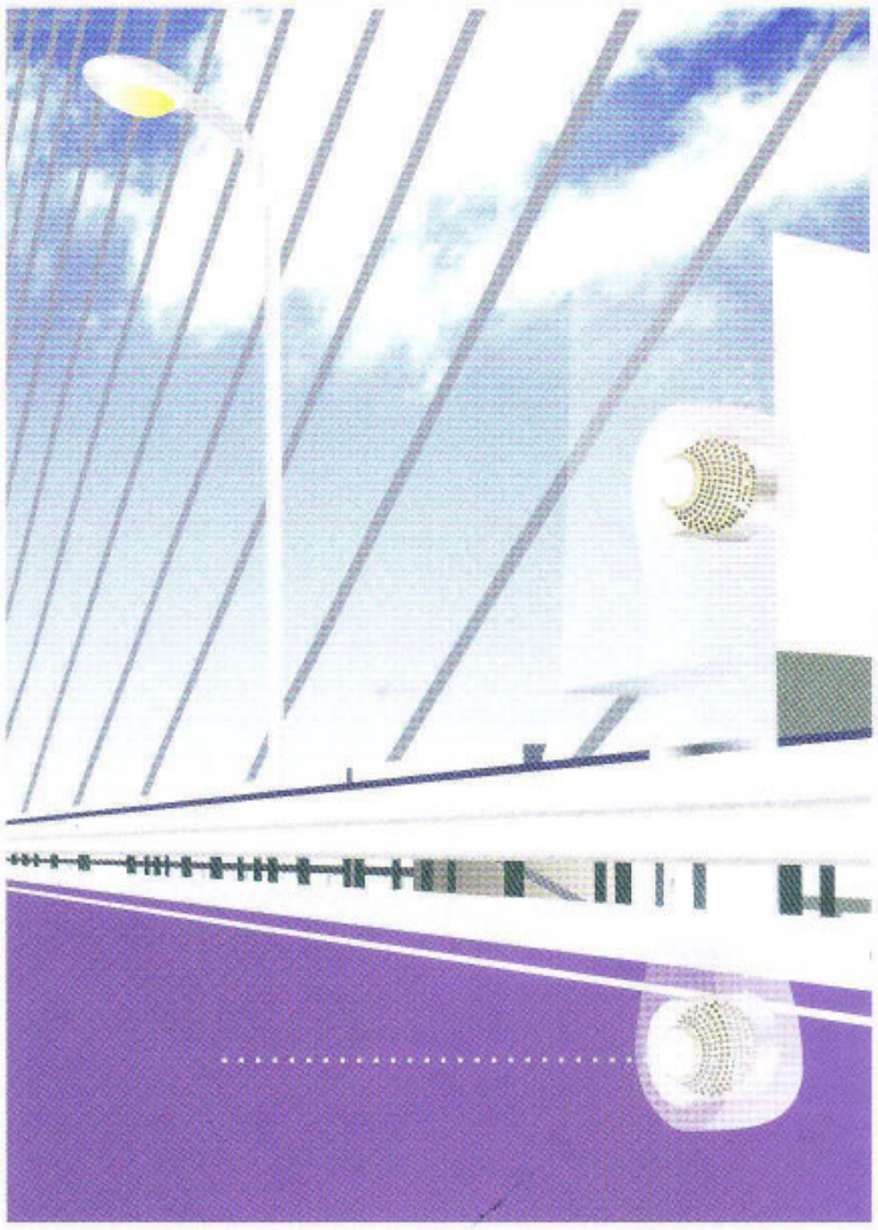
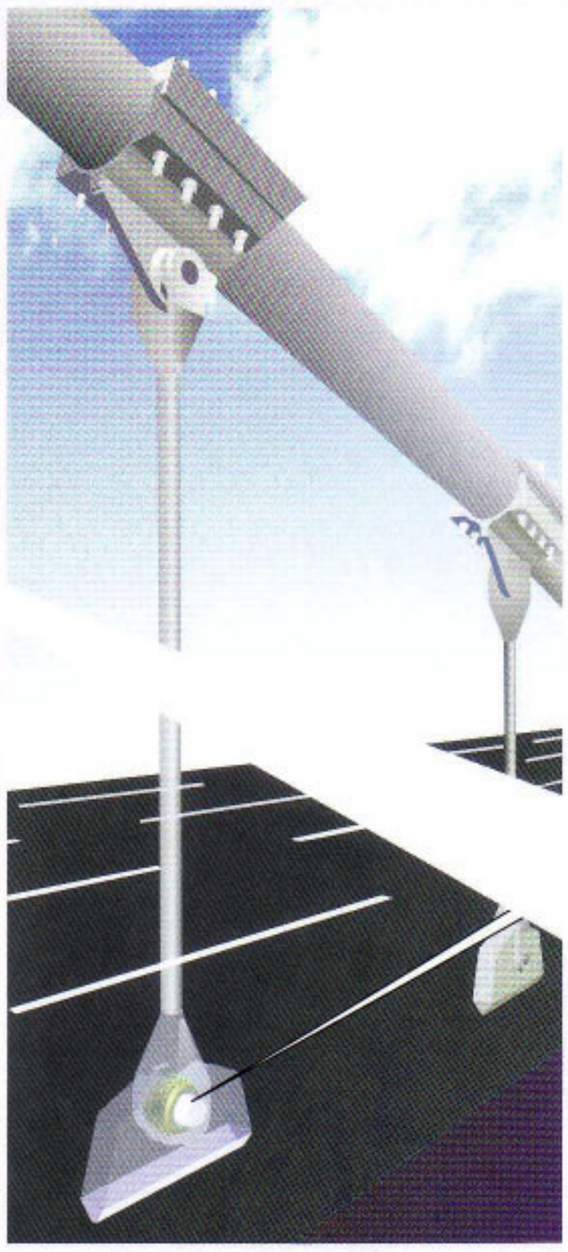
