



Jiashan **ZHONGTAI**
Sliding Bearing

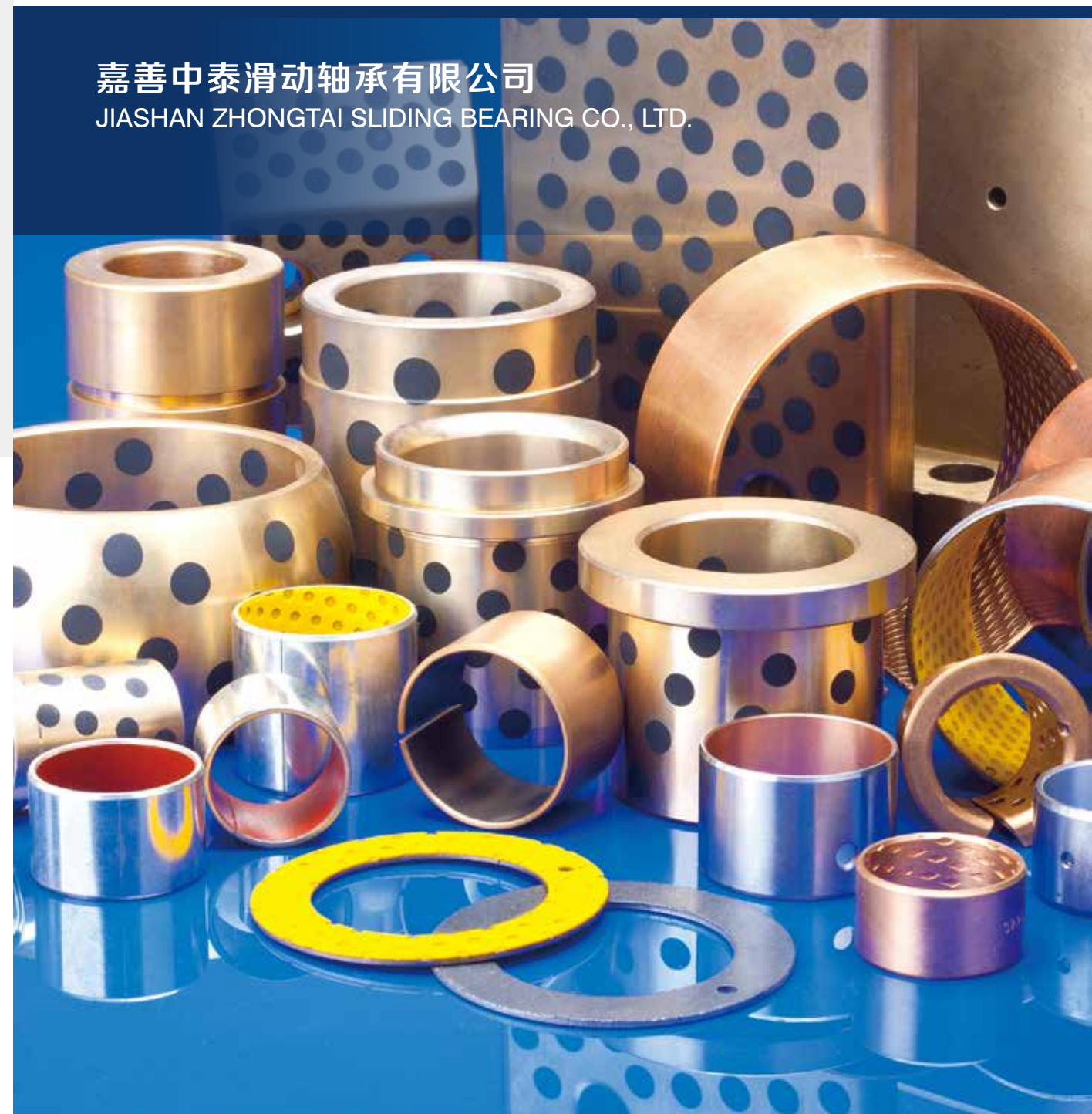


嘉善中泰滑动轴承有限公司
JIASHAN Zhongtai Slide Bearing CO.,LTD.

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Brief Introduction

企业简介

嘉善中泰滑动轴承是专业生产自润轴承及精密机械零部件的企业，从事各种自润轴承的研发、生产和销售。近十年来依靠科学技术，引进先进设备，采用先进工艺，高起点、高标准生产各种型号规格的自润轴承、衬套、铜套等十多种系列产品。具体为SF-1(DU)自润轴承，SF-2(DX)边界润滑轴承、轴瓦、翻边衬套、止推垫片、JDB(500#)固体镶嵌自润滑轴承、滑块、滑道、JF-800双金属轴承、FB090青铜基轴承。

自润滑轴承被国内外客户广泛认可和采用，产品主要应用于汽车工业、纺织机械、橡胶机械、印刷机械、包装机械、水利机械、塑料机械，工程机械,轧钢设备等。通过各行业诸多客户在不同的工况环境下使用之后，积极反馈来的信息，促使我们的产品和生产技术不断进步，使自润滑轴承的品质日益提高，趋于完善。

我们将以真诚的态度，服务好自润轴承的客户，选择我们将带给您优势和喜悦！

ZTB Sliding Bearing is specialized in sliding bearing manufacturing, we are devoted in research of self-lubrication bearings. Our products covers a vast ranges due to advanced equipment, advanced technology, high starting point and high standard. Our products are including kinds of self-lubrication bearings, bush, copper bush and so on. They are SF-1, SF-2, burring bush, thrust washer, JDB(500#) (solid bronze with graphite oilless bearings), JF-800, and FB090.

Our products are accepted by customers both at home and abroad. The products are supplied to automobile industry, textile machinery, rubber machinery, package printing machinery, plastics machinery, engineering machinery and so on. We are constantly improving our technology to supply higher quality through a variety of feedback of our customers.

We will supply the best service to our customers. Choose us and you will get edge!



目录 Contents

JDB	JFB	JTW
JSP	DBB	DIN9834
GBW	HGB250	
JDBB	JDBS	JSL
JSP	JTWP	JUWP



目录 Contents

39D	JCUW	DSPW
DCBS	DCBSP	DCPRB
DCPRB	DGBZ	SF-1
SF-1	SF-1WC	SF-2
JF	FB	FB



JDB

固体润滑轴套

SOLID LUBRICANT-INLAID BUSHING

结构特性及用途

Structure Characteristics and Applications

该产品以特殊配方的高力黄铜为基体有很高的力学性能、铸造性能良好、耐蚀性较好，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。产品广泛应用于注塑机、连铸机、矿山机械、船舶、气轮机等。

It is backed with strengthening brass that has good physical performance and good capability for casting. What's more, the brass backing has pretty good anti-erosion ability in air, fresh water and seawater. The surface is regularly and finely machined with sockets in which particular solid lubricant is filled. The product is widely used on consecutive casting and rolling machines, mine-exploiting equipments, ships, steam engine, etc.

轴承高度和壁厚的设计

Bearing design height and thickness

轴承高度：轴承内径是由对磨轴的轴径所决定，所以在受载荷条件下，轴承高度受轴承承载压力 $P(N/mm^2)$ 所决定，一般轴承以 L/D (轴承高度/轴承内径)的比例在0.5–3的范围内为适当，但应特别注意在高载荷，易引起偏位接触，高转速时引起的发热情形，此时 L/D 取1以下较适当。

轴承壁厚：滑动轴承跟滚动轴承相比，其壁厚限制较小，壁厚薄为其主要的优点之一。一般情况下，壁厚 $t=(0.05\sim0.07)d+(2\sim5)mm$ 。

Bearing Height: bearing diameter from the shaft, the shaft is determined, so by loading conditions, load bearing by bearing a high pressure $P(N/mm^2)$ of the decision, usually bearing the L/D (bearing height / bearing diameter), the ratio in the range of 0.5–3 for the appropriate, but should pay particular attention to the high load, easy cause deviation contacts, high-speed situations caused by heat, then L/D is more appropriate to take the following 1.

Bearing wall: plain bearings with rolling bearings compared to the wall thickness less restricted, thin wall thickness of one of its main advantages. Under normal circumstances, the wall thickness $t=(0.05\sim0.07)d+(2\sim5)mm$.

使用注意事项

Caution

1. 装配前，若以润滑油涂于磨件上，可减短走合期，利于机械操作、运转；
2. 装配时请擦干净表面异物，最好采用冷冻装配，如无条件，则应徐徐压入，严禁敲打，以免伤及轴承及引起变形；
3. 使用后的工作面，因固体润滑剂形成的油膜导致表面有黑色或灰黑色现象，请不要擦洗，照常使用；
4. 工作环境具有腐蚀性的场合或在水中使用时，对磨轴建议使用不锈钢或表面镀铬。

- 1 Before assembly, on the terms of lubricant applied to the grinding parts can be cut short walk in period, is conducive to operation of machinery, running;
2. clean the surface of the assembly when foreign body, preferably refrigerated assembly, such as unconditional, they should slowly push, non-beating, to avoid harming the bearings and cause deformation;
3. Face after use, due to solid lubricant film lead to the formation of black or gray surface phenomenon, do not scrub, as usual;
4. working environment where corrosive or in water use, the shaft is recommended the surface of stainless steel or chrome.

嘉善中泰滑动轴承

JIASHAN ZHONGTAI SLIDING BEARING



	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings	镶嵌式固体润滑轴承 Embedded Solid Lubricating Bearings
参数 Parameters					
成分牌号 Chemical Compositions	CuZn25Al6Fe3Mn3	CuSn6Zn6Pb3	Steel+CuSn6Zn6Pb3	HT250	GCr15
摩擦因数 Friction coef	$<16\mu$	$<15\mu$	$<14\mu$	$<18\mu$	$<17\mu$
线膨胀系数 Dilatability	$1.6\sim2.0\ 10^{-5}/^{\circ}C$	$1.6\sim2.0\ 10^{-5}/^{\circ}C$	$1.6\sim2.0\ 10^{-5}/^{\circ}C$	$1.7\sim1.9\ 10^{-5}/^{\circ}C$	$1.6\sim1.8\ 10^{-5}/^{\circ}C$
硬 度 Hardness	210–250HB	80–120HB	60–90HB	180–230HB	HRC55–60
最高滑动速度 (无润滑) Velocity Max. (dry)	0.4 (m/s)	2 (m/s)	2 (m/s)	0.5 (m/s)	0.1 (m/s)
最高滑动速度 (油润滑) Velocity Max. (Oil)	5 (m/s)	10 (m/s)	10 (m/s)	5 (m/s)	3 (m/s)
最高PV值 (无润滑) Max PV Value (dry)	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$
最高PV值 (油润滑) Max PV Value (Oil)	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$	$1.8\ N/mm^2 - m/s$
最高使用温度 Temperature Max.	300℃	350℃	300℃	400℃	350℃
适用情况 Applicable conditions	高载荷 High load 低速 Low speed 一般用 Commonly used	低载荷 Low load 高温 High Temp. 低速 Low speed	低载荷 Low load 高温 High Temp. 低速 Low speed 节约成本 Cost Saving	高载荷High load 低速low speed	低载荷 Low load 低速 Low speed

固体润滑剂

Solid Lubricant

固体润滑剂 Lubricant	特性 Features	典型用途 Typical application
高纯石墨+添加剂 SL1 Graphit+add	很好的耐磨性和化学稳定性，使用温度 <400℃ Excellent resistance against chemical attacks and low friction, Temp limit 400℃	应用于一般机械，在大气中使用 Suit for general machines under atmosphere
Si4+MoS ₂ PTFE+MoS ₂ +CF	极低的摩擦系数和良好的睡润性，使用温度<300℃ Lowest in friction and good of water Lubrication, Temp limit 300℃	应用于水、海水润滑、如船舶 Suit for water and seawater lubricating

固体镶嵌自润滑轴承典型应用

Typical Applications

工程机械
Engineering Machinery

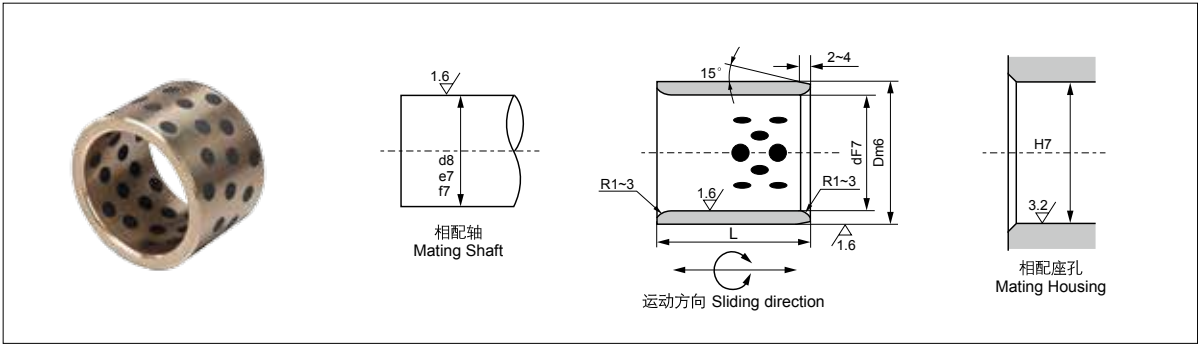


塑料机械
Engineering Machinery





JDB 固体润滑轴承
JDB Solid Lubricating Bearings

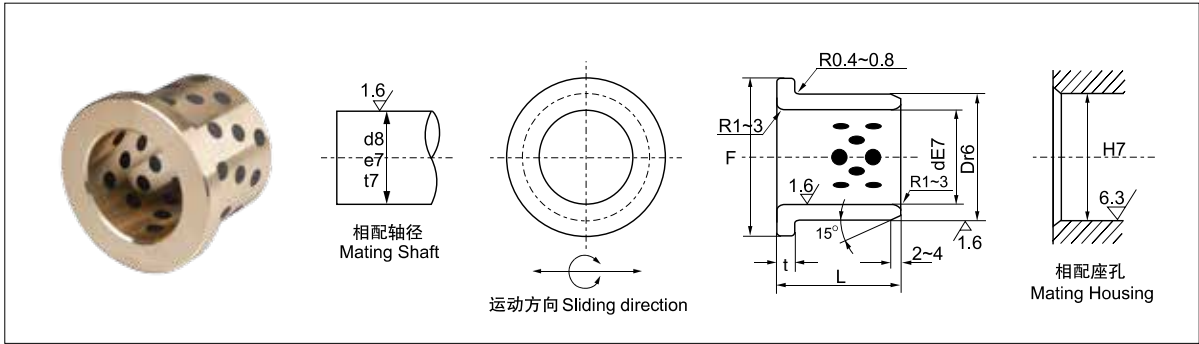


单位unit:mm

d	公差 (F7)	D	公差 (m6)	L $\begin{smallmatrix} -0.10 \\ -0.30 \end{smallmatrix}$																			
				8	10	12	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160	180	200
8	+0.028 +0.013	12	+0.018 +0.007	●	●	●	●																
10		14		●	●	●	●	●															
12		18		●	●	●	●	●	●														
14	+0.034 +0.016	20	+0.021 +0.008		●	●	●	●	●	●													
16		22			●	●	●	●	●	●	●												
20		28				●	●	●	●	●	●	●											
20	+0.041 +0.020	30	+0.025 +0.009			●	●	●	●	●	●	●											
25		33					●	●	●	●	●	●	●										
25		35					●	●	●	●	●	●	●	●									
30	+0.050 +0.025	38	+0.030 +0.011					●	●	●	●	●	●	●									
30		40					●	●	●	●	●	●	●										
35		45						●	●	●	●	●	●	●	●								
40	+0.060 +0.030	50	+0.035 +0.013						●	●	●	●	●	●	●	●	●						
40		55						●	●	●	●	●	●	●	●	●	●	●					
45		56						●	●	●	●	●	●	●	●	●	●	●	●				
45	+0.071 +0.036	60	+0.040 +0.015						●	●	●	●	●	●	●	●	●	●	●				
50		60						●	●	●	●	●	●	●	●	●	●	●	●	●			
50		65						●	●	●	●	●	●	●	●	●	●	●	●	●	●		
55	+0.083 +0.043	70	+0.046 +0.017							●	●	●	●	●	●	●	●	●	●	●	●		
60		75							●	●	●	●	●	●	●	●	●	●	●	●	●	●	
65		80								●	●	●	●	●	●	●	●	●	●	●	●	●	●
70	+0.096 +0.050	85	+0.046 +0.017								●	●	●	●	●	●	●	●	●	●	●	●	
70		90								●	●	●	●	●	●	●	●	●	●	●	●	●	●
75		90									●	●	●	●	●	●	●	●	●	●	●	●	●
75	+0.096 +0.050	95	+0.046 +0.017								●	●	●	●	●	●	●	●	●	●	●	●	
80		100									●	●	●	●	●	●	●	●	●	●	●	●	
85		100										●	●	●	●	●	●	●	●	●	●	●	●
90	+0.071 +0.036	110	+0.040 +0.015									●	●	●	●	●	●	●	●	●	●	●	
100		120									●	●	●	●	●	●	●	●	●	●	●	●	
110		130										●	●	●	●	●	●	●	●	●	●	●	●
120	+0.083 +0.043	140	+0.046 +0.017										●	●	●	●	●	●	●	●	●	●	
130		150										●	●	●	●	●	●	●	●	●	●	●	
140		160											●	●	●	●	●	●	●	●	●	●	●
150	+0.096 +0.050	170	+0.046 +0.017											●	●	●	●	●	●	●	●	●	
160		180												●	●	●	●	●	●	●	●	●	
170		190														●	●	●	●	●	●	●	●
180	+0.096 +0.050	200	+0.046 +0.017													●	●	●	●	●	●	●	
190		210																●	●	●	●	●	●



