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TEHCO PARTS

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Chizhou Tehco Precision Parts Co., Ltd.

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TEHCO IN CONTINUOUS EFFORTS TO IMPROVE

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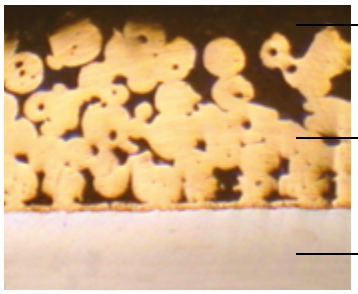
COMPANY PROFILE

TEHCO is dedicated to the research and manufacture of all kinds of bushings and parts. We are approved by the third party concerning the quality certificate. Up to now, we have developed a total of ten categories of products, including composite self-lubricating bushing, boundary lubricating bushing, bimetal bushing, oil sintered bushing, solid lubricating bushing with graphite, steel bushing, casting copper bushing, wrapped bronze bushing, spherical plain bearing and filament wound bearing. The quality and performance have met or exceed international standards. We have complete in-house research and development, production, testing and marketing capabilities.

TEHCO has been based on the international markets, with stable and high quality products, as well as professional and perfect services, maintained long-term cooperation relations with customers from the Europe, the Americas, Asia and other countries and regions, enjoying a good reputation. TEHCO firmly believe that we should always impress customers with integrity and win customers with quality. Welcome global customers to create bright future together!

CONTENTS

TCB10 Self-Lubricating Multilayer Composite Bushing



Metallography

Structure Characteristics and Applications

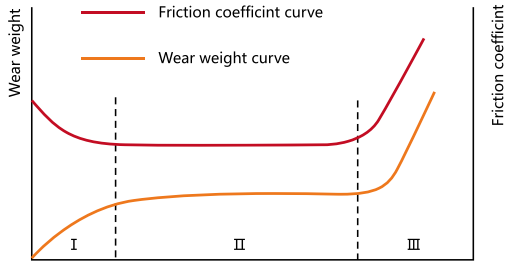
TCB100 is backed with copper-plated steel with porous bronze sintered on the steel and polymers (PTFE) imbedded into the bores of the bronze. By combining the metals and the polymers together, its products are endowed with the lower friction coefficient and good capacity of anti-abrasion and self-lubrication. Moreover, the steel back is plated with an erosion-prevention layer. Products of TCB10 series are widely applied in printing, textile and tobacco machinery, gymnastic equipments, etc.

Physical and Mechanical Performance

Performance Index		Data
Max Load P	Static Load	250N/mm^2
	Dynamic Load	140N/mm^2
	Oscoillation Load	60N/mm^2
Linear Velocity V	Dry Lubrication	2.5m/s
	Oil Lubrication	>5m/s
Max PV value	Grease Lubrication	1.8N/mm^2.m/s
	Oil Lubrication	3.6N/mm^2.m/s
Friction Coefficient μ	Dry Lubrication	0.08~0.20
	Oil Lubrication	0.02~0.07
Mating Axis	Hardness	>200 HB
	Roughness	Ra=0.4~1.25
Working Temperature		-200~+280℃
Heat-conducting Coefficient		40W/(m·k)
Heat-expansion Coefficient(Axial)		11×10^{-6}/K

Anti-abrasion Performance

TCB100 is of excellent anti-abrasion performance, mainly due to the particular molecule structure of PTFE. The abrasion process can be generally divided into three phases, so there are three kinds of friction coefficient. See the graph as below.



Wear curve of TCB100

1. "Running-in" phrase: PTFE compound on the bushing is transferred to its mating surface and forms a lubricating film. At this phase, the friction coefficient is bigger, thus the abrasion pace is very quick. See the curve showed in area Ⅰ of the graph.
2. "Stabilization" abrasion phrase: After the "Running-in" phase, the friction happens between PTFE and PTFE, thus the friction coefficient is smaller and keeps steady. As a result, the wear rate is low and steady. See the curve showed in area Ⅱ of the graph.
3. "Sharp" abrasion phrase: As PTFE in the porous layer is slowly consumed up, not enough lubricant can be supplied to the gliding media. Friction coefficient and wear rate will rapidly rise. When 70% of the bronze surface is exposed, service life of TCB100 closes to its end. See the curve showed in area Ⅲ of the graph.

Main Factors that Influence the Service life of the Bushing

1).PV Value

PV value is an effective criterion to calculate the service life of TCB100. If there is need to prolong the service Life, PV value must be reduced.

2).Environment Temperature

The higher the working temperature is, the shorter the life of the products would be.

3).Quality of the Mating Surface

Service life of TCB100 can be obviously prolonged if its mating axis is made by alloy steel or is plated by hard chrome and with surface Roughness Ra=0.4~0.63.

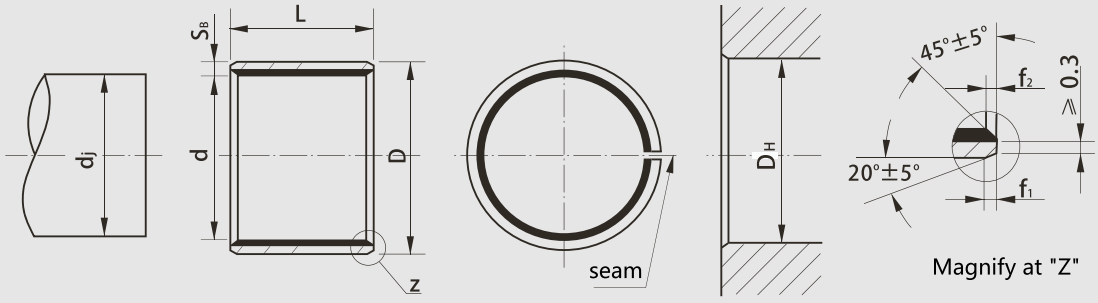
Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

TCB10 Self-Lubricating Multilayer Composite Bushing

Metal back of TCB100 can be changed to bronze, stainless steel depending on different working condition and environment protection , with PTFE polymers free of lead, like our product TCB101, TCB102, TCB103, TCB104. The material structure, application fields and technical parameter are as follows.

Data	Grade	TCB100	TCB101	TCB102	TCB103	TCB104
	Material	Steel+Bronze+(PTFE+Filler)	Bronze+Bronze+(PTFE+Filler)	Stainless steel+Bronze+(PTFE+Filler)	Steel+Bronze+(PTFE+Filler)	Steel+Bronze+(PTFE+Filler)
Typical application		Application: the printing, woven, tobacco and gymnastic machinery, etc.	Application: metallurgical industry, continuous casting and rolling mill, concrete machinery and spiral conveyers, etc.	Application: the corrosion resistant part in dyeing machinery and ocean industry, etc.	Application: medium, and high-pressure gear pump, ram pump, vane pumps, etc.	Application: shock absorber of automobiles, motorcycles and pneumatic cylinder. etc.
Load capacity P (Dry friction)	Static load N/mm^2	250	250	250	250	250
	Dynamic load N/mm^2	140	140	140	140	140
	Oscoillation Load N/mm^2	60	60	60	60	60
Max line speed V	Dry friction m/s	2.5	2.5	2.5	2.5	2.5
	Oil lubrication m/s	> 5	> 5	> 5	> 10	> 5
PV value limit	Dry friction $N/mm^2 \cdot m/s$	1.8	1.8	1.8	1.8	1.8
	Oil lubrication $N/mm^2 \cdot m/s$	3.6	3.6	3.6	3.6	3.6
Friction coef u	Dry friction	0.08~0.20	0.08~0.20	0.08~0.20	0.08~0.25	0.08~0.20
	Oil lubrication	0.02~0.12	0.02~0.12	0.02~0.12	0.02~0.08	0.02~0.08
Mating Axis	Hardness	> 220	> 220	> 220	> 220	> 220
	Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
Working temperature℃		-200~+280	-200~+280	-200~+280	-200~+280	-200~+280
Thermal conductivity W/mk		40	60	40	40	40
Coefficient of linear expansion		11×10^{-6}/K	18×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K
Outside surface Plating		copper/tin	No	No	copper/tin	copper/tin
We can also develop according to customers special request while out of this table						

TCB10 Series Normal Metric Bushing



Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ød	High L	O.D. ØD	Wall Thickness S_B
TCB10 ☐ 0203	2 h6 $^{0}_{-0.006}$	3.5 H6 $^{+0.008}_{0}$	2 $^{+0.058}_{+0.010}$	3 ± 0.25	3.5 $^{+0.055}_{+0.025}$	0.75 $^{-0.005}_{-0.025}$
TCB10 ☐ 0205				5 ± 0.25		
TCB10 ☐ 0303	3 h6 $^{0}_{-0.006}$	4.5 H6 $^{+0.008}_{0}$	3 $^{+0.048}_{0}$	3 ± 0.25	4.5 $^{+0.055}_{+0.025}$	0.75 $^{0}_{-0.02}$
TCB10 ☐ 0305				5 ± 0.25		
TCB10 ☐ 0306				6 ± 0.25		
TCB10 ☐ 0403	4 h6 $^{0}_{-0.008}$	5.5 H6 $^{+0.008}_{0}$	4 $^{+0.048}_{0}$	3 ± 0.25	5.5 $^{+0.055}_{+0.025}$	0.75 $^{0}_{-0.02}$
TCB10 ☐ 0404				4 ± 0.25		
TCB10 ☐ 0406				6 ± 0.25		
TCB10 ☐ 0410				10 ± 0.25		
TCB10 ☐ 0505	5 f7 $^{-0.010}_{-0.022}$	7 H7 $^{+0.015}_{0}$	5 $^{+0.055}_{-0.010}$	5 ± 0.25	7 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 0508				8 ± 0.25		
TCB10 ☐ 0510				10 ± 0.25		
TCB10 ☐ 0604	6 f7 $^{-0.010}_{-0.022}$	8 H7 $^{+0.015}_{0}$	6 $^{+0.055}_{-0.010}$	4 ± 0.25	8 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 0606				6 ± 0.25		
TCB10 ☐ 0608				8 ± 0.25		
TCB10 ☐ 0610				10 ± 0.25		
TCB10 ☐ 0710	7 f7 $^{-0.013}_{-0.028}$	9 H7 $^{+0.015}_{0}$	7 $^{+0.055}_{-0.010}$	10 ± 0.25	9 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 0806	8 f7 $^{-0.013}_{-0.028}$	10 H7 $^{+0.015}_{0}$	8 $^{+0.055}_{-0.010}$	6 ± 0.25	10 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 0808				8 ± 0.25		
TCB10 ☐ 0810				10 ± 0.25		
TCB10 ☐ 0812				12 ± 0.25		
TCB10 ☐ 1008	10 f7 $^{-0.013}_{-0.028}$	12 H7 $^{+0.018}_{0}$	10 $^{+0.058}_{-0.010}$	8 ± 0.25	12 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 1010				10 ± 0.25		
TCB10 ☐ 1012				12 ± 0.25		
TCB10 ☐ 1015				15 ± 0.25		
TCB10 ☐ 1020				20 ± 0.25		
TCB10 ☐ 1208	12 f7 $^{-0.016}_{-0.034}$	14 H7 $^{+0.018}_{0}$	12 $^{+0.058}_{-0.010}$	8 ± 0.25	14 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ 1210				10 ± 0.25		

TCB10 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ød	High L	O.D. ØD	Wall Thickness S_B
TCB10 □ 1212	12 f7 $^{-0.016}_{-0.034}$	14 H7 $^{+0.008}_{0}$	12 $^{+0.058}_{+0.010}$	12±0.25	14 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 □ 1215				15±0.25		
TCB10 □ 1220				20±0.25		
TCB10 □ 1225				25±0.25		
TCB10 □ 1310	13 f7 $^{-0.016}_{-0.034}$	15 H7 $^{+0.018}_{0}$	13 $^{+0.058}_{+0.010}$	10±0.25	15 $^{+0.065}_{+0.030}$	
TCB10 □ 1320				20±0.25		
TCB10 □ 1405	14 f7 $^{-0.016}_{-0.034}$	16 H7 $^{+0.018}_{0}$	14 $^{+0.058}_{-0.010}$	5±0.25	16 $^{+0.065}_{+0.030}$	
TCB10 □ 1410				10±0.25		
TCB10 □ 1412				12±0.25		
TCB10 □ 1415				15±0.25		
TCB10 □ 1420				20±0.25		
TCB10 □ 1425				25±0.25		
TCB10 □ 1510	15 f7 $^{-0.016}_{-0.034}$	17 H7 $^{+0.018}_{0}$	15 $^{+0.058}_{-0.010}$	10±0.25	17 $^{+0.065}_{+0.030}$	
TCB10 □ 1512				12±0.25		
TCB10 □ 1515				15±0.25		
TCB10 □ 1520				20±0.25		
TCB10 □ 1525				25±0.25		
TCB10 □ 1610	16 f7 $^{-0.016}_{-0.034}$	18 H7 $^{+0.018}_{0}$	16 $^{+0.058}_{-0.010}$	10±0.25	18 $^{+0.065}_{+0.030}$	
TCB10 □ 1612				12±0.25		
TCB10 □ 1615				15±0.25		
TCB10 □ 1620				20±0.25		
TCB10 □ 1625				25±0.25		
TCB10 □ 1712	17 f7 $^{-0.016}_{-0.034}$	19 H7 $^{+0.021}_{0}$	17 $^{+0.061}_{-0.010}$	12±0.25	19 $^{+0.075}_{+0.035}$	
TCB10 □ 1720				20±0.25		
TCB10 □ 1810	18 f7 $^{-0.016}_{-0.034}$	20 H7 $^{+0.021}_{0}$	18 $^{+0.061}_{-0.010}$	10±0.25	20 $^{+0.075}_{+0.035}$	
TCB10 □ 1815				15±0.25		
TCB10 □ 1820				20±0.25		
TCB10 □ 1825				25±0.25		
TCB10 □ 2010	20 f7 $^{-0.020}_{-0.041}$	23 H7 $^{+0.021}_{0}$	20 $^{+0.071}_{-0.010}$	10±0.25	23 $^{+0.075}_{+0.035}$	1.5 $^{+0.005}_{-0.020}$
TCB10 □ 2015				15±0.25		
TCB10 □ 2020				20±0.25		
TCB10 □ 2025				25±0.25		
TCB10 □ 2030				30±0.25		
TCB10 □ 2215	22 f7 $^{-0.020}_{-0.041}$	25 H7 $^{+0.021}_{0}$	22 $^{+0.071}_{-0.010}$	15±0.25	25 $^{+0.075}_{+0.035}$	
TCB10 □ 2220				20±0.25		
TCB10 □ 2225				25±0.25		
TCB10 □ 2230				30±0.25		
TCB10 □ 2415	24 f7 $^{-0.020}_{-0.041}$	27 H7 $^{+0.021}_{0}$	24 $^{+0.071}_{-0.010}$	15±0.25	27 $^{+0.075}_{+0.035}$	
TCB10 □ 2420				20±0.25		
TCB10 □ 2425				25±0.25		
TCB10 □ 2430				30±0.25		
TCB10 □ 2515	25 f7 $^{-0.020}_{-0.041}$	28 H7 $^{+0.021}_{0}$	25 $^{+0.071}_{-0.010}$	15±0.25	28 $^{+0.075}_{+0.035}$	
TCB10 □ 2520				20±0.25		

TCB10 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ød	High L	O.D. ØD	Wall Thickness S_B
TCB10 □ 2525	25 f7 $^{-0.020}_{-0.041}$	28 H7 $^{+0.021}_{0}$	25 $^{+0.071}_{+0.010}$	25±0.25	28 $^{+0.065}_{+0.030}$	1.5 $^{+0.005}_{-0.025}$
TCB10 □ 2530				30±0.25		
TCB10 □ 2540				40±0.25		
TCB10 □ 2550				50±0.25		
TCB10 □ 2815	28 f7 $^{-0.020}_{-0.041}$	32 H7 $^{+0.025}_{0}$	28 $^{+0.085}_{-0.010}$	15±0.25	32 $^{+0.065}_{+0.030}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 2820				20±0.25		
TCB10 □ 2825				25±0.25		
TCB10 □ 2830				30±0.25		
TCB10 □ 3010	30 f7 $^{-0.020}_{-0.041}$	34 H7 $^{+0.025}_{0}$	30 $^{+0.085}_{-0.010}$	10±0.25	34 $^{+0.065}_{+0.030}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 3015				15±0.25		
TCB10 □ 3020				20±0.25		
TCB10 □ 3025				25±0.25		
TCB10 □ 3030				30±0.25		
TCB10 □ 3040				40±0.25		
TCB10 □ 3220	32 f7 $^{-0.025}_{-0.050}$	36 H7 $^{+0.025}_{0}$	32 $^{+0.085}_{-0.010}$	20±0.25	36 $^{+0.065}_{+0.030}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 3230				30±0.25		
TCB10 □ 3240				40±0.25		
TCB10 □ 3520	35 f7 $^{-0.025}_{-0.050}$	39 H7 $^{+0.025}_{0}$	35 $^{+0.085}_{-0.010}$	20±0.25	39 $^{+0.065}_{+0.030}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 3530				30±0.25		
TCB10 □ 3535				35±0.25		
TCB10 □ 3540				40±0.25		
TCB10 □ 3550				50±0.25		
TCB10 □ 3720	37 f7 $^{-0.025}_{-0.050}$	41 H7 $^{+0.025}_{0}$	37 $^{+0.085}_{-0.010}$	20±0.25	41 $^{+0.075}_{+0.035}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 4020	40 f7 $^{-0.025}_{-0.050}$	44 H7 $^{+0.025}_{0}$	40 $^{+0.085}_{-0.010}$	20±0.25	44 $^{+0.075}_{+0.035}$	2 $^{+0.005}_{-0.030}$
TCB10 □ 4030				30±0.25		
TCB10 □ 4040				40±0.25		
TCB10 □ 4050				50±0.25		
TCB10 □ 4520	45 f7 $^{-0.025}_{-0.050}$	50 H7 $^{+0.025}_{0}$	45 $^{+0.105}_{-0.010}$	20±0.25	50 $^{+0.075}_{+0.035}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 4530				30±0.25		
TCB10 □ 4540				40±0.25		
TCB10 □ 4545				45±0.25		
TCB10 □ 4550				50±0.25		
TCB10 □ 5020	50 f7 $^{-0.025}_{-0.050}$	55 H7 $^{+0.030}_{0}$	50 $^{+0.110}_{-0.010}$	20±0.25	55 $^{+0.075}_{+0.035}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 5030				30±0.25		
TCB10 □ 5040				40±0.25		
TCB10 □ 5050				50±0.25		
TCB10 □ 5060				60±0.25		
TCB10 □ 5520	55 f7 $^{-0.030}_{-0.060}$	60 H7 $^{+0.030}_{0}$	55 $^{+0.110}_{-0.010}$	20±0.25	60 $^{+0.075}_{+0.035}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 5525				25±0.25		
TCB10 □ 5530				30±0.25		
TCB10 □ 5540				40±0.25		
TCB10 □ 5550				50±0.25		
TCB10 □ 5560				60±0.25		

TCB10 Series Normal Metric Bushing

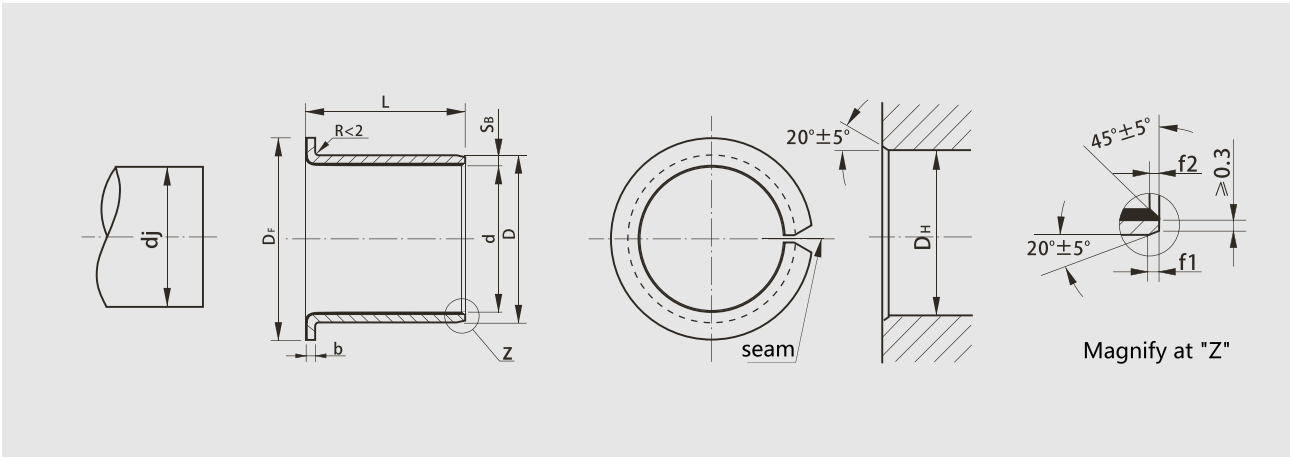
Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ød	High L	O.D. ØD	Wall Thickness S_B
TCB10 □ 6020	60 f7 $^{-0.030}_{-0.060}$	65 H7 $^{+0.030}_{0}$	60 $^{+0.110}_{-0.010}$	20±0.25	65 $^{+0.100}_{+0.055}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 6030				30±0.25		
TCB10 □ 6040				40±0.25		
TCB10 □ 6050				50±0.25		
TCB10 □ 6060				60±0.25		
TCB10 □ 6070				70±0.25		
TCB10 □ 6530	65 f7 $^{-0.030}_{-0.060}$	70 H7 $^{+0.030}_{0}$	65 $^{+0.110}_{-0.010}$	30±0.25	70 $^{+0.100}_{+0.055}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 6550				50±0.25		
TCB10 □ 6570				70±0.25		
TCB10 □ 7040	70 f7 $^{-0.030}_{-0.060}$	75 H7 $^{+0.030}_{0}$	70 $^{+0.110}_{-0.010}$	40±0.25	75 $^{+0.100}_{+0.055}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 7050				50±0.25		
TCB10 □ 7060				60±0.25		
TCB10 □ 7070				70±0.25		
TCB10 □ 7550	75 f7 $^{-0.030}_{-0.060}$	80 H7 $^{+0.030}_{0}$	75 $^{+0.110}_{-0.010}$	50±0.5	80 $^{+0.100}_{+0.055}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ 7560				60±0.5		
TCB10 □ 7580				80±0.5		
TCB10 □ 8060	80 h8 $^{0}_{-0.046}$	85 H7 $^{+0.035}_{0}$	80 $^{+0.155}_{+0.020}$	60±0.5	85 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 80100				100±0.5		
TCB10 □ 8530	85 h8 $^{0}_{-0.054}$	90 H7 $^{+0.035}_{0}$	85 $^{+0.155}_{+0.020}$	30±0.5	90 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 8560				60±0.5		
TCB10 □ 85100				100±0.5		
TCB10 □ 9060	90 h8 $^{0}_{-0.054}$	95 H7 $^{+0.035}_{0}$	90 $^{+0.155}_{+0.020}$	60±0.5	95 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 90100				100±0.5		
TCB10 □ 9560	95 h8 $^{0}_{-0.054}$	100 H7 $^{+0.035}_{0}$	95 $^{+0.155}_{+0.020}$	60±0.5	100 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 95100				100±0.5		
TCB10 □ 10050	100 h8 $^{0}_{-0.054}$	105 H7 $^{+0.035}_{0}$	100 $^{+0.155}_{+0.020}$	50±0.5	105 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 10060				60±0.5		
TCB10 □ 100115				115±0.5		
TCB10 □ 10560	105 h8 $^{0}_{-0.054}$	110 H7 $^{+0.035}_{0}$	105 $^{+0.155}_{+0.020}$	60±0.5	110 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 105115				115±0.5		
TCB10 □ 11060	110 h8 $^{0}_{-0.054}$	115 H7 $^{+0.035}_{0}$	110 $^{+0.155}_{+0.020}$	60±0.5	115 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 110115				115±0.5		
TCB10 □ 11550	115 h8 $^{0}_{-0.054}$	120 H7 $^{+0.035}_{0}$	115 $^{+0.155}_{+0.020}$	50±0.5	120 $^{+0.12}_{+0.07}$	2.5 $^{-0.01}_{-0.06}$
TCB10 □ 11570				70±0.5		
TCB10 □ 12050	120 h8 $^{0}_{-0.054}$	125 H7 $^{+0.040}_{0}$	120 $^{+0.210}_{+0.070}$	50±0.5	125 $^{+0.17}_{+0.10}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 12060				60±0.5		
TCB10 □ 120100				100±0.5		
TCB10 □ 125100	125 h8 $^{0}_{-0.063}$	130 H7 $^{+0.040}_{0}$	125 $^{+0.210}_{+0.070}$	100±0.5	130 $^{+0.17}_{+0.10}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 13060	130 h8 $^{0}_{-0.063}$	135 H7 $^{+0.040}_{0}$	130 $^{+0.210}_{+0.070}$	60±0.5	135 $^{+0.17}_{+0.10}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 130100				100±0.5		
TCB10 □ 13560	135 h8 $^{0}_{-0.063}$	140 H7 $^{+0.040}_{0}$	135 $^{+0.210}_{+0.070}$	60±0.5	140 $^{+0.17}_{+0.10}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 13580				80±0.5		
TCB10 □ 14060	140 h8 $^{0}_{-0.063}$	145 H7 $^{+0.040}_{0}$	140 $^{+0.210}_{+0.070}$	60±0.5	145 $^{+0.17}_{+0.10}$	2.5 $^{-0.035}_{-0.085}$

TCB10 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ød	High L	O.D. ØD	Wall Thickness S_B
TCB10 □ 140100	140 h8 $^{0}_{-0.063}$	145 H7 $^{+0.040}_{0}$	140 $^{+0.210}_{+0.070}$	100±0.5	145 $^{+0.170}_{+0.100}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 15060	150 h8 $^{0}_{-0.063}$	155 H7 $^{+0.040}_{0}$	150 $^{+0.210}_{+0.070}$	60±0.5	155 $^{+0.170}_{+0.100}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 15080				80±0.5		
TCB10 □ 150100				100±0.5		
TCB10 □ 16080	160 h8 $^{0}_{-0.063}$	165 H7 $^{+0.040}_{0}$	160 $^{+0.210}_{+0.070}$	80±0.5	165 $^{+0.170}_{+0.100}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 160100				100±0.5		
TCB10 □ 18080	180 h8 $^{0}_{-0.063}$	185 H7 $^{+0.046}_{0}$	180 $^{+0.216}_{+0.070}$	80±0.75	185 $^{+0.210}_{+0.130}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 180100				100±0.75		
TCB10 □ 200100	200 h8 $^{0}_{-0.072}$	205 H7 $^{+0.046}_{0}$	200 $^{+0.216}_{+0.070}$	100±0.75	205 $^{+0.210}_{+0.130}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 210100	210 h8 $^{0}_{-0.072}$	215 H7 $^{+0.046}_{0}$	210 $^{+0.216}_{+0.070}$	100±0.75	215 $^{+0.210}_{+0.130}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 220100	220 h8 $^{0}_{-0.072}$	225 H7 $^{+0.046}_{0}$	220 $^{+0.222}_{+0.070}$	100±0.75	225 $^{+0.210}_{+0.130}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 250100	250 h8 $^{0}_{-0.072}$	255 H7 $^{+0.052}_{0}$	250 $^{+0.222}_{+0.070}$	100±0.75	255 $^{+0.260}_{+0.170}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 280100	280 h8 $^{0}_{-0.081}$	285 H7 $^{+0.052}_{0}$	280 $^{+0.222}_{+0.070}$	100±0.75	285 $^{+0.260}_{+0.170}$	2.5 $^{-0.035}_{-0.085}$
TCB10 □ 300100	300 h8 $^{0}_{-0.081}$	305 H7 $^{+0.052}_{0}$	300 $^{+0.222}_{+0.070}$	100±0.75	305 $^{+0.260}_{+0.170}$	2.5 $^{-0.035}_{-0.085}$

Label example			Wall Thickness S_B	Outside Chamfer f_1	Inner Chamfer f_2
Type	I.D.	High	0.75	0.5±0.3	0.3±0.2
TCB10 □	300	100	1.0	0.6±0.3	0.3±0.2
			1.5	0.6±0.4	0.4±0.3
			2.0	1.2±0.4	0.6±0.3
			2.5	1.8±0.6	0.6±0.4

