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Bi-metallic Composite Bearings



Bi-metallic Composite Bearings

CSB800: Steel with bronze Powder

CSB850BP: Metal backed bronze powder with solid lubricants

CSB850S: Metal backed bronze powder with graphite

P40-P43

P44-P48

P49-P55

CSB-800 Bimetal Wrapped Bearings

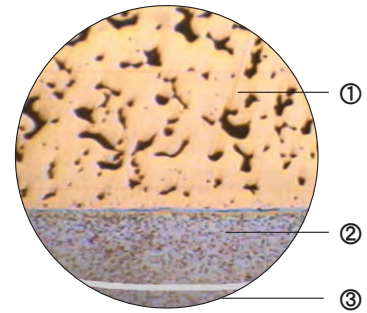


Features

Steel shell backed with a lead bronze lining bearing material for oil lubricated applications. This material has high load capacity and good fatigue properties. It is widely used in automotive applications such as compressors, steering gear, power steering, pedal bearings, king-pin bushes, tailgate pivots, mechanical handling and lifting equipment, hydraulic motors, agricultural machinery etc.

Structure

- Sinter bronze powder:** good wear resistance and excellent load carrying capacity.
- Steel backing:** provides exceptionally high load carrying capacity, excellent heat dissipation.
- Copper plating thickness 0.002mm** provides good corrosion resistance.



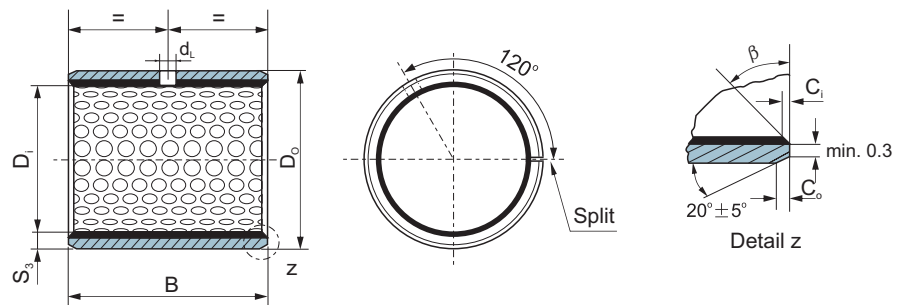
Chemical Compositions

Material	Alloy composition	International standard	Alloy hardness
CSB-800	CuPb10Sn10	JIS-LBC3/SAE-797	HB70-100
CSB-720	CuPb24Sn4	JIS-LBC6/SAE-799	HB45-70
CSB-700	CuPb30	JIS-KJ3/SAE-48	HB30-45
CSB-J20	AlSn20Cu	JIS-AJL/SAE-783	HB30-40

CSB-800 Tech. Data

Max. load	Static	250N/mm ²	Alloy hardness	HB 70~100
	Dynamic	140N/mm ²		
Max. speed (Lubricated)		2m/s	Temp.	-40℃~+250℃
Max. PV		2.8N/mm ² *m/s	Friction coefficient	0.05~0.20
Breaking Load		350N/mm ²	Thermal conductivity	60W(m*k) ⁻¹
			Coef. of thermal expansion	14*10 ⁻⁶ *K ⁻¹

CSB-800 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	$35^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$35^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$35^\circ \pm 5^\circ$	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	$35^\circ \pm 5^\circ$				

Unit:mm

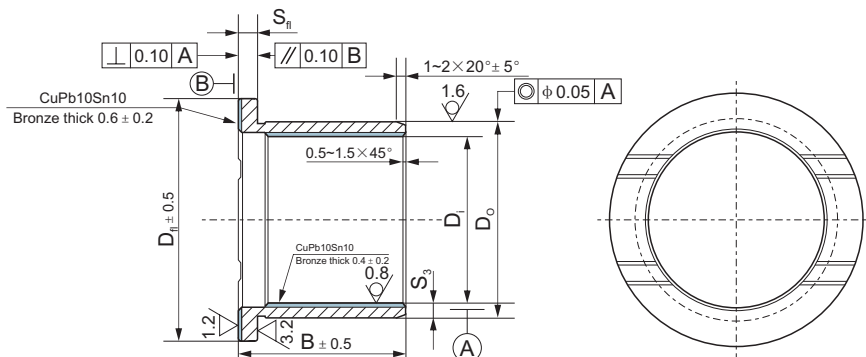
D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Oil hole d _L	B ⁰ _{-0.40}						
								10	15	20	25	30	40	50
10	12	10 _{-0.022}	12 ^{+0.018}	+0.148 +0.010	0.175 0.010	0.995 0.935	4	CSB-800 1010	CSB-800 1015	CSB-800 1020				
12	14	12 _{-0.027}	14 ^{+0.018}					CSB-800 1210	CSB-800 1215	CSB-800 1220				
14	16	14 _{-0.027}	16 ^{+0.018}					CSB-800 1410	CSB-800 1415	CSB-800 1420				
15	17	15 _{-0.027}	17 ^{+0.018}					CSB-800 1510	CSB-800 1515	CSB-800 1520				
16	18	16 _{-0.027}	18 ^{+0.018}					CSB-800 1610	CSB-800 1615	CSB-800 1620				
18	20	18 _{-0.027}	20 ^{+0.021}	+0.151 +0.010	0.178 0.010	1.490 1.430	6	CSB-800 1810	CSB-800 1815	CSB-800 1820	CSB-800 1825			
20	23	20 _{-0.033}	23 ^{+0.021}	+0.161 +0.020	0.194 0.020			CSB-800 2010	CSB-800 2015	CSB-800 2020	CSB-800 2025			
22	25	22 _{-0.033}	25 ^{+0.021}					CSB-800 2210	CSB-800 2215	CSB-800 2220	CSB-800 2225			
24	27	24 _{-0.033}	27 ^{+0.021}					CSB-800 2410	CSB-800 2415	CSB-800 2420	CSB-800 2425	CSB-800 2430		
25	28	25 _{-0.033}	28 ^{+0.021}						CSB-800 2515	CSB-800 2520	CSB-800 2525	CSB-800 2530		
26	30	26 _{-0.033}	30 ^{+0.021}	+0.181 +0.040	0.214 0.040	1.980 1.920	8		CSB-800 2615	CSB-800 2620	CSB-800 2625	CSB-800 2630		
28	32	28 _{-0.033}	32 ^{+0.025}	+0.185 +0.040	0.218 0.040				CSB-800 2815	CSB-800 2820	CSB-800 2825	CSB-800 2830	CSB-800 2840	
30	34	30 _{-0.033}	34 ^{+0.025}						CSB-800 3015	CSB-800 3020	CSB-800 3025	CSB-800 3030	CSB-800 3040	
32	36	32 _{-0.039}	36 ^{+0.025}						CSB-800 3215	CSB-800 3220	CSB-800 3225	CSB-800 3230	CSB-800 3240	
35	39	35 _{-0.039}	39 ^{+0.025}							CSB-800 3520	CSB-800 3525	CSB-800 3530	CSB-800 3540	CSB-800 3550
38	42	38 _{-0.039}	42 ^{+0.025}		0.224 0.040		8			CSB-800 3820	CSB-800 3825	CSB-800 3830	CSB-800 3840	CSB-800 3850
40	44	40 _{-0.039}	44 ^{+0.025}							CSB-800 4020	CSB-800 4025	CSB-800 4030	CSB-800 4040	CSB-800 4050

