

PM Self Lubricating Bearings

Powder Metallurgy Parts

粉末冶金自润滑含油轴承及粉末冶金零部件



CHANGSHA SOPERB MACHINERY CO.,LTD

WWW.PMSNT.COM

Factory Profile

工厂介绍



Main Products: Self-lubricating bearings, sintered gears, sintered cylindrical & spherical bushing and other mechanical structure parts

Technical Department of the existing number of senior engineers, technical personnel, quality inspection personnel and senior technical advisers to a variety of new products each day for different industries supporting the speed.

Our factory is in ISO9001 quality management system certificated. Equipment including sintering line, shaping line, gauge machines, NC high precision machines, CNC centers etc.

Factory has its own mold room, automatic hydraulic machine, automatic mechanical presses, plastic machines, mesh belt furnace, vacuum furnace, high-precision EDM machine, lathe, copper smelting furnace, CNC and other mold processing equipment.

我厂通过由 IQNet 和 CQC 认证的 ISO 9001 : 2000 质量体系认证。

品质控制：万能试验机，压溃试验机，密度仪，硬度计，金相分析仪，投影仪，光谱仪等。

产品标准：我司生产的所有含油轴承长久以来都符合国际标准的化学和物理特性，如 ASTM, JIS, DIN, MPIF, SAE, GB...



我司为生产含油轴承，轴套和止推垫圈的各种烧结金属制品的专业厂家。主要产品有轴承套，法兰，垫圈，结构件。



工厂位于经济发达的杭州建德市，成立于 2001 年，拥有自建厂房 5000 平方米，年生产能力达到 500 吨。技术部门现有多名高级工程师，技术人员，质检人员及高级技术顾问以每天多款新产品的速度为不同行业配套。

工厂有自己的模房，全自动油压机、全自动机械式压机、整形机、网带炉、真空炉、高精度电火花成形机、车床、熔铜炉、CNC 等模具加工设备。



Sintered Bronze Bearings

- Tin Bronze oil sintered self-lubricating bearing
- Pb Bronze base oil sintered self-lubricating bearing
- Graphite lubricant additive

烧结铜基含油轴承

- 锡青铜基含油轴承
- 铅青铜基含油轴承
- 添加石墨固体润滑剂

Sintered Iron Bearings

- Full Iron base self-lubricating bearing
- Iron with copper base self-lubricating bearing

烧结铁基含油轴承

- 铁基自润滑轴承
- 铁铜合金基自润滑轴承



PM Sintered Parts

- Sintered Gear
- Sintered hardware
- Mechanical parts

粉末冶金部件

- 烧结齿轮
- 烧结五金件
- 烧结机械配件

FZ Oil Sintered Bearing and Part is made of bronze or iron or stainless steel powder with lubricating oil vacuum sintered. It is mold pressed by high pressure then sintered in high temperature, after that, put it in high temperature vacuum and soaked in oil. This bearing is used in electrical appliances, power tools, textiles machinery and automobile industry. Like electrical fan, electrical motor, juicer, mixture, etc.

Material Technical Data (常见材质参数)

	FZ21	FZ22	FZ14	FZ11
Bronze Material	CuSn6Zn6Pb3	Cu90Sn10	Cu20-Fe80	Fe
Oil Retaining	12%~18%	19%~24%	17%~19%	12%~18%
Crushing Strength (Radial)	>150MPa (18%) >200MPa (12%)	>130MPa (24%) >180MPa (19%)	>210MPa (19%) >280MPa (17%)	>200MPa (18%) >250MPa (12%)
Max. Linear Speed	4m/s	5m/s	15m/s	10m/s
Max. PV	8 N/mm ² · m/s	10 N/mm ² · m/s	8 N/mm ² · m/s	10 N/mm ² · m/s
Hardness	HB20~HB50	HB20~HB50	HB30~HB60	HB40~HB70

Products Standard: ISO2795 (DIN1850 Part 3)

Recommend Tolerance (公差等级)