TCB10F Series Normal Metric Flange Bushing



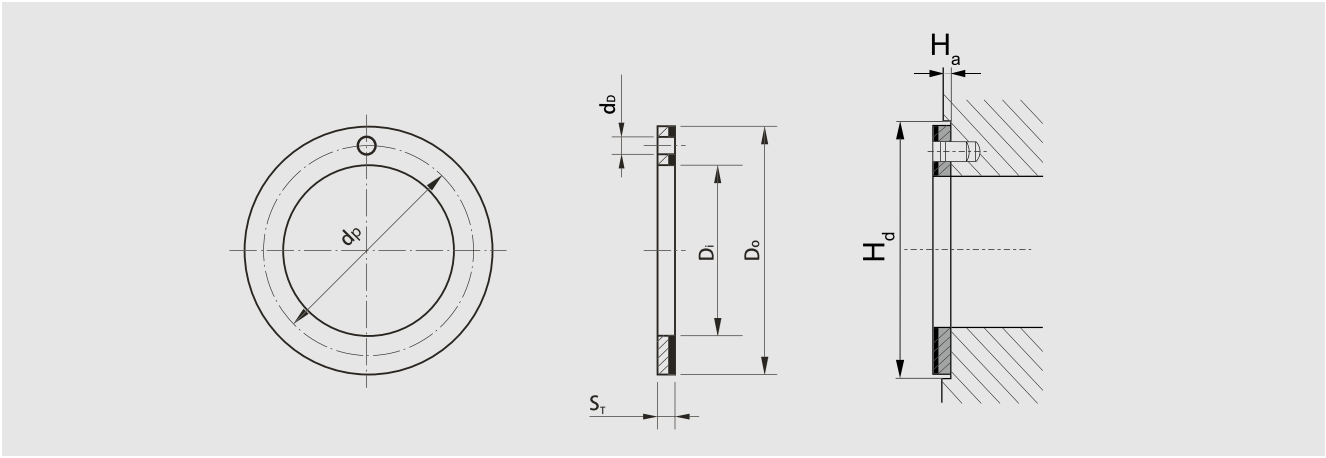
Designation	Shaft Dia Ø dj	Housing Ø D_H	flange Ø D_F	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B
TCB10 ☐ F 03040	3 h6 $^{0}_{-0.006}$	4.5 H6 $^{+0.008}_{0}$	7±0.5	3 $^{+0.048}_{0}$	4±0.25	4.5 $^{+0.055}_{+0.025}$	0.75 $^{0}_{-0.02}$
TCB10 ☐ F 04040	4 h6 $^{0}_{-0.008}$	5.5 H6 $^{+0.008}_{0}$	9±0.5	4 $^{+0.048}_{0}$	4±0.25	5.5 $^{+0.055}_{+0.025}$	0.75 $^{0}_{-0.02}$
TCB10 ☐ F 05050	5 h6 $^{0}_{-0.008}$	7 H7 $^{+0.015}_{0}$	10±0.5	5 $^{+0.055}_{-0.010}$	5±0.25	7 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 06040	6 f7 $^{-0.010}_{-0.022}$	8 H7 $^{+0.015}_{0}$	12±0.5	6 $^{+0.055}_{-0.010}$	4±0.25	8 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 06070					7±0.25		
TCB10 ☐ F 06080					8±0.25		
TCB10 ☐ F 08055	8 f7 $^{-0.013}_{-0.028}$	10 H7 $^{+0.015}_{0}$	15±0.5	8 $^{+0.055}_{-0.010}$	5.5±0.25	10 $^{+0.055}_{+0.025}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 08060					6±0.25		
TCB10 ☐ F 08075					7.5±0.25		
TCB10 ☐ F 08080					8±0.25		
TCB10 ☐ F 08095					9.5±0.25		
TCB10 ☐ F 08100					10±0.25		
TCB10 ☐ F 10070	10 f7 $^{-0.013}_{-0.028}$	12 H7 $^{+0.018}_{0}$	18±0.5	10 $^{+0.058}_{-0.010}$	7±0.25	12 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 10090					9±0.25		
TCB10 ☐ F 10120					12±0.25		
TCB10 ☐ F 10170					17±0.25		
TCB10 ☐ F 12070	12 f7 $^{-0.016}_{-0.028}$	14 H7 $^{+0.018}_{0}$	20±0.5	12 $^{+0.058}_{-0.010}$	7±0.25	14 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 12090					9±0.25		
TCB10 ☐ F 12120					12±0.25		
TCB10 ☐ F 12150					15±0.25		
TCB10 ☐ F 12170					17±0.25		
TCB10 ☐ F 14120	14 f7 $^{-0.016}_{-0.034}$	16 H7 $^{+0.018}_{0}$	22±0.5	14 $^{+0.058}_{-0.010}$	12±0.25	16 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 14170					17±0.25		
TCB10 ☐ F 15090	15 f7 $^{-0.016}_{-0.034}$	17 H7 $^{+0.018}_{0}$	23±0.5	15 $^{+0.058}_{-0.010}$	9±0.25	17 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 15120					12±0.25		
TCB10 ☐ F 15170					17±0.25		
TCB10 ☐ F 16120	16 f7 $^{-0.016}_{-0.034}$	18 H7 $^{+0.018}_{0}$	24±0.5	16 $^{+0.058}_{-0.010}$	12±0.25	18 $^{+0.065}_{+0.030}$	1 $^{+0.005}_{-0.020}$
TCB10 ☐ F 16170					17±0.25		

TCB10F Series Normal Metric Flange Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	flange Ø DF	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B
TCB10 □ F 18120	18 f7 $^{-0.016}_{-0.034}$	20 H7 $^{+0.021}_{0}$	26±0.5	18 $^{+0.061}_{-0.010}$	12±0.25	20 $^{+0.075}_{+0.035}$	1 $^{+0.005}_{-0.020}$
TCB10 □ F 18170					17±0.25		
TCB10 □ F 18200					20±0.25		
TCB10 □ F 20115	20 f7 $^{-0.020}_{-0.041}$	23 H7 $^{+0.021}_{0}$	30±0.5	20 $^{+0.071}_{-0.010}$	11.5±0.25	23 $^{+0.075}_{+0.035}$	1.5 $^{+0.005}_{-0.025}$
TCB10 □ F 20165					16.5±0.25		
TCB10 □ F 20215					21.5±0.25		
TCB10 □ F 25115	25 f7 $^{-0.020}_{-0.041}$	28 H7 $^{+0.021}_{0}$	35±0.5	25 $^{+0.071}_{-0.010}$	11.5±0.25	28 $^{+0.075}_{+0.035}$	1.5 $^{+0.005}_{-0.025}$
TCB10 □ F 25165					16.5±0.25		
TCB10 □ F 25215					21.5±0.25		
TCB10 □ F 25265					26.5±0.25		
TCB10 □ F 30160	30 f7 $^{-0.020}_{-0.041}$	34 H7 $^{+0.025}_{0}$	42±0.5	30 $^{+0.085}_{-0.010}$	16±0.25	34 $^{+0.085}_{+0.045}$	2 $^{+0.005}_{-0.030}$
TCB10 □ F 30260					26±0.25		
TCB10 □ F 35160	35 f7 $^{-0.025}_{-0.050}$	39 H7 $^{+0.025}_{0}$	47±0.5	35 $^{+0.085}_{-0.010}$	16±0.25	39 $^{+0.085}_{+0.045}$	2 $^{+0.005}_{-0.030}$
TCB10 □ F 35260					26±0.25		
TCB10 □ F 40160	40 f7 $^{-0.025}_{-0.050}$	44 H7 $^{+0.025}_{0}$	53±0.5	40 $^{+0.085}_{-0.010}$	16±0.25	44 $^{+0.085}_{+0.045}$	2 $^{+0.005}_{-0.030}$
TCB10 □ F 40260					26±0.25		
TCB10 □ F 45260	45 f7 $^{-0.025}_{-0.050}$	50 H7 $^{+0.025}_{0}$	58±0.5	45 $^{+0.105}_{-0.010}$	16±0.25	50 $^{+0.085}_{+0.045}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ F 45260					26±0.25		
TCB10 □ F 50325	50 f7 $^{-0.025}_{-0.050}$	55 H7 $^{+0.030}_{0}$	63±0.5	50 $^{+0.110}_{-0.010}$	32.5±0.25	55 $^{+0.100}_{+0.050}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ F 50425					42.5±0.25		
TCB10 □ F 55325	55 f7 $^{-0.030}_{-0.060}$	60 H7 $^{+0.030}_{0}$	68±0.5	55 $^{+0.110}_{-0.010}$	32.5±0.25	60 $^{+0.100}_{+0.050}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ F 55425					42.5±0.25		
TCB10 □ F 60325	60 f7 $^{-0.030}_{-0.060}$	65 H7 $^{+0.030}_{0}$	73±0.5	60 $^{+0.110}_{-0.010}$	32.5±0.25	65 $^{+0.100}_{+0.050}$	2.5 $^{+0.005}_{-0.040}$
TCB10 □ F 60425					42.5±0.25		

Label example			Wall Thickness S_B	Outside Chamfer f_1	Inner Chamfer f_2
Type	I.D.	High	0.75	0.5±0.3	0.3±0.2
TCB10 □ F	60	42.5	1.0	0.6±0.3	0.3±0.2
			1.5	0.6±0.4	0.4±0.3
			2.0	1.2±0.4	0.6±0.3
			2.5	1.8±0.6	0.6±0.4

TCB10W Series Metric Washer

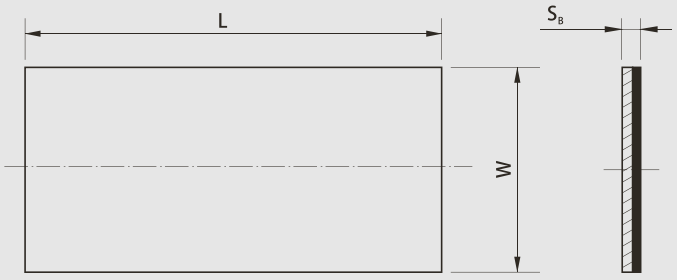


Designation	I.D. ØD$_i$	O.D. Ø D$_o$	Wall Thickness S$_T$	Middle diameter Ød$_p$	Pilot hole Ød$_D$	Assembling house ØH$_d$	Recess Depth H$_a$
TCB10 □ W08	10 $^{+0.25}_{0}$	20 $^{0}_{-0.25}$	1.5 $^{0}_{-0.05}$	15±0.12	1.5 $^{+0.375}_{+0.125}$	20 $^{+0.12}_{0}$	1.0 $^{+0.20}_{-0.05}$
TCB10 □ W10	12 $^{+0.25}_{0}$	24 $^{0}_{-0.25}$		18±0.12		24 $^{+0.12}_{0}$	
TCB10 □ W12	14 $^{+0.25}_{0}$	26 $^{0}_{-0.25}$		20±0.12	2 $^{+0.375}_{+0.125}$	26 $^{+0.12}_{0}$	
TCB10 □ W14	16 $^{+0.25}_{0}$	30 $^{0}_{-0.25}$		22±0.12		30 $^{+0.12}_{0}$	
TCB10 □ W16	18 $^{+0.25}_{0}$	32 $^{0}_{-0.25}$		25±0.12		32 $^{+0.12}_{0}$	
TCB10 □ W18	20 $^{+0.25}_{0}$	36 $^{0}_{-0.25}$		28±0.12	3 $^{+0.375}_{+0.125}$	36 $^{+0.12}_{0}$	
TCB10 □ W20	22 $^{+0.25}_{0}$	38 $^{0}_{-0.25}$		30±0.12		38 $^{+0.12}_{0}$	
TCB10 □ W22	24 $^{+0.25}_{0}$	42 $^{0}_{-0.25}$		33±0.12		42 $^{+0.12}_{0}$	
TCB10 □ W24	26 $^{+0.25}_{0}$	44 $^{0}_{-0.25}$		35±0.12		44 $^{+0.12}_{0}$	
TCB10 □ W25	28 $^{+0.25}_{0}$	48 $^{0}_{-0.25}$		38±0.12	4 $^{+0.375}_{+0.125}$	48 $^{+0.12}_{0}$	
TCB10 □ W30	32 $^{+0.25}_{0}$	54 $^{0}_{-0.25}$		43±0.12		54 $^{+0.12}_{0}$	
TCB10 □ W35	38 $^{+0.25}_{0}$	62 $^{0}_{-0.25}$		50±0.12		62 $^{+0.12}_{0}$	
TCB10 □ W40	42 $^{+0.25}_{0}$	66 $^{0}_{-0.25}$		54±0.12		66 $^{+0.12}_{0}$	
TCB10 □ W45	48 $^{+0.25}_{0}$	74 $^{0}_{-0.25}$	2 $^{0}_{-0.05}$	61±0.12		74 $^{+0.12}_{0}$	1.5 $^{+0.20}_{-0.05}$
TCB10 □ W50	52 $^{+0.25}_{0}$	78 $^{0}_{-0.25}$		65±0.12		78 $^{+0.12}_{0}$	
TCB10 □ W60	62 $^{+0.25}_{0}$	90 $^{0}_{-0.25}$		76±0.12		90 $^{+0.12}_{0}$	

Label example

Type	Shaft diameter
TCB10 □ W	60

TCB10P Series Metric Strip

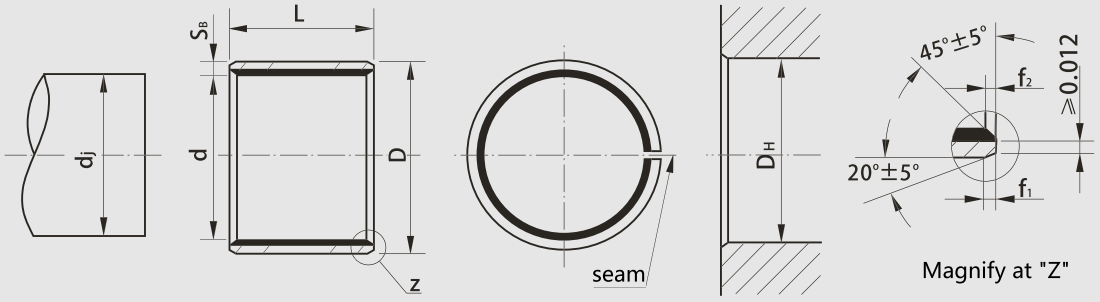


Designation	Lengths L	Width W	Wall Thickness S_B
TCB10 □ P 10150	500 $^{+5.0}_{0}$	150 $^{+2.0}_{0}$	1.0 $^{0}_{-0.05}$
TCB10 □ P 15150			1.5 $^{0}_{-0.05}$
TCB10 □ P 20150			2.0 $^{0}_{-0.05}$
TCB10 □ P 25150			2.5 $^{0}_{-0.05}$
TCB10 □ P 30150			3.0 $^{0}_{-0.05}$

Label example

Type	Wall Thickness	Width
TCB10 □ P	3.0	150

TCB10 Series Normal Inch Bushing



Unit: inch"

Shaft Ød$_j$	Housing ØD$_H$	ØD$_{i,a}$	C$_O$	L ± 0.010					
0.1243 0.1236	0.1878 0.1873	0.1268 0.1243	0.0032 0.0000	02Y02	02Y03				
0.1554 0.1547	0.2191 0.2186	0.1581 0.1556	0.0034 0.0002	025Y025	025Y04				
0.1865 0.1858	0.2503 0.2497	0.1893 0.1867	0.0035 0.0002	03Y03	03Y04	03Y06			
0.2490 0.2481	0.3128 0.3122	0.2518 0.2492	0.0037 0.0002	04Y04	04Y06				
0.3115 0.3106	0.3753 0.3747	0.3143 0.3117		05Y06	05Y08				
0.3740 0.3731	0.4591 0.4684	0.3769 0.3117	0.0038 0.0002	06Y03	06Y04	06Y06	06Y08	06Y10	06Y12
0.4365 0.4355	0.5316 0.5309	0.4394 0.4367	0.0039 0.0002	07Y08	07Y12				
0.4990 0.4980	0.5941 0.5934	0.5019 0.4367		08Y04	08Y06	08Y08	08Y10	08Y12	08Y14
0.5615 0.5605	0.6566 0.6559	0.5019 0.4992		09Y06	09Y08	09Y10	09Y12		
0.6240 0.6230	0.7192 0.7184	0.5644 0.5617	0.0040 0.0002	10Y04	10Y08	10Y10	10Y12	10Y14	10Y16
0.6865 0.6855	0.7817 0.7809	0.6270 0.6242		11Y04					
0.7491 0.7479	0.8755 0.8747	0.6895 0.6867	0.0046 0.0002	12Y14	12Y06	12Y08	12Y10	12Y12	12Y16
0.8116 0.8104	0.9380 0.9372	0.7525 0.7493		13Y12	13Y18				
0.8741 0.8729	1.0005 0.9997	0.8775 0.8743		14Y04	14Y06	14Y12	14Y16	14Y20	
0.9991 0.9979	1.1255 1.1247	1.0025 0.9993		16Y06	16Y08	16Y12	16Y16	16Y20	16Y24
1.1238 1.1226	1.2818 1.2808	1.1278 1.1240	0.0052 0.0002	18Y06	18Y10	18Y12	18Y16		
1.2488 1.2472	1.4068 1.4058	1.2528 1.2490	0.0056 0.0002	20Y06	20Y12	20Y14	20Y16	20Y20	20Y28
1.3738 1.3722	1.5318 1.5308	1.3778 1.3740		22Y12	22Y12	22Y24	20Y1628		
1.4988 1.4972	1.6568 1.6558	1.5028 1.4990		24Y08	24Y16	24Y18	24Y20	24Y24	24Y32
1.6238 1.6222	1.7818 1.7808	1.6278 1.6240		26Y16	26Y24				
1.7487 1.7471	1.9381 1.9371	1.7535 1.7489	0.0064 0.0002	28Y16	28Y24	28Y32			

TCB10 Series Normal Inch Bushing

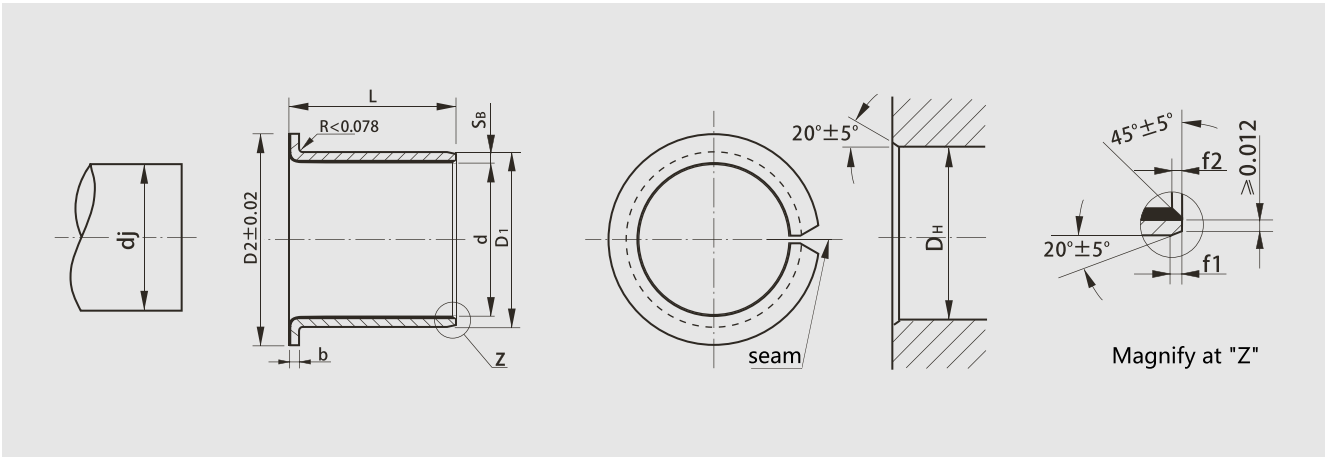
Unit: inch"

Shaft $Ød_j$	Housing $ØD_H$	$ØD_{i,a}$	C_O	L ± 0.010								
1.8737 1.8721	2.0633 2.0621	1.8787 1.8739	0.0066 0.0002	30Y12	30Y16	30Y36						
1.9987 1.9969	2.1883 2.1871	2.0037 1.9989	0.0068 0.0002	32Y08	32Y16	32Y24	32Y28	32Y32	32Y40			
2.1257 2.1239	2.3130 2.3118	2.1326 2.1262	0.0084 0.0002	34Y48								
2.2507 2.2489	2.4377 2.4365	2.2573 2.2509		36Y28	36Y32	36Y40	36Y48	36Y56	36Y60	36Y64	36Y72	
2.5011 2.4993	2.6881 2.6869	2.5077 2.5013		40Y16	40Y26	40Y32	40Y40	40Y48	40Y56	40Y60	40Y64	40Y72
2.7500 2.7482	2.9370 2.9358	2.7566 2.7502		44Y32	44Y36	44Y40	44Y48	44Y56	44Y60	44Y64	44Y72	44Y76
2.8752 2.8734	3.0623 3.0610	2.8819 2.8754	0.0085 0.0002	46Y32	46Y36	46Y40	46Y48	46Y56	46Y60	46Y64	46Y72	46Y76
3.0000 3.2480	3.1872 3.1858	3.0068 3.0002	0.0086 0.0002	48Y32	48Y36	48Y40	48Y48	48Y56	48Y60	48Y64	48Y72	48Y76
3.2500 3.2480	3.4372 3.4358	3.2568 3.2502	0.0088 0.0002	52Y32	52Y36	52Y40	52Y48	52Y56	52Y60	52Y64	52Y72	52Y76
3.5000 3.4978	3.6872 3.6858	3.5068 3.5002		56Y32	56Y36	56Y40	56Y48	56Y56	56Y60	56Y64	56Y72	56Y76
3.6250 3.6228	3.8122 3.8108	3.6318 3.6252		58Y32	58Y36	58Y40	58Y48	58Y56	58Y60	58Y64	58Y72	58Y76
3.7500 3.7478	3.9372 3.9358	3.7568 3.7502		60Y32	60Y36	60Y40	60Y48	60Y56	60Y60	60Y64	60Y72	60Y76
4.0000 3.9978	4.1858 4.1858	4.0068 4.0002	0.0090 0.0002	64Y32	64Y36	64Y40	64Y48	64Y56	64Y60	64Y64	64Y72	64Y76
4.2500 4.2478	4.5622 4.5608	4.2568 4.2502		68Y32	68Y36	68Y40	68Y48	68Y56	68Y60	68Y64	68Y72	68Y76
4.3750 4.3728	4.6872 4.5608	4.3818 4.3752		70Y32	70Y36	70Y40	70Y48	70Y56	70Y60	70Y64	70Y72	70Y76
4.5000 4.4978	4.6872 4.6858	4.5068 4.5002		72Y32	72Y36	72Y40	72Y48	72Y56	72Y60	72Y64	72Y72	72Y76
4.7500 4.7478	4.9374 4.9358	4.7572 4.7502	0.0094 0.0002	76Y32	76Y36	76Y40	76Y48	76Y56	76Y60	76Y64	76Y72	76Y76
4.9986 4.9961	5.1860 5.1844	5.0056 4.9988		80Y32	80Y36	80Y40	80Y48	80Y56	80Y60	80Y64	80Y72	80Y76
5.2500 5.2475	5.4374 5.1844	5.2570 5.2502		84Y32	84Y36	84Y40	84Y48	84Y56	84Y60	84Y64	84Y72	84Y76
5.5000 5.4975	5.6874 5.6858	5.5070 5.5002		88Y32	88Y36	88Y40	88Y48	88Y56	88Y60	88Y64	88Y72	88Y76
5.7500 5.7475	5.9374 5.9358	5.7570 5.7502	0.0095 0.0002	92Y32	92Y36	92Y40	92Y48	92Y56	92Y60	92Y64	92Y72	92Y76
6.0000 5.9975	6.1874 6.1858	6.0070 6.0002		96Y32	96Y36	96Y40	96Y48	96Y56	96Y60	96Y64	96Y72	96Y76
6.2500 6.2475	6.4374 6.4358	6.2570 6.2502		100Y32	100Y36	100Y40	100Y48	100Y56	100Y60	100Y64	100Y72	100Y76
6.5000 6.4975	6.6874 6.6858	6.5070 6.5002		104Y32	104Y36	104Y40	104Y48	104Y56	104Y60	104Y64	104Y72	104Y76
6.7500 6.7475	6.9374 6.9358	6.7570 6.7502		108Y32	108Y36	108Y40	108Y48	108Y56	108Y60	108Y64	108Y72	108Y76
6.9954 6.9929	7.1830 7.1812	7.0026 6.9956	0.0097 0.0002	112Y32	112Y36	112Y40	112Y48	112Y56	112Y60	112Y64	112Y72	112Y76

Label example

Type	I.D.	High
TCB10 □ Y	112	32

TCB10F Series Normal Inch Flange Bushing



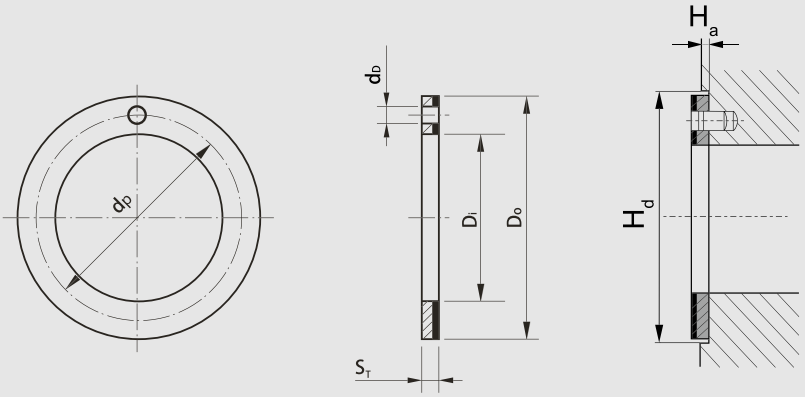
Unit: inch"

Shaft Ød$_j$	Housing ØD$_H$	ØD$_{i,a}$	C$_O$	ØD$_{fl}$	S$_{fl}$	L ± 0.010			
0.3750 0.3740	0.4691 0.4684	0.3779 0.3752	0.0039 0.3752	0.7075 0.6675	0.052 0.044	06FY04	06FY06	06FY08	06FY12
0.5000 0.4990	0.5941 0.5934	0.5029 0.5002	0.5029 0.5002	0.8325 0.7925	0.052 0.044	08FY04	08FY06	08FY08	08FY12
0.6250 0.6240	0.7192 0.7184	0.6280 0.6252	0.6280 0.6252	0.9575 0.9175	0.052 0.044	10FY06	10FY08	10FY10	10FY12
0.7500 0.7488	0.8755 0.8747	0.7534 0.7502	0.7534 0.7502	1.1450 1.1050	0.068 0.060	12FY06	12FY08	12FY12	12FY16
0.8750 0.8738	1.0005 0.9997	0.8784 0.8752	0.8784 0.8752	1.2200 1.1800	0.068 0.060	14FY08	14FY12	14FY16	14FY20
1.0000 0.9988	1.1255 1.1247	1.0034 1.0002	1.0034 1.0002	1.3850 1.3550	0.068 0.060	16FY08	16FY12	16FY16	16FY20
1.2500 1.2484	1.4068 1.4058	1.2540 1.2502	1.2540 1.2502	1.7700 1.7300	0.083 0.075	20FY16	20FY20	20FY24	
1.5000 1.4984	1.6568 1.6558	1.5040 1.5002	1.5040 1.5002	2.0200 1.9800	0.083 0.075	24FY16	24FY24	24FY32	
1.7500 1.7484	1.9381 1.9371	1.7548 1.7502	1.7548 1.7502	2.3950 2.3550	0.098 0.090	28FY16	28FY24	28FY32	

Label example

Type	I.D.	High
TCB10 □ FY	28	16

TCB10W Series Inch Washer



Unit: inch"

Designation	Inside $ØD_i$		Qutside $ØD_o$	Wall thickness S_T	Dowel hole $Ød_D$	Dowel hole PCD $ØH_d$	Recess Depth H_a
	max.	min.	max. min.	max. min.	max. min.	max. min.	max. min.
TCB10 ☐ WY06	0.510	0.500	0.875 0.865	0.063 0.061	0.077 0.067	0.692 0.682	0.050 0.040
TCB10 ☐ WY07	0.572	0.562	1.000 0.990			0.786 0.776	
TCB10 ☐ WY08	0.635	0.625	1.125 1.115		0.109 0.099	0.880 0.870	
TCB10 ☐ WY09	0.697	0.687	1.187 1.177			0.942 0.932	
TCB10 ☐ WY10	0.760	0.750	1.250 1.240			1.005 0.995	
TCB10 ☐ WY11	0.822	0.812	1.375 1.365			1.099 1.089	
TCB10 ☐ WY12	0.885	0.875	1.500 1.490		0.140 0.130	1.192 1.182	
TCB10 ☐ WY14	1.010	1.000	1.750 1.740			1.380 1.370	
TCB10 ☐ WY16	1.135	1.125	2.000 1.990		0.171 0.161	1.567 1.557	
TCB10 ☐ WY18	1.260	1.250	2.125 2.115			1.692 1.682	
TCB10 ☐ WY20	1.385	1.375	2.250 2.240			1.817 1.807	
TCB10 ☐ WY22	1.510	1.500	2.500 2.490		0.202 0.192	2.005 1.995	
TCB10 ☐ WY24	1.635	1.625	2.625 2.615			2.130 2.120	
TCB10 ☐ WY26	1.760	1.750	2.750 2.740			2.255 2.245	
TCB10 ☐ WY28	2.010	2.000	3.000 2.990	0.093 0.091		2.505 2.495	0.080 0.070
TCB10 ☐ WY30	2.135	2.125	3.125 3.115			2.630 2.620	
TCB10 ☐ WY32	2.260	2.250	3.250 3.240			2.755 2.745	

Label example

Type	Shaft diameter
TCB10 ☐ WY	32

TCB20 Boundary Lubricating Bushings

Metallography

Structure Characteristics and Applications

TCB201 is designed for marginal lubricating bushing. It is backed with copper-plated steel with porous bronze sintered on it and polymers (POM) imbedded into the bores of the bronze. The steel back provides the products with high quality low carbon steel. Oil dents stamped on the surface of the polymer can achieve good lubrication between the bushing and its mating axis. It is of good anti-abrasion and load capacity. The plating coating on the surface is erosion protective. And it is environmental protective as no lead included in the surface polymer POM. Products of TCB20 series are widely used on automotive chassis, forging machines, mine quarrying machines, metal melting and casting machines and in water irrigating and steel rolling industries.