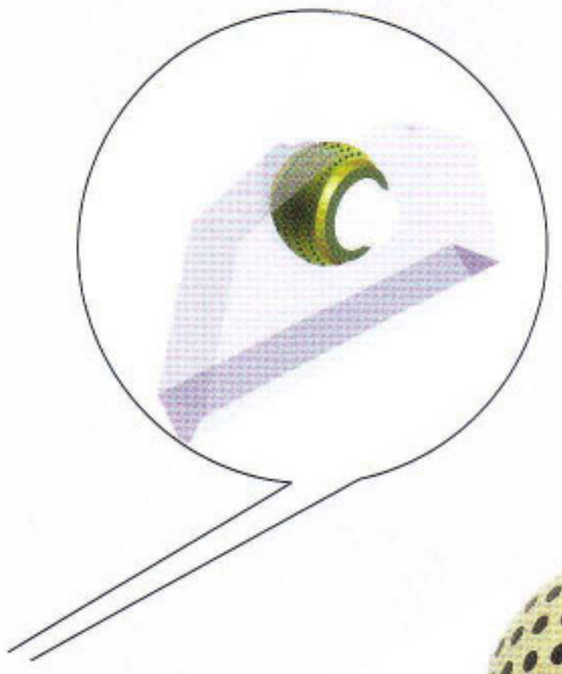
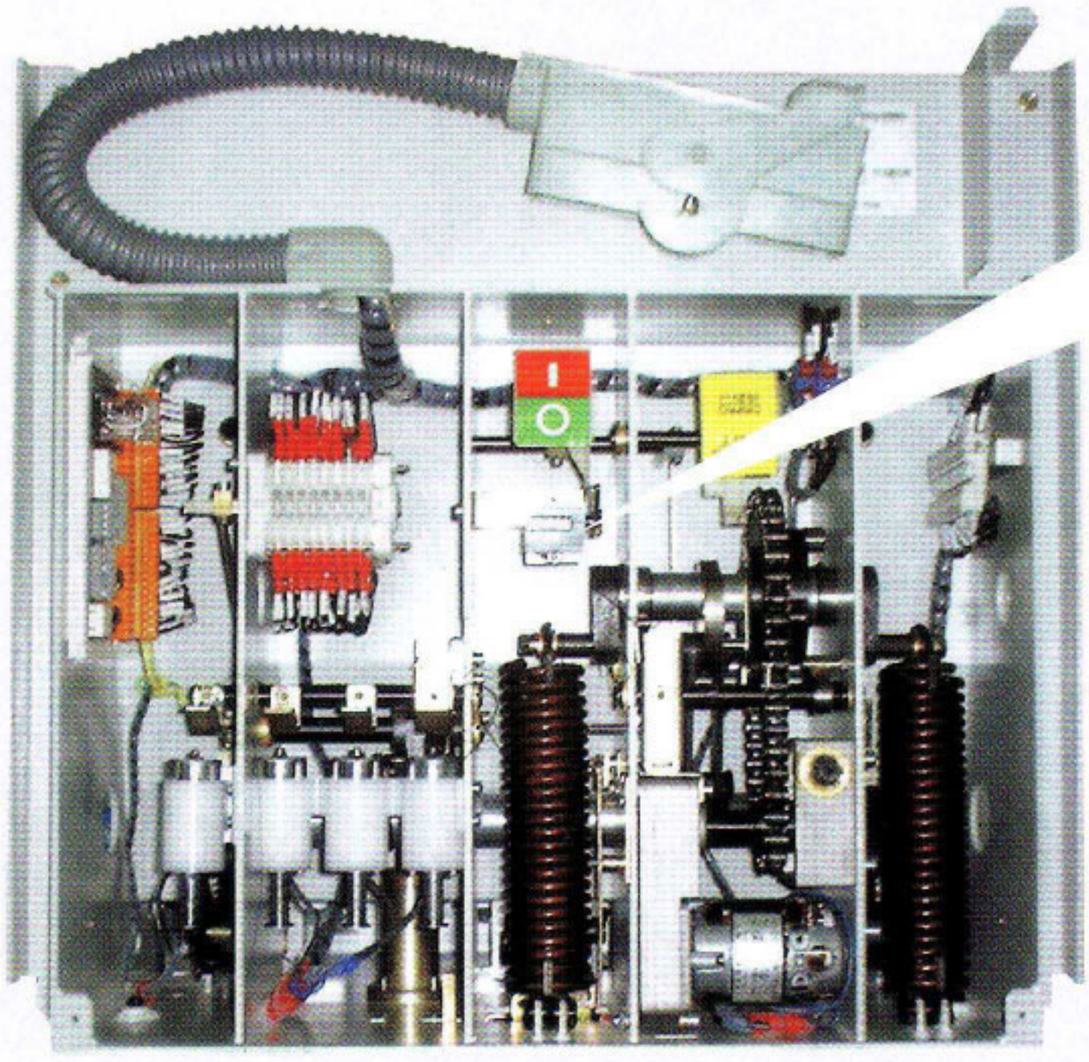
JDB系列轴承