CSB-800 Metric Cylindrical Bushes

Unit:mm

D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Oil hole d _L	B 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	CSB-800 4525	CSB-800 4530	CSB-800 4540	CSB-800 4550						
50	55	50 _{-0.039}	55 ^{+0.030}	+0.230 +0.080	0.269 0.080				CSB-800 5030	CSB-800 5040	CSB-800 5050	CSB-800 5060					
55	60	55 _{-0.046}	60 ^{+0.030}		0.276 0.080				CSB-800 5530	CSB-800 5540	CSB-800 5550	CSB-800 5560					
60	65	60 _{-0.046}	65 ^{+0.030}						CSB-800 6030	CSB-800 6040	CSB-800 6050	CSB-800 6060					
65	70	65 _{-0.046}	70 ^{+0.030}						CSB-800 6530	CSB-800 6540	CSB-800 6550	CSB-800 6560					
70	75	70 _{-0.046}	75 ^{+0.030}						CSB-800 7030	CSB-800 7040	CSB-800 7050	CSB-800 7060	CSB-800 7080				
75	80	75 _{-0.046}	80 ^{+0.030}						CSB-800 7530	CSB-800 7540	CSB-800 7550	CSB-800 7560					
80	85	80 _{-0.046}	85 ^{+0.035}	+0.235 +0.080	0.281 0.080		9.5			CSB-800 8040	CSB-800 8050	CSB-800 8060	CSB-800 8080				
85	90	85 _{-0.054}	90 ^{+0.035}		0.289 0.080				CSB-800 8530		CSB-800 8550	CSB-800 8560	CSB-800 8580		CSB-800 85100		
90	95	90 _{-0.054}	95 ^{+0.035}								CSB-800 9050	CSB-800 9060	CSB-800 9080		CSB-800 90100		
95	100	95 _{-0.054}	100 ^{+0.035}									CSB-800 9560	CSB-800 9580	CSB-800 9590	CSB-800 95100		
100	105	100 _{-0.054}	105 ^{+0.035}									CSB-800 10060	CSB-800 10080	CSB-800 10090	CSB-800 100100		
105	110	105 _{-0.054}	110 ^{+0.035}									CSB-800 10560	CSB-800 10580		CSB-800 105100		
110	115	110 _{-0.054}	115 ^{+0.035}									CSB-800 11060	CSB-800 11080		CSB-800 110100		
115	120	115 _{-0.054}	120 ^{+0.035}		+0.240 +0.080			0.303 0.080				CSB-800 11550		CSB-800 11580			
120	125	120 _{-0.054}	125 ^{+0.040}									CSB-800 12050	CSB-800 12060			CSB-800 120100	
125	130	125 _{-0.063}	130 ^{+0.040}													CSB-800 125100	
130	135	130 _{-0.063}	135 ^{+0.040}										CSB-800 13060			CSB-800 130100	
135	140	135 _{-0.063}	140 ^{+0.040}											CSB-800 13560	CSB-800 13580		
140	145	140 _{-0.063}	145 ^{+0.040}											CSB-800 14060	CSB-800 14080		CSB-800 140100
150	155	150 _{-0.063}	155 ^{+0.040}											CSB-800 15060	CSB-800 15080		CSB-800 150100