Physical and Mechanical Performance

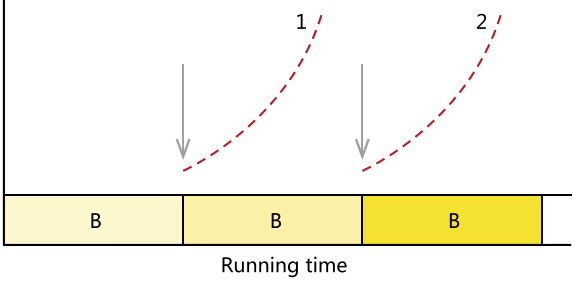
Performance Index		Data
Max Load P	Static Load	250N/mm^2
	Dynamic Load	140N/mm^2
Linear Velocity V	Grease Lubrication	2.5m/s
Max PV value	Grease Lubrication	2.8N/mm^2.m/s
Friction Coefficient	Grease Lubrication	0.06~0.12
Mating Axis	Hardness	>270 HB
	Roughness	Ra=0.4~1.25
Working Temperature		-40~+120℃
Heat-conducting Coefficient		52W/(m·k)
Heat-expansion Coefficient(Axial)		11×10^{-6}/K

Normally, the surface polymer of TCB201 is of chemical-erosion resistant quality. So its erosion-prevention quality is primarily decided by the quality of the steel back and its plating layer. Air-erosion could be effectively prevented if the steel back is plated with bronze or tin. If the bushing is to be used in erosive environment, the steel back needs to be plated with zinc, etc.

Anti-abrasion Performance

See the following chart for abrasion charecterics of TCB201 in the condition of grease lubrication. From the chart, it can be known that in the "Running-in" phase, the wear rate is rather small and when smearing grease during assemblage, it will gradually become bigger (see dashed line 1 in the chart). Of course, if the lubricating grease was duly added, the wear rate could still keep steady. Service life of the bushing could be prolonged if the time interval for adding grease is appropriate. The time interval is decided by the running PV value, while service life is decided by the accumulative abrasion quantity.
Under the condition of grease lubrication: recommend to use lithium fatty acid when environment temperature is lower than 80 ℃ and to use silicon fatty acid when environment temperature is above 80℃ . It is not advisable to use fatty acid with EP additives.

The dashed line 1 is the wear curve when smearing grease during assemblage and the dashed line 2 is the wear curve when lubricating grease is used up. This arrowhead dictates the position of adding grease. B dictates appropriate lubricating time.



The wear curve of TCB201

Main Factors that Influence the Service life of the Bushing

1). PV Value

PV value is an effective criterion to calculate the service life of TCB201. If there is need to prolong the service Life, PV value must be reduced.

2). Environment Temperature

When the environment temprature is above 40 ℃ , performance of TCB201 will be obviously debased. Therefore, the higer the working temperature is, the shorter the life of the products would be.

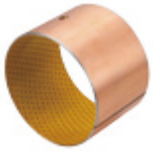
3). Quality of the Mating Surface

When Roughness of the mating surface Ra=0.4~0.63, service life of TCB201 could be obviously prolonged.

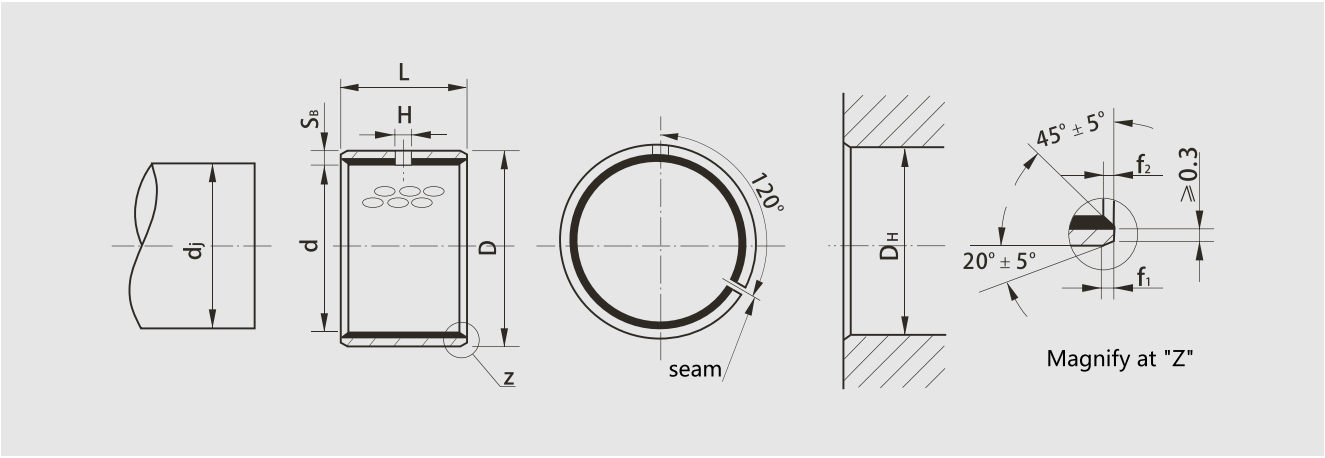
Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

TCB20 Boundary Lubricating Bushings

TCB201 Bushing is special for heavy load and low speed rotation, oscillating motion, and the situation under heavy load but not possible to put grease. This type of bushing can work longer life when putting grease during the working condition. The POM can be added different material depending on different working condition and environment production request, like our product TCB202, TCB203, TCB206. The material structure, application fields and technical parameter are as follows.

Data	Grade	TCB201 (without lead)	TCB202 (without lead)	TCB203 (without lead)	TCB206 (without lead)	TCB2000 (FR)
	Material	Steel+ Bronze+POM	Steel+ Bronze+POM	Steel+ Bronze+POM	Steel+Bronze +(PTFE+PEEK)	Bronze mesh +PTFE
Typical application		It's used in vehicle chassis, forming machine tools, steel metallurgical machinery, mineral mountain machinery, hydraulic industry and rolling steel industry, etc.			Work in high temperature condition like high-pressure gear pump, water injection pump, hydraulic motor and spray painting food processing.	The product is widely applied to textile machine, joint bushing, door hinges and joystick of automobile, etc.
Max load capacity P	N/mm^2 Static load	140	110	140	140	100
	N/mm^2 Dynamic load	70	45	70	100	80
Max line speed V m/s	Grease lubrication	2.5	2.5	2.5	2.5	1
PV value limit $N/mm^2 \cdot m/s$		2.8	2.8	2.8	2.5	1.65
Friction coef u		0.06~0.12	0.05~0.1	0.06~0.12	0.08~0.12	0.08~0.20
Mating Axis	Hardness	>270	>270	>270	>270	
	Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25	
Working temperature ℃		-40~+120	-60~+120	-60~+120	-150~+250	-200℃~+260℃
Thermal conductivity W/mk		52	52	52	52	1200
Coefficient of linear expansion		11×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K	11×10^{-6}/K	
Outside surface Plating		copper/tin	copper/tin	copper/tin	copper/tin	
We can also develop according to customers special request while out of this table						

TCB20 Series Normal Metric Bushing



Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB20 □ 0808	8 h8 $^{0}_{-0.022}$	10 H7 $^{+0.015}_{0}$	8 $^{+0.105}_{+0.040}$	8±0.25	10 $^{+0.055}_{+0.025}$	1 $^{-0.020}_{-0.045}$	/
TCB20 □ 0810				10±0.25			
TCB20 □ 0812				12±0.25			
TCB20 □ 1010	10 h8 $^{0}_{-0.027}$	12 H7 $^{+0.018}_{0}$	10 $^{+0.108}_{+0.040}$	10±0.25	12 $^{+0.065}_{+0.030}$	1 $^{-0.020}_{-0.045}$	4
TCB20 □ 1012				12±0.25			
TCB20 □ 1015				15±0.25			
TCB20 □ 1020				20±0.25			
TCB20 □ 1210	12 h8 $^{0}_{-0.027}$	14 H7 $^{+0.018}_{0}$	12 $^{+0.108}_{+0.040}$	10±0.25	14 $^{+0.065}_{+0.030}$	1 $^{-0.020}_{-0.045}$	
TCB20 □ 1212				12±0.25			
TCB20 □ 1215				15±0.25			
TCB20 □ 1220				20±0.25			
TCB20 □ 1225				25±0.25			
TCB20 □ 1415	14 h8 $^{0}_{-0.027}$	16 H7 $^{+0.018}_{0}$	14 $^{+0.108}_{+0.040}$	15±0.25	16 $^{+0.065}_{+0.030}$	1 $^{-0.020}_{-0.045}$	
TCB20 □ 1420				20±0.25			
TCB20 □ 1425				25±0.25			
TCB20 □ 1510	15 h8 $^{0}_{-0.027}$	17 H7 $^{+0.018}_{0}$	15 $^{+0.108}_{+0.040}$	10±0.25	17 $^{+0.065}_{+0.030}$	1 $^{-0.020}_{-0.045}$	
TCB20 □ 1512				12±0.25			
TCB20 □ 1515				15±0.25			
TCB20 □ 1525				25±0.25			
TCB20 □ 1615	16 h8 $^{0}_{-0.027}$	18 H7 $^{+0.018}_{0}$	16 $^{+0.108}_{+0.040}$	15±0.25	18 $^{+0.065}_{+0.030}$	1 $^{-0.020}_{-0.045}$	
TCB20 □ 1620				20±0.25			
TCB20 □ 1625				25±0.25			
TCB20 □ 1815	18 h8 $^{0}_{-0.027}$	20 H7 $^{+0.021}_{0}$	18 $^{+0.111}_{+0.040}$	15±0.25	20 $^{+0.075}_{+0.035}$	1 $^{-0.020}_{-0.045}$	
TCB20 □ 1820				20±0.25			
TCB20 □ 1825				25±0.25			
TCB20 □ 2010	20 h8 $^{0}_{-0.033}$	23 H7 $^{+0.021}_{0}$	20 $^{+0.131}_{+0.050}$	10±0.25	23 $^{+0.075}_{+0.035}$	1.5 $^{-0.025}_{-0.055}$	
TCB20 □ 2015				15±0.25			
TCB20 □ 2020				20±0.25			

TCB20 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB20 □ 2025	20 h8 $^{0}_{-0.033}$	23 H7 $^{+0.021}_{0}$	20 $^{+0.131}_{+0.050}$	25±0.25	23 $^{+0.075}_{+0.035}$	1.5 $^{-0.025}_{-0.055}$	4
TCB20 □ 2030				30±0.25			
TCB20 □ 2215	22 h8 $^{0}_{-0.033}$	25 H7 $^{+0.021}_{0}$	22 $^{+0.131}_{+0.050}$	15±0.25	25 $^{+0.075}_{+0.035}$	1.5 $^{-0.025}_{-0.055}$	
TCB20 □ 2220				20±0.25			
TCB20 □ 2225				25±0.25			
TCB20 □ 2230				30±0.25			
TCB20 □ 2415	24 h8 $^{0}_{-0.033}$	27 H7 $^{+0.021}_{0}$	24 $^{+0.131}_{+0.050}$	15±0.25	27 $^{+0.075}_{+0.035}$	1.5 $^{-0.025}_{-0.055}$	
TCB20 □ 2420				20±0.25			
TCB20 □ 2430				30±0.25			
TCB20 □ 2515	25 h8 $^{0}_{-0.033}$	28 H7 $^{+0.021}_{0}$	25 $^{+0.131}_{+0.050}$	15±0.25	28 $^{+0.075}_{+0.035}$	1.5 $^{-0.025}_{-0.055}$	6
TCB20 □ 2520				20±0.25			
TCB20 □ 2525				25±0.25			
TCB20 □ 2530				30±0.25			
TCB20 □ 2820	28 h8 $^{0}_{-0.033}$	32 H7 $^{+0.025}_{0}$	28 $^{+0.155}_{+0.060}$	20±0.25	32 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 2825				25±0.25			
TCB20 □ 2830				30±0.25			
TCB20 □ 3020	30 h8 $^{0}_{-0.033}$	34 H7 $^{+0.025}_{0}$	30 $^{+0.155}_{+0.060}$	20±0.25	34 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 3030				30±0.25			
TCB20 □ 3040				40±0.25			
TCB20 □ 3220	32 h8 $^{0}_{-0.039}$	36 H7 $^{+0.025}_{0}$	32 $^{+0.155}_{+0.060}$	20±0.25	36 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 3230				30±0.25			
TCB20 □ 3235				35±0.25			
TCB20 □ 3240				40±0.25			
TCB20 □ 3520	35 h8 $^{0}_{-0.039}$	39 H7 $^{+0.025}_{0}$	35 $^{+0.155}_{+0.060}$	20±0.25	39 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 3530				30±0.25			
TCB20 □ 3535				35±0.25			
TCB20 □ 3550				50±0.25			
TCB20 □ 3635	36 h8 $^{0}_{-0.039}$	40 H7 $^{+0.025}_{0}$	36 $^{+0.155}_{+0.060}$	35±0.25	40 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 3720	37 h8 $^{0}_{-0.039}$	41 H7 $^{+0.025}_{0}$	37 $^{+0.155}_{+0.060}$	20±0.25	41 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	
TCB20 □ 4020	40 h8 $^{0}_{-0.039}$	44 H7 $^{+0.025}_{0}$	40 $^{+0.155}_{+0.060}$	20±0.25	44 $^{+0.085}_{+0.045}$	2 $^{-0.030}_{-0.065}$	8
TCB20 □ 4030				30±0.25			
TCB20 □ 4040				40±0.25			
TCB20 □ 4050				50±0.25			
TCB20 □ 4520	45 h8 $^{0}_{-0.039}$	50 H7 $^{+0.025}_{0}$	45 $^{+0.195}_{+0.080}$	20±0.25	50 $^{+0.085}_{+0.045}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 4530				30±0.25			
TCB20 □ 4540				40±0.25			
TCB20 □ 4545				45±0.25			
TCB20 □ 4550				50±0.25			
TCB20 □ 5040	50 h8 $^{0}_{-0.039}$	55 H7 $^{+0.030}_{0}$	50 $^{+0.200}_{+0.080}$	40±0.25	55 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 5050				50±0.25			
TCB20 □ 5060				60±0.25			
TCB20 □ 5520	55 h8 $^{0}_{-0.046}$	60 H7 $^{+0.030}_{0}$	55 $^{+0.200}_{+0.080}$	20±0.25	55 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 5525				25±0.25			

TCB20 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB20 □ 5530	55 h8 $^{0}_{-0.046}$	60 H7 $^{+0.030}_{0}$	55 $^{+0.200}_{+0.080}$	30±0.25	60 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	8
TCB20 □ 5540				40±0.25			
TCB20 □ 5550				50±0.25			
TCB20 □ 5560				60±0.25			
TCB20 □ 6030	60 h8 $^{0}_{-0.046}$	65 H7 $^{+0.030}_{0}$	60 $^{+0.200}_{+0.080}$	30±0.25	65 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 6040				40±0.25			
TCB20 □ 6060				60±0.25			
TCB20 □ 6070				70±0.25			
TCB20 □ 6540	65 h8 $^{0}_{-0.046}$	70 H7 $^{+0.030}_{0}$	65 $^{+0.200}_{+0.080}$	40±0.25	70 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 6550				50±0.25			
TCB20 □ 6560				60±0.25			
TCB20 □ 6570				70±0.25			
TCB20 □ 7040	70 h8 $^{0}_{-0.046}$	75 H7 $^{+0.030}_{0}$	70 $^{+0.200}_{+0.080}$	40±0.25	75 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	
TCB20 □ 7050				50±0.25			
TCB20 □ 7065				65±0.25			
TCB20 □ 7070				70±0.25			
TCB20 □ 7080				80±0.25			
TCB20 □ 7540	75 h8 $^{0}_{-0.046}$	80 H7 $^{+0.030}_{0}$	75 $^{+0.200}_{+0.080}$	40±0.25	80 $^{+0.100}_{+0.055}$	2.5 $^{-0.040}_{-0.085}$	9.5
TCB20 □ 7560				60±0.25			
TCB20 □ 7580				80±0.25			
TCB20 □ 8040	80 h8 $^{0}_{-0.046}$	85 H7 $^{+0.035}_{0}$	80 $^{+0.265}_{+0.100}$	40±0.5	85 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 8060				60±0.5			
TCB20 □ 8080				80±0.5			
TCB20 □ 80100				100±0.5			
TCB20 □ 8530	85 h8 $^{0}_{-0.054}$	90 H7 $^{+0.035}_{0}$	85 $^{+0.265}_{+0.100}$	30±0.5	90 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 8540				40±0.5			
TCB20 □ 8560				60±0.5			
TCB20 □ 8580				80±0.5			
TCB20 □ 85100				100±0.5			
TCB20 □ 9040	90 h8 $^{0}_{-0.054}$	95 H7 $^{+0.035}_{0}$	90 $^{+0.265}_{+0.100}$	40±0.5	90 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 9060				60±0.5			
TCB20 □ 9080				80±0.5			
TCB20 □ 9090				90±0.5			
TCB20 □ 90100				100±0.5			
TCB20 □ 9560	95 h8 $^{0}_{-0.054}$	100 H7 $^{+0.035}_{0}$	95 $^{+0.265}_{+0.100}$	60±0.5	95 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 95100				100±0.5			
TCB20 □ 10050	100 h8 $^{0}_{-0.054}$	105 H7 $^{+0.035}_{0}$	100 $^{+0.265}_{+0.100}$	50±0.5	105 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 10060				60±0.5			
TCB20 □ 10080				80±0.5			
TCB20 □ 100115				115±0.5			
TCB20 □ 10560	105 h8 $^{0}_{-0.054}$	110 H7 $^{+0.035}_{0}$	105 $^{+0.265}_{+0.100}$	60±0.5	110 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 105110				110±0.5			
TCB20 □ 105115				115±0.5			

TCB20 Series Normal Metric Bushing

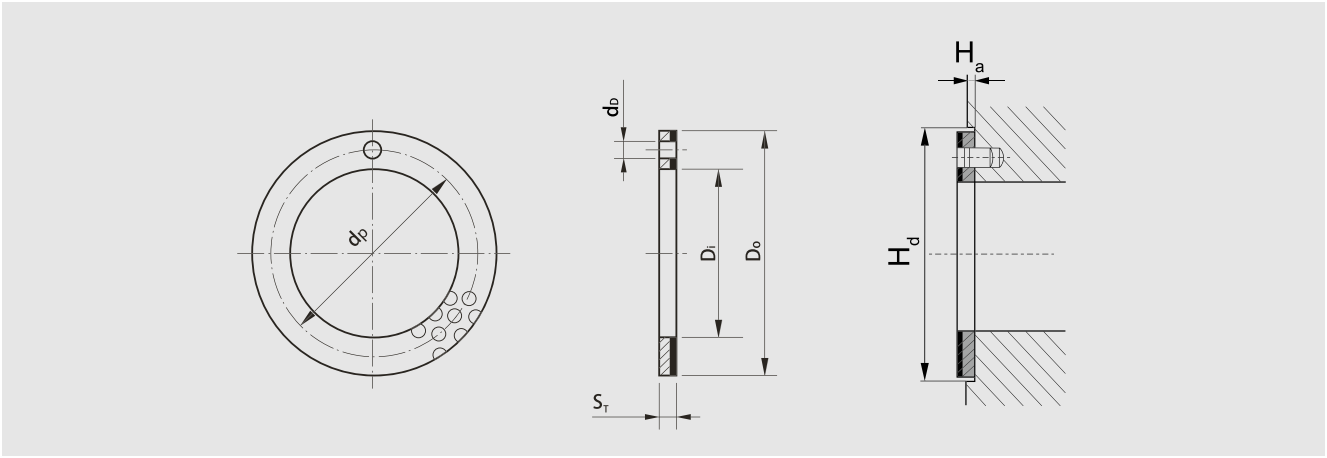
Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB20 □ 11060	110 h8 $^{0}_{-0.054}$	115 H7 $^{+0.035}_{0}$	110 $^{+0.265}_{+0.100}$	60±0.5	115 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	9.5
TCB20 □ 110110				110±0.5			
TCB20 □ 110115				115±0.5			
TCB20 □ 11550	115 h8 $^{0}_{-0.054}$	120 H7 $^{+0.035}_{0}$	115 $^{+0.265}_{+0.100}$	50±0.5	120 $^{+0.120}_{+0.070}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 11570				70±0.5			
TCB20 □ 12060	120 h8 $^{0}_{-0.054}$	125 H7 $^{+0.040}_{0}$	120 $^{+0.270}_{+0.100}$	60±0.5	125 $^{+0.170}_{+0.100}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 120100				100±0.5			
TCB20 □ 120110				110±0.5			
TCB20 □ 12560	125 h8 $^{0}_{-0.063}$	130 H7 $^{+0.040}_{0}$	125 $^{+0.270}_{+0.100}$	60±0.5	130 $^{+0.170}_{+0.100}$	2.5 $^{-0.050}_{-0.115}$	
TCB20 □ 125100				100±0.5			
TCB20 □ 125110				110±0.5			
TCB20 □ 13050	130 h8 $^{0}_{-0.063}$	135 H7 $^{+0.040}_{0}$	130 $^{+0.280}_{+0.130}$	50±0.5	135 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 13060				60±0.5			
TCB20 □ 13080				80±0.5			
TCB20 □ 130100				100±0.5			
TCB20 □ 13560	135 h8 $^{0}_{-0.063}$	140 H7 $^{+0.040}_{0}$	135 $^{+0.280}_{+0.130}$	60±0.5	140 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 13580				80±0.5			
TCB20 □ 14050	140 h8 $^{0}_{-0.063}$	145 H7 $^{+0.040}_{0}$	140 $^{+0.280}_{+0.130}$	50±0.5	145 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 14060				60±0.5			
TCB20 □ 14080				80±0.5			
TCB20 □ 140100				100±0.5			
TCB20 □ 15050	150 h8 $^{0}_{-0.063}$	155 H7 $^{+0.040}_{0}$	150 $^{+0.280}_{+0.130}$	50±0.5	155 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 15060				60±0.5			
TCB20 □ 15080				80±0.5			
TCB20 □ 150100				100±0.5			
TCB20 □ 16050	160 h8 $^{0}_{-0.063}$	165 H7 $^{+0.040}_{0}$	160 $^{+0.280}_{+0.130}$	50±0.5	165 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	/
TCB20 □ 16060				60±0.5			
TCB20 □ 16080				80±0.5			
TCB20 □ 160100				100±0.5			
TCB20 □ 17050	170 h8 $^{0}_{-0.063}$	175 H7 $^{+0.040}_{0}$	170 $^{+0.280}_{+0.130}$	50±0.75	175 $^{+0.170}_{+0.100}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 17060				60±0.75			
TCB20 □ 17080				80±0.75			
TCB20 □ 170100				100±0.75			
TCB20 □ 18050	180 h8 $^{0}_{-0.063}$	185 H7 $^{+0.046}_{0}$	180 $^{+0.286}_{+0.130}$	50±0.75	185 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 18060				60±0.75			
TCB20 □ 18080				80±0.75			
TCB20 □ 180100				100±0.75			
TCB20 □ 19050	190 h8 $^{0}_{-0.072}$	195 H7 $^{+0.046}_{0}$	190 $^{+0.286}_{+0.130}$	50±0.75	195 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 19080				80±0.75			
TCB20 □ 190100				100±0.75			
TCB20 □ 190120				120±0.75			
TCB20 □ 20050	200 h8 $^{0}_{-0.072}$	205 H7 $^{+0.046}_{0}$	200 $^{+0.286}_{+0.130}$	50±0.75	205 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 20080				80±0.75			

TCB20 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB20 □ 200100	200 h8 $^{0}_{-0.072}$	205 H7 $^{+0.046}_{0}$	200 $^{+0.286}_{+0.130}$	100±0.5	205 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	/
TCB20 □ 200120				120±0.5			
TCB20 □ 22050	220 h8 $^{0}_{-0.072}$	225 H7 $^{+0.046}_{0}$	220 $^{+0.286}_{+0.130}$	50±0.5	225 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 220100				100±0.5			
TCB20 □ 220120				120±0.5			
TCB20 □ 24050	240 h8 $^{0}_{-0.072}$	245 H7 $^{+0.046}_{0}$	240 $^{+0.286}_{+0.130}$	50±0.5	245 $^{+0.210}_{+0.130}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 24060				60±0.5			
TCB20 □ 24080				80±0.5			
TCB20 □ 240100				100±0.5			
TCB20 □ 240120				120±0.5			
TCB20 □ 25050	250 h8 $^{0}_{-0.072}$	255 H7 $^{+0.052}_{0}$	250 $^{+0.292}_{+0.130}$	50±0.5	255 $^{+0.260}_{+0.170}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 25080				80±0.5			
TCB20 □ 250100				100±0.5			
TCB20 □ 250120				120±0.5			
TCB20 □ 26050	260 h8 $^{0}_{-0.081}$	265 H7 $^{+0.052}_{0}$	260 $^{+0.292}_{+0.130}$	50±0.5	265 $^{+0.260}_{+0.170}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 26080				80±0.5			
TCB20 □ 260100				100±0.5			
TCB20 □ 260120				120±0.5			
TCB20 □ 28050	280 h8 $^{0}_{-0.081}$	285 H7 $^{+0.052}_{0}$	280 $^{+0.292}_{+0.130}$	50±0.5	285 $^{+0.260}_{+0.170}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 28080				80±0.5			
TCB20 □ 280100				100±0.5			
TCB20 □ 280120				120±0.5			
TCB20 □ 30050	300 h8 $^{0}_{-0.081}$	305 H7 $^{+0.052}_{0}$	300 $^{+0.292}_{+0.130}$	50±0.5	305 $^{+0.260}_{+0.170}$	2.5 $^{-0.065}_{-0.120}$	
TCB20 □ 30080				80±0.5			
TCB20 □ 300100				100±0.5			
TCB20 □ 300120				120±0.5			

Label example			Wall Thickness S_B	Outside Chamfer f_1	Inner Chamfer f_2
			1.0	0.6±0.3	0.3±0.2
			1.5	0.6±0.4	0.4±0.3
Type	I.D.	High	2.0	1.2±0.4	0.6±0.3
TCB201	300	120	2.5	1.8±0.6	0.6±0.4

TCB20 Series Normal Metric Washer

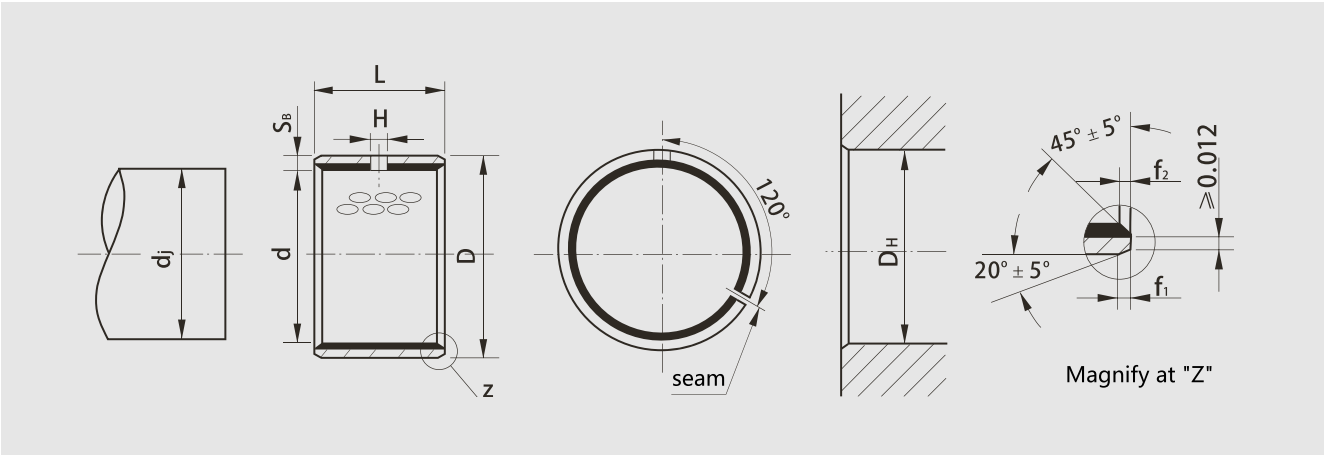


Designation	I.D. $ØD_i$	O.D. $ØD_o$	Wall Thickness S_T	Middle diameter $Ød_p$	Pilot hole $Ød_D$	Assembling house $ØH_d$	Recess Depth H_a
TCB20 □ W08	$10^{+0.25}_{0}$	$20^{0}_{-0.25}$	$1.5^{0}_{-0.05}$	15±0.12	$1.5^{+0.375}_{-0.125}$	$20^{+0.12}_{0}$	$1.0^{+0.20}_{-0.05}$
TCB20 □ W10	$12^{+0.25}_{0}$	$24^{0}_{-0.25}$		18±0.12		$24^{+0.12}_{0}$	
TCB20 □ W12	$14^{+0.25}_{0}$	$26^{0}_{-0.25}$		20±0.12	$2^{+0.375}_{-0.125}$	$26^{+0.12}_{0}$	
TCB20 □ W14	$16^{+0.25}_{0}$	$30^{0}_{-0.25}$		22±0.12		$30^{+0.12}_{0}$	
TCB20 □ W16	$18^{+0.25}_{0}$	$32^{0}_{-0.25}$		25±0.12		$32^{+0.12}_{0}$	
TCB20 □ W18	$20^{+0.25}_{0}$	$36^{0}_{-0.25}$		28±0.12	$3^{+0.375}_{-0.125}$	$36^{+0.12}_{0}$	
TCB20 □ W20	$22^{+0.25}_{0}$	$38^{0}_{-0.25}$		30±0.12		$38^{+0.12}_{0}$	
TCB20 □ W22	$24^{+0.25}_{0}$	$42^{0}_{-0.25}$		33±0.12		$42^{+0.12}_{0}$	
TCB20 □ W24	$26^{+0.25}_{0}$	$44^{0}_{-0.25}$		35±0.12		$44^{+0.12}_{0}$	
TCB20 □ W25	$28^{+0.25}_{0}$	$48^{0}_{-0.25}$		38±0.12	$4^{+0.375}_{-0.125}$	$48^{+0.12}_{0}$	
TCB20 □ W30	$32^{+0.25}_{0}$	$54^{0}_{-0.25}$		43±0.12		$54^{+0.12}_{0}$	
TCB20 □ W35	$38^{+0.25}_{0}$	$62^{0}_{-0.25}$		50±0.12		$62^{+0.12}_{0}$	
TCB20 □ W40	$42^{+0.25}_{0}$	$66^{0}_{-0.25}$		54±0.12		$66^{+0.12}_{0}$	
TCB20 □ W45	$48^{+0.25}_{0}$	$74^{0}_{-0.25}$	$2^{0}_{-0.05}$	61±0.12		$74^{+0.12}_{0}$	$1.5^{+0.20}_{-0.05}$
TCB20 □ W50	$52^{+0.25}_{0}$	$78^{0}_{-0.25}$		65±0.12		$78^{+0.12}_{0}$	
TCB20 □ W60	$62^{+0.25}_{0}$	$90^{0}_{-0.25}$		76±0.12		$90^{+0.12}_{0}$	

