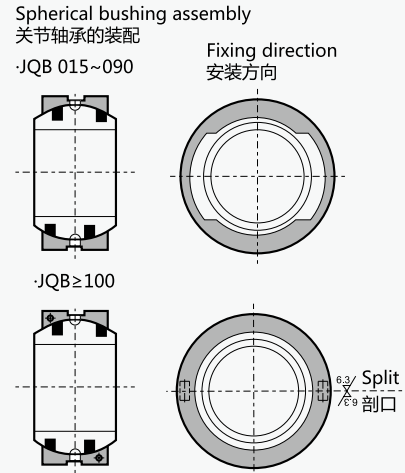
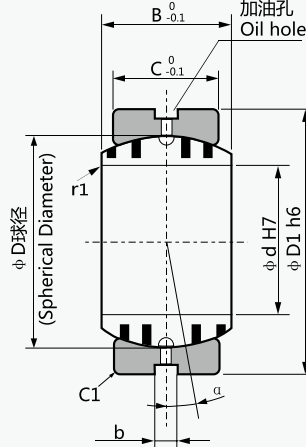
## JDB Solid Self-Lubricating Inlaid Bearing Standard Metric Size

d	D	dF7	Dm6	L <sup>-0.10</sup> / <sub>-0.30</sub>											
				30	35	40	50	60	70	80	100	120	130	140	150
50	62	50	62	506230	506235	506240	506250	506260	506270						
		<sup>+0.050</sup> / <sub>+0.025</sub>													
50	65	50	65	506530	506535	506540	506550	506560	506570	506580	5065100				
55	70	55	70	557030	557035	557040	557050	557060	557070	557080	5570100				
60	74	60	75	<sup>+0.030</sup> / <sub>+0.011</sub>	607430	607435	607440	607450	607460	607470	607480	6074100			
60	75	60			607530	607535	607540	607550	607560	607570	607580	6075100			
63	75	63	75		637535	637540	637550	637560	637570	637580	6375100				
65	80	65	80		658035	658040	658050	658060	658070	658080	6580100				
70	85	70	85	<sup>+0.060</sup> / <sub>+0.030</sub>	708535	708540	708550	708560	708570	708580	7085100				
70	90	70			90	709035	709040	709050	709060	709070	709080	7090100			
75	90	75	90			759040	759050	759060	759070	759080	7590100				
75	95	75	95	<sup>+0.035</sup> / <sub>+0.013</sub>		759540	759550	759560	759570	759580	7595100	7595120			
80	96	80			96		809640	809650	809660	809670	809680	8096100	8096120	8096130	
80	100	80	100			8010040	8010050	8010060	8010070	8010080	80100100	80100120	80100130	80100140	
90	110	90	110				9011050	9011060	9011070	9011080	90110100	90110120	90110130	90110140	
100	120	100	120	<sup>+0.071</sup> / <sub>+0.036</sub>				10012060	10012070	10012080	100120100	100120120	100120130	100120140	
110	130	110			130						11013080	110130100	110130120	110130130	110130140
120	140	120	140							12014080	120140100	120140120	120140130	120140140	
125	145	125	145								125145100	125145120	125145130	125145140	
130	150	130	150	<sup>+0.040</sup> / <sub>+0.015</sub>							130150100	130150120	130150130	130150140	130150150
140	160	140			160	<sup>+0.083</sup> / <sub>+0.043</sub>							140160100	140160120	140160130
150	170	150	170								150170100	150170120	150170130	150170140	150170150
160	180	160	180								160180100	160180120	160180130	160180140	160180150

## JQB 标准自润滑球铰 JQB Oilless Spherical Plain Bearing



内圈 Inner ring  
材料: 高力黄铜+固体润滑剂  
Material: CuZn25Al5Mn3Fe3  
+Graphite (500#SP)  
外圈 Outer ring  
材料 Material: S45C  
硬度 Hardness: HRC 25~30

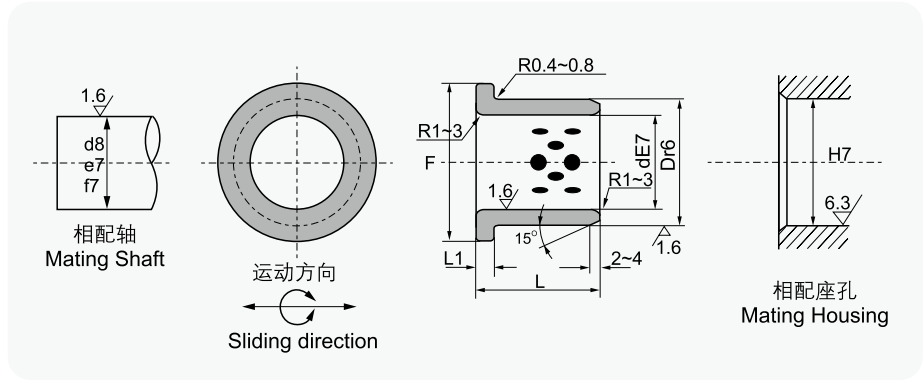


单位Unit: mm

产品代号 Part No.	d	H7	D1	h6	B	C	D	b	调整角度 Alignment Angle α°	径向承载Allowable Radial Load (kN)	径向承载Allowable Thrust Load (kN)
JQB-015	15	<sup>+0.018</sup> / <sub>0</sub>	26	<sup>0</sup> / <sub>-0.013</sub>	12	9	22	4	8	6.5	0.5
JQB-020	20	<sup>+0.021</sup> / <sub>0</sub>	32	<sup>0</sup> / <sub>-0.016</sub>	16	14	28	"	4	12.6	1.4
JQB-025	25	"	42	"	21	18	36	"	5	21.8	2.5
JQB-030	30	"	50	"	27	23	44	"	6	32.0	3.5
JQB-035	35	<sup>+0.025</sup> / <sub>0</sub>	55	<sup>0</sup> / <sub>-0.019</sub>	30	26	49	"	5	43.7	4.8
JQB-040	40	"	62	"	33	28	55	"	6	54.7	5.7
JQB-045	45	"	72	"	36	31	62	"	5	69.7	7.2
JQB-050	50	"	80	"	42	36	70	"	"	92.4	10
JQB-060	60	<sup>+0.030</sup> / <sub>0</sub>	100	<sup>0</sup> / <sub>-0.022</sub>	53	45	90	"	6	143	16
JQB-070	70	"	110	"	58	50	99	"	5	181	20
JQB-080	80	"	130	"	70	60	115	"	6	254	30
JQB-090	90	<sup>+0.035</sup> / <sub>0</sub>	140	<sup>0</sup> / <sub>-0.025</sub>	76	65	125	"	"	313	36
JQB-100	100	"	160	"	88	75	145	6	"	544	64
JQB-110	110	"	170	"	93	80	155	"	5	642	73
JQB-120	120	"	190	<sup>0</sup> / <sub>-0.029</sub>	105	90	17	"	6	797	94
JQB-130	130	<sup>+0.040</sup> / <sub>0</sub>	200	"	110	95	180	"	5	880	105
JQB-140	140	"	210	"	90	70	"	"	7	668	56
JQB-150	150	"	220	"	120	105	200	"	5	1135	129
JQB-160	160	"	230	"	105	80	"	"	8	891	73
JQB-180	180	"	260	<sup>0</sup> / <sub>-0.032</sub>	105	"	225	"	6	1002	74
JQB-200	200	<sup>+0.046</sup> / <sub>0</sub>	290	"	130	100	250	"	7	1434	117
JQB-220	220	"	320	<sup>0</sup> / <sub>-0.036</sub>	135	"	275	"	8	1577	118
JQB-240	240	"	340	"	140	"	300	9	"	1720	"
JQB-260	260	<sup>+0.052</sup> / <sub>0</sub>	370	"	150	110	325	"	7	2072	143
JQB-280	280	"	400	"	155	120	350	"	6	2455	172
JQB-300	300	"	430	<sup>0</sup> / <sub>-0.040</sub>	165	120	375	"	7	2630	"

### JFB 固体镶嵌自润滑翻边轴承标准公制尺寸

### JFB Solid Self-Lubricating Inlaid Flange Bearing Standard Metric Size

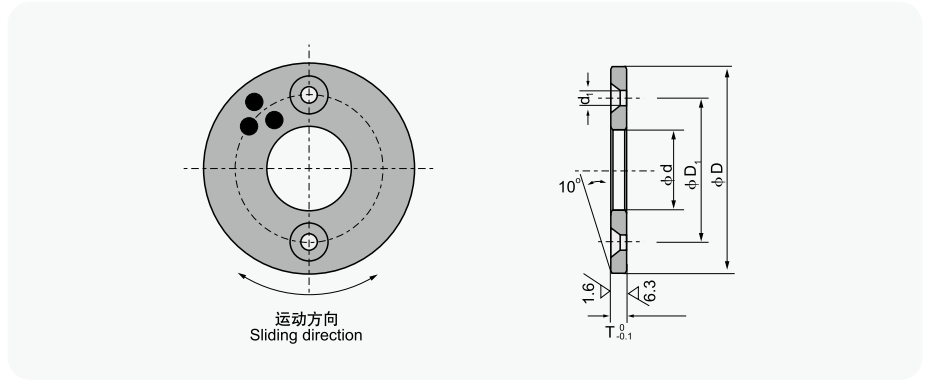


单位Unit: mm

d	D	dE7		Dr6		F	L <sub>1</sub>	L <sup>-0.10</sup> <sub>-0.30</sub>														
								15	20	25	30	35	40	50	60	80	100					
10	14	10	+0.040 +0.025	14	+0.034 +0.023	22	2	1015	1020													
12	18	12		18		25	3	1215	1220													
13	19	13		19		26		1315	1320													
14	20	14	+0.050 +0.032	20		27		1415	1420	1425												
15	21	15		21	+0.041 +0.028	28		1515	1520	1525	1530											
16	22	16		22		29		1615	1620	1625	1630											
20	30	20		30		40			2020	2025	2030	2035										
25	35	25	+0.061 +0.040	35		45	5		2520	2525	2530	2535	2540									
30	40	30		40	+0.050 +0.034	50			3020	3025	3030	3035	3040	3050								
35	45	35		45		60				3525	3530	3535	3540	3550								
40	50	40		50		65					4030	4035	4040	4050								
45	55	45	+0.075 +0.050	55		70					4530	4535	4540	4550	4560							
50	60	50		60	+0.060 +0.041	75						5035	5040	5050	5060							
55	65	55		65		80							5540	5550	5560							
60	75	60		75	+0.062 +0.043	90		7.5					6040	6050	6060	6080						
70	85	70	+0.090 +0.060	85		105									7050	7060	7080					
75	90	75		90	+0.073 +0.051	110									7550	7560	7580	75100				
80	100	80		100		120	10								8060	8080	80100					
90	110	90		110		130										9060	9080	90100				
100	120	100	+0.107 +0.072	120	+0.076 +0.054	150										10060	10080	100100				
120	140	120		140	+0.088 +0.063	170											12060	12080	120100			

