

CSB-11 Bronze Backed with Bronze Powder PTFE/Fibre Dry Bearings RoHS

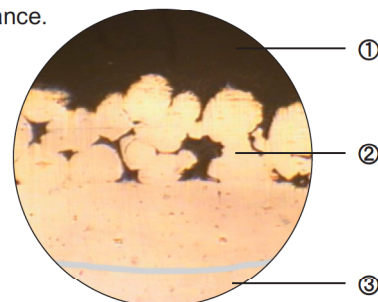


Features

Suitable for dry running, low coefficient of friction, lower wear, good sliding characteristics, the transfer film created can protect the mating metal surface, suitable for rotary and oscillating movement. Very high chemical resistance, low absorption of water and swelling, also performs very good lubrication feature, the bronze backing provides the improved corrosion resistance comparing with CSB-50.

Structure

- 1. PTFE/fibre mixture thickness 0.01~0.03mm**, provides an excellent initial transfer film, which effectively coats the mating surfaces of the bearing assembly, forming an oxide type solid lubricant film.
- 2. Sintered bronze powder thickness 0.20-0.35mm**, provides max. thermal conductivity away from the bearing surface, also serves as a reservoir for the PTFE/Fibre mixture.
- 3. Bronze backing**, provides **exceptionally high load carrying capacity**, excellent heat dissipation and very good corrosion resistance.



Tech. Data

Max. load	Static	250N/mm ²	Max. speed	Friction coefficient	0.03~0.20
	Very low speed	140N/mm ²		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		60W(m*K) ⁻¹
	Continuous operation	1.8N/mm ² *m/s	Coefficient of thermal expansion		18*10 ⁻⁶ *K ⁻¹
Temp. limit		-195℃~+280℃			

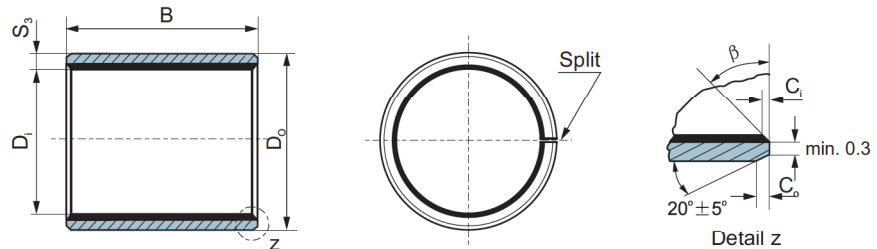
Typical Applications

This material meets the demanding criteria for long life and trouble-free performance with or without lubricant, of high safety factor even.

The bronze backing provides a high corrosion resistance, anti magnetic properties and a good thermal conductivity, The bearings are particularly appropriate for high

temperature environment where no oil is efficient and the machine must be under successive long period working condition. The typical applications covered Steel metallurgy industry such as bushes for roller grooves of successive casting machines, cement grouting pumps and screw conveyers for cement and so on.

CSB-11 Metric Cylindrical Bushes



ID and OD chamfers

S_3	C_o	C_i	β	S_3	C_o	C_i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	$30^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$30^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$30^\circ \pm 5^\circ$	2.50	1.8 ± 0.6	0.60 ± 0.3	$45^\circ \pm 5^\circ$
1.50	0.7 ± 0.3	0.50 ± 0.3	$30^\circ \pm 5^\circ$				

