

嘉善荣昌滑动轴承有限公司  
JIASHAN RONCAN SLIDE BEARING CO.,LTD

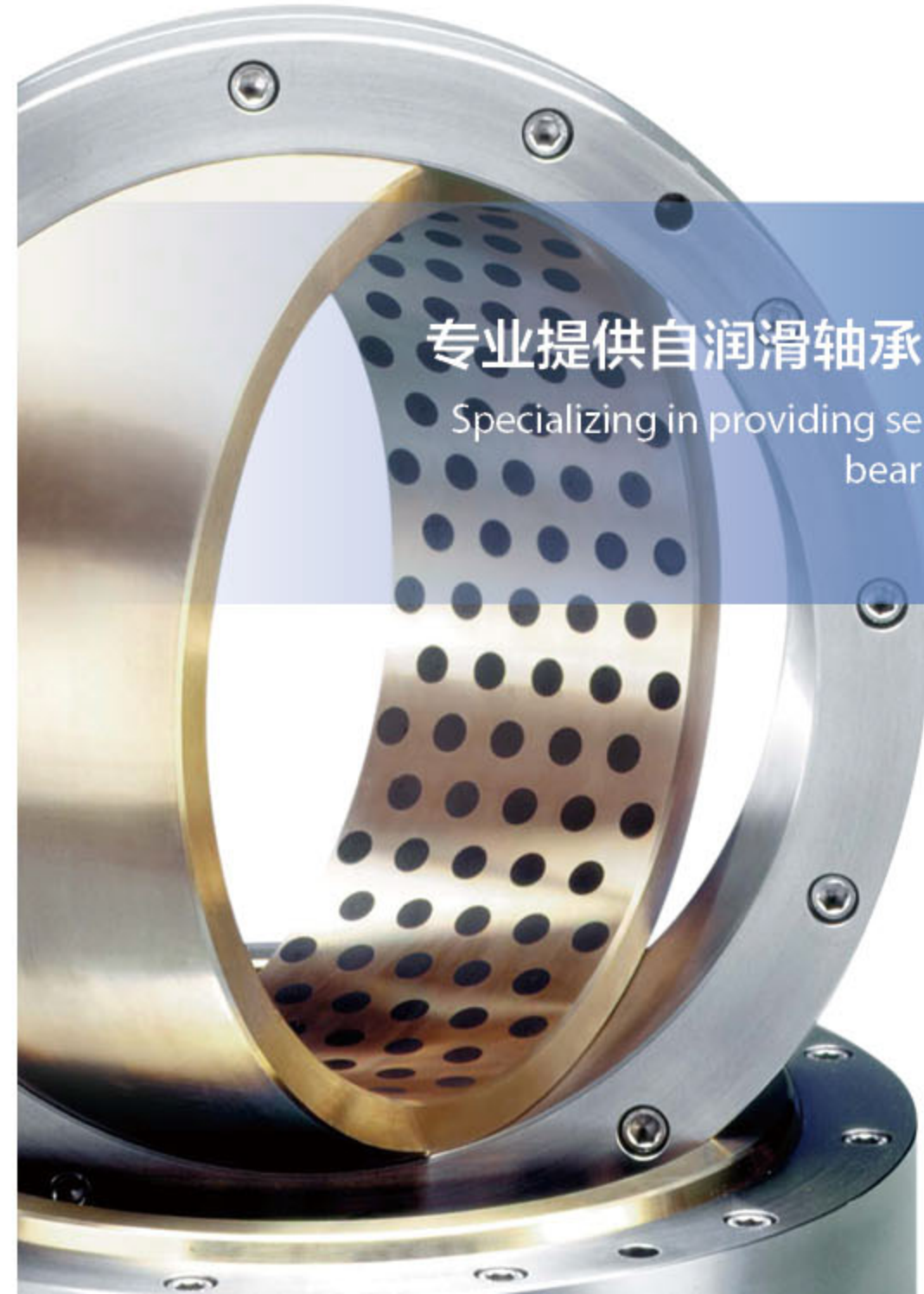


### 嘉善荣昌滑动轴承有限公司

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专业提供自润滑轴承解决方案

Specializing in providing self-lubricating  
bearing solutions



## 公司产品 Company Product

■ 嘉善荣昌滑动轴承有限公司生产各种铜套，最大单件能做到3.0吨，最小能做到50克。我们生产各种花色铜如磷铜（QSn10-1, QSn6.5-0.1），黄铜（H62, H65, H68, H70, H85, H90），锡青铜（QSn6-6-6, QSn5-5-5 CuSn10Pb1, CuSn8, CuSn4, CuSn12），铝青铜（C60600, C64200, C60800, C61300, C61400, C61900, C62300, C62400, C63000, C63020, C63200, C65100, CuAl10Fe3, CuAl9Fe4Ni4, CuAl9Mn2, CuAl9Ni3Fe2, CuAl10Ni5Fe4）等等。同时根据不同的客户要求，可按照DIN、BS、EN (DIN/EN)、SS、NS、UNS、SAE以及中国GB标准生产各类青铜、黄铜牌号的轴套、板材和棒的产品。所有产品均以电解铜为原料，以离心浇注、连续铸造及挤压方式生产各类产品，提供铜棒，铜管，铜衬套，耐磨板、法兰轴套、自润滑轴承，以及铜轴套、铜轴瓦、铜蜗轮、铜板、铜接头、铜柱、铜垫圈等等。

### 我们提供下面常见铜材料

- Tin Bronzes: C90300, C92300, C92500, C92600, C92700, C92800
- Leaded Tin Bronzes: C83600, C92200, C92900, C93200 (SAE660), C93700 (SAE64) C90200, C90300, C90500, C90700, C91000, C91100
- Manganese Bronzes: C86200, C86300, C86500
- Aluminum Bronzes: C95200, C95400, C95500, C61000, C61300, C61400, C61800, C62300, C62400, C62500, C63000, C63020, C63200, C63400, C63600, C64200
- Lead-free Bronzes: C89833, C89320



## 生产设备 Manufacture Equipment



■ 车间一角



■ 车间一角



■ 德国斯派克光谱仪





■ 布洛维硬度仪



■ 光洁度仪

			
<b>RCB-200</b> 钢基自润滑轴承 Steel base self-lubricating bearing P03	<b>RCB-250</b> 钢基自润滑轴承 Steel base self-lubricating bearing P04	<b>RCB-400</b> 铜基铜合金自润滑轴承 Copper alloy steel self-lubricating bearings P07	<b>RCB-450</b> 钢基铜合金自润滑轴承 Steel with bronze high precision bearings P08
			
<b>RCB-600</b> 铜套 Bronze Bushing P09	<b>RCB-650</b> 镶嵌式固体润滑轴承 Solid Lubricant Inlaid Bearing P14	<b>RCB-JFB</b> 自润滑翻边轴承 Self-Lubricating Flanging Bearing P16	<b>RCB-JTW</b> 止推垫片 Oilless Thrust Washers P17
			
<b>RCB-JFFB</b> 自润滑轴瓦 Half-Bearing P18	<b>RCB-JSP</b> 自润滑板 Oilless Wear Plate P19	<b>RCB-JSL</b> L型自润滑板 Oilless L Guide Plate P20	<b>RCB-HGB250</b> 自润滑导向套 Oilless Guide Bushes P20
			
<b>RCB-LMF/K/H</b> 自润滑导向套 Oilless Guide Bushes P21	<b>RCB-JESW</b> 自润滑板 Oilless Wear Plate P22	<b>RCB-39D 863</b> 自润滑板 Oilless Wear Plate P23	<b>RCB-DSPW/DSPS</b> 凸轮行程滑板 Oilless Wear Plate P24

			
<b>RCB-DCBS/DCBSL</b> V型导轨 V Cam Slide Guide P25	<b>RCB-DCBSP/DCBSPL</b> V型导轨 V Cam Slide Guide P26	<b>RCB-GBW/GB250</b> 自润滑导向套 Oilless Guide Bushes P27	<b>RCB-JNA</b> 自润滑导向套 Oilless Guide Bushes P27
			
<b>RCB-JDBS</b> 自润滑关节轴承 Metric Spherical Plain Bushes P28	<b>RCB-JDBB</b> 自润滑翻边轴套 Oilless Flange Bushes P29	<b>RCB-JGB</b> 自润滑导向套 Oilless Guide Bushes P30	<b>RCB-JGBF</b> 自润滑翻边导向套 Oilless Flanged Guide Bushes P31
			
<b>RCB-JEGB, RCB-JEGB-K</b> 射出座导套 Oilless Ejector Guide Bushes P32	<b>RCB-750</b> 固体镶嵌轴承 Solid Lubricant Inlaid Bearing P33	<b>RCB-FU</b> RCB-FU 系列 RCB-FU Series P35	<b>RCB-FZH</b> 铜基钢球保持架 Copper Retainer Bearing P36
			
<b>RCB-FZL</b> 铝基钢球保持架 Aluminum Retainer Bearing P36	<b>RCB-FZP</b> 树脂基钢球保持架 Resin-based Retainer Bearing P36	<b>RCB-H2</b> 轴承座 Bearing Seat P38	<b>RCB-H4</b> 轴承座 Bearing Seat P39



RCB200C/RCB200G



RCB250C/RCB250G

RCB200 以优质碳素钢为基体，通过合理的油路设计，在装配时涂上油脂使得其在工作时能较长时间的储存所需要的足够油脂，并且能均匀的分布在轴承及轴的表面上，从而达到了延长使用寿命缩短加油频率的目的；同时由于特殊的油路系统能够存入工作时侵入轴承的灰尘和其它异物，从而最大限度的降低对轴承使用过程中的影响。RCB200 另外一个特殊性是在轴承的工作表面经过一种特殊工艺的处理，使其表面覆盖了一层特殊的固体润滑剂，这层特殊的润滑剂在起始动作时能很快的转移到对磨轴的表面上，从而较快的降低了起始摩擦系数，提高了轴承的耐磨性。

RCB200 is produced by carbon steel with oil groove, the initial grease given can be deposited the mass lubrication for long time working. The work surface has been sprayed a special solid lubricant, this solid lubricant can be transfer to the mating material during the operation and forming a solid lubrication film between the bearing and shaft which make the bearing material have high load capacity with lower friction and excellent wear resistance.

RCB250 则在 RCB200 的基础上进行了改良，以固体润滑剂嵌入替代了原有的披覆方式，使得产品在使用过程中提供了源源不断的润滑源，从而达到免维护的目的。

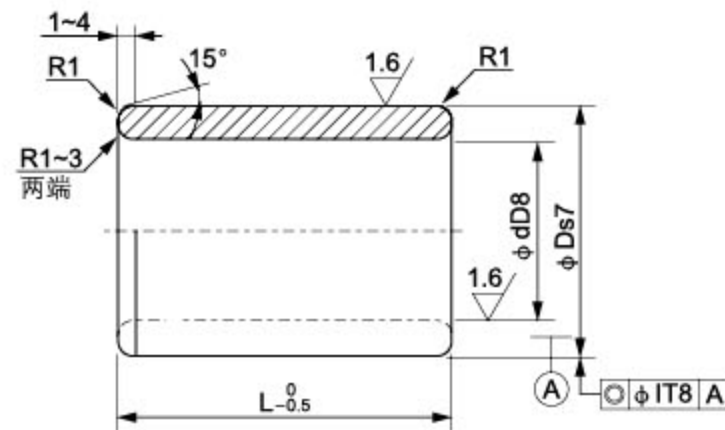
The RCB250 bearing material is developed from the RCB200, the solid lubricant have been embedded instead of covering on surface which can provide the solid lubricant for much long time during the operation even without any oil given. This material provides a maintenance-free design solution, particularly for high load, intermittent of oscillating motion with lower speed and excellent wear resistance required.

材料特性 Material characteristic

单位unit:mm

RCB 标准 Standard	RCB200C	RCB200G	RCB250C	RCB250G
基材 Base material	S45C	GCr15	S45C	GCr15
线胀系数 Coe. of linear expansion	$1.1 \times 10^{-5}/^{\circ}\text{C}$	$1.1 \times 10^{-5}/^{\circ}\text{C}$	$1.1 \times 10^{-5}/^{\circ}\text{C}$	$1.1 \times 10^{-5}/^{\circ}\text{C}$
使用温度 Temp. $^{\circ}\text{C}$	-100~+300	-100~+300	-100~+300	-100~+300
硬度 Hardness	HRC $\geq$ 35	HRC $\geq$ 50	HRC $\geq$ 35	HRC $\geq$ 50
最大承载 Max. Load (Mpa)	150Mpa	200Mpa	150Mpa	200Mpa
最大线速度 Max. speed (m/min)	10	10	15	15
润滑形式 Solid Lubricant	加工油槽油润滑 Processing sump oil lubrication		镶嵌石墨自润滑 Embedded graphite self-lubricating	
公差配合 Mating tolerance	装配座孔 Mating Housing: H7 相配轴 Mating shaft: e7/f7			

