

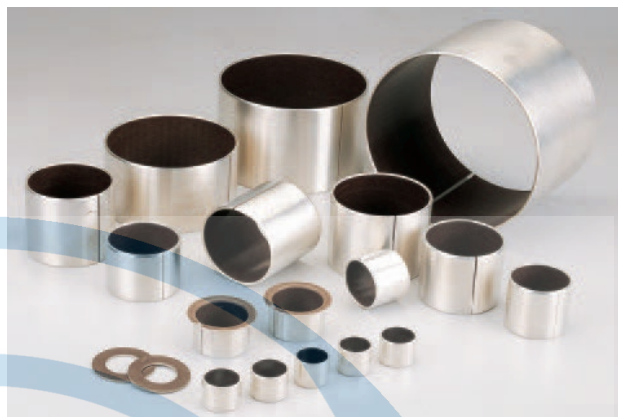
Self-Lubricating Bushings

SF-1 Series Bushings



Structure

1. PTFE/Fibre mixture thickness 0.01~0.03mm, provides an excellent initial transferred film, which effectively coats the mating surfaces of the bearing assembly to establish the self-lubricating feature.
2. Sintered bronze powder thickness 0.20~0.35mm, provides strong mechanical bond and excellent thermal conductivity.
3. Steel backing Provides mechanical strength.



Features

The material is with good wear resistance, low friction coefficient low noise corrosion resistance and high chemical resistance. It is suitable for the applications where the lubricating is hard or impossible. The machining requirement of the mating parts is not critical so this kind of materials are widely used in general industry.

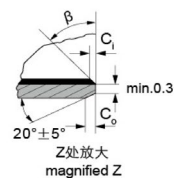
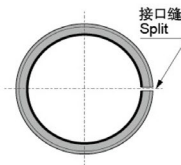
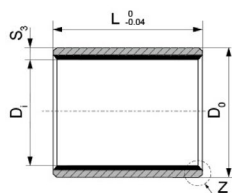
Tech. Data					
Max. load	Static	250N/mm ²	Friction coefficient		0.03~0.20
	Very low speed	140N/mm ²	Max. speed	Dry running	2m/s
	Rotating oscillating	60N/mm ²		Hydrodynamic operation	>2m/s
Max. PV Dry running	Short-term operation	3.6N/mm ² *m/s	Thermal conductivity		42 W(m*K) ⁻¹
	Continuous operation		Coefficient of thermal expansion		11*10 ⁻⁶ *K ⁻¹
Operation Temperature range		-195°C~+280°C			

Typical Applications

Automotive applications include steering system, shock absorbers, door hinges, seat recliners, seat frames and magnetic valves; It is widely used in the general industry like gear pumps, vane pumps, piston pumps, air cylinders and hydraulic cylinders; The other applications include material handling machinery, packing machines, textile machines, forest machines and the home appliances such as the air conditioners, body fit machines, washing machines and refrigerators, etc.

Self-Lubricating Bushings

SF-1 Series Bushings Metric Size



内外倒角 ID and OD chamfers

S ₃	C ₀	C ₁	β
0.75	0.5±0.3	0.25±0.2	30°±5°
1.00	0.6±0.3	0.30±0.2	30°±5°
1.50	0.7±0.3	0.50±0.3	30°±5°

S ₃	C ₀	C ₁	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

Unit: mm

d	D	Axle	Housing	Wall Thickness	f1	f2	Length	0	(	<Φ28 L-0.3	)					
			H17	min	max			-0.4		>Φ30 L-0.4						
6	8	6	-0.013 -0.028	8 ^{+0.015}			SF-1 0608	SF-1 0608	SF-1 0610							
8	10	8	-0.013 -0.028	10 ^{+0.015}			SF-1 0806	SF-1 0808	SF-1 0810	SF-1 0812	SF-1 0815					
10	12	10	-0.016 -0.034	12 ^{+0.018}			SF-1 1006	SF-1 1008	SF-1 1010	SF-1 1012	SF-1 1015	SF-1 1020				
12	14	12	-0.016 -0.034	14 ^{+0.018}			SF-1 1206	SF-1 1208	SF-1 1210	SF-1 1212	SF-1 1215	SF-1 1220	SF-1 1225			
13	15	13	-0.016 -0.034	15 ^{+0.018}	0.98	1.01			SF-1 1310		SF-1 1320					
14	16	14	-0.016 -0.034	16 ^{+0.018}					SF-1 1410	SF-1 1412	SF-1 1415	SF-1 1420	SF-1 1425			
15	17	15	-0.016 -0.034	17 ^{+0.018}					SF-1 1510	SF-1 1512	SF-1 1515	SF-1 1520	SF-1 1525			
16	18	16	-0.016 -0.034	18 ^{+0.018}					SF-1 1610	SF-1 1612	SF-1 1615	SF-1 1620	SF-1 1625			
17	19	17	-0.016 -0.034	19 ^{+0.021}					SF-1 1710	SF-1 1712		SF-1 1720				
18	20	18	-0.016 -0.034	20 ^{+0.021}					SF-1 1810	SF-1 1812	SF-1 1815	SF-1 1820	SF-1 1825			
20	23	20	-0.020 -0.041	23 ^{+0.021}					SF-1 2010	SF-1 2012	SF-1 2015	SF-1 2020	SF-1 2025	SF-1 2030		
22	25	22	-0.020 -0.041	25 ^{+0.021}	1.48	1.51			SF-1 2210	SF-1 2212	SF-1 2215	SF-1 2220	SF-1 2225	SF-1 2230		
24	27	24	-0.020 -0.041	27 ^{+0.021}					SF-1 2415	SF-1 2420	SF-1 2425	SF-1 2430				
25	28	25	-0.020 -0.041	28 ^{+0.021}					SF-1 2510	SF-1 2512	SF-1 2515	SF-1 2520	SF-1 2525	SF-1 2530	SF-1 2540	SF-1 2550
28	32	28	-0.020 -0.041	32 ^{+0.025}					SF-1 2815	SF-1 2820	SF-1 2825	SF-1 2830	SF-1 2840			
30	34	30	-0.020 -0.041	34 ^{+0.025}					SF-1 3012	SF-1 3015	SF-1 3020	SF-1 3025	SF-1 3030	SF-1 3040		
32	36	32	-0.025 -0.050	36 ^{+0.025}	1.970	2.01					SF-1 3220		SF-1 3230	SF-1 3240		
35	39	35	-0.025 -0.050	39 ^{+0.025}					SF-1 3512	SF-1 3515	SF-1 3520	SF-1 3525	SF-1 3530	SF-1 3540	SF-1 3550	
38	42	38	-0.025 -0.050	42 ^{+0.025}					SF-1 3815				SF-1 3830	SF-1 3840		
40	44	40	-0.025 -0.050	44 ^{+0.025}					SF-1 4012		SF-1 4020	SF-1 4025	SF-1 4030	SF-1 4040	SF-1 4050	