Unit:mm

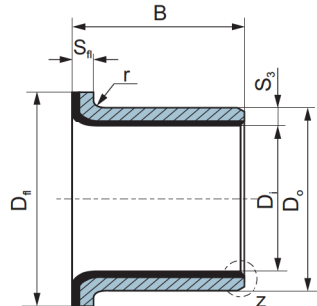
Shaft D _s	Housing H7 D _H	OD tolerance D _o	ID after fixed D _{i,a}	Clearance C _o	Wall thick- ness S ₃	B ⁰ _{-0.40} (d≤ φ30 B -0.3 d> φ30 B -0.4)									
						6	8	10	12	15	20	25	30	40	50
6 ^{-0.010 -0.022}	8 ^{+0.015}	8 ^{+0.055 +0.025}	6.055 5.990	0.077 0.000	1.005 0.980	CSB-11 0606	CSB-11 0608	CSB-11 0610							
8 ^{-0.013 -0.028}	10 ^{+0.015}	10 ^{+0.055 +0.025}	8.055 7.990	0.083 0.003		CSB-11 0806	CSB-11 0808	CSB-11 0810	CSB-11 0812	CSB-11 0815					
10 ^{-0.013 -0.028}	12 ^{+0.018}	12 ^{+0.065 +0.030}	10.058 9.990	0.086 0.003		CSB-11 1006	CSB-11 1008	CSB-11 1010	CSB-11 1012	CSB-11 1015	CSB-11 1020				
12 ^{-0.016 -0.034}	14 ^{+0.018}	14 ^{+0.065 +0.030}	12.058 11.990	0.092 0.006		CSB-11 1206	CSB-11 1208	CSB-11 1210	CSB-11 1212	CSB-11 1215	CSB-11 1220	CSB-11 1225			
13 ^{-0.016 -0.034}	15 ^{+0.018}	15 ^{+0.065 +0.030}	13.058 12.990					CSB-11 1310			CSB-11 1320				
14 ^{-0.016 -0.034}	16 ^{+0.018}	16 ^{+0.065 +0.030}	14.058 13.990					CSB-11 1410	CSB-11 1412	CSB-11 1415	CSB-11 1420	CSB-11 1425			
15 ^{-0.016 -0.034}	17 ^{+0.018}	17 ^{+0.065 +0.030}	15.058 14.990					CSB-11 1510	CSB-11 1512	CSB-11 1515	CSB-11 1520	CSB-11 1525			
16 ^{-0.016 -0.034}	18 ^{+0.018}	18 ^{+0.065 +0.030}	16.058 15.990					CSB-11 1610	CSB-11 1612	CSB-11 1615	CSB-11 1620	CSB-11 1625			
17 ^{-0.016 -0.034}	19 ^{+0.021}	19 ^{+0.075 +0.035}	17.061 16.990	0.095 0.006				CSB-11 1710	CSB-11 1712		CSB-11 1720				
18 ^{-0.016 -0.034}	20 ^{+0.021}	20 ^{+0.075 +0.035}	18.061 17.990					CSB-11 1810	CSB-11 1812	CSB-11 1815	CSB-11 1820	CSB-11 1825			
20 ^{-0.020 -0.041}	23 ^{+0.021}	23 ^{+0.075 +0.035}	20.071 19.990	0.112 0.010	1.505 1.475			CSB-11 2010	CSB-11 2012	CSB-11 2015	CSB-11 2020	CSB-11 2025	CSB-11 2030		
22 ^{-0.020 -0.041}	25 ^{+0.021}	25 ^{+0.075 +0.035}	22.071 21.990					CSB-11 2210	CSB-11 2212	CSB-11 2215	CSB-11 2220	CSB-11 2225	CSB-11 2230		
24 ^{-0.020 -0.041}	27 ^{+0.021}	27 ^{+0.075 +0.035}	24.071 23.990							CSB-11 2415	CSB-11 2420	CSB-11 2425	CSB-11 2430		
25 ^{-0.020 -0.041}	28 ^{+0.021}	28 ^{+0.075 +0.035}	25.071 24.990					CSB-11 2510	CSB-11 2512	CSB-11 2515	CSB-11 2520	CSB-11 2525	CSB-11 2530	CSB-11 2540	CSB-11 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					CSB-11 2815	CSB-11 2820	CSB-11 2825	CSB-11 2830	CSB-11 2840	
30 ^{-0.020 -0.041}	34 ^{+0.025}	34 ^{+0.085 +0.045}	30.085 29.990						CSB-11 3012	CSB-11 3015	CSB-11 3020	CSB-11 3025	CSB-11 3030	CSB-11 3040	
32 ^{-0.025 -0.050}	36 ^{+0.025}	36 ^{+0.085 +0.045}	32.085 31.990	0.135 0.015						CSB-11 3220		CSB-11 3230	CSB-11 3240		
35 ^{-0.025 -0.050}	39 ^{+0.025}	39 ^{+0.085 +0.045}	35.085 34.990						CSB-11 3512	CSB-11 3515	CSB-11 3520	CSB-11 3525	CSB-11 3530	CSB-11 3540	CSB-11 3550
38 ^{-0.025 -0.050}	42 ^{+0.025}	42 ^{+0.085 +0.045}	38.085 37.990							CSB-11 3815			CSB-11 3830	CSB-11 3840	
40 ^{-0.025 -0.050}	44 ^{+0.025}	44 ^{+0.085 +0.045}	40.085 39.990						CSB-11 4012		CSB-11 4020	CSB-11 4025	CSB-11 4030	CSB-11 4040	CSB-11 4050