轴套示意图 Bushes sketch

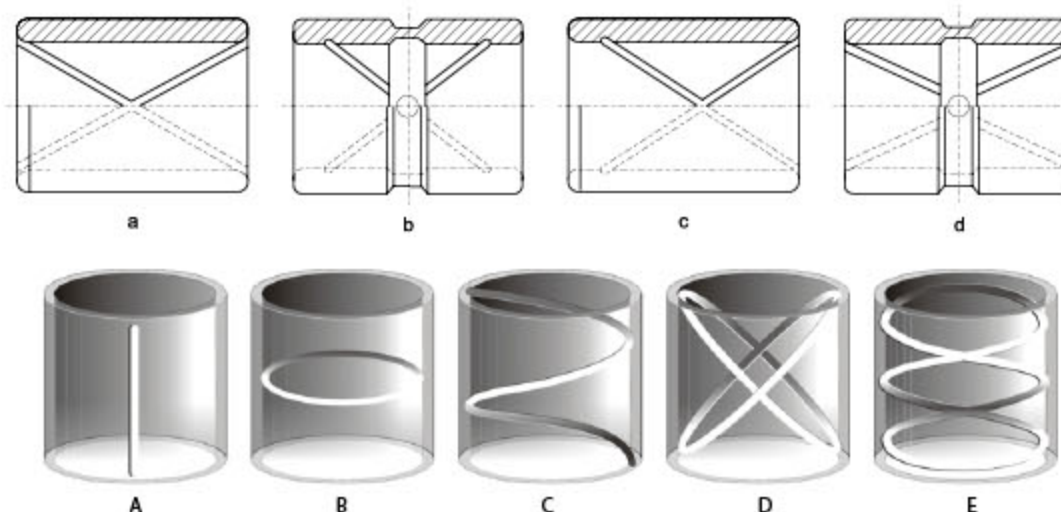


RCB200#

石墨排布形式 Graphite arrangement

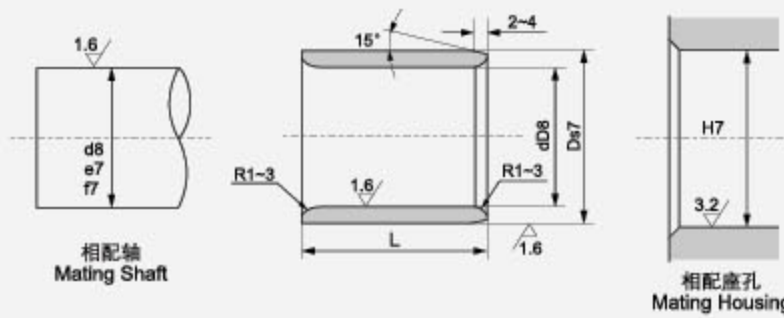


典型油槽形式 Typical oil groove type

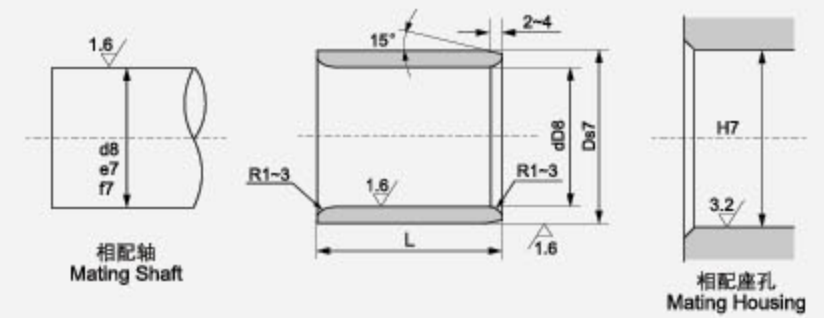




d8 高载荷 high load  
e7 轻载荷 light load  
f7 高精度 high precision



d8 高载荷 high load  
e7 轻载荷 light load  
f7 高精度 high precision



单位unit:mm

d	D8	D	s7	L 0/-0.5														
				20	25	30	35	40	50	60	70	80	100	120				
30	+0.098 +0.065	38	+0.068 +0.043	■	■	■	■	■	■									
30		40		■	■	■	■	■	■									
32		42		■		■		■										
35		45		■	■	■	■	■	■	■								
38		48		■		■		■										
40		50		■	■	■	■	■	■	■	■							
40	+0.119 +0.080	55		+0.083 +0.053	■		■	■	■	■	■	■	■					
45		60				■	■	■	■	■	■	■	■					
50	60					■	■	■	■	■	■	■	■					
50	62						■		■	■	■	■	■					
50	65					■		■	■	■	■	■	■					
55		70	+0.089 +0.059				■	■	■	■	■	■	■	■				
60		75					■	■	■	■	■	■	■	■	■			
65		80						■	■	■	■	■	■	■	■	■		
70	+0.146 +0.100	85					■	■	■	■	■	■	■	■	■	■	■	
75		90						■	■	■	■	■	■	■	■	■	■	
75		95		+0.106 +0.071							■	■	■	■	■	■		
80		95								■	■	■	■	■	■	■	■	
80		100								■	■	■	■	■	■	■	■	
85		100									■	■	■	■	■	■	■	
90	+0.174 +0.120	110			+0.114 +0.079					■	■	■	■	■	■	■	■	
100		120							■	■	■	■	■	■	■	■	■	
110		130	+0.132 +0.092							■	■	■	■	■	■	■	■	■
120		140										■	■	■	■	■	■	■
130	+0.208 +0.145	150	+0.140 +0.100											■	■	■	■	
140		160														■	■	■
150		170	+0.148 +0.108												■	■	■	

单位unit:mm

d	D8	D	s7	L 0/-0.5															
				20	25	30	35	40	50	60	70	80	100	120					
30	+0.098 +0.065	38	+0.068 +0.043	■	■	■	■	■	■										
30		40		■	■	■	■	■	■										
32		42		■		■		■											
35		45		■	■	■	■	■	■	■	■								
38		48		■		■		■											
40		50		■	■	■	■	■	■	■	■	■							
40	+0.119 +0.080	55		+0.083 +0.053	■		■	■	■	■	■	■	■	■					
45		60					■	■	■	■	■	■	■	■					
50	60						■	■	■	■	■	■	■	■					
50	62							■		■	■	■	■	■					
50	65						■		■	■	■	■	■	■					
55		70	+0.089 +0.059				■	■	■	■	■	■	■	■	■				
60		75						■	■	■	■	■	■	■	■	■			
65		80							■	■	■	■	■	■	■	■	■		
70	+0.146 +0.100	85						■	■	■	■	■	■	■	■	■	■	■	
75		90								■	■	■	■	■	■	■	■	■	
75		95		+0.106 +0.071											■	■	■	■	
80		95														■	■	■	■
80		100														■	■	■	■
85		100															■	■	■
90	+0.174 +0.120	110			+0.114 +0.079													■	■
100		120																■	■
110		130	+0.132 +0.092														■	■	■
120		140																■	■
130	+0.208 +0.145	150	+0.140 +0.100															■	■
140		160																	■
150		170	+0.148 +0.108														■	■	



### 材料特点 Material Properties

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

- Combined with the wear resistance of copper alloy and high mechanical strength properties of steel;
- Different cast copper alloy material is available according to work condition, including lower friction lead bronze;
- 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;
- The solid lubricant plug can be embedded to achieve the self-lubricating performance;
- Compare with pure bronze bearing, the cost is reduced obviously;
- The steel backing allowed to heat treatment to get high hardness, meanwhile the in layer can be re-machined if necessary. The bronze layer can be casted on one or more layers to complex structure;
- This material have same characteristic as pure bronze bearing, suitable for wide temperature range, different oil condition;
- The RCB650GT have better mechanical load performance compare with bronze material, especially the impact strength.

### 材料成份和性能表 Material Composition and Properties

Grade 材料牌号	RCB-450 RCB-400	RCB-450-1 RCB-400-1	RCB-450-3 RCB-400-3	RCB-450-5 RCB-400-5
铜合金成份 Bronze layer material	CuZn25Al5Mn4Fe3	CuSn5Pb5Zn5	CuSn12	CuZn25Al5Mn4Fe3
合金层硬度 HB Bronze hardness	>210	>70	>95	>250
合金层结合强度 Mpa Interlay bonding strength	>150	>100	>100	>150
最大静承载 Mpa Max. static load	250	150	150	250
最大动承载 Mpa Max. dynamic load	100	60	70	120
最大线速度 (干) m/min Max. Speed (dry)	15	10	10	15
最大 PV 值 Max. PV value N/mm <sup>2</sup> *m/min	200	60	80	200
热膨胀系数 10 <sup>-5</sup> /K Coef. of thermal expansion	1.2x10 <sup>-5</sup> /°C	1.2x10 <sup>-5</sup> /°C	1.2x10 <sup>-5</sup> /°C	1.2x10 <sup>-5</sup> /°C
使用温度 °C Temperature range	-40~+300	-40~+400	-40~+400	-40~+150
永久压缩变形量 300N/mm <sup>2</sup> Compression deformation	<0.01mm	<0.05mm	<0.05mm	<0.005mm

- 450: 含固体润滑剂钢基铜合金铸造型轴承材料  
Steel shell bronze casted with solid lubricant
- 400: 不含固体润滑剂钢基铜合金铸造型轴承材料  
Steel shell bronze casted without solid lubricant

### 典型运用 Typical Applications

RCB450 结合了金属与非金属的优点, 特别适合于高载 低速而又无法加油或不能加油的工作场合, 如大型港口机械、轧钢机械、模具行业以及冲压设备等。

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





### 成品铜套

专业生产各类牌号具有旋转中心的铸件。

立式离心机可生产：铜衬套、电梯蜗轮、垫片等铸件。

特点：

1. 铸件中少、无夹杂物和气孔等缺陷。
2. 组织致密，且密度相应提高。
3. 借用离心力的作用，提高浇铸过程中金属液的充型性，故可生产薄壁铸件。
4. 对具有旋转性中心铸件如衬套、蜗轮、垫片、齿轮等铸件的生产较为方便。

φ 800 × 305 以内铜衬套、蜗轮、轴套、齿轮、法兰螺帽等

φ 2500 × 1500 以内各种大型铜衬套等。

### Stand Bronze Bushings

This department specializes in manufacturing simple Bronze parts at prices that reflect their simple nature. Other parts produced by this department include Brass and Bronze Gear Blanks, Bronze Bowl Bushings, Metric Bronze Bushings, Bronze Leaf Spring Bushings, Bronze Thrust Washers, Bronze Bearings, Bronze Spring Pin Bushings, Metric Brass Bushings, Bronze Rod Couplers, Bronze Spring Eye Bushings and turned Brass Parts.

These photos illustrate a sample of our standard Bronze Sleeve Bearings that are generally on our shelf for immediate shipment. These Solid Bronze Bushes are available in either a "Grooved" or "Plain" bore style. And common groove patterns available are figure eight, double figure eight, loop, double loop, circular, wick or straight. Any of these grooves can be contained within the length of the part or breaking out the ends. Call us for assistance in determining which pattern is most appropriate for your application "Spira-Lube" style groove is offered as the standard groove pattern.

可提供下面材料：

Roncan products meet ASTM, SAE, QQC, ASME, AMS, and other standards.

Tin Bronzes	C90300	C90500	C90700		
Leaded Tin Bronzes	C83600	C92200	C92900	C93200 (SAE660)	C93700 (SAE64)
Manganese Bronzes	C86200	C86300	C86500		
Aluminum Bronzes	C95200	C95400	C95500		
Lead-free Bronzes	C89833	C89320			



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

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

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

### Available 可供形式

直套 Cylindrical bushes

翻边 Thrust washers

垫片 Flange bushes

滑板 Non-standard parts as design

RCB600可以根据客户要求加工，公差参照标准的RCB650尺寸表。

RCB supplied by customer ordering,the tolerance is according to RCB650 standard dimension.

材料型号 Material type	600	600S1	600S2	600S3	600S4	600S5	600S6	
化学元素 Chemical elements	Cu	65	85	80	88	80	65	76
	Sn		5		12	10		8
	Pb		5			10		15
	Zn	25	5				25	
	Ni			5				1
	Al	6		10			6	
	Fe			5				
	Mn	4					4	
密度 Density	8.0	8.8	7.6	8.8	8.9	8.0	9.1	
屈服强度 Yield point	>350	>90	>260	>150	>100	>450	>80	
抗拉强度 Tensile Strength	>750	>250	>500	>270	>210	>800	>180	
延伸率 Extension Rate	>12	>15	>10	>5	>8	>8	>8	
硬度 Hardness	210	70	150	95	75	250	>60	





### 基材特性 Material Features

RCB 固体润滑轴承是在轴承基体的金属摩擦面上开出大小适当、排列有序的孔穴，然后在孔穴中嵌入具有独特自润滑性能的成型固体润滑剂（固体润滑剂面积一般为摩擦面积的 25%—35%）而制成的自润滑轴承。该轴承综合了金属基体和特殊配方润滑材料的各自优点，突破了一般轴承依靠油膜润滑的局限性。RCB 固体润滑轴承特别适用于无油、高温、高负载、低速度、防污、防蚀、防辐射、以及在水中或真空溶液浸润而根本无法加润滑油膜的特殊工况条件下使用。该产品广泛应用于冶金轧钢设备、灌装设备、水轮机、气轮机、仪器仪表以及矿山机械、船舶机械、纺织机械、船舶工业、航天航海等领域。同时也越来越广泛的使用在其它工农业机械中。RCB 固体润滑轴承的基体应根据轴承自身的工况条件而定。比较常用的材料有高力黄铜、锡青铜、铸件等。根据轴承自身工况条件，通过不同金属基体和嵌入固体润滑剂的组合，可保证产品能满足各种温度、负荷、运动和介质等工况条件下的特殊需要，同时保证稳定可靠地工作。

RCB material is made of strong cast bronze based metal with special solid lubricants embedded. The base metal withstands high load and the solid lubricants provide for self-lubrication. The bearing shows excellent performance without pre-lubrication under conditions of extreme high/lower temperature with low speed. This material provides a maintenance-free bearing solution, particularly for high load, intermittent of oscillating motion. This kind of bearing can be applied under dry, high temperature, high pressure, corrosive, water or other chemical environments when no oil can be introduced. Now is widely be used in automotive products line, water engineering, dam gate, plastic industries, successive casting machines, steel rollers in metallurgy industry, mineral machines, ships, turbo generators, hydraulic turbines and injection molding machines...

