JF-800 双金属复合轴承
JF-800 Bi-metallic composite bearings

结构特性 Structure Characteristics

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

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

产品应用 Application

工程机械：底盘行走机构支重轮轴套、拖带轮轴套、张紧轮轴套；
汽车行业：平衡轴衬套、钢板销衬套、转向节主肖轴套、连杆轴套、气门摇臂轴套、凸轮轴轴套、差速器轴套、变速箱轴套、内燃机主轴瓦、止推垫片；以及柱塞泵侧片，齿轮泵侧片等。

Angineering machine: underpan, thrust wheel, Towing wheel, Steering knuckle,tension pulley...
Automotive:trunnion shaft, connecting rod, valve rocker, camshaft, gear box, internal-combustion engine, and Plunger pump friction plate, gear pump friction plate...

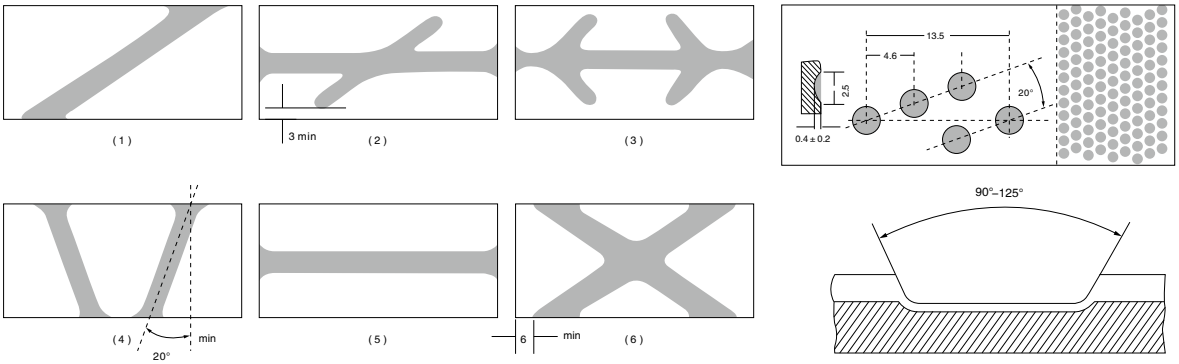
实际运用中根据使用工况的不同，表面可以烧结不同牌号的合金，产品范围包括：JF-820、JF-800、JF-720、JF-700、JF-20、FB08G。

According to the different working conditions, different alloy material (CuPb10Sn10、CuPb6Sn6Zn3、CuPb24Sn4、CuPb30、AlSn20Cu、CuSn8Ni) can be sintered on steel backing. product range includes JF-820、JF-800、JF-720、JF-700、JF-20、FB08G.