Self-Lubricating Bushings

SF-1 Series Bushings Metric Size

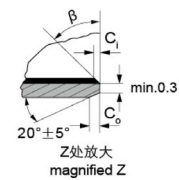
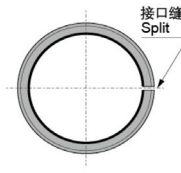
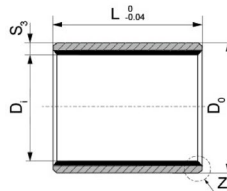


Unit: mm

d	D	Axle	Housing	Wall Thickness		f ₁	f ₂	Length			0 -0.4	(	<Φ28 L-0.3 >Φ30 L-0.4		)		
				H17	min	max		20	25	30			60	70			
45	50	45 -0.03 -0.050	50 ^{+0.025}					SF-1 4520	SF-1 4525	SF-1 4530	SF-1 4540	SF-1 4550					
50	55	50 -0.025 -0.050	55 ^{+0.030}					SF-1 5020		SF-1 5030	SF-1 5040	SF-1 5050	SF-1 5060				
55	60	55 -0.030 -0.060	60 ^{+0.0030}							SF-1 5530	SF-1 5540	SF-1 5550	SF-1 5560				
60	65	60 -0.030 -0.060	65 ^{+0.030}	2.460	2.51	1.2	0.8			SF-1 6030	SF-1 6040	SF-1 6050	SF-1 6660	SF-1 6670			
65	70	65 -0.030 -0.060	70 ^{+0.030}							SF-1 6530	SF-1 6540	SF-1 6550	SF-1 6560	SF-1 6570			
70	75	70 -0.030 -0.060	75 ^{+0.030}								SF-1 7040	SF-1 7050	SF-1 7060	SF-1 7070	SF-1 7080		
75	80	75 -0.030 -0.060	80 ^{+0.030}							SF-1 7530	SF-1 7540	SF-1 7550	SF-1 7560	SF-1 7570	SF-1 7580		
80	85	80 -0.030	85 ^{+0.035}								SF-1 8040	SF-1 8050	SF-1 8060	SF-1 8070	SF-1 8080	SF-1 80100	
85	90	85 -0.035	90 ^{+0.035}								SF-1 8540		SF-1 8560		SF-1 8580	SF-1 85100	
90	95	90 -0.035	95 ^{+0.035}								SF-1 9040	SF-1 9050	SF-1 9060		SF-1 9080	SF-1 90100	
95	100	95 -0.035	100 ^{+0.035}	2.440	2.490	1.4	0.8					SF-1 9550	SF-1 9560		SF-1 9580	SF-1 95100	
100	105	100 -0.035	105 ^{+0.035}									SF-1 10050	SF-1 10060		SF-1 10080		SF-1 100115
105	110	105 -0.035	110 ^{+0.035}										SF-1 10560		SF-1 10580		SF-1 105115
110	115	110 -0.035	115 ^{+0.035}										SF-1 11060		SF-1 11080		SF-1 110115
120	125	120 -0.035	125 ^{+0.040}										SF-1 12060		SF-1 12080	SF-1 120100	
125	130	125 -0.040	130 ^{+0.040}										SF-1 12560			SF-1 125100	SF-1 125115
130	135	130 -0.040	135 ^{+0.040}	2.415	2.465	1.4	0.8						SF-1 13060		SF-1 13080	SF-1 130100	
140	145	140 -0.040	145 ^{+0.040}										SF-1 14060		SF-1 14080	SF-1 140100	
150	155	150 -0.040	155 ^{+0.040}										SF-1 15060		SF-1 15080	SF-1 150100	
160	165	160 -0.040	165 ^{+0.040}										SF-1 16060		SF-1 16080	SF-1 160100	
180	185	180 -0.040	185 ^{+0.046}												SF-1 18080	SF-1 180100	
190	195	190 -0.046	195 ^{+0.046}	2.415	2.465	1.4	0.8								SF-1 19080	SF-1 190100	
200	205	200 -0.046	205 ^{+0.046}										SF-1 20060		SF-1 20080	SF-1 200100	
220	225	220 -0.046	225 ^{+0.046}												SF-1 22080	SF-1 220100	
250	255	250 -0.046	255 ^{+0.052}												SF-1 25080	SF-1 250100	
260	265	260 -0.052	265 ^{+0.052}	2.415	2.465	1.4	0.8								SF-1 26080	SF-1 260100	
280	285	280 -0.052	285 ^{+0.052}												SF-1 28080	SF-1 280100	
300	305	300 -0.052	305 ^{+0.052}												SF-1 30080	SF-1 300100	