### JTW 固体自润滑止推垫片标准公制尺寸

### JTW Solid Self-Lubricating Thrust Washer Standard Metric Size

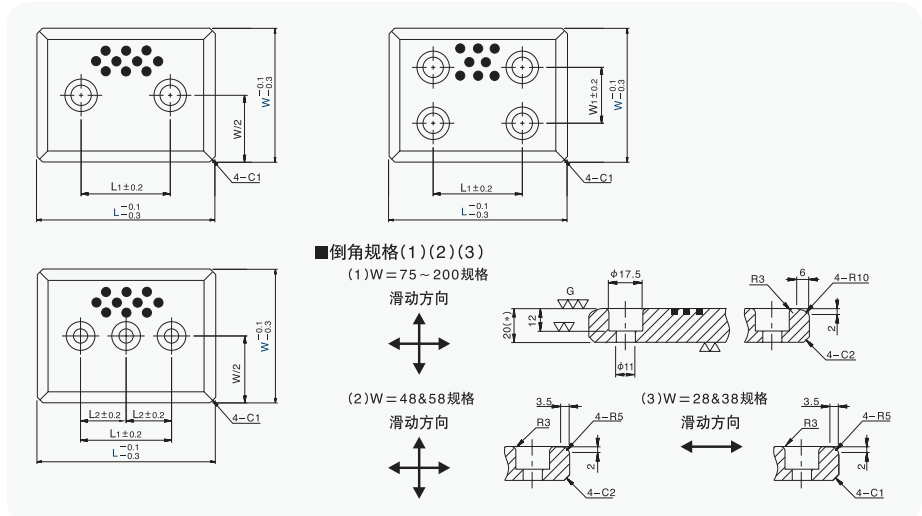


单位Unit: mm

型号规格 Standard No.	$\phi d$	$\phi D$	$T_{-0.1}^0$	螺孔 Bolt Hole			
				$\phi D_1$	平头螺钉 Crop Bolt	$\phi d_1$	孔数 Bore Number
JTW-10	10.2	30		20			
JTW-12	12.2						
JTW-13	13.2	40		28			
JTW-14	14.2		3		M3	3.5	
JTW-15	15.2						
JTW-16	16.2	50		35			
JTW-18	18.2						2
JTW-20	20.2						
JTW-25	25.2	55		40	M5	6	
JTW-30	30.2	60	5	45			
JTW-35	35.2	70		50			
JTW-40	40.2	80		60			
JTW-45	45.3	90	7	70	M6	7	
JTW-50	50.3	100		75			
JTW-55	55.3	110		85			
JTW-60	60.3	120	8	90			
JTW-65	65.3	125		95			
JTW-70	70.3	130		100	M8	9	4
JTW-75	75.3	140		110			
JTW-80	80.3	150		120			
JTW-90	90.5	170	10	140			
JTW-100	100.5	190		160	M10	11	
JTW-120	120.5	200		175			

### JHW 钢铜复合自润滑板公制尺寸

### JHW Steel-Copper Composite Self-Lubricating Plates Standard Metric Sizes

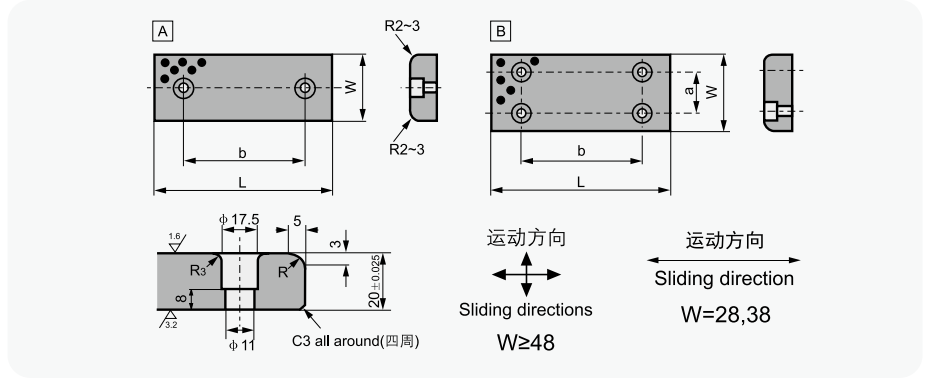


单位Unit: mm

代码编号 Code No.		L	W <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	螺栓孔数量 Number of Bolt Holes	
代码 Code	W					JHW-SP	JHW-SPW
JHW-SP	28	75	-	45	-	2	
		100					
		125					
		150					
		200					
		250					
	38	75	-	45	-	2	
		100					
		125					
		150					
		200					
		250					
	48	75	-	45	-	2	-
		100					
		125					
		150					
		200					
		250					
	58	75	-	45	-	2	
		100					
		125					
		150					
		200					
		250					
75	75	-	25	-	2		
	100						
	125						
	150						
	200						
	250						
JHW-SP JHW-SPW (螺栓 2 孔型)	100	100	50	50	-	4	2
		125					
		150					
		200					
		250					
		300					
	125	125	50	75	-	4	2
		150					
		200					
		250					
		300					
		350					
150	150	100	100	-	4	2	
	200						
	250						
	300						
	200						
	250						
200	200	150	150	-	4	2	
	250						
	300						
	200						
	250						
	300						

**JESW 铜基自润滑滑块标准公制尺寸**

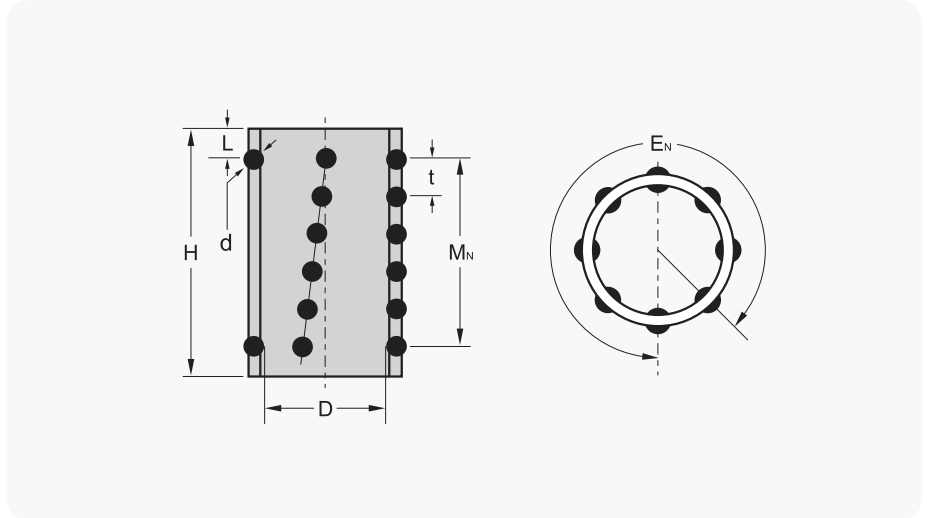
**JESW Copper Based Self-Lubricating Slider Standard Metric Size**



单位Unit: mm

型号规格 Standard No.	W	L	a	b	图示 Sketch
JESW-28×75	28	75	-	45	A
JESW-28×100		100		50	
JESW-28×150		150		100	
JESW-38×75	38	75	-	45	
JESW-38×100		100		50	
JESW-38×150		150		100	
JESW-48×75	48	75	-	45	
JESW-48×100		100		50	
JESW-48×125		125		75	
JESW-48×150		150		100	
JESW-48×200		200		150	
JESW-58×75	58	75	-	45	
JESW-58×100		100		50	
JESW-58×150		150		100	
JESW-75×75	75	75	-	25	
JESW-75×100		100		50	
JESW-75×125		125		75	
JESW-75×150		150		100	
JESW-75×200		200		150	
JESW-100×100	100	100	50	50	
JESW-100×125		125		75	
JESW-100×150		150		100	
JESW-100×200		200		150	
JESW-100×300		300		200	
JESW-125×125	125	125	50	75	
JESW-125×150		150		100	
JESW-125×200		200		150	
JESW-125×250		250		200	
JESW-125×300		300		200	
JESW-150×150	150	150	100	100	
JESW-150×200		200		150	
JESW-150×250		250		200	

## FZ 钢球保持架 FZ Ball Retainer Bearing



铜合金保持架 FZH  
铝合金保持架 FZL  
POM树脂保持架 FZP

单位Unit: mm

产品代号 Part No.	D	H	d	E <sub>N</sub>	M <sub>N</sub>	球 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	208	"	5.25
FZ(*)2475	24	75	"	16	13	128	"	4.50
FZ(*)2550	25	50	"	"	8	112	"	5.75
FZ(*)2560	"	60	"	"	10	160	"	5.25
FZ(*)2575	"	75	"	"	13	208	"	4.50
FZ(*)2775	27	75	"	"	13	208	"	4.50
FZ(*)2860	28	60	4	14	8	112	6.5	7.25
FZ(*)2875	"	75	"	"	11	154	"	5.00
FZ(*)3060	30	60	"	"	8	112	"	7.25
FZ(*)3075	"	75	"	"	11	154	"	5.00
FZ(*)3260	32	60	"	16	8	128	"	7.25
FZ(*)3275	"	75	"	"	11	192	"	5.00
FZ(*)3390	"	90	"	"	13	208	"	6.00
FZ(*)3685	36	85	"	"	12	192	"	6.75
FZ(*)3690	"	90	5	"	13	208	8.0	6.00
FZ(*)3870	38	70	"	"	8	128	"	7.00
FZ(*)3890	"	90	"	"	11	176	"	5.00
FZ(*)4090	40	90	"	"	11	176	"	5.00
FZ(*)4590	45	90	"	18	11	198	"	5.00
FZ(*)45110	"	110	"	"	13	234	"	7.00
FZ(*)5090	50	90	"	20	11	220	"	5.00
FZ(*)50110	"	110	"	"	13	260	"	7.00
FZ(*)6090	60	90	"	22	11	242	"	5.00
FZ(*)60110	"	110	"	"	13	286	"	7.00
FZ(*)80130	80	130	"	28	15	420	"	9.00



# SF-1 自润滑多层复合轴承

Self-Lubricated Multilayer Compound Bearing

## 应用领域 / Application

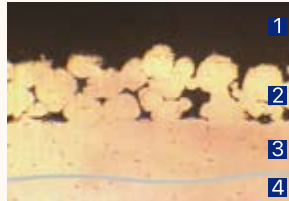


# SF-1 自润滑多层复合轴承

## Self-Lubricated Multilayer Compound Bearing



### 金相图片 Metallography



1. 聚四氟乙烯  
PTFE+Filler
2. 球形青铜粉  
Porous bronze sintered
3. 钢背  
Steel backing
4. 镀铜/锡层  
Copper-plating/tin-plating

注：图中产品还可根据不同工况条件选择不同的基体材料，如：青铜基板（SF-1B）、不锈钢基板（SF-1S）、以及无铅（SF-1W）等配方产品。（详见 P07-08）

Note: Various materials are suitable for SF-1 Series products according to different working conditions, such as bronze backing (SF-1B), stainless steel backing (SF-1S) and lead-free material (SF-1W). (Detailed see P07-08)

### 结构特性 Structure Characteristics

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

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

### 产品应用 Application

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

Agricultural machinery: tractors, combine harvesters, crop sprayers, bulldozers, graders, etc.

Automotive industry: power steering pump, steering gear thrust washers, disc brakes, shock absorbers, hinges, wiper, chair recliners, air valves and solenoid valves, etc.;

Business machines: duplicator, fax machine, automatic printing devices, mail processing machinery...

Hydraulics and valves: pumps including gear, rotary, water, axial piston, and other types, ball, butterfly, poppet steam, and other valves and valve trunnions...

Home appliances: tape recorders, refrigerators, air conditioners, cleaners, polishers, sewing machines, ovens, dishwashers, clothes washing machines...