JFB 翻边自润滑轴承
JFB Flanged Oilless Bushing

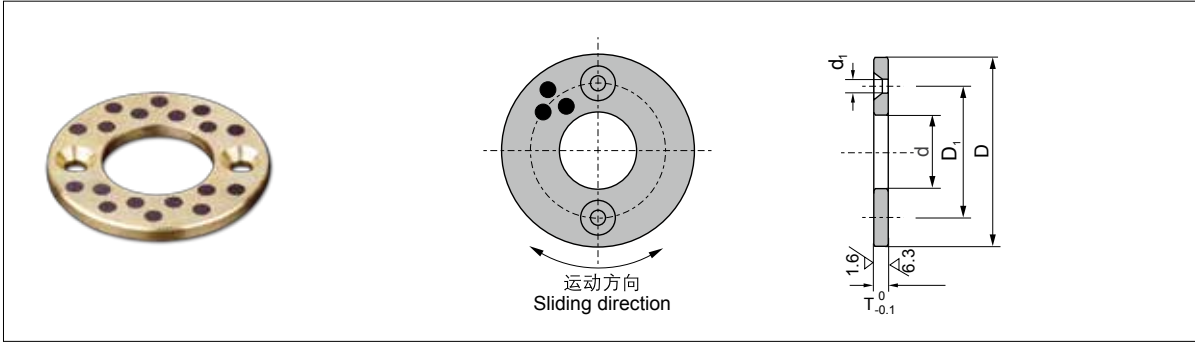


单位unit:mm

d	公差 Tolerance	D	公差 Tolerance	ΦF	t	L $\begin{smallmatrix} -0.10 \\ -0.30 \end{smallmatrix}$																							
						10	12	15	20	25	30	35	40	45	50	55	60	65	70	75	80	90	100	120					
8	+0.040 +0.025	12	+0.034 +0.023	20	2	●	●	●																					
10		14		22	2	●	●	●	●																				
12		18		25	3	●	●	●	●	●																			
14	+0.050 +0.032	20	+0.041 +0.028	27	3	●	●	●	●	●	●																		
16		22		29	3	●	●	●	●	●	●																		
18		24		32	3		●	●	●	●	●	●	●																
20	+0.061 +0.040	28	+0.050 +0.034	35	3			●	●	●	●	●	●	●															
20		30		40	5			●	●	●	●	●	●																
25		35		45	5			●	●	●	●	●	●	●															
30		40	50	5				●	●	●	●	●	●	●															
31.5		40	50	5				●	●	●	●	●	●	●	●														
35	+0.075 +0.050	45	+0.060 +0.041	60	5					●	●	●	●	●	●														
40		50		65	5					●	●	●	●	●	●														
45		55		70	5							●	●	●	●	●	●												
50	+0.090 +0.060	60	+0.073 +0.051	75	5							●	●	●	●	●	●	●											
55		65		80	5							●	●	●	●	●	●	●	●										
60		75		90	7.5								●	●	●	●	●	●	●	●									
65	+0.107 +0.072	80	+0.076 +0.054	95	7.5								●		●	●	●	●	●	●	●								
70		85		105	7.5									●	●	●	●	●	●	●									
75		90		110	7.5										●	●	●	●	●	●	●	●							
80	+0.125 +0.085	100	+0.088 +0.063	120	10												●	●	●	●	●	●	●						
90		110		130	10												●	●	●	●	●	●	●						
100		120		150	10													●	●	●	●	●	●						
120		140	170	10														●	●	●	●	●	●						
130		150	180	10																●	●	●	●						
140	+0.093 +0.068	160	+0.090 +0.065	190	10															●	●	●	●						
150		170		200	10																	●	●						
160		180		210	10																		●	●					



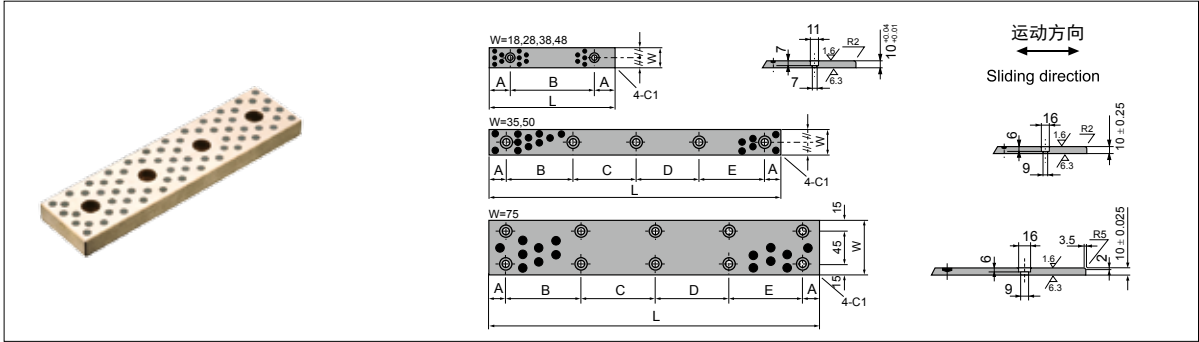
JTW 标准止推垫片
JTW Oilless Thrust Washer



单位unit:mm

订货代号 Designation	d		D	T		螺丝孔 Screw Holes			
						D ₁	数量 Q'ty	尺寸 size	d ₁
JTW-0603	6.2		25			15	2	M3	3.5
JTW-0803	8.2		28			18			
JTW-1003	10.2		30			20			
JTW-1203	12.2		40			28			
JTW-1203N	12.2		40			Without flat head screw hole 无平头螺丝孔			
JTW-1303	13.2		40	3		28	2	M3	3.5
JTW-1403	14.2		40						
JTW-1503	15.2		50						
JTW-1603	16.2	+0.20 +0.10	50			35			
JTW-1603N	16.2		50			Without flat head screw hole 无平头螺丝孔			
JTW-1803	18.2		50			35		M3	3.5
JTW-2005	20.2		50						
JTW-2505	25.2		55	5	0 -0.1	40	2	M5	6
JTW-3005	30.2		60			45			
JTW-3505	35.2		70			50			
JTW-4007	40.2		80	7		60		M6	7
JTW-4507	45.2		90		67.5				
JTW-5008	50.3		100			75			
JTW-5508	55.3		110	8		85			
JTW-6008	60.3		120			90			
JTW-6508	65.3		125			95			
JTW-7010	70.3	+0.30 +0.10	130			100	4	M8	9
JTW-7510	75.3		140		110				
JTW-8010	80.3		150			120			
JTW-9010	90.5		170			140			
JTW-10010	100.5		190			160		M10	11
JTW-12010	120.5		200			175			

JSP 标准自润滑耐磨板
JSP Oilless Wear Plate



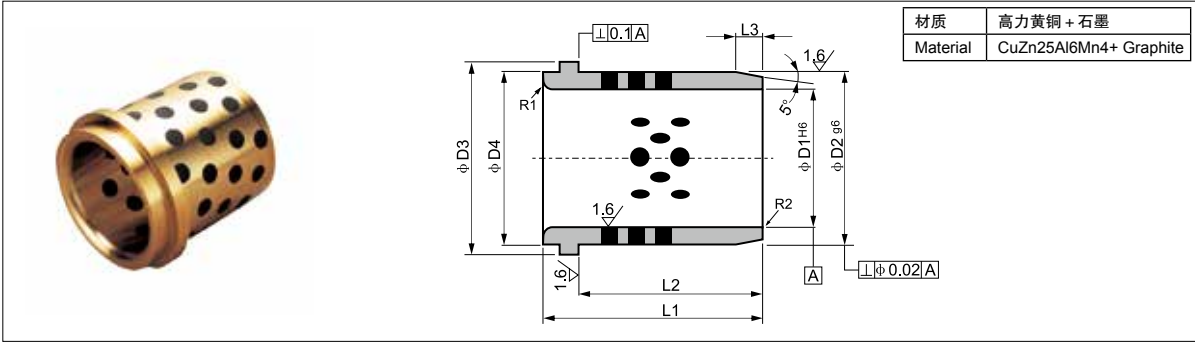
单位Unit: mm

型号规格 Standard No.	W	L	A	B	C	D	E	平头螺钉尺寸 Flat Head Screw Size	孔数 Q'ty of holes
JSP-1875	18	75	15	45				M6	2
JSP-18100		100	25	50					
JSP-18125		125		75					
JSP-18150		150		100					
JSP-2875	28	75	15	45				M8	3
JSP-28100		100	25	50					
JSP-28125		125		75					
JSP-28150		150		100					
JSP-35100	35	100	20	60				M8	4
JSP-35150		150		55	55				
JSP-35200		200		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	25	50					
JSP-38125		125		75					
JSP-38150		150		100					
JSP-4875	48	75	15	45				M8	3
JSP-48100		100	25	50					
JSP-48125		125		75					
JSP-48150		150		100					
JSP-50100	50	100	20	60				M8	4
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		90	90	90	90		
JSP-75150	75	150	20	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		

Note: In addition to the above specifications of size, manufactured according to customer drawings .



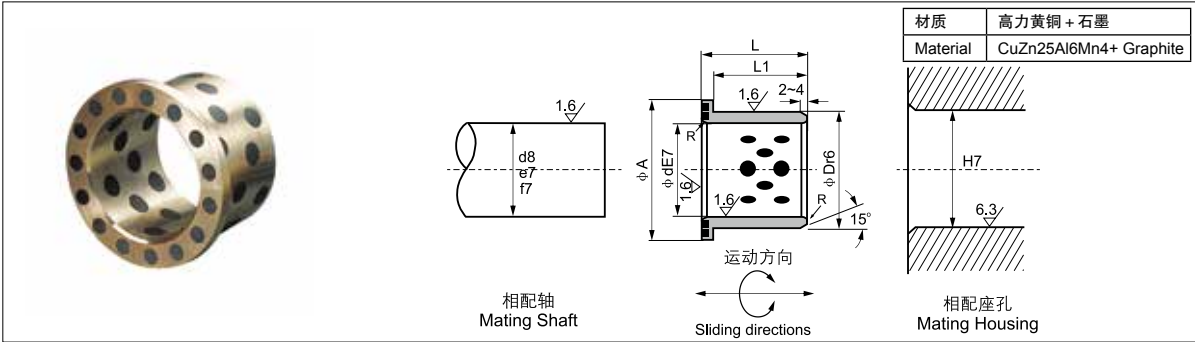
JDBS 自润球铰
Oilless Spherical Plain Bearing



单位unit:mm

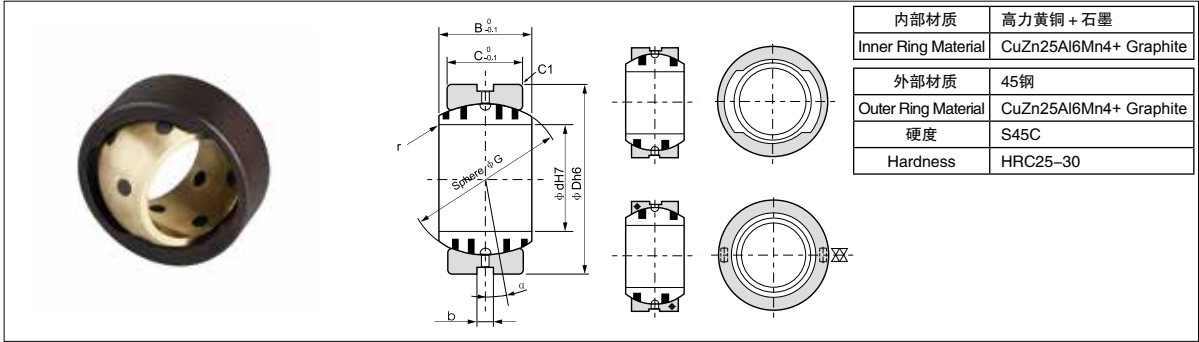
规格 Standard No.	D1	H6	D2	g6	D3	D4	L1	L2	L3	R1
JNA32 × 50	32	+0.016 0	40	-0.009	50	40	50	40	4	3
JNA40 × 63	40		50	-0.025	63	50	63	50	5	3
JNA50 × 71	50	+0.019 0	63	-0.010	71	63	71	56	6	5
JNA63 × 80	63		80	-0.029	90	80	80	63	8	6
JNA80 × 100	80	+0.022 0	100	-0.012 -0.034	112	100	100	80	10	8
JNA100 × 125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

JDBB 自润翻边轴套
Oilless Flange Bushes



单位unit:mm

Stanard No. 规格	ϕd	E7	ϕD	r6	ϕA	L1	L
JDBB-12 × 15	12	+0.050 +0.032	18	+0.034 +0.023	25	11	15
JDBB-16 × 20	16		22	+0.041 +0.028	30	15	20
JDBB-20 × 25	20	+0.061 +0.040	28		36	20	25
JDBB-25 × 30	25		33	+0.050 +0.034	43	25	30
JDBB-30 × 35	30	+0.075 +0.050	38		48	30	35
JDBB-40 × 45	40		50	+0.060 +0.041	60	40	45
JDBB-50 × 55	50	+0.080 +0.060	62		75	49	55
JDBB-60 × 65	60		75	+0.082 +0.043	90	58	65