Self-Lubricating Bushings

SF-1 Series Bushings Inch Size



内外倒角 ID and OD chamfers

S ₃	C ₀	C ₁	β
0.75	0.5±0.3	0.25±0.2	30°±5°
1.00	0.6±0.3	0.30±0.2	30°±5°
1.50	0.7±0.3	0.50±0.3	30°±5°

S ₃	C ₀	C ₁	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

Unit: Inch"

Recommended		Installed bearing	Length ±0.015						
Shaft Dia	Housing bore	d							
0.1243	0.1878	0.1268	SF-1	SF-1					
0.1236	0.1873	0.1243	02SF02	02SF03					
0.1554	0.2191	0.1581	SF-1	SF-1					
0.1547	0.2186	0.1556	025SF025	025SF04					
0.1865	0.2503	0.1893	SF-1	SF-1	SF-1				
0.1858	0.2497	0.1867	03SF03	03SF04	03SF06				
0.2490	0.3128	0.2518	SF-1	SF-1					
0.2481	0.3122	0.2492	04SF04	04SF06					
0.3115	0.3753	0.3143	SF-1	SF-1					
0.3106	0.3747	0.3117	05SF06	05SF08					
0.3740	0.4691	0.3769	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
0.3731	0.4684	0.3742	06SF03	06SF04	06SF006	06SF08	06SF10	06SF12	
0.4365	0.5316	0.4394	SF-1	SF-1					
0.4355	0.5309	0.4367	07SF08	07SF12					
0.4990	0.5941	0.5019	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
0.4980	0.5934	0.4992	08SF04	08SF06	08SF08	08SF10	08SF10	08SF14	
0.5615	0.6566	0.5644	SF-1	SF-1	SF-1	SF-1			
0.5605	0.6559	0.5617	09SF06	09SF08	09SF10	09SF12			
0.6240	0.7192	0.627	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
0.6230	0.7184	0.6242	10SF04	10SF08	10SF10	10SF12	10SF14	10SF16	
0.6865	0.7817	0.6895	SF-1						
0.6855	0.7809	0.6867	11SF14						
0.7491	0.8755	0.7525	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
0.7497	0.8747	0.7493	12SF04	12SF06	12SF08	12SF10	12SF12	12SF16	
0.8116	0.9380	0.8150	SF-1	SF-1					
0.8104	0.9372	0.8118	13SF12	13SF18					
0.8741	1.0005	0.8775	SF-1	SF-1	SF-1	SF-1	SF-1		
0.8729	0.9997	0.8743	14SF04	14SF06	14SF12	14SF16	14SF20		
0.9991	1.1255	1.0025	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
0.9979	1.1247	0.9993	16SF06	16SF08	16SF12	16SF16	16SF20	16SF24	
1.1238	1.2818	1.1278	SF-1	SF-1	SF-1	SF-1			
1.1226	1.2808	1.1240	18SF06	18SF10	18SF12	18SF16			
1.2488	1.4068	1.2528	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
1.2472	1.4058	1.2490	20SF06	20SF12	20SF14	20SF16	20SF20	20SF28	
1.3738	1.5318	1.3778	SF-1	SF-1	SF-1	SF-1			
1.3722	1.5308	1.3740	22SF12	22SF14	22SF24	22SF28			
1.4988	1.6568	1.5028	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
1.4972	1.6558	1.4990	24SF08	24SF16	24SF18	24SF20	24SF24	24SF32	
1.6238	1.7818	1.6278	SF-1	SF-1					
1.6222	1.7808	1.6240	26SF16	26SF24					
1.7487	1.9381	1.7537	SF-1	SF-1	SF-1				
1.7471	1.9371	1.7489	28SF16	28SF24	28SF32				
1.8737	2.0633	1.8787	SF-1	SF-1	SF-1				
1.8721	2.0621	1.8739	30SF12	30SF16	30SF36				
1.9987	2.1883	2.0037	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	
1.9969	2.1871	1.9989	32SF08	32SF16	32SF24	32SF28	32SF32	32SF40	

Self-Lubricating Bushings

SF-1 Series Bushings Inch Size

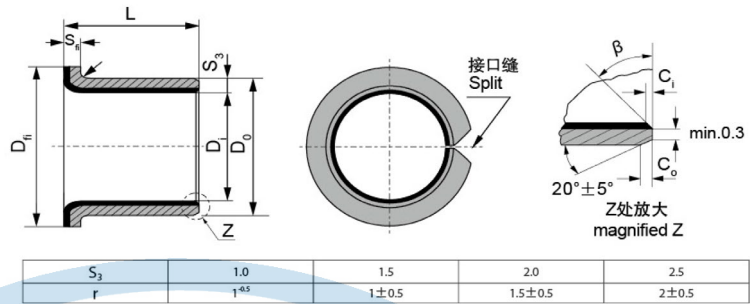


Unit: Inch"