Label example

Type	Shaft diameter
TCB20 □ W	60

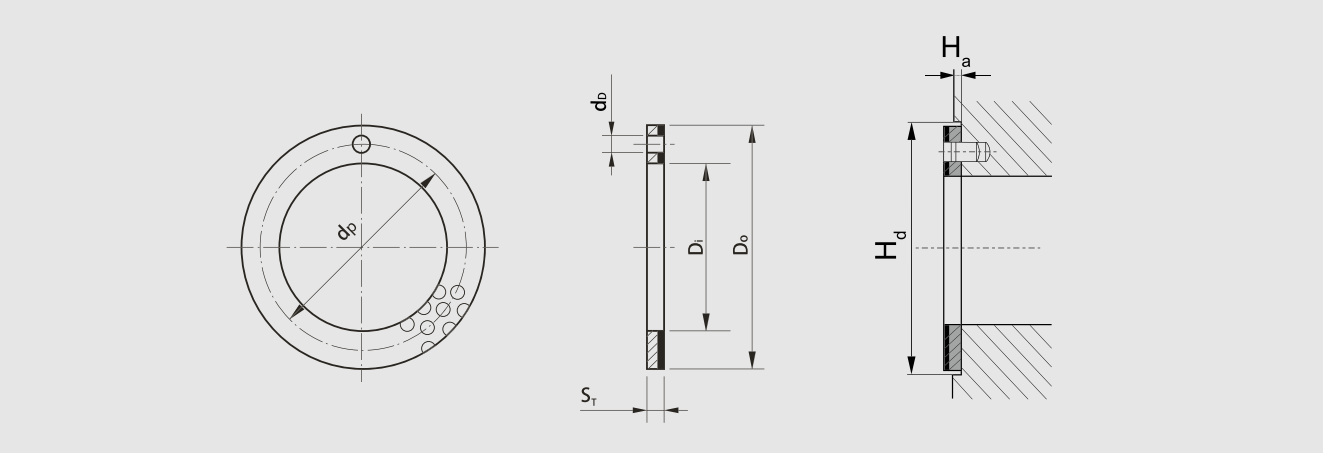
TCB20 Series Normal Inch Bushing



Unit: inch"

$ØD_i$	$ØD_o$	Shaft $ØD_s$	Housing $ØD_H$	$ØD_{i,a}$	C_O	S_3	$ØD_L$	L ± 0.010			
3/8	15/32	0.3648 0.3639	0.4694 0.4687	0.3694 0.3667	0.0055 0.0019	0.0510 0.0500	—	06X06	06X08	06X12	
7/16	17/32	0.4273 0.4263	0.5319 0.5312	0.4319 0.4292	0.0056 0.0019			07X08	07X12		
1/2	19/32	0.4897 0.4887	0.5944 0.5937	0.4944 0.4917	0.0057 0.0020			08X06	08X08	08X10	08X14
9/16	21/32	0.5522 0.5512	0.6569 0.6562	0.5569 0.5542	0.0057 0.0020		5/32	09X08	09X12		
5/8	23/32	0.6146 0.6136	0.7195 0.7178	0.6195 0.6167	0.0059 0.0021			10X08	10X10	10X12	10X14
11/16	25/32	0.6770 0.6760	0.7820 0.7812	0.6820 0.6792	0.0060 0.0022			11X14			
3/4	7/8	0.7370 0.7378	0.8758 0.8750	0.7444 0.7412	0.0066 0.0022	0.0669 0.0657		12X08	12X12	12X16	
7/8	1	0.8639 0.8627	1.0008 1.0000	0.8694 0.8662	0.0067 0.0023		1/4	14X12	14X14	14X16	
1	1 1/8	0.9888 0.9876	1.1258 1.1250	0.9944 0.9912	0.0068 0.0024			16X12	16X16	16X24	
1 1/8	1 9/32	1.1138 1.1126	1.2822 1.2812	1.1202 1.1164	0.0076 0.0026	0.0824 0.0810		18X12	18X16		
1 1/4	1 13/32	1.2387 1.2371	1.4072 1.4062	1.2452 1.2414	0.0081 0.0027			20X12	20X16	20X20	20X28
1 3/8	1 17/32	1.3635 1.3619	1.5322 1.5312	1.3702 1.3664	0.0083 0.0029			22X16	22X22	22X28	
1 1/2	1 21/32	1.4884 1.4846	1.6572 1.6562	1.4952 1.4914	0.0084 0.0030		5/16	24X16	24X20	24X24	
1 5/8	1 25/32	1.6133 1.6117	1.7822 1.7812	1.6202 1.6164	0.0085 0.0031			26X16	26X24		24X32
1 3/4	1 15/16	1.7383 1.7367	1.9385 1.9375	1.7461 1.7415	0.0094 0.0032	0.0980 0.0962		28X16	28X24	28X28	
1 7/8	2 1/16	1.8632 1.8616	2.0637 2.0625	1.8713 1.8665	0.0097 0.0033			30X16	30X30	30X36	28X32
2	2 3/16	1.9881 1.9863	2.1887 2.1875	1.9963 1.9915	0.0100 0.0034			32X16	32X24	32X32	
2 1/4	2 7/16	2.2378 2.2360	2.4387 2.4375	2.2463 2.2415	0.0103 0.0037			36X32	36X36	36X40	32X40
2 1/2	2 11/16	2.4875 2.4857	2.6887 2.6875	2.4963 2.4915	0.0106 0.0040			40X32	40X40		
2 3/4	2 15/16	2.7351 2.7333	2.9387 2.9375	2.7457 2.7393	0.0124 0.0042	0.0991 0.0965		44X32	44X40	44X48	
3	3 3/16	2.9849 2.9831	3.1889 3.1875	2.9959 2.9893	0.0128 0.0044		3/8	48X32	48X48	48X60	
3 1/2	3 11/16	3.4844 3.4822	3.6889 3.6875	3.4959 3.4893	0.0137 0.0049			56X40	56X48	56X60	44X56
4	4 3/16	3.9839 3.9817	4.1889 4.1875	3.9959 3.9893	0.0142 0.0054			64X48	64X60	64X76	

TCB20 Series Normal Inch Washer



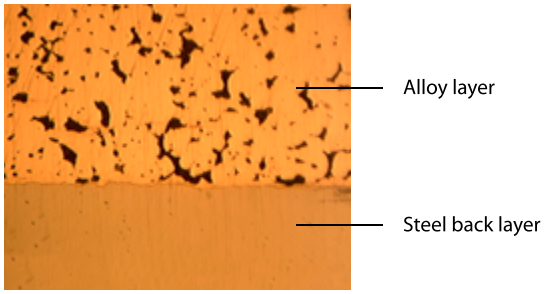
Unit: inch"

Specification	Dimension				Installation Size		
	inner side $ØD_i$+0.010	outside $ØD_o$-0.010	S_T	$Ød_p$ -0.010	$Ød_D$ +0.010	H_a ± 0.010	H_d +0.010
TCB20 □ WX06	0.500	0.875	0.0660 0.0625	0.692	0.067	0.04	0.875
TCB20 □ WX07	0.562	1.000		0.786			1.000
TCB20 □ WX08	0.625	1.125		0.880	0.099		1.125
TCB20 □ WX09	0.687	1.187		0.942			1.187
TCB20 □ WX10	0.750	1.250		1.005			1.250
TCB20 □ WX11	0.812	1.375		1.099			1.375
TCB20 □ WX12	0.875	1.500		1.192	0.130		1.500
TCB20 □ WX13	0.937	1.625		1.286			1.625
TCB20 □ WX14	1.000	1.750		1.380			1.750
TCB20 □ WX16	1.125	2.000		1.567	0.161		2.000
TCB20 □ WX18	1.250	2.125		1.692			2.125
TCB20 □ WX20	1.375	2.250		1.817			2.250
TCB20 □ WX22	1.500	2.500		2.005	0.192		2.500
TCB20 □ WX24	1.625	2.625		2.130			2.625
TCB20 □ WX26	1.750	2.750		2.255			2.750
TCB20 □ WX28	2.000	3.000	0.0970 0.0935	2.505		0.07	3.000
TCB20 □ WX30	2.125	3.125		2.630			3.125
TCB20 □ WX32	2.250	3.250		2.755			3.250

Label example

Type	Shaft diameter
TCB20 □ WX	32

TCB30 Bimetal Bushing



Metallography

Structure Characteristics and Applications

TCB301 bimetal bushing is backed with high quality low carbon steel with tin-lead-bronze alloy(CuSn10Pb10) sintered on its surface. To effectively decrease abrasion, its alloy surface can be machined with ball shaped oil sockets for easier oil storage. When necessary, it could be plated copper or tin on the steel back. It can be applied to conditions of mediate load with mediate or high running belocity and conditions with enormous impact load. In mechanical applications, TCB301 is used to make wrapped bushes, thrust washer and bushes on connecting rod level of gas engine.

Physical and Mechanical Performance

Performance Index		Data
Max Load P		140N/mm^2
Linear Velocity V	Grease Lubrication	2.5m/s
	Oil Lubrication	5 m/s
Max PV value	Grease Lubrication	2.8N/mm^2.m/s
	Oil Lubrication	10N/mm^2·m/s
Alloy Hardness		HB 60~90
Mating Axis	Hardness	≥53HRC
	Roughness	Ra=0.16~0.63
Working Temperature	Grease Lubrication	150℃
	Oil Lubrication	250℃
Friction Coefficient		0.05~0.15
Heat-conducting Coefficient		47W/(m·k)
Heat-expansion Coefficient(Axial)		18×10^{-6}/K

Physical and Mechanical Performance

Strong anti-fatigue, and good load and impact bushing with good erosion protection performance. When mating with quenched hard axis, the hardness of the axis must not be less than 53HRC.

Main Factors that Influence the Service life of the Bushing

1).PV Value

PV value is an effective criterion to calculate the service life of TCB301. If there is need to prolong the service Life, PV value must be reduced.

2).Environment Temperature

The higher the working temperature is, the shorter the life of the products would be.

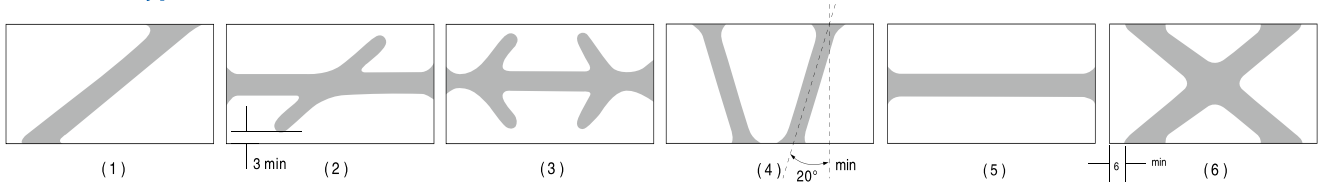
3).Roughness

If Roughness of the mating surface Ra ＞ 0.63, it will rapidly shorten the service life of the TCB301. Therefore, Roughness of the mating surface must be controlled to Ra≤0.63.

Alloy Chemical Compositions

	Cu	Pb	Sn	Zn	P	Fe	Ni	Sb	Others
Content %	Rest	9~11	9~11	0.5	0.1	0.7	0.5	0.2	0.5

Oil Groove Types



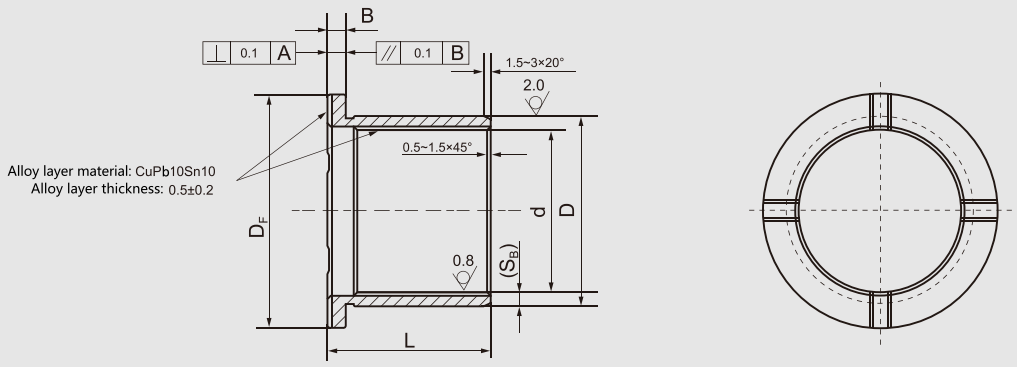
Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

TCB30 Bimetal Bushing

TCB301 bimetal bushing is applied to the working condition like heavy load, and medium and high speed of rotaion and oscillating movements. Different alloy material can be sintered on the steel back, like our product TCB300, TCB302, TCB303, TCB304, TCB305. The material structure, application fields and technical parameter are as follows.

Data	Grade	TCB300	TCB301	TCB302	TCB303	TCB304	TCB305
	Material	Steel + $CuPb_{10}Sn_{10}$ +Graphite	Steel + $CuPb_{10}Sn_{10}$	Steel + $CuPb_{24}Sn_4$	Steel + $CuPb_{24}Sn$	Steel + $AlSn_{20}Cu$	Steel + $CuPb_{30}$
Typical application		Application: starting motor	Application: con-rod of automobile engines, engineering and agriculture machinery, heavy duty construction machinery etc.	Application: High speed, heavy load engine main shaft and transmission gearbox, etc.	Application: High speed, heavy load engine main shaft and con rod	Application: High speed, heavy load engine main shaft and air compressor, cooling machine. etc.	Application: High speed, heavy load engine main shaft and con rod
Max dynamic Load P		140	140	120	120	90	100
Max line speed V m/s	Grease lubrication	2.5	2.5	2.5	2.5	——	——
Max PV value $N/mm^2 \cdot m/s$	Grease lubrication	2.8	2.8	2.8	2.8	——	——
Friction coef u	Grease lubrication	0.05~0.15	0.05~0.15	0.05~0.15	0.05~0.15	——	——
Max line speed V m/s	Oil lubrication	——	5	10	10	15	15
Max PV value $N/mm^2 \cdot m/s$	Oil lubrication	——	10	10	10	8	8
Friction coef u	Oil lubrication	——	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12
Max Working temperature	Grease lubrication	150	150	150	150	150	150
	Oil lubrication	——	250	250	250	250	250
Mating Axis	Hardness	≥53	≥53	≥48	≥45	≥270	≥270
	Roughness	0.32~0.63	0.32~0.63	0.16~0.63	0.16~0.63	0.16~0.63	0.16~0.63
Alloy layer hardness		60~90	60~90	45~70	40~60	30~40	30~45
Thermal conductivity		47	47	60	60	47	60
Coefficient of linear expansion		18×10^{-6}/K	18×10^{-6}/K	19×10^{-6}/K	19×10^{-6}/K	18×10^{-6}/K	19×10^{-6}/K
We can also develop according to customers special request while out of this table							

TCB 301F Fricition Welding Bimetal Bushing



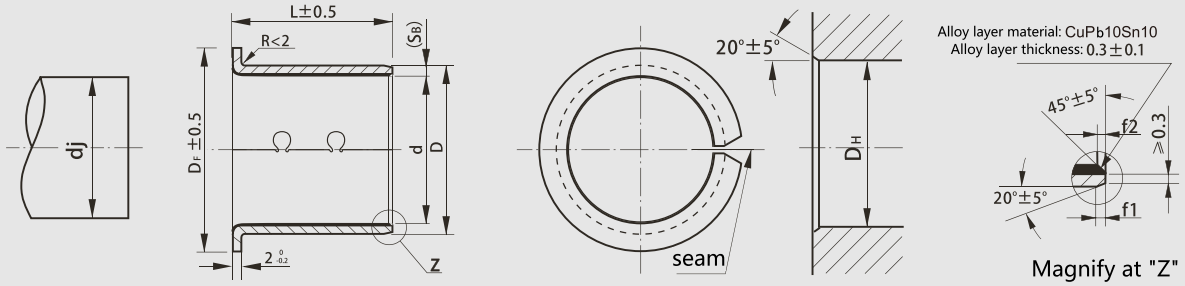
$ØD_F \pm 0.5$	$B\ ^{0}_{-0.08}$	$ØD\ ^{+0.17}_{+0.12}$	$Ød\ ^{+0.25}_{+0.20}$	$L \pm 0.8$	$S_B\ ^{-0.05}_{-0.10}$
42	3.5	37	30	30	3.5
45	3	35	30	23	3
44	3.5	39	32	35	3.5
47	3.5	39	32	50	3.5
45	3.5	40	33	33	3.5
52	3	41	35	35	3
55	3.5	42	35	35	3.5
55	3.5	45	38	35	3.5
55	3.5	45	38	40	3.5
60	3	41	35	42	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

$ØD_F \pm 0.5$	$B\ ^{0}_{-0.08}$	$ØD\ ^{+0.17}_{+0.12}$	$Ød\ ^{+0.25}_{+0.20}$	$L \pm 0.8$	$S_B\ ^{-0.05}_{-0.10}$
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
108	3.5	72	65	75	3.5
108	3.5	77	70	98	3.5
108	5	80	70	90	5
115	5	100	90	75	5
128	3.8	92.6	85	103	4

The above specifications are recommended with the tolerance for the inner bore of steel base wheel Ø (0 ~ +0.04), and the recommended tolerance for matching shaft is Ø (-0.13 ~ -0.16).

If the material base for the wheel is casting iron, and the tolerances for inner diameter and outer diameter need to be specially customized.

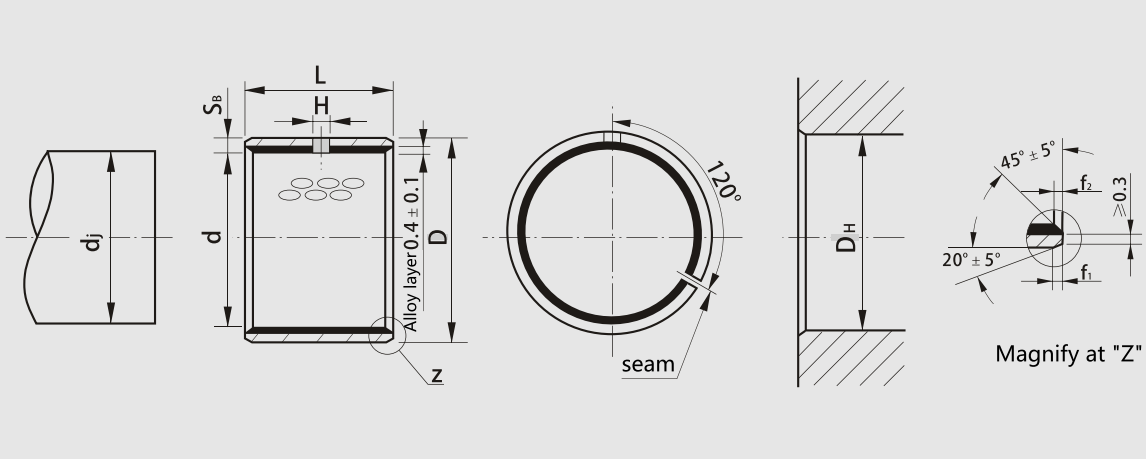
TCB301F Series Metric Flange Bushing



Designztion	Shaft Dia. Ødj	Housing $ØD_H$	Flange ØDF	Installed Bushing I.D.Ød	High L	O.D. ØD	S_B
TCB301F3028	30 -0.10 -0.13	34H7 +0.025 0	43	30 +0.125 0	28	34 +0.200 +0.140	2 0 -0.05
TCB301F3537	35 -0.10 -0.13	39H7 +0.025 0	48	35 +0.125 0	37	39 +0.200 +0.140	2 0 -0.05
TCB301F4039	40 -0.10 -0.13	44H7 +0.025 0	57	40 +0.125 0	39	44 +0.200 +0.140	2 0 -0.05
TCB301F4545	45 -0.10 -0.13	49H7 +0.025 0	65	45 +0.125 0	45	49 +0.200 +0.140	2 0 -0.05
TCB301F5050	50 -0.10 -0.13	54H7 +0.030 0	70	50 +0.13 0	50	54 +0.200 +0.140	2 0 -0.05
TCB301F5555	55 -0.10 -0.13	59H7 +0.030 0	75	55 +0.13 0	55	59 +0.200 +0.140	2 0 -0.05
TCB301F6064.5	60 -0.13 -0.16	64H7 +0.030 0	82	60 + 0.19 + 0.06	64.5	64 + 0.260 + 0.200	2 -0.03 -0.08
TCB301F6565	65 -0.13 -0.16	69H7 +0.030 0	87	65 + 0.19 + 0.06	65	69 + 0.280 + 0.220	2 -0.03 -0.08
TCB301F7070	70 -0.13 -0.16	74H7 +0.030 0	92	70 + 0.19 + 0.06	70	74 + 0.280 + 0.220	2 -0.03 -0.08
TCB301F7574.5	75 -0.13 -0.16	79H7 +0.030 0	97	75 + 0.19 + 0.06	74.5	79 + 0.350 + 0.290	2 -0.03 -0.08

Label example			Thickness S_B	Outside Chamfer f1	Inner Chamfer f2
			2.0	1.2±0.4	0.6±0.3
Tpye	I.D.	O.D.			
TCB301F	75	74.5			

TCB301 Series Normal Metric Bushing



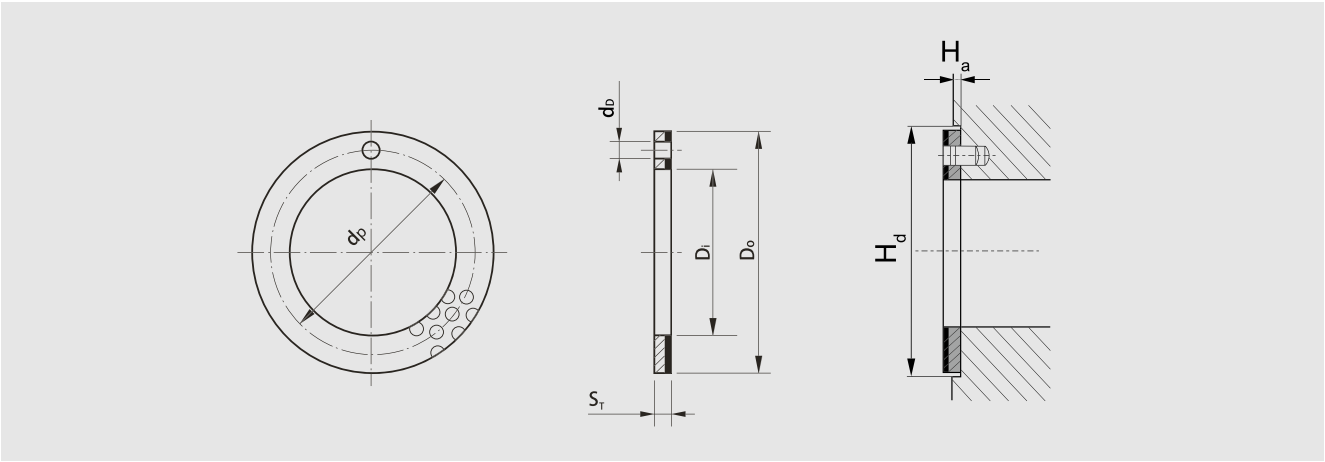
Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB301 1010	10 h8 $^{0}_{-0.022}$	12 H7 $^{+0.018}_{0}$	10 $^{+0.145}_{+0.010}$	10±0.25	12 $^{+0.065}_{+0.030}$	1 $^{-0.005}_{-0.065}$	4
TCB301 1015				15±0.25			
TCB301 1020				20±0.25			
TCB301 1210	12 h8 $^{0}_{-0.027}$	14 H7 $^{+0.018}_{0}$	12 $^{+0.148}_{+0.010}$	10±0.25	14 $^{+0.065}_{+0.030}$	1 $^{-0.005}_{-0.065}$	
TCB301 1215				15±0.25			
TCB301 1220				20±0.25			
TCB301 1225				25±0.25			
TCB301 1410	14 h8 $^{0}_{-0.027}$	16 H7 $^{+0.018}_{0}$	14 $^{+0.148}_{+0.010}$	10±0.25	16 $^{+0.065}_{+0.030}$	1 $^{-0.005}_{-0.065}$	
TCB301 1415				15±0.25			
TCB301 1420				20±0.25			
TCB301 1425				25±0.25			
TCB301 1510	15 h8 $^{0}_{-0.027}$	17 H7 $^{+0.018}_{0}$	15 $^{+0.148}_{+0.010}$	10±0.25	17 $^{+0.065}_{+0.030}$	1 $^{-0.005}_{-0.065}$	
TCB301 1515				15±0.25			
TCB301 1520				20±0.25			
TCB301 1525				25±0.25			
TCB301 1610	16 h8 $^{0}_{-0.027}$	18 H7 $^{+0.018}_{0}$	16 $^{+0.148}_{+0.010}$	10±0.25	18 $^{+0.065}_{+0.030}$	1 $^{-0.005}_{-0.065}$	
TCB301 1615				15±0.25			
TCB301 1620				20±0.25			
TCB301 1625				25±0.25			
TCB301 1815	18 h8 $^{0}_{-0.027}$	20 H7 $^{+0.021}_{0}$	18 $^{+0.151}_{+0.010}$	15±0.25	20 $^{+0.075}_{+0.035}$	1 $^{-0.005}_{-0.065}$	
TCB301 1820				20±0.25			
TCB301 1825				25±0.25			
TCB301 2010	20 h8 $^{0}_{-0.033}$	23 H7 $^{+0.021}_{0}$	20 $^{+0.161}_{+0.020}$	10±0.25	23 $^{+0.075}_{+0.035}$	1.5 $^{-0.01}_{-0.07}$	
TCB301 2015				15±0.25			
TCB301 2020				20±0.25			
TCB301 2025				25±0.25			
TCB301 2030				30±0.25			
TCB301 2215	22 h8 $^{0}_{-0.033}$	25 H7 $^{+0.021}_{0}$	22 $^{+0.161}_{+0.020}$	15±0.25	25 $^{+0.075}_{+0.035}$	1.5 $^{-0.01}_{-0.07}$	6

TCB301 Series Normal Metric Bushing

Designation	Shaft Dia Ø dj	Housing Ø DH	Installed Bushing I.D Ø d	High L	O.D. Ø D	Wall Thickness S_B	Oil hole ØH
TCB301 2220	22 h8 $^{0}_{-0.033}$	25 H7 $^{+0.021}_{0}$	22 $^{+0.161}_{+0.020}$	20±0.25	25 $^{+0.075}_{+0.035}$	1.5 $^{-0.01}_{-0.07}$	6
TCB301 2225				25±0.25			
TCB301 2230				30±0.25			
TCB301 2515	25 h8 $^{0}_{-0.033}$	28 H7 $^{+0.021}_{0}$	25 $^{+0.161}_{+0.020}$	15±0.25	28 $^{+0.075}_{+0.035}$	1.5 $^{-0.01}_{-0.07}$	
TCB301 2520				20±0.25			
TCB301 2525				25±0.25			
TCB301 2530				30±0.25			
TCB301 2815	28 h8 $^{0}_{-0.033}$	32 H7 $^{+0.025}_{0}$	28 $^{+0.185}_{+0.040}$	15±0.25	32 $^{+0.085}_{+0.045}$	2 $^{-0.02}_{-0.08}$	
TCB301 2820				20±0.25			
TCB301 2825				25±0.25			
TCB301 2830				30±0.25			
TCB301 3015	30 h8 $^{0}_{-0.033}$	34 H7 $^{+0.025}_{0}$	30 $^{+0.185}_{+0.040}$	15±0.25	34 $^{+0.085}_{+0.045}$	2 $^{-0.02}_{-0.08}$	
TCB301 3020				20±0.25			
TCB301 3025				25±0.25			
TCB301 3030				30±0.25			
TCB301 3040				40±0.25			
TCB301 3220	32 h8 $^{0}_{-0.039}$	36 H7 $^{+0.025}_{0}$	32 $^{+0.185}_{+0.040}$	20±0.25	36 $^{+0.085}_{+0.045}$	2 $^{-0.02}_{-0.08}$	
TCB301 3230				30±0.25			
TCB301 3240				40±0.25			
TCB301 3520	35 h8 $^{0}_{-0.039}$	39 H7 $^{+0.025}_{0}$	35 $^{+0.185}_{+0.040}$	20±0.25	39 $^{+0.085}_{+0.045}$	2 $^{-0.02}_{-0.08}$	
TCB301 3530				30±0.25			
TCB301 3540				40±0.25			
TCB301 3550				50±0.25			
TCB301 4020	40 h8 $^{0}_{-0.039}$	44 H7 $^{+0.025}_{0}$	40 $^{+0.185}_{+0.040}$	20±0.25	44 $^{+0.085}_{+0.045}$	2 $^{-0.02}_{-0.08}$	8
TCB301 4030				30±0.25			
TCB301 4040				40±0.25			
TCB301 4050				50±0.25			
TCB301 4530	45 h8 $^{0}_{-0.039}$	50 H7 $^{+0.025}_{0}$	45 $^{+0.225}_{+0.080}$	30±0.25	50 $^{+0.085}_{+0.045}$	2.5 $^{-0.04}_{-0.10}$	
TCB301 4540				40±0.25			
TCB301 4545				45±0.25			
TCB301 4550				50±0.25			