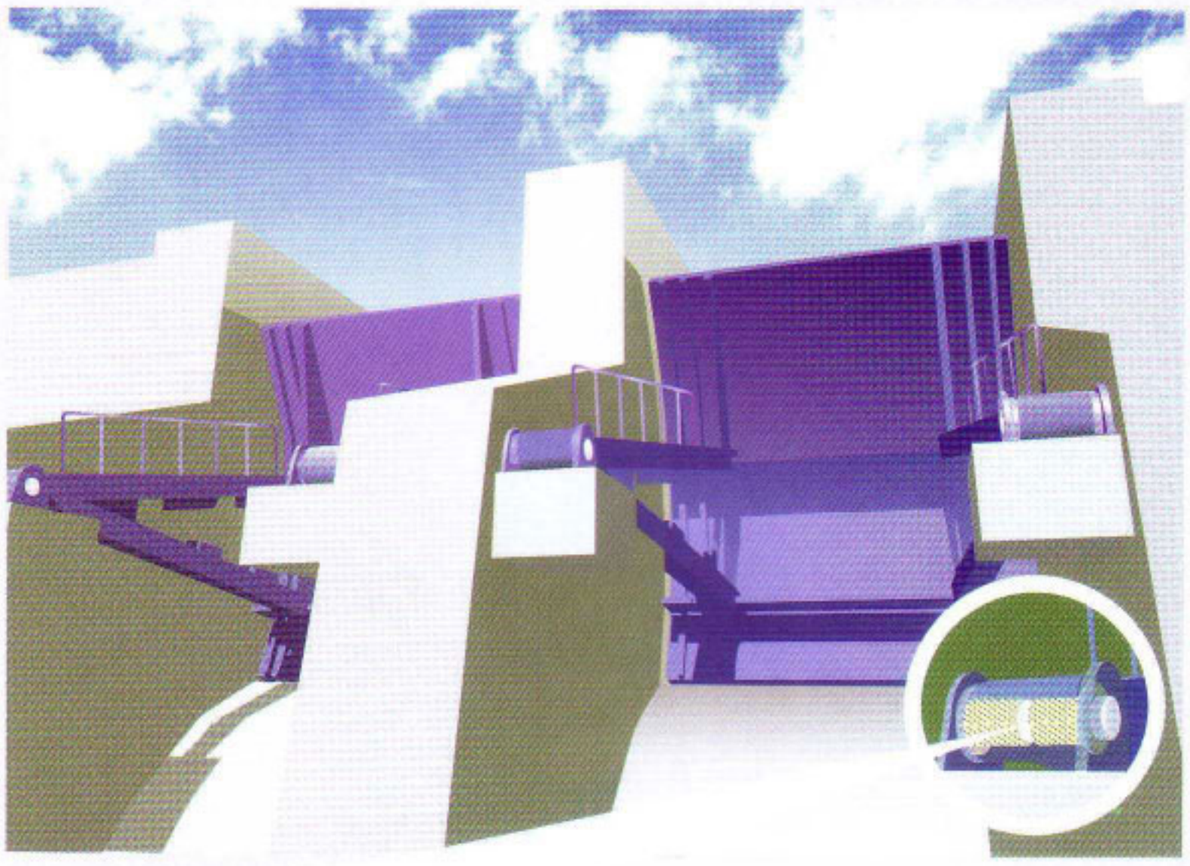
应用实例
Examples of application

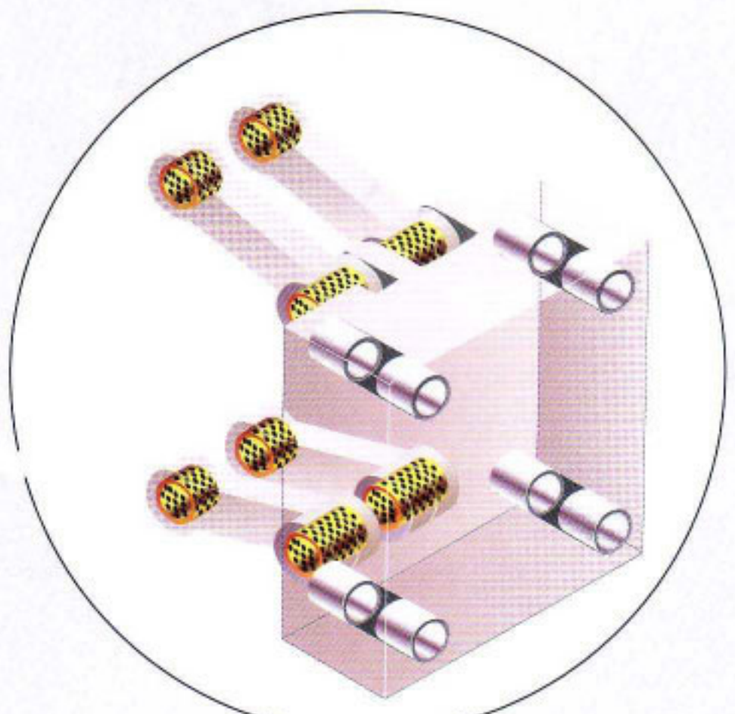


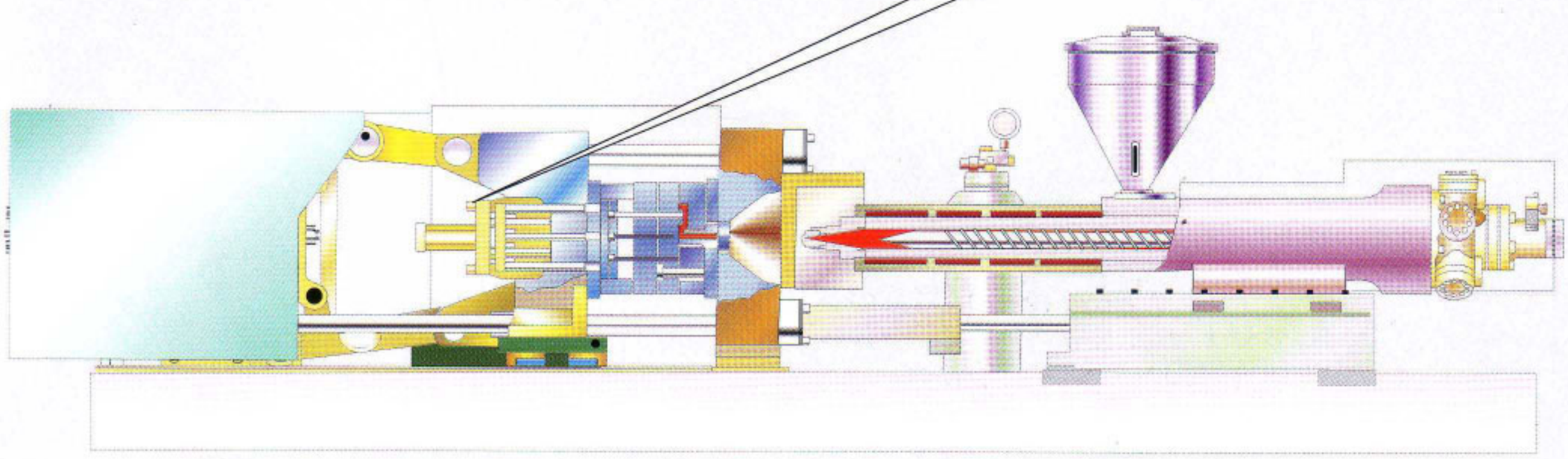












JDB系列固体镶嵌自润滑轴承

性能介绍

JDB 固体镶嵌轴承，是以金属材料为基体，采用石墨或二硫化钼作为固体润滑剂，在无油的条件下工作时，通过摩擦热把润滑油和固体润滑剂组合逐渐的分布到摩擦表面使其达到摩擦系数小，耐磨性能好的效果。

本公司经过多年产销后的市场信息分析和模拟试验机的几百轮试验，使产品的性能不断改善，已完全达到日本同类产品的水平。轴套加工全部采用数控机床，通过ISO/TS16949质量管理体系对产品生产过程严格的质量控制，确保了产品质量的稳定性。

为满足顾客的要求，适应更多的场合使用不加油轴承，本公司研制了五种不同材料的JDB轴承，供用户选用。

JDB PROPERTIES:

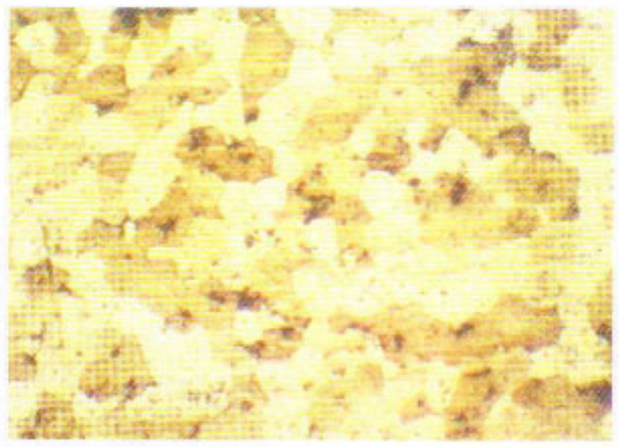
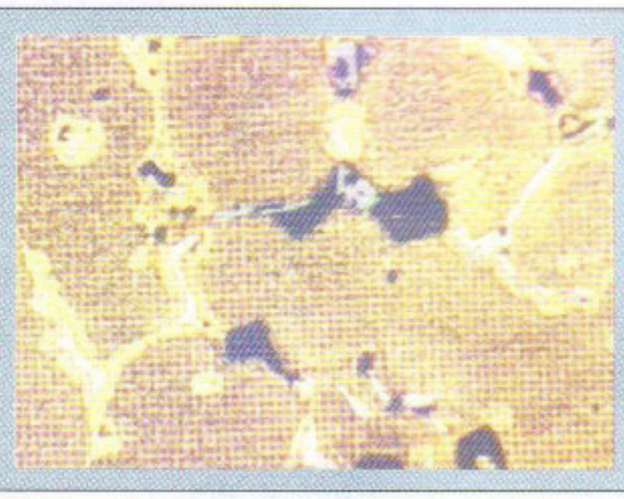
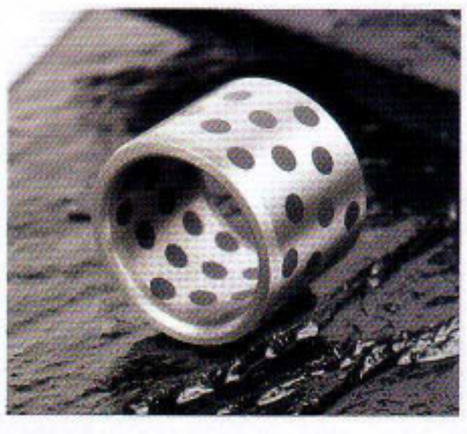
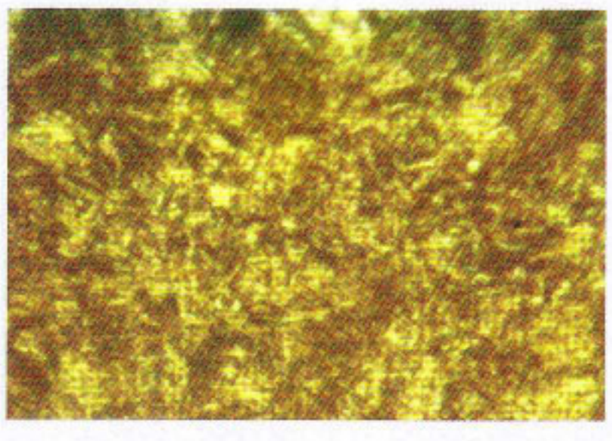
JDB is a kind of solid lubricant embedded bearing with metal basis and embedded graphite and MoS_2 as lubricant.Specific technology is adopted to firmly integrate lubricant and meanwhile leave homogeineously distributed space within it so that it can absorb lubricating oil or grease over 20 percents of its total volume.When working without oil or under oil inadequacy,friction heat will drive oil and solid lubricant from inside to surface to reduce friction efficiency and improve wear-resisting performance.

After long years of research on market application and again and again simulation test, the products' peformance is being improved continuously and currently is leveled with congeneric products in Japan.Now all the manufacture is conducted by numerical lathe so that the stability of products' quality is ensured.

To meet customer's increasing demands and adapt more application circumstances,Five types of JDB have been developed for your choice.

五种JDB产品基材示图

JDB Material and Metallugraphy

型号	示意图	金相	基体材质
JDB-1			基体材料: CuZn25AL6Mn4 材料硬度: 210-250HB
JDB-2			基体材料: CuSn6Zn6Pb3 材料硬度: 80-120HB
JDB-3			基体材料: Steel+CuSn6Zn6Pb3 材料硬度: 60-90HB
JDB-4			基体材料: HT250 材料硬度: 180-230HB
JDB-5			基体材料: GCr15 材料硬度: HRC55-60

JDB主要技术指标:

JDB Main Technical Index:

型号	Type	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
基体材质	Base material	CuZn25AL6Mn4	CuSn6Zn6Pb3	CuSn6Zn6Pb3	HT-250	GCr15
基体硬度	Base hardness	HB210-250 (HB 270)	HB80-120	HB 60-90	HB 180-230	HRC55- 60
摩擦系数	Friction coef(μ)	<0.16	<0.15	<0.14	<0.17	<0.17
最高使用温度	Temp limit	300	350℃	300℃	400℃	350℃
极限动载荷	Dynamic load limit	100N/mm^2	60N/mm^2	70N/mm^2	60N/mm^2	250N/mm^2
1m/min的极限载荷	Load limit under 1m/min	25N/mm^2	15N/mm^2	20N/mm^2	15N/mm^2	70N/mm^2
最高滑动速度	Sliding velocity limi	干0.4m/s油5m/s	2m/s	2m/s	0.5m/s	0.1m/s
使用极限PV值	PV limit	3.8N/mm^2· m/s	0.5N/mm^2· m/s	0.6N/mm^2· m/s	0.8N/mm^2· m/s	2.5N/mm^2· m/s

注：JDB-1括号中HB270适合高载荷场合根据客户要求作特殊定货。
Note:*HB270 is for high load application and can be supplied at customer ' s requirements

JDB磨损性能（与CuSn6Zn6Pb3青铜套的比较耐磨性能如下表）：

JDB Wear Performance(Compared with CuSn6Zn6Pb3-composed bushing):

试验压强 Load Applied		62N/mm^2		24.5N/mm^2		14.7N/mm^2	
项 目 Item		磨损量 Wear depth	时间 Time	磨损量 Wear depth	时间 Time	磨损量 Wear depth	时间 Time
型号 Type	润滑条件 Lubrication	(mm)	(hrs)	(mm)	(hrs)	(mm)	(hrs)
铜套 CuSn6Zn6Sn3	油润滑 oil	0.098	10	0.125	100	0.10	100
JDB-1	干摩擦 dry	0.075	100	0.015	100	0.012	100
JDB-2	干摩擦 dry	0.025	30	0.065	100	0.025	100
JDB-3	干摩擦 dry	0.03	30	0.12	100	0.015	100
JDB-4	干摩擦 dry	0.03	10	0.25	20	0.011	100
JDB-5	干摩擦 dry	0.022	100	0.013	100	0.01	100

JDB应用特点:

JDB-1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。

JDB-2主要适应低载高温中速的使用场合，例如壁炉门铰链、烘炉滚道、轻工机械、机床工业等。

JDB-3的内材与JDB-2同样，除了具有JDB-2的功能外，还体现了节省成本，提高抗压强度和可以端面与基体焊接安装的作用，适用于建筑机械、冶金机械和输送机械中的不加油润滑部位。

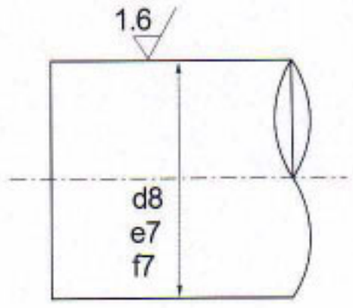
JDB-4是一种典型的省材产品，在机械性能要求不是很高的地方，可作取JDB-2替代材料使用，能大大地降低成本，满足使用要求，例：模具导套、注塑机模架等。

JDB-5是一种加强型的产品，它具有极高的抗压性能，在起重机械的支撑部位特别适应，例：挖土机支承、卷扬机支承、吊车支承等。但由于基体为钢材，所以不宜在水中或酸、碱的场合使用。