### 合金材质 Metal Type

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 <sup>2</sup>	>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 × 10 <sup>-5</sup> /°C	1.8 × 10 <sup>-5</sup> /°C	1.6 × 10 <sup>-5</sup> /°C	1.8 × 10 <sup>-5</sup> /°C	1.8 × 10 <sup>-5</sup> /°C	1.9 × 10 <sup>-5</sup> /°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 <sup>2</sup> *m/min	200	200	200	200	200	200
压缩永久变形量 400N/mm <sup>2</sup>	<0.01	<0.01	<0.05	<0.04	<0.01	<0.05

同时可以根据客户的特别要求提供HB>270及HB>300的特高硬铜材料  
At the same time according to customer's special requests for HB>270 and HB>300 special high-hard copper material

### 固体润滑剂 Solid Lubricant

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

### 应用特点 Application characteristic

#### RCB650

RCB650是通用的基础产品,无论高压、低压、高温、低温、有油润滑、无油润滑还是水中润滑。都能适用。产品的基体是高力黄铜,比一般的铜套硬度提高一倍。耐磨性能提高一倍以上。因此在冶金行业的连铸机、轧机、输送机上都可采用。还用于塑料注塑机锁模机构,挤出机构。高压电的自动开关,建筑机械的起吊支撑部位,以及水利枢纽工程的弧门支撑。滑轮和传动轮部位。还有造纸机烘道、汽车模具、船舶起锚滑动部位等。

Basically general-purpose products, suitable for various circumstances including high or low load, high or low temperature, with oil or oilless lubrication, or even in the water. With its matrix made of high strength brass, its hardness doubles than normal bronze bushings and the wear performance improves in large degree, so it is applicable for continue pitching machine, conveyors of metallurgy industry. It could also be used in plastic injection machines, in the automatic switch of high-tension electricity, in the luffing and supporting parts of construction machines, hydraulic gate supporter, pulley, drive wheels of water control project, and also for drying tunnel of paper machines, auto die, sliding parts for ships unmooring etc.

#### RCB650S1

RCB650S1(CuSn5Zn5Pb5)该产品以锡青铜为基体,表面按一定的角度和密度镶嵌特殊配方的固体润滑剂,经精密加工而成。产品主要适用于中载荷高温、中速场合。

RCB650S1(CuSn5Zn5Pb5): It has a backing made of aluminium bronze with particular formulation supported by certain angle and density. The solid lubricants inlaid in the bushing are compounded with precision. It's used in medium load, high temperature, medium speed situation.

#### RCB650S2

RCB650S2(CuAl10Ni5Fe5)该产品以铝青铜为基体,表面按一定的角度和密度镶嵌特殊配方的固体润滑剂,经精密加工而成。产品主要适用于一般场合,如轻工机械、机床行业,烘炉滚道、壁炉门等。

RCB650S2(CuAl10Ni5Fe5): It has a backing made of tin bronze with particular formulation supported by certain angle and density. The solid lubricants inlaid in the bushing are compounded with precision. It's used in common situation, such as light industry, machine tool industry, drying furnace rolling way, fireplace door etc.

#### RCB650S3

RCB650S3(CuSn12)该产品以锡青铜为基体,表面按一定的角度和密度镶嵌特殊配方的固体润滑剂,经精密加工而成。产品主要应用于低载、高温、中速场合,如建筑机械、冶金机械、输送机械中的不加油润滑部位。

RCB650S3(CuSn12): The basement of this product is tin bronze, it has a special filling of prescription of solid lubricant inserted with a certain angle and density into the surface and processed with precision finishing. It is mainly used in low load, high temperature, and medium-speed applications just like architecture machinery metallurgy machinery and conveying machinery where the lubricant is not added.

#### RCB650S5

RCB650S5(CuZn25Al5)该产品以特殊配方的高强度铜合金为基体,表面按一定的角度和密度镶嵌特殊配方的固体润滑剂,经精密加工而成。产品广泛应用于连铸轧机、矿山机械、船舶、汽轮机等。

RCB650S5(CuZn25Al5): It has a backing made of high-strength copper alloy with particular formulation supported by certain angle and density. The solid lubricants inlaid in the bushing are compounded with precision. It's used in successive casting machine, mineral mountain machinery, shipping, steam turbine etc.



d8 高载荷 high load  
e7 轻载荷 light load  
f7 高精度 high precision

材质	高力黄铜+石墨
Material	CuZn25Al5Mn4+ Graphite

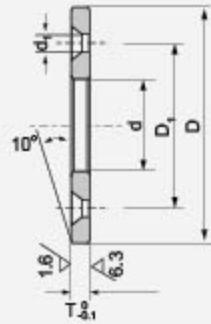
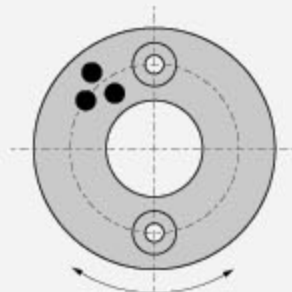


单位unit:mm

IDF7 (内径)	ODm6 (外径)	L <sup>-0.10 -0.30</sup>														
		8	10	12	15	16	20	25	30	35	40	50	60	70	80	
8	+0.028 +0.013	12	■	■	■	■										
10		14	■	■	■	■		■								
12	+0.034 +0.016	18		■	■	■	■	■	■	■						
13		19		■		■	■									
14		20		■	■	■		■	■	■						
15		21		■	■	■	■	■	■	■						
16	+0.021 +0.008	22		■	■	■	■	■	■	■	■					
18		24			■	■	■	■	■	■	■	■				
20		28		■	■	■	■	■	■	■	■	■	■			
22		32			■	■		■	■							
25	+0.041 +0.020	33			■	■	■	■	■	■	■	■	■	■		
30		38			■	■		■	■	■	■	■	■	■		
35	+0.050 +0.025	45					■	■	■	■	■	■	■	■		
40		50					■	■	■	■	■	■	■	■	■	
45		55						■	■	■	■	■	■	■	■	■
50		60							■	■	■	■	■	■	■	■

注:除以上规格尺寸外,可按客户图纸制造。





材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite

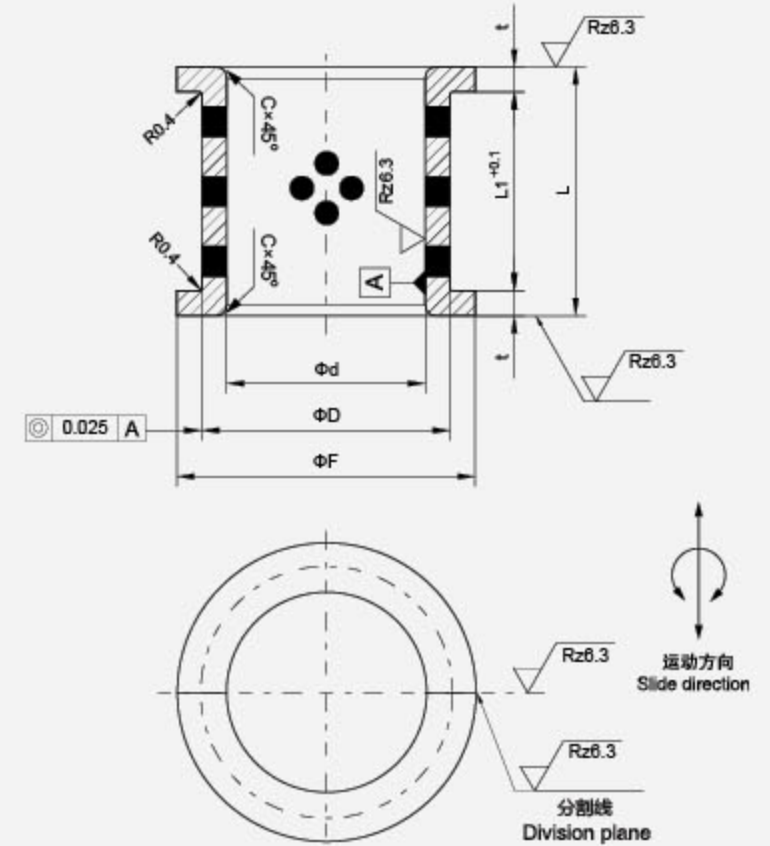
运动方向  
Sliding direction

单位unit:mm

规格 Standard No.	d	D	T <sub>-0.1</sub> <sup>0</sup>	螺栓 Bolt			
				D <sub>1</sub>	数量 Q'ty	尺寸 size	d <sub>1</sub>
JTW-10	10.2	30	3	--	--	--	--
JTW-12	12.2	40		28	2	M3	3.5
JTW-13	13.2						
JTW-14	14.2	50		35	--	--	--
JTW-15	15.2			35	2	M3	3.5
JTW-16	16.2					M5	6
JTW-16N	16.2			--	--	--	--
JTW-18	18.2	55		40	2	M5	6
JTW-20	20.2					M5	6
JTW-20N	20.2	--		--	--	--	
JTW-25	25.2	60	45	2	M5	6	
JTW-25N	25.2				--	--	--
JTW-30	30.2	70	50	2	M5	6	
JTW-35	35.2				M5	6	
JTW-40	40.2	80	60	7	M6	7	
JTW-45	45.3						67.5
JTW-50	50.3	100	75	8	M8	9	
JTW-55	55.3						85
JTW-60	60.3	110	90	10	M8	9	
JTW-65	65.3						95
JTW-70	70.3	130	100	4	M8	9	
JTW-75	75.3						110
JTW-80	80.3	150	120	10	M10	11	
JTW-90	90.5						140
JTW-100	100.5	190	160	10	M10	11	
JTW-120	120.5						175



材质 高力黄铜+固体润滑剂  
Material CuZn25Al5Mn4Fe3 +Graphite(S00#SP)

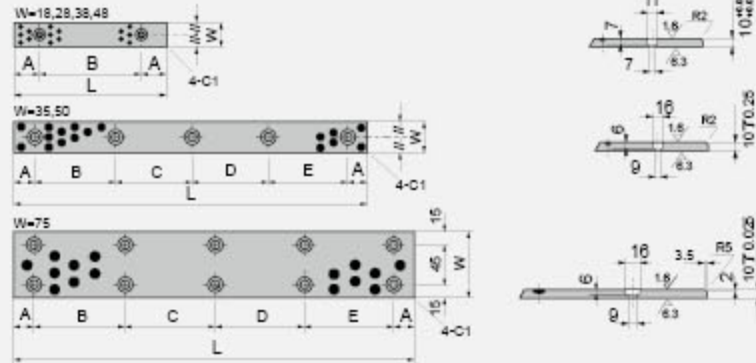


单位unit:mm

规格 Standard No.	I.D. $\Phi d$ 内径 H7	O.D. $\Phi D$ 外径	$\Phi F$ d11	L h12	$L1 +0.1$ 0	t	C
JFFB-030	30	38	48	34	22	6	1
JFFB-035	35	45		45	32	6.5	
JFFB-040	40	50		50	35	7.5	
JFFB-045	45	55		55	40	7.5	
JFFB-050	50	60		60	45	7.5	
JFFB-060	60	70		70	50	10	
JFFB-070	70	85		80	60	10	
JFFB-080	80	95		95	70	12.5	
JFFB-090	90	105		110	80	12.5	
JFFB-100	100	115		120	80	12.5	
JFFB-110	110	125	130	115	90	12.5	2
JFFB-120	120	135		140	100	12.5	
JFFB-140	140	160		150	110	15	
JFFB-160	160	180		175	120	20	
				180	140	20	



材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite

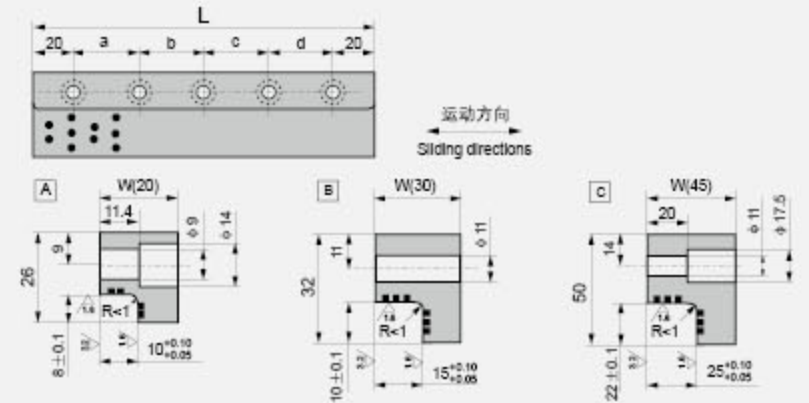


单位unit:mm

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



材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite



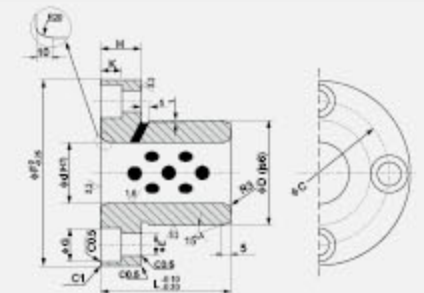
单位unit:mm

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

RCB-HGB250 自润滑导向套  
RCB-HGB250 Oilless Guide Bushes



材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite  
材质 FC铸铁+石墨  
Material HT250#+ Graphite



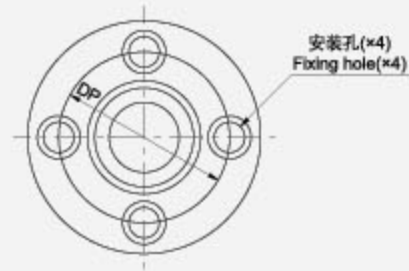
单位unit:mm

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

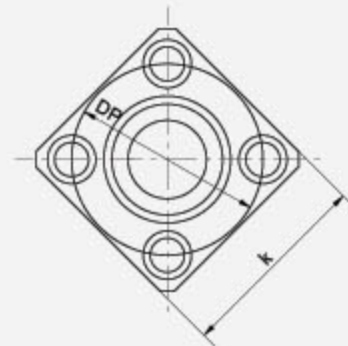


材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

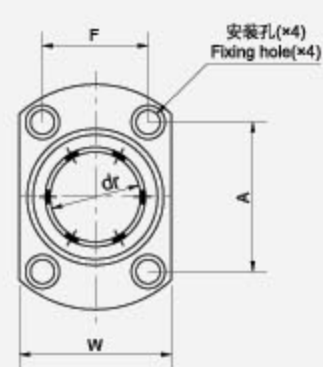
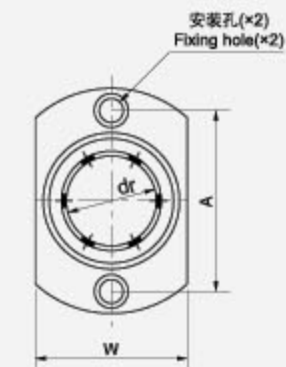
RCB-LMF