And materials handling, marine engine, packaging, textile equipment, tools...etc.

# SF-1 自润滑多层复合轴承

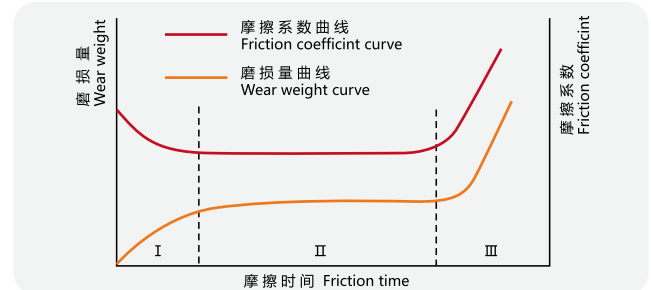
## Self-Lubricated Multilayer Compound Bearing

### 耐磨性能 Anti-abrasion Performance

SF-1 具有优异的耐磨性,这主要是由于 PTFE 的特殊分子结构。SF-1 磨损大致可分为三个阶段,相对应的摩擦系数亦有三种情况,见右图:

SF-1 is of excellent anti-abrasion performance, mainly due to the particular molecule structure of PTFE. The abrasion process can be generally divided into three phases, so there kinds of friction coefficient. See the right graph:

- 1) “跑合”阶段: 表面层 PTFE 混合物向对偶面转移填补对偶面凹坑,并形成转移膜,此时,摩擦系数较大,材料的磨损速度较快。如图中 I 曲线所示。
- 2) “稳定”磨损阶段: 经跑合后的摩擦变成了 PTFE 之间的摩擦,其摩擦系数低而稳定,材料的磨损率低而平稳。如图中 II 区曲线所示。
- 3) “急剧”磨损阶段: 多孔层孔隙中的 PTFE 润滑剂消耗,无法使摩擦界面间获得足够量的润滑剂。摩擦面之间润滑不良,摩擦系数迅速上升,材料的磨损率亦急剧加快,直至 70% 青铜裸露时, SF-1 寿命接近终止。如图中 III 曲线所示。



SF-1 磨损曲线  
Wear curve of SF-1

1. "Running-in" phrase: PTFE compound on the bushing is transferred to its mating surface and forms a lubricating film. At this phase, the friction coefficient is bigger, thus the abrasion pace is very quick. See the curve showed in area I of the graph.
2. "Stabilization" abrasion phrase: After the "Running-in phase", the friction happens between PTFE and PTFE, thus the friction coefficient is smaller and keeps steady. As a result, the wear rate is low and steady. See the curve showed in area II of the graph.
3. "Sharp" abrasion phrase: As PTFE in the porous layer is slowly consumed up, not enough lubricant can be supplied to the gliding media. Friction coefficient and wear rate will rapidly rise. When 70% of the bronze surface is exposed, service life of SF-1 closes to its end. See the curve showed in area III of the graph.

### 影响寿命的主要因素

#### Main Factors that Influence the Service life of the Bearing

##### 1) PV 值的影响

PV 值是确定 SF-1 磨损寿命的有效指标。如果要求寿命延长, PV 值必须降低。

##### 2) 环境温度的影响

环境温度越高, SF-1 使用寿命愈短。

##### 3) 对偶件的影响

对偶件采用合金钢或镀硬铬的轴, 表面的粗糙度  $Ra=0.4\sim 0.63$  范围内时, SF-1 轴承使用寿命可以显著提高。

除了目录中显示的标准产品外, 还可以提供非标产品或根据客户要求订购。

##### 1). PV Value

PV value is an effective criterion to calculate the service life of SF-1. If there is need to prolong the service Life, PV value must be reduced.

##### 2). Ambient Temperature

The higher the working temperature is, the shorter the life of the products would be.

##### 3). Quality of the Mating Surface


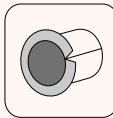
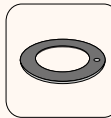
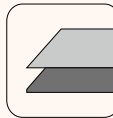
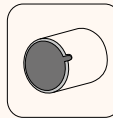

Service life SF-1 can be obviously prolonged if its mating axis is made by alloy steel or is plated by hard chrome and with surface Roughness  $Ra=0.4\sim 0.63$

Besides the standard products displayed in the list of this catalogue. We can also supply non-standard products or develop according to customer design.

# SF-1 自润滑多层复合轴承

## Self-Lubricated Multilayer Compound Bearing

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

有关数据 Date	代号 Grade	SF-1	SF-1T
	材料 Material	碳钢/Steel+铜粉/Bronze+(PTFE+Pb+填料/Filler)	碳钢/Steel+铜粉/Bronze+(PTFE+Pb+填料/Filler)
<p>除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。 We can also develop according to customers special request while out of this table</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>直套 Straight Sets</p> </div> <div style="text-align: center;">  <p>翻边 Flange</p> </div> <div style="text-align: center;">  <p>止推垫片 Thrust Pads</p> </div> <div style="text-align: center;">  <p>滑板 Skateboards</p> </div> <div style="text-align: center;">  <p>非标产品定制 Custom-made Special Products</p> </div> </div>			
主要运用领域 Typical applicaton		产品应用于印刷机械、纺织机械、烟草机械、健身器等。 Application: the printing, woven, tobacco and gymnastic machinery, etc.	产品主要应用于中、高压齿轮油泵、柱塞泵、叶片泵等。 Application: medium, high-pressure gear pump, ram pump, vane pumps, etc.
最大承载压力P Load capacity P (Dry friction) (干摩擦)	静载 N/mm <sup>2</sup> Static load	250	250
	动载 N/mm <sup>2</sup> Dynamic load	140	140
	摇摆 N/mm <sup>2</sup> Oscillation Load	60	60
最大线速度V Max line speed V	干摩擦 m/s Dry friction	2.5	2.5
	油润滑 m/s Oil lubrication	> 5	> 5
最高PV值 PV value limit	干摩擦 N/mm <sup>2</sup> ·m/s Dry friction	1.8	1.0
	油润滑 N/mm <sup>2</sup> ·m/s Oil lubrication	3.6	10
摩擦系数u Friction coef u	干摩擦 Dry friction	0.08~0.20	0.08~0.25
	油润滑 Oil lubrication	0.02~0.12	0.02~0.08
相配轴径 Mating shaft	硬度 HB Hardness	> 220	> 220
	粗糙度 Ra Roughness	0.4~1.25	0.4~1.25
工作温度 °C Working temperature		-200~+280	-200~+280
导热系数 W/mk Thermal conductivity		40	40
线膨胀系数 (轴向) Coefficient of linear expansion		11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K
外表面镀层 Outside surface Plating		铜或锡 copper/tin	铜或锡 copper/tin

# SF-1 自润滑多层复合轴承

## Self-Lubricated Multilayer Compound Bearing

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

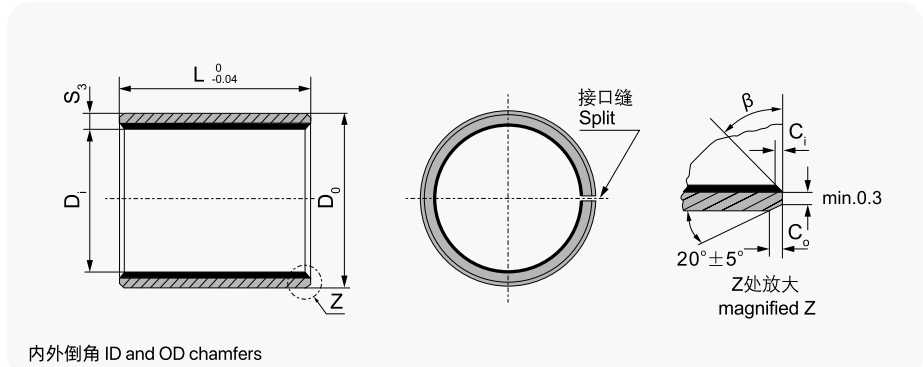
SF-1S	SF-1B	SF-1W	SF-1P
不锈钢/Stainless+铜粉/ Bronze+(PTFE+Pb+填料/Filler)	铜板/Bronze+铜粉/ Bronze+(PTFE+Pb+填料/Filler)	碳钢/Steel+铜粉/Bronze +(PTFE+填料/Filler)	碳钢/Steel+铜粉/Bronze +(PTFE+填料/Filler)



产品适用于印染机械、海洋工业耐腐蚀部位等。 Application: the corrosion resistant part in dyeing machinery and ocean industry, etc.	产品应用于冶金机械、连铸机械、水泥机械等。 Application: metallurgical industry, continuous casting and rolling mill, concrete machinery and spiral conveyers, etc.	产品主要应用于中、高压齿轮油泵、柱塞泵、叶片泵等。 Application: medium, high-pressure gear pump, ram pump, vane pumps, etc.	该产品主要用于汽车减震器、摩托车减震器、液压油缸等。 Application: shock absorber of automobiles, motorcycles and pneumatic cylinder. etc
250	250	250	250
140	140	140	140
60	60	60	60
2.5	2.5	2.5	2
> 5	> 5	> 5	> 5
1.8	1.8	1.0	1.8
3.6	3.6	10	3.6
0.08~0.20	0.08~0.20	0.08~0.25	0.08~0.20
0.02~0.12	0.02~0.12	0.02~0.08	0.02~0.08
> 220	> 220	> 220	> 220
0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
-200~+280	-200~+280	-200~+280	-200~+280
40	60	40	40
11×10 <sup>-6</sup> /K	18×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K
无 /No	无 /No	铜或锡 copper/tin	铜或锡 copper/tin

### SF-1 自润滑多层复合轴承规格及公差

### SF-1 Self-Lubricated Multilayer Compound Bearing Specification & Tolerance



内外倒角 ID and OD chamfers

S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	β
0.75	0.5±0.3	0.25±0.2	30°±5°
1.00	0.6±0.3	0.30±0.2	30°±5°
1.50	0.7±0.3	0.50±0.3	30°±5°

S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

单位Unit: mm

轴径(f7) Shaft D <sub>s</sub>	座孔(H7) Housing D <sub>H</sub>	(OD) 外径公差 Tolerance D <sub>o</sub>	(ID)压装后 内孔公差 After fixed D <sub>i,a</sub>	配合间隙 Clearance D <sub>o</sub>	壁厚 Wall thick- ness S <sub>3</sub>	长度 L <sup>0</sup> <sub>-0.40</sub> (d≤Φ28 L-0.30 / d>Φ30 L-0.40)															
						6	8	10	12	15	20	25	30	40	50						
6	-0.010 -0.022	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000														
8	-0.013 -0.028	10	+0.015	10	+0.055 +0.025	8.055 7.990	0.083 0.003														
10	-0.013 -0.028	12	+0.018	12	+0.065 +0.030	10.058 9.990	0.086 0.003														
12	-0.016 -0.034	14	+0.018	14	+0.065 +0.030	12.058 11.990															
13	-0.016 -0.034	15	+0.018	15	+0.065 +0.030	13.058 12.990															
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990															
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990															
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990															
17	-0.016 -0.034	19	+0.021	19	+0.075 +0.035	17.061 16.990															
18	-0.016 -0.034	20	+0.021	20	+0.075 +0.035	18.061 17.990															
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990															
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990															
24	-0.020 -0.041	27	+0.021	27	+0.075 +0.035	24.071 23.990															
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990															
28	-0.020 -0.041	32	+0.025	32	+0.085 +0.045	28.085 27.990															
30	-0.020 -0.041	34	+0.025	34	+0.085 +0.045	30.085 29.990															
32	-0.025 -0.050	36	+0.025	36	+0.085 +0.045	32.085 31.990															
35	-0.025 -0.050	39	+0.025	39	+0.085 +0.045	35.085 34.990															
38	-0.025 -0.050	42	+0.025	42	+0.085 +0.045	38.085 37.990															
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990															