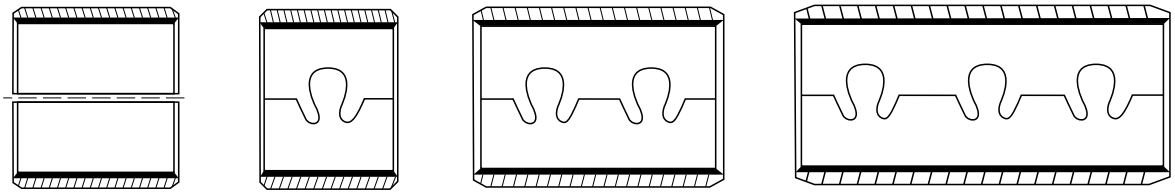
有关数据 Data	代号 Grade	JF-820 (lead free)	JF-800	JF-720	JF-700	JF-20	FB08G
	材料 Materiai	碳钢/Steel＋CuSn8Ni	碳钢/Steel＋$CuPb_{10}Sn_{10}$	碳钢/Steel＋$CuPb_{24}Sn_4$	碳钢/Steel＋$CuPb_{30}$	碳钢/Steel＋$AlSn_{20}Cu$	碳钢/Steel＋$CuPb_{10}Sn_{10}$ ＋石墨/Graphite
除了目录中显示的标准产品外，还可以提供非标产品或根据客户要求订购。We can also develop according to customers special request while out of this table.							
最大动载 P N/mm^2 Max dynamic Load P		140	140	140	120	120	90
最大线速度 V m/s Max line speed V	脂润滑 Greaes lubrication	2.5	2.5	2.5	2.5	——	——
最高PV值 $N/mm^2 \cdot m/s$ Max PV value		2.8	2.8	2.8	2.8	——	——
摩擦系数u Friction coef u		0.05~0.12	0.05~0.15	0.05~0.15	0.05~0.15	——	——
最大线速度 V m/s Max line speed V		2.5	10	10	15	20	——
最高PV值 $N/mm^2 \cdot m/s$ Max PV value	油脂润滑 Greaes lubrication	2.8	10	10	8	15	——
摩擦系数 Friction	油润滑 Oil lub.	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	——
最高温度 °C Max Working temperature	油脂润滑 Greaes lubrication	150	150	150	150	150	150
	油润滑 Oil lub.	250	250	250	250	250	——
相配轴径 Mating Axis	硬度 HRC Hardness	≥53	≥53	≥45	≥48	≥270	≥53
	粗糙度 Ra Roughness	0.32~0.63	0.32~0.63	0.32~0.63	0.16~0.63	0.16~0.63	0.16~0.63
合金层硬度 HB Alloy layer hardness		69~90	70~100	45~70	35~45	30~40	60~90
导热系数 W/mk Thermal conductivity		47	47	60	60	47	47
线膨胀系数（轴向） Coefficient of linear expansion		18×10^{-6}/K	18×10^{-6}/K	18×10^{-6}/K	19×10^{-6}/K	19×10^{-6}/K	18×10^{-6}/K
针对性运用领域 Pertinence applicaton		适用于中等负载，以及有大的冲击载荷的轴承，如发动机连杆轴套、转向销轴套等。Lead free, For use in medium load conditions, such as the engine connecting rod bushings, steering pin covers.	产品适用于汽车发动机连轩，工程机械、农业机械等。Application: con-rod of automobile engines, engineering and agriculture machinery, heavy duty construction machinery etc.	产品适用于高速、重载的内燃机主轴和变速齿轮。Application: High speed, heavy load engine main shaft and ransmission gearbox, etc.	用作高速、中低载荷的内燃机主轴瓦、连杆衬套、摇臂衬套,油汞侧摩擦片。high speed and middle load working situation, as engine main bearing, connect-rod bushing, rocket arm bushing and oil pump side plate.	产品适用于内燃机主轴和连杆轴承、空压机机、制冷机用轴承。Application: High speed, heavy load engine main shaft and air compressor, cooling machine.etc.	产品适用于启动马达机械。Application: starting motor.

JF-800 双金属复合轴承
JF-800 Bi-metallic composite bearings

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



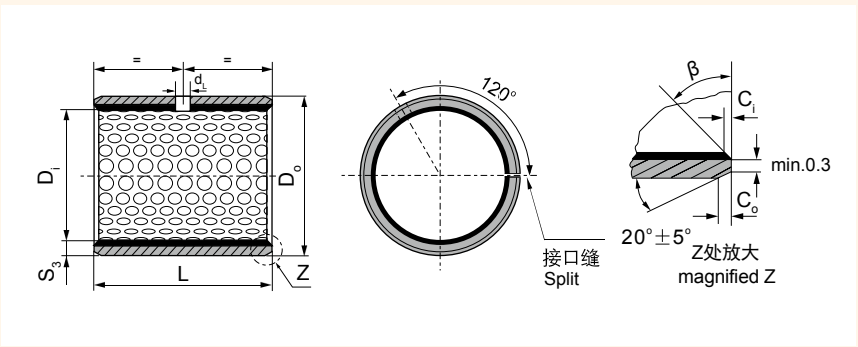
双金属轴承的搭扣形式 Lock Types for Bi-Metaltic Bushing