MJF-800 Welding Flange Type Bushes



Unit:mm

D _{fl} ± 0.5		S ₃ ± 0.05		D _O		D _i		S _{fl}		B ± 0.5	
44	3.5	36	+0.15 +0.10	30	3	-0.05 -0.10	40				
45	4					-0.03 -0.08	30				
60	3.5					-0.09 -0.15	42				
52	4	41	+0.13 +0.08	35		0 -0.05	35				
54	3.5				42	+0.10 +0.05	3.5	-0.02 -0.07	30		
60	4.52	44	+0.14 +0.09	40	2	-0.03 -0.08	39.5				
53	4.5						40				
60	4						39.5				
66	4	45	2.4		40						
60	4.5	46	+0.12 +0.07	3	3	0 -0.05	39.5				
61	4						40				
62	4	47	+0.13 +0.07				3.5	-0.08 -0.13	49		
70	4.5	54	+0.19 +0.14	50	2	-0.03 -0.08	53				
68	4.52	54.9	+0.045 -0.005	48	3.5	-0.045 -0.095	41.3				
70	3.5	56	+0.16 +0.11	50	3	-0.09 -0.14	48				
76	3.5	57	+0.10 +0.05		3.5	+0.01 -0.04	54				
70.5	8	58	+0.14 +0.09		4	-0.11 -0.16	46				
92	4.52	60.6	+0.03 -0.02	54.4	3.1	+0.02 -0.03	59				
87	4.5	67	+0.15 +0.10	60	3.5	-0.06 -0.11	60				
77	4.5					-0.08 -0.13	65				
88	8				68	4	-0.075 -0.125	58			

D _{fl} ± 0.5		S ₃ ± 0.05		D _O		D _i		S _{fl}		B ± 0.5	
88	4.5	68	+0.15 +0.10	60	4	-0.07 -0.12	60				
87	4.5	69	+0.19 +0.14	65	2	-0.03 -0.08	64.5				
103	4.52	70.7	+0.09 +0.04	63.7	3.5	0 -0.05	65				
103	4.52			63.3	3.7	+0.01 -0.04	73				
86.4	4.5	72	+0.15 +0.09	65	3.5	-0.08 -0.13	64.5				
95	4.52		+0.27 +0.21			-0.045 -0.095	71.5				
95	3.5		+0.09 +0.03			-0.015 -0.065	64				
108	3.5		+0.11 +0.06			-0.03 -0.08	75				
87	4.5	74	+0.27 +0.21	70	4	+0.01 -0.04	53				
95	4.52		-0.045 -0.095			67.5					
99	4.5		+0.19 +0.14			-0.03 -0.08	74				
112	4.6	+0.27 +0.21	-0.04 -0.10			89.5					
95	4.5	77	+0.14 +0.09	75	3.5	-0.005 -0.055	72				
112	4.52		+0.27 +0.21			-0.075 -0.125	89.7				
93	6	78	+0.15 +0.09			4	-0.09 -0.14	71			
93	8	80	+0.16 +0.10	5	-0.075 -0.125	70					
107	4.5	83		4	-0.07 -0.13	74					
97	10	85	+0.17 +0.12	75	5	-0.10 -0.16	79.5				
97	5		+0.155 +0.095			-0.11 -0.17	70				
120	3.8	92.6	+0.16 +0.09	85	3.8	+0.06 0	93				
120	6	93			4	-0.11 -0.17	94				

The above mentioned sizes are only for reference, CSB can produce the parts according to the customers drawings.

CSB850BM Metal Backed Bronze Powder with Solid Lubricants

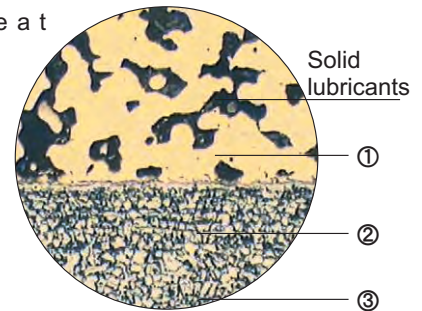


Structure

1. Sinter bronze powder with PTFE + graphite: good wear resistance with lower friction and excellent load carrying capacity. The material could be machined after fitting to get precision tolerance. CSB also can supply the bearings with PTFE or graphite sprayed layer on the work surface to get much lower start friction.

2. Metal backing: provides exceptionally high load carrying capacity and excellent heat dissipation.

3. Copper plating thickness 0.002mm provides good corrosion resistance.



Features

CSB850BM comprises a metal shell backed with sintered copper alloy which is uniformly dispersed with graphite and PTFE solid lubricants. The machined layer can not be exceeding the sintered layer thickness.

1. Suitable for hostile environments and high loads and where lubrication is difficult.
2. Suitable for rotary, oscillating and linear movements.
3. Suitable for micro-range movements.
4. No electrostatic charging.
5. Has low coefficient of friction without stick-slip effects.
6. Maintenance free operation.

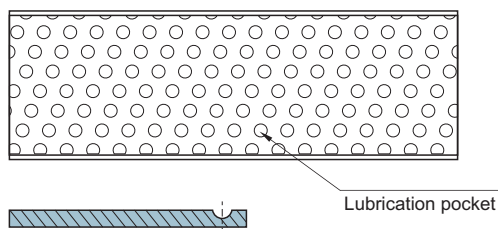
CSB850BM Metal Backed Bronze Powder with Solid Lubricants

Tech. Data

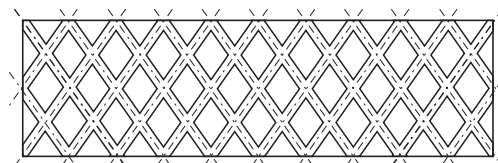
CSB standard material		CSB850BM1	CSB850BM2	CSB850BM3	CSB850BM4
Backing metal		Steel	Steel	Stainless steel	Bronze
Lining layer	Composition	CuSn12+SL	CuSn10Pb10+SL	CuSn12+SL	CuSn12+SL
	Solid lubricants	6%	6%	6%	6%
	Hardness	>40HB	>40HB	>40HB	>40HB
	Compression deformation 150Mpa	<0.005mm	<0.005mm	<0.005mm	<0.005mm
Max. load	Static	150N/mm ²	120N/mm ²	150N/mm ²	150N/mm ²
	Dynamic	100N/mm ²	80N/mm ²	100N/mm ²	100N/mm ²
Max. speed		0.5m/s	0.5m/s	0.5m/s	0.5m/s
Max. PV		1.5	1.5	1.5	1.5
Friction coefficient		0.05~0.2	0.03~0.2	0.05~0.2	0.05~0.2
Temp.℃		-195~+280	-195~+280	-195~+280	-195~+280

Bearing Surface

The standard bearings we supply are usually with plain surface, also we can supply the products with cleaning grooves for small angular movements or in the presence of abrasive media or dirt, and indented surface for grease lubricated applications.