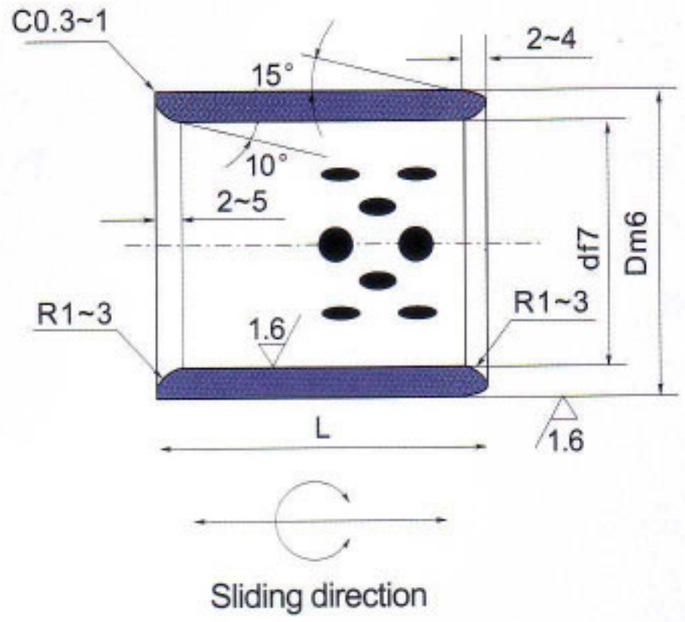
JDB APPLICATION

TYPE	APPLICATION FEATURES
JDB-1	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 it`s matrix made of high strength brass, it`s hardness doubles than nornal bronze bushings and the wear performance improves in large degree, so it is applicable for conticaster, pitching machine, converors of metallurgy indurstry. It could also be used in plastic injection machines, in the automatic switch of high-tension electricity, in the luffing and surpporting 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.
JDB-2	Products of JDB-2 series are mainly for circumstances with low load and high temperature, for example: gemel of fireplace gate, raceway of baker,machines of light industry, machine tools industry and so on.
JDB-3	The innerside material of products of JDB-3 series is the same as that of the JDB-2 series,so they could function as well as the that of JDB-2 series. In additional,they have other advantages such as saving material costs, improving compressive strength, and that they could be assembled by welding the bushing surface together with other matrix. They are suitable for parts which need not oil lubrication of construction machines,metallurgy machines and conveying machines.
JDB-4	Products of JDB-4 are a typical kind of material-saving product. They could replace JDB-2 products where the mechanical requiements are not so high. They could reduce the cost largely, and meet the demands for application. Such as: mould guide bushing, die carrier of plastic moulding machines and so on.
JDB-5	Products of JDB-5 series are a kind of fortified products. Due to it`s excellent comprehensive capability, it`s especially suited in the surpporting parts of hoisting machines, for example: surpport of rooter, surpport of hoist engine,surpport of crane and so on. But as for their matrix being steel, they are not suitable for circumastances with water, acid and alkali.

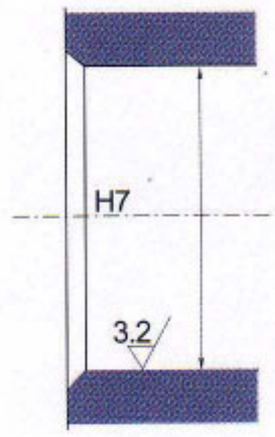
JDB标准轴承套尺寸
NORMAL SIZE FOR JDB BEARING



Mating shaft
相配轴径



Sliding direction



Mating housing
相配座孔

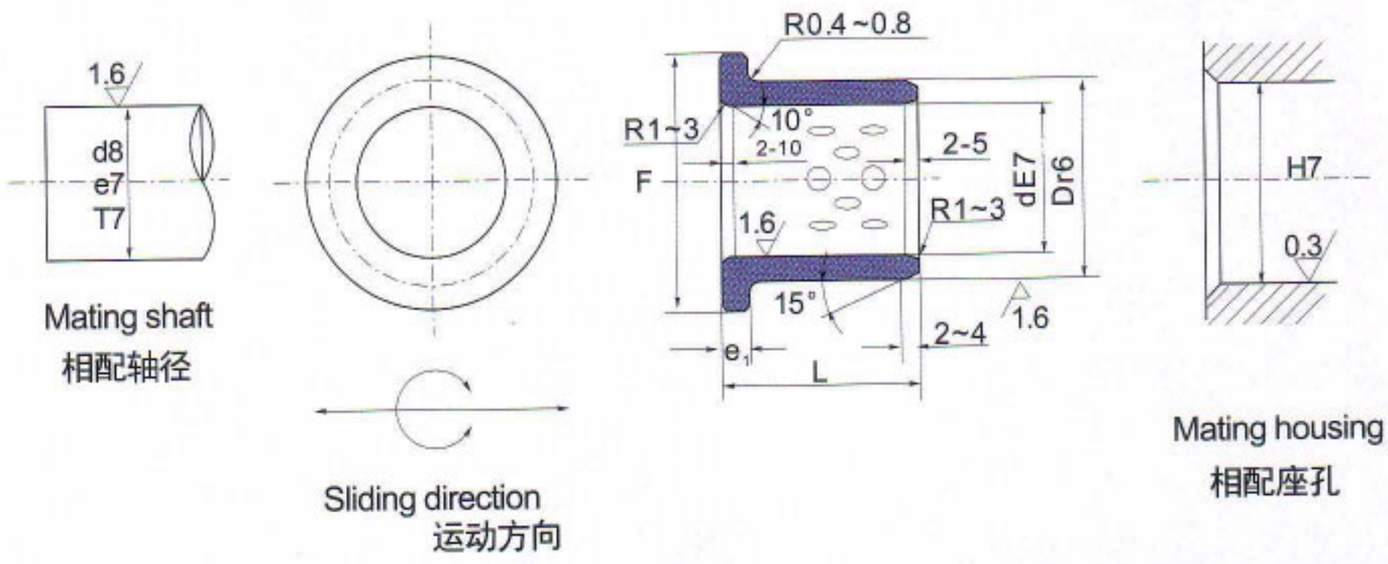
D	df7		Dm6		L -0.10 -0.30													
					8	10	12	15	16	20	25	30	35	40	50	60	70	80
12	8	+0.028 +0.013	12	+0.018 +0.007	●	●	●	●										
14	10		14		●	●	●	●		●								
18	12		18			●	●	●	●	●	●	●						
19	13		19			●		●	●									
20	14	+0.034 +0.016	20			●	●	●		●	●	●						
21	15		21	+0.021 +0.008		●	●	●	●	●	●							
22	16		22			●	●	●	●	●	●	●	●	●				
24	18		24				●	●	●	●	●	●	●	●				
28	20		28			●	●	●	●	●	●	●	●	●	●			
32	22	+0.041 +0.020	32				●	●		●	●							
33	25		33				●	●	●	●	●	●	●	●	●	●		
38	30		38	+0.025 +0.009			●	●		●	●	●	●	●	●	●		
45	35	+0.050 +0.025	45							●	●	●	●	●	●	●		
50	40		50							●	●	●	●	●	●	●	●	●
55	45		55	+0.030 +0.011								●	●	●	●	●		
60	50		60									●	●	●	●	●	●	●