CSB-11 Metric Cylindrical Bushes

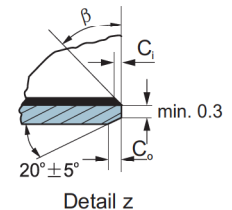
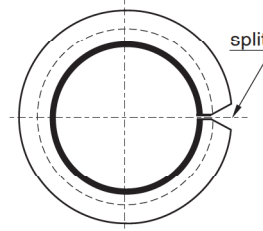
Unit:mm

Shaft D _s	Housing H7 D _H	OD tolerance D _O	ID after fixed D _{I,a}	Clearance C _D	Wall thick- ness S ₃	B 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	CSB-11 4520	CSB-11 4525	CSB-11 4530	CSB-11 4540	CSB-11 4550							
50 ^{-0.050} _{-0.025}	55 ^{+0.030}	55 ^{+0.100} _{+0.055}	50.110 49.990	0.160 0.015		CSB-11 5020		CSB-11 5030	CSB-11 5040	CSB-11 5050	CSB-11 5060						
55 ^{-0.060} _{-0.030}	60 ^{+0.030}	60 ^{+0.100} _{+0.055}	55.110 54.990	0.170 0.020				CSB-11 5530	CSB-11 5540	CSB-11 5550	CSB-11 5560						
60 ^{-0.060} _{-0.030}	65 ^{+0.030}	65 ^{+0.100} _{+0.055}	60.110 59.990					CSB-11 6030	CSB-11 6040	CSB-11 6050	CSB-11 6060	CSB-11 6070					
65 ^{-0.060} _{-0.030}	70 ^{+0.030}	70 ^{+0.100} _{+0.055}	65.110 64.990					CSB-11 6530	CSB-11 6540	CSB-11 6550	CSB-11 6560	CSB-11 6570					
70 ^{-0.060} _{-0.030}	75 ^{+0.030}	75 ^{+0.100} _{+0.055}	70.110 69.990						CSB-11 7040	CSB-11 7050	CSB-11 7060	CSB-11 7070	CSB-11 7080				
75 ^{-0.060} _{-0.030}	80 ^{+0.030}	80 ^{+0.100} _{+0.055}	75.110 74.990					CSB-11 7530	CSB-11 7540	CSB-11 7550	CSB-11 7560	CSB-11 7570	CSB-11 7580				
80 ^{-0.046}	85 ^{+0.035}	85 ^{+0.120} _{+0.070}	80.155 80.020	0.201 0.020	2.490 2.440				CSB-11 8040	CSB-11 8050	CSB-11 8060	CSB-11 8070	CSB-11 8080	CSB-11 80100			
85 ^{-0.054}	90 ^{+0.035}	90 ^{+0.120} _{+0.070}	85.155 85.020	0.209 0.020					CSB-11 8540		CSB-11 8560		CSB-11 8580	CSB-11 85100			
90 ^{-0.054}	95 ^{+0.035}	95 ^{+0.120} _{+0.070}	90.155 90.020						CSB-11 9040	CSB-11 9050	CSB-11 9060		CSB-11 9080	CSB-11 90100			
95 ^{-0.054}	100 ^{+0.035}	100 ^{+0.120} _{+0.070}	95.155 95.020							CSB-11 9550	CSB-11 9560		CSB-11 9580	CSB-11 95100			
100 ^{-0.054}	105 ^{+0.035}	105 ^{+0.120} _{+0.070}	100.155 100.020							CSB-11 10050	CSB-11 10060		CSB-11 10080		CSB-11 100115		