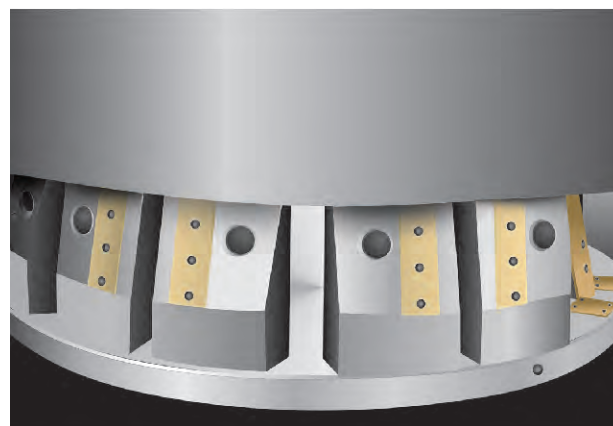
Indented surface for grease lubricated applications.



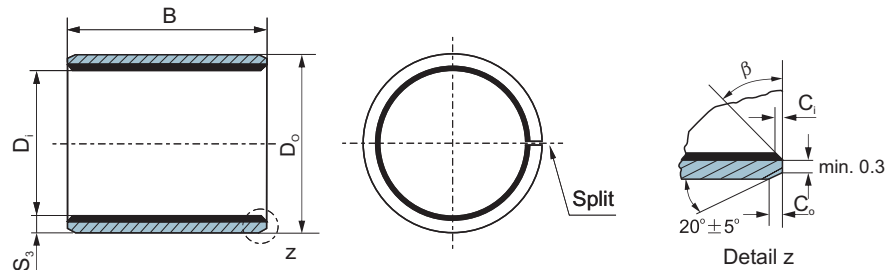
Cleaning grooves for small angular movements or in the presence of abrasive media or dirt.

Typical Applications

CSB850BM has been widely used in water turbines, vane controls, injection moulding machinery, packing machines, construction equipment, tire moulds, paper production machinery, furnace expansion plates, automotive transmission, heavy lifting chain linkage, food production equipment etc.



CSB850BM 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	$35^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$35^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$35^\circ \pm 5^\circ$	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	$35^\circ \pm 5^\circ$				

Unit:mm

D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Sinter layer S ₂	B 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	0.4	850BM 1010	850BM 1015	850BM 1020					
12	14	12 _{-0.027}	14 ^{+0.018}		0.175 0.010			850BM 1210	850BM 1215	850BM 1220					
14	16	14 _{-0.027}	16 ^{+0.018}					850BM 1410	850BM 1415	850BM 1420					
15	17	15 _{-0.027}	17 ^{+0.018}					850BM 1510	850BM 1515	850BM 1520					
16	18	16 _{-0.027}	18 ^{+0.018}					850BM 1610	850BM 1615	850BM 1620					
18	20	18 _{-0.027}	20 ^{+0.021}	+0.151 +0.010	0.178 0.010	1.490 1.430	0.5	850BM 1810	850BM 1815	850BM 1820	850BM 1825				
20	23	20 _{-0.033}	23 ^{+0.021}	+0.161 +0.020	0.194 0.020			850BM 2010	850BM 2015	850BM 2020	850BM 2025				
22	25	22 _{-0.033}	25 ^{+0.021}					850BM 2210	850BM 2215	850BM 2220	850BM 2225				
24	27	24 _{-0.033}	27 ^{+0.021}					850BM 2410	850BM 2415	850BM 2420	850BM 2425	850BM 2430			
25	28	25 _{-0.033}	28 ^{+0.021}						850BM 2515	850BM 2520	850BM 2525	850BM 2530			
26	30	26 _{-0.033}	30 ^{+0.021}	+0.181 +0.040	0.214 0.040	1.980 1.920	0.6		850BM 2615	850BM 2620	850BM 2625	850BM 2630			
28	32	28 _{-0.033}	32 ^{+0.025}	+0.185 +0.040	0.218 0.040				850BM 2815	850BM 2820	850BM 2825	850BM 2830	850BM 2840		
30	34	30 _{-0.033}	34 ^{+0.025}						850BM 3015	850BM 3020	850BM 3025	850BM 3030	850BM 3040		
32	36	32 _{-0.039}	36 ^{+0.025}		0.224 0.040				850BM 3215	850BM 3220	850BM 3225	850BM 3230	850BM 3240		
35	39	35 _{-0.039}	39 ^{+0.025}							850BM 3520	850BM 3525	850BM 3530	850BM 3540	850BM 3550	
38	42	38 _{-0.039}	42 ^{+0.025}								850BM 3820	850BM 3825	850BM 3830	850BM 3840	850BM 3850
40	44	40 _{-0.039}	44 ^{+0.025}									850BM 4020	850BM 4025	850BM 4030	850BM 4040