d	D	df7		Dm6		L -0.10 -0.30											
						30	35	40	50	60	70	80	100	120	130	140	150
50	62	50	+0.050 +0.025	62		●	●	●	●	●	●						
50	65	50		65		●		●	●	●	●	●	●				
55	70	55		70				●	●	●	●						
60	74	60		74	+0.030 +0.011	●	●	●	●	●	●	●					
60	75	60		75		●	●	●	●	●	●	●	●				
63	75	63		75						●	●	●					
65	80	65	+0.060 +0.030	80					●	●	●	●					
70	85	70		85			●	●	●	●	●	●	●				
70	90	70		90					●	●	●	●	●				
75	90	75		90						●	●	●	●				
75	95	75		95	+0.035 +0.013					●	●	●	●				
80	96	80		96				●	●	●	●	●	●	●			
80	100	80		100				●	●	●	●	●	●	●		●	
90	110	90		110		●			●	●	●	●	●	●			
100	120	100		120						●	●	●	●	●		●	
110	130	110	+0.071 +0.036	130								●	●	●			
120	140	120		140								●	●	●		●	
125	145	125		145									●	●			
130	150	130		150	+0.040 +0.015								●		●		
140	160	140	+0.083 +0.043	160									●			●	
150	170	150		170									●				●
160	180	160		180									●				●

装配方法为轴套外径经冷氮收缩后装配，如果采用压制方式装配，则外径应采用p7内孔 f 7。

JFB标准轴承套尺寸

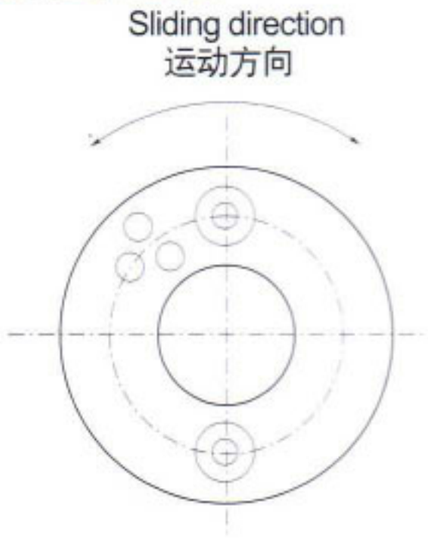
NORMAL SIZE FOR JFB BEARING

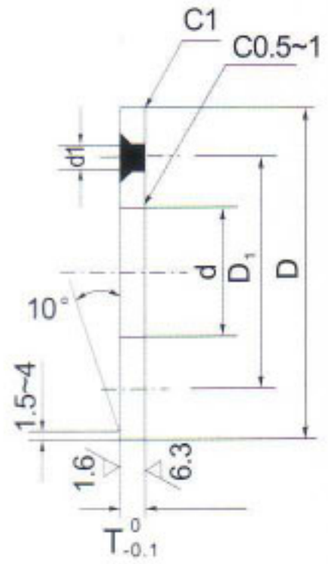


d	D	dE7		Dr6		F	e_1	L -0.10 -0.30									
							-0.10	15	20	25	30	35	40	50	60	80	100
10	14	10	+0.040 +0.025	14	+0.034 +0.023	22	2	●	●								
12	18	12		18		25		●	●								
13	19	13		19		26		●	●								
14	20	14	+0.050 +0.032	20		27	3	●	●								
15	21	15		21	+0.041 +0.028	28		●	●	●	●						
16	22	16		22		29		●	●	●	●						
20	30	20		30		40		●	●	●	●		●				
25	35	25	+0.061 +0.040	35	+0.050 +0.034	45			●	●	●	●	●				
30	40	30		40		50			●	●	●	●	●	●			
32	40	32		40					●			●					
35	45	35		45		60			●		●		●	●			
40	50	40	+0.075 +0.050	50		65	5		●		●		●	●			
45	55	45		55		70					●		●	●	●		
50	60	50		60	+0.060 +0.041	75					●		●	●	●		
55	65	55		65		80							●		●		
60	75	60		75	+0.062 +0.043	90							●	●		●	
63	75	63	+0.090 +0.060	75		85										●	
70	85	70		85	+0.073 +0.051	105	7.5							●		●	
75	90	75		90		110									●		
80	100	80		100		120									●	●	●
90	110	90		110	+0.072 +0.037	130									●	●	
100	120	100	+0.107 +0.072	120		150	10									●	●
120	140	120		140	+0.083 +0.043	170										●	●