Recommended		Installed bearing	Length ±0.015										
Shaft Dia	Housing bore	d											
2.1257	2.3130	2.1326	SF-1										
2.1239	2.3118	2.1262	34SF48										
2.2507	2.4377	2.2573	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1			
2.2489	2.4365	2.2509	36SF28	36SF32	36SF40	36SF48	36SF56	36SF60	36SF64	36SF72			
2.5011	2.6881	2.5077	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
2.4993	2.6869	2.5013	40SF16	40SF26	40SF32	40SF40	40SF48	40SF56	40SF60	40SF64	40SF72	40SF76	40SF80
2.7500	2.9370	2.7566	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
2.7482	2.9358	2.7502	44SF32	44SF36	44SF40	44SF48	44SF56	44SF60	44SF64	44SF72	44SF76	44SF80	44SF80
2.8752	3.0623	2.8819	SF-1	SF-1	44SF35	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
2.8734	3.0610	2.8754	46SF32	46SF36	46SF40	46SF48	46SF56	46SF60	46SF64	46SF72	46SF76	46SF80	46SF80
3.0000	3.1872	3.0068	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
2.9982	3.1858	3.0002	48SF32	48SF36	48SF40	48SF48	48SF56	48SF60	48SF64	48SF72	48SF76	48SF80	48SF80
3.2500	3.4372	3.2568	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
3.2480	3.4358	3.2502	52SF32	52SF36	52SF40	52SF48	52SF56	52SF60	52SF64	52SF72	52SF76	52SF80	52SF80
3.5000	3.6872	3.5068	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
3.4978	3.6858	3.5002	56SF32	56SF36	56SF40	56SF48	56SF56	56SF60	56SF64	56SF72	56SF76	56SF80	56SF80
3.6250	3.8122	3.6318	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
3.6228	3.8108	3.6252	58SF32	58SF36	58SF40	58SF48	58SF56	58SF60	58SF64	58SF72	58SF76	58SF80	58SF80
3.7500	3.9372	3.7568	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
3.7478	3.9358	3.7502	60SF32	60SF36	60SF40	60SF48	60SF56	60SF60	60SF64	60SF72	60SF76	60SF80	60SF80
4.0000	4.1872	4.0068	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
3.9978	4.1858	4.0002	64SF32	64SF36	64SF40	64SF48	64SF56	64SF60	64SF64	64SF72	64SF76	64SF80	64SF80
4.2500	4.4372	4.2568	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
4.2478	4.4358	4.2502	68SF32	68SF36	68SF40	68SF48	68SF56	68SF60	68SF64	68SF72	68SF76	68SF80	68SF80
4.3750	4.5622	4.3818	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
4.3728	4.5608	4.3752	70SF32	70SF36	70SF40	70SF48	70SF56	70SF60	70SF64	70SF72	70SF76	70SF80	70SF80
4.5000	4.6872	4.5068	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
4.4978	4.6858	4.5002	72SF32	72SF36	72SF40	72SF48	72SF56	72SF60	72SF64	72SF72	72SF76	72SF80	72SF80
4.7500	4.9374	4.7572	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
4.7475	4.9358	4.7502	76SF32	76SF36	76SF40	76SF48	76SF56	76SF60	76SF64	76SF72	76SF76	76SF80	76SF80
4.9986	5.186	5.0056	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
4.9961	5.01844	4.9988	80SF32	80SF36	80SF40	80SF48	80SF56	80SF60	80SF64	80SF72	80SF76	80SF80	80SF80
5.2500	5.4374	5.2570	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
5.2475	5.4358	5.2502	84SF32	84SF36	84SF40	84SF48	84SF56	84SF60	84SF64	84SF72	84SF76	84SF80	84SF80
5.5000	5.6874	5.5070	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
5.4975	5.6858	5.5002	88SF32	88SF36	88SF40	88SF48	88SF56	88SF60	88SF64	88SF72	88SF76	88SF80	88SF80
5.7500	5.9374	5.7570	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
5.7475	5.9358	5.7502	92SF32	92SF36	92SF40	92SF48	92SF56	92SF60	92SF64	92SF72	92SF76	92SF80	92SF80
6.0000	6.1874	6.0070	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
5.9975	6.1858	6.0002	96SF32	96SF36	96SF40	96SF48	96SF56	96SF60	96SF64	96SF72	96SF76	96SF80	96SF80
6.2500	6.4374	6.2570	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
6.2475	6.4358	6.2502	100SF32	100SF36	100SF40	100SF48	100SF56	100SF60	100SF64	100SF72	100SF76	100SF80	100SF80
6.5000	6.6874	6.5070	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
6.4975	6.6858	6.5002	104SF32	104SF36	104SF40	104SF48	104SF56	104SF60	104SF64	104SF72	104SF76	104SF80	104SF80
6.7500	6.9374	6.7570	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
6.7475	6.9358	6.7502	108SF32	108SF36	108SF40	108SF48	108SF56	108SF60	108SF64	108SF72	108SF76	108SF80	108SF80
6.9954	7.183	7.0026	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1	SF-1
6.9929	7.1812	6.9956	112SF32	112SF36	112SF40	112SF48	112SF56	112SF60	112SF64	112SF72	112SF76	112SF80	112SF80