CSB850BM Metric Cylindrical Bushes

Unit:mm

D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Sinter layer S ₂	B 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	0.7	850BM 4525	850BM 4530	850BM 4540	850BM 4550				
50	55	50 _{-0.039}	55 ^{+0.030}	+0.230 +0.080	0.269 0.080				850BM 5030	850BM 5040	850BM 5050	850BM 5060			
55	60	55 _{-0.046}	60 ^{+0.030}					850BM 5530	850BM 5540	850BM 5550	850BM 5560				
60	65	60 _{-0.046}	65 ^{+0.030}					850BM 6030	850BM 6040	850BM 6050	850BM 6060				
65	70	65 _{-0.046}	70 ^{+0.030}					850BM 6530	850BM 6540	850BM 6550	850BM 6560				
70	75	70 _{-0.046}	75 ^{+0.030}					850BM 7030	850BM 7040	850BM 7050	850BM 7060	850BM 7080			
75	80	75 _{-0.046}	80 ^{+0.030}					850BM 7530	850BM 7540	850BM 7550	850BM 7560				
80	85	80 _{-0.046}	85 ^{+0.035}	+0.235 +0.080	0.281 0.080					850BM 8040	850BM 8050	850BM 8060	850BM 8080		
85	90	85 _{-0.054}	90 ^{+0.035}					850BM 8530		850BM 8550	850BM 8560	850BM 8580		850BM 85100	
90	95	90 _{-0.054}	95 ^{+0.035}						850BM 9050	850BM 9060	850BM 9080		850BM 90100		
95	100	95 _{-0.054}	100 ^{+0.035}							850BM 9560	850BM 9580	850BM 9590	850BM 95100		
100	105	100 _{-0.054}	105 ^{+0.035}							850BM 10060	850BM 10080	850BM 10090	850BM 100100		
105	110	105 _{-0.054}	110 ^{+0.035}							850BM 10560	850BM 10580		850BM 105100		
110	115	110 _{-0.054}	115 ^{+0.035}							850BM 11060	850BM 11080		850BM 110100		
115	120	115 _{-0.054}	120 ^{+0.035}							850BM 11550		850BM 11580			
120	125	120 _{-0.054}	125 ^{+0.040}		+0.240 +0.080			0.303 0.080		850BM 12050	850BM 12060			850BM 120100	
125	130	125 _{-0.063}	130 ^{+0.040}											850BM 125100	
130	135	130 _{-0.063}	135 ^{+0.040}								850BM 13060			850BM 130100	
135	140	135 _{-0.063}	140 ^{+0.040}								850BM 13560	850BM 13580			
140	145	140 _{-0.063}	145 ^{+0.040}								850BM 14060	850BM 14080		850BM 140100	
150	155	150 _{-0.063}	155 ^{+0.040}								850BM 15060	850BM 15080		850BM 150100	

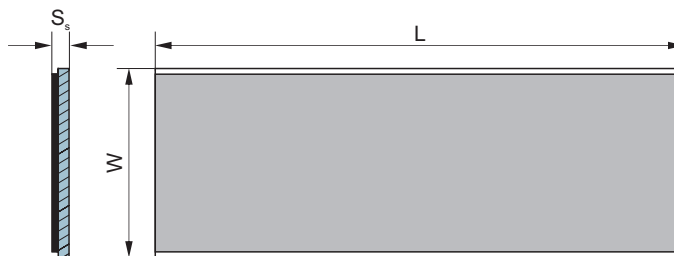
CSB850BM Metric Cylindrical Bushes

Unit:mm

Bushes tolerance

I.D.	10<d≤18	18<d≤30	30<d≤50	50<d≤80	80<d≤120	120<d≤180	180<d≤250	250<d≤300
O.D. tolerance	+0.065 +0.030	+0.075 +0.035	+0.085 +0.045	+0.100 +0.055	+0.120 +0.070	+0.170 +0.100	+0.210 +0.130	+0.260 +0.170
Installed I.D.H9	+0.043 0	+0.052 0	+0.062 0	+0.074 0	+0.087 0	+0.100 0	+0.115 0	+0.130 0
Housing: H7, Shaft: d7								

Metric standard strip



Unit:mm

Wall thickness	Lining layer thickness	Length ± 1	Thickness -0.05
1.0	≥0.40	500	150
1.5	≥0.50	500	150
2.0	≥0.60	500	150
2.5	≥0.70	500	150
3.0	≥1.00	500	150
5.0	≥1.50	500	150

CSB850S Metal Backed Bronze Powder with Graphite

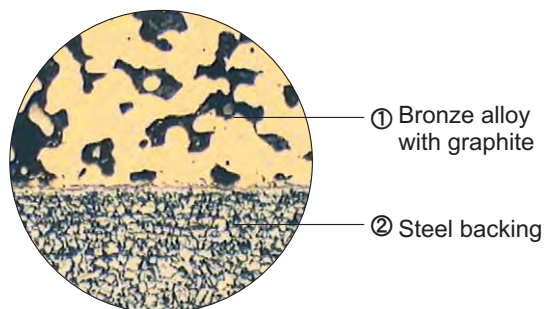


Features

Pertinence for motions of any direction due to solid lubricant dispersed evenly, with high performance even for micro-range motions. It is suitable for self-lubrication work condition, to aid lower start friction, we recommend pre-lubricated if possible, oiling would be drastically reduced. It has very good load capacity, good wear resistance and lower friction. The bearing can be machined again after the parts fixed to get tighter tolerance.

Structure

CSB850 is a composite multi-layer bearing composed of a special sintered material which forms the sliding surface and steel material forms the backing. Sintered layers are of a special copper-nickel alloy containing uniformly dispersed solid lubricant, the main component of which is graphite. The solid lubricants will be released at the bearing surface as wear occurs. This ensures a lower coefficient of friction during operation. In addition, these sintered layers are oil impregnated. Applications covered are automotive die wear plates, industrial robots, plastic injection moulding machine wear plates and tie-bar bearings, construction machines etc.