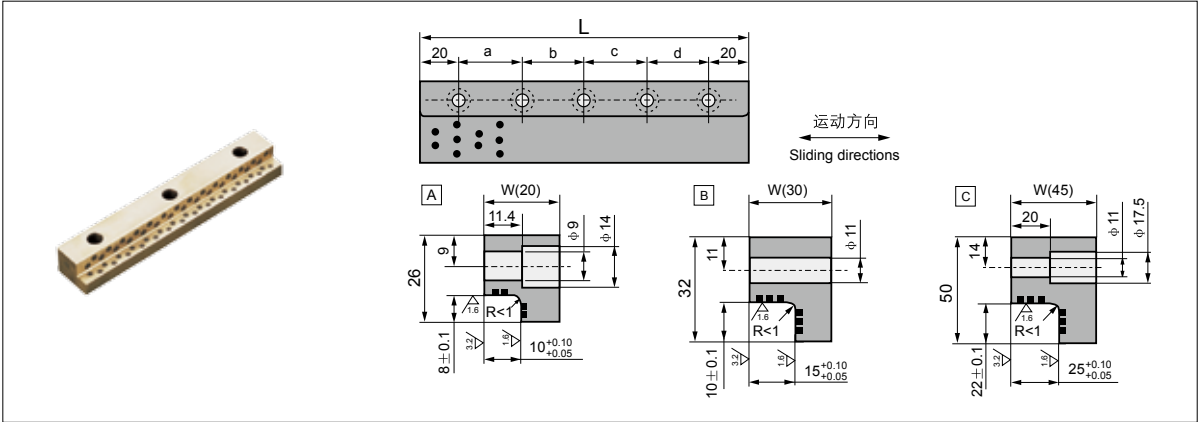


单位unit:mm

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



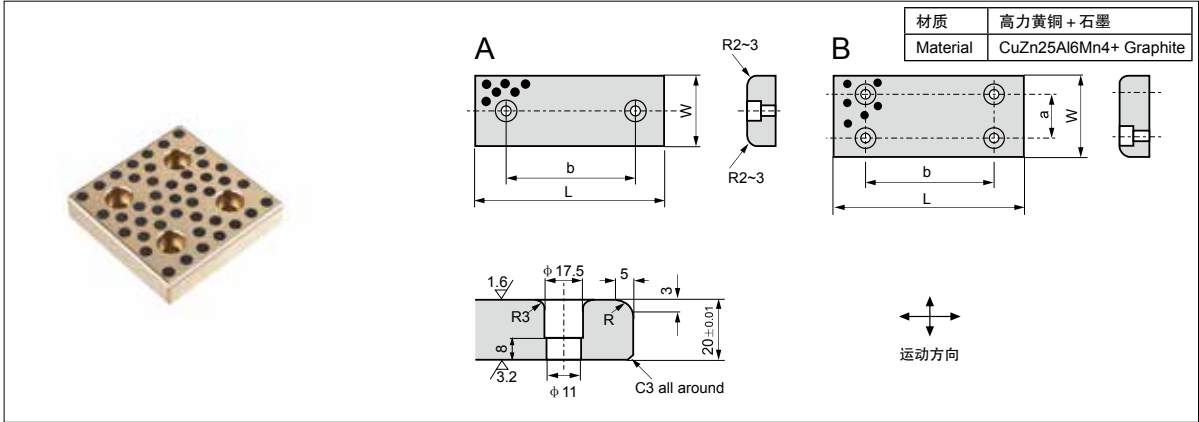
JSL 固体自润滑滑块标准公制尺寸
JSL Solid Self-Lubricating Wear Plate Standard Metric Size



单位Unit: mm

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

JSP 自润滑板
Oilless Wear Plate-20mm Thick

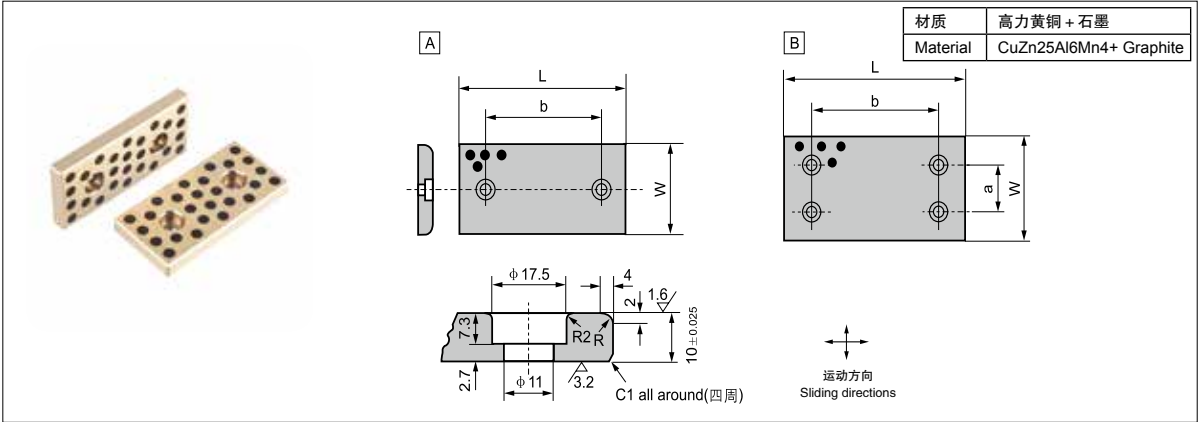


单位unit:mm

规格 Standard No.	W	L	a	b	图示 Sketch
JSP- 28 × 75	28	75	—	45	
JSP- 28 × 100		100		50	
JSP- 28 × 150		150		100	
JSP- 38 × 75	38	75	—	45	
JSP- 38 × 100		100		50	
JSP- 38 × 150		150		100	
JSP- 48 × 75	48	75	—	45	A
JSP- 48 × 100		100		50	
JSP- 48 × 125		125		75	
JSP- 48 × 150	58	150	—	100	
JSP- 48 × 200		200		150	
JSP- 58 × 75		75		45	
JSP- 58 × 100	75	100	—	50	
JSP- 58 × 150		150		100	
JSP- 75 × 75		75		25	
JSP- 75 × 100	100	100	50	50	
JSP- 75 × 125		125		75	
JSP- 75 × 150		150		100	
JSP- 75 × 200	125	200	50	150	
JSP- 100 × 100		100		50	
JSP- 100 × 125		125		75	
JSP- 100 × 150	150	150	100	100	B
JSP- 100 × 200		200		150	
JSP- 100 × 250		250		200	
JSP- 100 × 300	125	300	50	200	
JSP- 125 × 125		125		75	
JSP- 125 × 150		150		100	
JSP- 125 × 200	150	200	100	150	
JSP- 125 × 250		250		200	
JSP- 125 × 300		300		200	
JSP- 125 × 350	250	350	200	200	
JSP- 150 × 150		150		100	
JSP- 150 × 200		200		150	
JSP- 150 × 250		250		200	



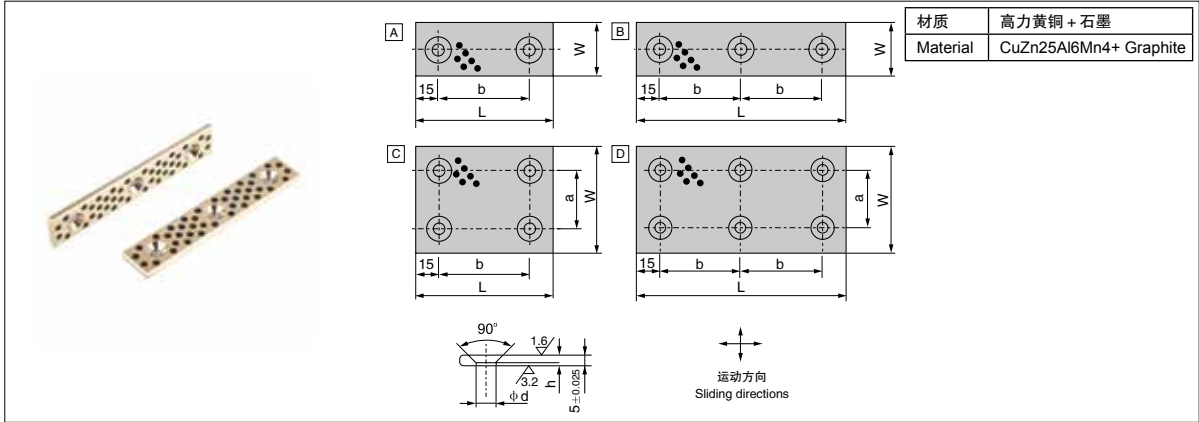
JTWP 自润滑板
Oilless Wear Plate-10mm Thick



单位unit:mm

规格 Standard No.	W	L	a	b	图示 Sketch
JTWP 28 × 75	28	75	—	45	A
JTWP 28 × 100		100		50	
JTWP 28 × 125		125		75	
JTWP 28 × 150		150		100	
JTWP 38 × 75	38	75	—	45	A
JTWP 38 × 100		100		50	
JTWP 38 × 125		125		75	
JTWP 38 × 150		150		100	
JTWP 48 × 75	48	75	—	45	A
JTWP 48 × 100		100		50	
JTWP 48 × 125		125		75	
JTWP 48 × 150		150		100	
JTWP 48 × 200	75	200	—	150	B
JTWP 75 × 75		75		25	
JTWP 75 × 100		100		50	
JTWP 75 × 125		125		75	
JTWP 75 × 150	100	150	50	100	B
JTWP 75 × 200		200		150	
JTWP 100 × 100		100		50	
JTWP 100 × 125		125		75	
JTWP 100 × 150	125	150	50	100	B
JTWP 100 × 200		200		150	
JTWP 100 × 250		250		200	
JTWP 125 × 150		150		100	
JTWP 125 × 200	150	200	100	150	B
JTWP 125 × 250		250		200	
JTWP 150 × 150		150		100	
JTWP 150 × 200		200		150	

JUWP 自润滑板
Oilless Wear Plate-5mm Thick

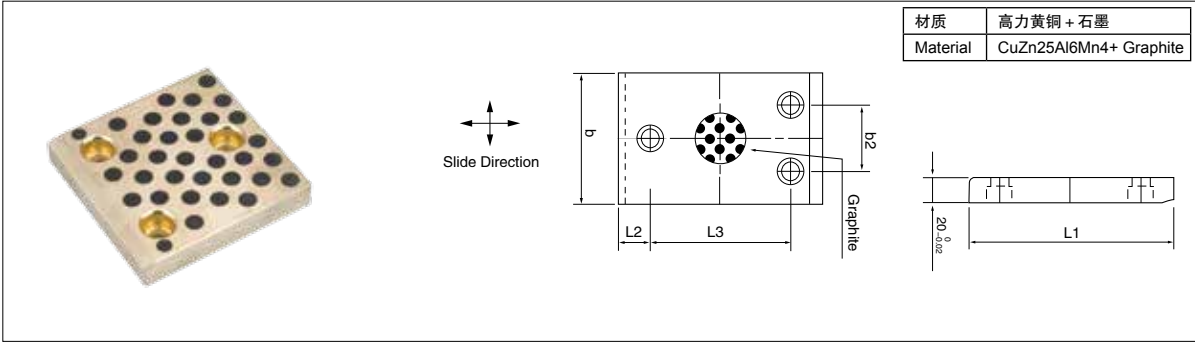


单位unit:mm

规格 Standard No.	W	L	a	b	图示 Sketch
JUWP 18 × 50	18	50	—	20	A
JUWP 18 × 75		75		45	
JUWP 18 × 100		100		70	
JUWP 18 × 150		150		60	
JUWP 28 × 50	28	50	—	20	A
JUWP 28 × 75		75		45	
JUWP 28 × 100		100		70	
JUWP 28 × 150		150		60	
JUWP 38 × 50	38	50	—	20	A
JUWP 38 × 75		75		45	
JUWP 38 × 100		100		70	
JUWP 38 × 150		150		60	
JUWP 48 × 75	48	75	—	45	A
JUWP 48 × 100		100		70	
JUWP 48 × 125		125		95	
JUWP 48 × 150		150		60	
JUWP 75 × 75	75	75	45	45	C
JUWP 75 × 100		100		70	
JUWP 75 × 125		125		95	
JUWP 75 × 150		150		60	
JUWP 100 × 100	100	100	70	70	C
JUWP 100 × 125		125		95	
JUWP 100 × 150		150		60	



39D 863 自润滑板
Oilless Wear Plate

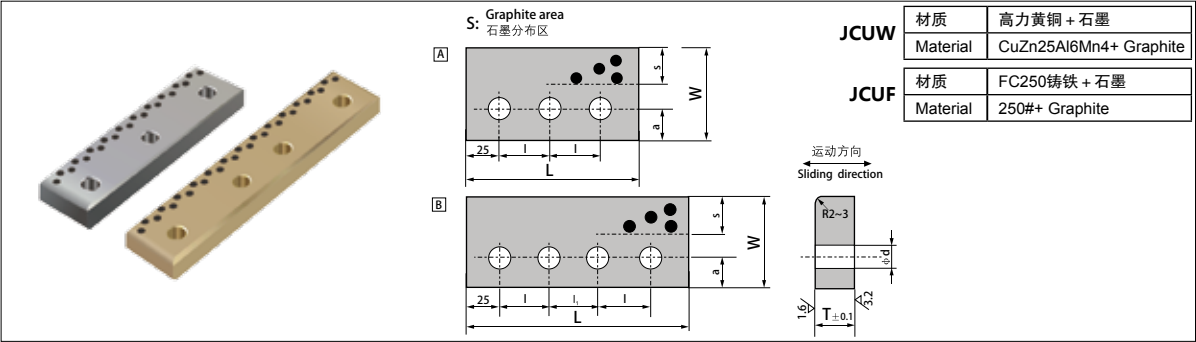


单位unit:mm

Code 型号	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	80	300	-	25	80	90	M12 × 25	4
39D863-113		350	-		100	100		
39D863-114		400	-		120	110		
39D863-115		450	-		140	120		
39D863-116		500	-		150	150		
39D863-21		50	30		-	-		
39D863-22	100	80	-	25	30	-	M8 × 25	2
39D863-23		100	-		50	-		
39D863-24		125	-		75	-		
39D863-25		160	-		110	-		
39D863-26		200	-		150	-		
39D863-121		250	-		60	80		
39D863-122	125	300	-	25	80	90	M12 × 25	4
39D863-123		350	-		100	100		
39D863-124		400	-		120	110		
39D863-125		450	-		140	120		
39D863-126		500	-		150	150		
39D863-31		50	50		-	-		
39D863-32	160	80	-	25	30	-	M8 × 25	2
39D863-33		100	-		50	-		
39D863-34		125	-		75	-		
39D863-35		160	-		110	-		
39D863-36		200	-		150	-		
39D863-131		450	-		140	120		
39D863-132	125	500	-	25	150	150	M12 × 25	4
39D863-41		50	-		-	-		
39D863-42		80	-		-	-		
39D863-43		100	75		50	-		
39D863-44		125	-		75	-		
39D863-45		160	-		110	-		
39D863-46	160	200	-	25	150	-	M12 × 25	3
39D863-141		450	-		140	120		
39D863-142		500	-		150	150		
39D863-51		50	-		-	-		
39D863-52		80	-		-	-		
39D863-53		100	110		50	-		
39D863-54	160	125	-	25	75	-	M12 × 25	3
39D863-55		160	-		110	-		
39D863-56		200	-		150	-		



JCUW, JCUF 凸轮上滑板
OILLESS CAM UPPER PLATE



单位unit:mm

Standard No. 规格	T	L	W	l	l ₁	a	s	Φ d	Sketch 图示
JCUW-20 × 150	20	150	52	50	—	20	12	13	A
JCUW-20 × 200		200		75	50				B
JCUW-20 × 250		250		75	50				B
JCUW-30 × 150	30	150	72	50	—	20	22	18	A
JCUW-30 × 200		200		75	50				B
JCUW-30 × 250		250		75	50				B
JCUW-35 × 150	35	150	77	50	—	20	27	18	A
JCUW-35 × 200		200		75	50				B
JCUW-35 × 250		250		75	50				B
JCUW-40 × 150	40	150	82	50	—	20	32	18	A
JCUW-40 × 200		200		75	50				B
JCUW-40 × 250		250		75	50				B
JCUW-40 × 150D		150	105	50	—				A
JCUW-40 × 200D		200		50	50				B
JCUW-40 × 250D		250		75	50				B
JCUF-20 × 150	20	150	52	50	—	20	12	13	A
JCUF-20 × 200		200		75	50				B
JCUF-20 × 250		250		75	50				B
JCUF-30 × 150	30	150	72	50	—	20	22	18	A
JCUF-30 × 200		200		75	50				B
JCUF-30 × 250		250		75	50				B
JCUF-35 × 150	35	150	77	50	—	20	27	18	A
JCUF-35 × 200		200		75	50				B
JCUF-35 × 250		250		75	50				B
JCUF-40 × 150	40	150	82	50	—	20	32	18	A
JCUF-40 × 200		200		75	50				B
JCUF-40 × 250		250		75	50				B
JCUF-40 × 150D		150	105	50	—				A
JCUF-40 × 200D		200		50	50				B
JCUF-40 × 250D		250		75	50				B