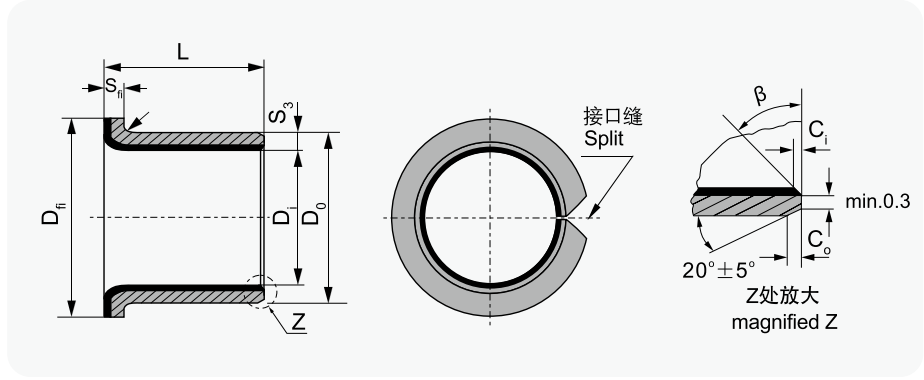
## SF-1 自润滑多层复合轴承规格及公差

## SF-1 Self-Lubricated Multilayer Compound Bearing Specification & Tolerance

轴径(f7) Shaft D <sub>s</sub>	座孔(H7) Housing D <sub>H</sub>	(OD) 外径公差 Tolerance D <sub>O</sub>	(ID)压装后 内孔公差 After fixed D <sub>i,a</sub>	配合间隙 Clearance D <sub>D</sub>	壁厚 Wall thick- ness S <sub>3</sub>	长度 L <sup>0</sup> <sub>-0.40</sub>												
						20	25	30	40	50	60	70	80	100	115			
45 <sup>-0.050</sup> <sub>-0.025</sub>	50 <sup>+0.025</sup>	50 <sup>+0.085</sup> <sub>+0.045</sub>	45.105 44.990	0.155 0.015	2.505 2.460	4520	4525	4530	4540	4550								
50 <sup>-0.050</sup> <sub>-0.025</sub>	55 <sup>+0.030</sup>	55 <sup>+0.100</sup> <sub>+0.055</sub>	50.110 49.990	0.160 0.015		5020	5025	5030	5040	5050	5060							
55 <sup>-0.060</sup> <sub>-0.030</sub>	60 <sup>+0.030</sup>	60 <sup>+0.100</sup> <sub>+0.055</sub>	55.110 54.990	0.170 0.020				5530	5540	5550	5560							
60 <sup>-0.060</sup> <sub>-0.030</sub>	65 <sup>+0.030</sup>	65 <sup>+0.100</sup> <sub>+0.055</sub>	60.110 59.990						6030	6040	6050	6060	6070					
65 <sup>-0.060</sup> <sub>-0.030</sub>	70 <sup>+0.030</sup>	70 <sup>+0.100</sup> <sub>+0.055</sub>	65.110 64.990						6530	6540	6550	6560	6570					
70 <sup>-0.060</sup> <sub>-0.030</sub>	75 <sup>+0.030</sup>	75 <sup>+0.100</sup> <sub>+0.055</sub>	70.110 69.990						7030	7040	7050	7060	7070	7080				
75 <sup>-0.060</sup> <sub>-0.030</sub>	80 <sup>+0.030</sup>	80 <sup>+0.100</sup> <sub>+0.055</sub>	75.110 74.990						7530	7540	7550	7560	7570	7580				
80 <sup>-0.045</sup>	85 <sup>+0.035</sup>	85 <sup>+0.120</sup> <sub>+0.070</sub>	80.155 80.020	0.201 0.020	2.490 2.440				8040	8050	8060	8070	8080	80100				
85 <sup>-0.054</sup>	90 <sup>+0.035</sup>	90 <sup>+0.120</sup> <sub>+0.070</sub>	85.155 85.020	0.209 0.020					8540	8550	8560	8570	8580	85100				
90 <sup>-0.054</sup>	95 <sup>+0.035</sup>	95 <sup>+0.120</sup> <sub>+0.070</sub>	90.155 90.020						9040	9050	9060	9070	9080	90100				
95 <sup>-0.054</sup>	100 <sup>+0.035</sup>	100 <sup>+0.120</sup> <sub>+0.070</sub>	95.155 95.020							9550	9560	9570	9580	95100				
100 <sup>-0.054</sup>	105 <sup>+0.035</sup>	105 <sup>+0.120</sup> <sub>+0.070</sub>	100.155 100.020							10050	10060	10070	10080	100100	100115			
105 <sup>-0.054</sup>	110 <sup>+0.035</sup>	110 <sup>+0.120</sup> <sub>+0.070</sub>	105.155 105.020								10560	10570	10580	105100	105115			
110 <sup>-0.054</sup>	115 <sup>+0.035</sup>	115 <sup>+0.120</sup> <sub>+0.070</sub>	110.115 110.020								11060	11070	11080	110100	110115			
120 <sup>-0.054</sup>	125 <sup>+0.040</sup>	125 <sup>+0.170</sup> <sub>+0.100</sub>	120.210 120.070	0.264 0.070	2.465 2.415					12060	12070	12080	120100	120115				
125 <sup>-0.063</sup>	130 <sup>+0.040</sup>	130 <sup>+0.170</sup> <sub>+0.100</sub>	125.210 125.070	0.273 0.070						12560	12570	12580	125100	125115				
130 <sup>-0.063</sup>	135 <sup>+0.040</sup>	135 <sup>+0.170</sup> <sub>+0.100</sub>	130.210 130.070								13060	13070	13080	130100	130115			
140 <sup>-0.063</sup>	145 <sup>+0.040</sup>	145 <sup>+0.170</sup> <sub>+0.100</sub>	140.210 140.070								14060	14070	14080	140100	140115			
150 <sup>-0.063</sup>	155 <sup>+0.040</sup>	155 <sup>+0.170</sup> <sub>+0.100</sub>	150.210 150.070								15060	15070	15080	150100	150115			
160 <sup>-0.063</sup>	165 <sup>+0.040</sup>	165 <sup>+0.170</sup> <sub>+0.100</sub>	160.210 160.070								16060	16070	16080	160100	160115			
180 <sup>-0.063</sup>	185 <sup>+0.046</sup>	185 <sup>+0.210</sup> <sub>+0.130</sub>	180.216 180.070			0.279 0.070	2.465 2.415					18060	18070	18080	180100			
190 <sup>-0.072</sup>	195 <sup>+0.046</sup>	195 <sup>+0.210</sup> <sub>+0.130</sub>	190.216 190.070	0.288 0.070						19060	19070	19080	190100					
200 <sup>-0.072</sup>	205 <sup>+0.046</sup>	205 <sup>+0.210</sup> <sub>+0.130</sub>	200.016 200.070								20060	20070	20080	200100				
220 <sup>-0.072</sup>	225 <sup>+0.046</sup>	225 <sup>+0.210</sup> <sub>+0.130</sub>	220.216 220.070								22060	22070	22080	220100				
250 <sup>-0.072</sup>	255 <sup>+0.052</sup>	255 <sup>+0.260</sup> <sub>+0.170</sub>	250.222 250.070		0.294 0.070									25080	250100			
260 <sup>-0.081</sup>	265 <sup>+0.052</sup>	265 <sup>+0.260</sup> <sub>+0.170</sub>	260.222 260.070	0.303 0.070	2.465 2.415							26080	260100					
280 <sup>-0.081</sup>	285 <sup>+0.052</sup>	285 <sup>+0.260</sup> <sub>+0.170</sub>	280.222 280.070											28080	280100			
300 <sup>-0.081</sup>	305 <sup>+0.052</sup>	305 <sup>+0.260</sup> <sub>+0.170</sub>	300.222 300.070											30080	300100			

### SF-1F 自润滑翻边轴承规格及公差

### SF-1F Self-Lubricated Flange Bearing Specification & Tolerance



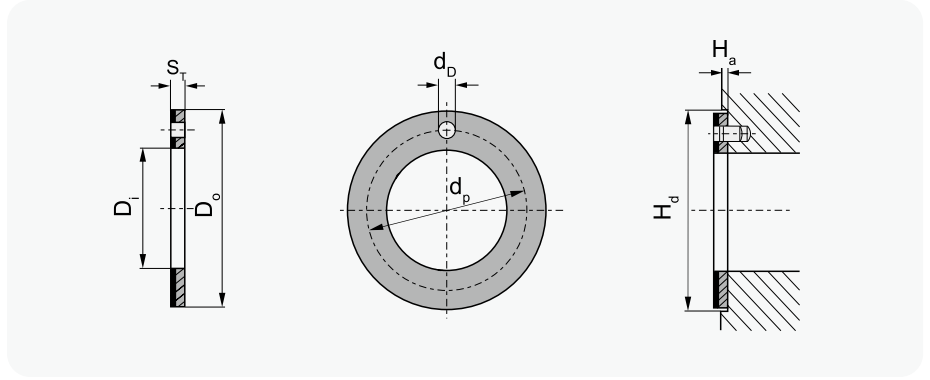
$S_3$	1.0	1.5	2.0	2.5
r	$1^{+0.5}$	$1\pm 0.5$	$1.5\pm 0.5$	$2\pm 0.5$

单位Unit: mm

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

## SF-1WC / SF-2WC 复合止推垫片规格及公差

## SF-1WC / SF-2WC Compound Thrust Washer Specification & Tolerance



单位Unit: mm

轴径 Shaft D <sub>s</sub>	型号规格 Standard No.	垫片尺寸 WCasher size				安装尺寸 Assemble size		H <sub>a</sub> +0.12		
		D <sub>i</sub> +0.25	D <sub>o</sub> -0.25	S <sub>T</sub> -0.05	d <sub>b</sub> ±0.125	d <sub>o</sub> <sup>+0.4</sup> / <sub>+0.1</sub>	H <sub>a</sub> ±0.2			
8	WC10	10	20	1.5	15	1.5	1	20		
10	WC12	12	24		18			2	24	
12	WC14	14	26		20				3	26
14	WC16	16	30		23					4
16	WC18	18	32		25	1.5		32		
18	WC20	20	36		28			1	36	
20	WC22	22	38		30	1.5			38	
22	WC24	24	42		33			1	42	
24	WC26	26	44		35	1.5			44	
26	WC28	28	48		38			1	48	
30	WC32	32	54		43	1.5			54	
36	WC38	38	62		50			1	62	
40	WC42	42	66		54	1.5			66	
46	WC48	48	74		61			1	74	
50	WC52	52	78	65	1.5	78				
60	WC62	62	90	76		1.5	90			