Bearing Grade	I.D.	O.D.	Housing	Shaft (max.)	Shaft (min.)
7	G7	r7	H7	e6	d6
8	E8	s8	H8	d7	c7
9	C9	t9	H8	d8	c8

Typical Models (常见结构)



Plain Bush



Knurled Bush



Spherical Bronze Bush



Flanged Bush



Square Insert Bush



Square Bore Bush

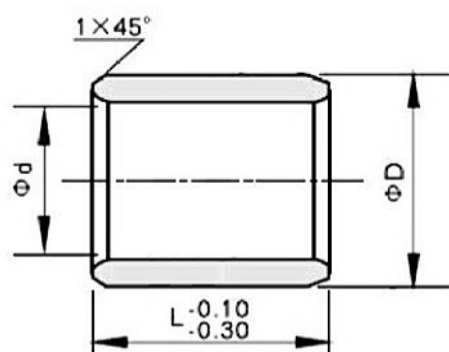


Spherical Iron Bush



Stainless Steel Bush

Cylindrical Bushing (直套)

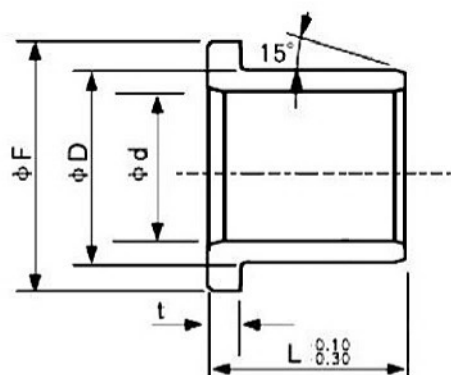


Unit: mm

d	D	L
1.5	4	7
2.5	6	8
3	6	5
4	7	8
5	9	5
5	10	10
6	8	8
6	12	16
7	11	8
8	11	16
8	12	10
8	14	8
9	12	8
9	14	16
10	12	10
10	13	12
10	14	15
12	14	16
12	15	18
12	18	25
14	18	15
14	18	22
14	20	25

d	D	L
15	18	12
15	20	15
15	21	30
16	18	22
16	19	19
16	20	28
16	22	30
17	21	22
17	22	25
18	22	30
18	24	30
19	25	25
20	23	24
20	24	30
20	25	40
22	25	35
22	26	28
24	28	30
25	30	20
25	32	35
25	35	40
26	32	30
28	33	22

Flanged Bushing (翻边轴套)



Unit: mm

d	D	F	t	L
6	12	14	2	8
6	12	14	2	13
7	12	16	2.5	8
7	12	16	2.5	14
8	14	18	3	14
8	14	18	3	20
10	14	18	2	10
10	16	20	3	20
12	16	20	2	16
12	18	22	3	18
14	20	25	3	20
14	20	25	3	25
15	22	28	3	22
15	22	28	3	30
16	22	28	3.5	15
16	22	28	3.5	30
17	25	32	4	25
17	25	32	4	35

d	D	F	t	L
18	25	32	4	25
20	25	32	4	20
20	25	32	4	30
22	32	40	5	32
22	32	40	5	40
25	32	40	5	35
25	32	40	5	45
30	35	40	3	35
30	40	50	5	42
32	42	48	5	40
32	42	48	5	50
35	45	55	5	35
35	45	55	5	45
40	50	60	6	50
45	55	65	6	45
45	55	65	6	55
50	60	70	6	50
50	60	70	6	60

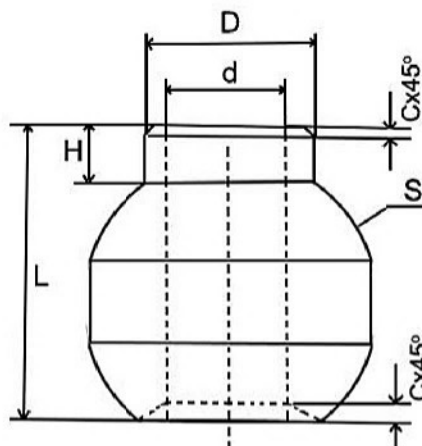
*Only parts of sizes list here.