骨板 ^{es}	S45C
	钢基 + HRC≥55
DSPW	CuZn25Al6Mn4 + Graphite
	高力黄铜 + 石墨



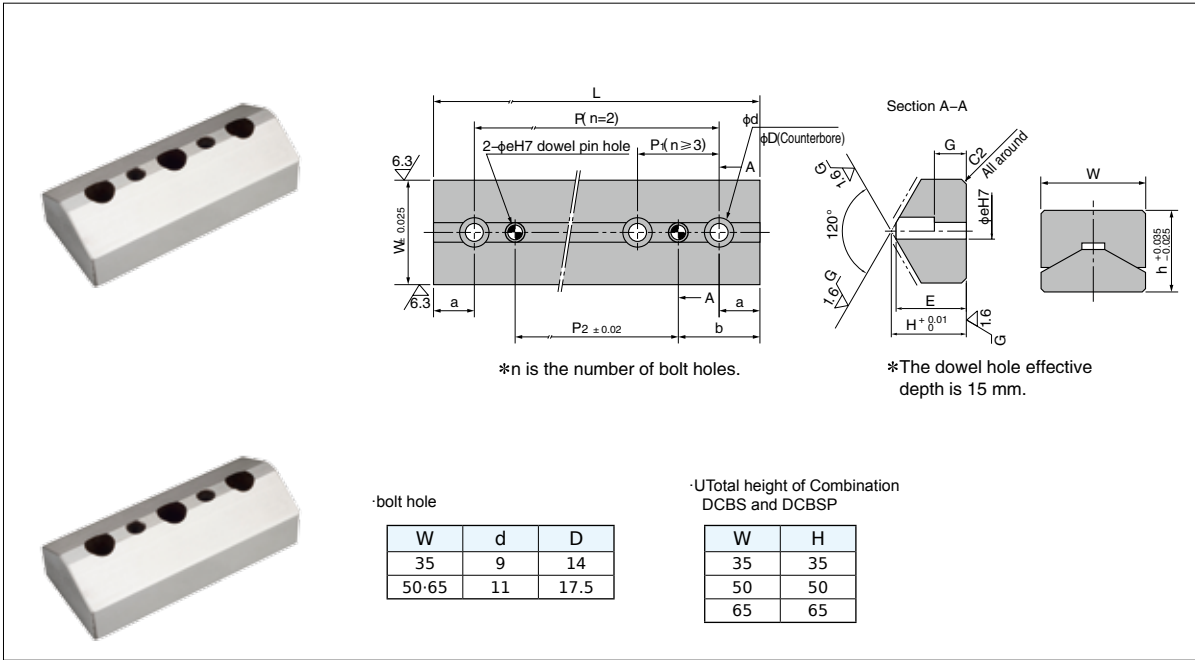
注：除以上规格尺寸外，可按客户图纸制造。
Note: In addition to the above specifications of size, manufactured according to customer drawings.

单位unit:mm

注：除以上规格尺寸外，可按客户图纸制造。
Note: In addition to the above specifications of size, manufactured according to customer drawings .



DCBSP/DCBSPL V型导板
Cam Slide Guide

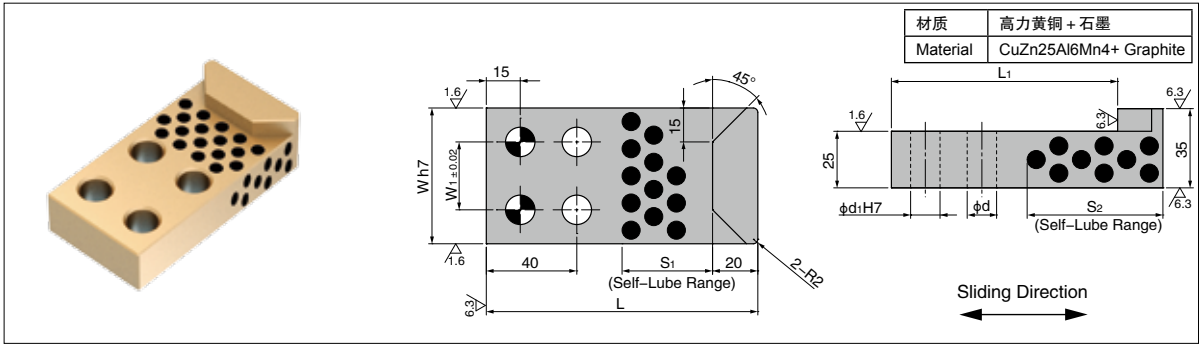


单位unit:mm

Code 型号	W	L	H	ℓ	ℓ_1	P	P1	n	P2	E	G
DCBSP	65	100	47	20	40	60	—	2	20	44	20
		150						3	50		
		200		25	50	—	50	4	100		
		250						5	150		
DCBSPL	65	300	30					6	200	26	10
		100		20	40	60			20		
		125				75	—	2	25		
		150				100			50		
		200		25	50		75		100		
		250				—	100	3	150		
		300					125		200		

注：除以上规格尺寸外，可按客户图纸制造。
Note: In addition to the above specifications of size, manufactured according to customer drawings .

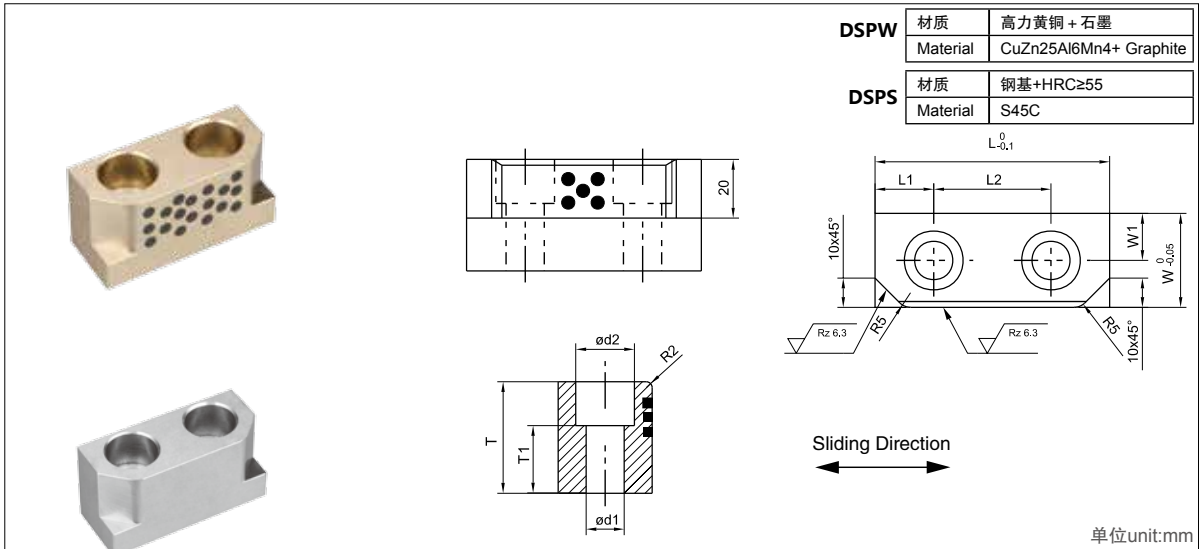
DCPRB/DCPRBS DPGPC 自润导板
Cam Pad Guide Plate



单位unit:mm

Code 型号	W	h7	L ₁	L ₂	S ₁	S ₂	W ₁	d	d ₁
DPGPC-60 × 120	60	0 -0.030	120	100	40	60	30	13	13
DPGPC-60 × 140			140	120	60	80			
DPGPC-60 × 160			160	140	80	100			
DPGPC-100 × 120	100	0 -0.035	120	100	40	60	70	18	16
DPGPC-100 × 140			140	120	60	80			
DPGPC-100 × 160			160	140	80	100			
DPGPC-150 × 120	150	0 -0.040	120	100	40	60	120		
DPGPC-150 × 140			140	120	60	80			
DPGPC-150 × 160			160	140	80	100			

DCPRB/DCPRBS

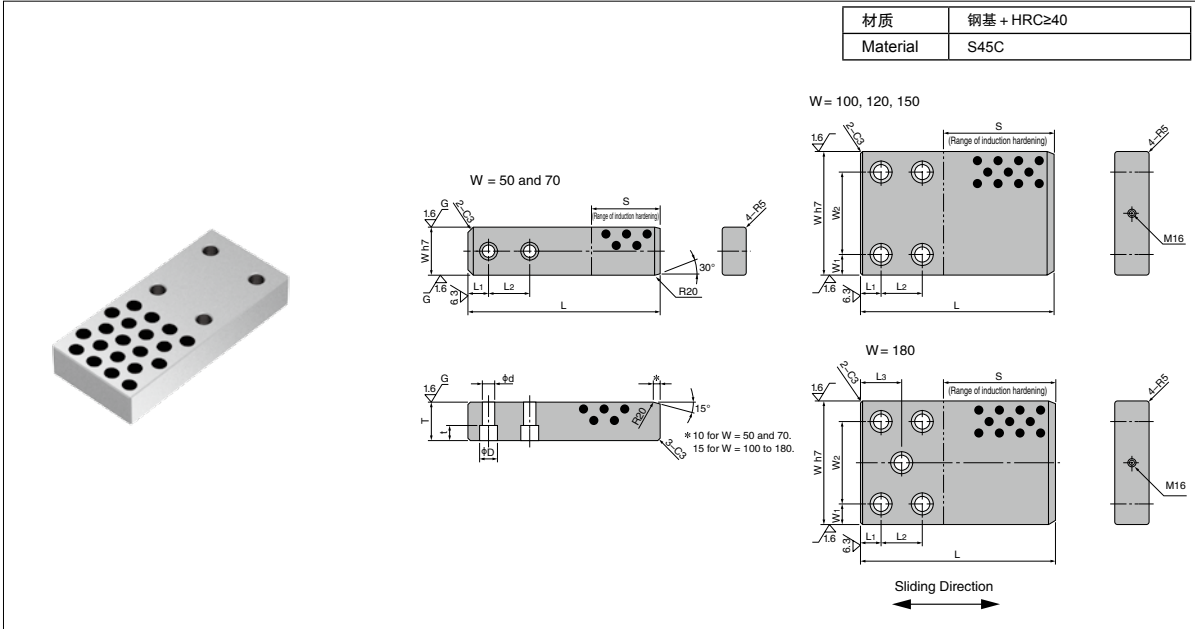


单位unit:mm

Code 型号	W × L × S	L ₁	L ₂	W ₁	T ₁	d ₁	d ₂
DCRPB/DCPRBS	25 × 60 × 30	15	30	11	18	11	17.5
DCRPB/DCPRBS	32 × 60 × 38	15	30	16	23	13	20
DCRPB/DCPRBS	32 × 80 × 38	20	40	16	23	13	20



DGBZ 自润外导板
Oilless Wear Plate



单位unit:mm

Code 型号	W	L	W h7	L ₁	L ₂	L ₃	W ₁	W ₂	D	d	t	e	s	T
DGBZ-50 × 160	50	160	50	20	50								60	30
DGBZ-50 × 200		200			80								120	
DGBZ-50 × 260		260			150								200	
DGBZ-70 × 230	70	230	70	25	60				26	18	18	10	100	35
DGBZ-70 × 260		260			75								160	
DGBZ-70 × 300		300			150								250	
DGBZ-70 × 350	100	350	100		150								150	
DGBZ-100 × 230		230			60								100	
DGBZ-100 × 280		280			100								160	
DGBZ-100 × 330	120	330	120		100		20						160	45
DGBZ-100 × 390		390			120								200	
DGBZ-120 × 230		230			60								100	
DGBZ-120 × 280	150	280	150		100								160	50
DGBZ-120 × 330		330			120								200	
DGBZ-120 × 390		390			150								250	
DGBZ-150 × 280	180	280	180		60								160	55
DGBZ-150 × 330		330			80								190	
DGBZ-150 × 390		390			140								250	
DGBZ-150 × 430	200	430	200		180								200	
DGBZ-180 × 280		280			60								160	
DGBZ-180 × 330		330			80								190	
DGBZ-180 × 390	225	390	225		140								200	
DGBZ-180 × 430		430			180								250	
DGBZ-180 × 480		480			200								250	
DGBZ-180 × 550		550			225	142.5							250	



SF-1
无油润滑轴承
OILLESS
BUSHING

产品介绍
Product introduction

是以钢板为基体，中间烧结球形青铜粉，表面轧制聚四氟乙烯和混合物卷制而成。它具有摩擦系数小、耐磨、抗腐蚀性好和无油润滑的特点。能降低成本、缩小机械体积、避免咬轴现象和降低噪音等优点。产品已广泛应用于各种机械的滑动部位，例如：印刷机、纺织机、烟草机械、汽车、摩托车与农林机械等。

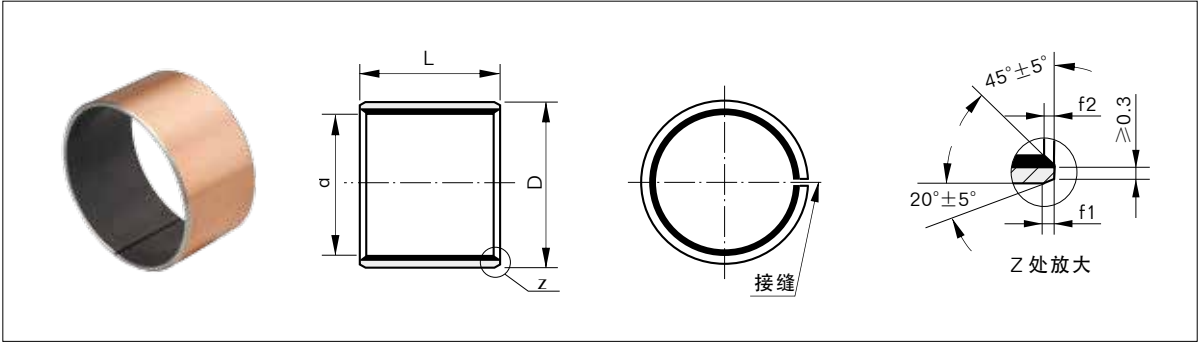
It is wall wrapped bushing made of triple layer composites material which be consisted of a steel backing, a sintered porous bronze particles interlayer and calendared and mixture as surface layer, It is of low friction coefficient, anti-wear, anti-corrosion and can be used without oil, or only a trace of oil if needed. Moreover, it is of low cost, low vibration and low noise, compacted and light. It is widely applied in various sliding articles of different kind of machines, such as textile machines, tobacoo machines, hydraulic vehicles, antomobiles, agriculture and forests machineese and soon.