Label example			Wall Thickness S_B	Outside Chamfer f_1	Inner Chamfer f_2
			1.0	0.6±0.3	Max0.4
			1.5	0.6±0.4	0.4±0.3
Type	I.D.	High	2.0	1.2±0.4	0.6±0.3
TCB301	45	50	2.5	1.8±0.6	0.6±0.4

TCB301 Normal Metric Washer



Designation	I.D. $ØD_i$	O.D. $ØD_o$	Wall Thickness S_T	Middle diameter $Ød_p$	Pilot hole $Ød_D$	Assembling house $ØH_d$	Recess Depth H_a
TCB301 W10	12 $^{+0.25}_{0}$	24 $^{0}_{-0.25}$		18±0.12		24 $^{+0.12}_{0}$	
TCB301 W12	14 $^{+0.25}_{0}$	26 $^{0}_{-0.25}$		20±0.12		26 $^{+0.12}_{0}$	
TCB301 W14	16 $^{+0.25}_{0}$	30 $^{0}_{-0.25}$		22±0.12	2 $^{+0.375}_{-0.125}$	30 $^{+0.12}_{0}$	
TCB301 W16	18 $^{+0.25}_{0}$	32 $^{0}_{-0.25}$		25±0.12		32 $^{+0.12}_{0}$	
TCB301 W18	20 $^{+0.25}_{0}$	36 $^{0}_{-0.25}$		28±0.12		36 $^{+0.12}_{0}$	
TCB301 W20	22 $^{+0.25}_{0}$	38 $^{0}_{-0.25}$		30±0.12		38 $^{+0.12}_{0}$	
TCB301 W22	24 $^{+0.25}_{0}$	42 $^{0}_{-0.25}$		33±0.12	3 $^{+0.375}_{-0.125}$	42 $^{+0.12}_{0}$	1.0 $^{+0.20}_{-0.05}$
TCB301 W24	26 $^{+0.25}_{0}$	44 $^{0}_{-0.25}$		35±0.12		44 $^{+0.12}_{0}$	
TCB301 W25	28 $^{+0.25}_{0}$	48 $^{0}_{-0.25}$		38±0.12		48 $^{+0.12}_{0}$	
TCB301 W30	32 $^{+0.25}_{0}$	54 $^{0}_{-0.25}$		43±0.12		54 $^{+0.12}_{0}$	
TCB301 W35	38 $^{+0.25}_{0}$	62 $^{0}_{-0.25}$		50±0.12		62 $^{+0.12}_{0}$	
TCB301 W40	42 $^{+0.25}_{0}$	66 $^{0}_{-0.25}$		54±0.12	4 $^{+0.375}_{-0.125}$	66 $^{+0.12}_{0}$	
TCB301 W45	48 $^{+0.25}_{0}$	74 $^{0}_{-0.25}$	2 $^{0}_{-0.05}$	61±0.12		74 $^{+0.12}_{0}$	1.5 $^{+0.20}_{-0.05}$
TCB301 W50	52 $^{+0.25}_{0}$	78 $^{0}_{-0.25}$		65±0.12		78 $^{+0.12}_{0}$	

Label example

Tpye	Shaft diameter
TCB301W	50

TCB40 Oil Sintered Bearing

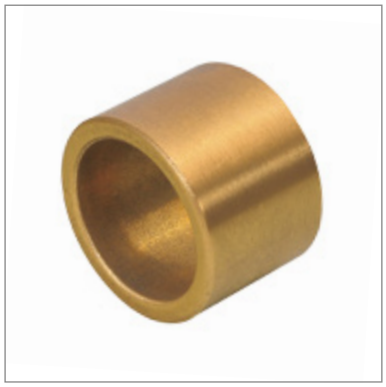
Technical Data

Performance \ Material	Unit	Bronze 90% Cu 10% Sn	Iron 99.9%
Density	g/cm^3	6.4-6.8	5.7-5.9
Static load	N/mm^2	200	500
Dynamic load	N/mm^2	18	13
Max linear speed	m/s	7	5
Volume of oil impregnation	%	22	22
Hardness	HB	25	35
Friction coefficient	μ	0.03	0.025
Traction resistance	N	10-20	18-26
Elongation	%	1-2.5	2-4
Max thermal temperature	℃	-20-+120	-20-+120

Material Features

TCB40 series is made of bronze or iron powder, pressed in high pressure by moulds, and sintered in high temperature and then impregnated in oil by vacuum. It's widely used in household appliances, electric tools, textiles machinery, chemical machinery and automobile industry, etc.

TCB401 Sintered Bronze Bearing



Material Features

TCB401 sintered bronze powder bushing is mold pressed under high pressure and then sintered under high temperature, and oil is soaked into the homogeneously spreaded tiny pores of the metal under vacuum. This bearing can withstand dry condition in medium speed and low load for short time. Moreover it is cheap and stable in dimension. This is widely used in domestic electric and electronic machines, electric tools, textile machines, chemical engineering machines, automobiles and official business machines.

Specification

Standard tolerance of inside diameter:	G7
Standard tolerance of outside diameter:	S7
Recommended shaft tolerance:	f7/g6
Recommended housing tolerance :	H7

TCB402 Sintered Iron Bearing

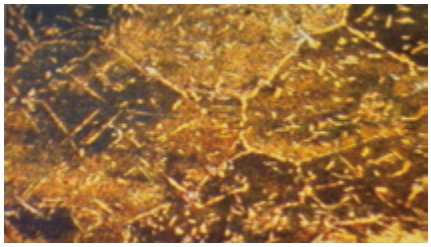
Material Features

TCB402 sintered iron powder bearings can protect shaft with oil. They're anti-friction same as bronze powder bearings under low load. They're widely used in textile machines, electric tools and absorbers of auto and motorcycle. When being static, they can be acted as orientation bushing.

Specification

Standard tolerance of inside diameter:	G7
Standard tolerance of outside diameter:	S7
Recommended shaft tolerance:	f7/g6
Recommended housing tolerance :	H7

TCB50 Solid Lubricating Bearing



Metallography

Structure Characteristics and Applications

TCB 50 series solid lubricating bearing is made of metal base with special solid lubricants embedded by certain angle and density. Customers could choose the base metal of strengthening copper alloy, or cast iron, or steel, and also zinc base alloy according to their application fields.

The base metal withstands high load and the solid lubricants provide for self-lubrication. While the bearing running with no oil, the solid lubricants will run out to the working surface by friction heat, and reduce the friction coefficient.

The copper alloy material shows excellent performance without pre-lubrication conditions of extreme high/lower temperature with low speed. This material can be applied under dry, high temperature, high pressure, corrosive, water or other chemical environments when no oil can be introduced. Now it's widely be used in automotive products line, water engineering, dam gate, plastic industries, successive casting machines, steel rollers in metallurgy industry, mineral machines, ships, turbo generators, hydraulic turbines and injection molding machines.

The substitute material zinc alloy, because its proportion is only 60% of the brass alloy, and using the zinc which is much lower in price than copper alloy as the main element, it greatly reduces the product cost and the weight of the product. This material has excellent antifriction, wear resistance, improving the service life of the mechanical transmission parts, and keeping the machining accuracy. This type of bearing is used for all kinds of construction machinery to replace the traditional copper alloy bearing, plates, and worm wheel, and also used in forging machine, garden machine, water pump, injection molding machine, petroleum, mining, lifting, valve, reduction gears and traction machine with high load, low temperature and low speed environment.

Physical and Mechanical Performance for TCB500

Performance Index		Data
Density		8g/cm^3
Hardness		210≥HB
Linear Expansion Coefficient		2.2 10^{-5}/℃
Heat-conducting Coefficient		38~55W(/m.k)
Flexibility Coefficient		100~140KN/mm^2
Tensile Strength		750≥N/mm^2
Yeild strength		340≥N/mm^2
Flexibility Coefficient		100~140KN/mm^2
Temp. Limits		-40~+200℃
Max. Dynamic Load		198N/mm^2
Max.speed	Dry Lubrication	0.3m/s
	Oil Lubrication	1.0m/s
Max.PV	Dry Lubrication	1.65N/mm^2*m/s
	Oil Lubrication	3.25N/mm^2*m/s
Friction	Dry Lubrication	0.12~0.16μ
	Oil Lubrication	0.03~0.08μ

Specification for TCB508

Base material	ZA27-2
Hardness	HB100~120
Maximum use temperature	80 ℃
Limit load	100 N/mm^2
coefficient of friction μ	Dry ＜ 0.12 Oil ＜ 0.03
maximum sliding speed	Dry 0.2M/S Oil 5M/S

Chemical Compositions

	Cu	Zn	Al	Fe	Mn	Si	Ni	Sn	Pb
TCB500	Rest	22~28	5~7.5	2~4	2.5~5	＜ 0.1	＜ 0.5	＜ 0.2	＜ 0.2

	Zn	Al	Cu	Mg
TCB508	Rest	25~28	2~2.5	0.01~0.02

Solid Lubricants

Lubricant	Features	Typical application
TCB1 Graphite+add	Excellent resistance against chemical attacks and low friction. Temp limit 400℃.	Suit for general machines and under atmosphere.
TCB4+MOS2 PTFE+MOS2+CF	Lowest in friction and good of water lubrication. Temp limit 300℃.	Ship, hydraulic turbine, gas turbine etc.

Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

TCB500 Solid Lubricating Bearing with Copper Base

TCB500 Solid Lubricating Bearing is produced by strengthening brass that has good physical performance and good capability for casting. What's more, the brass material has pretty good anti-erosion ability in air, fresh water and sea water. The surface is regularly and finely machined with sockets in which particular solid lubricant is filled. The material of the copper alloy could be changed as per customer's requirements, like our product TCB503, TCB504, TCB505. These products are widely used on consecutive casting and rolling machines, mine-exploiting equipments, ships, steam engine, etc.

Technical Data

Grade		TCB500(H1)	TCB503	TCB504(B)	TCB505
Material		CuZn25Al5Mn4Fe3	CuAl10Ni5Fe4	CuSn5Pb5Zn5	CuSn12
Density g/cm^3		8	7.8	8.7	8.9
Hardness HB		>210	>150	>70	>90
Tensile strength N/mm^2		>750	>590	>240	>260
Yeild strength N/mm^2		>340	>260	>100	>140
Elongation %		>12	>8	>10	>7
Coefficient of linear expansion 10^{-5}/℃		2.2	1.6	1.8	1.8
Heat-conducting Coefficient W(/m.k)		38~55	38~55	46~63	50~68
Flexibility Coefficient KN/mm^2		100~140	90~110	85~115	90~120
Temp. Limits ℃		-40~+200	-40~+350	-40~+250	-40~+250
Max. Dynamic Load N/mm^2		98	70	60	70
Max.speed m/s	Dry Lubrication	0.3	0.35	0.25	0.25
	Oil Lubrication	1.0	0.85	0.85	0.85
Max.PV N/mm^2*m/s	Dry Lubrication	1.65	1.25	1.0	1.25
	Oil Lubrication	3.25	2.45	2.45	2.8
Friction	Dry Lubrication	0.12~0.16	0.12~0.16	0.12~0.16	0.12~0.16
	Oil Lubrication	0.03~0.08	0.03~0.08	0.03~0.08	0.03~0.08

In addition to the standard product catalog is displayed, we provide non-standard product or to order according to customer requirements.




TCB506 Solid Lubricating Bearing with Iron Base

Material Features

It is based on cast iron. The solid lubricant is inlayed by certain angle, density and special formula, and then is processed exactly. It is economical product meeting the using requirements. The product is applied to automobile die and injection moulding.

Specification

Performance Index	Data
Max dynamic Load	70N/mm^2
Working Temperature Limit	400℃
Max Linear Velocity	0.5m/s
Hardness	> 180
Friction Coefficient	< 0.17
Linear Expansion Coefficient	0.8 N/mm^2.m/s

TCB507 Solid Lubricating Bearing with Steel Base

Material Features

The basement of this product is 45# steel. The surface is inlayed the special solid lubricant by certain angle and density. The product has high compression resistance, and is mainly used in automobile die.

Specification

Performance Index	Data
Max dynamic Load	100N/mm^2
Working Temperature Limit	400℃
Max Linear Velocity	0.4m/s
Hardness	HRC > 45
Friction Coefficient	< 0.16
Linear Expansion Coefficient	2.5N/mm^2.m/s

TCB508 Solid Lubricating Bearing with Zinc Base

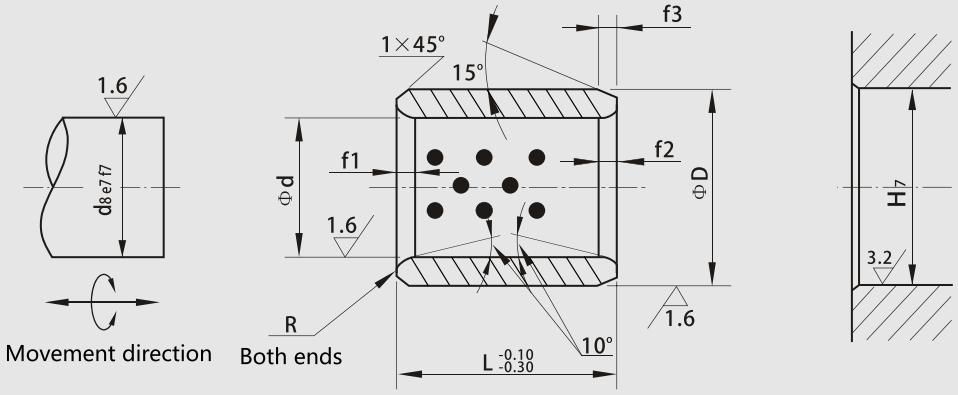
Material Features

It is based on the squeeze casting zinc base alloy of high strength, punched with orderly and proper size holes in the base, and then embedded oil graphite, or MoS2, or PTFE + graphite +paraffin wax particles as the solid lubrication material. Because its proportion is only 60% of the brass alloy, and using the zinc which is much lower in price than copper alloy as the main element, it greatly reduces the product cost and the weight of the product.

Specification

Performance Index	Data	Performance Index	Data
Maximum dynamic load P(N/mm²)	50	Elongation rate (%)	＞8
Maximum sliding speed V(m/s)	Dry 0.2M/S Oil 5M/S	Hardness (HB)	＞110
Max PV Value Limit (N/mm².m/s)	0.5	Maximum use temperature ℃	＜80
Density ρ(g/cm³)	5	Coefficient of friction μ	Dry ＜0.12 Oil ＜0.03
Tensile strength σ b MPa(kgf/mm²)	＞420	Coefficient of linear expansion (10-a)	25
Yield strength σ0.2 MPa(kgf/mm²)	＞270	Thermal conductivity C.S.C	0.24

TCB50 Series Normal Metric Bearing



Designation	Shaft Dia.			Housing Bore	L -0.1 -0.3	I.D. Ø d	O.D. Ø D	R	f1	f2	f3
	Heavy Load	Low Load	high-precision								
	d8	e7	f7	H7		F7	m6				
TCB50 □ B 304020	30 -0.065 -0.098	30 -0.040 -0.061	30 -0.020 -0.041	40 +0.025 0	20	30 +0.041 +0.020	40 +0.025 +0.009	2	3	3	2
TCB50 □ B 304030					30						
TCB50 □ B 304040					40						
TCB50 □ B 304050					50						
TCB50 □ B 304060					60						
TCB50 □ B 405020	40 -0.080 -0.119	40 -0.050 -0.075	40 -0.025 -0.050	50 +0.025 0	20	40 +0.050 +0.025	50 +0.025 +0.009	2	3	3	2
TCB50 □ B 405030					30						
TCB50 □ B 405040					40						
TCB50 □ B 405050					50						
TCB50 □ B 405060					60						
TCB50 □ B 405070					70						
TCB50 □ B 405080					80						
TCB50 □ B 506030	50 -0.080 -0.119	50 -0.050 -0.075	50 -0.025 -0.050	60 +0.030 0	30	50 +0.050 +0.025	60 +0.030 +0.011	3	4	4	3
TCB50 □ B 506040					40						
TCB50 □ B 506050					50						
TCB50 □ B 506060					60						
TCB50 □ B 506070					70						
TCB50 □ B 506080					80						
TCB50 □ B 607530	60 -0.100 -0.146	60 -0.060 -0.090	60 -0.030 -0.060	75 +0.030 0	30	60 +0.060 +0.030	75 +0.030 +0.011	3	4	4	3
TCB50 □ B 607540					40						
TCB50 □ B 607550					50						
TCB50 □ B 607560					60						
TCB50 □ B 607570					70						
TCB50 □ B 607580					80						
TCB50 □ B 6075100					100						
TCB50 □ B 708540	70 -0.100 -0.146	70 -0.060 -0.090	70 -0.030 -0.060	85 +0.035 0	40	70 +0.060 +0.030	85 +0.035 +0.013	4	5	5	4
TCB50 □ B 708550					50						

TCB50 Series Normal Metric Bearing

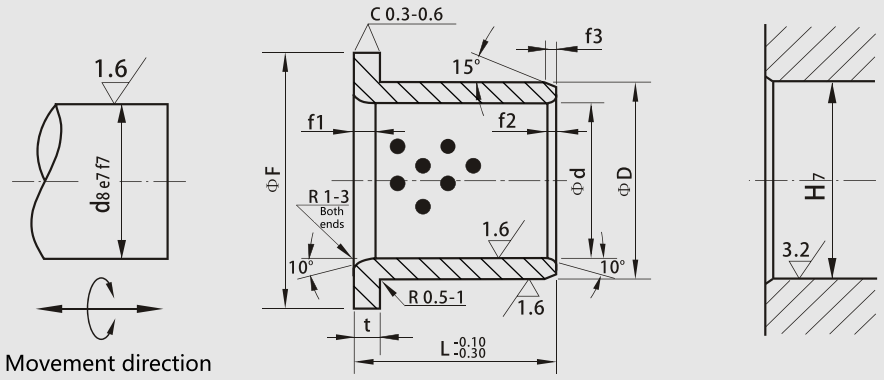
Designation	Shaft Dia.			Housing Bore	L $^{-0.1}_{-0.3}$	I.D. Ø d	O.D. Ø D	R	f1	f2	f3
	Heavy Load	Low Load	high-precision								
	d8	e7	f7	H7		F7	m6				
TCB50 □ B 708560	70 $^{-0.100}_{-0.146}$	70 $^{-0.060}_{-0.090}$	70 $^{-0.030}_{-0.060}$	85 $^{+0.035}_{0}$	60	70 $^{+0.060}_{+0.030}$	85 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 708570					70						
TCB50 □ B 708580					80						
TCB50 □ B 7085100					100						
TCB50 □ B 709050	70 $^{-0.100}_{-0.146}$	70 $^{-0.060}_{-0.090}$	70 $^{-0.030}_{-0.060}$	90 $^{+0.035}_{0}$	50	70 $^{+0.060}_{+0.030}$	90 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 709060					60						
TCB50 □ B 709070					70						
TCB50 □ B 709080					80						
TCB50 □ B 809650	80 $^{-0.100}_{-0.146}$	80 $^{-0.060}_{-0.090}$	80 $^{-0.030}_{-0.060}$	96 $^{+0.035}_{0}$	50	80 $^{+0.060}_{+0.030}$	96 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 809660					60						
TCB50 □ B 809670					70						
TCB50 □ B 809680					80						
TCB50 □ B 8010050	80 $^{-0.100}_{-0.146}$	80 $^{-0.060}_{-0.090}$	80 $^{-0.030}_{-0.060}$	100 $^{+0.035}_{0}$	50	80 $^{+0.060}_{+0.030}$	100 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 8010060					60						
TCB50 □ B 8010070					70						
TCB50 □ B 8010080					80						
TCB50 □ B 9011050	90 $^{-0.120}_{-0.174}$	90 $^{-0.072}_{-0.107}$	90 $^{-0.036}_{-0.071}$	110 $^{+0.035}_{0}$	50	90 $^{+0.071}_{+0.036}$	110 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 9011060					60						
TCB50 □ B 9011080					80						
TCB50 □ B 10012060	100 $^{-0.120}_{-0.174}$	100 $^{-0.072}_{-0.107}$	100 $^{-0.036}_{-0.071}$	120 $^{+0.035}_{0}$	60	100 $^{+0.071}_{+0.036}$	120 $^{+0.035}_{+0.013}$	4	5	5	4
TCB50 □ B 10012080					80						
TCB50 □ B 100120100					100						
TCB50 □ B 11013070	110 $^{-0.120}_{-0.174}$	110 $^{-0.072}_{-0.107}$	70 $^{-0.036}_{-0.071}$	130 $^{+0.040}_{0}$	70	110 $^{+0.071}_{+0.036}$	130 $^{+0.040}_{+0.015}$	4	5	5	4
TCB50 □ B 11013080					80						
TCB50 □ B 110130100					100						
TCB50 □ B 12014080	120 $^{-0.120}_{-0.174}$	120 $^{-0.072}_{-0.107}$	120 $^{-0.036}_{-0.071}$	140 $^{+0.040}_{0}$	80	120 $^{+0.071}_{+0.036}$	140 $^{+0.040}_{+0.015}$	5	6	6	5
TCB50 □ B 120140100					100						
TCB50 □ B 130150100	130 $^{-0.145}_{-0.208}$	130 $^{-0.085}_{-0.125}$	130 $^{-0.043}_{-0.083}$	150 $^{+0.040}_{0}$	100	130 $^{+0.083}_{+0.043}$	150 $^{+0.040}_{+0.015}$	5	6	6	5
TCB50 □ B 130150130					130						
TCB50 □ B 140160100	140 $^{-0.145}_{-0.208}$	140 $^{-0.085}_{-0.125}$	140 $^{-0.043}_{-0.083}$	160 $^{+0.040}_{0}$	100	140 $^{+0.083}_{+0.043}$	160 $^{+0.040}_{+0.015}$	5	6	6	5
TCB50 □ B 140160140					140						
TCB50 □ B 150170100	150 $^{-0.145}_{-0.208}$	150 $^{-0.085}_{-0.125}$	150 $^{-0.043}_{-0.083}$	170 $^{+0.040}_{0}$	100	150 $^{+0.083}_{+0.043}$	170 $^{+0.040}_{+0.015}$	5	6	6	5
TCB50 □ B 150170150					150						
TCB50 □ B 160180100	160 $^{-0.145}_{-0.208}$	160 $^{-0.085}_{-0.125}$	160 $^{-0.043}_{-0.083}$	180 $^{+0.040}_{0}$	100	160 $^{+0.083}_{+0.043}$	180 $^{+0.040}_{+0.015}$	5	6	6	5
TCB50 □ B 160180150					150						

Label mode

Type	I.D.	O.D.	High	
TCB50 □ B	160	180	150	□

□ K303T No sign
□ F404 Sign B

TCB50F Series Normal Metric Flange Bearing



Designation	Shaft Dia.			Housing Bore	L -0.1 -0.3	I.D. Ø d	O.D. Ø D	F	t	f1	f2	f3
	Heavy Load	Low Load	high-precision									
	d8	e7	f7	H7		E7	r6					
TCB50 □ F 253320	25 -0.065 -0.098	25 -0.040 -0.061	25 -0.020 -0.041	33 +0.025 0	20	25 +0.061 +0.040	33 +0.050 +0.034	45	5 0 -0.1	4	2	2
TCB50 □ F 253330					30							
TCB50 □ F 253340					40							
TCB50 □ F 253520	25 -0.065 -0.098	25 -0.040 -0.061	25 -0.020 -0.041	35 +0.025 0	20	25 +0.061 +0.040	35 +0.050 +0.034					
TCB50 □ F 253530					30							
TCB50 □ F 253540					40							
TCB50 □ F 253550					50							
TCB50 □ F 303820	30 -0.065 -0.098	30 -0.040 -0.061	30 -0.020 -0.041	38 +0.025 0	20	30 +0.061 +0.040	38 +0.050 +0.034	50				
TCB50 □ F 303830					30							
TCB50 □ F 303840					40							
TCB50 □ F 303850					50							
TCB50 □ F 304020	30 -0.065 -0.098	30 -0.040 -0.061	30 -0.020 -0.041	40 +0.025 0	20	30 +0.061 +0.040	40 +0.050 +0.034					
TCB50 □ F 304030					30							
TCB50 □ F 304040					40							
TCB50 □ F 304050					50							
TCB50 □ F 3154020	31.5 -0.080 -0.119	31.5 -0.050 -0.075	31.5 -0.025 -0.050	40 +0.025 0	20	31.5 +0.075 +0.050	40 +0.050 +0.034					
TCB50 □ F 3154030					30							
TCB50 □ F 3154040					40							
TCB50 □ F 354520	35 -0.080 -0.119	35 -0.050 -0.075	35 -0.025 -0.050	45 +0.025 0	20	35 +0.075 +0.050	45 +0.050 +0.034	60				
TCB50 □ F 354530					30							
TCB50 □ F 354540					40							
TCB50 □ F 354550					50							
TCB50 □ F 405020	40 -0.080 -0.119	40 -0.050 -0.075	40 -0.025 -0.050	50 +0.025 0	20	40 +0.075 +0.050	50 +0.050 +0.034	65				
TCB50 □ F 405030					30							
TCB50 □ F 405040					40							
TCB50 □ F 405060					60							
TCB50 □ F 455530	45 -0.080 -0.119	45 -0.050 -0.075	45 -0.025 -0.050	55 +0.030 0	30	45 +0.075 +0.050	55 +0.060 +0.041	70				

