



SF-1自润滑复合轴承 Self-lubricating multilayer composite bearing

产品介绍 Product introduction

SF-1自润滑轴承，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（PTFE）和纤维的混合物，卷制而成的滑动轴承。





特点：1. PTFE和纤维的混合物 0.01~0.03mm，可形成一层很好的转移膜保护对磨轴，提供了轴承的自润滑性能。2. 铜粉层0.20~0.30mm，具有很好的承载能力和耐磨性，良好的导热性能可及时转移轴承运作过程中产生的热量。复合材料可渗入到铜粉球的间隙中，提高了结合强度。3. 低碳钢，提供了很好的承载性能和热传递作用。产品已广泛应用于各种机械的滑动部位，如印刷机、升降机、纺织机、烟草机、健身器、液压搬运车、微电机、电磁阀、汽车、摩托车等。

SF-1 self-lubricating bearing, backed on mild steel sintered with bronze powder and coating with PTFE/Fibre mixture.

Characteristics: 1. PTFE/Fibre mixture 0.01~0.03mm, provides an excellent initial transfer film, which effectively coats the mating surface of the bearing assembly, forming an oxide type solid lubricant film. 2. Sintered bronze powder 0.20-0.30mm, provides good thermal conductivity away from the bearing surface, also serves as a reservoir for the PTFE-lead mixture. 3. Low-carbon steel, gives high load carrying capacity, excellent heat dissipation.

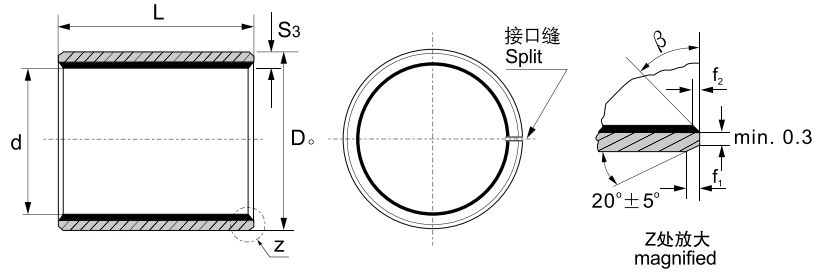
Application: textile machines, lift, tobacco machines, fitness equipment, hydraulic systems, automobiles, agricultural and forest machines and so on.

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 系列自润滑复合轴套
SF-1 Oilless Bushing

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内外倒角 ID and OD chamfers

S ₃	f ₁	f ₂	β
0.75	0.5 ± 0.3	0.25 ± 0.2	30° ± 5°
1.00	0.6 ± 0.3	0.3 ± 0.2	30° ± 5°
1.50	0.7 ± 0.3	0.5 ± 0.3	30° ± 5°

S ₃	f ₁	f ₂	β
2.00	1.2 ± 0.4	0.5 ± 0.3	30° ± 5°
2.50	1.8 ± 0.6	0.6 ± 0.3	45° ± 5°

单位Unit: mm

轴径 (f7) Shaft D _s	座孔 (H7) Housing D _H	(OD) 外径公差 Tolerance D ₀	(ID) 压装后 内孔公差 After fixed D _{i,a}	配合间隙 Clearance D ₀	壁厚 Wall thick- ness S ₃	长度 L ⁰ _{-0.40} (^{d≤φ28 L-0.30} _{d>φ30 L-0.40})															
						6	8	10	12	15	20	25	30	40	50						
6	-0.010 -0.022	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000	1.005 0.980	0606	0608	0610										
8	-0.013 -0.028	10	+0.015	10	+0.055 +0.025	8.055 7.990	0.083 0.003		0806	0808	0810	0812	0815								
10	-0.013 -0.028	12	+0.018	12	+0.065 +0.030	10.058 9.990	0.086 0.003		1006	1008	1010	1012	1015	1020							
12	-0.016 -0.034	14	+0.018	14	+0.065 +0.030	12.058 11.990			1206	1208	1210	1212	1215	1220	1225						
13	-0.016 -0.034	15	+0.018	15	+0.065 +0.030	13.058 12.990					1310	1312	1315	1320	1325						
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990	0.092 0.006				1410	1412	1415	1420	1425						
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990					1510	1512	1515	1520	1525						
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990					1610	1612	1615	1620	1625						
17	-0.016 -0.034	19	+0.021	19	+0.075 +0.035	17.061 16.990	0.095 0.006				1710	1712	1715	1720	1725						
18	-0.016 -0.034	20	+0.021	20	+0.075 +0.035	18.061 17.990					1810	1812	1815	1820	1825						
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990		1.505 1.475			2010	2012	2015	2020	2025	2030					
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990	0.112 0.010				2210	2212	2215	2220	2225	2230					
24	-0.020 -0.041	27	+0.021	27	+0.075 +0.035	24.071 23.990					2410	2412	2415	2420	2425	2430					
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990					2510	2512	2515	2520	2525	2530	2540	2550			
28	-0.020 -0.041	32	+0.025	32	+0.085 +0.045	28.085 27.990	0.126 0.010	2.005 1.970				2812	2815	2820	2825	2830	2840	2850			
30	-0.020 -0.041	34	+0.025	34	+0.085 +0.045	30.085 29.990						3012	3015	3020	3025	3030	3040	3050			
32	-0.025 -0.050	36	+0.025	36	+0.085 +0.045	32.085 31.990						3212	3215	3220	3225	3230	3240	3250			
35	-0.025 -0.050	39	+0.025	39	+0.085 +0.045	35.085 34.990	0.135 0.015					3512	3515	3520	3525	3530	3540	3550			
38	-0.025 -0.050	42	+0.025	42	+0.085 +0.045	38.085 37.990						3812	3815	3820	3825	3830	3840	3850			
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990						4012	4015	4020	4025	4030	4040	4050			