## FR 系列增强四氟软带

## FR Bronze Wesh With PTFE Bearing



### 适用范围

汽车门窗铰链，纺织机械，关节轴承，化工行业，食品工业，阀门控制机构，办公机械，仪器仪表等，轻载低速但需要自润滑的不同场合。

### 产品特点

1、能在无油自润滑状态下稳定工作。 2、适合低速往复运动，摆动及断续运动等工作情况下。 3、良好的抗磨、减摩特性。 4、良好的耐腐蚀性。

金属承载力	厚度	自润
锡青铜	0.48 <sup>±0.02</sup>	PTFE这主体和相关的减摩擦材料
黄铜	0.48 <sup>±0.02</sup>	
不锈钢	0.48 <sup>±0.02</sup>	

厚度公差可按要求定制

### 产品简介

软带材料是以青铜丝网为基础，通过表面轧制PTFE等相关的增强减摩材料烧结后制成。这种材料结构使产品的重量更轻，安装更方便。该产品具有较低的摩擦系数和较好的耐磨特性。由于它的柔软性能特别好，可以加工成钢与钢金属之间的隔离膜，实现无间隙，无噪音，无油润滑，无需保养，无污染的理想状态。

### 技术参数

最大承载力		30N/mm <sup>2</sup>
适用温度		- 20°C~ + 250°C
最高滑动速度	干摩擦	0.5m/s
	油润滑	2m/s
允许最高PV值		1.65/mm <sup>2</sup> ·m/s
摩擦系数μ		0.05~0.20



# SF-2 边界润滑轴承

Marginal Lubricating Bearing

## 应用领域 / Application

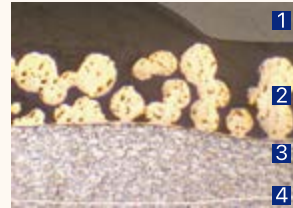


# SF-2 边界润滑轴承

## Marginal Lubricating Bearing



### 金相图片 Metallography



1. 改性聚甲醛  
POM with lead 0.3-0.5mm
2. 球形青铜粉  
Porous bronze sintere
3. 钢背  
Steel backing
4. 镀铜/锡层  
Copper-plating/tin-plating

注：SF-2 系列产品还可根据不同工况条件选择不同的基材材料，如：青铜基板、不锈钢基板、以及“无铅”等配方产品。SF-2Y 属环保无铅产品，颜色为桔黄色、橙色、蓝色。

Note: Various materials are suitable for SF-2 series products according to different working conditions, such as bronze-backing, stainless steel backing and lead-free material. SF-2Y is an environmental friendly lead-free product and its color is yellow.

### 结构特性 Structure Characteristics

SF-2 型材料是以填充四氟改性的聚甲醛塑料为表面层三层复合自润滑材料，它是一种良性的边界润滑材料，因此特别适用与高载低速下的旋转运动，摇摆运动以及经常在载荷下启闭而不易形成流体动力润滑的轴承，止推垫片、滑块、球座等磨擦零件。SF-2 能够充分地利用微量润滑脂，在边界润滑条件下可以长期的不用加油保养。在完全无油润滑条件下，SF-2 磨擦性能及允许 PV 值较低，因此通常在塑料表面轧出储油坑，装配时涂上锂基润滑油脂或硅脂等。

SF-2 is triple-layer self lubricating material that can fill modified POM plastic as surface layer; it is benignant Marginal lubrication material, therefore, it is particularly applicable high-load low-speed rotating and wing movement, as well as in the condition that frequent loaded start-stop is the requirement while hydrodynamic lubrication membrane is difficult to form, in the parts such as bearing, thrust washer, sliding block, ball socket and so on. SF-2 can take full advantage of less grease to work long time without lubrication maintenance under Marginal lubrication condition. But under oil-free condition, SF-2 the frictional behavior and permissible PV value is relatively low, so generally storage pit can be formed on the plastic surface, where lithiumbased lubricant grease or silicone grease and so on should be applied when being installed.

### 产品应用 Application

产品广泛应用于：

踏板总成、平衡轴套、制动钳、转向主销轴套和卡车尾板轴套、搬运车、起重机、车载吊车、森林机械、包装机械、建筑机械、液压马达、农用机械矿山机械、冶金机械、水利机械、汽机车、轧钢行业等。

Products are widely used in:

Pedal assembly, balance bushings, brake calipers, steering main pin sets and truck tailgate bushings, truck, crane, car cranes, forest machinery, packaging machinery, construction machinery, hydraulic motors, agricultural machinery mining machinery, metallurgical machinery, irrigation machinery, automobiles, and steel rolling industries.

# SF-2 边界润滑轴承

## Marginal Lubricating Bearing

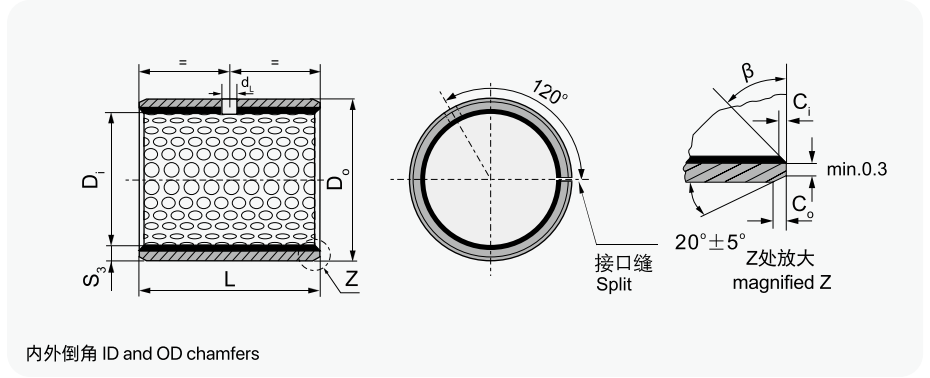
实际运用中根据使用环境、工况和环保要求的不同，表面塑料层POM/PEEK里可以添加不同的填充材料。产品范围包括：SF-2（黑）、SF-2Y（黄）、SF-2S（橙）、SF-2L（蓝）、SF-2P（PEEK）。

According to the different working conditions and environmental protection, the POM or PEEK layer with different polymer filler, Surface tin or copper plating. product range includes SF-2 (black)、SF-2Y (yellow)、SF-2S (orange)、SF-2L (blue)、SF-2P (PEEK) .

有关数据 Data	代号 Grade	SF-2 (黑)	SF-2Y (黄) (lead free)	SF-2S (橙) (lead free)	SF-2L (蓝) (lead free)	SF-2P(PEEK)
	材料 Material	碳钢/Steel+铜粉/ Bronze+(POM+Pb)	碳钢/Steel+铜粉/ Bronze+POM	碳钢/Steel+铜粉/ Bronze+POM	碳钢/Steel+铜粉/ Bronze+POM	碳钢/Steel+铜粉/ Bronze+(PTFE+PEEK)
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。 We can also develop according to customers special request while out of this table.						
最大承载压力P Max load capacity P	静载 N/mm <sup>2</sup> Static load	140	140	140	110	140
	动载 N/mm <sup>2</sup> Dynamic load	70	70	70	45	100
最大线速度 V m/s Max line speed V	脂润滑 Greases lubrication	2.5	2.5	2.5	2.5	2.5
最高PV值 N/mm <sup>2</sup> ·m/s PV value limit		2.8	2.8	2.8	2.8	2.5
摩擦系数u Friction coef u		0.06~0.12	0.06~0.12	0.06~0.12	0.05~0.1	0.08~0.12
相配轴径 Mating Axis	硬度 HB Hardness	>270	>270	>270	>270	>270
	粗糙度 Ra Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
工作温度 °C Working temperature		-60~+120	-40~+120	-40~+120	-60~+120	-150~+250
导热系数 W/mk Thermal conductivity		52	52	52	52	52
线膨胀系数（轴向） Coefficient of linear xpansion		11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K	11×10 <sup>-6</sup> /K
针对性运用领域 Pertinence applicaton		产品应用于汽车底盘、锻压机床、冶金机械、矿山机械、水利行业、轧钢行业等。 It's used in vehicle chassis, forming machine tools, steel metallurgical machinery, mineral mountain machinery, hydraulic industry and rolling steel industry, etc.				产品应用于锻压机床、冶金机械、矿山机械、液压马达等高端应用。 The product is applied in forging press, metallurgy machine, mine machine, irrigation industry, hydraulic moto high-end application, etc.

**SF-2 边界润滑轴承规格及公差**

**SF-2 Boundary Lubricating Bearing Specification & Tolerance**



S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	β
1.0	0.6±0.3	0.30±0.2	30°±5°
1.5	0.7±0.3	0.50±0.2	30°±5°

S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.80±0.3	45°±5°

单位Unit: mm

轴径 Shaft D <sub>s</sub> h8	座孔 Housing H7 D <sub>H</sub>	(OD) 外径公差 Tolerance D <sub>O</sub>	(ID)压装后 内孔公差 After fixed D <sub>i,a</sub>	配合间隙 Clearance D <sub>D</sub>	壁厚 Wall thick- ness S <sub>3</sub>	油孔 Oil hole d <sub>L</sub>	长度 L <sup>0</sup> <sub>-0.40</sub>														
							10	15	20	25	30	35	40	45	50	60					
10 <sub>-0.022</sub>	12 <sup>+0.018</sup>	12 <sup>+0.065</sup> <sub>+0.030</sub>	10.108 10.040	0.130 0.040	0.980 0.955	4	1010	1015	1020												
12 <sub>-0.027</sub>	14 <sup>+0.018</sup>	14 <sup>+0.065</sup> <sub>+0.030</sub>	12.108 12.040				1210	1215	1220												
14 <sub>-0.027</sub>	16 <sup>+0.018</sup>	16 <sup>+0.065</sup> <sub>+0.030</sub>	14.108 14.040	0.135 0.040			1415	1420													
15 <sub>-0.027</sub>	17 <sup>+0.018</sup>	17 <sup>+0.065</sup> <sub>+0.030</sub>	15.108 15.040				1515	1520	1525												
16 <sub>-0.027</sub>	18 <sup>+0.018</sup>	18 <sup>+0.065</sup> <sub>+0.030</sub>	16.108 16.040				1615	1620	1625												
18 <sub>-0.027</sub>	20 <sup>+0.021</sup>	20 <sup>+0.075</sup> <sub>+0.035</sub>	18.111 18.040	0.138 0.040			1815	1820	1825												
20 <sub>-0.033</sub>	23 <sup>+0.021</sup>	23 <sup>+0.075</sup> <sub>+0.035</sub>	20.131 20.050		1.475 1.445	6	2015	2020	2025	2030											
22 <sub>-0.033</sub>	25 <sup>+0.021</sup>	25 <sup>+0.075</sup> <sub>+0.035</sub>	22.131 22.050	0.164 0.050			2215	2220	2225	2230											
25 <sub>-0.033</sub>	28 <sup>+0.021</sup>	28 <sup>+0.075</sup> <sub>+0.035</sub>	25.131 25.050				2515	2520	2525	2530											
28 <sub>-0.033</sub>	32 <sup>+0.025</sup>	32 <sup>+0.085</sup> <sub>+0.045</sub>	28.155 28.060	0.188 0.060	1.970 1.935	8		2820	2825	2830											
30 <sub>-0.033</sub>	34 <sup>+0.025</sup>	34 <sup>+0.085</sup> <sub>+0.045</sub>	30.155 30.060				3020	3025	3030	3035	3040										
35 <sub>-0.039</sub>	39 <sup>+0.025</sup>	39 <sup>+0.085</sup> <sub>+0.045</sub>	35.155 35.060	0.194 0.060			3520	3525	3530	3535	3540										
40 <sub>-0.039</sub>	44 <sup>+0.025</sup>	44 <sup>+0.085</sup> <sub>+0.045</sub>	40.155 40.060		2.460 2.415	8	4020	4025	4030	4035	4040	4045	4050								
45 <sub>-0.039</sub>	50 <sup>+0.025</sup>	50 <sup>+0.085</sup> <sub>+0.045</sub>	45.195 45.080	0.234 0.080			4520	4525	4530	4535	4540	4545	4550								
50 <sub>-0.039</sub>	55 <sup>+0.030</sup>	55 <sup>+0.100</sup> <sub>+0.055</sub>	50.200 50.080	0.239 0.080			5030	5035	5040	5045	5050	5060									
55 <sub>-0.046</sub>	60 <sup>+0.030</sup>	60 <sup>+0.100</sup> <sub>+0.055</sub>	55.200 55.080	0.246 0.080			5530	5535	5540	5545	5550	5560									
60 <sub>-0.046</sub>	65 <sup>+0.030</sup>	65 <sup>+0.100</sup> <sub>+0.055</sub>	60.200 60.080				6030	6035	6040	6045	6050	6060									