Tech. Data

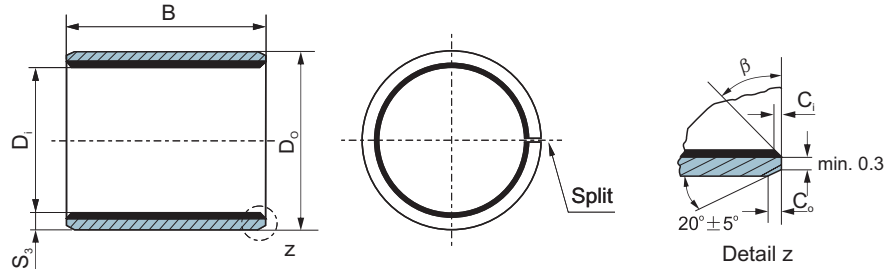
Max. load	Static	100N/mm ²	Temp.	-40℃~+120℃
	Dynamic	50N/mm ²		Friction coefficient
Max. speed	Dry	0.5m/s	Alloy hardness	>45HB
	Lubrication	> 1m/s	Coefficient of thermal expansion	14*10 ⁻⁶ *K ⁻¹
Max. PV	Dry	1.5N/mm ² *m/s	Oil volume	>10%
	Lubrication	2.5N/mm ² *m/s		

Typical Applications

This material has been widely used in high load with lower friction and good wear resistance requested mechanical parts where oil given is difficult such as

automotive die wear plate, industrial robots, injection wear plate, injection tie-bar bushes, construction machines self-lubricating bearings etc.

CSB850SM 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	$35^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$35^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$35^\circ \pm 5^\circ$	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	$35^\circ \pm 5^\circ$				

Unit:mm

D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Sinter layer S ₂	B 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	0.4	850SM 1010	850SM 1015	850SM 1020				
12	14	12 _{-0.027}	14 ^{+0.018}		0.175 0.010			850SM 1210	850SM 1215	850SM 1220				
14	16	14 _{-0.027}	16 ^{+0.018}					850SM 1410	850SM 1415	850SM 1420				
15	17	15 _{-0.027}	17 ^{+0.018}					850SM 1510	850SM 1515	850SM 1520				
16	18	16 _{-0.027}	18 ^{+0.018}					850SM 1610	850SM 1615	850SM 1620				
18	20	18 _{-0.027}	20 ^{+0.021}	+0.151 +0.010	0.178 0.010	1.490 1.430	0.5	850SM 1810	850SM 1815	850SM 1820	850SM 1825			
20	23	20 _{-0.033}	23 ^{+0.021}	+0.161 +0.020	0.194 0.020			850SM 2010	850SM 2015	850SM 2020	850SM 2025			
22	25	22 _{-0.033}	25 ^{+0.021}					850SM 2210	850SM 2215	850SM 2220	850SM 2225			
24	27	24 _{-0.033}	27 ^{+0.021}					850SM 2410	850SM 2415	850SM 2420	850SM 2425	850SM 2430		
25	28	25 _{-0.033}	28 ^{+0.021}						850SM 2515	850SM 2520	850SM 2525	850SM 2530		
26	30	26 _{-0.033}	30 ^{+0.021}	+0.181 +0.040	0.214 0.040	1.980 1.920	0.6		850SM 2615	850SM 2620	850SM 2625	850SM 2630		
28	32	28 _{-0.033}	32 ^{+0.025}	0.218 0.040				850SM 2815	850SM 2820	850SM 2825	850SM 2830	850SM 2840		
30	34	30 _{-0.033}	34 ^{+0.025}					850SM 3015	850SM 3020	850SM 3025	850SM 3030	850SM 3040		
32	36	32 _{-0.039}	36 ^{+0.025}		0.224 0.040				850SM 3215	850SM 3220	850SM 3225	850SM 3230	850SM 3240	
35	39	35 _{-0.039}	39 ^{+0.025}							850SM 3520	850SM 3525	850SM 3530	850SM 3540	850SM 3550
38	42	38 _{-0.039}	42 ^{+0.025}						850SM 3820	850SM 3825	850SM 3830	850SM 3840	850SM 3850	
40	44	40 _{-0.039}	44 ^{+0.025}							850SM 4020	850SM 4025	850SM 4030	850SM 4040	850SM 4050