Customized sizes also can be produced

Spherical Bush Bearing for Electrical Motors (电机用外球面轴承)

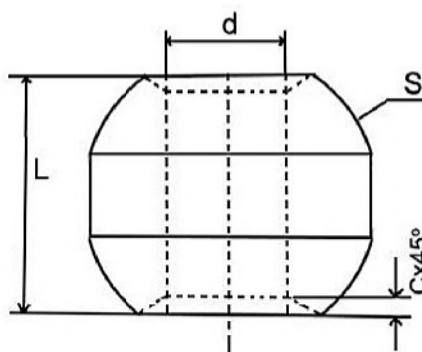
Material : Bronze Cu663, Cu90Sn10, SAE660, SAE841

Oil impregnated : around 18%



mm

Code	Specification	d	D	S	L	H	C
F04	S20*10*18B	10	15	20	18	4.5	0.5
F06	S17.2*8*15B	8	12	17.2	15	2.5	0.5
F07	S23.5*12.7*17.4B	12.7	17.4	23.5	17.4	1.3	0.5
F08	S22*12*18B	12	17	22	18	4	0.5
F11	S17*10*12B	10	13	17	12	2.5	0.5
F12	S16*8*15B	8	12	16	15	3.3	0.5



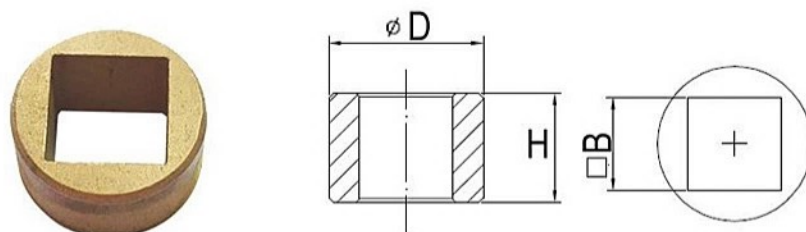
mm

Code	Specification	d	S	L	C
F03	S16*7.9*11	7.9	16	11	0.5
F10	S22*12*14	12	22	14	0.5
N01	S11.7*6*8	6	11.7	8	0.5
N02	S10*6*7	6	10	7	0.5
N03	S16*8*11	8	16	11	0.5

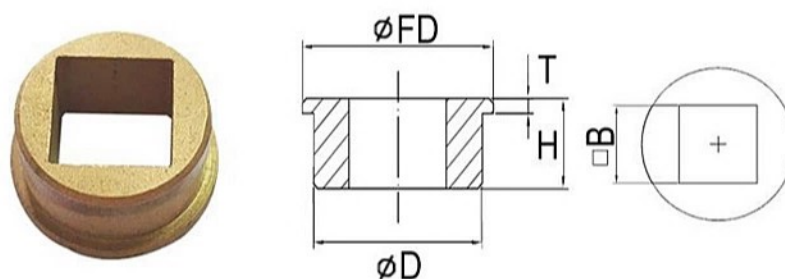
Square Bore Bush Bearing for HVAC（中央空调系统用零部件）

Material : Bronze Cu663, Cu90Sn10,SAE660, SAE841

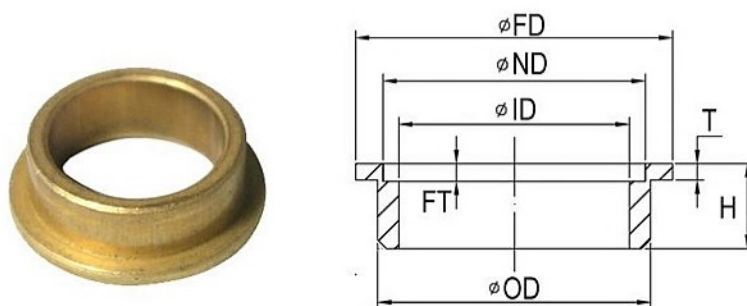
Oil impregnated : around 18%



Code	Specification	B	D	H
S9.6 B-1	S9.6*16*11.33	9.6	16	11.33
S9.6 B-2	S9.6*16*19	9.6	16	19