## SF-2 边界润滑轴承规格及公差

## SF-2 Marginal Lubricating Bearing Specification & Tolerance

轴径 Shaft D <sub>s</sub> h8	座孔 Housing H7 D <sub>H</sub>	(OD) 外径公差 Tolerance D <sub>O</sub>	(ID)压装后 内孔公差 After fixed D <sub>i,a</sub>	配合间隙 Clearance D <sub>D</sub>	壁厚 Wall thick- ness S <sub>3</sub>	油孔 Oil hole d <sub>L</sub>	长度 L <sup>0</sup> <sub>-0.40</sub>												
							40	50	60	80	90	95	100	110	120				
65 <sub>-0.046</sub>	70 <sup>+0.030</sup>	70 <sup>+0.100</sup> <sub>+0.055</sub>	65.200 65.080	0.246 0.080	2.460 2.415	8	6540	6550	6560										
70 <sub>-0.046</sub>	75 <sup>+0.030</sup>	75 <sup>+0.100</sup> <sub>+0.055</sub>	70.200 70.080				7040	7050	7060	7080									
75 <sub>-0.046</sub>	80 <sup>+0.030</sup>	80 <sup>+0.100</sup> <sub>+0.055</sub>	75.200 75.080				7540	7550	7560	7580									
80 <sub>-0.046</sub>	85 <sup>+0.035</sup>	85 <sup>+0.120</sup> <sub>+0.070</sub>	80.265 80.100	0.313 0.100	2.450 2.385	9.5	8040	8050	8060	8080									
85 <sub>-0.054</sub>	90 <sup>+0.035</sup>	90 <sup>+0.120</sup> <sub>+0.070</sub>	85.265 85.100	8540			8550	8560	8580										
90 <sub>-0.054</sub>	95 <sup>+0.035</sup>	95 <sup>+0.120</sup> <sub>+0.070</sub>	90.265 90.100	9040			9050	9060	9080	9090									
100 <sub>-0.054</sub>	105 <sup>+0.035</sup>	105 <sup>+0.120</sup> <sub>+0.070</sub>	100.265 100.100	0.321 0.100			10050	10060	10080	10090	10095								
105 <sub>-0.054</sub>	110 <sup>+0.035</sup>	110 <sup>+0.120</sup> <sub>+0.070</sub>	105.265 105.100	10550			10560	10580	10590	10595	105100	105110							
110 <sub>-0.054</sub>	115 <sup>+0.035</sup>	115 <sup>+0.120</sup> <sub>+0.070</sub>	110.265 110.110	11050			11060	11080	11090	11095	110100	110110							
120 <sub>-0.054</sub>	125 <sup>+0.040</sup>	125 <sup>+0.170</sup> <sub>+0.100</sub>	120.270 120.110	12050			12060	12080	12090	12095	120100	120110							
125 <sub>-0.063</sub>	130 <sup>+0.040</sup>	130 <sup>+0.170</sup> <sub>+0.100</sub>	125.270 125.110	12550			12560	12580	12590	12595	125100	125110							
130 <sub>-0.063</sub>	135 <sup>+0.040</sup>	135 <sup>+0.170</sup> <sub>+0.100</sub>	130.270 130.110	13050			13060	13080	13090	13095	130100	130110							
140 <sub>-0.063</sub>	145 <sup>+0.040</sup>	145 <sup>+0.170</sup> <sub>+0.100</sub>	140.270 140.110	0.324 0.100			14050	14060	14080	14090	14095	140100	140110						
150 <sub>-0.063</sub>	155 <sup>+0.040</sup>	155 <sup>+0.170</sup> <sub>+0.100</sub>	150.270 150.110	15050			15060	15080	15090	15095	150100	150110							
160 <sub>-0.063</sub>	165 <sup>+0.040</sup>	165 <sup>+0.170</sup> <sub>+0.100</sub>	160.270 160.110	16050			16060	16080	16090	16095	160100	160110							
170 <sub>-0.063</sub>	175 <sup>+0.040</sup>	175 <sup>+0.170</sup> <sub>+0.100</sub>	170.270 170.110	17050			17060	17080	17090	17095	170100	170110							
180 <sub>-0.063</sub>	185 <sup>+0.046</sup>	185 <sup>+0.210</sup> <sub>+0.130</sub>	180.276 180.110	18050			18060	18080	18090	18095	180100	180110							
190 <sub>-0.072</sub>	195 <sup>+0.046</sup>	195 <sup>+0.210</sup> <sub>+0.130</sub>	190.276 190.110	19050			19060	19080	19090	19095	190100	190110	190120						
200 <sub>-0.072</sub>	205 <sup>+0.046</sup>	205 <sup>+0.210</sup> <sub>+0.130</sub>	200.276 200.110	0.339 0.110	20050	20060	20080	20090	20095	200100	200110	200120							
220 <sub>-0.072</sub>	225 <sup>+0.046</sup>	225 <sup>+0.210</sup> <sub>+0.130</sub>	220.276 220.110	22050	22060	22080	22090	22095	220100	220110	220120								
240 <sub>-0.072</sub>	245 <sup>+0.046</sup>	245 <sup>+0.210</sup> <sub>+0.130</sub>	240.276 240.110	24050	24060	24080	24090	24095	240100	240110	240120								
250 <sub>-0.072</sub>	255 <sup>+0.052</sup>	255 <sup>+0.260</sup> <sub>+0.170</sub>	250.282 250.110	25050	25060	25080	25090	25095	250100	250110	250120								
260 <sub>-0.081</sub>	265 <sup>+0.052</sup>	265 <sup>+0.260</sup> <sub>+0.170</sub>	260.282 260.110	0.354 0.110	26050	26060	26080	26090	26095	260100	260110	260120							
280 <sub>-0.081</sub>	285 <sup>+0.052</sup>	285 <sup>+0.260</sup> <sub>+0.170</sub>	280.282 280.110	28050	28060	28080	28090	28095	280100	280110	280120								
300 <sub>-0.081</sub>	305 <sup>+0.052</sup>	305 <sup>+0.260</sup> <sub>+0.170</sub>	300.282 300.110	30050	30060	30080	30090	30095	300100	300110	300120								



# JF-800 双金属自润滑轴承

Bimetal Self-Lubricating Bearing

## 应用领域 / Application



# JF-800 双金属自润滑轴承

## Bimetal Self-Lubricating Bearing



### 结构特性 Structure Characteristics

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

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

### 产品应用 Application

工程机械：底盘行走机构支重轮轴套、拖带轮轴套、张紧轮轴套；

汽车行业：平衡轴衬套、钢板销衬套、转向节主肖轴套、连杆轴套、气门摇臂轴套、凸轮轴轴套、差速器轴套、变速箱轴套、内燃机主轴瓦、止推垫片；以及柱塞泵侧片，齿轮泵侧片等。

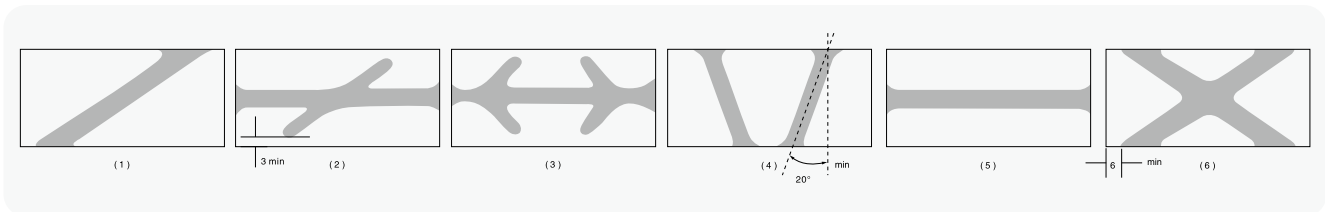
Engineering machine: underpan, thrust wheel, Towing wheel, Steering knuckle, tension pulley...

Automotive: trunnion shaft, connecting rod, valve rocker, camshaft, gear box, internal-combustion engine, And Plunger pump friction plate, gear pump friction plate...

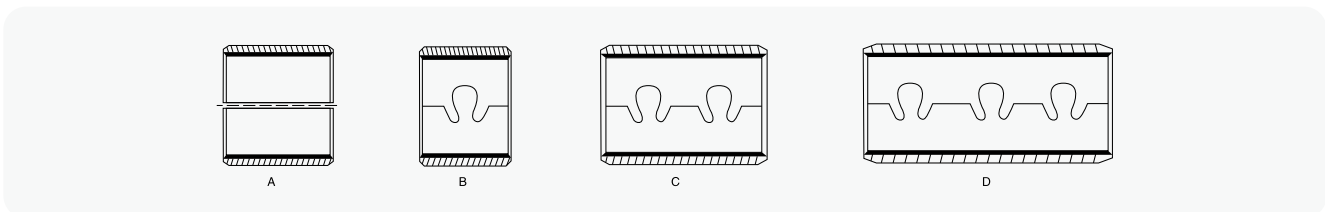
### JF-800 双金属内孔加工与不可加工厚度公差 Wall Thickness of The Machinable and Non-machinable Bore of Bearing and Their Tolerances

公称厚度 Nominal Thickness	内孔不可加工厚度公差 Tolerances of Series B (non-machinable)	内孔可加工厚度公差 Tolerances of Series C (non-machinable)
1.0	-0.025	+0.25 +0.15
1.5	-0.030	+0.25 +0.15
2.0	-0.035	+0.25 +0.15
2.5	-0.040	+0.30 +0.15
3.0	-0.045	+0.30 +0.15
3.5	-0.050	+0.30 +0.15