JTW止推垫片标准尺寸

NORMAL SIZE FOR JTW THRUST WASHER

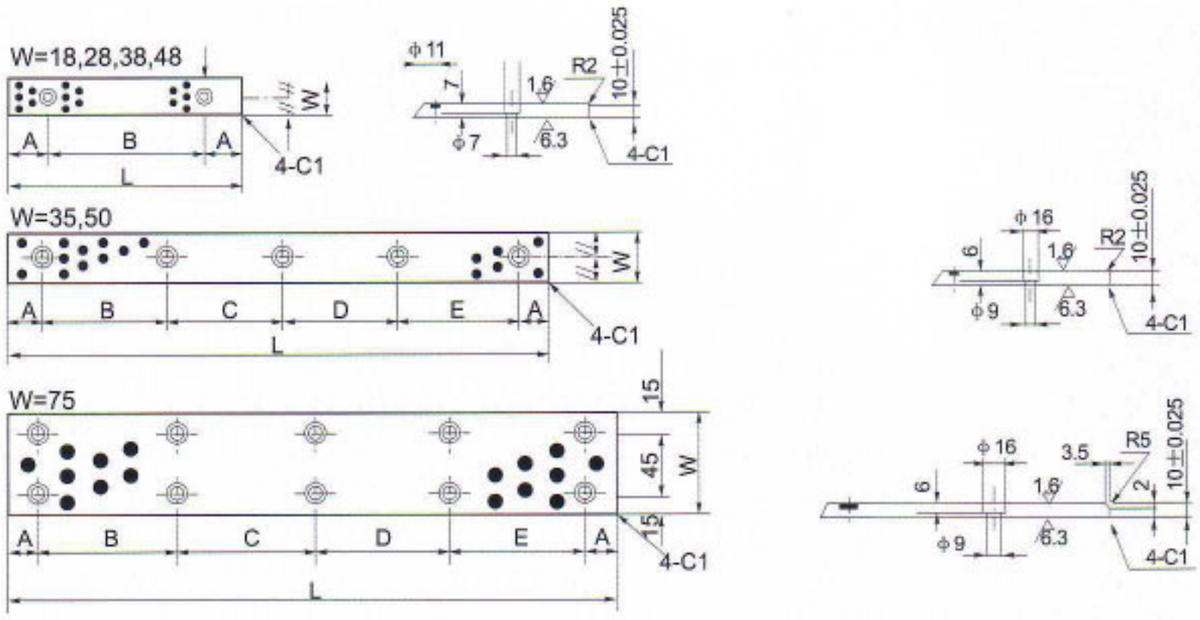




尺寸规格 Designation	d	D	T	（螺 钉）Bolt			
			0 -0.1	D_1	螺钉孔数	螺钉尺寸	d_1
JTW-10	10.2	30	3	----	----	----	----
JTW-12	12.2	40		28	2	M3	3.5
JTW-13	13.2						
JTW-14	14.2						
JTW-15	15.2	50		35			
JTW-16	16.2						
JTW-16N				----	----	----	----
JTW-18	18.2			35	2	M3	3.5
JTW-20	20.2		5			M5	6
JTW-20N				----	----	----	----
JTW-25	25.2	55		40	2	M5	
JTW-25N				----	----	----	----
JTW-30	30.2	60		45	2	M5	6
JTW-35	35.2	70		50			
JTW-40	40.2	80	7	60		M6	7
JTW-45	45.3	90		67.5			
JTW-50	50.2	100	8	75	4		
JTW-55	55.3	110		85			
JTW-60	60.3	120		90		M8	9
JTW-65	65.3	125		95			
JTW-70	70.3	130	10	100			
JTW-75	75.3	140		110			
JTW-80	80.3	150		120			
JTW-90	90.5	170		140		M10	11
JTW-100	100.5	190		160			
JTW-120	120.5	200		175			

JSP导轨标准尺寸

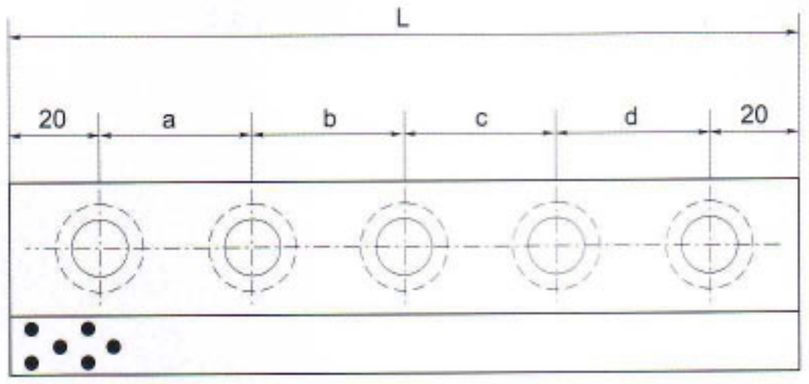
NORMAL SIZE FOR JSP SLIDING PLATE

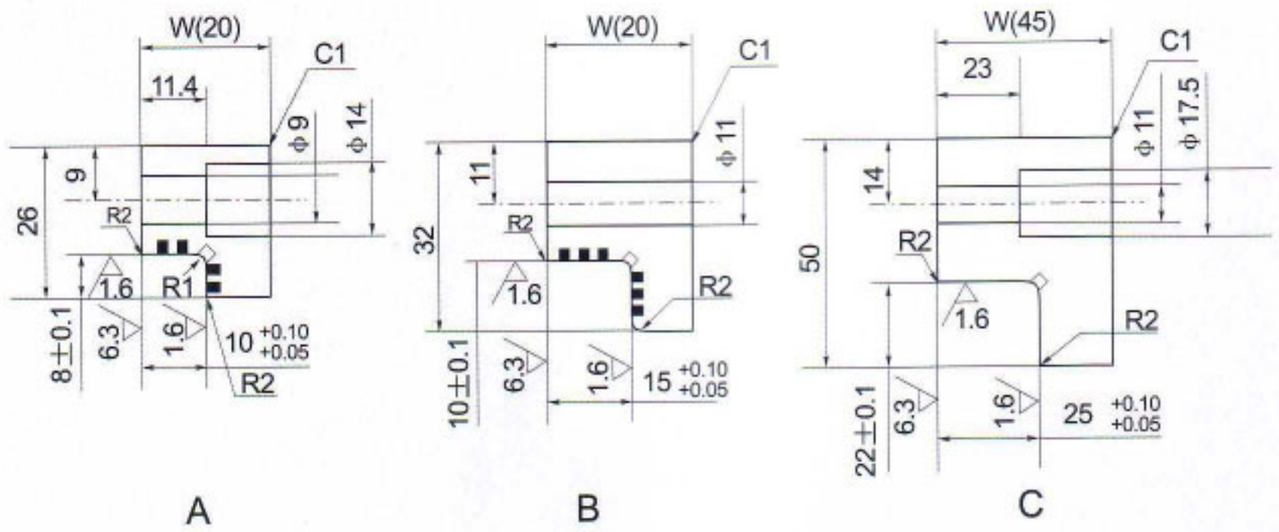


尺寸 Standard Number	W	L	A	B	C	D	E	平头螺钉 Flat Head Screw	孔数 No.of Holes
	18	75	15	45				M6	2
		100	25	50					
		125		75					
		150		100					
	28	75	15	45					
		100	25	50					
		125		75					
		150		100					
	35	100	20	60				M8	
		150		55	55				3
		200		55	50	55			4
		250		70	70	70			4
		300		65	65	65	65		5
		350		80	75	75	80		5
	38	75	15	45				M6	2
		100	25	50					
		125		75					
		150		100					
	48	75	15	45					
		100	25	50					
		125		75					
		150		100					
	50	100	20	60				M8	
		150		55	55				3
		200		55	50	55			4
		250		70	70	70	65		4
		300		65	65	65	90		5
		400		90	90	90			5
	75	150		110					4
		200		80	80				6
		250		105	105				6
		300		85	90	85			8
		400		120	120	120			8
		500		115	115	115	115		10