材料特性 Material Characterisitc

材料牌号 Material Trademark	合金成份 Alloy Composition	合金硬度 Alloy Hardness	国际标准 International Standard
JF-800	CuPb10Sn10	70～100HB	SAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B. D57. Federal Mogul HF2. Glacier SY. Glyco66. Miba2. 1010.Taiho HF2. Kar l Schmiat KS940SSAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B D57. Federal Mogul HF2 Glacier SY. Glyco66. Miba2. 1010. Taiho HF2. Karl Schmiat Ks940s
JF-720	CuPb24Sn4	45～70HB	SAE=799. GLYCO 68. JIS-LBC6. DAIDO L23. Claciersx. ACLF250
JF-700	CuPb30	30～45HB	SAE-783. GLYCO74. JIS-AJL
JF-20	AlSn20Cu	30～40HB	SAE-48. JIS-KJ3
JF-820	CuSn8Ni	69～90HB	

JF-800 双金属轴承规格及公差
JF-800 Bimetal Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	35°±5°
1.00	0.6±0.3	0.30±0.2	35°±5°
1.50	0.7±0.3	0.50±0.3	35°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	35°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

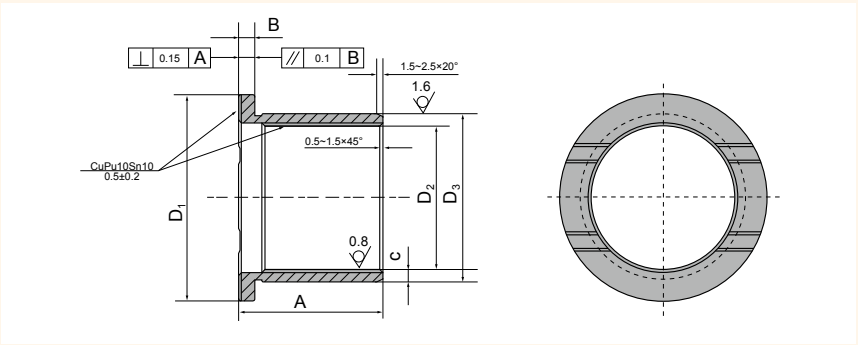
单位unit:mm

内径 D_i φd	外径 D_O φD	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$						
								10	15	20	25	30	40	50
10	12	10 $^{}_{-0.022}$	12 $^{+0.018}$	+0.148 +0.010	0.170 0.010	0.995 0.935	4	1010	1015	1020				
12	14	12 $^{}_{-0.027}$	14 $^{+0.018}$		0.175 0.010			1210	1215	1220				
14	16	14 $^{}_{-0.027}$	16 $^{+0.018}$					1410	1415	1420				
15	17	15 $^{}_{-0.027}$	17 $^{+0.018}$					1510	1515	1520				
16	18	16 $^{}_{-0.027}$	18 $^{+0.018}$					1610	1615	1620				
18	20	18 $^{}_{-0.027}$	20 $^{+0.021}$	+0.151 +0.010	0.178 0.010			1810	1815	1820	1825			
20	23	20 $^{}_{-0.033}$	23 $^{+0.021}$	+0.161 +0.020	0.194 0.020	1.490 1.430		2010	2015	2020	2025			
22	25	22 $^{}_{-0.033}$	25 $^{+0.021}$				6	2210	2215	2220	2225			
24	27	24 $^{}_{-0.033}$	27 $^{+0.021}$					2410	2415	2420	2425	2430		
25	28	25 $^{}_{-0.033}$	28 $^{+0.021}$						2515	2520	2525	2530		
26	30	26 $^{}_{-0.033}$	30 $^{+0.021}$	+0.181 +0.040	0.214 0.040	1.980 1.920			2615	2620	2625	2630		
28	32	28 $^{}_{-0.033}$	32 $^{+0.025}$	+0.185 +0.040	0.218 0.040				2815	2820	2825	2830	2840	
30	34	30 $^{}_{-0.033}$	34 $^{+0.025}$						3015	3020	3025	3030	3040	
32	36	32 $^{}_{-0.039}$	36 $^{+0.025}$		0.224 0.040				3215	3220	3225	3230	3240	
35	39	35 $^{}_{-0.039}$	39 $^{+0.025}$							3520	3525	3530	3540	3550
38	42	38 $^{}_{-0.039}$	42 $^{+0.025}$				8			3820	3825	3830	3840	3850
40	44	40 $^{}_{-0.039}$	44 $^{+0.025}$							4020	4025	4030	4040	4050