使用参数
The use of parameters

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



SF-1 无油润滑轴承
SF-1 Oilless Bushing

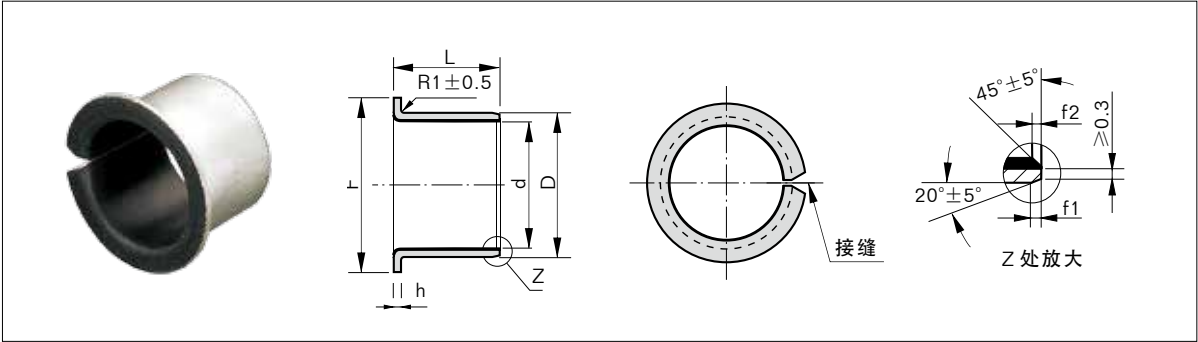


单位unit:mm

压入座孔后的 内径 I.D.after fixed	D	轴径 Shaft Dia.	座孔 Bore H7 Housing	壁厚 Wall Thickness	f1	f2	L ⁰ _{-0.40 (d < 30 L = 0.3)} _{-0.40 (d > 30 L = 0.4)}																
							6	8	10	12	15	20	25	30	40	50	60	70	80	90	100	115	
5.990 6.055	8	+0.055 +0.025	6	-0.013 -0.028	8	+0.015	●	●	●														
7.990 8.055	10	+0.055 +0.025	8	-0.016 -0.034	10	+0.015	●	●	●	●	●												
9.990 10.058	12	+0.065 +0.030	10	-0.020 -0.041	12	+0.018		●	●	●	●												
11.990 12.058	14	+0.065 +0.030	12	-0.020 -0.041	14	+0.018		●	●	●	●	●	●										
13.990 14.058	16	+0.065 +0.030	14	-0.020 -0.041	16	+0.018			●	●	●	●	●	●									
14.990 15.058	17	+0.065 +0.030	15	-0.020 -0.041	17	+0.018				●	●	●	●	●									
15.990 16.058	18	+0.065 +0.030	16	-0.020 -0.041	18	+0.018				●	●	●	●	●									
16.990 17.061	19	+0.075 +0.035	17	-0.020 -0.041	19	+0.021				●	●		●										
17.990 18.061	20	+0.075 +0.035	18	-0.025 -0.050	20	+0.021				●	●	●	●	●									
19.990 20.071	23	+0.075 +0.035	20	-0.025 -0.050	23	+0.021				●	●	●	●	●	●								
21.990 22.071	25	+0.075 +0.035	22	-0.025 -0.050	25	+0.021					●	●	●	●	●								
23.990 24.071	27	+0.075 +0.035	24	-0.025 -0.050	27	+0.021						●	●	●	●								
24.990 25.071	28	+0.075 +0.035	25	-0.013 -0.028	28	+0.021						●	●	●	●	●							
27.990 28.085	32	+0.085 +0.045	28	-0.016 -0.034	32	+0.025						●	●	●	●	●							
29.990 30.085	34	+0.085 +0.045	30	-0.016 -0.034	34	+0.025						●	●	●	●	●	●						
31.990 32.085	36	+0.085 +0.045	32	-0.016 -0.034	36	+0.025							●		●	●	●						
34.990 35.085	39	+0.085 +0.045	35	-0.016 -0.034	39	+0.025							●	●	●	●	●	●					
37.990 38.085	42	+0.085 +0.045	38	-0.016 -0.034	42	+0.025								●	●	●	●	●					
39.990 40.085	44	+0.085 +0.045	40	-0.016 -0.034	44	+0.025							●	●	●	●	●	●					
44.990 45.105	50	+0.085 +0.045	45	-0.025 -0.050	50	+0.025							●	●	●	●	●	●					
49.990 50.110	55	+0.100 +0.055	50	-0.030 -0.060	55	+0.030							●		●	●	●	●	●				
54.990 55.110	60	+0.100 +0.055	55	-0.030 -0.060	60	+0.030									●	●	●	●	●				
59.990 60.110	65	+0.100 +0.055	60	-0.030 -0.060	65	+0.030										●	●	●	●	●			
64.990 65.110	70	+0.100 +0.055	65	-0.030 -0.060	70	+0.030										●	●	●	●	●			
69.990 70.110	75	+0.100 +0.055	70	-0.030 -0.060	75	+0.030											●	●	●	●	●		
74.990 75.110	80	+0.100 +0.055	75	-0.030 -0.060	80	+0.030												●	●	●	●	●	
80.020 80.155	85	+0.120 +0.070	80	-0.035	85	+0.035												●	●	●	●	●	
85.020 85.155	90	+0.120 +0.070	85	-0.035	90	+0.035													●	●	●	●	
90.020 90.155	95	+0.120 +0.070	90	-0.035	95	+0.035														●	●	●	
95.020 95.155	100	+0.120 +0.070	95	-0.035	100	+0.035															●	●	
100.020 100.155	105	+0.120 +0.070	100	-0.035	105	+0.035																●	
105.020 105.155	110	+0.120 +0.070	105	-0.035	110	+0.035																●	
110.020 110.155	115	+0.120 +0.070	110	-0.035	115	+0.035																●	
120.070 120.210	125	+0.170 +0.100	120	-0.035	125	+0.035																●	
125.070 125.210	130	+0.170 +0.100	125	-0.040	130	+0.040																●	
130.070 130.210	135	+0.170 +0.100	130	-0.040	135	+0.040																●	
140.070 140.210	145	+0.170 +0.100	140	-0.040	145	+0.040																●	
150.070 150.210	155	+0.170 +0.100	150	-0.040	155	+0.040																●	
160.070 160.210	165	+0.170 +0.100	160	-0.040	165	+0.040																●	
180.070 180.216	185	+0.210 +0.130	180	-0.040	185	+0.046																●	



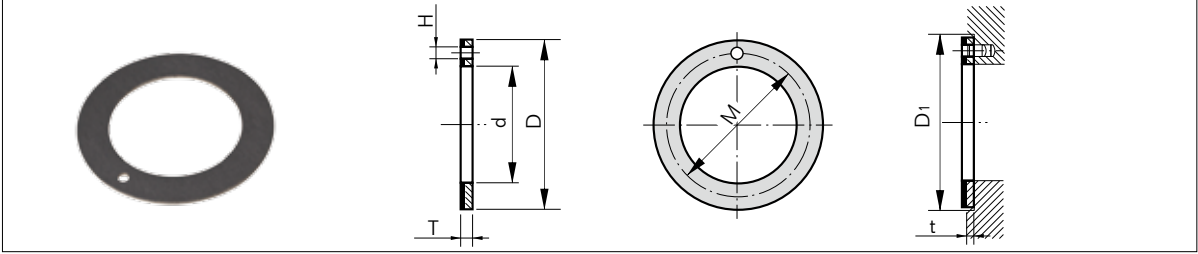
SF-1 无油润滑翻边轴套
SF-1 Oilless Flange Bushing



单位unit:mm

压入座孔后的 内径 I.D.afterfixed	D	轴径 Shaft Dia.	座孔 Bore H7 Housing	F ± 0.5	壁厚 Wall Thickness	f1	f2	L ± 0.025																	
								4	5.5	7	7.5	8	9	10	12	15	16	17	22	26					
5.990 5.055	8	+0.055 +0.025	6	-0.013 -0.028	8	+0.015	12	+0.005 -0.020	0.6	0.3	●		●		●										
7.990 6.055	10	+0.055 +0.025	8	-0.016 -0.034	10	+0.015	15					●			●	●									
9.990 10.058	12	+0.055 +0.030	10	-0.020 -0.041	12	+0.018	18							●		●		●	●						
11.990 12.058	14	+0.055 +0.030	12	-0.020 -0.041	14	+0.018	20								●		●		●	●		●			
13.990 14.058	16	+0.055 +0.030	14	-0.020 -0.041	16	+0.018	22									●		●		●	●		●		
14.990 15.058	17	+0.055 +0.030	15	-0.020 -0.041	17	+0.018	23										●		●		●	●			
16.990 17.061	18	+0.055 +0.035	16	-0.020 -0.041	18	+0.018	24											●		●		●			
17.990 18.061	20	+0.075 +0.035	18	-0.025 -0.050	20	+0.021	26												●	●		●			
19.990 20.071	23	+0.075 +0.035	20	-0.025 -0.050	23	+0.021	30													●	●		●	●	
21.990 22.071	25	+0.075 +0.035	22	-0.025 -0.050	25	+0.021	32														●		●	●	
24.990 25.071	28	+0.075 +0.035	25	-0.013 -0.028	28	+0.021	35	+0.005 -0.025	0.6	0.4									●		●	●			
30.990 30.085	34	+0.085 +0.045	30	-0.016 -0.034	34	+0.025	45															●		●	●
34.990 35.085	39	+0.085 +0.045	35	-0.016 -0.034	39	+0.025	47															●		●	●

SF-1WC 标准公制垫片
SF-1WC Standard Metric Washer



单位unit:mm

规格型号 Type	轴 径 Shaft Dia.	垫片尺寸 Washer dimension				安装尺寸 Installation		
		d ^{+0.25}	D _{-0.25}	T _{-0.05}	M ^{+0.12 -0.12}	H	t	D ₁
WC 10	8	10	20	1.5	15	1.5	1	20
WC 12	10	12	24	1.5	18	1.5	1	24
WC 14	12	14	26	1.5	20	2	1	26
WC 16	14	16	30	1.5	23	2	1	30
WC 18	16	18	32	1.5	25	2	1	32
WC 20	18	20	36	1.5	28	3	1	36
WC 22	20	22	38	1.5	30	3	1	38
WC 24	22	24	42	1.5	33	3	1	42
WC 26	24	26	44	1.5	35	3	1	44
WC 28	25	28	48	1.5	38	4	1	48
WC 32	30	32	54	1.5	43	4	1	54
WC 38	35	38	62	1.5	50	4	1	62
WC 42	40	42	66	1.5	54	4	1	66
WC 48	45	48	74	2	61	4	1.5	74



SF-2

边界润滑轴套 BOUNDARY LUBRICATING BUSHING

产品介绍 Product introduction

SF-2边界润滑轴承，是以钢板为基体，中间烧结球型青铜粉，表面轧制改性聚甲醛（POM），并含有储油坑。它适用于常温条件下，低速中载的场所，取代传统铜套，既降低成本又延长使用寿命。特殊情况下，在轧钢机上使用，又能节省加油频次、简化更换程序。该产品已广泛应用于汽车底盘、锻压机床、冶金矿山机械、工程机械、水电、轧钢行业等领域。

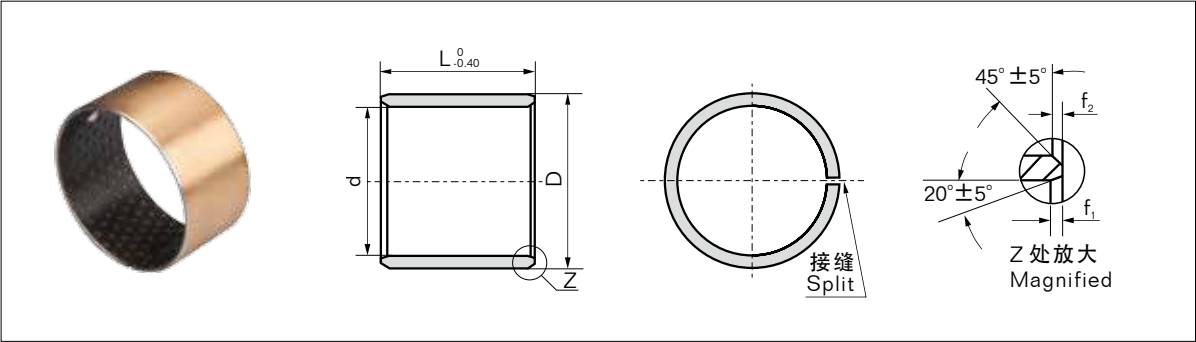
使用参数 The use of parameters

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

SF-2 boundary lubrication bushing is based on a composite material with 3 firmly bonded layers: steel as backing, sintered bronze spherical powder as interlayer and modified POM as lining layer, It fits well for low speed, middle-load and normal temperature and saves cost and prolongs working life when replacing normal all copper sleeves. It is widely applied in auto chassis, forging machine, metallurgical and mining machine, civil engineering, power station, strip rolling industries, etc.