Code	B	D	FD	T	H	Set with
S6.9 F-1	6.9	12	14	2	10	
S9.2 F-1	9.2	16	19	1.7	11.33	
S9.5 F-1	9.5	16	18	2	10	C16 F-2
S9.6 F-1	9.6	16	19	1.7	11.33	
S9.7 F-1	9.7	16	18.88	1.5	20	C16 F-1
S10.2 F-1	10.2	16	19	1.7	11.33	
S12 F-1	12	23.5	26.5	1.5	12.5	
S12.1 F-1	12.1	21	23.8	1.5	7.75	C21 F-1
S12.1 F-2	12.12	20.62	25.24	2	9	



Code	IN	OD	ND	FT	FD	T	H	Set with
C16 F-1	16.15	20	19	1.6	24	1.5	20	S9.7 F-1
C16 F-2	16.2	20	18.3	2	24.2	2	10	S9.5 F-1
C21 F-1	21.15	25	24	1.6	29	1.5	7.75	S12.1 F-1

Other Material Standards (参考材质标准)

DIN Standard (DIN 30910-4:2004-05)

Material Code	Density (g/cm ³)	Hardness	Tensile Strength		Compositions (%)							
			Ultimate (MPa)	Yield (MPa)	Fe	Cu	C	Ni	Mo	Mn	Cr	Sn
Sint-C 01	6.4-6.8	>HRB 70	240	170	Bal.		0.5					
Sint-D 01	6.8-7.2	>HRB 90	300	200	Bal.		0.5					
Sint-C 10	6.4-6.8	>HRB 40	200	140	Bal.	1.5						
Sint-D 10	6.8-7.2	>HRB 50	250	180	Bal.	1.5						
Sint-E 10	>7.2	>HRB 80	340	240	Bal.	1.5						
Sint-C 11	6.4-6.8	>HRB 80	390	290	Bal.	1.5	0.6					
Sint-D 11	6.8-7.2	>HRB 95	460	370	Bal.	1.5	0.6					
Sint-C 30	6.4-6.8	>HRB 55	360	290	Bal.	1.5	0.3	4.0	0.5			
Sint-D 30	6.8-7.2	>HRB 60	460	330	Bal.	1.5	0.3	4.0	0.5			
Sint-E 30	>7.2	>HRB 90	570	390	Bal.	1.5	0.3	4.0	0.5			
Sint-C31	6.4-6.8	>HRB 50	320	220	Bal.		0.2	2.0	1.5			
Sint-D31	6.8-7.2	>HRB 60	380	260	Bal.		0.2	2.0	1.5			
Sint-E31	>7.2	>HRB 90	460	320	Bal.		0.2	2.0	1.5			
Sint-C32	6.4-6.8	>HRB 55	400	370	Bal.	2.0	0.6		1.5			
Sint-D32	6.8-7.2	>HRB 60	520	480	Bal.	2.0	0.6		1.5			
Sint-C39	6.4-6.8	>HRB 90	480	350	Bal.	1.5	0.5	4.0	0.5			
Sint-D39	6.8-7.2	>HRB 120	560	380	Bal.	1.5	0.5	4.0	0.5			
Sint-C40	6.4-6.8	>HRB 95	330	250	Bal.		0.06	13	2.5		18	
Sint-D40	6.8-7.2	>HRB 125	400	320	Bal.		0.06	13	2.5		18	
Sint-C43	6.4-6.8	>HRB 165	510	370	Bal.		0.2				13	
Sint-C50	7.2-7.7	>HRB 35	150	90		Bal.						10
Sint-D50	7.7-8.1	>HRB 45	220	120		Bal.						10