RCB-LMK



RCB-LMH

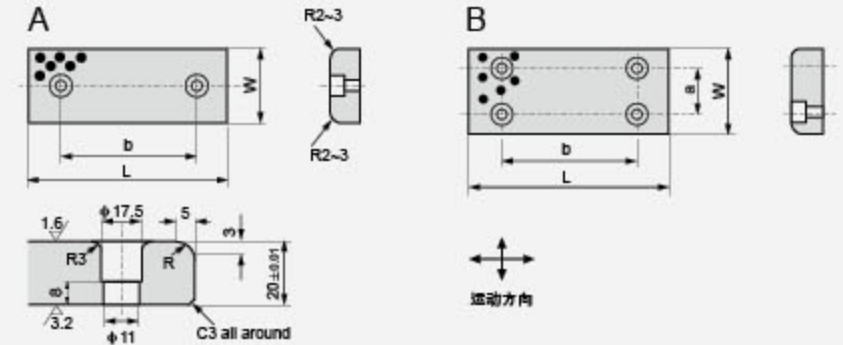


单位unit:mm

规格 Standard No.	D		L		H		H	DP	K	W	A	F	垂直度	d1xd2xh
	dr	公差	dr	公差	dr	公差								
LMF/K/H 6UU	12		19		28		5	20	22	18	20	-	12	3.4x6.5x3.3
LMF/K 8SUU	15	0 -11	17		32		5	24	25	-	-	-	12	3.4x6.5x3.3
LMF/K/H 8UU	15		24		32		5	24	25	21	24	-	12	3.4x6.5x3.3
LMF/K/H 10UU	19		29	0 -0.2	40	0 -0.2	6	29	30	25	29	-	12	4.5x8x4.4
LMF/K/H 12UU	21	0 -13	30		42		6	32	32	27	32	-	12	4.5x8x4.4
LMF/K/H 13UU	23		32		43		6	33	34	29	33	-	12	4.5x8x4.4
LMF/K/H 16UU	28		37		48		6	38	37	34	31	22	12	4.5x8x4.4
LMF/K/H 20UU	32		42		54		8	43	42	38	36	24	15	5.5x9.5x5.4
LMF/K/H 25UU	40	0 -16	59		62		8	51	50	46	40	32	15	5.5x9.5x5.4
LMF/K/H 30UU	45		64		74		10	60	58	51	49	35	15	6.6x11x6.5
LMF/K 35UU	52		70	0 -0.3	82	0 -0.3	10	67	64	-	-	-	20	6.6x11x6.5
LMF/K 40UU	60	0 -19	80		96		13	78	75	-	-	-	20	9x14x8.6
LMF/K 50UU	80		100		116		13	98	92	-	-	-	20	9x14x8.6
LMF/K 60UU	90	0 -22	110		134		18	112	106	-	-	-	25	11x17.5x10.8



材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite



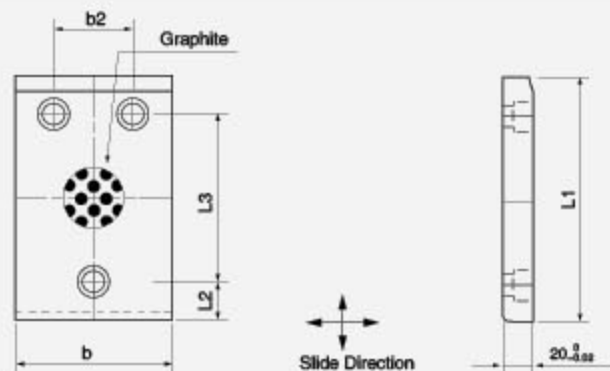
单位unit:mm

规格 Standard No.	W	L	a	b	倒角 α
JESW 28 × 75		75		45	A
JESW 28 × 100	28	100		50	
JESW 28 × 150		150		100	
JESW 38 × 75		75		45	
JESW 38 × 100	38	100		50	
JESW 38 × 150		150		100	
JESW 48 × 75		75		45	
JESW 48 × 100	48	100		50	
JESW 48 × 125		125		75	
JESW 48 × 150		150		100	
JESW 48 × 200		200		150	
JESW 58 × 75		75		45	
JESW 58 × 100	58	100		50	
JESW 58 × 150		150		100	
JESW 75 × 75		75		25	
JESW 75 × 100	75	100		50	
JESW 75 × 125		125		75	
JESW 75 × 150		150		100	
JESW 75 × 200		200		150	
JESW 100 × 100		100		50	
JESW 100 × 125	100	125	50	75	
JESW 100 × 150		150		100	
JESW 100 × 200		200		150	
JESW 100 × 250		250		200	
JESW 125 × 125		125		75	
JESW 125 × 150	125	150	50	100	
JESW 125 × 200		200		150	
JESW 125 × 250		250		200	
JESW 150 × 150		150		100	
JESW 150 × 200	150	200	100	150	
JESW 150 × 250		250		200	
JESW 150 × 300		300		250	
JESW 200 × 200		200		150	
JESW 200 × 250	200	250	150	200	
JESW 200 × 300		300		250	

单位unit:mm



材质	高力黄铜+石墨
Material	#500SP+ Graphite

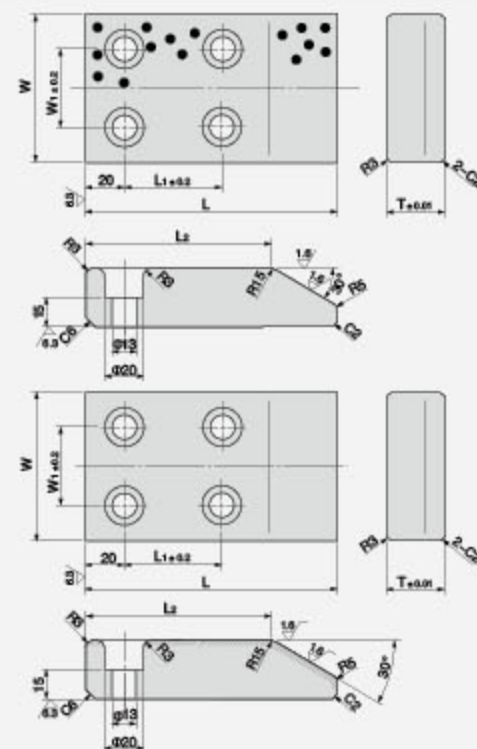


单位unit:mm

规格 Standard No.	b -0.2	L1 -0.2	b2 ± 0.2	L2 ± 0.2	L3 ± 0.2	L4 ± 0.2	Bolt	Screw Holes 螺丝孔		
39D863-12	50	80	-	25	30	-	M8 × 25	2		
39D863-13		100	-		50	-				
39D863-14		125	-		75	-				
39D863-15		160	-		110	-				
39D863-16		200	-		150	-				
39D863-111		250	-		60	80				
39D863-112		300	-		80	90				
39D863-113		350	-		100	100				
39D863-114		400	-		120	110				
39D863-115		450	-		140	120				
39D863-116		500	-		150	150				
39D863-21		80	50		30	25	-	-	M8 × 25	2
39D863-22			80		-		30	-		
39D863-23			100		-		50	-		
39D863-24			125		-		75	-		
39D863-25			160		-		110	-		
39D863-26	200		-	150	-					
39D863-121	250		-	60	80					
39D863-122	300		-	80	90					
39D863-123	350		-	100	100					
39D863-124	400		-	120	110					
39D863-125	450		-	140	120					
39D863-126	500		-	150	150					
39D863-31	100		50	50	25		-	-	M12 × 25	2
39D863-32			80	-			40	-		
39D863-33			100	-			50	-		
39D863-34			125	-			75	-		
39D863-35		160	-	110		-				
39D863-36		200	-	150		-				
39D863-131		450	-	140		120				
39D863-132		500	-	150		150				
39D863-41		125	50	-		25	-	-	M12 × 25	2
39D863-42			80	-			40	-		
39D863-43			100	-			50	-		
39D863-44			125	-			75	-		
39D863-45			160	-			110	-		
39D863-46			200	-			150	-		
39D863-141			450	-			140	120		
39D863-142			500	-			150	150		
39D863-51	160		50	-	25		-	-	M12 × 25	2
39D863-52			80	-			40	-		
39D863-53			100	-			50	-		
39D863-54			125	-			75	-		
39D863-55			160	-			110	-		
39D863-56			200	-			150	-		

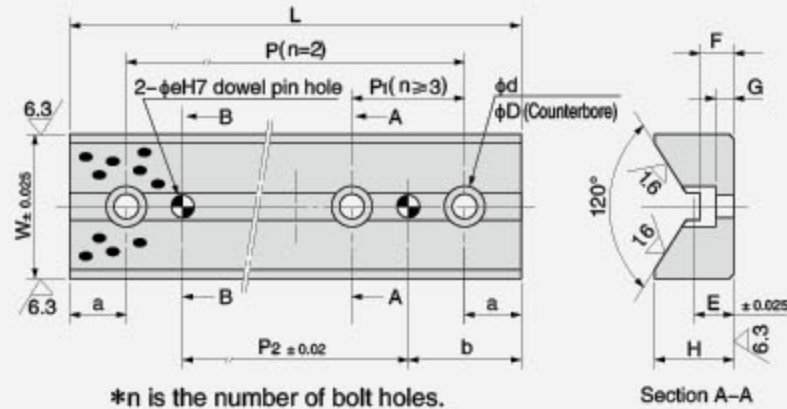


DSPS	S45C 钢基+HRC≥55
DSPW	#500SP+ Graphite 高力黄铜+石墨



单位unit:mm

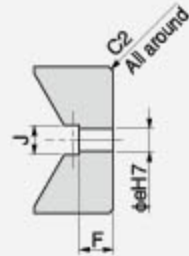
规格 Standard No.	W	L	T	W <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>		
DSPW/DSPS-75 × 130	75	130	30	40	50	95		
DSPW/DSPS-75 × 150		150	45		45	90		
DSPW/DSPS-100 × 130	100	130	30	60	50	95		
DSPW/DSPS-100 × 150		150	45		45	90		
DSPW/DSPS-100 × 170		170	60		75	120		
DSPW/DSPS-100 × 200		200	60		75	120		
DSPW/DSPS-125 × 130	125	130	30	85	50	95		
DSPW/DSPS-125 × 150		150	45		45	90		
DSPW/DSPS-125 × 170		170	60		75	120		
DSPW/DSPS-125 × 200		200	60		75	120		
DSPW/DSPS-150 × 130		150	130		30	110	50	95
DSPW/DSPS-150 × 150			150		45		45	90
DSPW/DSPS-150 × 170	170		60	75	120			
DSPW/DSPS-150 × 200	200		60	75	120			



\*n is the number of bolt holes.

Section A-A

材质	高力黄铜+石墨
Material	#500SP+ Graphite



Section B-B

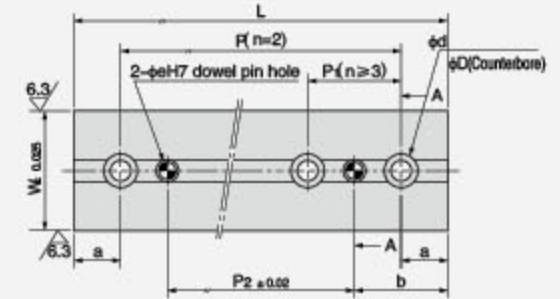
Slide Direction

·bolt hole

W	d	D
35	9	14
50-65	11	17.5

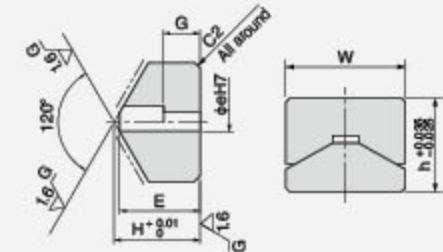


材质	钢基+HRC≥40
Material	S45C



\*n is the number of bolt holes.

Section A-A



\*The dowel hole effective depth is 15 mm.