JSL导轨标准尺寸

NORMAL SIZE FOR JSL SLIDING PLATE

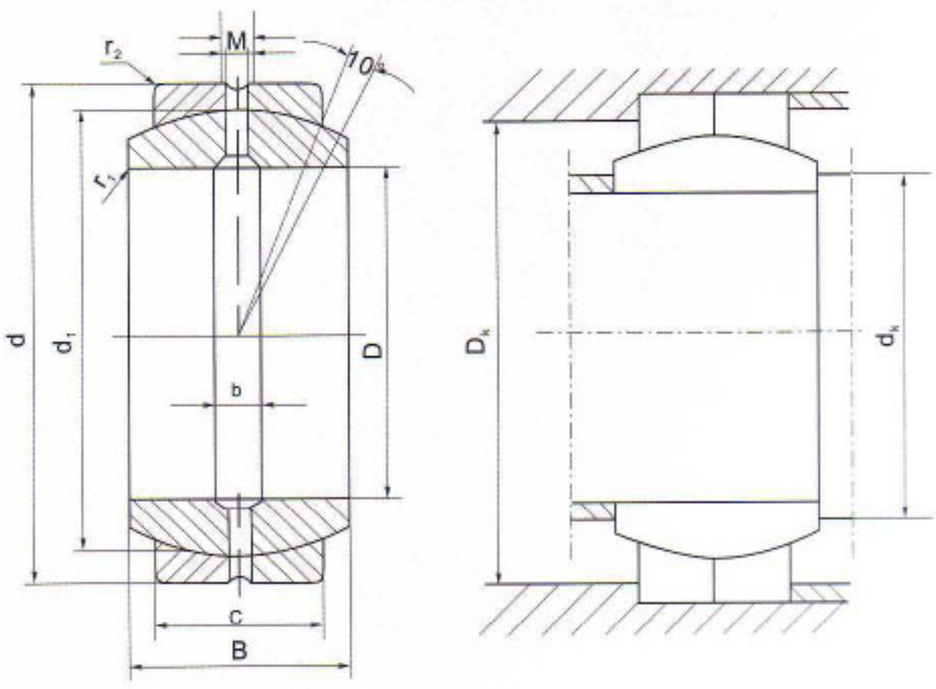




代号 Code	W	L	（螺钉）Bolt						图形 Sketch
			a	b	c	d	Size	Q'ty	
JSL-20×100	20	100	60	---	---	---	M8	2	A
JSL-20×150		150	55	55	---	---		3	
JSL-20×200		200	55	50	55	---		4	
JSL-30×100	30	100	60	---	---	---	M10	2	B
JSL-30×150		150	55	55	---	---		3	
JSL-30×200		200	55	50	55	---		4	
JSL-30×250		250	70	70	70	--		4	
JSL-45×200	45	200	55	50	55	---	M10	4	C
JSL-45×250		250	70	70	70	---		4	
JSL-45×300		300	65	65	65	65		5	
JSL-45×350		350	80	75	75	80		5	

公差配合与轴承尺寸

Nominal Size and Tolerance for JDB-QJ Bushing:



JDB-1 -QJ 120 180 85

- 宽度 Length
- 外径 Outside diameter
- 内径 Inside diameter
- 球轴承 Spherical bearing
- 型号 Type

JDB-QJ球面轴承外环为两瓣，轴向对开，采用45#钢淬火，硬度HRC40-43，（特殊需要，外环内圆弧面镀硬铬），磨光，内环基体为整体青铜或高力黄铜，球表镶嵌固体洗涤剂。

JDB-QJ spherical bearing is a unit of 2 rings, outer ring and inner ring. The outer ring is divided into two axial halves both made of 45# quenched steel with a hardness up to HRC40-43 and also the whole surface will be burnished. (In case under specific application, the inside surface of outer ring is plated hardened chrome.) The inner ring is made from a metal basis, which may be all bronze or high strength brass, embedded with solid lubricant on its outside surface.

技术参数:

Technical Index:

项目	Item	JDB-1-QJ	JDB-2-QJ
基本材质	Base material	Strong brass	Bronze
最大承压	Max dynamic load:N/mm²	100	80
磨擦系数(干)	Friction coef.(dry)	0.08-0.14	0.10-0.16
磨擦系数(油)	Friction coef.(oil)	0.05-0.07	0.07-0.09
工作温度	Temperature limit(℃)	-100-+300℃	-100-+250℃

JDB-QJ轴承外环与座孔的配合为H8-/P6，内环与轴颈的配合为H7/p7，轴承尺寸见表

The matching between housing and bush' spherical outer surface is at the tolerance of H8/P6, the matching between shaft and bush's inside bore is at the tolerance of H7/P7. Following is the size sheet for JDB-QJ Bushing.

JDB-1-QJ 尺寸表

JDB-1-QJ Size sheet.

尺寸 Nominal size (mm)									倾斜角度 Tilt angle	径向承载值 Radial load (KN)		台肩尺寸 Protrude step (mm)	
D	d	d1	B	C	b	M	r1 最小 Min	r2 最小 Min	α °	动 Variable	静 Constant	Dk 最小 Min	Dk 最大 Max
100	150	130	70	55	7.5	4	1.0	1.0	6	865	1730	131.0	109.5
110	160	140	70	55	7.5	4	1.0	1.0	6	930	1860	141.5	121.0
120	180	160	85	70	7.5	4	1.0	1.0	6	1340	2700	157.5	135.5
140	210	180	90	70	7.5	4	1.0	1.0	7	1500	3000	180.0	155.5
160	230	200	105	80	7.5	4	1.1	1.1	8	1930	3800	197.0	170.7
180	260	225	105	80	7.5	4	1.1	1.1	6	2160	4300	224.5	199.0
200	290	250	130	100	11.5	5	1.1	1.1	7	3000	6000	244.5	213.5
220	320	275	135	100	13.5	6	1.1	1.1	8	3350	6550	271.0	239.5
240	340	300	140	100	13.5	6	1.1	1.1	8	3600	7200	298.0	265.0
260	370	325	150	110	15.5	7	1.1	1.1	7	4300	8650	321.0	288.0
280	400	350	155	120	15.5	7	1.1	1.1	6	5000	10000	344.5	313.5
300	430	375	165	120	15.5	7	1.1	1.1	7	5400	10800	371.0	336.5

JDB-2-QJ 尺寸表 JDB-2-QJ Size sheet.

尺寸 Nominal size (mm)									倾斜角度 Tilt angle	径向承载值 Radial load (KN)		台肩尺寸 Protrude step (mm)	
D	d	d_1	B	C	b	M	r_1 最小 Min	r_2 最小 Min	α °	动 Variable	静 Constant	Dk 最小 Min	Dk 最大 Max
100	150	135	71	67	7.5	4	1.0	1.0	2	660	1150	126	114
120	180	160	85	80	7.5	4	1.0	1.0	2	930	1400	149	135
160	230	210	115	109	7.5	4	1.0	1.0	2	1760	3100	196	175
200	290	260	140	134	11.5	5	1.1	1.1	2	2600	4800	242	219
220	320	290	155	148	13.5	6	1.1	1.1	2	3300	6000	270	245
260	370	340	185	175	15.5	7	1.1	1.1	2	4600	8400	317	285
300	430	390	212	200	15.5	7	1.1	1.1	2	6100	11000	363	327
320	460	420	230	218	21	8	1.1	3.0	2	7000	12500	385	344
360	520	480	258	243	21	8	1.1	4.0	2	8900	16000	441	397
400	580	520	280	265	21	8	1.5	4.0	2	10600	19000	478	431
440	630	580	315	300	27	10	1.5	4.0	2	13400	24000	534	479
480	680	630	340	320	27	10	2.0	5.0	2	15700	27500	580	536
500	710	650	355	335	27	10	2.0	5.0	2	16800	30000	598	558
560	800	730	400	380	24	10	2.0	5.0	2	21500	38000	673	602
630	900	820	450	425	35	13	3.0	6.0	2	26900	48000	757	677
710	1000	9120	500	475	35	13	3.0	6.0	2	34000	60000	849	762

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