JF-800 双金属轴承规格及公差
JF-800 Bimetal Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_O ϕD	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$ 25	30	40	50	60	80	90	100
45	50	45 $^{}_{-0.039}$	50 $^{+0.025}$	+0.225 +0.080	0.264 0.080	2.460 2.400	8	4525	4530	4540	4550				
50	55	50 $^{}_{-0.039}$	55 $^{+0.030}$	+0.230 +0.080	0.269 0.080				5030	5040	5050	5060			
55	60	55 $^{}_{-0.046}$	60 $^{+0.030}$		0.276 0.080				5530	5540	5550	5560			
60	65	60 $^{}_{-0.046}$	65 $^{+0.030}$						6030	6040	6050	6060			
65	70	65 $^{}_{-0.046}$	70 $^{+0.030}$						6530	6540	6550	6560			
70	75	70 $^{}_{-0.046}$	75 $^{+0.030}$						7030	7040	7050	7060	7080		
75	80	75 $^{}_{-0.046}$	80 $^{+0.030}$				9.5		7530	7540	7550	7560	7580		
80	85	80 $^{}_{-0.046}$	85 $^{+0.035}$	+0.235 +0.080	0.281 0.080				8030	8040	8050	8060	8080	8090	
85	90	85 $^{}_{-0.054}$	90 $^{+0.035}$		0.289 0.080				8530	8540	8550	8560	8580	8590	85100
90	95	90 $^{}_{-0.054}$	95 $^{+0.035}$							9040	9050	9060	9080	9090	90100
95	100	95 $^{}_{-0.054}$	100 $^{+0.035}$								9550	9560	9580	9590	95100
100	105	100 $^{}_{-0.054}$	105 $^{+0.035}$								10050	10060	10080	10090	100100
105	110	105 $^{}_{-0.054}$	110 $^{+0.035}$								10550	10560	10580	10590	105100
110	115	110 $^{}_{-0.054}$	115 $^{+0.035}$								11050	11060	11080	11090	110100
115	120	115 $^{}_{-0.054}$	120 $^{+0.035}$								11550	11560	11580	11590	115100
120	125	120 $^{}_{-0.054}$	125 $^{+0.040}$	+0.240 +0.080							12050	12060	12080	12090	120100
125	130	125 $^{}_{-0.063}$	130 $^{+0.040}$		0.303 0.080							12560	12580	12590	125100
130	135	130 $^{}_{-0.063}$	135 $^{+0.040}$									13060	13080	13090	130100
135	140	135 $^{}_{-0.063}$	140 $^{+0.040}$									13560	13580	13590	135100
140	145	140 $^{}_{-0.063}$	145 $^{+0.040}$									14060	14080	14090	140100
150	155	150 $^{}_{-0.063}$	155 $^{+0.040}$									15060	15080	15090	150100

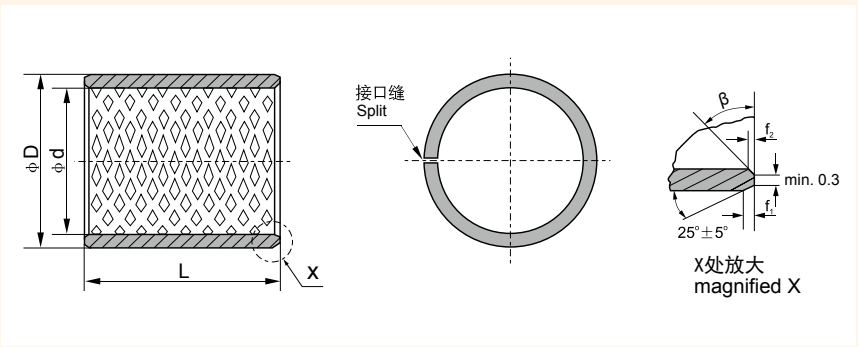
JF-800F 双金属翻边轴承规格及公差
JF-800F Bimetal Flange Bushing Specification & Tolerance