·bolt hole

W	d	D
35	9	14
50-65	11	17.5

·Utotal height of Combination DCBS and DCBSP

W	H
35	35
50	50
65	65

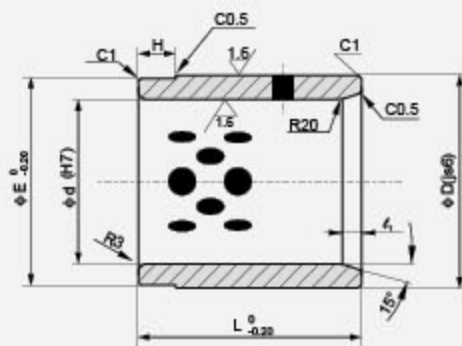
单位unit:mm

规格 Standard No.	W	L	H	ℓ	ℓ <sub>1</sub>	P	P1	n	P2	E	F	G
DCBS	65	100	35	20	40	60	-	2	20	18	15	8
		150						3	50			
		200						4	100			
		250						5	150			
		300						6	200			
DCBSL	65	100	37	20	40	60	-	2	20	20	20	10
		125				75			25			
		150				100			50			
		200				75			100			
		250				100			150			
		300				125			200			

单位unit:mm

规格 Standard No.	W	L	H	ℓ	ℓ <sub>1</sub>	P	P1	n	P2	E	G
DCBSP	65	100	47	20	40	60	-	2	20	44	20
		150						3	50		
		200						4	100		
		250						5	150		
DCBSPL	65	100	30	20	40	60	-	2	20	26	10
		125				75			25		
		150				100			50		
		200				75			100		
		250				100			150		
		300				125			200		





RCB-GBW

材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite

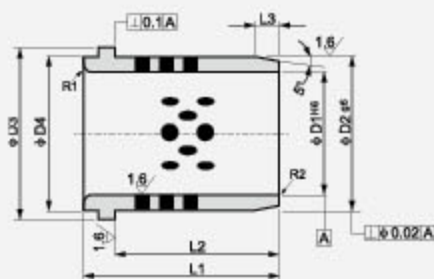
RCB-GB250

材质	FC铸铁+石墨
Material	HT250#+ Graphite

单位unit:mm

项目 Number	代号 Code	尺寸 Size	$\phi D$	$\phi d$	L	$\phi E$	H	$\phi C_1$
1	30	50 × 30 × 50	50	30	50	49	10	10
2	40	60 × 40 × 50	60	40	60	59	10	
3	50	70 × 50 × 50	70	50	75	69	15	
4	60	80 × 60 × 90	80	60	90	79	20	
5	80	100 × 80 × 120	100	80	120	99	25	
6	100	120 × 100 × 130	120	100	150	119	25	
7	120	140 × 120 × 180	140	120	180	139	25	

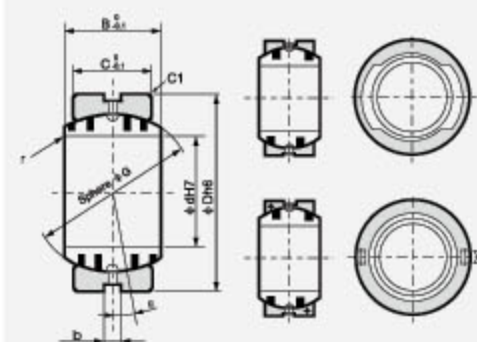
RCB-JNA 自润滑导向套  
RCB-JNA Oilless Guide Bushes



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	50	40	50	40	4	3
JNA40 × 63	40		50	-0.025	63	50	63	50	5	3
JNA50 × 71	50		63	-0.010	71	63	71	56	6	5
JNA63 × 80	63	+0.019 0	80	-0.029	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	140	125	125	106	12	10
JNA115 × 140	115		140	-0.039	155	140	140	120	12	10



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

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

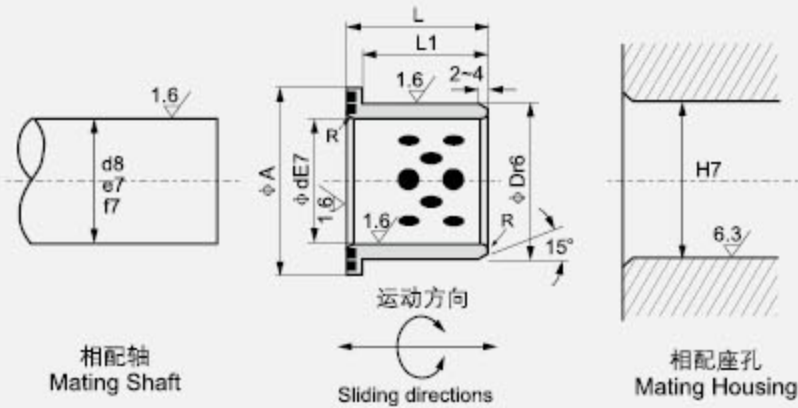
单位unit:mm

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



d8 高载荷 high load  
e7 轻载荷 light load  
f7 高精度 high precision

材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite



相配轴  
Mating Shaft



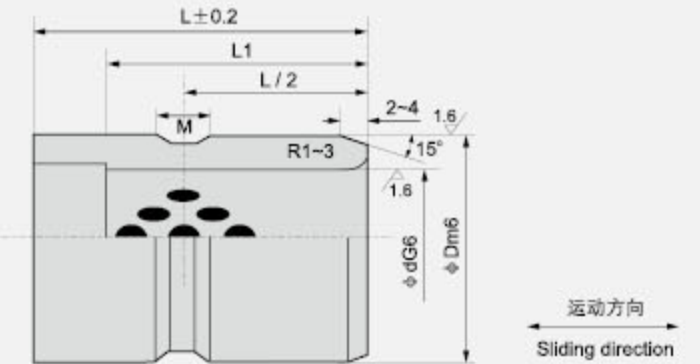
相配座孔  
Mating Housing

单位unit:mm

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



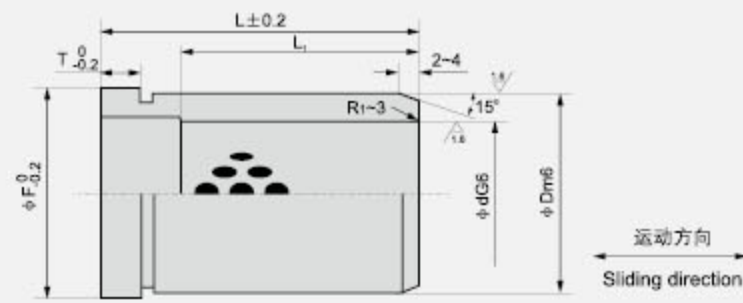
材质	高力黄铜+石墨
Material	CuZn25Al6Mn4+ Graphite



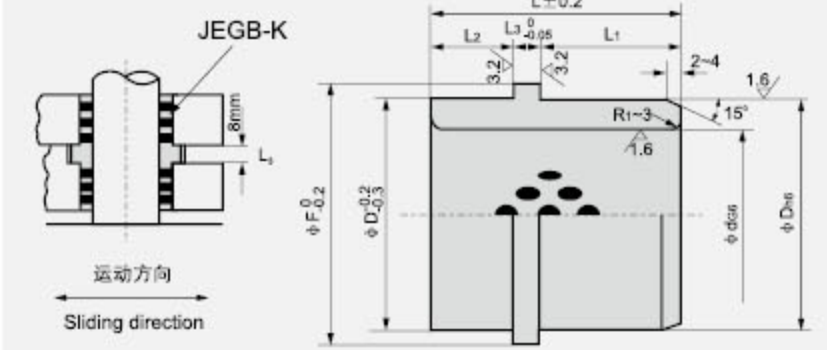
运动方向  
Sliding direction

单位unit:mm

规格 Standard No.	φ d G6	φ D m6	L	L1	M	规格 Standard No.	φ d G6	φ D m6	L	L1	M
JGB-12 × 9	12	18	9	9	-	JGB-35 × 29	35	48	29	29	8
JGB-12 × 14			14	14	4	JGB-35 × 39			34	34	
JGB-12 × 19			19	19		JGB-35 × 39			39	39	
JGB-12 × 24	24	24	JGB-35 × 49	49		49					
JGB-13 × 14	13	20	14	14	6	JGB-35 × 59	40	55	59	59	10
JGB-13 × 19			19	19		JGB-35 × 69			69	69	
JGB-13 × 24			24	24		JGB-35 × 79			79	70	
JGB-13 × 29	16	25	29	29	6	JGB-40 × 39	50	70	39	39	10
JGB-13 × 34			34	30		JGB-40 × 49			49	49	
JGB-16 × 14			14	14		JGB-40 × 59			59	59	
JGB-16 × 19	20	30	19	19	4	JGB-40 × 69	60	80	69	69	10
JGB-16 × 24			24	24		JGB-40 × 79			79	79	
JGB-16 × 29			29	29		JGB-40 × 89			89	80	
JGB-16 × 34	25	35	34	34	6	JGB-50 × 49	70	80	49	49	10
JGB-16 × 39			39	35		JGB-50 × 59			59	59	
JGB-20 × 14			14	14		JGB-50 × 69			69	69	
JGB-20 × 19	30	40	19	19	4	JGB-50 × 79	80	90	79	79	10
JGB-20 × 24			24	24		JGB-50 × 89			89	89	
JGB-20 × 29			29	29		JGB-50 × 99			99	90	
JGB-20 × 34	40	50	34	34	6	JGB-60 × 59	90	100	59	59	10
JGB-20 × 39			39	39		JGB-60 × 69			69	69	
JGB-20 × 49			49	40		JGB-60 × 79			79	79	
JGB-25 × 24	25	35	24	24	8	JGB-60 × 89	100	110	89	89	10
JGB-25 × 29			29	29		JGB-60 × 99			99	90	
JGB-25 × 34			34	34		JGB-70 × 69			69	69	
JGB-25 × 39	30	42	39	39	8	JGB-70 × 79	110	120	79	79	10
JGB-25 × 49			49	49		JGB-70 × 89			89	89	
JGB-25 × 59			59	50		JGB-70 × 99			99	99	
JGB-30 × 29	40	50	29	29	6	JGB-70 × 109	120	130	109	100	10
JGB-30 × 34			34	34		JGB-70 × 119			119	100	
JGB-30 × 39			39	39		JGB-80 × 69			69	69	
JGB-30 × 49	50	60	49	49	8	JGB-80 × 79	130	140	79	79	10
JGB-30 × 59			59	59		JGB-80 × 89			89	89	
JGB-30 × 69			69	69		JGB-80 × 99			99	99	
JGB-30 × 79	60	70	79	60	8	JGB-80 × 109	140	150	109	100	10



材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite



材质 高力黄铜+石墨  
Material CuZn25Al6Mn4+ Graphite

单位unit:mm

规格 Standard No.	φ d G6	φ D m6	φ F	T	L	L <sub>1</sub>
JGBF-12 × 19	12	18	+0.018 +0.007	4	19	19
JGBF-12 × 24					24	24
JGBF-12 × 29					29	29
JGBF-12 × 34					34	34
JGBF-13 × 19	13	20	25	5	19	19
JGBF-13 × 24					24	24
JGBF-13 × 29					29	29
JGBF-13 × 34					34	25
JGBF-13 × 39	+0.017 +0.006	20	25	5	39	39
JGBF-16 × 19					19	19
JGBF-16 × 24					24	24
JGBF-16 × 29					29	29
JGBF-16 × 34	16	25	+0.021 +0.008	6	34	34
JGBF-16 × 39					39	30
JGBF-16 × 49					49	49
JGBF-20 × 19					19	19
JGBF-20 × 24	20	30	35	8	24	24
JGBF-20 × 29					29	29
JGBF-20 × 34					34	34
JGBF-20 × 39					39	39
JGBF-20 × 49	+0.020 +0.007	30	35	8	49	40
JGBF-20 × 59					59	40
JGBF-25 × 24					24	24
JGBF-25 × 29					29	29
JGBF-25 × 34	25	35	40	8	34	34
JGBF-25 × 39					39	39
JGBF-25 × 49					49	49
JGBF-25 × 59					59	50
JGBF-25 × 69	+0.020 +0.007	+0.025 +0.009	40	8	69	29
JGBF-30 × 29					29	29
JGBF-30 × 34					34	34
JGBF-30 × 39					39	39
JGBF-30 × 49	30	42	47	10	49	49
JGBF-30 × 59					59	59
JGBF-30 × 69					69	69
JGBF-30 × 79					79	60

规格 Standard No.	φ d G6	φ D m6	φ F	T	L	L <sub>1</sub>	
JGBF-35 × 39	35	48	+0.025 +0.009	54	10	39	39
JGBF-35 × 49						49	49
JGBF-35 × 59						59	59
JGBF-35 × 69						69	69
JGBF-35 × 79	35	48	+0.025 +0.009	54	10	79	79
JGBF-35 × 89						89	70
JGBF-35 × 99						99	70
JGBF-40 × 39						39	39
JGBF-40 × 49	40	+0.025 +0.009	55	61	10	49	49
JGBF-40 × 59						59	59
JGBF-40 × 69						69	69
JGBF-40 × 79						79	79
JGBF-40 × 89	40	+0.025 +0.009	55	61	10	89	79
JGBF-40 × 99						99	80
JGBF-40 × 109						109	109
JGBF-50 × 49						49	49
JGBF-50 × 59	50	70	+0.030 +0.011	76	12	59	59
JGBF-50 × 69						69	69
JGBF-50 × 79						79	79
JGBF-50 × 89						89	89
JGBF-50 × 99	50	70	+0.030 +0.011	76	12	99	99
JGBF-50 × 109						109	90
JGBF-50 × 119						119	119
JGBF-60 × 99						99	99
JGBF-60 × 109	60	80	86	15	109	109	
JGBF-60 × 119					119	119	
JGBF-60 × 129					129	110	
JGBF-60 × 149					149	149	
JGBF-70 × 99	70	+0.029 +0.010	90	96	15	99	99
JGBF-70 × 109						109	109
JGBF-70 × 119						119	119
JGBF-70 × 129						129	120
JGBF-70 × 149	70	+0.029 +0.010	90	96	15	149	120
JGBF-80 × 99						99	99
JGBF-80 × 109						109	109
JGBF-80 × 119						119	119
JGBF-80 × 129	80	100	+0.035 +0.013	108	15	129	119
JGBF-80 × 149						149	120
JGBF-80 × 99						99	99
JGBF-80 × 109						109	109
JGBF-80 × 119	80	100	+0.035 +0.013	108	15	119	119
JGBF-80 × 129						129	129
JGBF-80 × 149						149	149