TCB50F Series Normal Metric Flange Bearing

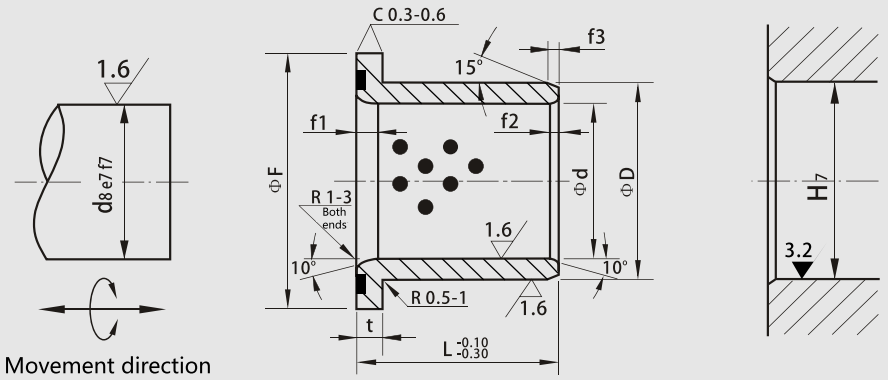
Designation	Shaft Dia.			Housing Bore	L $^{-0.1}_{-0.3}$	I.D. Ø d	O.D. Ø D	F	t	f1	f2	f3
	Heavy Load	Low Load	high-precision									
	d8	e7	f7	H7		E7	r6					
TCB50 ☐ F 455540	45 $^{-0.080}_{-0.119}$	45 $^{-0.050}_{-0.075}$	45 $^{-0.025}_{-0.050}$	55 $^{+0.030}_{0}$	40	45 $^{+0.075}_{+0.050}$	55 $^{+0.060}_{+0.041}$	70	5 $^{0}_{-0.1}$	4	2	2
TCB50 ☐ F 455550					50							
TCB50 ☐ F 455560					60							
TCB50 ☐ F 506030	50 $^{-0.080}_{-0.119}$	50 $^{-0.050}_{-0.075}$	50 $^{-0.025}_{-0.050}$	60 $^{+0.030}_{0}$	30	50 $^{+0.075}_{+0.050}$	60 $^{+0.060}_{+0.041}$	75	5 $^{0}_{-0.1}$	4	3	3
TCB50 ☐ F 506040					40							
TCB50 ☐ F 506050					50							
TCB50 ☐ F 506060					60							
TCB50 ☐ F 556540	55 $^{-0.100}_{-0.146}$	55 $^{-0.060}_{-0.090}$	55 $^{-0.030}_{-0.060}$	65 $^{+0.030}_{0}$	40	55 $^{+0.090}_{+0.060}$	65 $^{+0.060}_{+0.041}$	80				
TCB50 ☐ F 556560					60							
TCB50 ☐ F 557040	55 $^{-0.100}_{-0.146}$	55 $^{-0.060}_{-0.090}$	55 $^{-0.030}_{-0.060}$	70 $^{+0.030}_{0}$	40	55 $^{+0.090}_{+0.060}$	70 $^{+0.062}_{+0.043}$					
TCB50 ☐ F 557060					60							
TCB50 ☐ F 607540	60 $^{-0.100}_{-0.146}$	60 $^{-0.060}_{-0.090}$	60 $^{-0.030}_{-0.060}$	75 $^{+0.030}_{0}$	40	60 $^{+0.090}_{+0.060}$	75 $^{+0.062}_{+0.043}$	90	7.5 $^{0}_{-0.1}$	6	4	4
TCB50 ☐ F 607550					50							
TCB50 ☐ F 607560					60							
TCB50 ☐ F 607580					80							
TCB50 ☐ F 6375675	63 $^{-0.100}_{-0.146}$	63 $^{-0.060}_{-0.090}$	63 $^{-0.030}_{-0.060}$	75 $^{+0.030}_{0}$	67.5	63 $^{+0.090}_{+0.060}$	75 $^{+0.062}_{+0.043}$					
TCB50 ☐ F 658040	65 $^{-0.100}_{-0.146}$	65 $^{-0.060}_{-0.090}$	65 $^{-0.030}_{-0.060}$	80 $^{+0.030}_{0}$	40	65 $^{+0.090}_{+0.060}$	80 $^{+0.062}_{+0.043}$	95				
TCB50 ☐ F 658060					60							
TCB50 ☐ F 658080					80							
TCB50 ☐ F 708550	70 $^{-0.100}_{-0.146}$	70 $^{-0.060}_{-0.090}$	70 $^{-0.030}_{-0.060}$	85 $^{+0.035}_{0}$	50	70 $^{+0.090}_{+0.060}$	85 $^{+0.073}_{+0.051}$	105				
TCB50 ☐ F 708580					80							
TCB50 ☐ F 759060	75 $^{-0.100}_{-0.146}$	75 $^{-0.060}_{-0.090}$	75 $^{-0.030}_{-0.060}$	90 $^{+0.035}_{0}$	60	75 $^{+0.090}_{+0.060}$	90 $^{+0.073}_{+0.051}$	110				
TCB50 ☐ F 759080					80							
TCB50 ☐ F 8010050	80 $^{-0.100}_{-0.146}$	80 $^{-0.060}_{-0.090}$	80 $^{-0.030}_{-0.060}$	100 $^{+0.035}_{0}$	50	80 $^{+0.090}_{+0.060}$	100 $^{+0.073}_{+0.051}$	120	10 $^{0}_{-0.1}$	8	5	5
TCB50 ☐ F 8010060					60							
TCB50 ☐ F 8010080					80							
TCB50 ☐ F 80100100					100							
TCB50 ☐ F 9011050	90 $^{-0.120}_{-0.174}$	90 $^{-0.072}_{-0.107}$	90 $^{-0.036}_{-0.071}$	110 $^{+0.035}_{0}$	50	90 $^{+0.107}_{+0.072}$	110 $^{+0.076}_{+0.054}$	130				
TCB50 ☐ F 9011060					60							
TCB50 ☐ F 9011080					80							
TCB50 ☐ F 90110100					100							
TCB50 ☐ F 10012060	100 $^{-0.120}_{-0.174}$	100 $^{-0.072}_{-0.107}$	100 $^{-0.036}_{-0.071}$	120 $^{+0.035}_{0}$	60	100 $^{+0.107}_{+0.072}$	120 $^{+0.076}_{+0.054}$	150				
TCB50 ☐ F 10012080					80							
TCB50 ☐ F 100120100					100							
TCB50 ☐ F 12014060	120 $^{-0.120}_{-0.174}$	120 $^{-0.072}_{-0.107}$	120 $^{-0.036}_{-0.071}$	140 $^{+0.040}_{0}$	60	120 $^{+0.107}_{+0.072}$	140 $^{+0.088}_{+0.063}$	170				
TCB50 ☐ F 12014080					80							
TCB50 ☐ F 120140100					100							

Label mode

Type	I.D.	O.D.	High	
TCB50 ☐ F	120	140	100	☐

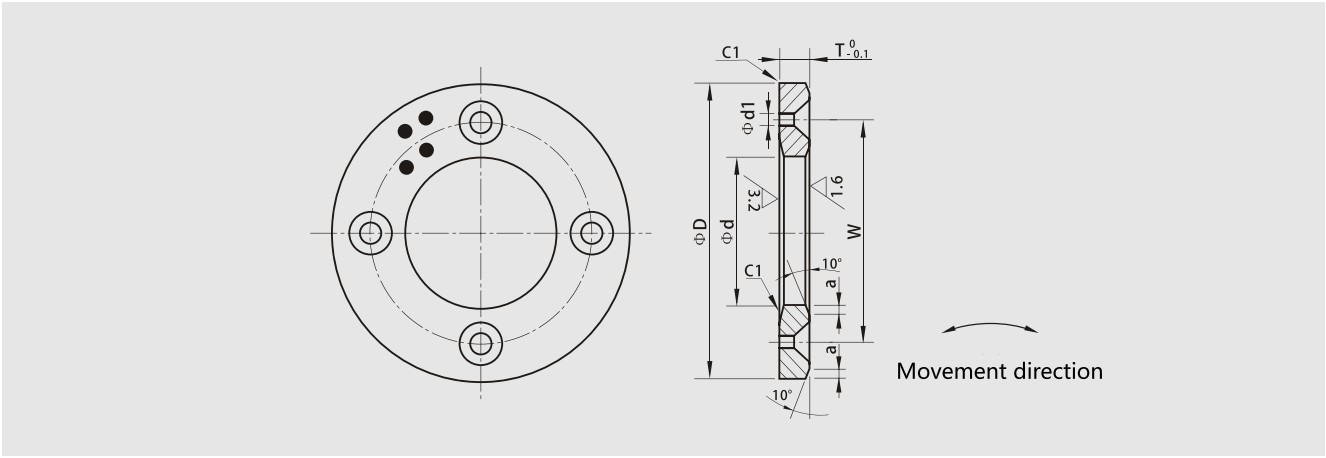
☐ K303T No sign
☐ F404 Sign B

TCB50SF Series Normal Metric Flange Bearing



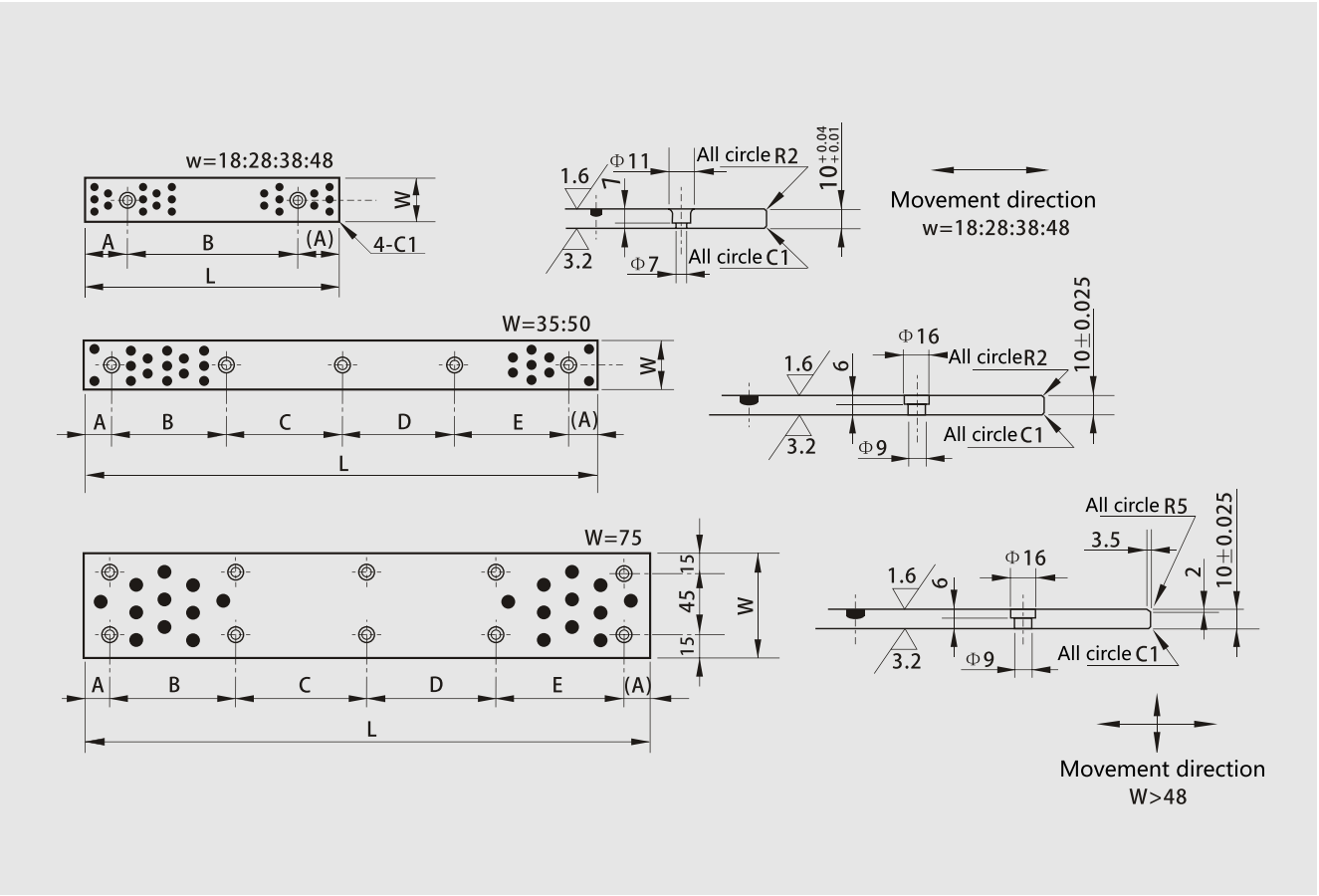
Designation	Shaft Dia.			Housing Bore	L -0.1 -0.3	I.D. Ø d	O.D. Ø D	Flange		f1	f2	f3
	Heavy Load	Low Load	high-precision									
	d8	e7	f7	H7		E7	r6	F	t			
TCB50 □ SF 121811	12 -0.050 -0.077	12 -0.032 -0.050	12 -0.016 -0.034	18 +0.018 0	11	12 +0.050 +0.032	18 +0.034 +0.023	30	3 0 -0.10	2	2	1
TCB50 □ SF 121823					23							
TCB50 □ SF 152113	15 -0.050 -0.077	15 -0.032 -0.050	15 -0.016 -0.034	21 +0.021 0	13	15 +0.050 +0.032	21 +0.041 +0.028	35				
TCB50 □ SF 162213	16 -0.050 -0.077	16 -0.032 -0.050	16 -0.016 -0.034	22 +0.021 0	13	16 +0.050 +0.032	22 +0.041 +0.028					
TCB50 □ SF 162218					18							
TCB50 □ SF 182418	18 -0.050 -0.077	18 -0.032 -0.050	18 -0.016 -0.034	24 +0.021 0	18	18 +0.050 +0.032	24 +0.041 +0.028	40				
TCB50 □ SF 202820	20 -0.065 -0.098	20 -0.040 -0.061	20 -0.020 -0.041	28 +0.021 0	20	20 +0.050 +0.032	28 +0.041 +0.028	45	5 0 -0.10	3	2	2
TCB50 □ SF 202825					25							
TCB50 □ SF 253320	25 -0.065 -0.098	25 -0.040 -0.061	25 -0.020 -0.041	33 +0.025 0	20	25 +0.061 +0.040	33 +0.050 +0.034	50				
TCB50 □ SF 253325					25							
TCB50 □ SF 303825	30 -0.065 -0.098	30 -0.040 -0.061	30 -0.020 -0.041	38 +0.025 0	25	30 +0.061 +0.040	38 +0.050 +0.034	55				
TCB50 □ SF 303835					35							
TCB50 □ SF 354425	35 -0.085 -0.119	35 -0.050 -0.075	35 -0.025 -0.050	44 +0.025 0	25	35 +0.075 +0.050	44 +0.050 +0.034	65				
TCB50 □ SF 354435					35							
TCB50 □ SF 405027	40 -0.080 -0.119	40 -0.050 -0.075	40 -0.025 -0.050	50 +0.025 0	27	40 +0.075 +0.050	50 +0.050 +0.034	70	7 0 -0.10			
TCB50 □ SF 405037					37							
TCB50 □ SF 405047					47							
TCB50 □ SF 506238	50 -0.080 -0.119	50 -0.050 -0.075	50 -0.025 -0.050	62 +0.030 0	38	50 +0.075 +0.050	62 +0.060 +0.041	90	8 0 -0.10	4	3	3
TCB50 □ SF 506248					48							
TCB50 □ SF 506258					58							
TCB50 □ SF 607438	60 -0.100 -0.146	60 -0.060 -0.090	60 -0.030 -0.060	74 +0.030 0	38	60 +0.090 +0.060	74 +0.062 +0.043	110				
TCB50 □ SF 607468					68							
TCB50 □ SF 708550	70 -0.100 -0.146	70 -0.060 -0.090	70 -0.030 -0.060	85 +0.035 0	50	70 +0.090 +0.060	85 +0.073 +0.051	120	10 0 -0.10			
TCB50 □ SF 708580					80							
TCB50 □ SF 809660	80 -0.100 -0.146	80 -0.060 -0.090	80 -0.030 -0.060	96 +0.035 0	60	80 +0.090 +0.060	96 +0.073 +0.051	140		5	4	4
TCB50 □ SF 809690					90							

TCB50W Series Metric Washer



Designation	Ø d +0.2 +0.1	Ø D	T 0 -0.1	Bolt				chamfering
				W	Crop bolt	Bore number	Ø d	
TCB50 □ W 1003	10.2	30	3	20	M3	2	3.5	1.5
TCB50 □ W 10A03				–	–	–	–	–
TCB50 □ W 1203	12.2	40		28	M3	2	3.5	2
TCB50 □ W 12A03				–	–	–	–	–
TCB50 □ W 1303	13.2	50		28	M3	2	3.5	2
TCB50 □ W 1403	14.2			28				
TCB50 □ W 1503	15.2			35				
TCB50 □ W 1603	16.2			35				
TCB50 □ W 16A03				–	–	–	–	–
TCB50 □ W 1803	18.2			35	M3	2	3.5	2
TCB50 □ W 20005	20.2		5	35	M5		6	2.5
TCB50 □ W 20A05				–	–	–	–	–
TCB50 □ W 2505	25.2	55		40	M5	–	–	–
TCB50 □ W 25A05				–	–	–	–	–
TCB50 □ W 3005	30.2	60		45	M5		6	2.5
TCB50 □ W 3505	35.2	70		50	M6	2	–	
TCB50 □ W 4007	40.2	80	7	60			7	3
TCB50 □ W 4507	45.2	90		70				
TCB50 □ W 5008	50.3	100	8	75		4		4
TCB50 □ W 5508	55.3	110		85				
TCB50 □ W 6008	60.3	120		90	M8		9	5
TCB50 □ W 6508	65.3	125		95				
TCB50 □ W 7010	70.3	130	10	100				
TCB50 □ W 7510	75.3	140		110				
TCB50 □ W 8010	80.3	150		120				
TCB50 □ W 9010	90.5	170		140	M10		11	
TCB50 □ W 10010	100.5	190		160				
TCB50 □ W 12010	120.5	200		175				

TCB50SP Series Metric Sliding Plate



Designation	W	L	A	B	C	D	E	Crop bolt	Bore Number
TCB50 □ SP 1875	18	75	15	45	–	–	–	M6	2
TCB50 □ SP 18100		100	25	50					
TCB50 □ SP 18125		125	25	75					
TCB50 □ SP 18150		150	25	100					
TCB50 □ SP 18160		160	25	110					
TCB50 □ SP 18220		220	50	120					
TCB50 □ SP 2875	28	75	15	45					
TCB50 □ SP 28100		100	25	50					
TCB50 □ SP 28125		125	25	75					
TCB50 □ SP 28150		150	25	100					
TCB50 □ SP 28160		160	25	110					
TCB50 □ SP 28220		220	50	120					
TCB50 □ SP 35100	35	100	20	60				M8	
TCB50 □ SP 35150		150	20	55	55				3
TCB50 □ SP 35200		200	20	55	50	55			4
TCB50 □ SP 35250		250	20	70	70	70			

TCB50SP Series Metric Sliding Plate

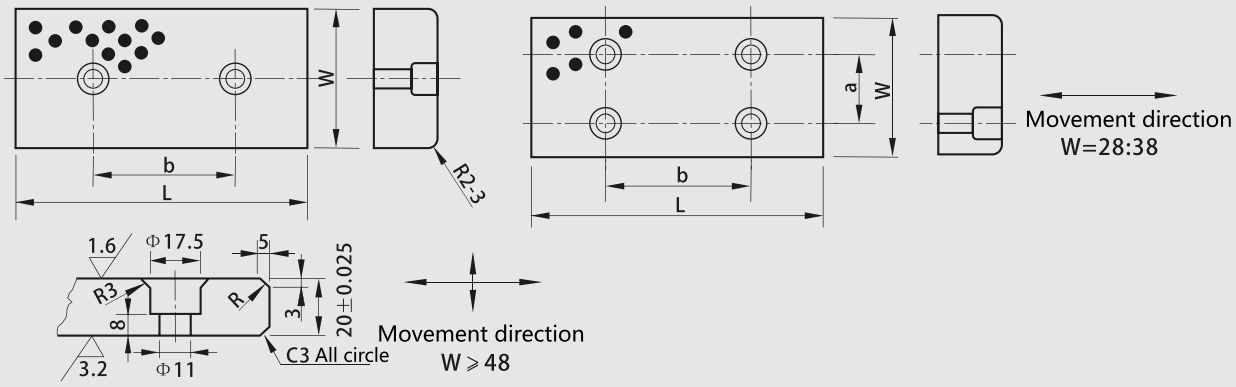
Designation	W	L	A	B	C	D	E	Crop bolt	Bore Number
TCB50 □ SP 35300	35	300	20	65	65	65	—	M8	5
TCB50 □ SP 35350		350	20	80	80	75			
TCB50 □ SP 3875	38	75	15	45	—	—	—	M6	2
TCB50 □ SP 38100		100	25	50					
TCB50 □ SP 38125		125	25	75					
TCB50 □ SP 38150		150	25	100					
TCB50 □ SP 38160		160	25	110					
TCB50 □ SP 38220		220	50	120					
TCB50 □ SP 4875	48	75	15	45	—	—	—	M6	2
TCB50 □ SP 48100		100	25	50					
TCB50 □ SP 48125		125	25	75					
TCB50 □ SP 48150		150	25	100					
TCB50 □ SP 48160		160	25	110					
TCB50 □ SP 48220		220	50	120					
TCB50 □ SP 50100	50	100	20	60				M8	
TCB50 □ SP 50150		150	20	55	55				3
TCB50 □ SP 50200		200	20	55	50	55			4
TCB50 □ SP 50250		250	20	70	70	70			
TCB50 □ SP 50300		300	20	65	65	65	65		5
TCB50 □ SP 50400		400	20	90	90	90	90	M6	
TCB50 □ SP 58100	58	100	25	50	—	—	—		2
TCB50 □ SP 58160		160	25	110					
TCB50 □ SP 58220		220	50	120					
TCB50 □ SP 68100	68	100	25	50					
TCB50 □ SP 68160		160	25	110					
TCB50 □ SP 68220		220	50	120					
TCB50 □ SP 75150	75	150	20	110					4
TCB50 □ SP 75200		200	20	80	80			M8	6
TCB50 □ SP 75250		250	20	105	105				
TCB50 □ SP 75300		300	20	85	90	85			8
TCB50 □ SP 75400		400	20	120	120	120			
TCB50 □ SP 75500		500	20	115	115	115	115		10

Label mode

Type	Width	deth.	Length	
TCB50 □ SP	75	10	500	□

□
- K303T No sign
- F404 Sign B

TCB50PD Series Metric Sliding Plate



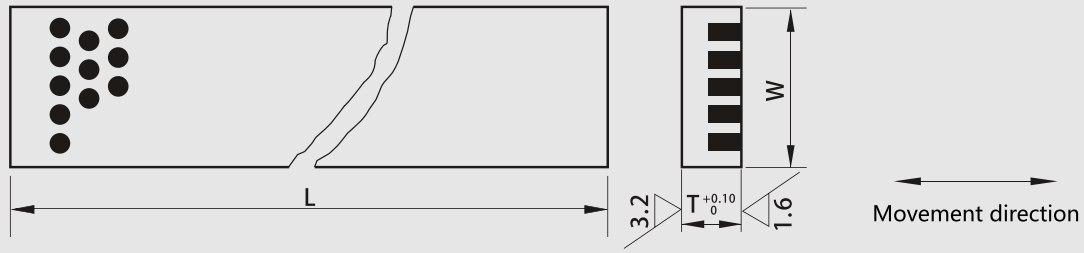
Designation	W	L	a	b	Designation	W	L	a	b
TCB50 □ PD 1875	28	75	–	45	TCB50 □ PD 75150	75	150	–	100
TCB50 □ PD 28100		100		50	TCB50 □ PD 75200		200		150
TCB50 □ PD 28150		150		100	TCB50 □ PD 100100	100	100	50	50
TCB50 □ PD 3875	38	75		45	TCB50 □ PD 100125		125		75
TCB50 □ PD 38100		100		50	TCB50 □ PD 100150		150		100
TCB50 □ PD 38150		150		100	TCB50 □ PD 100200		200		150
TCB50 □ PD 4875	48	75		45	TCB50 □ PD 100250		250		200
TCB50 □ PD 48100		100		50	TCB50 □ PD 100300		300		200
TCB50 □ PD 48125		125		75	TCB50 □ PD 125125	125	125		75
TCB50 □ PD 48150		150		100	TCB50 □ PD 125150		150		100
TCB50 □ PD 48200		200		150	TCB50 □ PD 125200		200		150
TCB50 □ PD 5875	58	75		45	TCB50 □ PD 125250		250		200
TCB50 □ PD 58100		100		50	TCB50 □ PD 125300		300		200
TCB50 □ PD 58150		150		100	TCB50 □ PD 125350		350		200
TCB50 □ PD 7575	75	75		25	TCB50 □ PD 150150	150	150		100
TCB50 □ PD 75100		100		50	TCB50 □ PD 150200		200	100	150
TCB50 □ PD 75125		125		75	TCB50 □ PD 150250		250		200

Label mode

Type	Width	deth.	Length	
TCB50 □ PD	75	20	125	□

□ K303T No sign
□ F404 Sign B

TCB50SPT Series Metric Sliding Plate



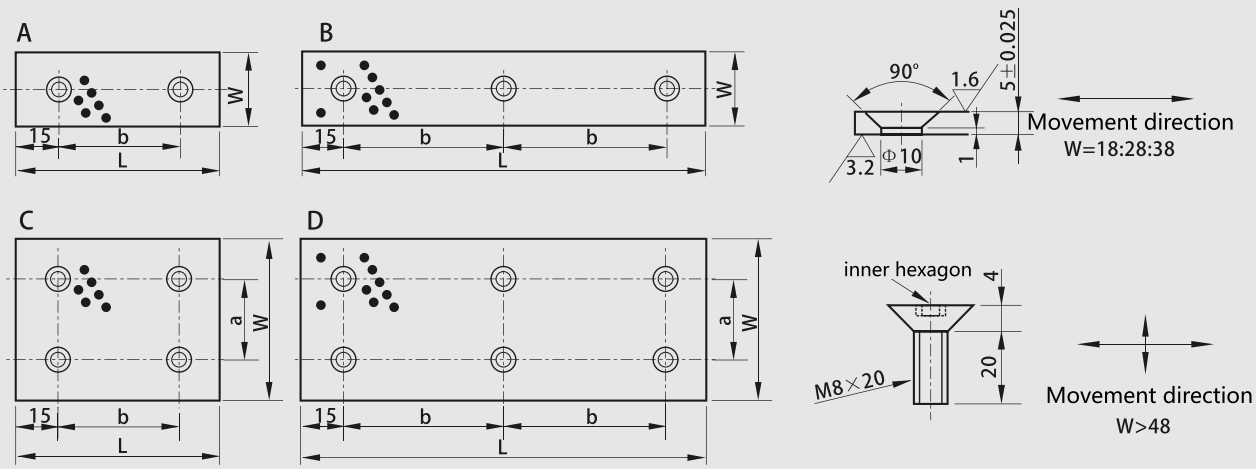
Designation	W	T	L
TCB50 □ SPT 2005305	20	5.3	305
TCB50 □ SPT 2505305	25		
TCB50 □ SPT 3005305	30		
TCB50 □ SPT 3005400			400
TCB50 □ SPT 3510605	35	10.3	605
TCB50 □ SPT 4010605	40		
TCB50 □ SPT 5010605	50		
TCB50 □ SPT 6015605	60	15.3	
TCB50 □ SPT 8015605	80		
TCB50 □ SPT 8020605		20.3	
TCB50 □ SPT 10020605	100		

Label mode

Type	Width	deth.	Length	
TCB50 □ SPT	100	20.3	605	□

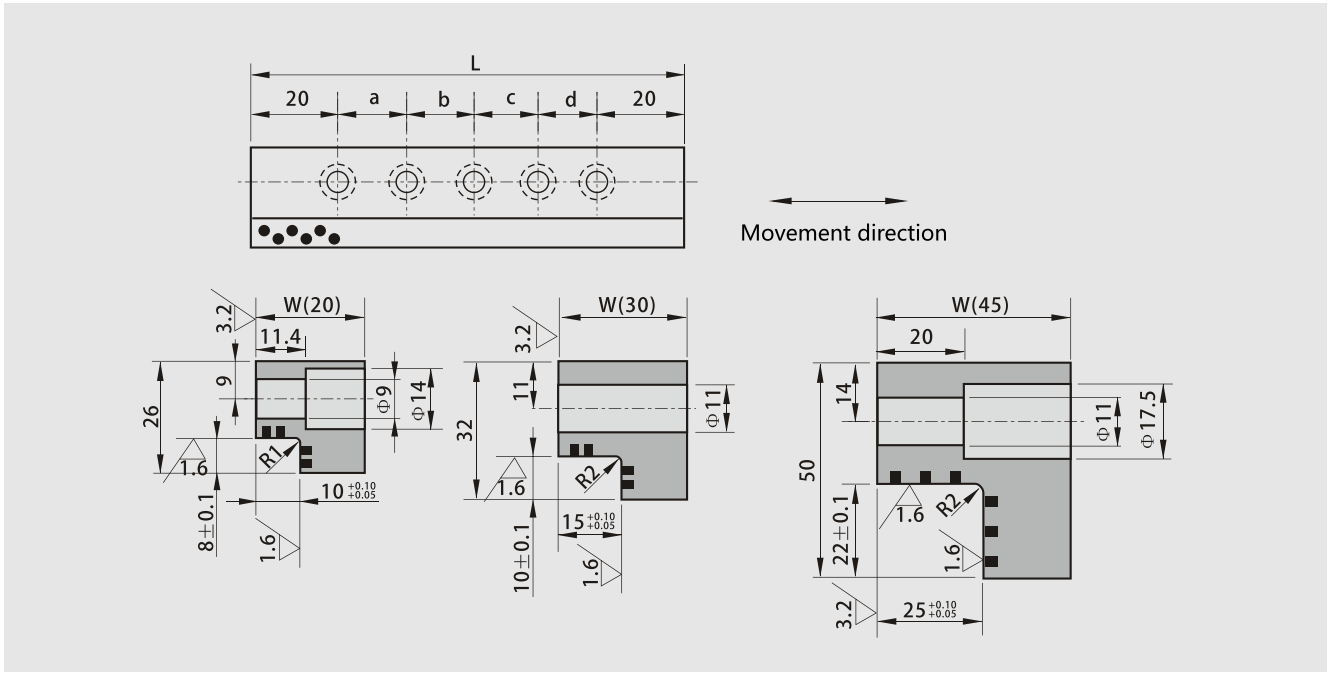
□
- K303T No sign
- F404 Sign B

TCB50SPG Series Metric Sliding Plate



Designation	W	L	a	B	Sketch
TCB50 □ SPG 1805	18	50	–	20	A
TCB50 □ SPG 1875		75		45	
TCB50 □ SPG 18100		100		70	
TCB50 □ SPG 18150		150		60	B
TCB50 □ SPG 2850	28	50		20	A
TCB50 □ SPG 2875		75		45	
TCB50 □ SPG 28100		100		70	
TCB50 □ SPG 28150		150		60	B
TCB50 □ SPG 3850	38	50		20	A
TCB50 □ SPG 3875		75		45	
TCB50 □ SPG 38100		100		70	
TCB50 □ SPG 38150		150		60	B
TCB50 □ SPG 4875	48	75		45	A
TCB50 □ SPG 48100		100		70	
TCB50 □ SPG 48125		125		95	
TCB50 □ SPG 48150		150		60	B
TCB50 □ SPG 7575	75	75	45	45	C
TCB50 □ SPG 75100		100		70	
TCB50 □ SPG 75125		125		95	
TCB50 □ SPG 75150		150		60	D
TCB50 □ SPG 100100	100	100	70	70	C
TCB50 □ SPG 100125		125		95	
TCB50 □ SPG 100150		150		60	D

TCB50SPL Series Metric Sliding Plate



Designation	W	L	a	b	c	d	Bolt	Bolt Number	Sketch
TCB50 □ SPL 20100	20	100	60	–	–	–	M8	2	A
TCB50 □ SPL 20150		150	55	55				3	
TCB50 □ SPL 20200		200	55	50	55			4	
TCB50 □ SPL 30100	30	100	60	–	–		M10	2	B
TCB50 □ SPL 30150		150	55	55				3	
TCB50 □ SPL 30200		200	55	50	55			4	
TCB50 □ SPL 30250		250	70	70	70			4	
TCB50 □ SPL 45200	45	200	55	50	55			4	C
TCB50 □ SPL 45250		250	70	70	70			4	
TCB50 □ SPL 45300		300	65	65	65	65		5	
TCB50 □ SPL 45350		350	80	75	75	80		5	

Label mode

Type	Width	Length	
TCB50PL	45	350	□

□
- K303T No sign
- F404 Sign B

TCB60 Steel Bearing

TCB600 Wrapped Steel Bushing

Material Features

TCB600 wrapped steel bushing is made of high quality low-carbon steel or stainless steel with special technique. The surface can be carburizing to improve the hardness. It is widely used to automobile application and heavy-duty machinery etc.