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



单位Unit: mm

压入座孔后的 内径 I.D.after fixed	D	轴径 Shaft Dia.	座孔 Housing Bore H7	壁厚 Wall Thickness	油孔 Oil Hole	f1	f2	L ⁰ _{-0.40}																	
								10	12	15	20	25	30	35	40	45	50	60	80	90	95	100			
5.990 6.055	12 ^{+0.065} _{+0.030}	10 ^{-0.022}	12 ^{+0.018}	0.955 0.980	4	0.6	0.3	●	●	●															
7.990 8.055	14 ^{+0.065} _{+0.030}	12 ^{-0.027}	14 ^{+0.018}		4			●	●	●															
9.990 10.058	16 ^{+0.065} _{+0.030}	14 ^{-0.027}	16 ^{+0.018}		4				●	●															
11.990 12.058	17 ^{+0.065} _{+0.030}	15 ^{-0.027}	17 ^{+0.018}		4				●	●															
13.990 14.058	18 ^{+0.065} _{+0.030}	16 ^{-0.027}	18 ^{+0.018}		4				●	●															
14.990 15.058	20 ^{+0.075} _{+0.035}	18 ^{-0.027}	20 ^{+0.021}	1.445 1.475	4	0.6	0.4		●	●	●	●													
15.990 16.058	23 ^{+0.075} _{+0.035}	20 ^{-0.033}	23 ^{+0.021}		4				●	●	●	●													
16.990 17.061	25 ^{+0.075} _{+0.035}	22 ^{-0.033}	25 ^{+0.021}		4				●		●														
17.990 18.061	28 ^{+0.075} _{+0.035}	25 ^{-0.033}	28 ^{+0.021}		6						●	●	●												
19.990 20.071	32 ^{+0.085} _{+0.045}	28 ^{-0.033}	32 ^{+0.025}		6						●		●												
21.990 22.071	34 ^{+0.085} _{+0.045}	30 ^{-0.033}	34 ^{+0.025}	1.935 1.970	6	1.2	0.4			●	●	●	●		●										
23.990 24.071	39 ^{+0.085} _{+0.045}	35 ^{-0.039}	39 ^{+0.025}		6					●		●		●	●	●	●								
24.990 25.071	44 ^{+0.085} _{+0.045}	40 ^{-0.039}	44 ^{+0.025}		8					●		●		●	●	●	●								
27.990 28.085	50 ^{+0.085} _{+0.045}	45 ^{-0.039}	50 ^{+0.025}	2.415 2.460	8					●		●		●	●	●									
29.990 30.085	55 ^{+0.100} _{+0.055}	50 ^{-0.046}	55 ^{+0.030}									●		●		●	●								
31.990 32.085	60 ^{+0.100} _{+0.055}	55 ^{-0.046}	60 ^{+0.030}		8							●		●		●	●								
34.990 35.085	65 ^{+0.100} _{+0.055}	60 ^{-0.046}	65 ^{+0.030}		8							●		●		●	●								
37.990 38.085	70 ^{+0.100} _{+0.055}	65 ^{-0.046}	70 ^{+0.030}		8										●				●						
39.990 40.085	75 ^{+0.100} _{+0.055}	70 ^{-0.046}	75 ^{+0.030}	2.415 2.460	8							●		●		●		●							
44.990 45.105	80 ^{+0.100} _{+0.055}	75 ^{-0.046}	80 ^{+0.030}		8										●		●		●		●				
49.990 50.110	85 ^{+0.120} _{+0.070}	80 ^{-0.046}	85 ^{+0.035}		9.5										●				●		●				
54.990 55.110	90 ^{+0.120} _{+0.070}	85 ^{-0.054}	90 ^{+0.035}	2.415 2.460	9.5									●		●		●							
59.990 60.110	95 ^{+0.120} _{+0.070}	90 ^{-0.054}	95 ^{+0.035}		9.5										●				●		●		●		
64.990 65.110	105 ^{+0.120} _{+0.070}	100 ^{-0.054}	105 ^{+0.035}		9.5												●		●		●		●		
69.990 70.110	110 ^{+0.120} _{+0.070}	105 ^{-0.054}	110 ^{+0.035}	2.415 2.460	9.5											●		●		●		●			
74.990 75.110	115 ^{+0.120} _{+0.070}	110 ^{-0.054}	115 ^{+0.035}		9.5														●		●		●		
80.020 80.155	125 ^{+0.170} _{+0.100}	120 ^{-0.054}	125 ^{+0.035}		9.5			1.8	0.6											●		●		●	
85.020 85.155	130 ^{+0.170} _{+0.100}	125 ^{-0.063}	130 ^{+0.040}	9.5															●		●		●		
90.020 90.155	135 ^{+0.170} _{+0.100}	130 ^{-0.063}	135 ^{+0.040}	9.5															●		●		●		
95.020 95.155	145 ^{+0.170} _{+0.100}	140 ^{-0.063}	145 ^{+0.040}	2.385 2.450	9.5															●		●		●	
100.020 100.155	155 ^{+0.170} _{+0.100}	150 ^{-0.063}	155 ^{+0.040}		9.5																●		●		●
105.020 105.155	165 ^{+0.170} _{+0.100}	160 ^{-0.063}	165 ^{+0.040}		9.5																●		●		●
110.020 110.155	175 ^{+0.170} _{+0.100}	170 ^{-0.063}	175 ^{+0.040}	9.5																●		●		●	
120.070 120.210	185 ^{+0.210} _{+0.130}	180 ^{-0.072}	185 ^{+0.040}	2.385 2.450	9.5													●		●		●			
125.070 125.210	195 ^{+0.210} _{+0.130}	190 ^{-0.072}	195 ^{+0.046}		9.5																●		●		●
130.070 130.210	205 ^{+0.210} _{+0.130}	200 ^{-0.072}	205 ^{+0.046}		9.5																●		●		●
140.070 140.210	225 ^{+0.210} _{+0.130}	220 ^{-0.072}	225 ^{+0.046}	2.385 2.450	9.5													●		●		●			
150.070 150.210	245 ^{+0.210} _{+0.130}	240 ^{-0.072}	245 ^{+0.046}		9.5																●		●		●
160.070 160.210	255 ^{+0.260} _{+0.170}	250 ^{-0.081}	255 ^{+0.052}		9.5																●		●		●
180.070 180.216	265 ^{+0.260} _{+0.170}	260 ^{-0.081}	265 ^{+0.052}		9.5													●		●		●			



JF

双金属轴套

BIMETAL BUSHING

产品介绍

Product introduction

JF双金属轴承,是以低碳钢板为基体,表面烧结青铜合金。合金表面轧制油穴或油醋槽,便于储存油脂,有效降低磨损。钢背根据需要镀防腐层。适用于中载、中到高速,以及大冲击载荷的轴承,如内燃机主轴瓦、连杆衬套、摇臂衬套;油泵侧摩擦片等。

It is backed with high quality low carbon steel with tin-lead-bronze alloy sintered on its surface. To effectively decrease abrasion, its alloy surface can be machined with ball shaped oil sockets for easier oil storage. When necessary, an anti-erosive coating can be plated on the steel back. It can be applied to conditions of mediate load with mediate or high running velocity and conditions with enormous impact load. In mechanical applications, It is used to make wrapped bushes, thrust washer and bushes on connecting rod level of gas engine.

使用参数

The use of parameters

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

嘉善中泰滑动轴承

JIASHAN ZHONGTAI SLIDING BEARING

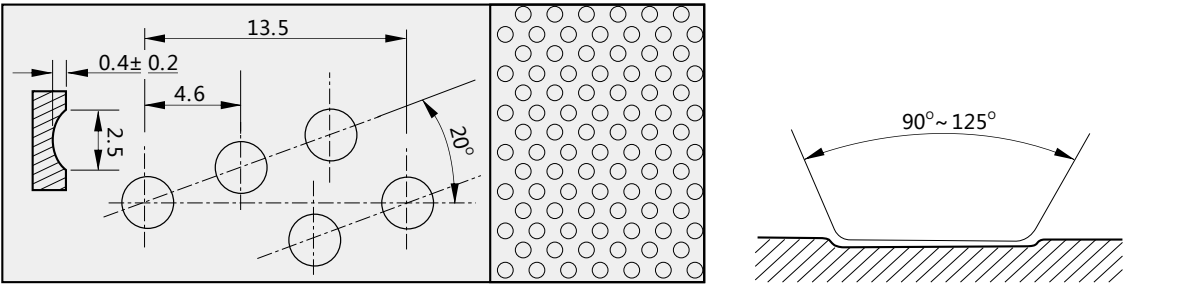
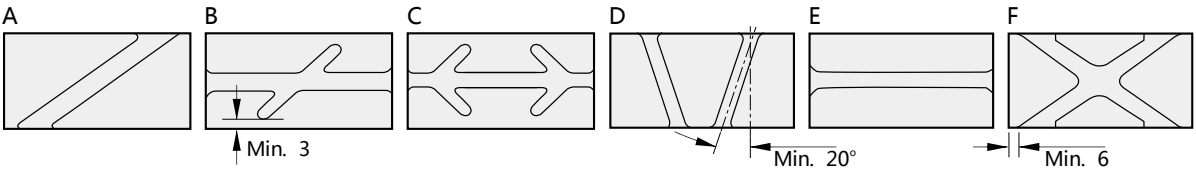


JF 双金属轴套

JF Bimetal Bushing

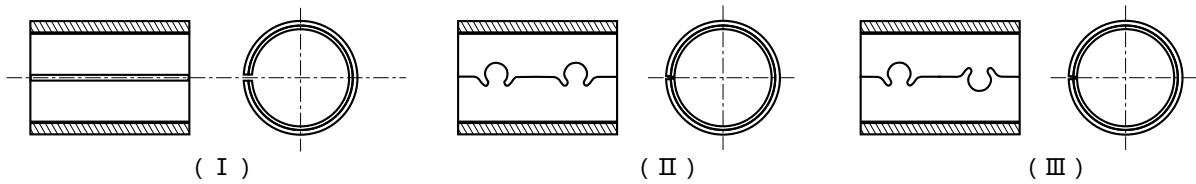
双金属轴套的油槽油穴形式 (可按客户要求定制)

Types for JF bush`s grooves & indentations (or as client's options)



双金属轴套的接口形式 (可按客户要求定制)

Clinch lock of JF wrapped bushes (or as client's options)



JF 型双金属轴套的油孔设计

The designing of oil indentations

为了使JF双金属轴套在使用中,能得到充分的油润滑,因此推荐如下尺寸油孔,客户需油孔而无特殊要求的,都按此油孔标准制作。

In order to fully lubricate the bush when in the performance, the indentations with size as follow are recommended. They should be manufactured according to the standard below if without special requirements.

轴承外径 Bush O.D	14~22	22~40	40~50	50~100	100~180
油孔直径 Lubricating hole	3	4	5	6	7

油孔的位置应避免接缝处和承载区域,这有利于进油。
The lubricating hole should be away from butt joint and loading area and designed to be easy-oil-feding as well.

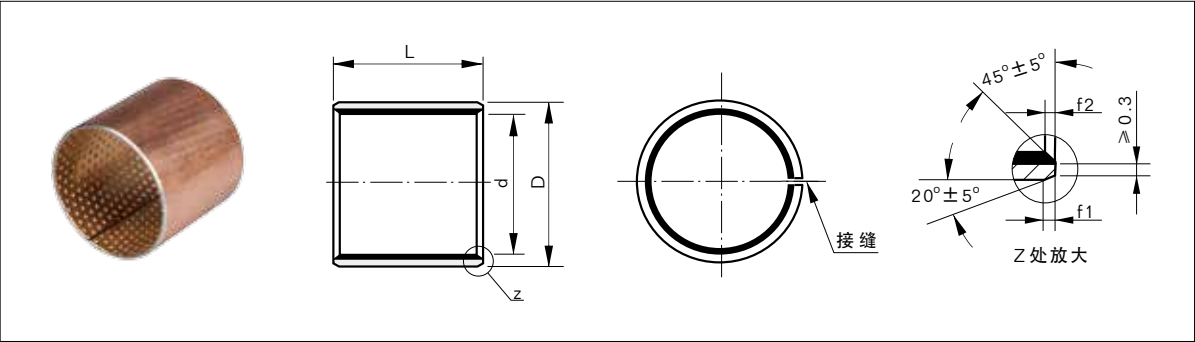
JF双金属板材厚度尺寸及公差

Normal thickness of the JF bimetal and their tolerances

公差厚度 Nominal Thickness	1	1.5	2	2.5	3	3.5	4	5
钢基厚度 Thickness of steel backing	0.6	1	1.4	1.9	2.3	2.8	3.2	4
有效合金厚度 Thickness of bronze layer	0.4	0.5	0.6	0.6	0.7	0.7	0.8	1.0
可加工轴套壁厚 Manufacturable wall thickness	1 ^{+0.25 +0.15}	1.5 ^{+0.25 +0.15}	2 ^{+0.25 +0.15}	2.5 ^{+0.25 +0.15}	3 ^{+0.25 +0.15}	3.5 ^{+0.25 +0.15}	4 ^{+0.25 +0.15}	5 ^{+0.25 +0.15}
已加工轴套壁厚 Manufactured wall thickness	1 _{-0.025}	1.5 _{-0.03}	2 _{-0.035}	2.5 _{-0.04}	3 _{-0.045}	3.5 _{-0.05}	4 _{-0.055}	5 _{-0.06}



JF 双金属轴套
JF Bimetal Bushing



单位Unit: mm

D	压入座孔后的内径 I.D.after fixed	壁厚 Wall Thickness	座孔 Bore H7 Housing	轴径 Shaft Dia. f7	f1	f2	L ⁰ _{-0.40} (d ≤ 30 L - 0.3 d > 30 L - 0.4)												
							10	15	20	25	30	40	50	60	80	90	100		
12 ^{+0.065 +0.030}	10 ^{+0.022}	1 -0.025	12 ^{+0.018}	10 ^{-0.013 -0.028}	0.5	0.3	●	●	●										
14 ^{+0.065 +0.030}	12 ^{+0.027}		14 ^{+0.018}	12 ^{-0.016 -0.034}			●	●	●										
16 ^{+0.065 +0.030}	14 ^{+0.027}		16 ^{+0.018}	14 ^{-0.016 -0.034}			●	●	●										
17 ^{+0.065 +0.030}	15 ^{+0.027}		17 ^{+0.018}	15 ^{-0.016 -0.034}			●	●	●										
18 ^{+0.065 +0.030}	16 ^{+0.027}	1.5 -0.030	18 ^{+0.018}	16 ^{-0.016 -0.034}	0.8	0.4	●	●	●										
20 ^{+0.075 +0.035}	18 ^{+0.033}		20 ^{+0.021}	18 ^{-0.016 -0.034}			●	●	●	●									
23 ^{+0.075 +0.035}	20 ^{+0.033}		23 ^{+0.021}	20 ^{-0.020 -0.041}			●	●	●	●									
25 ^{+0.075 +0.035}	22 ^{+0.033}		25 ^{+0.021}	22 ^{-0.020 -0.041}			●	●	●	●									
27 ^{+0.075 +0.035}	24 ^{+0.033}	2 -0.035	27 ^{+0.021}	24 ^{-0.020 -0.041}	1.0	0.5	●	●	●	●	●								
28 ^{+0.075 +0.035}	25 ^{+0.033}		28 ^{+0.021}	25 ^{-0.020 -0.041}				●	●	●	●								
30 ^{+0.075 +0.035}	26 ^{+0.033}		30 ^{+0.021}	26 ^{-0.020 -0.041}				●	●	●	●								
32 ^{+0.085 +0.045}	28 ^{+0.033}		32 ^{+0.025}	28 ^{-0.020 -0.041}				●	●	●	●	●							
34 ^{+0.085 +0.045}	30 ^{+0.039}	2.5 -0.040	34 ^{+0.025}	30 ^{-0.020 -0.041}	1.2	0.6		●	●	●	●	●							
36 ^{+0.085 +0.045}	32 ^{+0.039}		36 ^{+0.025}	32 ^{-0.025 -0.050}				●	●	●	●	●							
39 ^{+0.085 +0.045}	35 ^{+0.039}		39 ^{+0.025}	35 ^{-0.025 -0.050}					●	●	●	●	●						
42 ^{+0.085 +0.045}	38 ^{+0.039}		42 ^{+0.025}	38 ^{-0.025 -0.050}					●	●	●	●	●						
44 ^{+0.085 +0.045}	40 ^{+0.039}	3 -0.045	44 ^{+0.025}	40 ^{-0.025 -0.050}	1.5	1.0			●	●	●	●	●						
50 ^{+0.085 +0.045}	45 ^{+0.039}		50 ^{+0.025}	45 ^{-0.025 -0.050}					●	●	●	●	●						
55 ^{+0.100 +0.055}	50 ^{+0.039}		55 ^{+0.030}	50 ^{-0.030 -0.060}						●	●	●	●	●					
60 ^{+0.100 +0.055}	55 ^{+0.046}		60 ^{+0.030}	55 ^{-0.030 -0.060}						●	●	●	●	●					
65 ^{+0.100 +0.055}	60 ^{+0.046}	3.5 -0.050	65 ^{+0.030}	60 ^{-0.030 -0.060}	1.8	1.2					●	●	●	●	●				
70 ^{+0.100 +0.055}	65 ^{+0.046}		70 ^{+0.030}	65 ^{-0.030 -0.060}						●	●	●	●	●					
75 ^{+0.100 +0.055}	70 ^{+0.046}		75 ^{+0.030}	70 ^{-0.030 -0.060}						●	●	●	●	●	●				
80 ^{+0.100 +0.055}	75 ^{+0.046}		80 ^{+0.030}	75 ^{-0.030 -0.060}						●	●	●	●	●	●				
85 ^{+0.120 +0.070}	80 ^{+0.054}	3 -0.045	85 ^{+0.035}	80 ^{-0.030 -0.060}	2	1.5					●	●	●	●	●				
90 ^{+0.120 +0.070}	84 ^{+0.054}		90 ^{+0.035}	84 ^{-0.036 -0.071}							●	●	●	●	●				
95 ^{+0.120 +0.070}	89 ^{+0.054}		95 ^{+0.035}	89 ^{-0.036 -0.071}								●	●	●	●	●			
100 ^{+0.120 +0.070}	94 ^{+0.054}		100 ^{+0.035}	94 ^{-0.036 -0.071}									●	●	●	●	●		
105 ^{+0.120 +0.070}	104 ^{+0.054}	3.5 -0.050	105 ^{+0.035}	99 ^{-0.036 -0.071}	2	1.5						●	●	●	●	●			
110 ^{+0.120 +0.070}	104 ^{+0.054}		110 ^{+0.035}	104 ^{-0.036 -0.071}									●	●	●	●	●		
115 ^{+0.120 +0.070}	109 ^{+0.054}		115 ^{+0.035}	109 ^{-0.036 -0.071}									●	●	●	●	●		
125 ^{+0.170 +0.100}	119 ^{+0.054}		125 ^{+0.035}	119 ^{-0.036 -0.071}									●	●	●	●	●		
130 ^{+0.170 +0.100}	123 ^{+0.054}	3.5 -0.050	130 ^{+0.040}	123 ^{-0.043 -0.083}	2	1.5							●	●	●	●		●	
135 ^{+0.170 +0.100}	128 ^{+0.063}		135 ^{+0.040}	128 ^{-0.043 -0.083}									●	●	●	●	●		●
140 ^{+0.170 +0.100}	133 ^{+0.063}		140 ^{+0.040}	133 ^{-0.043 -0.083}									●	●	●	●	●		●
145 ^{+0.170 +0.100}	138 ^{+0.063}		145 ^{+0.040}	138 ^{-0.043 -0.083}										●	●	●	●	●	
150 ^{+0.170 +0.100}	143 ^{+0.063}	3.5 -0.050	150 ^{+0.040}	143 ^{-0.043 -0.083}	2	1.5								●	●	●	●		
155 ^{+0.170 +0.100}	148 ^{+0.063}		155 ^{+0.040}	148 ^{-0.043 -0.083}										●	●	●	●	●	
160 ^{+0.170 +0.100}	153 ^{+0.063}		165 ^{+0.040}	153 ^{-0.043 -0.083}										●	●	●	●	●	
165 ^{+0.170 +0.100}	158 ^{+0.063}		185 ^{+0.046}	158 ^{-0.043 -0.083}										●	●	●	●	●	



FB
青铜卷制轴套
BRONZE
WRAPPED
BUSHING

产品介绍
Product introduction

该产品以优质低碳钢板为基体，表面轧制菱形或油穴，油穴内埋入特殊的固体润滑剂，它有良好的润滑性和抗磨损性，能在无油或少油条件下工作，特别适用于高温，水溶液浸润或其他无油加油或加油困难场合。

It is made of high quality low-carbon steel, and the surface is rolled to diamond or round oil pockets. The special lubricant is embedded in the pockets. It has good lubricating and corrosion resistance property, it can work in the condition of little of oil or none of oil. It is particularly applied to high temperature, water solution and the occasions where cannot be added oil.