单位unit:mm

规格 Standard No.	φ d G6	φ D h6	φ F	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>
JEGB-10 × 24	10	+0.014 +0.005	16	0 -0.011	21	24	10
JEGB-10 × 28						28	14
JEGB-12 × 26						26	12
JEGB-12 × 28	12	18	0 -0.011	21	28	14	
JEGB-13 × 26					26	12	
JEGB-13 × 28					28	14	
JEGB-13 × 33	13	+0.017 +0.006	22	25	33	18	
JEGB-13 × 38					38	24	
JEGB-16 × 26					26	12	
JEGB-16 × 28	16	25	0 -0.013	30	28	14	
JEGB-16 × 33					33	19	
JEGB-16 × 38					38	24	
JEGB-20 × 26	20	30	35	28	14	10	
JEGB-20 × 28					28	14	
JEGB-20 × 33					33	19	
JEGB-20 × 38	20	30	35	28	14	10	
JEGB-25 × 26					26	12	
JEGB-25 × 28					28	14	
JEGB-25 × 33	25	+0.020 +0.007	35	40	33	19	
JEGB-25 × 38					38	24	
JEGB-30 × 33					33	14	
JEGB-30 × 38	30	40	0 -0.016	45	38	19	
JEGB-30 × 43					43	24	
JEGB-32 × 38					38	19	
JEGB-32 × 43	32	42	47	43	24	15	
JEGB-32 × 48					48	29	
JEGB-35 × 38					38	19	
JEGB-35 × 43	35	+0.025 +0.009	46	50	43	24	
JEGB-35 × 48					48	29	
JEGB-40 × 48					48	24	
JEGB-40 × 53	40	52	0 -0.019	57	53	29	
JEGB-50 × 48					48	24	
JEGB-50 × 53					53	29	
JEGB-K-30 × 37	30	+0.020 +0.007	42	0 -0.016	37	14	
JEGB-K-30 × 42					42	19	
JEGB-K-30 × 47					47	24	
JEGB-K-30 × 52	30	+0.020 +0.007	42	0 -0.016	52	29	
JEGB-K-40 × 53					53	20	
JEGB-K-40 × 57					57	24	
JEGB-K-40 × 60	40	+0.025 +0.009	55	0 -0.019	60	25	
JEGB-K-40 × 67					67	29	
JEGB-K-40 × 70					70	20	
JEGB-K-40 × 70	40	+0.025 +0.009	55	0 -0.019	70	20	
JEGB-K-50 × 67					67	29	
JEGB-K-50 × 87					87	39	
JEGB-K-60 × 67	60	+0.029 +0.010	74	0 -0.019	67	29	
JEGB-K-60 × 87					87	39	



RCB750固体镶嵌轴承是在以高力黄铜或锡青铜为基体上镶嵌固体润滑剂的一种新产品。它突破了一般轴承依靠油膜润滑的界限。适用于高温,高载,耐腐蚀或无法加油等场合条件下使用。它的硬度比一般铜套高一倍,耐磨性能也高一倍。目前广泛运用于冶金连铸机,轧钢设备、矿山机械、船舶、气轮机、注塑机、壁炉门、洪炉滚道、轻工机械、机床业以及设备生产流水线中。他以下几个优点:

1. 可以完全的在无给油状态下工作;
2. 实现自润滑,而且润滑性能比RCB650好
3. 在所有环境条件保持良好的润滑性和结构完整性;
4. 可以在最极端的温度, 远远低于冻结环境下工作;
5. 环保



RCB750: A kind of high strength cast bronze based material and on the surface of which is embedded with preformed solid lubricant. This bushes has both the virtues of the copper alloy and the solid lubricant, can be applied under dry, high temperature, high pressure, corrosive, water or other chemical environment, where no oil can be introduced. This bushes is now used in successive casting machines, steel rollers in metallography, mineral machines, ships, turbo generators, hydraulic turbines and injection molding machines for plastics. We can make all sizes and types of this bushes. The following is a list of benefits our graphite has to offer:

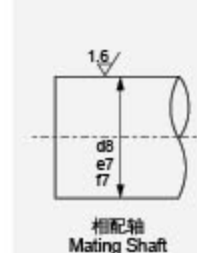
- It is completely oil-less
- It is self-lubricating
- Maintains excellent lubricity and structural integrity in all environmental conditions
- May be used while continually immersed in liquids
- Holds up under the most extreme temperatures, exceeding 1200 degrees Fahrenheit and well below freezing
- There are no known acids or alkaloids contained, which could have a corrosive effect on equipment
- Designed for longevity
- Environmentally safe!

注: 尺寸可以根据客户定制

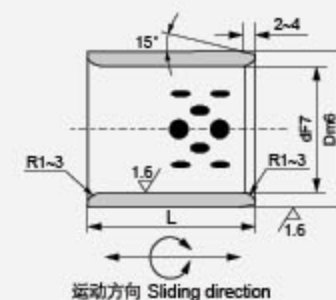


d8 高载荷 high load  
e7 轻载荷 light load  
f7 高精度 high precision

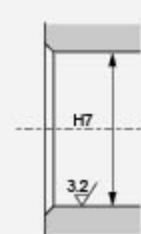
材质	高力黄铜+添加剂
Material	CuZn25Al6Mn4+ PTFE



相配轴  
Mating Shaft



运动方向 Sliding direction



相配座孔  
Mating Housing

单位unit:mm

IDF7 (内径)	ODm6 (外径)	L <sup>±0.010</sup>														
		8	10	12	15	16	20	25	30	35	40	50	60	70	80	
8	12	■	■	■	■											
10	14	■	■	■	■		■									
12	18		■	■	■	■	■	■	■							
13	19		■		■	■										
14	20		■	■	■		■	■	■							
15	21		■	■	■	■	■	■	■							
16	22		■	■	■	■	■	■	■	■	■					
18	24			■	■	■	■	■	■	■	■	■				
20	28		■	■	■	■	■	■	■	■	■	■	■			
22	32			■	■		■	■								
25	33			■	■	■	■	■	■	■	■	■	■	■		
30	38			■	■		■	■	■	■	■	■	■	■	■	
35	45						■	■	■	■	■	■	■	■		
40	50						■	■	■	■	■	■	■	■	■	■
45	55								■	■	■	■	■	■		
50	60									■	■	■	■	■	■	■

注: 除以上规格尺寸外, 可按客户图纸制造。

### RCB-FU1 铜基含油粉末冶金轴承



RCB-FU1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。

It's made of bronze or iron powder, mold pressed under high pressure and then sintered under high temperature, and oil is soaked into the homogeneously spread tiny pores of the metal under vacuum. It's used in domestic electric appliances, electric tools, and textiles machinery.

性能指标 Performance Index	有关数据Data
最大承载压力 PMax Load Capacity P	150N/mm <sup>2</sup>
工作温度 Working Temperature	-80℃~+180℃
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 <sup>2</sup> ·m/s

### RCB-FU2 铁基含油粉末冶金轴承



RCB-FU2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.

性能指标 Performance Index	有关数据Data
最大承载压力 PMax Load Capacity P	150N/mm <sup>2</sup>
工作温度 Working Temperature	-60℃~+200℃
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	2.45N/mm <sup>2</sup> ·m/s

### RCB-FU3 铜铁合金含油粉末冶金轴承



RCB-FU3铜铁合金含油轴承,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.

性能指标 Performance Index	有关数据Data
最大承载压力 PMax Load Capacity P	150N/mm <sup>2</sup>
工作温度 Working Temperature	-60℃~+200℃
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	2.45N/mm <sup>2</sup> ·m/s

### RCB-FZH 铜基钢球保持架



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.

最大承载压力	30N/mm <sup>2</sup>	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		

### RCB-FZL 铝基钢球保持圈



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.

最大承载压力	30N/mm <sup>2</sup>	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		

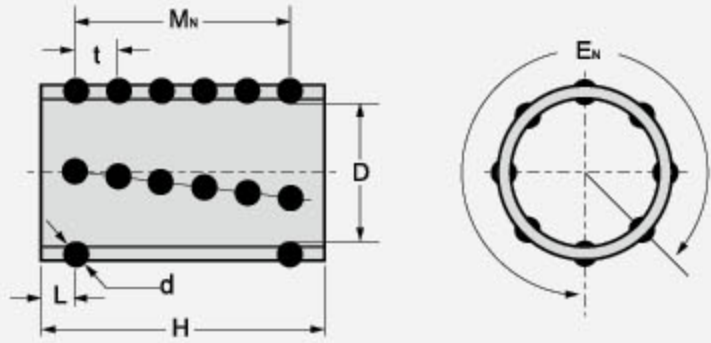
### RCB-FZP 树脂基钢球保持架



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.

最大承载压力	30N/mm <sup>2</sup>	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		

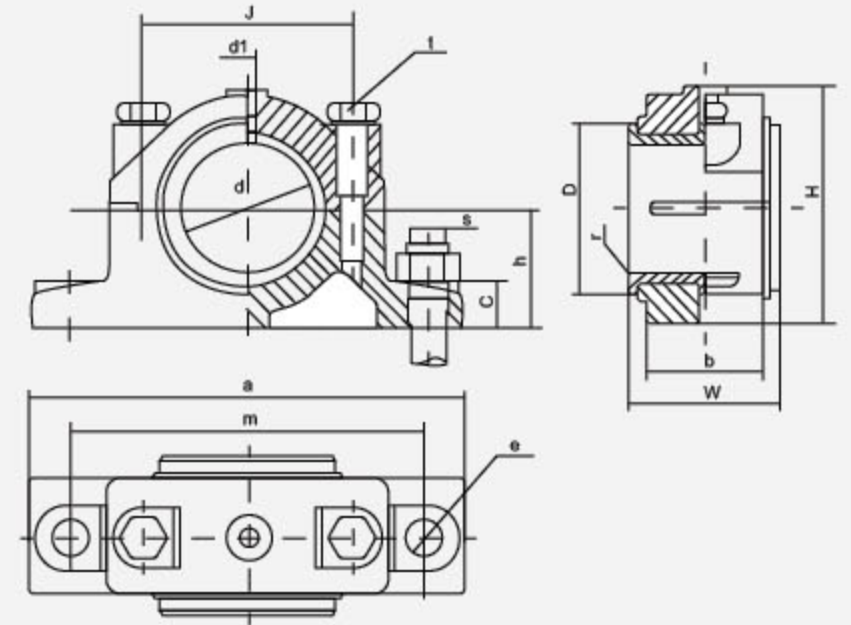


单位unit:mm

型号规格 Designation	$\phi D$	H	$\phi d$	$E_n$	$M_n$	Balls	t	T
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			8	112		5.75
FZ □ 2260		60			10	140		5.25
FZ □ 2360		60		10	140	5.25		
FZ □ 2475	24	75		13	208	5.45	4.80	
FZ □ 2550	25	50		16	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			14	8	112	6.5
FZ □ 2875		75	11			154	5.0	
FZ □ 3060	30	60	8			112	7.25	
FZ □ 3075		75	11	154		5.0		
FZ □ 3260		60	8	128		7.25		
FZ □ 3275	32	75	11	176		5.0		
FZ □ 3685	36	85	16	12	192	6.75		
FZ □ 3690		90		13	208	6.0		
FZ □ 3870	38	70		8	128	8.0	7.0	
FZ □ 3890		90		11	176	5.5		
FZ □ 4090	40	90		11	176	7.9	5.5	
FZ □ 4590	45	90		5	18	11	195	5.5
FZ □ 45110		110	13			234	8.0	7.0
FZ □ 5090	50	90	11			220	7.9	5.5
FZ □ 50110		110	13		260	8.0	7.0	
FZ □ 6090		90	11		242	7.9	5.5	
FZ □ 60110	60	110	22		13	286	8.0	7.0
FZ □ 80130		130		15	420	8.0	9.0	



材质 灰铁/铸钢  
Material Gray iron / cast steel

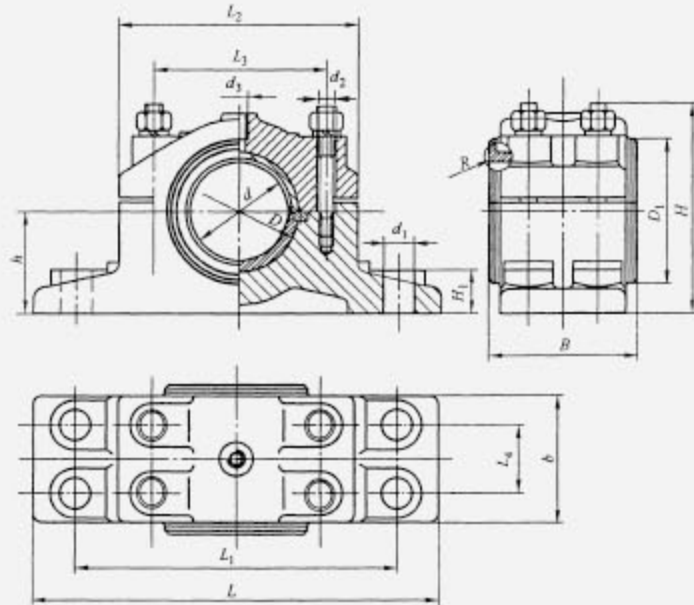


单位unit:mm

型号规格 Designation	基本尺寸															重量 weight
	d H8	D	W	h h12	b	a	m	c	H	J	e	t	d <sub>1</sub>	r	s	
H2030	30	48	34	35	22	140	115	15	70	60	10	M8	M10x1	1.5	M8	0.8
H2035	35	55	45	42	28	165	135	18	87	75	12	M10	M10x1	2.0	M10	1.2
H2040	40	60	50	45	35	170	140	20	90	80	14.5	M10	M10x1	2.0	M12	1.8
H2045	45	65	55	50	40	175	145	20	100	85	14.5	M10	M10x1	2.0	M12	2.3
H2050	50	70	60	50	40	200	160	25	105	90	18.5	M12	M10x1	2.0	M16	2.9
H2060	60	80	70	60	50	240	190	25	125	100	25	M16	M14x1.5	2.5	M20	4.6
H2070	70	75	80	70	60	260	210	30	140	120	25	M16	M14x1.5	2.5	M20	7.0
H2080	80	110	95	80	70	290	240	35	160	140	28	M20	M14x1.5	2.5	M24	10.5
H2090	90	120	105	85	80	300	250	35	170	150	28	M20	M14x1.5	3.0	M24	12.5
H2100	100	130	115	90	90	340	280	40	185	160	35	M24	M14x1.5	3.0	M30	19.5
H2110	110	140	125	95	100	350	290	40	190	170	35	M24	M14x1.5	3.0	M30	19.5
H2120	120	150	140	105	110	370	310	45	205	190	35	M24	M14x1.5	3.0	M30	25.0
H2140	140	175	160	120	120	390	330	50	230	210	35	M24	M14x1.5	4.0	M30	33.5
H2160	160	200	180	130	140	410	350	50	250	230	35	M24	M14x1.5	4.0	M30	45.5