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



### 双金属轴承的搭扣形式 Lock Types for Bi-Metallic Bearing









# JF-800 双金属自润滑轴承

## Bimetal Self-Lubricating Bearing

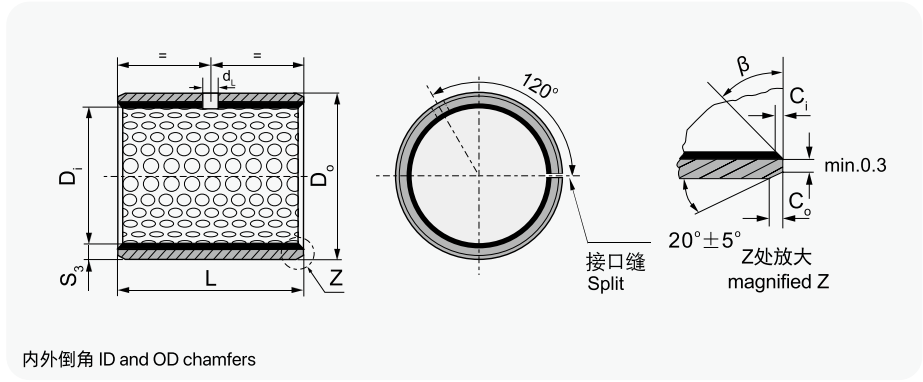
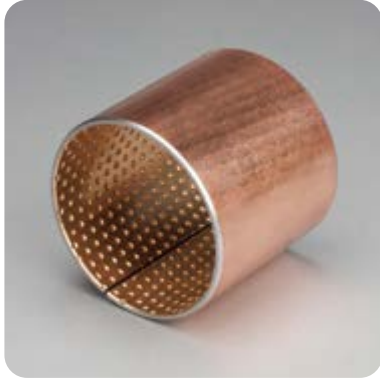
JF-800 双金属轴承适用于高载、中高速下的旋转、摇摆运动工况。实际运用中根据使用工况的不同，表面可以烧结不同合金层。由此衍生出JF-800、JF-801、JF-802、JF-803、JF-804、JF-80G各系列产品，其材料结构、运用领域和技术参数汇总表如下：

JF-800 bimetal bushing applied to the working condition like heavy load, medium and high rotation speed, Oscillating motion. different alloy material can be sintered on the steel back, like JF-800、JF-801、JF-802、JF-803、JF-804、JF-80G, Detail as below:

有关数据 Data	代号 Grade	JF-800	JF-801	JF-802	JF-803	JF-804	JF-80G
	材料 Material	碳钢/Steel + CuPb <sub>10</sub> Sn <sub>10</sub>	碳钢/Steel + CuPb <sub>24</sub> Sn <sub>4</sub>	碳钢/Steel + CuPb <sub>24</sub> Sn	碳钢/Steel + AlSn <sub>20</sub> Cu	碳钢/Steel + CuPb <sub>30</sub>	碳钢/Steel + CuPb <sub>10</sub> Sn <sub>10</sub> + 石墨/Graphite
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。 We can also develop according to customers special request while out of this table							
主要运用领域 Typical application		产品适用于汽车发动机连杆，工程机械、农业机械等。 Application: con-rod of automobile engines, engineering and agriculture machinery, heavy duty construction machinery etc.	产品适用于高速、重载的内燃机主轴和变速齿轮。 Application: High speed, heavy load engine main shaft and transmission gearbox, etc.	产品适用于高速、重载的内燃机主轴和连杆轴承。 Application: High speed, heavy load engine main shaft and con rod	产品适用于内燃机主轴和连杆轴承、空压机、制冷机用轴承。 Application: High speed, heavy load engine main shaft and air compressor, cooling machine. etc	产品主要适用于内燃机主轴和连杆轴承。 Application: High speed, heavy load engine main shaft and con rod	产品适用于启动马达机械。 Application: starting motor
最大动载 P N/mm <sup>2</sup> Max dynamic Load P		140	120	120	90	100	140
最大线速度 V m/s Max line speed V		2.5	2.5	2.5	--	--	2.5
最高PV值 N/mm <sup>2</sup> ·m/s Max PV value		2.8	2.8	2.8	--	--	2.8
摩擦系数u Friction coef u		0.05~0.15	0.05~0.15	0.05~0.15	--	--	0.05~0.15
最大线速度 V m/s Max line speed V		5	10	10	15	15	--
最高PV值 N/mm <sup>2</sup> ·m/s Max PV value		10	10	10	8	8	--
摩擦系数u Friction coef u		0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	--
最高温度 °C Max Working temperature		150	150	150	150	150	150
硬度 HRC Hardness		≥53	≥48	≥45	≥270	≥270	≥53
粗糙度 Ra Roughness		0.32~0.63	0.16~0.63	0.16~0.63	0.16~0.63	0.16~0.63	0.32~0.63
合金层硬度 HB Alloy layer hardness		60~90	45~70	40~60	30~40	30~45	60~90
导热系数 W/mk Thermal conductivity		47	60	60	47	60	47
线膨胀系数 (轴向) Coefficient of linear expansion		18×10 <sup>-6</sup> /K	19×10 <sup>-6</sup> /K	19×10 <sup>-6</sup> /K	18×10 <sup>-6</sup> /K	19×10 <sup>-6</sup> /K	18×10 <sup>-6</sup> /K

### JF-800 双金属轴承规格及公差

### JF-800 Bimetal Sleeve Bearing Specification & Tolerance



S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	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 <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	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 <sub>i</sub> φd	外径 D <sub>o</sub> φD	轴径(h8) Shaft D <sub>s</sub>	座孔(H7) Housing D <sub>H</sub>	压装后 内孔公差 Arter fixed D <sub>i,a</sub>	配合间隙 Clearance C <sub>D</sub>	壁厚 Wall thickness S <sub>3</sub>	油孔 Oil hole d <sub>L</sub>	长度 L <sub>-0.40</sub>						
								10	15	20	25	30	40	50
10	12	10 <sub>-0.022</sub>	12 <sub>+0.018</sub>	+0.148 +0.010	0.170 0.010	0.995 0.935	4	1010	1015	1020				
12	14	12 <sub>-0.027</sub>	14 <sub>+0.018</sub>					1210	1215	1220				
14	16	14 <sub>-0.027</sub>	16 <sub>+0.018</sub>					1410	1415	1420				
15	17	15 <sub>-0.027</sub>	17 <sub>+0.018</sub>					1510	1515	1520				
16	18	16 <sub>-0.027</sub>	18 <sub>+0.018</sub>					1610	1615	1620				
18	20	18 <sub>-0.027</sub>	20 <sub>+0.021</sub>	+0.151 +0.010	0.178 0.010			1810	1815	1820	1825			
20	23	20 <sub>-0.033</sub>	23 <sub>+0.021</sub>	+0.161 +0.020				0.194 0.020	1.490 1.430	6	2010	2015	2020	2025
22	25	22 <sub>-0.033</sub>	25 <sub>+0.021</sub>		2210	2215	2220				2225			
24	27	24 <sub>-0.033</sub>	27 <sub>+0.021</sub>		2410	2415	2420				2425	2430		
25	28	25 <sub>-0.033</sub>	28 <sub>+0.021</sub>		2515	2520	2525				2530			
26	30	26 <sub>-0.033</sub>	30 <sub>+0.021</sub>		+0.181 +0.040	0.214 0.040	1.980 1.920				8	2615	2620	2625
28	32	28 <sub>-0.033</sub>	32 <sub>+0.025</sub>	+0.185 +0.040	0.218 0.040			2815	2820	2825		2830	2840	
30	34	30 <sub>-0.033</sub>	34 <sub>+0.025</sub>					3015	3020	3025		3030	3040	
32	36	32 <sub>-0.039</sub>	36 <sub>+0.025</sub>					3215	3220	3225		3230	3240	
35	39	35 <sub>-0.039</sub>	39 <sub>+0.025</sub>					3520	3525	3530		3540	3550	
38	42	38 <sub>-0.039</sub>	42 <sub>+0.025</sub>	0.224 0.040				3820	3825	3830	3840	3850		
40	44	40 <sub>-0.039</sub>	44 <sub>+0.025</sub>					4020	4025	4030	4040	4050		

## JF-800 双金属轴承规格及公差

### JF-800 Bimetal Sleeve Bearing Specification & Tolerance

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



# FB-090/092

## 系列青铜卷制轴承 Bronze-Wrapped Bearing

### 应用领域 / Application



# FB-090 系列青铜卷制轴承

## Bronze-Wrapped Bearing



### 结构特性及用途

#### Structure Characteristics and Applications

FB-090 青铜卷制轴承，以锡青铜合金 CuSn8 为材料，表面轧制菱形油穴，起储存油脂作用，它具有良好的疲劳强度和承载能力、耐腐蚀、抗磨损。广泛运用于农业机械、建筑机械、工程机械等高载低速场合。

FB-090 wrapped bronze bearing is made of tin-bronze CuSn8 with its surface punched with diamond oil sockets which are preserved for oil saving. It has good anti-fatigue, anti-erosion anti-abrasion and load capacity. The products are widely applied in conditions of heavy load but low running velocity, such as on agricultural, buiding and engineering machines.

# FB-092 系列青铜卷制轴承

## Bronze-Wrapped Bearing



### 结构特性及用途

#### Structure Characteristics and Applications

FB-092 青铜卷制轴承，以锡青铜合金 CuSn8 为材料，工作表面按一定角度、密度均匀排布着润滑通孔，在启动时容易形成油膜，从而降低启动摩擦系数。它具有良好的疲劳强度的承载能力、耐腐蚀、抗磨损。该系列产品广泛运用于农业机械、建筑机械、工程机械等高载低速场合。

FB-092 wrapped bronze bearing is made of tin-bronze CuSn8 that is of high density, its surface is punched with oil apertures by certain angle and density therefore its easier to form an oil film when the bushing works. It has good anti-fatigue and load, anti-erosion anti-abrasion and load capacity. The products are widely applied in conditions of heavy load but low running velocity, such as on agricultural, buiding and engineering machines.

### 产品的优点 Product Benefits

1. 节约大量铜材、节省车制铜套工时
  2. 与车制轴套、滚动轴承相比其重量轻、成本低；
  3. 可在摩擦面加工出各种有穴、有坑、储存一定油脂，延长加油的时间是铜套的 5 倍；
  4. 极高的承载能力，特别是适用于粗糙的摩擦面；
- 可供产品：直套、止推垫片、翻边衬套、轴瓦、滑板、钢套组合件。

1. Saving large amount of bronze material and save the working hours normally spent for lathing the bronze bushing.

2. Compared with lathed bushings and roller bearings, it is lights and more cost-effective.

3. Various holes and dents can be made on the frication surface for grease storage, prolonging the lubrication interval to 5 times as long as required by the bronze bushing.

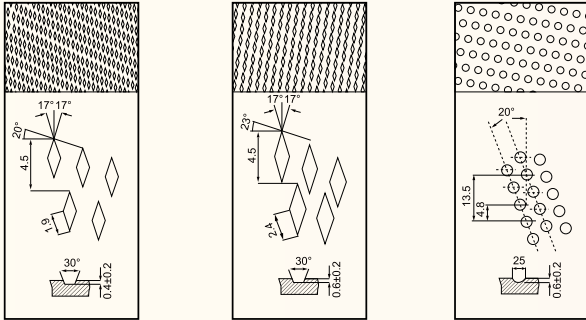
4. Extremely high load sustainability, especially suitable for coarse abrasion surfaces.

Standard products available: straight bushings, thrust plates and pressure bearings.

Non-standard products available: straight bushings, thrust plates, planks, bearing bushings, slide plates and steel bushing assembly.