Specification

Performance Index		Data
Hardness	carburizing	≥350HV
	no carburizing	≥90HB
Max dynamic Load		100N/mm^2
Max Linear Velocity		0.1m/s
Max PV Value		1.0 N/mm^2.m/s
Working Temperature Limit		-100~+250℃
Linear Expansion Coefficient		1.1×10^{-5}/℃

TCB602 Cross Oil Groove Steel Bearing

Material Features

TCB602 is made of material C45 and 40Cr , with cross oil groove machined inside of the bearing. After heat treatment, it can be improved of the hardness and wear resistance. It is widely applied in excavators, cranes and some crucial parts of the construction machine.

Specification

Performance Index	Data
Hardness	52~60HRC
Max dynamic Load	250N/mm^2
Max Linear Velocity	0.1m/s
Max PV Value	1.5 N/mm^2.m/s
Working Temperature Limit	-100~+350℃
Linear Expansion Coefficient	1.1×10^{-5}/℃

TCB603 Spring Steel-Bushing

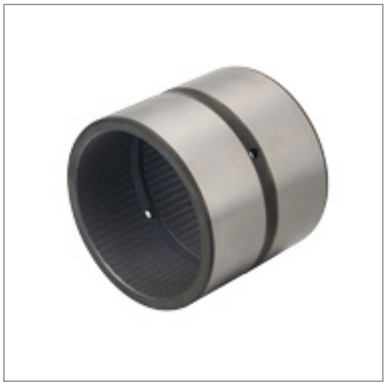
Material Features

TCB603 spring steel bushing, can also be called tension bushing. It is wrapped bushing made of 50CrV4 or 65Mn with serration joint by special technique. It has high intensity, high bearing capacity and high shock resistance. The special tension of spring steel bushing could make every joint position of cranes, lifting machines, grab machines and other heavy machinery smoothly moving under tremendous and asymmetrical pressures.

Specification

Performance Index	Data
Hardness	≥700HV
Max dynamic Load	300N/mm^2
Max Linear Velocity	0.1m/s
Max PV Value	1.5 N/mm^2.m/s
Working Temperature Limit	-100~+350℃
Linear Expansion Coefficient	1.1×10^{-5}/℃

TCB604 Mesh Screwed Steel Bearing



Material Features

TCB604 is made of material 42CrMo, with net oil groove inside of bearing, can remove the lubricating blind spot on inner surface. It's of high anti-impact pressure and wear resistance and good lubricanting storage of oil.
It can be applied in excavators, loaders and some crucial parts of construction machine.

Specification

Performance Index	Data
Hardness	≥650HV
Max dynamic Load	200N/mm^2
Max Linear Velocity	0.1m/s
Max PV Value	1.5 N/mm^2.m/s
Working Temperature Limit	-100~+350℃
Linear Expansion Coefficient	1.1×10^{-5}/℃

TCB605 Oil Sockets Steel Bearing

Material Features

TCB605 is made of material C20 or 20Cr. With spherical oil scoket and groove, it can remove the lubricating blind spot on inner surface. The widespread oil grooves and rich oil storege can prolong the interval of filling. The bearing has high load capacity, wear resistance and good lubricating performance.
It can be applied in excavators, loaders and some crucial parts of construction machine.

Specification

Performance Index	Data
Hardness	≥650HV
Max dynamic Load	200N/mm^2
Max Linear Velocity	0.1m/s
Max PV Value	1.5 N/mm^2.m/s
Working Temperature Limit	-100~+350℃
Linear Expansion Coefficient	1.1×10^{-5}/℃

TCB70 Spherical plain bearing

Structure Characteristics

The spherical plain bearing is composed of an inner ring with an outer spherical surface. It is generally used for low speed of pendular movement (i.e. angular motion). Because the sliding surface is a spherical surface shaped, it can also be used for tilting motion (i.e. aligning movement) in a certain angle range. Even the nonconcentr icity between the supporting shaft and the shaft shell hole is bigger, it can still work normally.

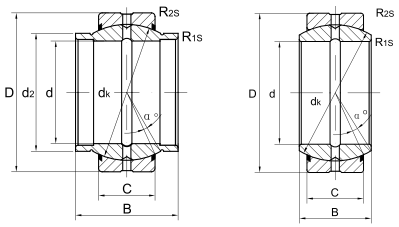
Application:

The spherical plain bearing is widely used in engineering hydraulic cylinder, forging machine tool industry, construction machinery, automation equipment, automobile shock absorber, water conservancy machinery etc. The spherical plain bearing is composed of the inner and outer rings of the contact surface of the spherical sliding surface. According to the different structure and type, it can bear radial load, axial load, or the combined load of radial and axial at the same time.

TCB701 Radial spherical plain bearing

Spherical Plain Bearings With Fittings Crack

Outer ring with single split in axial direction
Lubrication grooves and holes in the outer and inner rings of type ES.
Outer ring of type-2RS with two seals.
Both outer and inner are properly phosphorlylate-treated.
Sliding surfaces: steel/steel



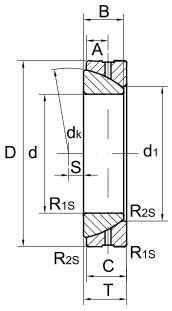
Spherical plain bearings with fitting crack GE···E	Steel/ Steel	Outer ring of carbon chromium steel, fractured, hardened and phosphated, sliding surface treated with MoS2. It has characteristies of wear-resistance, wear-corrosion and self-aligning, suitable for heavy radial loads and any direction lower axial loads mechanism.
Spherical plain bearings with fitting crack GE···ES	Steel/ Steel	Same as series GE···E, but can be relubricated via annular grooves and lubrication holes in both rings.
Spherical plain bearings with fitting crack GE···ES-2RS	Steel/ Steel	Same as series GE···ES, but with two seals at both sides, special for bearing arrangement where separate seals do not provide adequate protection.

TCB70 Spherical plain bearing

TCB702 Angular contact spherical plain bearings

Angular Contact Spherical Plain Bearings

Separable outer and inner rings.
Lubrication grooves and holes in the outer rings.
Both outer and inner rings are properly phosphorlylate-treated.



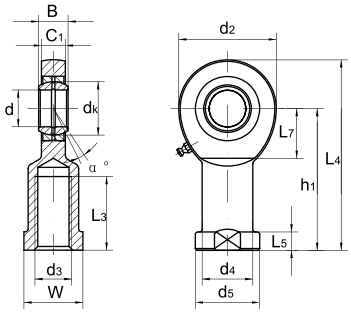
Sliding surfaces: steel/steel

Angular contact spherical plain bearings GAC···S	Steel/Steel	Bearing rings of carbon chromium steel, hardened and phosphated, sliding surface treated with MoS2. It has characteristics of wear-resistance, wear-corrosion and self-aligning, suitable for radial loads and single direction axial loads mechanism.

TCB703 Combination rod ends spherical plain bearings

Combination Rod Ends With Female Thread

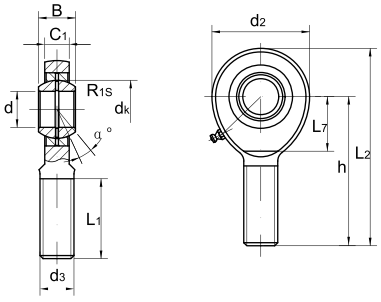
Bearing with a stretching rod, stretching rod with rigth or left-hand female thread.
It is made up of a spherical plain radial bearing of type GE···E or GE···ES and rod body.
To plate zinc on the surface of rod end, the housing of type SI···ES with a lubriction hole or grease cup.



Silding contact surfaces: steel/steel

Combination Rod Ends With Male Thread

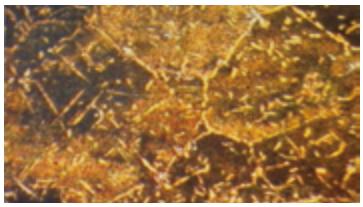
Bearing with a stretching rod, stretching rod with rigth or left-hand male thread.
It is made up of a spherical plain radial bearing of type GE···E or GE···ES and rod body.
To plate zinc on the surface of rod end, the housing of type SA···ES with a lubriction hole or grease cup.



Silding contact surfaces: steel/steel

Combination rod ends SI···E SI···ES SA···E SA···ES	Steel/ Steel	Combination rod end with male or female thread is made up of a rod end and a radial spherical plain bearing of series GE···E or GE···ES, rod end of steel and zinc coated; Can be relubricated via a grease cup or a hole in the rod end. It has characteristics of large load capability, easy mounting and dismounting and mechanism simplification.

TCB80 Casting Bronze Bearing

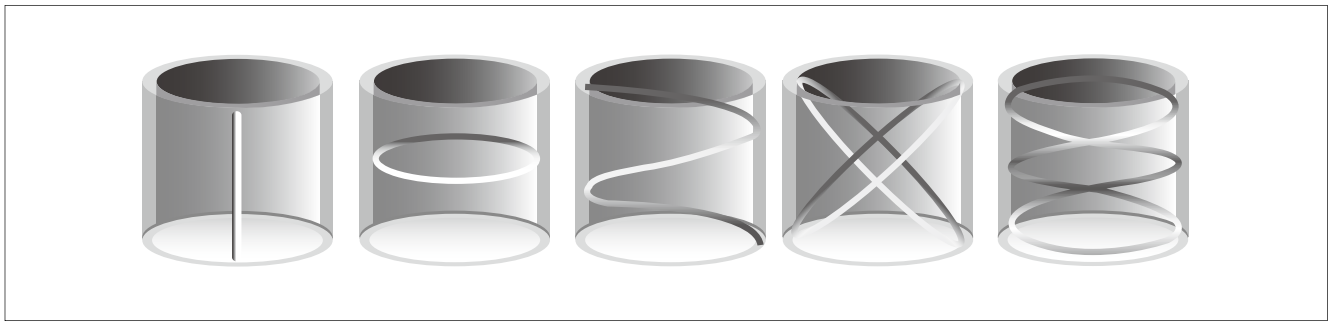


Metallography

Structure Characteristics and Applications

TCB800 is based on the copper alloy. It offers technically and economically favorable bearings solutions. It is of high load capability, low weight and good corrosion resistance. TCB800 can offer different types of bronze alloys according to the required life time, service etc. The tolerance is much tighter than wrapped bronze bushes. This kind of products are widely used in machine-tool, agricultural machinery, crane electromotor, spring pin, steering shaft and transmission, etc. We can use different copper alloy material as per customer's requirements.

Oil Groove Types



Technical Data

Data	Grade	TCB800		
	Material	CuSn6Pb6Zn3 (Qsn6-6-3)		
Typical application		Application: machine-tool, agricultural machinery, crane electromotor, spring pin, steering shaft and transmission, etc.	Mating Axis	Hardness ≥40
				Roughness 0.4~1.0
Density g/cm^3		8.7	Working Temperature ℃	40~140
Max Dynamic Load N/mm^2		60	Friction Coefficient	0.09~0.15
Max Linear Velocity (Grease) m/s		0.85	coefficient of heat conduction W/m·K	52
Max PV value Grease N/mm^2·m/s		1.65	Linear expansion coefficient	18.5×10^{-6}/K
Pressure strength N/mm^2		>240	Yield Strength N/mm^2	>100

TCB90 Wrapped Bronze Bearing

Metallography

Structure Characteristics and Applications

TCB900/TCB902 wrapped bronze bushing is made of tin-bronze CuSn8P. The surface of TCB900 is punched with diamond oil sockets which are preserved for oil saving. The surface of TCB902 is punched with oil apertures by certain angle and density; therefore it's easier to form an oil film when the bushing works. The products have good anti-fatigue, anti-erosion, anti-abrasion and load capacity. The products are widely applied in conditions of heavy load but low running velocity, such as on agricultural, building and engineering machines.

Alloy Chemical Compositions

TCB900 /TCB902	Cu	Sn	P
	rest	7~9%	0.2~0.4%

Physical and Mechanical Performance

Performance Index		Data
Max Dynamic Load		100N/mm^2
Max Linear Velocity (Grease)		2m/s
Max PV value (Grease)		2.8m/s
Tensile Strength		460N/mm^2
Yield Strength		280N/mm^2
Hardness		90~150HB
Mating Axis	Hardness	≥50HRC
	Roughness	0.4~1.0HRC
Working Temperature		-40~+150℃
Friction Coefficient		0.06~0.15μ
Heat Conducting Coefficient		58W/(mk)
Heat Expansion Coefficient		18.5×10^{-6}/K

Main Factors that Influence the Service life of the Bushing

1) PV Value

PV value is an effective criterion to calculate the service life of TCB900/ TCB902. If there is need to prolong the service Life, PV value must be reduced.

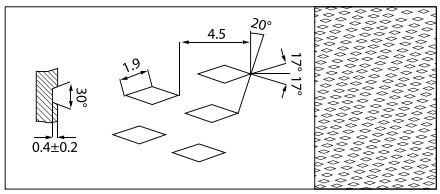
2) Environment Temperature

Service life of the TCB900/TCB902 will shorten in higer ambient temperature .

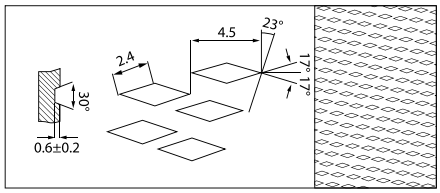
3) Quality of the Mating Surface

Service life of TCB900/TCB902 can be greatly improved if its mating axis is made of chrome-plated stainless steel with hardness more than 50HRC and surface roughness among 0.4~0.63.

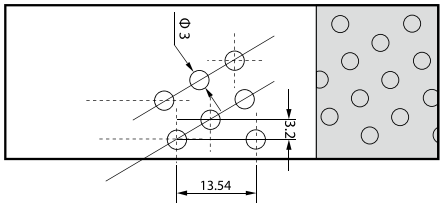
Oil Sockets Format



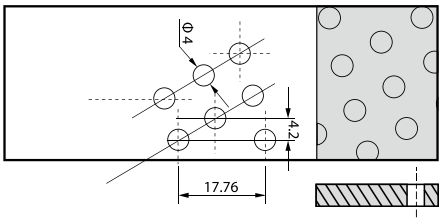
TCB900 Inside Dia. ≤22



TCB900 Inside Dia. >22



TCB902 Inside Dia. ≤ Φ25



TCB902 Inside Dia. > Φ25

Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

TCB90 Wrapped Bronze Bearing

TCB900 wrapped bronze bushing, with diamond oil socket to preserve oil grease. It has good anti-fatigue, anti-erosion and anti-abrasion and load capacity. It can be produced by different tin-bronze material and the surface can be produced with other type of oil socket and oil groove in different working condition, like our product TCB901, TCB902, TCB904, TCB905. The material structure, application fields, and technical parameter are as follows.

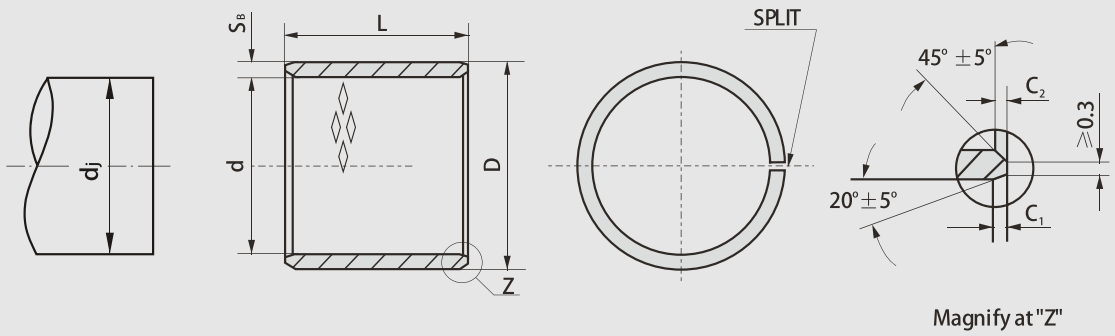
Data	Grade	TCB900	TCB901	TCB902	TCB904	TCB905
	Material	CuSn8P (Qsn8-0.3)	CuZn31Si (H68)	CuSn8P (Qsn8-0.3)	CuSn8P (Qsn8-0.3)	CuSn8P+graphite (Qsn8-0.3+graphite)
Typical application		Application: hoisting, mining machinery, forest machinery, agricultural machinery etc.	Application: construction machinery and machine tool, brake system of automobile, etc.	Application: agricultural machinery foresty machinery, heavy duty construction machinery, etc.	It can protect the grease leak from the bushing, and prevent dust. Application: Agricultural	Application: starting motor hoisting machines and other construction machines, automobiles, tractors, trucks, machines tools and some mineral engines
Density g/cm^3		8.8	8.4	8.8	8.8	8.8
Max Dynamic Load N/mm^2		100	90	120	120	100
Max Linear Velocity （Grease） m/s		2	1.5	2.5	2.5	2.5
Max PV value Grease N/mm^2·m/s		2.8	1.65	2.8	2.8	2.8
Pressure strength N/mm^2		>460	>440	>460	>460	>460
Yield Strength N/mm^2		>280	>230	>280	>280	>280
Hardness		90~150	80~120	90~150	90~150	90~150
Mating Axis	Hardness	≥50	≥50	≥50	≥50	≥50
	Roughness	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0	0.4~1.0
Working Temperature ℃		-40~150	-40~150	-40~150	-40~125	-40~150
Friction Coefficient		0.06~0.15	0.06~0.15	0.06~0.15	0.06~0.15	0.03~0.1
coefficient of heat conduction W/m·K		58	71	58	58	58
Linear expansion coefficient		18.5×10^{-6}/K	19.2×10^{-6}/K	18.5×10^{-6}/K	18.5×10^{-6}/K	18.5×10^{-6}/K

We can also develop according to customers special request while out of this table





TCB90 Series Normal Metric Bushing



Designation	Shaft Dia. Ø d_j	Housing Ø D_H	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 □ 1010	10f7 $^{-0.013}_{-0.028}$	12H7 $^{+0.018}_{0}$	10 $^{+0.036}_{0}$	10±0.25	12 $^{+0.065}_{+0.030}$
TCB90 □ 1015				15±0.25	
TCB90 □ 1210	12f7 $^{-0.013}_{-0.034}$	14H7 $^{+0.018}_{0}$	12 $^{+0.043}_{0}$	10±0.25	14 $^{+0.065}_{+0.030}$
TCB90 □ 1215				15±0.25	
TCB90 □ 1410	14f7 $^{-0.016}_{-0.034}$	16H7 $^{+0.018}_{0}$	14 $^{+0.043}_{0}$	10±0.25	16 $^{+0.065}_{+0.030}$
TCB90 □ 1415				15±0.25	
TCB90 □ 1510	15f7 $^{-0.016}_{-0.034}$	17H7 $^{+0.018}_{0}$	15 $^{+0.043}_{0}$	10±0.25	17 $^{+0.065}_{+0.030}$
TCB90 □ 1515				15±0.25	
TCB90 □ 1520				20±0.25	
TCB90 □ 1610	16f7 $^{-0.016}_{-0.034}$	18H7 $^{+0.018}_{0}$	16 $^{+0.043}_{0}$	10±0.25	18 $^{+0.065}_{+0.030}$
TCB90 □ 1615				15±0.25	
TCB90 □ 1620				20±0.25	
TCB90 □ 1810	18f7 $^{-0.016}_{-0.034}$	21H7 $^{+0.021}_{0}$	18 $^{+0.043}_{0}$	10±0.25	21 $^{+0.075}_{+0.035}$
TCB90 □ 1815				15±0.25	
TCB90 □ 1820				20±0.25	
TCB90 □ 2010	20f7 $^{-0.020}_{-0.041}$	23H7 $^{+0.021}_{0}$	20 $^{+0.052}_{0}$	10±0.25	23 $^{+0.075}_{+0.035}$
TCB90 □ 2015				15±0.25	
TCB90 □ 2020				20±0.25	
TCB90 □ 2025				25±0.25	
TCB90 □ 2030				30±0.25	
TCB90 □ 2215	22f7 $^{-0.020}_{-0.041}$	25H7 $^{+0.021}_{0}$	22 $^{+0.052}_{0}$	15±0.25	25 $^{+0.075}_{+0.035}$
TCB90 □ 2220				20±0.25	
TCB90 □ 2225				25±0.25	
TCB90 □ 2230				30±0.25	
TCB90 □ 2515	25f7 $^{-0.020}_{-0.041}$	28H7 $^{+0.021}_{0}$	25 $^{+0.052}_{0}$	15±0.25	28 $^{+0.075}_{+0.035}$
TCB90 □ 2520				20±0.25	
TCB90 □ 2525				25±0.25	
TCB90 □ 2530				30±0.25	

TCB90 Series Normal Metric Bushing

Designation	Shaft Dia. Ø d_j	Housing Ø D_H	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 □ 2540	25f7 $^{-0.020}_{-0.041}$	28H7 $^{+0.021}_{0}$	25 $^{+0.052}_{0}$	40±0.25	28 $^{+0.075}_{+0.035}$
TCB90 □ 2815	28f7 $^{-0.020}_{-0.041}$	31H7 $^{+0.025}_{0}$	28 $^{+0.052}_{0}$	15±0.25	31 $^{+0.085}_{+0.045}$
TCB90 □ 2820				20±0.25	
TCB90 □ 2825				25±0.25	
TCB90 □ 2830				30±0.25	
TCB90 □ 3020	30f7 $^{-0.020}_{-0.041}$	34H7 $^{+0.025}_{0}$	30 $^{+0.052}_{0}$	20±0.25	34 $^{+0.085}_{+0.045}$
TCB90 □ 3030				30±0.25	
TCB90 □ 3040				40±0.25	
TCB90 □ 3520	35f7 $^{-0.025}_{-0.050}$	39H7 $^{+0.025}_{0}$	35 $^{+0.062}_{0}$	20±0.25	39 $^{+0.085}_{+0.045}$
TCB90 □ 3530				30±0.25	
TCB90 □ 3540				40±0.25	
TCB90 □ 3550				50±0.25	
TCB90 □ 4020	40f7 $^{-0.025}_{-0.050}$	44H7 $^{+0.025}_{0}$	40 $^{+0.062}_{0}$	20±0.25	44 $^{+0.085}_{+0.045}$
TCB90 □ 4030				30±0.25	
TCB90 □ 4040				40±0.25	
TCB90 □ 4530	45f7 $^{-0.025}_{-0.050}$	50H7 $^{+0.025}_{0}$	45 $^{+0.062}_{0}$	30±0.25	50 $^{+0.085}_{+0.045}$
TCB90 □ 4540				40±0.25	
TCB90 □ 4550				50±0.25	
TCB90 □ 5030	50f7 $^{-0.025}_{-0.050}$	55H7 $^{+0.030}_{0}$	50 $^{+0.062}_{0}$	30±0.25	55 $^{+0.100}_{+0.055}$
TCB90 □ 5040				40±0.25	
TCB90 □ 5050				50±0.25	
TCB90 □ 5525	55f7 $^{-0.030}_{-0.060}$	60H7 $^{+0.030}_{0}$	55 $^{+0.074}_{0}$	25±0.25	60 $^{+0.100}_{+0.055}$
TCB90 □ 5530				30±0.25	
TCB90 □ 5540	55f7 $^{-0.030}_{-0.060}$	60H7 $^{+0.030}_{0}$	55 $^{+0.074}_{0}$	40±0.25	60 $^{+0.100}_{+0.055}$
TCB90 □ 5550				50±0.25	
TCB90 □ 6030	60f7 $^{-0.030}_{-0.060}$	65H7 $^{+0.030}_{0}$	60 $^{+0.074}_{0}$	30±0.25	65 $^{+0.100}_{+0.055}$
TCB90 □ 6050				50±0.25	
TCB90 □ 6060				60±0.25	
TCB90 □ 6530	65f7 $^{-0.030}_{-0.060}$	70H7 $^{+0.030}_{0}$	65 $^{+0.074}_{0}$	30±0.25	70 $^{+0.100}_{+0.055}$
TCB90 □ 6550				50±0.25	
TCB90 □ 6560				60±0.25	
TCB90 □ 7030	70f7 $^{-0.030}_{-0.060}$	75H7 $^{+0.030}_{0}$	70 $^{+0.074}_{0}$	30±0.25	75 $^{+0.100}_{+0.055}$
TCB90 □ 7050				50±0.25	
TCB90 □ 7060				60±0.25	
TCB90 □ 7080				80±0.25	
TCB90 □ 7530	75f7 $^{-0.030}_{-0.060}$	80H7 $^{+0.035}_{0}$	75 $^{+0.074}_{0}$	30±0.25	80 $^{+0.100}_{+0.055}$
TCB90 □ 7550				50±0.25	
TCB90 □ 7560				60±0.25	
TCB90 □ 7580				80±0.25	
TCB90 □ 8040	80f7 $^{-0.036}_{-0.071}$	85H7 $^{+0.035}_{0}$	80 $^{+0.087}_{0}$	40±0.25	85 $^{+0.120}_{+0.070}$
TCB90 □ 8050				50±0.25	
TCB90 □ 8060				60±0.25	
TCB90 □ 8080				80±0.25	

TCB90 Series Normal Metric Bushing

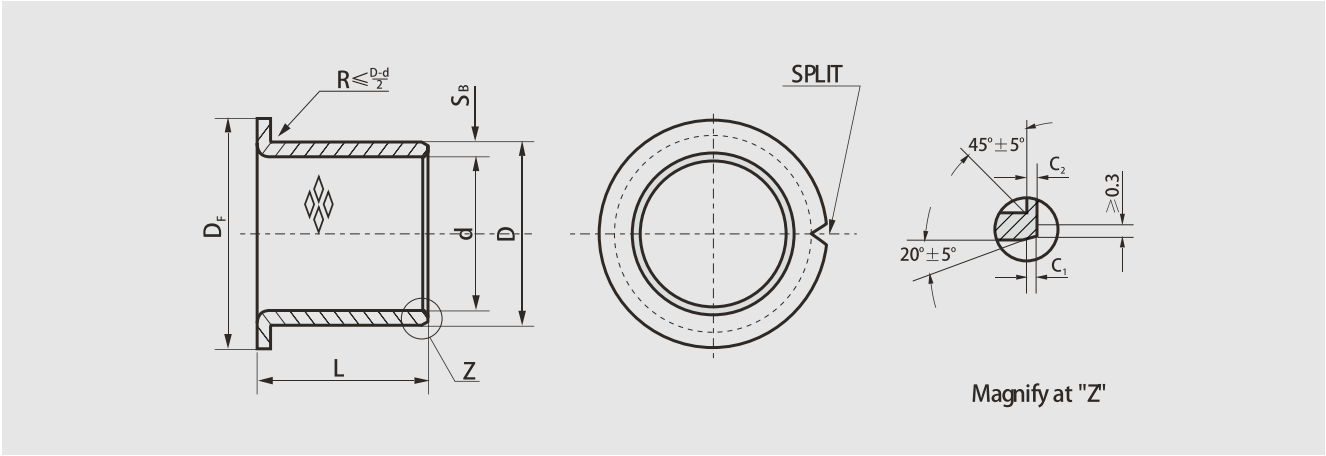
Designation	Shaft Dia. Ø d_j	Housing Ø D_H	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 ☐ 8550	85f7 $^{-0.036}_{-0.071}$	90H7 $^{+0.035}_{0}$	85 $^{+0.087}_{0}$	50±0.50	90 $^{+0.120}_{+0.070}$
TCB90 ☐ 8560				60±0.50	
TCB90 ☐ 8580				80±0.50	
TCB90 ☐ 9050	90f7 $^{-0.036}_{-0.071}$	95H7 $^{+0.035}_{0}$	90 $^{+0.087}_{0}$	50±0.50	95 $^{+0.120}_{+0.070}$
TCB90 ☐ 9060				60±0.50	
TCB90 ☐ 9080				80±0.50	
TCB90 ☐ 90100				100±0.50	
TCB90 ☐ 9550	95f7 $^{-0.036}_{-0.071}$	100H7 $^{+0.035}_{0}$	95 $^{+0.087}_{0}$	50±0.50	100 $^{+0.120}_{+0.070}$
TCB90 ☐ 95100				100±0.50	
TCB90 ☐ 10050	100f7 $^{-0.036}_{-0.071}$	105H7 $^{+0.035}_{0}$	100 $^{+0.087}_{0}$	50±0.50	105 $^{+0.120}_{+0.070}$
TCB90 ☐ 100100				100±0.50	
TCB90 ☐ 10560	105f7 $^{-0.036}_{-0.071}$	110H7 $^{+0.035}_{0}$	105 $^{+0.087}_{0}$	60±0.50	110 $^{+0.120}_{+0.070}$
TCB90 ☐ 105100				100±0.50	
TCB90 ☐ 11060	110f7 $^{-0.036}_{-0.071}$	115H7 $^{+0.035}_{0}$	110 $^{+0.087}_{0}$	60±0.50	115 $^{+0.120}_{+0.070}$
TCB90 ☐ 11080				80±0.50	
TCB90 ☐ 110100				100±0.50	
TCB90 ☐ 11560	115f7 $^{-0.036}_{-0.071}$	120H7 $^{+0.040}_{0}$	115 $^{+0.087}_{0}$	60±0.50	120 $^{+0.120}_{+0.070}$
TCB90 ☐ 11580				80±0.50	
TCB90 ☐ 115100				100±0.50	
TCB90 ☐ 12060	120f7 $^{-0.043}_{-0.083}$	125H7 $^{+0.040}_{0}$	120 $^{+0.100}_{0}$	60±0.50	125 $^{+0.170}_{+0.100}$
TCB90 ☐ 12080				80±0.50	
TCB90 ☐ 120100				100±0.50	
TCB90 ☐ 125100	120f7 $^{-0.043}_{-0.083}$	130H7 $^{+0.040}_{0}$	125 $^{+0.100}_{0}$	100±0.50	130 $^{+0.170}_{+0.100}$
TCB90 ☐ 13060	130f7 $^{-0.043}_{-0.083}$	135H7 $^{+0.040}_{0}$	130 $^{+0.100}_{0}$	60±0.50	135 $^{+0.170}_{+0.100}$
TCB90 ☐ 130100				100±0.50	
TCB90 ☐ 13560	135f7 $^{-0.043}_{-0.083}$	140H7 $^{+0.040}_{0}$	135 $^{+0.100}_{0}$	60±0.50	140 $^{+0.170}_{+0.100}$
TCB90 ☐ 135100				100±0.50	
TCB90 ☐ 14060	140f7 $^{-0.043}_{-0.083}$	145H7 $^{+0.040}_{0}$	140 $^{+0.100}_{0}$	60±0.50	145 $^{+0.170}_{+0.100}$
TCB90 ☐ 140100				100±0.50	
TCB90 ☐ 14560	145f7 $^{-0.043}_{-0.083}$	150H7 $^{+0.040}_{0}$	145 $^{+0.100}_{0}$	60±0.50	150 $^{+0.170}_{+0.100}$
TCB90 ☐ 14580				80±0.50	
TCB90 ☐ 145100				100±0.50	
TCB90 ☐ 15060	150f7 $^{-0.043}_{-0.083}$	155H7 $^{+0.040}_{0}$	150 $^{+0.100}_{0}$	60±0.50	155 $^{+0.170}_{+0.100}$
TCB90 ☐ 150100				100±0.50	
TCB90 ☐ 15560	155f7 $^{-0.043}_{-0.083}$	160H7 $^{+0.040}_{0}$	155 $^{+0.100}_{0}$	60±0.50	160 $^{+0.170}_{+0.100}$
TCB90 ☐ 155100				100±0.50	
TCB90 ☐ 16060	160f7 $^{-0.043}_{-0.083}$	165H7 $^{+0.040}_{0}$	160 $^{+0.100}_{0}$	60±0.50	165 $^{+0.170}_{+0.100}$
TCB90 ☐ 160100				100±0.50	
TCB90 ☐ 16560	165f7 $^{-0.043}_{-0.083}$	170H7 $^{+0.040}_{0}$	165 $^{+0.100}_{0}$	60±0.50	170 $^{+0.170}_{+0.100}$
TCB90 ☐ 165100				100±0.50	
TCB90 ☐ 17060	170f7 $^{-0.043}_{-0.083}$	175H7 $^{+0.040}_{0}$	175 $^{+0.100}_{0}$	60±0.75	175 $^{+0.170}_{+0.100}$
TCB90 ☐ 170100				100±0.75	
TCB90 ☐ 17560	175f7 $^{-0.043}_{-0.083}$	180H7 $^{+0.040}_{0}$	175 $^{+0.100}_{0}$	60±0.75	180 $^{+0.170}_{+0.100}$