MPIF Standard 35

Material Code	Density (g/cm3)	Hardness	Compositions (%)							
			Fe	Cu	C	Ni	Mo	Mn	Cr	Sn
F-0000	6.1 - 6.7	HRF 40-60	Bal.		0-0.3					
F-0005	6.1 - 6.9	HRB 25-55	Bal.		0.3-0.6					
F-0008	5.8 - 7.0	HRB 35-70	Bal.		0.6-0.9					
FC-0205	6.0 - 7.1	HRB 37-72	Bal.	1.5-3.9	0.3-0.6					
FC-0205HT	6.2 -7.0	HRC 10-36	Bal.	1.5-3.9	0.3-0.6					
FC-0208	5.8- 7.2	HRB 50-84	Bal.	1.5-3.9	0.6-0.9					
FC-0208HT	6.1 - 7.1	HRC 20-43	Bal.	1.5-3.9	0.6-0.9					
FN-0205	6.6 - 7.4	HRB 44-78	Bal.	0-2.5	0.3-0.6	1-3				
FN-0205HT	6.6 - 7.4	HRC 23-40	Bal.	0-2.5	0.3-0.6	1-3				
FN-0208	6.7 - 7.4	HRB 63-88	Bal.	0-2.5	0.6-0.9	1-3				
FN-0208HT	6.7 - 7.4	HRC 26-42	Bal.	0-2.5	0.6-0.9	1-3				

FLN2C-4005	6.7 -7.4	HRB 81-93	Bal.	1.3-1.7	0.4-0.7	1.5-2	0.4-0.6	0.05-0.3		
FLN2C-4005HT	6.7 - 7.4	HRC 25-40	Bal.	1.3-1.7	0.4-0.7	1.5-2	0.4-0.6	0.05-0.3		
FLNC-4408HT	6.8 - 7.2	HRC 21-30	Bal.	1-3	0.6-0.9	1-3	0.65-0.95	0.05-0.3		
FD-0205	6.75 - 7.4	HRB 72-86	Bal.	1.3-1.7	0.3-0.6	1.55-1.95	0.4-0.6	0.05-0.3		
FD-0205HT	6.75 - 7.4	HRC 28-45	Bal.	1.3-1.7	0.3-0.6	1.55-1.95	0.4-0.6	0.05-0.3		
FD-0208	6.75 - 7.25	HRB 80-90	Bal.	1.3-1.7	0.6-0.9	1.55-1.95	0.4-0.6	0.05-0.3		
FX-1008	7.3	HRB 89	Bal.	8-14.9	0.6-0.9					
FX-1008HT	7.3	HRC 43	Bal.	8-14.9	0.6-0.9					
FX-2008	7.3	HRB 90	Bal.	15-25	0.6-0.9					
FX-2008HT	7.3	HRC 36	Bal.	15-25	0.6-0.9					
SS-303L	6.6 - 6.9	HRB 21-35	Bal.		0-0.03	8-13		0-2	17-19	
SS-304L	6.6 - 6.9	HRB 30-45	Bal.		0-0.03	8-12		0-2	18-20	
SS-316L	6.6 - 6.9	HRB 20-45	Bal.		0-0.03	10-14	2-3	0-2	16-18	
SS-410L	6.9	HRB 45	Bal.		0-0.03			0-1	11.5-13.5	
CT-1000	7.2	HRH 82		87.5-90.5						9.5-10.5