SF-1 系列自润滑复合轴套 SF-1 Oilless Bushing

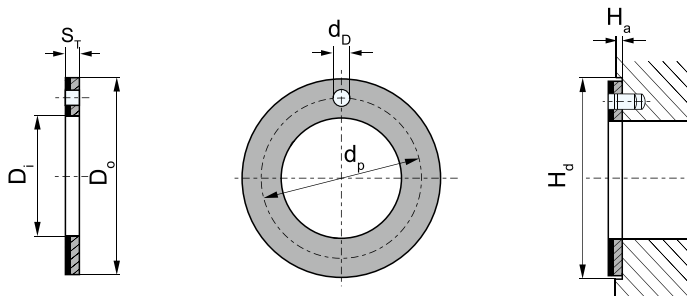
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轴径 (f7) Shaft D _s	座孔 (H7) Housing D _H	(OD) 外径公差 Tolerance D _O	(ID) 压装后 内孔公差 After fixed D _{i.a}	配合间隙 Clearance D _b	壁厚 Wall thick- ness S _s	长度 L ⁰ _{-0.40}												
						20	25	30	40	50	60	70	80	100	115			
45 ^{-0.050} _{-0.025}	50 ^{+0.025}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

SF-1WC 垫片规格及公差 SF-1WC Thrust Washer Specification & Tolerance

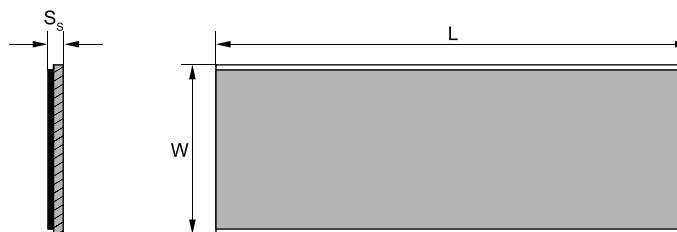
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单位Unit: mm

轴径 Shaft D_s	型号规格 Standard No.	垫片尺寸 Washer size				安装尺寸 Assemble size		$H_d+0.12$
		$D_i+0.25$	$D_o-0.25$	$S_T-0.05$	$d_p \pm 0.125$	$d_D^{+0.4}_{+0.1}$	$H_a \pm 0.2$	
8	W10	10	20	1.5	15	1.5	1	20
10	W12	12	24		18			
12	W14	14	26		20			
14	W16	16	30		23			
16	W18	18	32		25			
18	W20	20	36		28			
20	W22	22	38		30			
22	W24	24	42		33			
24	W26	26	44		35			
26	W28	28	48		38			
30	W32	32	54		43			
36	W38	38	62		50			
40	W42	42	66		54			
46	W48	48	74		61			
50	W52	52	78	2	65	1.5	78	
60	W62	62	90		76		90	