材质	灰铁/铸钢
Material	Gray iron / cast steel



单位unit:mm

型号规格 Designation	d H8	D	D <sub>1</sub>	B	b	H ≈	h h12	H <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	d <sub>1</sub>	d <sub>2</sub>	R	质量 =kg
H4050	50	60	70	75	60	105	50	25	200	160	120	90	30	14.5	M10x1	2.5	4.2
H4060	60	70	80	90	75	125	60	25	240	190	140	100	40	18.5	M10x1	2.5	6.5
H4070	70	85	95	105	90	135	70	30	260	210	160	120	45	18.5	M14x1.5	2.5	9.5
H4080	80	95	110	120	100	160	80	35	290	240	180	140	55	24	M14x1.5	2.5	14.5
H4090	90	105	120	135	115	165	85	35	300	250	190	150	70	24	M14x1.5	3	18.0
H4100	100	115	130	150	130	175	90	40	340	280	210	160	80	24	M14x1.5	3	23.0
H4110	110	125	140	165	140	185	95	40	350	290	220	170	85	24	M14x1.5	3	30.0
H4120	120	135	150	180	155	200	105	40	370	310	240	190	90	28	M14x1.5	3	41.5
H4140	140	160	175	210	170	230	120	45	390	330	260	210	100	28	M14x1.5	4	51.0
H4160	160	180	200	240	200	250	130	50	410	350	280	230	120	28	M14x1.5	4	59.5
H4180	180	200	220	270	220	260	140	50	460	400	320	260	140	35	M14x1.5	4	73.0
H4200	200	230	250	300	245	295	160	55	520	440	360	300	160	42	M14x1.5	5	98.0
H4220	220	250	270	320	265	360	170	60	550	470	390	330	180	42	M14x1.5	5	125.0

### 特点

1. 可长时间在无油润滑条件下工作。
2. 更适用于重载低速工况条件，具有良好的耐磨性和极低的摩擦系数。
3. 适合于往复、旋转、和间歇运动等油膜难以形成的场合。
4. 具有耐腐蚀和抗化学性。
5. 适用于-40℃+300℃的温度范围。
6. 免维修，使用寿命长。

### Features

1. May work without any oil for long period.
2. Extremely high load capacity, good anti-wear and low friction.
3. Particularly appropriate for low speed and high load.
4. Suitable for reciprocating, oscillation or intermittent motion where oil film is hard to be formed.
5. Good chemical resistant and anti-corrosion characteristics.
6. Can be used in wide range of temp.



### 典型用途

1. 重载、低速自润滑如水坝工作弧门支铰轴承、事故门轴承、水轮机轴承等。
2. 使用于高温场合，如钢铁厂、冶金设备、轧机、输送辊道、高温鼓风炉、烘干炉用轴承。
3. 汽机车工业、覆盖件冲压模、组装流水线、传送带等用轴承。
4. 其它工业用轴承、工程机械、注塑机、各种高精度模具等。以及化工机械、食品机械、造纸机械、纺织印染机械等需耐蚀耐水浸场合，重载低速无法加油的工况场合。

### Application

1. Use for high load low speed and self-lub. like dam gate and water gate bushes, hydraulic turbine bushes etc.
2. Use for high temp. such as iron and steel factory machines and so on.
3. Automobile production, like assembly lines, press lines, conveyor lines and so on.
4. Heavy duty machineries like steel rolling mills, injection machines, press dies etc.
5. And any others like chemical machines, food processing machines, paper mills, textile machines etc.



成型机械注塑机、橡胶机械、压铸机  
Injection Machine, Rubber Machine, Die-Casting Machines



建筑机械 推土机、挖掘机、铲土机、起重机、搅拌机  
Construction Machine Bulldozer, Grab, Scraper, Crane



汽车上的运用  
For automotive Industry

- |                |   |
|----------------|---|
| 1. 油门、制动、离合器踏板 | Bushes for accelerator, brake, clutch pedal |
| 2. 反光镜调节机构     | Bushes for reflector control                |
| 3. 雨刮器中        | Bushes for windscreen wipers                |
| 4. 玻璃窗提升机构中    | Bushes for windscreen lift system           |
| 5. 天窗机构中       | Bushes for roof window system               |
| 6. 操纵杆         | Bushes for gear lever                       |
| 7. 车门铰链中       | Bushes for door hinges                      |
| 8. 车门锁中        | Bushes for door lock                        |
| 9. 安全带张紧机构中    | Bushes for seat belt system                 |
| 10. 引擎轴套       | Bushes for engine                           |
| 11. 启动电机轴套     | Bushes for starter motor                    |
| 12. 座椅调节机构     | Bushes for chair control                    |
| 13. 减震器中       | Bushes for shock absorbers                  |
| 14. 汽化器中       | Bushes for carburetor                       |
| 15. 行李箱、引擎盖铰链中 | Bushes for trunk and bonnet hinges          |
| 16. 横直拉杆及球头中   | Bushes for suspension ball joint            |



ALLOY TYPE	BS STANDARD	EN STANDARD	SYMBOL	ASTM/UNS (NEAREST EQUIVALENT)	OTHER COMPATABLE ALLOYS
Aluminium Bronze	CA104	CW307G	CuAl10Ni	C63200 / C63000	NES833 BSB23(DTD197A)
Aluminium Bronze	CA105	-	CuAl10Fe3Ni7Mn2	C63000	-
Aluminium Bronze	AB1-C	CC331G	CuAl10Fe2-C	C95400	SAE68
Aluminium Bronze	AB2-C	CC333G	CuAl10Fe5Ni5-C	C95500	SAE68B
Leaded Bronze	LB1-C	CC496K	CuSn7Pb15-C	C93800	SAE67
Leaded Bronze	LB2-C	CC495K	CuSn10Pb10-C	C93700	SAE64 / SAE797 / SAE792
Leaded Bronze	LB4-C	CC494K	CuSn5Pb9-C	C93500	SAE66
Leaded Bronze	LB5-C	CC497K	CuSn5Pb20-C	C94100	SAE94, SAE794 & SAE799.
Leaded Bronze	-	-	CuSn7ZnPb	C93200	SAE660
Leaded Gunmetal	LG2-C	CC491K	CuSn5Zn5Pb5-C	C83600	SAE40
Leaded Gunmetal	LG4-C	CC492K	CuSn7Zn2Pb3-C	C93400	-
Leaded phosphor bronze	LPB1	-	CuSn8Pb4Zn1	C93100	-
Leaded Phosphor Bronze	PB4-C	CC480K	CuSn10-C	C92700	-
Nickel Gunmetal	G3	-	CuSn7Ni5Zn3	B292-56	-
Phosphor Bronze	PB101	CW450K	CuSn4	C50900 C51100	-
Phosphor Bronze	PB102	CW451K	CuSn5	C51000	NES838
Phosphor Bronze	PB103	CW452K	CuSn6	C51900	-
Phosphor Bronze	PB104	CW459K	CuSn8	C52100	BSB24 DTD265A
Phosphor Bronze	DTD265A	-	-	-	BSB24, PB104
Tin Phosphor Bronze	PB1-C	CC481K	CuSn11P-C	B143	SAE65
Tin Phosphor Bronze	PB2-C	CC483K	CuSn12-C	CC483K	SAE65



BAKIR ALA ̵ IMLARI UNS	BAKIR ALA ̵ IMLARI DİGER	Cu(1)	Al	Sb	Fe	Pb	Ni(2)	P(3)	Si	S	Sn	Zn	Mn
C86100	CuZn25Al5	66.0-68.0	4.5-5.5	-	2.0-4.0	.10	-	-	-	-	.10	Rest	2.5-5.0
C86200	CuZn34Al2	60.0-66.0	3.0-4.9	-	2.0-4.0	.20	1.0	-	-	-	.20	22.0-28.0	2.5-5.0
C86300	CuZn25Al5	60.0-66.0	5.0-7.5	-	2.0-4.0	.20	1.0	-	-	-	.20	22.0-28.0	2.5-5.0
SAE 4308		60.0-66.0	5.0-7.5	-	2.0-4.0	-	1.0	-	-	-	.20	22.0-28.0	2.5-5.0
C86500	CuZn35Al1	55.0-60.0	0.5-1.5	-	0.4-2.0	.40	1.0	-	-	-	1.0	36.0-42.0	1.0-1.5
C87800	CuZn15Si4	.800	.15	.05	.15	.15	.20	.01	3.8-4.2	-	.25	12.0-16.0	0.15
C90500	CuSn10Zn Rg10	86.0-89.0	.005	.20	.20	.30	1	.05	.005	.05	9.0-11.0	1.0-3.0	-
C90700	CuSn10	88.0-90.0	.005	.20	.15	.50	.50	.30	.005	.05	10.0-12.0	.50	-
C90800	CuSn12	Rest	.005	.20	.15	.25	.50	.30	.005	.05	11.0-13.0	.25	-
C91700	CuSn12Ni	84.0-87.0	.005	.20	.20	.25	1.2-2.0	.30	.005	.05	11.3-12.5	.25	-
C92200	CuSn6Zn4Pb2	86.0-90.0	.005	.25	.25	1.0-2.0	1.0	.05	.005	.05	5.5-6.5	3.0-5.0	-
C92500	CuSn12Pb	85.0-88.0	.005	.25	.30	1.0-1.5	8-1.5	.30	.005	.05	10.0-12.0	.50	-
C92600	CuSn10Zn	86.0-88.5	.005	.25	.20	8-1.5	.7	.03	.005	.05	9.3-10.5	1.3-2.5	-
C92700	CuSn12Pb	86.0-89.0	.005	.25	.20	1.0-2.5	1.0	.25	.005	.05	9.0-11.0	.7	-
C92710	CuPb5Sn10	Rest	0.02	0.5	0.5	4.0-6.0	1.5	0.1	0.02		9.0-11.0	2.0	0.2
C92800		78.0-82.0	.005	.25	.20	4.0-6.0	.8	.05	.005	.05	15.0-17.0	.8	-
C92900		82.0-86.0	.005	.25	.20	2.0-3.2	2.8-4.0	.50	.005	.05	9.0-11.0	.25	-
C93100	CuSn7Pb	Rest	.005	.25	.25	2.0-5.0	1.0		.005	.05	6.5-8.5	2.0	-
C93200	CuSn7ZnPb / Rg-7	81.0-85.0	.005	.35	.20	6.0-8.0	1.0	.15	.005	.08	6.3-7.5	1.0-4.0	-
C93400		82.0-85.0	.005	.50	.20	7.0-9.0	1.0	.50	.005	.08	7.0-9.0	.8	-
C93500	CuSn5Pb9	83.0-86.0	.005	.30	.20	8.0-10.0	1.0	.05	.005	.08	4.3-6.0	2.0	-
C93600		79.0-83.0	.005	.55	.20	11.0-13.0	1.0	.15	.005	.08	6.0-8.0	1.0	-
C93700	CuPb10Sn	78.0-82.0	.005	.50	.7	8.0-11.0	.50	.10	.005	.08	9.0-11.0	.8	-
C93800	CuPb15Sn	75.0-79.0	.005	.8	.15	13.0-16.0	1.0	.05	.005	.08	6.3-7.5	.8	-
C93900	CuPb15Sn	76.5-79.5	.005	.50	.40	14.0-18.0	.80	1.5	.005	.08	5.0-7.0	1.5	-
C94000		72.0-79.0	.005	.8	.25	18.0-22.0	1.0	.50	.005	.08	4.5-6.5	1.0	-
C94100	CuPb20Sn	72.0-79.0	.005	.8	.25	18.0-22.0	1.0	.50	.005	.08	4.5-6.5	1.0	-
C94300		67.0-72.0	.005	.8	.15	23.0-27.0	1.0	.08	.005	.08	4.5-6.0	.8	-
C94400	Rest		.005	.80	.15	9.0-12.0	1.0	.05	.005	.08	7.0-9.0	.80	-
C94500	Rem.		.005	.8	.15	16.0-22.0	1.0	.05	.005	.08	6.0-8.0	1.2	-
C94700		85.0-90.0	.005	.15	.25	.10	4.5-6.0	.05	.005	.05	4.5-6.0	1.0-2.5	.20
C94800		84.0-89.0	.005	.15	.25	.30-1.0	4.5-6.0	.05	.005	.05	4.5-6.0	1.0-2.5	.20
C94900	CuAl10Fe	79.0-81.0	.005	.25	.30	4.0-6.0	4.0-6.0	.05	.005	.08	4.0-6.0	4.0-6.0	.10
C95200	CuAl10Fe	.86	8.5-9.5	-	2.5-4.0	-	-	-	-	-	-	-	-
C95300		.86	9.0-11.0	-	0.8-1.5	-	-	-	-	-	-	-	-
C95400	CuAl11Fe4	83.0 min	10.0-11.5	-	3.0-5.0	-	1.5	-	-	-	-	-	.50
C95500	CuAl11Ni	78.0 min	10.0-11.5	-	3.0-5.0	-	3.0-5.5	-	-	-	-	-	3.5
C95600		.88	6.0-8.0	-	-	-	.25	-	1.8-3.2	-	-	-	-
C95700	CuMn11Al8Fe3Ni3	.71	7.0-8.5	-	2.0-4.0	.03	1.5-3.0	-	-	-	.10	-	11.0-14.0
C95800	CuAl10Ni	79.0 min	8.5-9.5	-	3.5-4.5	.03	4.0-5.0	-	.10	-	-	-	0.8-1.5
-	CuAl10Ni3Fe2	80.0-86.0	8.5-10.5	-	1.0-3.0	0.1	1.5-4.0	-	0.2	-	0.2	0.5	2.0
-	CuAl11Fe6Ni6	72.0-77.0	10.3-12.0	-	4.2-7.0	0.04	4.3-7.5	-	0.1	-	0.2	0.4	2.5
C95900	Rest		12.0-13.5	-	3.0-5.0		.50	-	-	-	-	-	1.5
C83300		92.0-94.0	-	-	-	1.0-2.0	-	-	-	-	1.0-2.0	2.0-6.0	-
C83400		88.0-92.0	.005	.25	0.25	0.50	1.0	0.03	.005	0.08	0.20	8.0-12.0	-
C83500	CuSn6ZnNi	86.0-88.0	.005	0.25	0.25	3.5-5.5	0.50-1.0	0.03	.005	0.08	5.5-6.5	1.0-2.5	-
C83600	CuSn5ZnPb / Rg5	84.0-86.0	.005	0.25	0.3	4.0-6.0	1.0	0.05	.005	0.08	4.0-6.0	4.0-6.0	-
C83800		82.0-83.8	.005	0.25	0.3	5.0-7.0	1.0	0.03	.005	0.08	3.3-4.2	5.0-8.0	-
C84200		78.0-82.0	.005	0.25	0.4	2.0-3.0	0.8	1.5	.005	0.08	4.0-6.0	10.0-16.0	-
C84400		78.0-82.0	.005	0.25	0.4	6.0-8.0	1.0	0.02	.005	0.08	2.3-3.5	7.0-10.0	-
C84500		77.0-79.0	.005	0.25	0.4	6.0-7.5	1.0	0.02	.005	0.08	2.0-4.0	10.0-14.0	-
C84800		75.0-77.0	.005	0.25	0.4	5.5-7.0	1.0	0.02	.005	0.08	2.0-3.0	13.0-17.0	-
C85200		70.0-74.0	.005	0.2	0.6	1.5-3.8	1.0	0.02	.005	0.05	0.7-2.0	20.0-27.0	-
C85400		65.0-70.0	0.35	-	0.8	1.5-3.8	1.0	-	0.05	-	0.5-1.5	24.0-32.0	-
C85500		59.0-63.0	-	-	0.2	0.2	0.2	-	-	-	0.2	Rest	0.2
C85700		58.0-64.0	0.55	-	0.7	0.8-1.5	1.0	-	0.05	-	0.5-1.5	32.0-40.0	-
C85800		57.0	0.55	0.05	0.5	1.5	0.5	0.01	0.25	0.05	1.5	31.0-41.0	0.25
-	CuZn40Fe	56.0-62.0	0.1	-	0.2-1.2	1.0	2.0	.05	0.1	-	1.0	Rest	2.5
-	CuZn35Mn2Al1Fe1	57.0-65.0	0.5-2.5	-	0.5-2.0	0.5	3.0	-	0.1	-	1.0	Rest	0.5-3.0
-	CuZn34Mn3Al2Fe1	55.0-66.0	1.0-3.0	0.05	0.5-2.5	0.3	3.0	0.03	0.1	-	0.3	Rest	1.0-4.0