TCB90 Series Normal Metric Bushing

Designation	Shaft Dia. Ø d_j	Housing Ø D_H	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 ☐ 175100	175f7 $^{-0.043}_{-0.083}$	180H7 $^{+0.046}_{0}$	175 $^{+0.100}_{0}$	100±0.75	180 $^{+0.170}_{+0.100}$
TCB90 ☐ 18060	180f7 $^{-0.050}_{-0.096}$	185H7 $^{+0.046}_{0}$	180 $^{+0.115}_{0}$	60±0.75	185 $^{+0.210}_{+0.130}$
TCB90 ☐ 180100				100±0.75	
TCB90 ☐ 18560	185f7 $^{-0.050}_{-0.096}$	190H7 $^{+0.046}_{0}$	185 $^{+0.115}_{0}$	60±0.75	190 $^{+0.210}_{+0.130}$
TCB90 ☐ 185100				100±0.75	
TCB90 ☐ 19060	190f7 $^{-0.050}_{-0.096}$	195H7 $^{+0.046}_{0}$	190 $^{+0.115}_{0}$	60±0.75	195 $^{+0.210}_{+0.130}$
TCB90 ☐ 190100				100±0.75	
TCB90 ☐ 19560	195f7 $^{-0.050}_{-0.096}$	200H7 $^{+0.046}_{0}$	195 $^{+0.115}_{0}$	60±0.75	200 $^{+0.210}_{+0.130}$
TCB90 ☐ 195100				100±0.75	
TCB90 ☐ 200100	200f7 $^{-0.050}_{-0.096}$	205H7 $^{+0.046}_{0}$	200 $^{+0.115}_{0}$	100±0.75	205 $^{+0.210}_{+0.130}$
TCB90 ☐ 205100	205f7 $^{-0.050}_{-0.096}$	210H7 $^{+0.046}_{0}$	205 $^{+0.115}_{0}$	100±0.75	210 $^{+0.210}_{+0.130}$
TCB90 ☐ 210100	210f7 $^{-0.050}_{-0.096}$	215H7 $^{+0.046}_{0}$	210 $^{+0.115}_{0}$	100±0.75	215 $^{+0.210}_{+0.130}$
TCB90 ☐ 215100	215f7 $^{-0.050}_{-0.096}$	220H7 $^{+0.046}_{0}$	215 $^{+0.115}_{0}$	100±0.75	220 $^{+0.210}_{+0.130}$
TCB90 ☐ 220100	220f7 $^{-0.050}_{-0.096}$	225H7 $^{+0.046}_{0}$	220 $^{+0.115}_{0}$	100±0.75	225 $^{+0.210}_{+0.130}$
TCB90 ☐ 225100	225f7 $^{-0.050}_{-0.096}$	230H7 $^{+0.046}_{0}$	225 $^{+0.115}_{0}$	100±0.75	230 $^{+0.210}_{+0.130}$
TCB90 ☐ 230100	230f7 $^{-0.050}_{-0.096}$	235H7 $^{+0.046}_{0}$	230 $^{+0.115}_{0}$	100±0.75	235 $^{+0.210}_{+0.130}$
TCB90 ☐ 235100	235f7 $^{-0.050}_{-0.096}$	240H7 $^{+0.046}_{0}$	235 $^{+0.115}_{0}$	100±0.75	240 $^{+0.210}_{+0.130}$
TCB90 ☐ 240100	240f7 $^{-0.050}_{-0.096}$	245H7 $^{+0.046}_{0}$	240 $^{+0.115}_{0}$	100±0.75	245 $^{+0.210}_{+0.130}$
TCB90 ☐ 245100	245f7 $^{-0.050}_{-0.096}$	250H7 $^{+0.052}_{0}$	245 $^{+0.115}_{0}$	100±0.75	250 $^{+0.260}_{+0.170}$
TCB90 ☐ 250100	250f7 $^{-0.056}_{-0.108}$	255H7 $^{+0.052}_{0}$	250 $^{+0.13}_{0}$	100±0.75	255 $^{+0.260}_{+0.170}$
TCB90 ☐ 255100	255f7 $^{-0.056}_{-0.108}$	260H7 $^{+0.052}_{0}$	255 $^{+0.13}_{0}$	100±0.75	260 $^{+0.260}_{+0.170}$
TCB90 ☐ 260100	260f7 $^{-0.056}_{-0.108}$	265H7 $^{+0.052}_{0}$	260 $^{+0.13}_{0}$	100±0.75	265 $^{+0.260}_{+0.170}$
TCB90 ☐ 265100	265f7 $^{-0.056}_{-0.108}$	270H7 $^{+0.052}_{0}$	265 $^{+0.13}_{0}$	100±0.75	270 $^{+0.260}_{+0.170}$
TCB90 ☐ 270100	270f7 $^{-0.056}_{-0.108}$	275H7 $^{+0.052}_{0}$	270 $^{+0.13}_{0}$	100±0.75	275 $^{+0.260}_{+0.170}$
TCB90 ☐ 275100	275f7 $^{-0.056}_{-0.108}$	280H7 $^{+0.052}_{0}$	275 $^{+0.13}_{0}$	100±0.75	280 $^{+0.260}_{+0.170}$
TCB90 ☐ 280100	280f7 $^{-0.056}_{-0.108}$	285H7 $^{+0.052}_{0}$	280 $^{+0.13}_{0}$	100±0.75	285 $^{+0.260}_{+0.170}$
TCB90 ☐ 285100	285f7 $^{-0.056}_{-0.108}$	290H7 $^{+0.052}_{0}$	285 $^{+0.13}_{0}$	100±0.75	290 $^{+0.260}_{+0.170}$
TCB90 ☐ 290100	290f7 $^{-0.056}_{-0.108}$	295H7 $^{+0.052}_{0}$	290 $^{+0.13}_{0}$	100±0.75	295 $^{+0.260}_{+0.170}$
TCB90 ☐ 295100	295f7 $^{-0.056}_{-0.108}$	300H7 $^{+0.052}_{0}$	295 $^{+0.13}_{0}$	100±0.75	300 $^{+0.260}_{+0.170}$
TCB90 ☐ 300100	300f7 $^{-0.056}_{-0.108}$	305H7 $^{+0.052}_{0}$	300 $^{+0.13}_{0}$	100±0.75	305 $^{+0.260}_{+0.170}$

Label example			Wall Thickness S_B	Chamfering	
Type	I.D.	High		f_1	f_2
TCB90 ☐	300	100	1.0	0.6±0.3	0.3±0.2
			1.5	0.6±0.4	0.4±0.3
			2.0	1.2±0.4	0.6±0.3
			2.5	1.8±0.4	0.6±0.4

TCB90F Series Normal Metric Flange Bushing



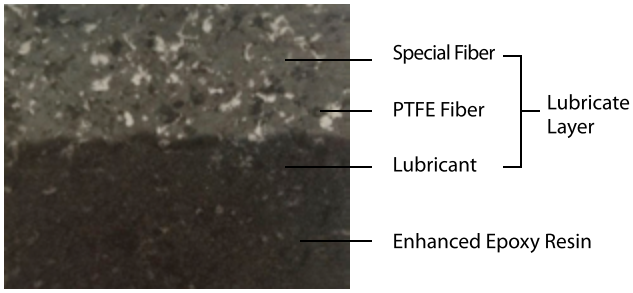
Designation	Shaft Dia. Ø d_j	Housing Ø D_H	flange Ø DF	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 □ F 2015	20f7 $^{-0.020}_{-0.041}$	23H7 $^{+0.021}_{0}$	30±0.5	20 $^{+0.052}_{0}$	15±0.25	23 $^{+0.075}_{+0.035}$
TCB90 □ F 2020					20±0.25	
TCB90 □ F 2515	25f7 $^{-0.020}_{-0.041}$	28H7 $^{+0.021}_{0}$	35±0.5	25 $^{+0.052}_{0}$	15±0.25	28 $^{+0.075}_{+0.035}$
TCB90 □ F 2520					20±0.25	
TCB90 □ F 2525					25±0.25	
TCB90 □ F 3015	30f7 $^{-0.020}_{-0.041}$	34H7 $^{+0.025}_{0}$	45±0.5	30 $^{+0.052}_{0}$	15±0.25	34 $^{+0.085}_{+0.045}$
TCB90 □ F 3020					20±0.25	
TCB90 □ F 3030					30±0.25	
TCB90 □ F 3520	35f7 $^{-0.025}_{-0.050}$	39H7 $^{+0.025}_{0}$	50±0.5	35 $^{+0.062}_{0}$	20±0.25	39 $^{+0.085}_{+0.045}$
TCB90 □ F 3525					25±0.25	
TCB90 □ F 3530					30±0.25	
TCB90 □ F 4025	40f7 $^{-0.025}_{-0.050}$	44H7 $^{+0.025}_{0}$	55±0.5	40 $^{+0.062}_{0}$	25±0.25	44 $^{+0.085}_{+0.045}$
TCB90 □ F 4030					30±0.25	
TCB90 □ F 4530	45f7 $^{-0.025}_{-0.050}$	50H7 $^{+0.025}_{0}$	60±0.5	45 $^{+0.062}_{0}$	30±0.25	50 $^{+0.085}_{+0.045}$
TCB90 □ F 4545					45±0.25	
TCB90 □ F 4560					60±0.25	
TCB90 □ F 5035	50f7 $^{-0.025}_{-0.050}$	55H7 $^{+0.030}_{0}$	65±0.5	50 $^{+0.062}_{0}$	35±0.25	55 $^{+0.100}_{+0.055}$
TCB90 □ F 5040					40±0.25	
TCB90 □ F 5050					50±0.25	
TCB90 □ F 5530	55f7 $^{-0.030}_{-0.060}$	60H7 $^{+0.030}_{0}$	70±0.5	55 $^{+0.074}_{0}$	30±0.25	60 $^{+0.100}_{+0.055}$
TCB90 □ F 5550					50±0.25	
TCB90 □ F 6030	60f7 $^{-0.030}_{-0.060}$	65H7 $^{+0.030}_{0}$	75±0.5	60 $^{+0.074}_{0}$	30±0.25	65 $^{+0.100}_{+0.055}$
TCB90 □ F 6050					50±0.25	
TCB90 □ F 6060					60±0.25	
TCB90 □ F 6530	65f7 $^{-0.030}_{-0.060}$	70H7 $^{+0.030}_{0}$	80±0.5	65 $^{+0.074}_{0}$	30±0.25	70 $^{+0.100}_{+0.055}$
TCB90 □ F 6540					40±0.25	
TCB90 □ F 6560					60±0.25	
TCB90 □ F 7040	70f7 $^{-0.030}_{-0.060}$	75H7 $^{+0.030}_{0}$	85±0.5	70 $^{+0.074}_{0}$	40±0.25	75 $^{+0.100}_{+0.055}$
TCB90 □ F 7070					70±0.25	

TCB90F Series Normal Metric Flange Bushing

Designation	Shaft Dia. Ø d_j	Housing Ø D_H	flange Ø D_F	Press in H7 housing I.D. Ø d	High L	O.D. Ø D
TCB90 □ F 7540	75f7 $^{-0.030}_{-0.060}$	80H7 $^{+0.035}_{0}$	90±0.5	75 $^{+0.074}_{0}$	40±0.25	80 $^{+0.100}_{+0.055}$
TCB90 □ F 7570					70±0.25	
TCB90 □ F 8050	80f7 $^{-0.036}_{-0.071}$	85H7 $^{+0.035}_{0}$	100±0.5	80 $^{+0.087}_{0}$	50±0.50	85 $^{+0.120}_{+0.070}$
TCB90 □ F 8080					80±0.50	
TCB90 □ F 9050	90f7 $^{-0.036}_{-0.071}$	95H7 $^{+0.035}_{0}$	110±0.5	90 $^{+0.087}_{0}$	50±0.50	95 $^{+0.120}_{+0.070}$
TCB90 □ F 9090					90±0.50	
TCB90 □ F 10050	100f7 $^{-0.036}_{-0.071}$	105H7 $^{+0.035}_{0}$	120±0.5	100 $^{+0.087}_{0}$	50±0.50	105 $^{+0.120}_{+0.070}$
TCB90 □ F 10060					60±0.50	
TCB90 □ F 11050	110f7 $^{-0.036}_{-0.071}$	115H7 $^{+0.035}_{0}$	130±0.5	110 $^{+0.087}_{0}$	50±0.50	115 $^{+0.120}_{+0.070}$
TCB90 □ F 11060					60±0.50	
TCB90 □ F 12060	120f7 $^{-0.043}_{-0.083}$	125H7 $^{+0.040}_{0}$	140±0.5	120 $^{+0.100}_{0}$	60±0.50	125 $^{+0.170}_{+0.100}$
TCB90 □ F 13060	130f7 $^{-0.043}_{-0.083}$	135H7 $^{+0.040}_{0}$	155±0.5	130 $^{+0.100}_{0}$	60±0.50	135 $^{+0.170}_{+0.100}$
TCB90 □ F 13090					90±0.50	
TCB90 □ F 14060	140f7 $^{-0.043}_{-0.083}$	145H7 $^{+0.040}_{0}$	165±0.5	140 $^{+0.100}_{0}$	60±0.50	145 $^{+0.170}_{+0.100}$
TCB90 □ F 14090					90±0.50	
TCB90 □ F 15060	150f7 $^{-0.043}_{-0.083}$	155H7 $^{+0.040}_{0}$	180±0.5	150 $^{+0.100}_{0}$	60±0.50	155 $^{+0.170}_{+0.100}$
TCB90 □ F 15090					90±0.50	
TCB90 □ F 16060	160f7 $^{-0.043}_{-0.083}$	165H7 $^{+0.040}_{0}$	190±0.5	160 $^{+0.100}_{0}$	60±0.50	165 $^{+0.170}_{+0.100}$
TCB90 □ F 16090					90±0.50	
TCB90 □ F 17060	170f7 $^{-0.043}_{-0.083}$	175H7 $^{+0.040}_{0}$	200±0.5	170 $^{+0.100}_{0}$	60±0.75	175 $^{+0.170}_{+0.100}$
TCB90 □ F 17090					90±0.75	
TCB90 □ F 18090	180f7 $^{-0.043}_{-0.083}$	185H7 $^{+0.046}_{0}$	215±0.5	180 $^{+0.115}_{0}$	90±0.75	185 $^{+0.210}_{+0.130}$

Label example			Wall Thickness S_B	Chamfering	
				f_1	f_2
Type	I.D.	High	1.0	0.6±0.3	0.3±0.2
TCB90 □ F	180	90	1.5	0.6±0.4	0.4±0.3
			2.0	1.2±0.4	0.6±0.3
			2.5	1.8±0.4	0.6±0.4

TCB-21 Filament Wound High Load Self-lubricating Bearings



Metallography

Technical Data

Performance	Unit	TCB-21
Static load	Mpa	260
Dynamic load	Mpa	160
Density	g/cm3	2.0
Max. speed	m/s	0.20
Max PV value	MPa*m/s	2.0
Coefficient of friction	-	0.03-0.12
Working temperature	℃	±180
Radial compressive strength	Mpa	550
Hardness	HRM	95
Linear thermal expansion coefficient	m/k	$13*10^{-6}$
Color	-	Black

Structure Characteristics

TCB-21 bearing uses high strength glass fiber with epoxy resin as its supporting layer, and special lubricating fiber or PTFE wound fiber as its lubricating layer, performing an outstanding anti-wear feature and low friction coefficient under high load and low speed condition. And it can even play a good self-lubricating properties and high bearing pressure in a long time without oiling.

Material Structure

Lubricating layer:
PTFE fiber and special high strength filament wound fabric

Backing:
High strength glass fiber with a high temperature epoxy resin

Typical Features

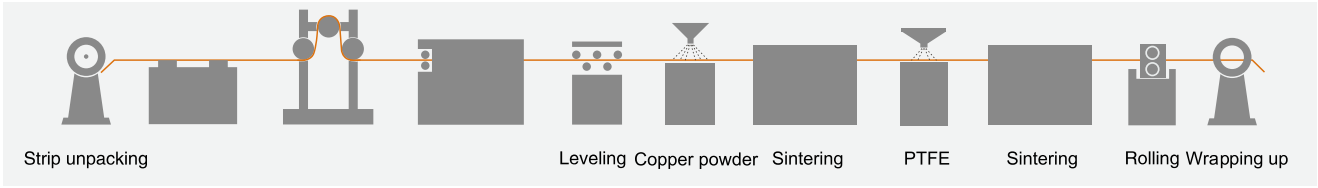
Very high load capacity
Excellent impact resistance
Good corrosion resistance
Low friction and good anti-wear properties

Typical Application

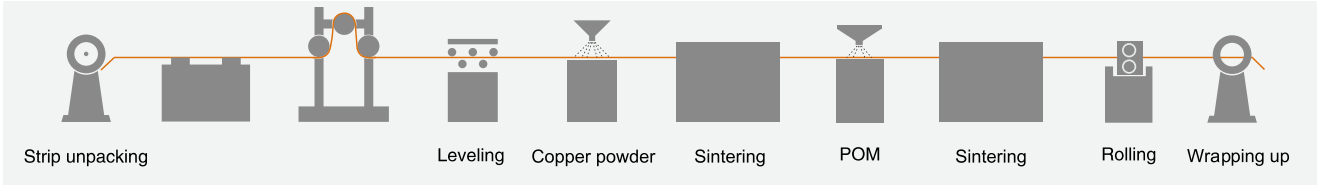
Port machinery
Lifting machinery
Package machinery
Hydraulic machinery
Construction machinery

Material Processing Process

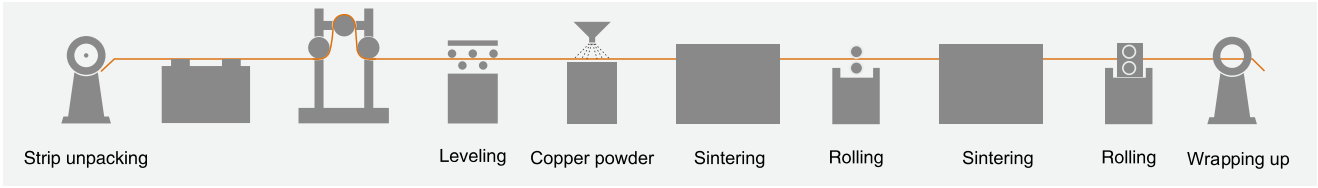
TCB10 series material processing flow



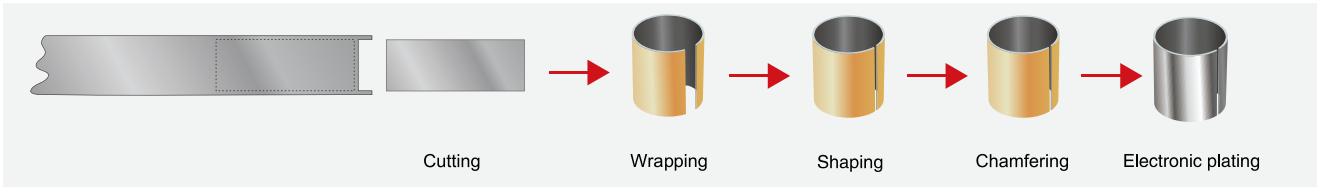
TCB20 series material processing flow



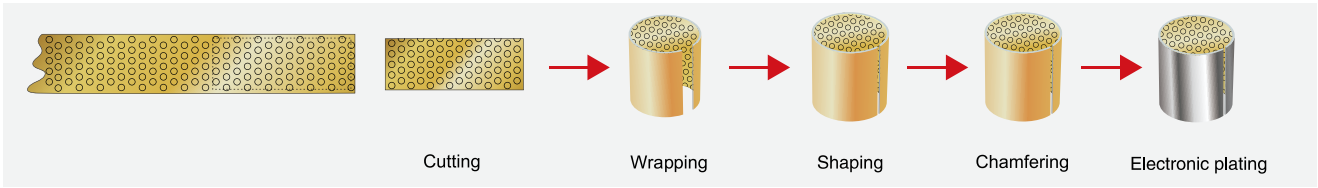
TCB30 series material processing flow



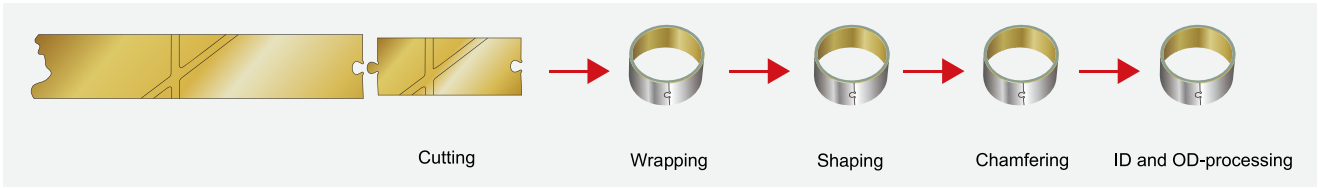
TCB10 series bushing processing flow



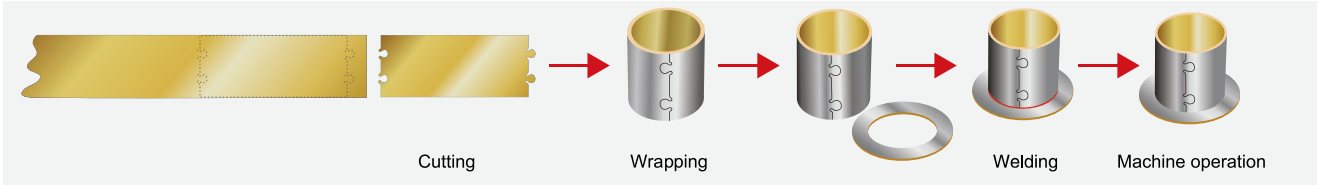
TCB20 series straight bushing processing flow



TCB30 series bushing processing flow



TCB30 series friction welding bushing processing flow



Production Equipment

Production Equipment

Production Equipment

Production Equipment

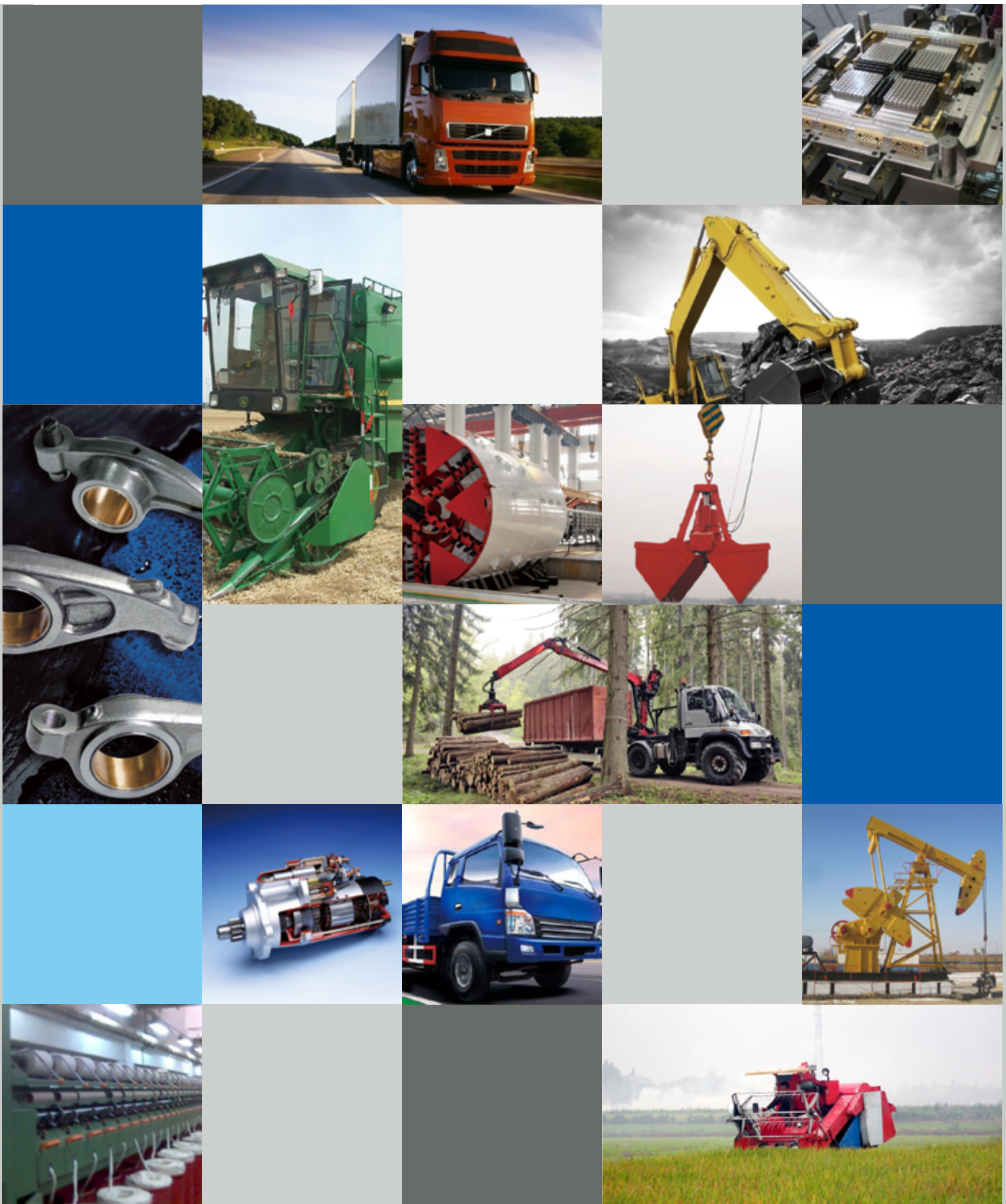
TCB PARTS now follows the business philosophy of "serious, pragmatic, pioneering and innovative", with technology research and development as the core, depending on the quality and service as our soul, dedicated to the old and new customers with quality products and best services. We are strongly committed to providing our advanced products at best prices. We are warmly welcome customers from worldwide to cooperate with us.

Production Equipment

Production Equipment

Production Equipment

Typical Application



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