105 ^{-0.054}	110 ^{+0.035}	110 ^{+0.120} _{+0.070}	105.155 105.020								CSB-11 10560		CSB-11 10580		CSB-11 105115		
110 ^{-0.054}	115 ^{+0.035}	115 ^{+0.120} _{+0.070}	110.155 110.020								CSB-11 11060		CSB-11 11080		CSB-11 110115		
120 ^{-0.054}	125 ^{+0.040}	125 ^{+0.170} _{+0.100}	120.210 120.070	0.264 0.070	2.465 2.415						CSB-11 12060		CSB-11 12080	CSB-11 120100			
125 ^{-0.063}	130 ^{+0.040}	130 ^{+0.170} _{+0.100}	125.210 125.070	0.273 0.070								CSB-11 12560			CSB-11 125100	CSB-11 125115	
130 ^{-0.063}	135 ^{+0.040}	135 ^{+0.170} _{+0.100}	130.210 130.070									CSB-11 13060		CSB-11 13080	CSB-11 130100		
140 ^{-0.063}	145 ^{+0.040}	145 ^{+0.170} _{+0.100}	140.210 140.070									CSB-11 14060		CSB-11 14080	CSB-11 140100		
150 ^{-0.063}	155 ^{+0.040}	155 ^{+0.170} _{+0.100}	150.210 150.070									CSB-11 15060		CSB-11 15080	CSB-11 150100		
160 ^{-0.063}	165 ^{+0.040}	165 ^{+0.170} _{+0.100}	160.210 160.070									CSB-11 16060		CSB-11 16080	CSB-11 160100	CSB-11 160115	
180 ^{-0.063}	185 ^{+0.046}	185 ^{+0.210} _{+0.130}	180.216 180.070	0.279 0.070	2.465 2.415								CSB-11 18080	CSB-11 180100			
190 ^{-0.072}	195 ^{+0.046}	195 ^{+0.210} _{+0.130}	190.216 190.070	0.288 0.070										CSB-11 19080	CSB-11 190100		
200 ^{-0.072}	205 ^{+0.046}	205 ^{+0.210} _{+0.130}	200.216 200.070									CSB-11 20060		CSB-11 20080	CSB-11 200100		
220 ^{-0.072}	225 ^{+0.046}	225 ^{+0.210} _{+0.130}	220.216 220.070											CSB-11 22080	CSB-11 220100		
250 ^{-0.072}	255 ^{+0.052}	255 ^{+0.260} _{+0.170}	250.222 250.070	0.294 0.070	2.465 2.415								CSB-11 25080	CSB-11 250100			
260 ^{-0.081}	265 ^{+0.052}	265 ^{+0.260} _{+0.170}	260.222 260.070	0.303 0.070										CSB-11 26080	CSB-11 260100		
280 ^{-0.081}	285 ^{+0.052}	285 ^{+0.260} _{+0.170}	280.222 280.070												CSB-11 28080	CSB-11 280100	
300 ^{-0.081}	305 ^{+0.052}	305 ^{+0.260} _{+0.170}	300.222 300.070												CSB-11 30080	CSB-11 300100	