单位Unit: mm

D_1	B	D_3	D_2	A	C
42	3.5	37	30	30	3.5
43	2	34	30	28	2
44	3.5	39	32	35	3.5
47	3.5	39	32	50	3.5
48	2	39	35	37	2
52	3	41	35	35	3
55	3.5	42	35	35	3.5
55	3.5	45	38	35	3.5
55	3.5	45	38	40	3.5
60	3	41	35	42	3
60	3	46	40	62	3
63	3.5	47	40	40	3.5
65	3.5	52	45	40	3.5
68	3.5	54	47	35	3.5
70	3.5	54	47	40	3.5
70	3.5	57	50	48	3.5
72	3.5	57	50	45	3.5
72	3.5	57	50	50	3.5
75	3.5	57	50	50	3.5
77	3	60	54	55	3
83	3.5	66	59	53	3.5
85	3.5	65	58	60	3.5
87	3.5	67	60	53	3.5
87	3.5	67	60	60	3.5
87	3.5	67	60	65	3.5
87	4	68	60	60	4
94	3.5	72	65	60	3.5
87	3.5	72	65	65	3.5
87.5	1.95	69.12	65.22	64.5	2
88	3.5	67	60	60	3.5
88	3.5	72	65	65	3.5
92	3.5	77	70	67	3.5
93	3.5	75	68	60	3.5
94	3.5	77	70	70	3.5
95	3.5	77	70	65	3.5
95	4	78	70	70	4
97	3.48	77.14	70.18	62	3.5
97	3.5	82	75	74	3.5
100	5	85	75	70	5
103	3.525	70.8	63.75	73	3.5
105	3.5	82	75	75	3.5
105	3.5	87	80	70	3.5
107	4	83	75	74	4
115	5	100	90	75	5
128	3.8	92.6	85	103	4
108	3.5	72	65	75	3.5
108	3.5	77	70	98	3.5
108	5	80	70	90	5

FB08G 固体润滑轴承规格及公差
FB08G Solid-lubricant Bushing Specification & Tolerance



单位Unit: mm

d	D	f_1	f_2	$L\ ^{0}_{-0.40}$												
				10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	0.3	0.5	1010	1015	1020										
12	14			1210	1215	1220										
14	16			1410	1415	1420	1425									
15	17			1510	1515	1520	1525									
16	18			1610	1615	1620	1625									
18	20			1810	1815	1820	1825									
20	23	0.8	0.4	2010	2015	2020	2025									
22	25			2210	2215	2220	2225	2230								
24	27				2415	2420	2425	2430								
25	28				2515	2520	2525	2530								
28	32	1.0	0.6		2815	2820	2825	2830								
30	34				3015	3020	3025	3030	3035	3040						
32	36				3215	3220	3225	3230	3235	3240						
35	39				3515	3520	3525	3530	3535	3540						
40	44					4020	4025	4030	4035	4040	4050					
45	50	1.2	0.8			4520	4525	4530	4535	4540	4550					
50	55					5020	5025	5030	5035	5040	5050	5060				
55	60					5520	5525	5530	5535	5540	5550	5560				
60	65						6025	6030	6035	6040	6050	6060	6070			
65	70							6530	6535	6540	6550	6560	6570			
70	75							7030	7035	7040	7050	7060	7070	7080		
75	80							7530	7535	7540	7550	7560	7570	7580		
80	85	1.4						8030	8035	8040	8050	8060	8070	8080		
85	90									8540	8550	8560	8570	8580	8590	
90	95									9040	9050	9060	9070	9080	9090	
95	100										9550	9560	9570	9580	9590	95100
100	105										10050	10060	10070	10080	10090	100100
105	110										10550	10560	10570	10580	10590	105100
110	115										11050	11060	11070	11080	11090	110100
115	120										11550	11560	11570	11580	11590	115100
120	125											12060	12070	12080	12090	120100
125	130											12560	12570	12580	12590	125100
130	135											13060	13070	13080	13090	130100
135	140											13560	13570	13580	13590	135100
140	145											14060	14070	14080	14090	140100
145	150											14560	14570	14580	14590	145100
150	155											15060	15070	15080	15090	150100
155	160											15560	15570	15580	15590	155100
160	165											16060	16070	16080	16090	160100