AMES Reference

Material Code	Chemical Composition					Density (g/cc)	Pressure K(MPa)	Oil % min.
	Fe %	Cu %	Sn %	C %	Other %			
SC-Sn10-62	-	87.2-90.5	9.5-10.5	<0.3	2.0	6.0-6.4	131	27
SC-Sn10-66	-	87.2-90.5	9.5-10.5	<0.3	2.0	6.4-6.8	179	19
SC-Sn10-70	-	87.2-90.5	9.5-10.5	<0.3	2.0	6.8-7.2	255	12
SC10-Sn10-62	-	87.5-90.0	9.5-10.5	0.5-1.8	2.0	6.0-6.4	117	22
SC10-Sn10-66	-	87.5-90.0	9.5-10.5	0.5-1.8	2.0	6.4-6.8	159	17
SC10-Sn10-70	-	87.5-90.0	9.5-10.5	0.5-1.8	2.0	6.8-7.2	228	9
SC40-Sn10-60	-	82.5-87.5	9.5-10.5	3.0-5.0	2.0	58-6.2	69	11
SC40-Sn10-64	-	82.5-87.5	9.5-10.5	3.0-5.0	2.0	6.2-6.6	103	4
SC40-Sn10-68	-	82.5-87.5	9.5-10.5	3.0-5.0	2.0	6.6-7.0	155	-
SC-Sn8-Zn5-Pb3-62	<0.5	84.0-86.0	6.5-8.5	<0.5	Zn 3.5-5.5 Pb <4.0	6.0-6.4	131	22
SC-Sn8-Zn5-Pb3-68	<0.5	84.0-86.0	6.5-8.5	<0.5	Zn 3.5-5.5 Pb <4.0	6.4-6.8	179	17
SC-Sn8-Zn5-Pb3-70	<0.5	84.0-86.0	6.5-8.5	<0.5	Zn 3.5-5.5 Pb <4.0	6.8-7.2	255	9
SC-Sn8-Zn5-Pb3-76-AP	<0.5	84.0-86.0	6.5-8.5	<0.5	Zn 3.5-5.5 Pb <4.0	7.4-7.8	342	-
SC-Sn5-Zn5-Pb5-62	<0.5	84.0-86.0	4.0-6.0	<0.5	Zn4.0-6.0 Pb4.0-6.0	6.0-6.4	131	22
SC-Sn5-Zn5-Pb5-68	<0.5	84.0-86.0	4.0-6.0	<0.5	Zn4.0-6.0 Pb4.0-6.0	6.4-6.8	179	17
SC-Sn5-Zn5-Pb5-70	<0.5	84.0-86.0	4.0-6.0	<0.5	Zn4.0-6.0 Pb4.0-6.0	6.8-7.2	255	9
SC-SN8-Zn4-62	<0.5	86.0-89.0	7.5-9.0	<0.5	Zn3.0-5.0 Pb<0.3 Ni<1.0	6.0-6.4	131	22
SC-SN8-Zn4-66	<0.5	86.0-89.0	7.5-9.0	<0.5	Zn3.0-5.0 Pb<0.3 Ni<1.0	6.4-6.8	179	17
SC-SN8-Zn4-70	<0.5	86.0-89.0	7.5-9.0	<0.5	Zn3.0-5.0 Pb<0.3 Ni<1.0	6.8-7.2	255	9
SC40-Sn5-Zn4-Pb2-64	<0.5	82.0-85.0	4.0-6.0	3.0-5.0	Zn4.0-6.0 Pb<4.0	6.2-6.6	103	-
SC40-Sn5-Zn4-Pb2-68	<0.5	82.0-85.0	4.0-6.0	3.0-5.0	Zn4.0-6.0 Pb<4.0	6.6-7.0	155	-
SC40-Sn5-Zn4-Pb2-64	<0.5	82.0-85.0	4.0-6.0	<0.5	Zn4.0-6.0Pb<4.0S ₂ Mo<4.5	6.2-6.6	103	-
SC40-Sn5-Zn4-Pb2-68	<0.5	82.0-85.0	4.0-6.0	<0.5	Zn4.0-6.0Pb<4.0S ₂ Mo<4.5	6.6-7.0	155	-

Typical Applications (应用范围)

The advantages of oil sintered self-lubricating bearings and parts:

- Provides maintenance free operation, no needs grease
- Can be applied in widely temperature ranges, dirty and corrosion environment
- Stable dimensions, fast production and lower cost

Our products can be widely used in home appliances, office & commercial devices, power tools, electrical motors, HVAC, agricultural machines, industrial machines, auto & trucks, etc.





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