# FB-090/092 系列青铜卷制轴承

## Bronze-Wrapped Bearing



轴衬套内  
Inside the bush of the shaft  
菱形油穴  $r \leq \varphi 22$   
Rhomb oil holes  $r \leq \varphi 22$

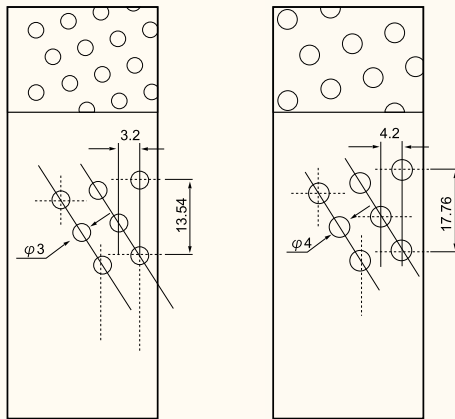
轴衬套内  
Inside the bush of the shaft  
菱形油穴  $r > \varphi 22$   
Rhomb oil holes  $r > \varphi 22$

形成菱形  
Forming a rhomb

### FB-090 材料结构 Material Structure

采用高密度青铜卷制成形或球形油袋、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.



轴承内部  
球形内径  $r \leq \varphi 25$

轴承球形  
内径  $r > \varphi 25$

### FB-092 材料结构 Material Structure

表面排布规则的油孔，可在装配前或装配后涂抹油脂，以便在工作中易形成转移油膜，降低摩擦系数。

具有油脂储存量大、免维护周期长等优点。产品被广泛应用于农业机械、森林机械、工程机械等。

FB-092 is deriving from FB-090, the difference between FB-090 & FB-092 is indentations on working surface, which substituted by through-holes.

These holes will allow greater capacity to collect lubricant, which build up a lubrication film at the start of movement and reduce the friction.

It is suitable for high load, lower speed application like construction, transport, and agriculture machinery.

### 标准衬套公差 (依据 DIN ISO/3547) Standard Tolerance for Bearing (As per to DIN ISO/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	+0.046 0	-0.016 -0.043
18~30	+0.075 +0.035	+0.021 0	+0.052 0	-0.020 -0.020
30~50	+0.085 +0.045	+0.025 0	+0.062 0	-0.025 -0.064
50~80	+0.100 +0.055	+0.030 0	+0.074 0	-0.030 -0.076
80~120	+0.120 +0.070	+0.035 0	+0.087 0	-0.036 -0.090
120~180	+0.170 +0.100	+0.400 0	+0.100 0	-0.043 -0.106
180~250	+0.210 +0.130	+0.046 0	+0.115 0	-0.050 -0.122
250~315	+0.260 +0.170	+0.052 0	+0.130 0	-0.056 -0.137

# FB-09G 系列青铜固体卷制轴承

## Bronze-Wrapped Bearing



### 可供形式 Availability

直套、止推垫片、滑板及其它非标品部件等。

Cylindrical Bearing, thrust washers, strip and non-standard parts as the clients supplied drawing etc.

### 公差 Tolerance

一般推荐座孔公差为 H7，轴径公差为 f7。

The general recommendation is to use H7 as the seat hole tolerance and f7 as the shaft diameter tolerance.

### 结构特性 Structure Characteristics

与 FB-090 具有相同的生产工艺及使用场合，其基体为青铜基板，在其菱形油穴内填充了以石墨为主的固体润滑剂，使产品在起始运用阶段及过程中能有更低的摩擦系数，在短时间断油的情况下任能保持良好的工作状态。因此被广泛使用在工程机械、齿轮箱传动部件、汽机车离合器等高载中速部位、户外高空设备的转动部位。

This product has the same production process and the use of occasions as with FB-090. Using bronze substrate as base material, oil in its cavity filled with a diamond-shaped solid lubricant which will offer good friction at the start and process works and keep good condition even when there's no oil giving at short time. It is widely used in construction machinery, gear box drive unit parts, motorcycle parts clutch pads, high upload speed, high-altitude equipment outdoor rotating parts.

### 技术参数 Tech.Data

最大承载压力	Load capacity	140N/mm <sup>2</sup>
适应温度范围	Temperature limit	-100°C~+250°C
最高滑动速度	Speed limit	1.5M/s
摩擦系数	Friction coef	0.06~0.25
允许最高PV值(干)	PV limit (dry)	2.6N/mm <sup>2</sup> ·m/s
允许最高PV值(油)	PV limit (oil)	15N/mm <sup>2</sup> ·m/s

# FB-090/092 系列青铜卷制轴承

## Bronze-Wrapped Bearing

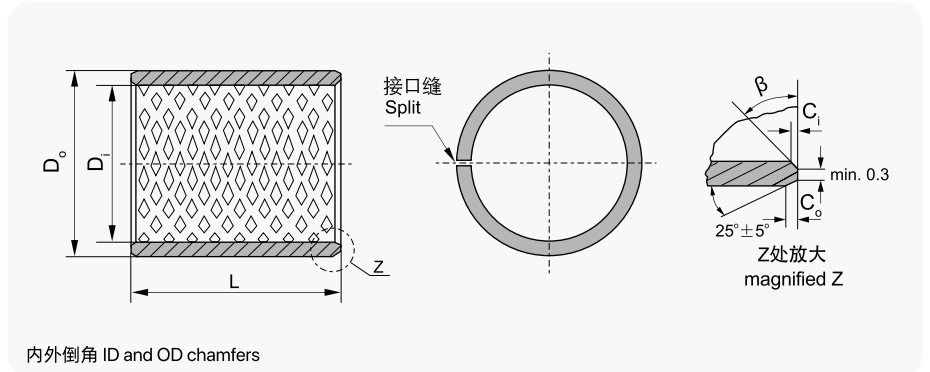
FB-090青铜卷制轴承，表面轧制菱形，起储存油脂作用，它具有良好的疲劳强度和承载能力、耐腐蚀、抗磨损。实际运用中根据使用工况的不同，基体可以采用不同牌号的合金，表面可以加工成其他形式的油孔和油槽。由此衍生出FB-090、FB-091、FB-092、FB-094、FB-09G各系列产品，其材料结构和技术参数汇总表如下：

FB-090 bronze wrapped bearing, with diamond oil socket to preserve oil grease, It has good anti-fatigue, anti-erosion and anti-abrasion and load capacity. Can be produced by different tin-bronze material and the surface can be produced with other type of oil socket and oil groove in different working condition. Like FB-090、FB-091、FB-092、FB-094、FB-09G. Detail see below:

有关数据 Data	代号Grade	FB-090	FB-091	FB-092	FB-094	FB-09G
	材料名称 Material	CuSn8P (Qsn8-0.3)	CuZn31Si (H68)	CuSn8P (Qsn8-0.3)	CuSn8P (Qsn8-0.3)	CuSn8P+石墨 (Qsn8-0.3+graphite)
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。						
主要运用领域 Typical application	产品适用于起重机械、建筑机械、采矿机械，农业机械，森林机械等。 Application: Hoisting, mining machinery, Forest machinery, agricultural machinery etc.	产品运用于建筑机械、汽车制动系统机床工业等。 Application: construction machinery and machine tool, Brake system of Automobile etc.	产品广泛运用于农业机械、建筑机械、工程机械等。 Application: Agricultural Machinery, Heavy duty construction machinery etc	它具有防止油脂倒漏，延长润滑时间，防止灰尘、沙等物质的渗透等优点。产品广泛运用于农业机械、建筑机械、工程机械等。 Can protect the grease leak from the bushing, prevent dust Application: Agricultural	它具有很低的摩擦系数，较好的耐磨性等优点，能在无油或少油的条件下工作。产品广泛应用于启动马达起动机，工程机械，汽车，卡车，拖拉机等。 Application: Starting motor hoisting machines and other construction machines, automobiles, tractors, trucks, machines tools and some mineral engines	
密度 g/cm <sup>3</sup> Density		8.8	8.4	8.8	8.8	8.8
最大动载 N/mm <sup>2</sup> Max Dynamic Load		100	90	120	120	100
最高线速度(脂润滑) m/s Max Linear Velocity (Grease)		2	1.5	2.5	2.5	2.5
最高PV值(脂润滑) N/mm <sup>2</sup> .m/s Max PV value Grease		2.8	1.65	2.8	2.8	2.8
抗拉强度 N/mm <sup>2</sup> Pressure strength		>460	>440	>460	>460	>460
屈服强度 N/mm <sup>2</sup> Yield Strength		>280	>230	>280	>280	>280
硬度 HB hardness		90~150	80~120	90~150	90~150	90~150
相配轴 Mating Axis	硬度 HRC Hardness	≥50	≥50	≥50	≥50	≥50
	粗糙度 Roughness	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0
适用温度 °C Working Temperature		-40~150	-40~150	-40~150	-40~125	-40~150
摩擦系数 Friction Coefficient		0.06~0.15	0.06~0.15	0.06~0.15	0.06~0.15	0.03~0.1
导热系数 W/m·K coefficient of heat conduction		58	71	58	58	58
线膨胀系数 (轴向) Linear expansion coefficient		18.5×10 <sup>-6</sup> /K	19.2×10 <sup>-6</sup> /K	18.5×10 <sup>-6</sup> /K	18.5×10 <sup>-6</sup> /K	18.5×10 <sup>-6</sup> /K

**FB-090, FB-092 青铜卷制轴承规格及公差**

**FB-090, FB-092 Bronze-Wrapped Bearing Specification & Tolerance**



内外倒角 ID and OD chamfers

S <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	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 <sub>3</sub>	C <sub>o</sub>	C <sub>i</sub>	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

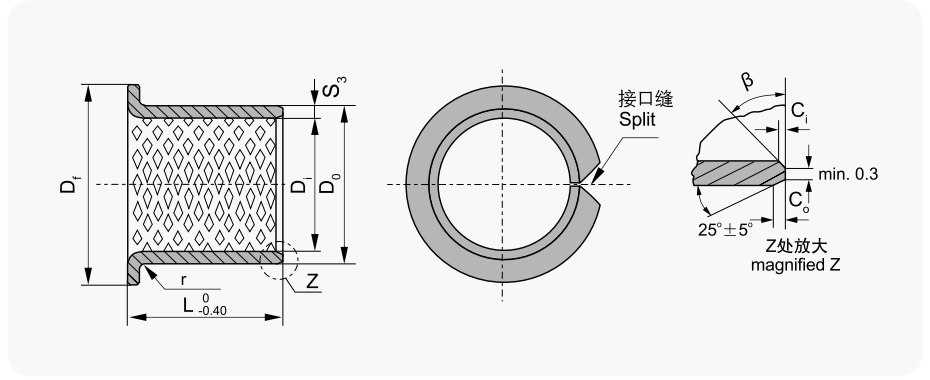
内径 D <sub>i</sub> φd	外径 D <sub>o</sub> φD	长度 L <sup>0</sup> <sub>-0.40</sub>													
		10	15	20	25	30	35	40	50	60	70	80	90	100	
10	12	1010	1015	1020											
12	14	1210	1215	1220											
14	16	1410	1415	1420	1425										
15	17	1510	1515	1520	1525										
16	18	1610	1615	1620	1625						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

**FB-090, FB-092 青铜卷制轴承规格及公差**
**FB-090, FB-092 Bronze-Wrapped Bearing Specification & Tolerance**

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

**FB-090F/FB-092F 青铜翻边轴承规格及公差**

**FB-090F/FB-092F Bronze Flange Bearing Specification & Tolerance**



$S_3$	1.0	1.5	2.0	2.5
$r$	$1^{+0.5}$	$1 \pm 0.5$	$1.5 \pm 0.5$	$2 \pm 0.5$

单位Unit: mm

内径 $D_i$ $\phi d$	外径 $D_o$ $\phi D$	法兰外径 $D_{fl}$	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	



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