使用参数
The use of parameters

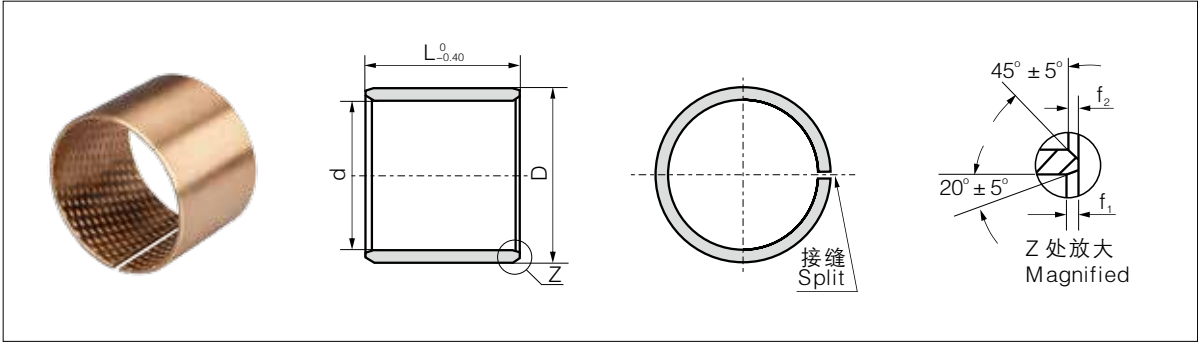
	FB090 青铜卷制轴套 Bronze Wrapped Bushing	FB091 黄铜卷制轴套 Copper Wrapped Bushing	FB092 青铜布孔轴套 Bronze Wrapped Bushing	FB094 青铜布孔轴套带密封圈 Bronze Wrapped Bushing with Seals	FB09G 青铜嵌石墨卷制轴套 Bronze +Graphite Wrapped Bushing
参数 Parameters					
密度 Density	8.9g/cm³	8.4g/cm³	8.9g/cm³	8.9g/cm³	8.3g/cm³
抗压强度 Pressure resistance strength	470N/mm²	440N/mm²	470N/mm²	470N/mm²	470N/mm²
导热系数 Coefficient of heat conduction	60W/m.k	71W/m.k	60W/m.k	60W/m.k	58W/m.k
线膨胀系数 Linear expansion coefficient	18.5 × 10 ⁻⁶ /K	19.2 × 10 ⁻⁶ /K	18.5 × 10 ⁻⁶ /K	18.5 × 10 ⁻⁶ /K	18.5 × 10 ⁻⁶ /K
硬度 Hardness	90~120 HB	80~110 HB	90~120 HB	90~120 HB	90~120 HB
延伸率 Elongation	55%	30%	55%	55%	55%
材料名称 Alloy material	CuSn8P	CuZn31Si	CuSn8P	CuSn8P	CuSn8P
其它可选材料 Other material	CuSn6.5P		CuSn6.5P	CuSn6.5P	CuSn6.5P

应用举例
Application case

产品主要应用于起重机械、建筑机械、汽车、拖拉机行业、机床工业及采矿机械。
Products are mainly used in lifting machinery, construction machinery, automobile, tractor industry, machine tool industry and mining machinery.



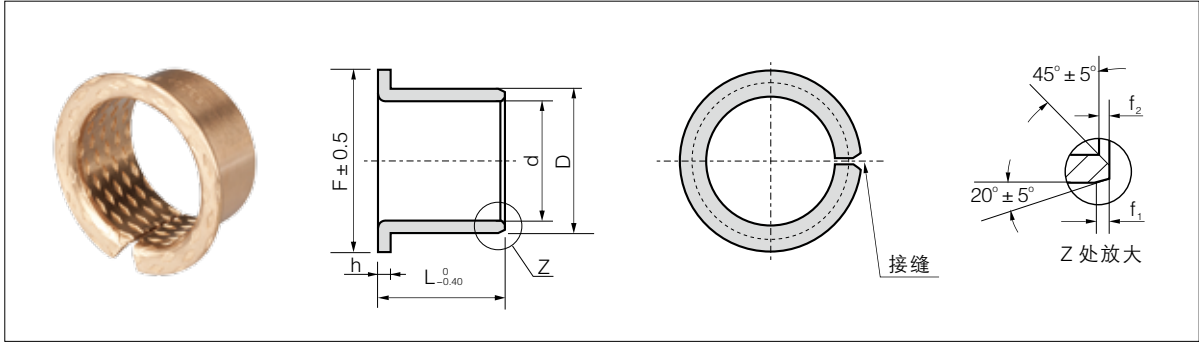
FB 青铜卷制轴套
FB Bronze Wrapped Bushing



单位Unit: mm

压入座孔后的 内径 I.D. after fixed		外径 O.D.		f1	f2	L															
						10	15	20	25	30	35	40	50	60	70	80	90	100			
10	+0.043 0	12	+0.065 +0.030	0.5	0.3	●	●	●													
12		14		0.5	0.3	●	●	●													
14		16		0.5	0.3	●	●	●	●												
15		17		0.5	0.3	●	●	●	●												
16		18		0.5	0.3	●	●	●	●												
18		20		0.5	0.3	●	●	●	●												
20	+0.052 0	23	+0.075 +0.035	0.8	0.4	●	●	●	●												
22		25		0.8	0.4	●	●	●	●												
24		27		0.8	0.4		●	●	●	●	●										
25		28		0.8	0.4		●	●	●	●	●										
28		32		0.8	0.4		●	●	●	●	●										
30		34		1.0	0.6		●	●	●	●	●	●	●								
32	+0.062 0	36	+0.085 +0.045	1.0	0.6		●	●	●	●	●	●									
35		39		1.0	0.6		●	●	●	●	●	●									
40		44		1.0	0.6			●	●	●	●	●	●								
45		50		1.2	0.8			●	●	●	●	●	●	●							
50		55		1.2	0.8			●	●	●	●	●	●	●	●						
55		60		1.2	0.8			●	●	●	●	●	●	●	●						
60	+0.074 0	65	+0.100 +0.055	1.2	0.8				●	●	●	●	●	●	●						
65		70		1.2	0.8				●	●	●	●	●	●	●	●					
70		75		1.2	0.8				●	●	●	●	●	●	●	●	●				
75		80		1.2	0.8					●	●	●	●	●	●	●	●	●			
80		85		1.4	0.8					●	●	●	●	●	●	●	●	●			
85		90		1.4	0.8					●	●	●	●	●	●	●	●	●	●		
90	+0.087 0	95	+0.120 +0.070	1.4	0.8					●	●	●	●	●	●	●	●	●			
95		100		1.4	0.8						●	●	●	●	●	●	●	●			
100		105		1.4	0.8							●	●	●	●	●	●	●			
105		110		1.4	0.8								●	●	●	●	●	●			
110		115		1.4	0.8									●	●	●	●	●			
115		120		1.4	0.8										●	●	●	●			
120	+0.100 0	125	+0.170 +0.100	1.4	0.8									●	●	●	●	●			
125		130		1.4	0.8										●	●	●	●			
130		135		1.4	0.8											●	●	●			
135		140		1.4	0.8												●	●			
140		145		1.4	0.8													●			
145		150		1.4	0.8														●		
150		155		1.4	0.8										●	●	●	●	●		
155		160		1.4	0.8											●	●	●	●		
160		165		1.4	0.8												●	●	●		

FB 青铜卷制翻边轴套
FB Bronze Wrapped Flange Bushing



单位Unit: mm

压入座孔后的 内径 I.D. after fixed		外径 O.D.		F	f1	f2	L ⁰ ₋₀₄₀															
							15	20	25	30	35	40	50	60	70	80	90					
25	+0.052 0	28	+0.075 +0.035	35	0.8	0.4	●	●	●													
30		34		45	1.0	0.6		●	●	●												
35	+0.052 0	39	+0.085 +0.045	50	1.0	0.6		●	●	●	●											
40		44		55	1.0	0.6			●	●	●	●										
45		50		60	1.2	0.8				●	●	●	●									
50		55		65	1.2	0.8				●	●	●	●									
55	+0.074 0	60	+0.100 +0.055	70	1.2	0.8				●	●	●	●									
60		65		75	1.2	0.8				●	●	●	●	●								
65		70		80	1.2	0.8				●	●	●	●	●	●							
70		75		85	1.2	0.8					●	●	●	●	●	●						
75		80		90	1.2	0.8						●	●	●	●	●	●					
80		85		100	1.4	0.8						●	●	●	●	●	●	●				
90	+0.087 0	95	+0.120 +0.070	110	1.4	0.8							●	●	●	●	●	●	●			
100		105		120	1.4	0.8							●	●	●	●	●	●				
110		115		130	1.4	0.8								●	●	●	●	●	●			
120		125		140	1.4	0.8									●	●	●	●	●			
130	+0.100 0	135	+0.170 +0.100	155	1.4	0.8									●	●	●	●	●			
140		145		165	1.4	0.8										●	●	●	●			
150		155		180	1.4	0.8											●	●	●	●		
160		165		190	1.4	0.8												●	●	●		
170		175		200	1.4	0.8													●	●		
180		185		215	1.4	0.8														●		
190	+0.115 0	195	0.210 0.130	225	1.4	0.8										●	●	●	●			
200		205		235	1.4	0.8												●	●			
225		230		260	1.4	0.8													●			
250		255		290	1.4	0.8													●			
265	+0.130 0	270	+0.260 +0.170	305	1.4	0.8											●	●	●			
285		290		325	1.4	0.8												●				
300		305		340	1.4	0.8												●				



ZTBOB650 轴承的装配
ZTBOB650 Bearing Installation

机械压装 Pressure assembly

通常情况下，轴承可以采用压力装配的方式进行安装，装配时应采用芯轴慢慢压入，禁止直接击打轴承以免产生变形，装配前应确保座孔内表面光洁无异物。

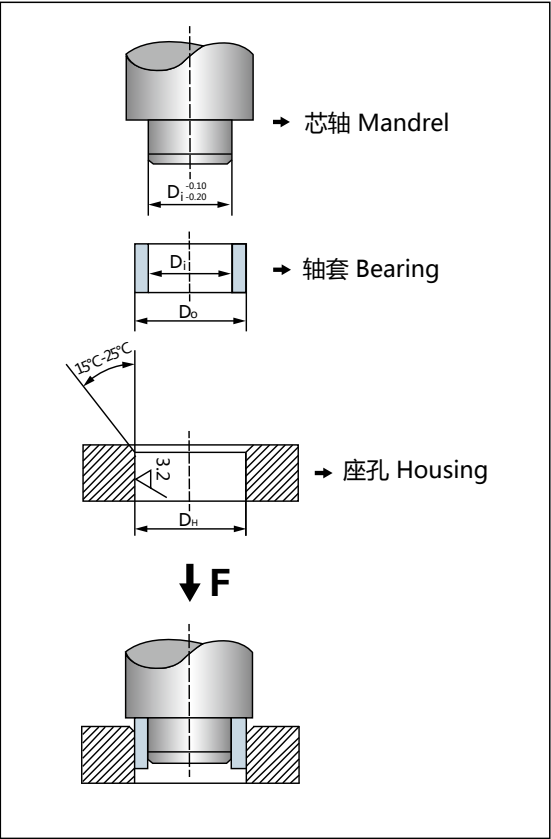
In most applications, ZTBOB bearings can be fitted by press. For this procedure, a mandrel and a press machine are used, it is forbidden to hit the bearing in order to avoid deformation of bearings. The housing inner side should smooth without contamination.

冷冻装配 Pressure assembly

通过液氮或干冰采用冷装配压装相比采用机械压装方式更为有效，此时标准的冷冻温度为 -40℃ ~-70℃，冷冻时间一般为 1 小时以上，具体需要根据零件的壁厚和配合公差。

The cooling fit uses liquid nitrogen or dry ice, compared to press fitting, cooling fit is efficient and achieves more accurate installarion. The standard cooling temperature is -40℃ ~-70℃ , cooling time should be more than one hour, details according to the bushing wall thickness and interference design.