Self-Lubricating Bushings

SF-1 Series Flanged Bushings Metric Size

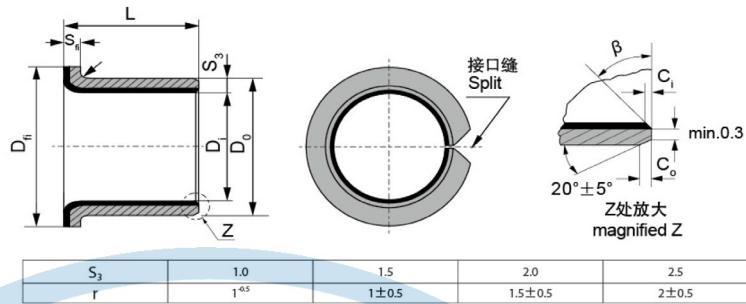


Unit: mm

Axle		Housing H7	Designation	Size					f ₁	f ₂
				d ₁	d ₂	d ₃ ±0.5	b±0.25	b ₁ -0.2		
6	-0.013	8 ^{+0.015}	SF-1F06040	6	8	12	4	1	0.5	0.3
	-0.028		SF-1F06070				7			
8	-0.013	10 ^{+0.015}	SF-1F08055	8	10	15	5.5			
	-0.028		SF-1F08075				7.5			
10	-0.016 -0.034	12 ^{+0.018}	SF-1F10070	10	12	18	7			
			SF-1F10090				9			
			SF-1F10120				12			
12	-0.016 -0.034	14 ^{+0.018}	SF-1F12070	12	14	20	7			
			SF-1F12090				9			
			SF-1F10120				12			
14	-0.016 -0.034	16 ^{+0.018}	SF-1F14120	14	16	22	12			
			SF-1F14170				17			
15	-0.016 -0.034	17 ^{+0.018}	SF-1F15090	15	17	23	9			
			SF-1F15120				12			
			SF-1F15170				17			
16	-0.016 -0.034	18 ^{+0.018}	SF-1F16120	16	18	24	12			
			SF-1F16170				17			
18	-0.016 -0.034	20 ^{+0.021}	SF-1F18120	18	20	26	12			
			SF-1F18170				17			
			SF-1F18200				20			
20	-0.02 -0.041	23 ^{+0.021}	SF-1F20115	20	23	30	11.5	1.5	0.8	0.4
			SF-1F20165				16.5			
			SF-1F20215				21.5			
22	-0.020 -0.041	25 ^{+0.021}	SF-1F22150	22	25	32	15			
			SF-1F22200				20			
25	-0.02 -0.041	28 ^{+0.021}	SF-1F25115	25	28	35	11.5			
			SF-1F25165				16.5			
			SF-1F25215				21.5			
30	-0.025 -0.050	34 ^{+0.025}	SF-1F30160	30	34	42	16	2	1.0	0.6
			SF-1F30260				26			
35	-0.025 -0.050	34 ^{+0.025}	SF-1F35160	35	39	47	16			
			SF-1F35260				26			
40	-0.025 -0.050	34 ^{+0.025}	SF-1F40260	40	44	53	26			
			SF-1F40400				40			

Self-Lubricating Bushings

SF-1 Series Flanged Bushings Inch Size



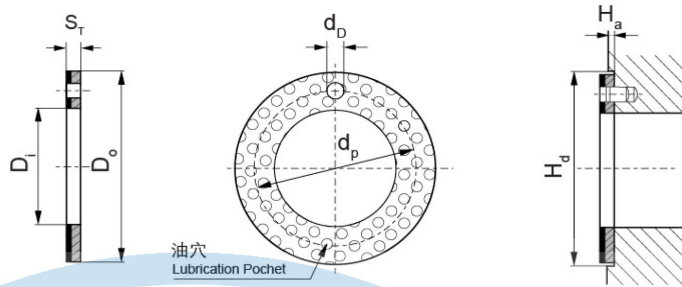
Unit: Inch"

Shaft Dia	Housing	Installed	Nominal	Flange	Length±0.015			
		Bearing d ₁	flange d ₃	thickness l ₁				
0.3750	0.4691	0.3779	1 1/16	0.052	SF-1F	SF-1F	SF-1F	SF-1F
0.3740	0.4684	0.3752		0.044	06FSF04	06FSF06	06FSF08	06FSF12
0.5000	0.5941	0.5029	1 3/16	0.052	SF-1F	SF-1F	SF-1F	SF-1F
0.4990	0.5934	0.5002		0.044	08FSF04	08FSF06	08FSF08	08FSF12
0.6250	0.7192	0.628	1 5/16	0.052	SF-1F	SF-1F	SF-1F	SF-1F
0.6240	0.7184	0.6252		0.044	10FSF06	10FSF08	10FSF10	10FSF12
0.7500	0.8755	0.7534	1 1/8	0.068	SF-1F	SF-1F	SF-1F	SF-1F
0.7488	0.8747	0.7502		0.060	12FSF06	12FSF08	12FSF12	12FSF16
0.8750	1.0005	0.8784	1 1/5	0.068	SF-1F	SF-1F	SF-1F	SF-1F
0.8738	0.9997	0.8725		0.060	14FSF08	14FSF12	14FSF16	14FSF20
1.0000	1.1255	1.0034	1 3/8	0.068	SF-1F	SF-1F	SF-1F	SF-1F
0.9988	1.1247	1.0002		0.060	16FSF08	16FSF12	16FSF16	16FSF20
1.2500	1.4068	1.2540	1 3/4	0.083	SF-1F	SF-1F	SF-1F	
1.2484	1.4058	1.2502		0.075	20FSF16	20FSF20	20FSF24	
1.5000	1.6568	1.504	2	0.083	SF-1F	SF-1F	SF-1F	
1.4984	1.6058	1.5002		0.075	24FSF16	24FSF24	24FSF32	
1.7500	1.9381	1.7548	2 3/8	0.098	SF-1F	SF-1F	SF-1F	
1.7484	1.9371	1.7502		0.090	28FSF16	28FSF24	28FSF32	