SF-1SP 板材规格及公差 SF-1SP Strip Specification & Tolerance

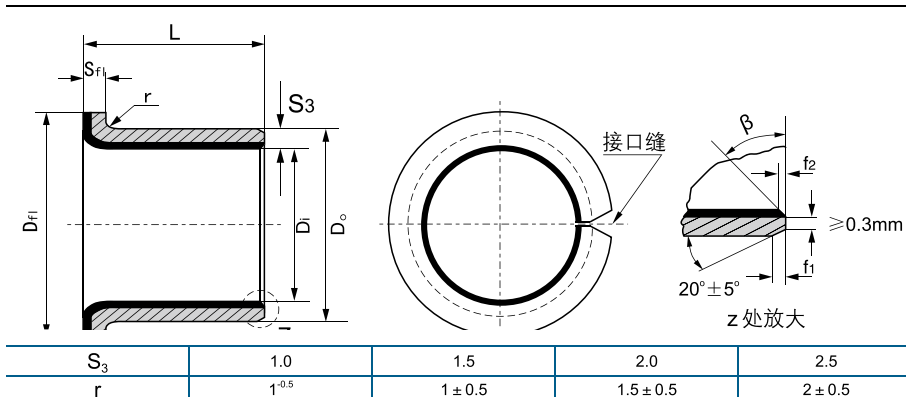


单位Unit: mm

型号规格 Standard No.	长度 $L \pm 1$	宽度 $W \pm 1$	厚壁 Wall thickness $S_s-0.05$
SP	500	150	1.0
SP	500	150	1.5
SP	500	150	2.0
SP	500	150	2.5

SF-1F 系列自润滑复合法兰轴套 SF-1F Oilless Flange Bushing

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轴径 (f7) Shaft D _s	座孔 (H7) Housing D _H	(OD) 外径公差 Tolerance D _O	(ID)压装后 内孔公差 After fixed D _{ia}	配合间隙 Clearance C _O	Designation 型号规格	Wall thickness 壁厚 S ₃	尺寸 Dimension				
							D _i	D _O	D _H ± 0.5	L ± 0.25	S _H - 0.2
6 -0.013 -0.028	8 +0.015	8 +0.055 +0.025	6.055 5.990	0.077 0.000	SF-1F 06040	1.005 0.980	6	8	12	4	1
					SF-1F 06070					7	
8 -0.013 -0.028	10 +0.015	10 +0.055 +0.025	8.055 7.990	0.083 0.003	SF-1F 08055	1.005 0.980	8	10	15	5.5	1
					SF-1F 08075					7.5	
10 -0.016 -0.034	12 +0.018	12 +0.055 +0.025	10.058 9.990	0.086 0.003	SF-1F 10070	1.005 0.980	10	12	18	7	1
					SF-1F 10090					9	
					SF-1F 10120					12	
12 -0.016 -0.034	14 +0.018	14 +0.065 +0.030	12.058 11.990	0.092 0.006	SF-1F 12070	1.005 0.980	12	14	20	7	1
					SF-1F 12090					9	
					SF-1F 12120					12	
					SF-1F 14120					12	
14 -0.016 -0.034	16 +0.018	16 +0.065 +0.030	14.058 13.990	0.092 0.006	SF-1F 14170	1.005 0.980	14	16	22	17	1
					SF-1F 15090					9	
					SF-1F 15120					12	
15 -0.016 -0.034	17 +0.018	17 +0.065 +0.030	15.058 14.990	0.092 0.006	SF-1F 15170	1.005 0.980	15	17	23	17	1
					SF-1F 16120					12	
					SF-1F 16170					17	
16 -0.016 -0.034	18 +0.018	18 +0.065 +0.030	16.058 15.990	0.092 0.006	SF-1F 18120	1.005 0.980	16	18	24	12	1
					SF-1F 18170					17	
					SF-1F 18200					20	
18 -0.016 -0.034	20 +0.021	20 +0.075 +0.035	18.061 17.990	0.095 0.006	SF-1F 20115	1.505 1.475	18	20	26	17	1.5
					SF-1F 20165					20	
					SF-1F 20215					21.5	
20 -0.020 -0.041	23 +0.021	23 +0.075 +0.035	20.071 19.990	0.112 0.010	SF-1F 22150	1.505 1.475	20	23	30	11.5	1.5
					SF-1F 22200					20	
					SF-1F 25115					15	
					SF-1F 25215					21.5	
22 -0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990	0.112 0.010	SF-1F 25165	1.505 1.475	22	25	32	16.5	1.5
					SF-1F 25215					21.5	
					SF-1F 30160					16	
25 -0.020 -0.041	28 +0.021	28 +0.075 +0.035	25.071 24.990	0.126 0.010	SF-1F 30260	1.505 1.475	25	28	35	26	1.5
					SF-1F 35160					16	
					SF-1F 35260					26	
30 -0.025 -0.050	34 +0.025	34 +0.075 +0.035	30.085 29.990	0.135 0.015	SF-1F 40260	2.005 1.970	30	34	42	26	2
					SF-1F 40400					40	
					SF-1F 35160					16	
35 -0.025 -0.050	39 +0.025	39 +0.085 +0.045	35.085 34.990	0.135 0.015	SF-1F 35260	2.005 1.970	35	39	47	26	2
					SF-1F 40260					26	
					SF-1F 40400					40	
40 -0.025 -0.050	44 +0.025	44 +0.085 +0.045	40.085 39.990	0.135 0.015	SF-1F 40400	2.005 1.970	40	44	53	40	2