### 产品的装配

轴套推荐的装配方法有两种，一种是常温压制装配法，另一种是冷却装配法，冷却装配法具有操作方便、配合精度高的优点，在条件具备的情况下，应优先选用。座孔加热的方法由于热量会破坏轴承材料的组织结构，所以应避免使用。

#### 冷却装配的方法

##### 1. 所需的材料

冷却介质：液氮或干冰

容器：保温隔热容器

##### 2. 冷却后轴承外径收缩量ΔD的计算

$$\Delta D = D \times \alpha \times (T - T_1)$$

式中

D: 轴承外径

α: 轴承线膨胀系数

T: 轴承冷却温度

T1: 装配环境温度

##### 3. 操作方法

- ① 将轴承放入保温隔热容器中，放入冷却介质，一般推荐的冷却温度为-40~-70℃之间
- ② 冷却时间1小时以上，如果轴套于座孔的过盈量较大时，需要适当延长冷却时间。
- ③ 再次测量轴套外径与座孔内径尺寸，便于装配顺利进行。
- ④ 将冷却好的轴套迅速装入座孔中，如果在中途停留时间过长，将造成轴套难以装入。
- ⑤ 在轴套工作表面涂布润滑油脂。
- ⑥ 在冬季气温较低时，应让座孔保持在20~30℃之间。

### Installation

There have two methods recommended to install the bearings, press fit and shrink fit by cooling, The advantage of shrink fit is easy to operate and very precise, should be used priorityly.

The method of shrink fit by cooling

#### 1. Medium vessel needed

Cooling medium: liquid nitrogen or frozen carbon dioxide(CO2)

Vessel: Heat preservation and insulation vessel.

#### 2. Bushing OD shrinked rate(ΔD)calculate after cooling

$$\Delta D = D \times \alpha \times (T - T_1)$$

D: Bushing OD,

α: Dilatability

T: Cooling temperature

T1: Environment temperature of installation.

#### 3. Operation method:

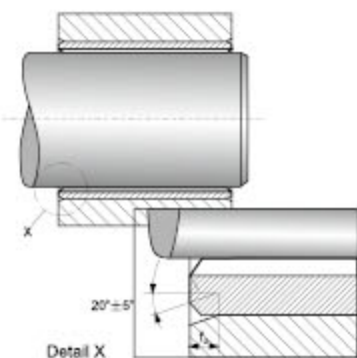
- ①: Put the bushing into the heat preservation and insulation vessel, add cooling medium, recommended temperature is -40~-70℃ commonly.
- ②: Cooling time should be more than 1 hour, and it should be longer if the interference between bushing and housing bore is big.
- ③: Inspect bushing OD and housing ID again, easy to installation,
- ④: Put the cooled bushing into housing bore quickly, any delay will make the install difficult.
- ⑤: Add lubricate grease onto working surface of bushing.
- ⑥: The housing bore temperature should be keep around 20~30℃, if the environment temperature is very low.

### ※直套 Cylindrical Bushes

座孔被倒角  $f_g \times 200 \pm 50$ , 使衬套压入座孔变的更加容易。

The housing bore should have a chamfer  $f_g \times 200 \pm 50$ , The chamfer makes it easier to press the bushes into the housing.

座孔直径 Housing bore diameter $d_c$	座孔倒角 Chamfer of housing $f_c$
$d_c \leq 30$	$0.8 \pm 0.3 \times 20^\circ \pm 5^\circ$
$30 < d_c \leq 80$	$1.2 \pm 0.4 \times 20^\circ \pm 5^\circ$
$80 < d_c \leq 180$	$1.8 \pm 0.8 \times 20^\circ \pm 5^\circ$
$d_c > 180$	$2.5 \pm 1.0 \times 20^\circ \pm 5^\circ$

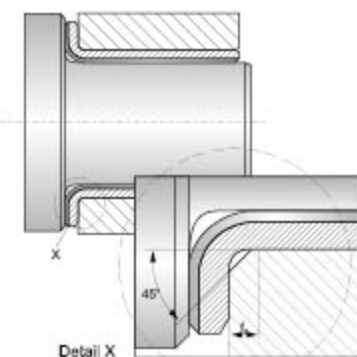


### ※翻边套 Flange Bushes

关于翻边套, 从翻边套口到轴向转换组件必须考虑半径的转变, 切面要有一个足够大的倒角。以防翻边套口聚集污垢后仍然可以支持轴向载荷部件的边缘。

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.

座孔直径 Housing bore diameter $d_c$	座孔倒角 Chamfer of housing $f_c$
$d_c \leq 10$	$1.2 \pm 0.2 \times 45^\circ \pm 5^\circ$
$d_c > 10$	$1.7 \pm 0.2 \times 45^\circ \pm 5^\circ$

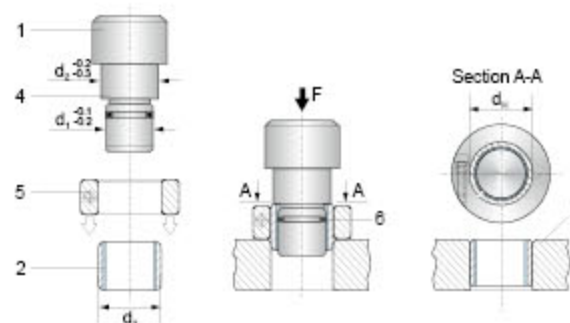


### 滑动轴承与座孔的装配

#### The installation of the sliding bushing and the housing

滑动轴承与座孔装配时, 要保证轴承在座孔内不发生转动和轴向移动, 又要使轴承外表面和座孔充分接触, 一般应保证接触面大于85%, 有利于承受载荷和传导摩擦热, 采用较轻级的过盈配合, 既要保证使用时, 轴承不会在座孔内发生相对移动, 又不会使轴承外径过盈量过大致使轴承内孔变形过大为有利于装配, 轴承内外表面应涂以少量油或油脂, 再将轴承均匀压入。

When installing the sliding bushing and the housing, make sure the bushing doesn't rotate or move. The outside surface of the bushing must have a through contact with the housing, in general the connecting part must be over 85%, and this will be good for the load pressure and the conduction of friction heat. Using surplus quantity loosely, that is when it is used the bushing does not move relatively and also the surplus quantity of the bushing outside diameter, will not be too big to cause serious distortion of the bushing inside hole, when installing, it is good to lay a little lubricant, such as oil on the inside and outside surface of the bushing, then press bushing slowly.



- $d_2 \geq 55\text{mm}$
1. 芯轴 Pressing-in arbor
  2. 轴承 Bushes
  3. 座孔 Housing
  4. 档边尺寸 Shoulder diameter
  5. 辅助套 Auxiliary ring
  6. O型圈 O ring

轴承 $d_2$	$dH$	
>55到100	$d_2$	$+0.28$ $+0.25$
>100到200	$d_2$	$+0.40$ $+0.36$
>200到305	$d_2$	$+0.50$ $+0.40$

### 轴承的选型 Bearing Selection

杰盛无油轴承根据不同的工况条件设计了不少的轴承材料。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。

SF 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 Cylindrical bushes, flange bushes

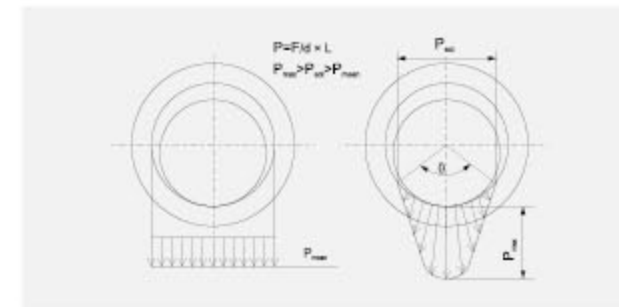
$$P = \frac{F}{dL} \quad (\text{N/mm}^2)$$

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

止推垫片 Thrust Washer

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

$F$  = 垫片承载值 Load (N)  
 $d$  = 垫片外径 Washer OD (mm)  
 $L$  = 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 ( $P_{act}$ ) 会大于理论计算值 ( $P_{mean}$ )。As the factor of clearance, bushes chamfer, oil groove etc. The actually load ( $P_{act}$ ) is higher than theory of calculation ( $P_{mean}$ ).

### 线速度计算 Velocity

旋转运动 Rotating motion

$$V = \frac{dn\pi}{1000 \times 60} \quad (\text{m/s})$$

$D$  = 轴径 Shaft (mm)  
 $n$  = 转数/分 Rpm

摇摆运动 Oscillating motion

$$V = \frac{Dc\theta\pi}{1000 \times 360 \times 60} \quad (\text{m/s})$$

$d$  = 轴径 Shaft (mm)  
 $c$  = 摇摆频率 Frequency (次数/分)  
 $\theta$  = 摇摆角度 Oscillating angle

往复运动 Reciprocating motion

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

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

### PV值计算 $PV = PXV \quad (\text{N/mm}^2 \times \text{m/s})$

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成反比关系, 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 of 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 service life. Also don't exceed the max. Of material load, speed, temp. And lower if possible.

自润滑轴承的寿命，除激烈的烧焦情况外，通常是以轴承内径的磨损来决定的。自润滑轴承在干摩擦状态、边界润滑、流体润滑状态下使用，其磨损情形有很大差异。决定自润滑轴承寿命主要因素有：负载特性及方向、润滑条件、运转速度、环境温度、相配轴硬度、对偶面的粗糙度、相配轴材料、周围空气（气体）的性质等，所以通过计算来求取确切的磨损量是非常困难的。在不考虑速度及负荷对轴承的影响、轴承运动方向的差异、润滑的种类、配合间隙的大小、表面粗糙度及杂质渗入程度—等等因素，可以给出磨损量W计算的公式：

With the exception of being burnt, the service life of self-lubricating bushing depends on the abrasion degree of the bushing's inner diameter. In conditions like dry friction, boundary lubrication and oil lubrication, the abrasion of the same bushing will be different. Main factors that may influence the service life are: character and direction of the load, lubrication condition, running speed, environment temperature, hardness of the mating axis, roughness of the mating surface, material of the mating axis, air quality around etc. Therefore, it's difficult to calculate the actual abrasion quantity.

Regardless the factors like influence from the load and speed, difference caused by running direction, kinds of lubricating oil, mating clearance, roughness and impurities penetration degree, the abrasion W can be calculated by the following formula.

$$W=K \cdot P \cdot V \cdot T \quad (\text{mm})$$

P:负载压力Load pressure(N/mm<sup>2</sup>)

V:运转速度Running velocity(m/s) ;

K:摩擦系数Abrasion coefficient(mm/ (N/mm<sup>2</sup>· m/s· Hr))

T:运转时间 Running time (Hr)

不同润滑条件下，实验所得的摩擦系数K值见下表：

Abrasion coefficient K gained under different lubrication conditions in the laboratory. Consult the following form for K value.

润滑条件 Lubrication conditions	mm/(N/mm <sup>2</sup> · m/s· Hr)
无润滑（干摩擦） Non-lubrication(dry friction)	$3 \times 10^{-3} \sim 6 \times 10^{-4}$
定期润滑（边界润滑） Periodical lubrication(marginal lubrication)	$3 \times 10^{-4} \sim 6 \times 10^{-5}$
油润滑（流体润滑） Oil lubrication(fluids lubrication)	$3 \times 10^{-5} \sim 6 \times 10^{-6}$