SERVICE / PRECISION / TECHNOLOGY

Self-Lubricating Bushings

SF-1 Series Thrust Washer Metric Size

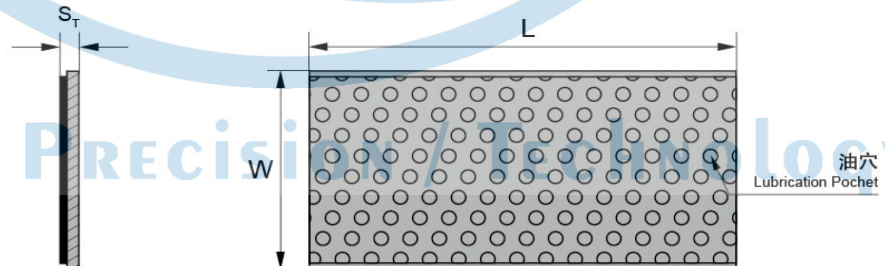


Unit: mm

Axle	Designation	Size of Washer				Installation size		
		d+0.25	D-0.25	T-0.05	M±0.125	$h \begin{smallmatrix} +0.4 \\ -0.1 \end{smallmatrix}$	t ±0.2	D ₁ +0.12
8	SF1WC10	10	20	1.5	15	1.5	1	20
10	SF1WC12	12	24		18			24
12	SF1WC14	14	26		20	2		26
14	SF1WC16	16	30		23			30
16	SF1WC18	18	32		25	3		32
18	SF1WC20	20	36		28			36
20	SF1WC22	22	38		30			38
22	SF1WC24	24	42		33			42
24	SF1WC26	26	44		35			44
26	SF1WC28	28	48		38	4		48
30	SF1WC32	32	54	43	54			
36	SF1WC38	38	62	50	62			
40	SF1WC42	42	66	54	66			
46	SF1WC48	48	74	2	61	1.5	74	
50	SF1WC52	52	78		65		78	
60	SF1WC62	62	90		76		90	

Statement: A dowel or counter sunk screw should be used to prevent rotation, but the head must be recessed at least 0.25mm below the thrust bearing surface.

SF-1 Series Metric Strip



Unit: mm

Type	Length ± 1	Width ± 1	Thickness -0.04
SF-1SP	500	125	1.0
SF-1SP	500	125	1.5
SF-1SP	500	125	2.0
SF-1SP	500	125	2.5
SF-1SP	500	125	3.0

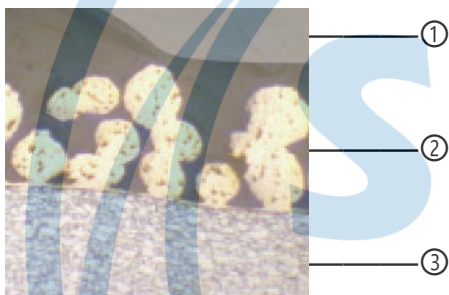
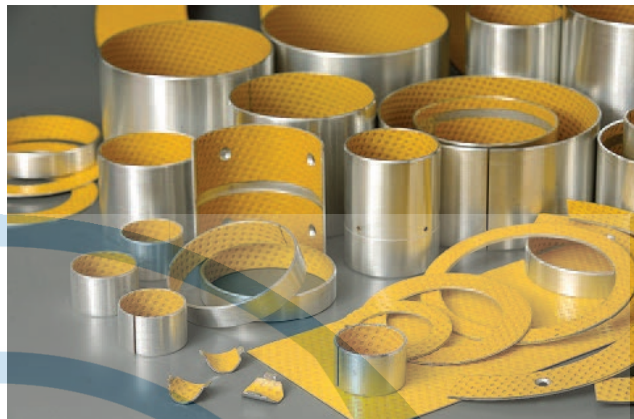
Self-Lubricating Bushings

SF-2 Series Boundary Lubricating Bushings



Structure

1. **POM thickness 0.30~0.50mm**, provides good wear resistance. This bearing surface carries a pattern of circular indents which should be filled with grease on assembly of the bearing.
2. **Sintered bronze thickness 0.20~0.35mm**, provides strong mechanical bond and excellent thermal conductivity.
3. **Low-carbon steel**, provides mechanical strength and thermal conductivity.



Features

It is suitable for boundary lubricating applications. It is recommended to lubricate the components with grease before assembling. The oil indents can hold the lubricant with optimized matrix. Lubricating during the operation helps to prolong the bearing duration. The low friction coefficient, good wear resistance and reliable loading capacity of the bearing ensure a suitable applications under low speed rotating and oscillating motion. SF-2 is a material with POM thickness of 0.2~0.35mm without oil indents on the surface, it is a machinable material after assembling

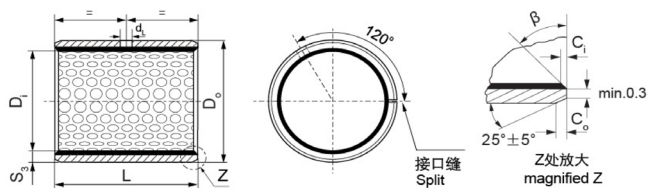
Tech. Data						
Max. load	Static	250N/mm ²		Operation Temperature range		-40°C~+110°C
	Very low speed	140N/mm ²		Max. speed	Greased	2m/s
	Rotating oscillating	70N/mm ²			Continuous oiling	>2m/s
Max. PV Grease Lubricated		3N/mm ² *m/s		Thermal conductivity		50 W(m*K) ⁻¹
Coefficient of thermal expansion		11*10-6*K-1		Friction coefficient		0.05~0.20
The oil indents have to be filled with grease before bearing assembling						

Typical Applications

The material has good wear resistance and it is suitable for middle to high load applications under the work conditions of impact load and dusty environment. A pre-lubricating is necessary before assembling. The applications of this material include the commercial vehicle axel, brake system, suspension system, agricultural machinery, forest machinery and material handling machinery. It could be used to replace some traditional steel or bronze sleeves .