CSB850SM Metric Cylindrical Bushes

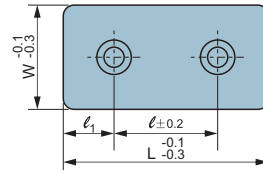
Unit:mm

D _i	D _o	Shaft D _s h8	Housing H7 D _H	ID after fixed D _{i,a}	Clearance C _D	Wall thickness S ₃	Sinter layer S ₂	B 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	0.7	850SM 4525	850SM 4530	850SM 4540	850SM 4550				
50	55	50 _{-0.039}	55 ^{+0.030}	+0.230 +0.080	0.269 0.080				850SM 5030	850SM 5040	850SM 5050	850SM 5060			
55	60	55 _{-0.046}	60 ^{+0.030}		0.276 0.080				850SM 5530	850SM 5540	850SM 5550	850SM 5560			
60	65	60 _{-0.046}	65 ^{+0.030}						850SM 6030	850SM 6040	850SM 6050	850SM 6060			
65	70	65 _{-0.046}	70 ^{+0.030}						850SM 6530	850SM 6540	850SM 6550	850SM 6560			
70	75	70 _{-0.046}	75 ^{+0.030}						850SM 7030	850SM 7040	850SM 7050	850SM 7060	850SM 7080		
75	80	75 _{-0.046}	80 ^{+0.030}						850SM 7530	850SM 7540	850SM 7550	850SM 7560			
80	85	80 _{-0.046}	85 ^{+0.035}	+0.235 +0.080	0.281 0.080					850SM 8040	850SM 8050	850SM 8060	850SM 8080		
85	90	85 _{-0.054}	90 ^{+0.035}		0.289 0.080				850SM 8530		850SM 8550	850SM 8560	850SM 8580		850SM 85100
90	95	90 _{-0.054}	95 ^{+0.035}								850SM 9050	850SM 9060	850SM 9080		850SM 90100
95	100	95 _{-0.054}	100 ^{+0.035}									850SM 9560	850SM 9580	850SM 9590	850SM 95100
100	105	100 _{-0.054}	105 ^{+0.035}									850SM 10060	850SM 10080	850SM 10090	850SM 100100
105	110	105 _{-0.054}	110 ^{+0.035}									850SM 10560	850SM 10580		850SM 105100
110	115	110 _{-0.054}	115 ^{+0.035}									850SM 11060	850SM 11080		850SM 110100
115	120	115 _{-0.054}	120 ^{+0.035}								850SM 11550		850SM 11580		
120	125	120 _{-0.054}	125 ^{+0.040}					+0.240 +0.080	0.303 0.080			850SM 12050	850SM 12060		
125	130	125 _{-0.063}	130 ^{+0.040}												850SM 125100
130	135	130 _{-0.063}	135 ^{+0.040}									850SM 13060			850SM 130100
135	140	135 _{-0.063}	140 ^{+0.040}									850SM 13560	850SM 13580		
140	145	140 _{-0.063}	145 ^{+0.040}									850SM 14060	850SM 14080		850SM 140100
150	155	150 _{-0.063}	155 ^{+0.040}									850SM 15060	850SM 15080		850SM 150100

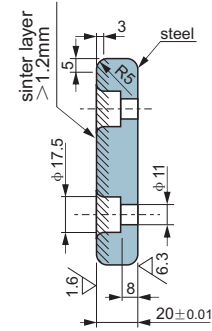
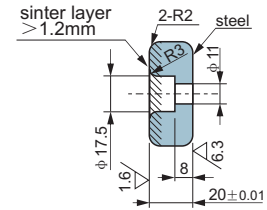
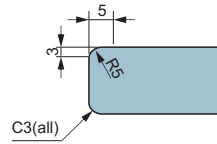
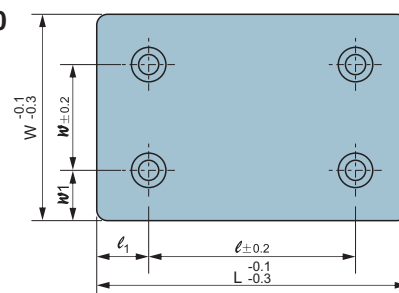
CSB850S JSOX Wear Plate



W=28~75



W ≥ 100



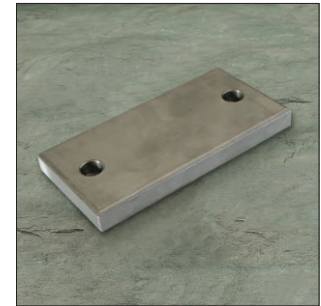
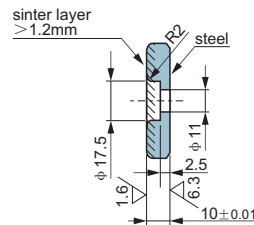
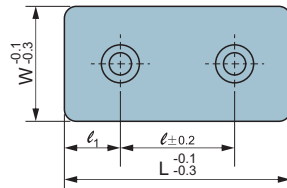
Unit:mm

Stanard No.	W	L	w	w ₁	l	l ₁
JSOX	28	75	—	—	45	15
		100			50	25
		150			100	25
	38	75			45	15
		100			50	25
		150			100	25
	48	75			45	15
		100			50	25
		125			75	25
		150			100	50
	75	200			100	50
		75			25	25
		100			50	
		125			75	
		150			100	
		200			150	
	100	100	50	25	50	
		125			75	
		150			100	
		200			150	
		250			200	50
		300			200	50
	125	150	50	37.5	100	25
		200			150	25
		250			200	50
		300			200	50
	150	150	100	25	100	25
		200			150	25
		250			200	25

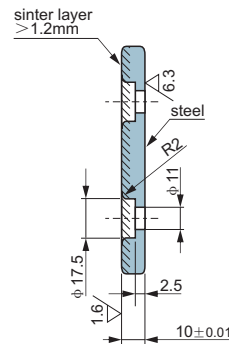
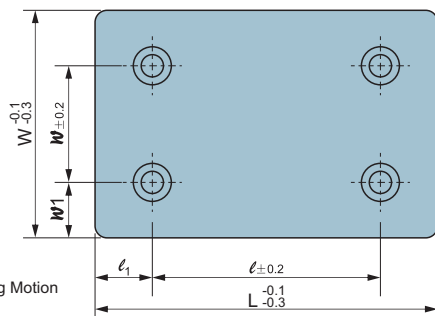
CSB850S JTWX Wear Plate