轴承的收缩量可以根据以下公式计算：
Calculation of bearing shrinkage amount of outer diameter:
 $\Delta D=D \times \alpha \times \Delta T$
 ΔD ：外径收缩量 Shrinkage of bearing OD
D：轴承外径 Bearing OD
 α ：线性膨胀系数（ $1/10^5K$ ）
 ΔT ：温度差 Temperature difference



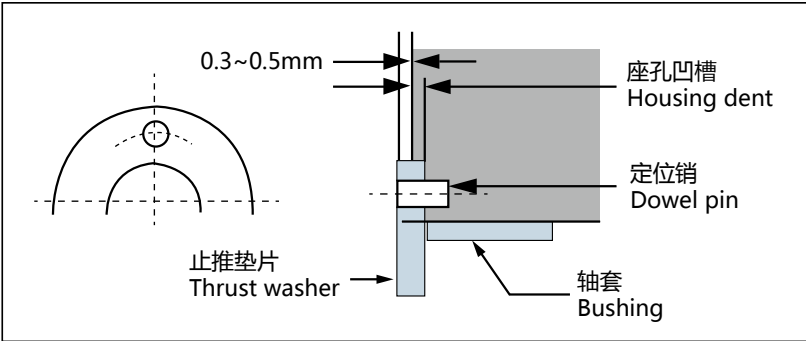
ZTBOB650 轴承的装配
ZTBOB650 Bearing Installation

止推垫片和滑板的安装 Thrust washers and plate fit

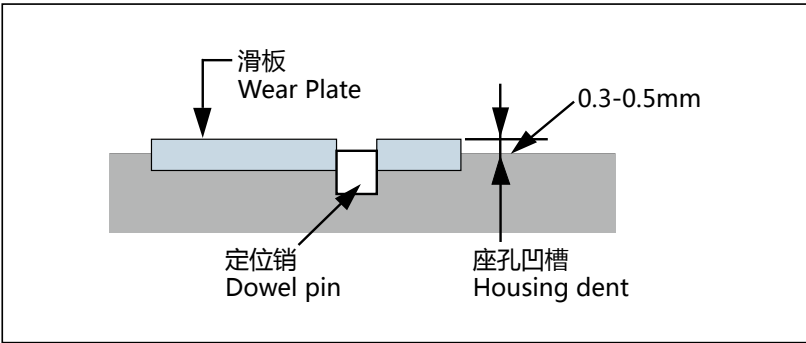
止推垫片和滑板应当安装在座孔的凹槽内，为了避免零件的移动建议使用定位销或沉头螺丝加以固定。

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

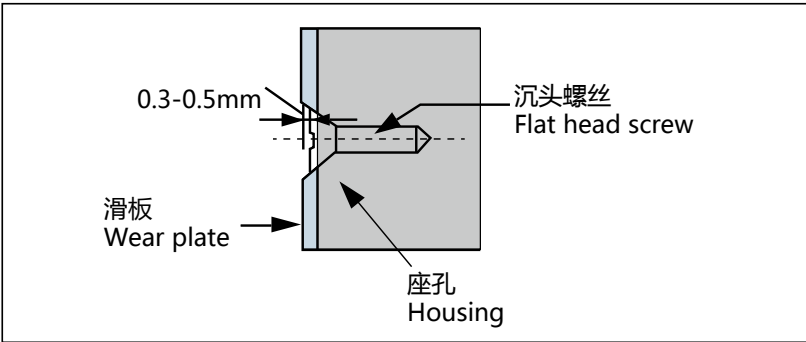
1.定位销安装 Dowel pin application(thrust washer)



2.镶嵌式安装 Inlaid installation(plate)



3.沉头螺丝安装 Flat head screw application





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

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

检验方法 A：哈夫规检验外径；

检验方法 B：止通规检验外径；

检验方法 C：止通规检验内径；

检验方法 D：测量尺检验大规格产品外径

以及替代检验方法 C 的壁厚检验方法，壁厚检验方法和检验方法 C 不能同时使用。

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

Test Method A: Huff regulatory test outside diameter;

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

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

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

外径检验方法 External diameter test methods

检验方法 A (ISO3547-2: Test A)

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

Test A of ISO 3547 Part 2

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

检验方法 B (ISO3547-2: Test B)

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

Test B of ISO 3547 Part 2

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

检验方法 D (ISO3547-2: Test D)

采用精确的测量尺来测量外径，一般针对大规格的轴套外径检测。

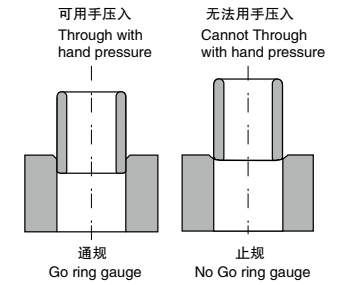
Test D (ISO 3547-2)

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

检验方法 A Test A of ISO



检验方法 B Test B of ISO



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

内径检验方法 Internal diameter test methods

检验方法 C (ISO3547-2: Test C)

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

Test C (ISO3547-2: Test C)

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

止推片检验方法 Thrust washer test method

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

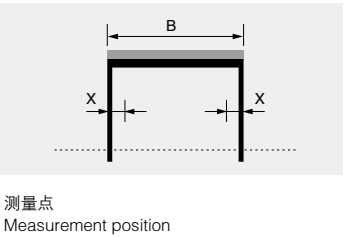
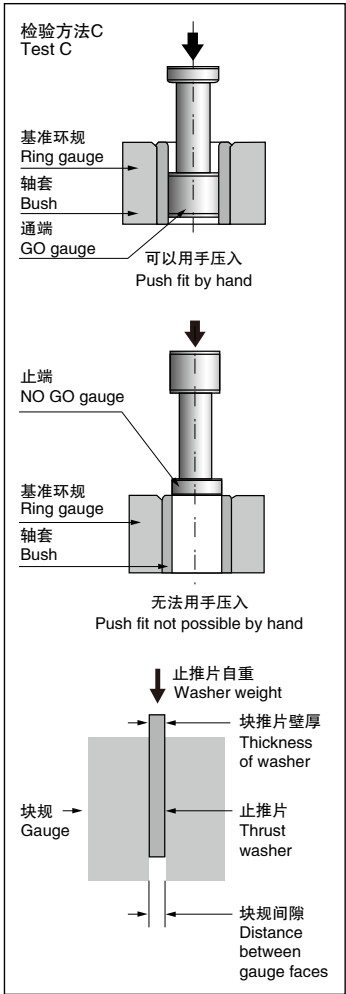
Beside the thickness, the flatness of washer is also important for washer and grinding parts' usage age. We use very helpful test in which the washer falls through the gap between two plain parallel plates of a gauge under its dead weight. The plates must be big enough to cover the whole washer.

壁厚检测方法 Wall Thickness test method

作为检验方法 C 的替代方案两则不能同时使用，壁厚根据轴套尺寸在轴向进行测量。

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

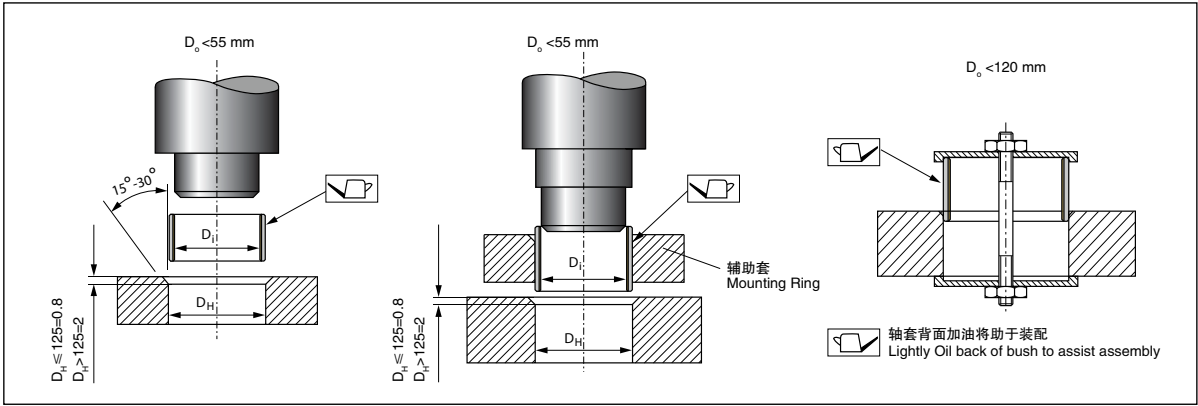
B[mm]	X[mm]	测量点 measurement position
B ≤ 15	B/2	1
15 < B ≤ 50	4	2
50 < B ≤ 90	6 and B/2	3
B > 90	8 and B/2	3



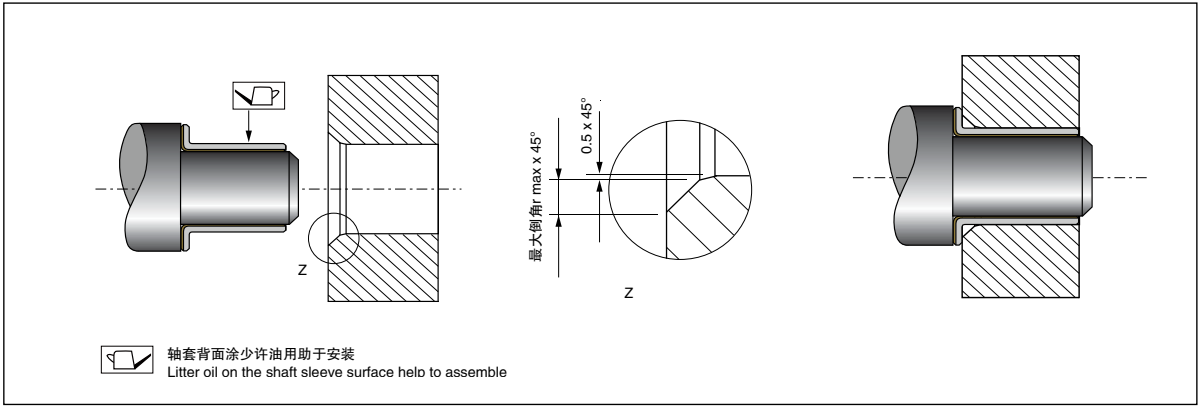


卷制类轴承的安装
Wrapped Bushing Installation

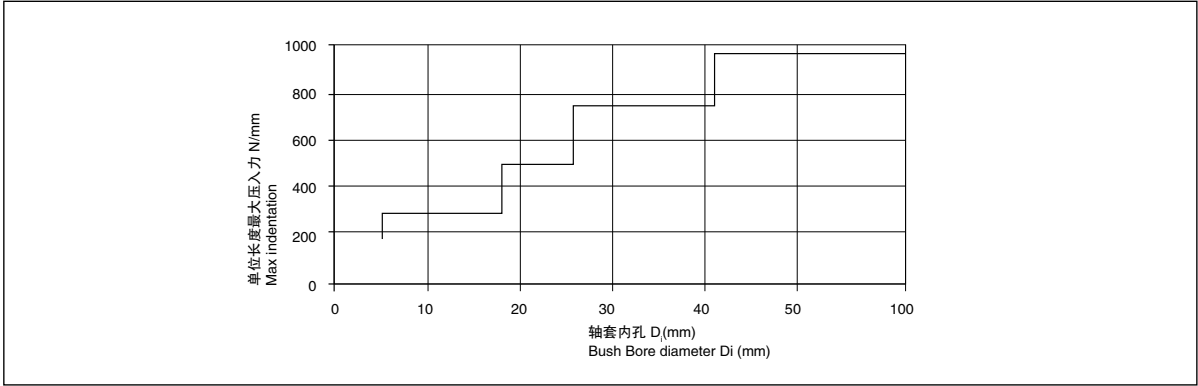
直套安装 Straight set of installation



翻边套安装 Flange set of installation



压入力计算 Indentation Calculation



卷制类轴承的安装
Wrapped Bushing Installation

同轴度 Concentricity

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

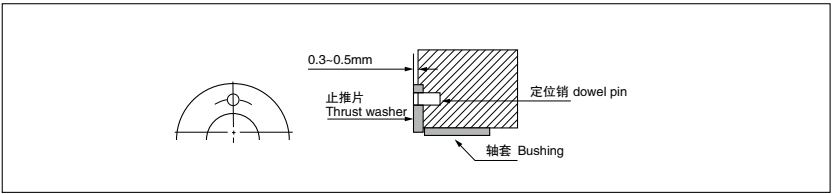
Degree of precision coaxial bearing the normal use for a very important requirement sleeve length in one or two degrees of the different axes and in the flange or thrust washer diameter of the different degree of control shaft within 0.02mm.

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

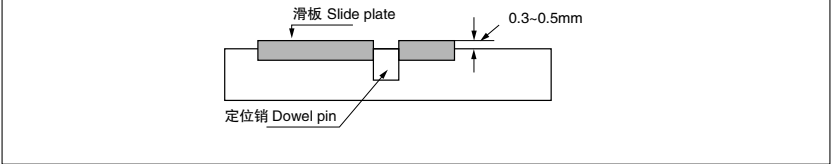
建议垫片和滑板安装在凹陷的座孔内，为了避免移动，同时建议采用定位销加以固定。

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

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



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



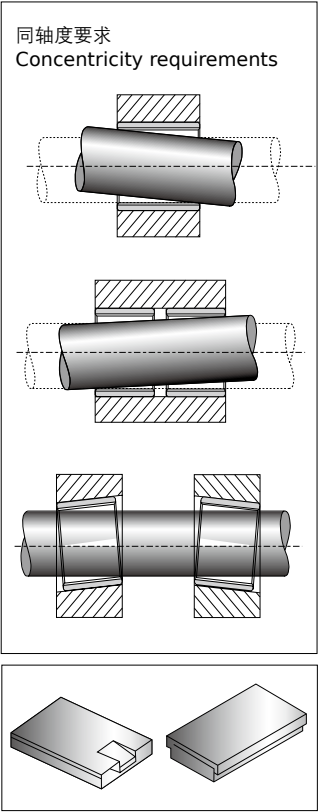
3. 平头螺丝的使用 Flat head screw application



其他固定方法 Other fixation methods

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

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





卷制类轴承的安装
Wrapped Bushing Installation

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

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

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

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

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

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

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

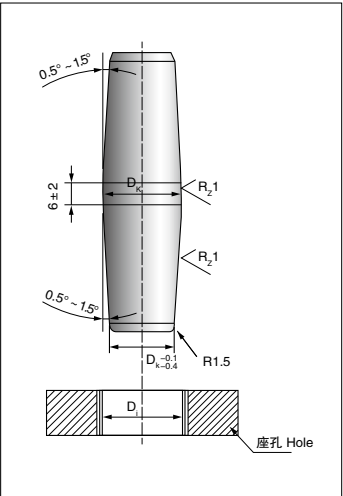
If the client can accept a significant reduction of dry friction, extruding the inner holes on the PTFE-based bearing after the compression to achieve higher accuracy, we strongly recommend the extrusion mandrel surface treatment (depth of 0.6mm, HRC > 55) and polished to Rz1;

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

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

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

轴承内径 Dia of the axis d	要求内径 Required ID dE	整形工具直径 Diameter of the shaping tools dk
d	d	d+0.03
	d+0.02	d+0.06
	d+0.03	d+0.08
	d+0.04	d+0.10



卷制类轴承的安装
Wrapped Bushing Installation

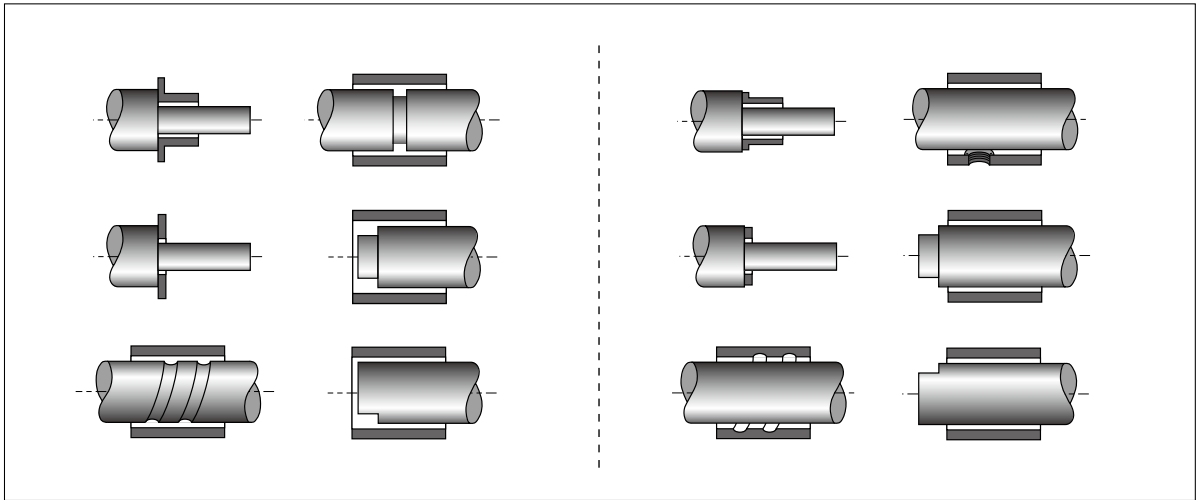
对磨轴 The shaft

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

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

不正确的设计
Incorrect design

正确的设计
Correct design



密封 Seal

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

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