Self-Lubricating Bushings

SF-2 Series Boundary Lubricating Bushings Metric Size



内外倒角 ID and OD chamfers

S_3	C_2	C_1	β	S_3	C_2	C_1	β
1.0	0.6 ± 0.3	0.30 ± 0.2	$30^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$30^\circ \pm 5^\circ$
1.5	0.7 ± 0.3	0.50 ± 0.2	$30^\circ \pm 5^\circ$	2.50	1.8 ± 0.6	0.60 ± 0.3	$45^\circ \pm 5^\circ$

Unit: mm

d	D	Axle	Housing	Wall thickness		Oil hole	f ₁	f ₂	Length ⁰ _{-0.4} (^{<Φ28 L-0.3} ^{>Φ30 L-0.4})										
				H17	min				max	10	15	20	25	30	35	40	45		50
10	12	10 _{-0.022}	12 ^{+0.018}	0.955	0.980	4	0.5	0.3	SF-2 1010	SF-2 1015	SF-2 1020								
12	14	12 _{-0.027}	14 ^{+0.018}						SF-2 1210	SF-2 1215	SF-2 1220								
14	16	14 _{-0.027}	16 ^{+0.018}						SF-2 1415	SF-2 1420									
15	17	15 _{-0.027}	17 ^{+0.018}						SF-2 1515	SF-2 1520	SF-2 1525								
16	18	16 _{-0.027}	18 ^{+0.018}						SF-2 1615	SF-2 1620	1625								
18	20	18 _{-0.027}	20 ^{+0.021}								SF-2 1820	SF-2 1825		SF-2 1425					
20	23	20 _{-0.033}	23 ^{+0.21}	1.445	1.475		0.8	0.4	2015	SF-2 2020	SF-2 2025	SF-2 2030		SF-2 1525					
22	25	22 _{-0.033}	25 ^{+0.021}						2215	SF-2 2220	SF-2 2225								
25	28	25 _{-0.033}	28 ^{+0.021}						2515	SF-2 2520	SF-2 2525	2530							
28	32	28 _{-0.033}	32 ^{+0.025}	1.935	1.970	6	1	0.6		SF-2 2820		SF-2 2830							
30	34	30 _{-0.033}	34 ^{+0.025}							SF-2 3020	SF-2 3025	SF-2 3030		SF-2 3040					
35	39	35 _{-0.039}	39 ^{+0.025}							SF-2 3520		SF-2 3530	SF-2 3535	SF-2 3540					
40	44	40 _{-0.039}	44 ^{+0.025}							SF-2 4020		SF-2 4030		SF-2 4040		SF-2 4050			
45	50	45 _{-0.039}	50 ^{+0.025}	2.415	2.460	8	1.2	0.8			SF-2 4520	SF-2 2512	SF-2 4530		SF-2 4540	SF-2 4545	SF-2 4550		
50	55	50 _{-0.039}	55 ^{+0.025}										SF-2 5030		SF-2 5040		SF-2 5050	SF-2 5060	
55	60	55 _{-0.046}	60 ^{+0.025}									SF-2 3012	SF-2 5530		SF-2 5540		SF-2 5550	SF-2 5560	
60	65	60 _{-0.046}	65 ^{+0.025}										SF-2 6030		SF-2 6040		SF-2 6050	SF-2 6060	