JTWX

W=28~75

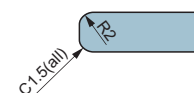


W ≥ 100

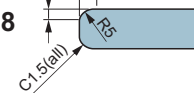


Reciprocating Motion

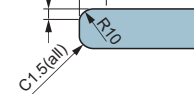
W=28



W=38 · 48



W ≥ 75



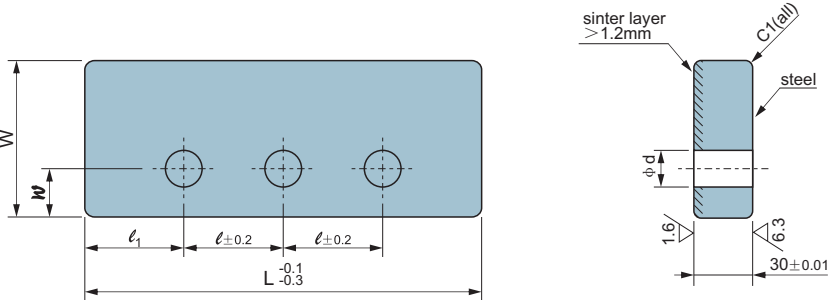
Unit:mm

Standard No.	W	L	w	w_1	ℓ	ℓ_1	
JTWX	28	75	—	—	45	15	
		100			50	25	
		125			75		
		150			100		
	38	75			45	15	
		100			50	25	
		125			75		
		150			100		
	48	75			45	15	
		100			50	25	
		125			75		
		150			100		
	75	200			100	50	
		75			25	25	
		100			50		
		125			75		
	150	100					
	100	200			150		25
		250			200		
		300			200	50	
		125	75	37.5			
	125	150	100		25		
		200	150				
		250	200			50	
		300	200	25			
	150	150	100		25	100	
		200				150	
		250		200			

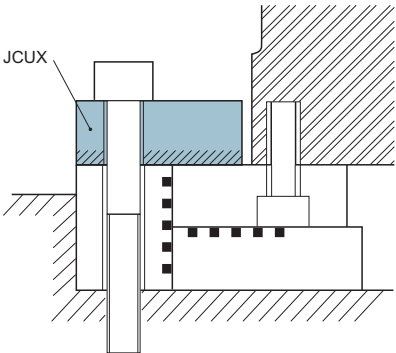
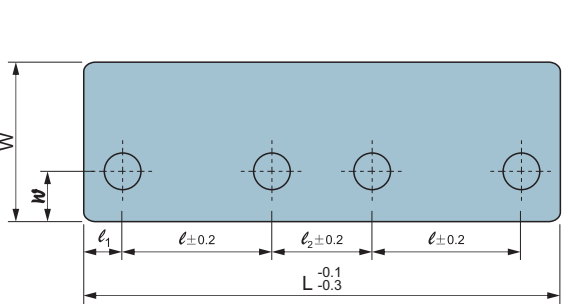
CSB850S JCUX Wear Plate

JCUX

L=150 • 200



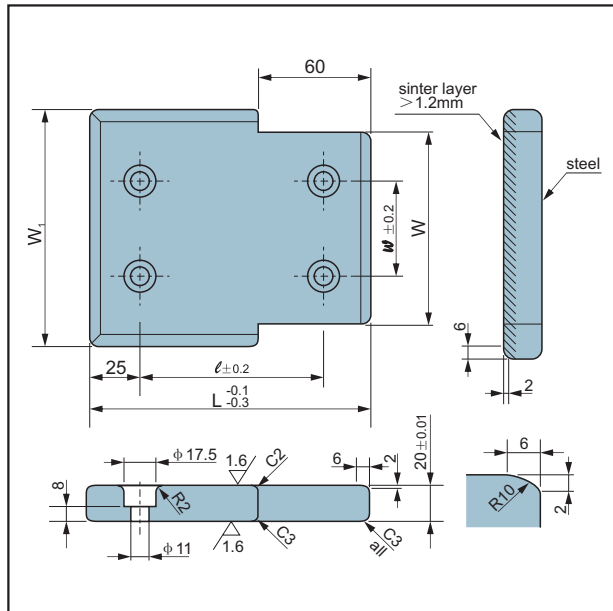
L=250



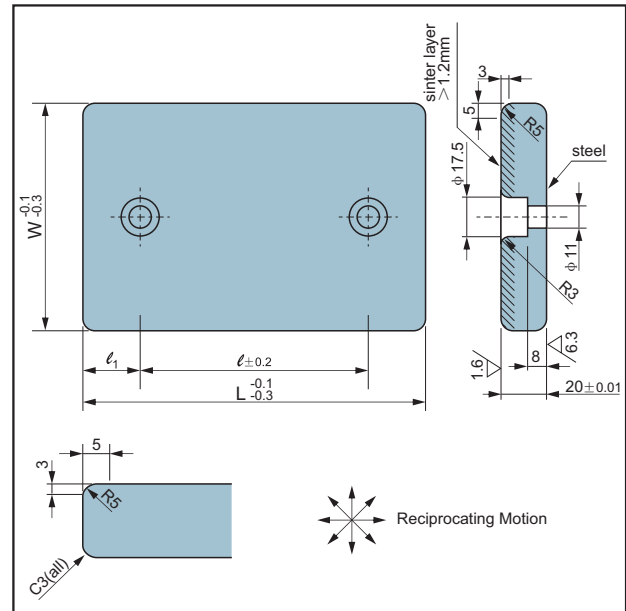
Unit:mm

Standard No.	W	L	ℓ	ℓ_1	ℓ_2	w	d
JCUX	82	150	50	25	—	25	18
		200	75		50		
		250					

CSB850S JPRX/JOXT Wear Plate



JPRX



JOXT

Unit:mm

Standard No.	W	L	W ₁	w	l
JPRX	74	100	100	40	50
		125			75
		150			100
		200			150
		250			200
	99	150	125	50	100
		200			150
		250			200
	124	150	150	90	100
		200			150

Unit:mm

Standard No.	W	L	l	l ₁
JOXT	100	100	50	25
		125	75	
		150	100	
		200	150	
		250	200	
		300	200	50
	125	125	75	25
		150	100	
		200	150	
		250	200	
	150	150	100	25
		200	150	
		250	200	