CSB-11 Metric Flange Bushes



S_3	1.0	1.5	2.0	2.5
r	$1^{+0.5}$	1 ± 0.5	1.5 ± 0.5	2 ± 0.5

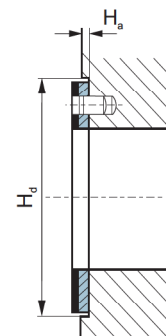
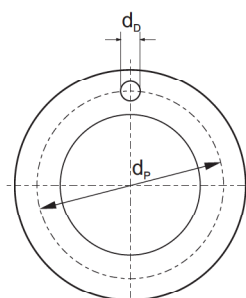
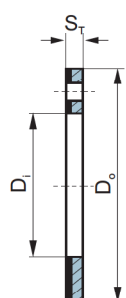


Unit:mm

Shaft D _s	Housing H7 D _H	OD tolerance D _o	ID after fixed D _{i,a}	Clearance C _D	Designation	Wall thickness S ₃	Dimension				
							D _i	D _o	D _s ± 0.5	B±0.25	S _f -0.2
6 ^{-0.013 -0.028}	8 ^{+0.015}	8 ^{+0.055 +0.025}	6.055 5.990	0.077 0.000	CSB-11F06040	1.005 0.980	6	8	12	4	1
					CSB-11F06070					7	
8 ^{-0.013 -0.028}	10 ^{+0.015}	10 ^{+0.055 +0.025}	8.055 7.990	0.083 0.003	CSB-11F08055		8	10	15	5.5	
					CSB-11F08075					7.5	
10 ^{-0.016 -0.034}	12 ^{+0.018}	12 ^{+0.055 +0.025}	10.058 9.990	0.086 0.003	CSB-11F10070		10	12	18	7	
					CSB-11F10090					9	
					CSB-11F10120					12	
12 ^{-0.016 -0.034}	14 ^{+0.018}	14 ^{+0.065 +0.030}	12.058 11.990	0.092 0.006	CSB-11F12070		12	14	20	7	
					CSB-11F12090					9	
					CSB-11F12120					12	
14 ^{-0.016 -0.034}	16 ^{+0.018}	16 ^{+0.065 +0.030}	14.058 13.990		CSB-11F14120		14	16	22	12	
					CSB-11F14170					17	
					CSB-11F15090					9	
15 ^{-0.016 -0.034}	17 ^{+0.018}	17 ^{+0.065 +0.030}	15.058 14.990		CSB-11F15120		15	17	23	12	
					CSB-11F15170					17	
					CSB-11F16120					16	
CSB-11F16170	17										
16 ^{-0.016 -0.034}	18 ^{+0.018}	18 ^{+0.065 +0.030}	16.058 15.990		CSB-11F18120		18	20	26	12	
					CSB-11F18170					17	
				CSB-11F18200	20						
18 ^{-0.016 -0.034}	20 ^{+0.021}	20 ^{+0.075 +0.035}	18.061 17.990	0.095 0.006	CSB-11F20115	1.505 1.475	20	23	30	11.5	1.5
					CSB-11F20165					16.5	
					CSB-11F20215					21.5	
22 ^{-0.020 -0.041}	25 ^{+0.021}	25 ^{+0.075 +0.035}	22.071 21.990	0.112 0.010	CSB-11F22150		22	25	32	15	
					CSB-11F22200					20	
					CSB-11F25115		25	28	35	11.5	
CSB-11F25165	16.5										
CSB-11F25215	21.5										
30 ^{-0.025 -0.050}	34 ^{+0.025}	34 ^{+0.075 +0.035}	30.085 29.990	0.126 0.010	CSB-11F30160	2.005 1.970	30	34	42	16	2
					CSB-11F30260					26	
35 ^{-0.025 -0.050}	39 ^{+0.025}	39 ^{+0.085 +0.045}	35.085 34.990	0.135 0.015	CSB-11F35160		35	39	47	16	
					CSB-11F35260					26	
40 ^{-0.025 -0.050}	44 ^{+0.025}	44 ^{+0.085 +0.045}	40.085 39.990		CSB-11F40260		40	44	53	26	
					CSB-11F40400					40	

CSB-11 Metric Thrust Washer and Strip

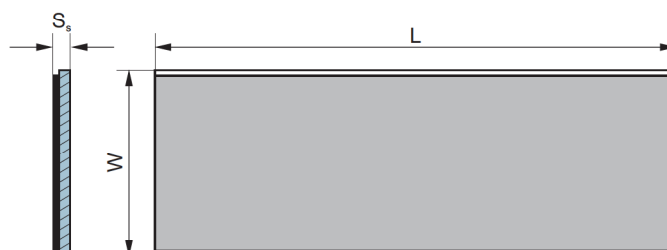
Metric thrust washer



Unit:mm

Shaft D _s	Designation	Washer dimension				Installation size		H _d ± 0.12
		D _i +0.25	D _o -0.25	S _T -0.05	d _p ± 0.125	d _b ^{+0.4} _{-0.1}	H _a ± 0.2	
8	CSB-11WC10	10	20	1.5	15	1.5	1	20
10	CSB-11WC12	12	24		18			24
12	CSB-11WC14	14	26		20			26
14	CSB-11WC16	16	30		23	2		30
16	CSB-11WC18	18	32		25			32
18	CSB-11WC20	20	36		28			36
20	CSB-11WC22	22	38		30	3		38
22	CSB-11WC24	24	42		33			42
24	CSB-11WC26	26	44		35			44
26	CSB-11WC28	28	48		38	4		48
30	CSB-11WC32	32	54		43			54
36	CSB-11WC38	38	62		50			62
40	CSB-11WC42	42	66		54			66
46	CSB-11WC48	48	74	2	61	1.5	74	
50	CSB-11WC52	52	78		65		78	
60	CSB-11WC62	62	90		76		90	

Metric standard strip



Unit:mm

Type	Length ± 1	Width ± 1	Thickness -0.05
CSB-11SP	500	150	1.0
CSB-11SP	500	150	1.5
CSB-11SP	500	150	2.0
CSB-11SP	500	150	2.5