Self-Lubricating Bushings

SF-2 Series Boundary Lubricating Bushings Metric Size



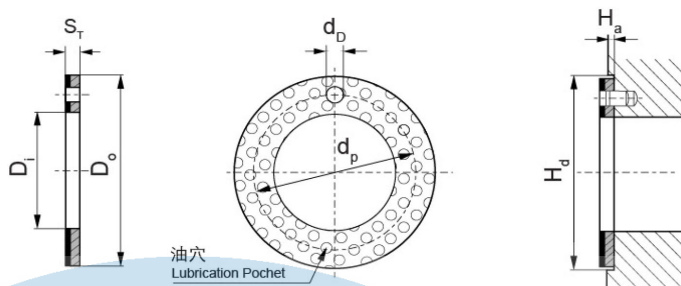
Unit: mm

d	D	Axle	Housing	Wall Thickness		Oil Hole	f ₁	f ₁	Length								
									0								
				H7	min	max			-0.40								
65	70	65 -0.046	70 +0.030						SF-2 6540		SF-2 6560						
70	75	70 -0.046	75 +0.030	2.415	2.460	8	1.2	0.8	SF-2 7040	SF-2 7050		SF-2 7080					
75	80	75 -0.046	80 +0.030						SF-2 7540		SF-2 7560	SF-2 7580					
80	85	80 -0.046	85 +0.035						SF-2 8040		SF-2 8060	SF-2 8080					
85	90	85 -0.054	90 +0.035						SF-2 8540		SF-2 8560	SF-2 8580					
90	95	90 -0.054	95 +0.035				1.4	0.8	SF-2 9040		SF-2 9060	SF-2 9080	SF-2 9090				
100	105	100 -0.054	105 +0.035							SF-2 10050		SF-2 10080		SF-2 10095			
105	110	105 -0.054	110 +0.035								SF-2 10560	SF-2 10580		SF-2 10595		SF-2 105110	
110	115	110 -0.054	115 +0.035			9.5					SF-2 11060	SF-2 11080		SF-2 11095		SF-2 110110	
120	125	120 -0.054	125 +0.040								SF-2 12060	SF-2 12080				SF-2 120110	
125	130	125 -0.063	130 +0.040								SF-2 12560					SF-2 125110	
130	135	130 -0.063	135 +0.040							SF-2 13050	SF-2 13060	SF-2 13080			SF-2 130100		
140	145	140 -0.063	145 +0.040							SF-2 14050	SF-2 14060	SF-2 14080			SF-2 140100		
150	155	150 -0.063	155 +0.040							SF-2 15050	SF-2 15060	SF-2 15080			SF-2 150100		
160	165	160 -0.063	165 +0.040	2.385						SF-2 16050	SF-2 16060	SF-2 16080			SF-2 160100		
170	175	170 -0.063	175 +0.040							SF-2 17050		SF-2 17080			SF-2 170100		
180	185	180 -0.063	185 +0.046			9.5				SF-2 18050	SF-2 18060	SF-2 18080			SF-2 180100		
190	195	190 -0.072	195 +0.046				1.4	0.8		SF-2 19050	SF-2 19060	SF-2 19080			SF-2 190100		SF-2 190120
200	205	200 -0.072	205 +0.046							SF-2 20050	SF-2 20060	SF-2 20080			SF-2 200100		SF-2 200120
220	225	220 -0.072	225 +0.046							SF-2 22050	SF-2 22060	SF-2 22080			SF-2 220100		SF-2 220120
240	245	240 -0.072	245 +0.046							SF-2 24050	SF-2 24060	SF-2 24080			SF-2 240100		SF-2 240120
250	255	250 -0.072	255 +0.052							SF-2 25050	SF-2 25060	SF-2 25080			SF-2 250100		SF-2 250120
260	265	260 -0.081	265 +0.052			9.5				SF-2 26050	SF-2 26060	SF-2 26080			SF-2 260100		SF-2 260120
280	285	280 -0.081	285 +0.052							SF-2 28050	SF-2 28060	SF-2 28080			SF-2 280100		SF-2 280120
300	305	300 -0.081	305 +0.052							SF-2 30050	SF-2 30060	SF-2 30080			SF-2 300100		SF-2 300120

Note: We are also able to supply bearing length that are not specified in the table.

Self-Lubricating Bushings

SF-2 Series Thrust Washer Metric Size

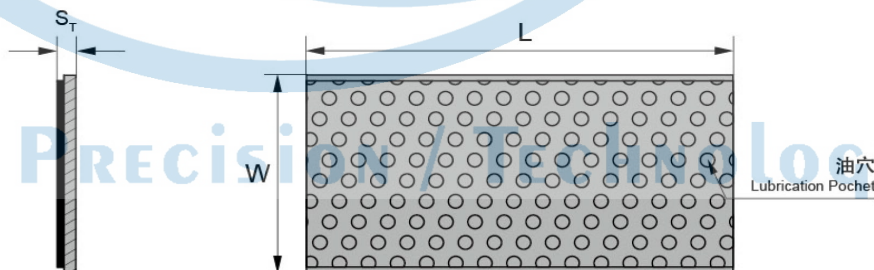


Unit: mm

Axle	Designation	Size of Washer				Installation size		
		d+0.25	D-0.25	T-0.05	M±0.125	$\begin{matrix} h & +0.4 \\ & -0.1 \end{matrix}$	t ±0.2	D ₁ +0.12
8	SF2WC10	10	20	1.5	15	1.5	1	20
10	SF2WC12	12	24		18			24
12	SF2WC14	14	26		20			
14	SF2WC16	16	30		23	2		30
16	SF2WC18	18	32		25			32
18	SF2WC20	20	36		28	3		36
20	SF2WC22	22	38		30			38
22	SF2WC24	24	42		33			42
24	SF2WC26	26	44		35			44
26	SF2WC28	28	48		38			4
30	SF2WC32	32	54		43	54		
36	SF2WC38	38	62		50	62		
40	SF2WC42	42	66		54	66		
46	SF2WC48	48	74	61	1.5	74		
50	SF2WC52	52	78	65		78		
60	SF2WC62	62	90	76		90		

Statement: A dowel or counter sunk screw should be used to prevent rotation, but the head must be recessed at least 0.25mm below the thrust bearing surface.

SF-2 Series Metric Strip



Unit: mm

Type	Length ± 1	Width ± 1	Thickness -0.05
SF-2SP	500	150	1.0
SF-2SP	500	150	1.5
SF-2SP	500	150	2.0
SF-2SP	500	150	2.5

Tolerance for Standard Bushings

The wall thickness tolerance of SF-1, SF-1F is according to DIN1494 part 2

Unit: mm

Metric bushing bore	Metric Wall thickness	Tolerance of wall thickness
5~19	1.0	+0.005 -0.020
20~27	1.5	+0.005 -0.025
28~44	2.0	+0.005 -0.030
45~79	2.5	+0.005 -0.040
80~119	2.5	-0.010 -0.060
120~300	2.5	-0.035 -0.085

The OD. tolerance of SF-1, SF-2 and SF-1F bushings is according to DIN1494 part 2

Unit: mm

Outer diameter	Tolerance of outer diameter
≤10	+0.055 +0.025
10~18	+0.065 +0.030
18~30	+0.075 +0.035
30~40	+0.085 +0.045
40~50	+0.085 +0.045
50~80	+0.100 +0.055
80~105	+0.120 +0.070
105~180	+0.170 +0.100
180~250	+0.210 +0.130
250~305	+0.260 +0.170