YIFENG®

SLIDING BEARINGS

Self-lubricated Sintered Bearings(YF-01)

Alloy composition = bronze / bronze-iron / stainless steel AISI 304 or 316

Suitable for high speed and low load-Possibility of solid lubricant (graphite or Mo S2)
Good friction factor-Silent working-Reduced tolerance

Standard tolerance of inside diameter: G7-Outside diameter: s7
Recommended shaft tolerance: f7/g6-Recommended housing tolerance: H7

Tech. Data

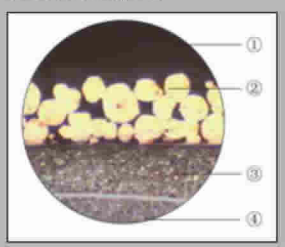
Material / Performance		Bronze 90% Cu 10% Sn	Iron 99.9%
Density	(Gr./cm³)	6,4 - 6,8	5,7- 5,9
Static load	(Kg./cm³)	200	500
Dynamic lad	(PV=kg./cm³ ×m/sec.)	18	13
Max Linear speed	(M./sec.)	7	5
Volume of oil impregnation	(%)	22	22
Hardness	(HB=kg./cm³)	25	35
Friction coefficient	(Kg./×mm²)	0,030	0,025
Traction resistance		10 - 20	18 - 26
Elongation	(%)	1 - 2,5	2 - 4
Max thermal temperature (standard)	(°C)	-20 - +120	-20 - +120
Max thermal temperature graphite/MOS 32	(°C)	-40 - +300	-

Steel bronze powder with PTFE (YF-10)

Features

Suitable for dry running with a low coefficient of friction,low wear rate, good sliding characteristics, the transfer film created will protect the mating metal surface.Suitable for rotary and oscillating movement, high chemical resistance, lower absorption of water and reduced swelling. Also performs well with lubrication.

Structure



1. PTFE/Fibre mixture thickness 0.01~0.03mm, provides an excellent initial transfer film, which effectively coats the mating surfaces of the bearing assembly, forming an oxidetype solid lubricant film.
2. Sintered bronze powder thickness 0.20-0.35mm,provides Max. thermal conductivity away from the bearingsurface,also serves as a reservoir for the PTFE-Fibremixture.
3. Low-carbon steel,gives exceptionally high load carrying capacity, excellent heat dissipation.
4. Copper/Tin plating thickness 0.002mm, provides good corrosion resistance.

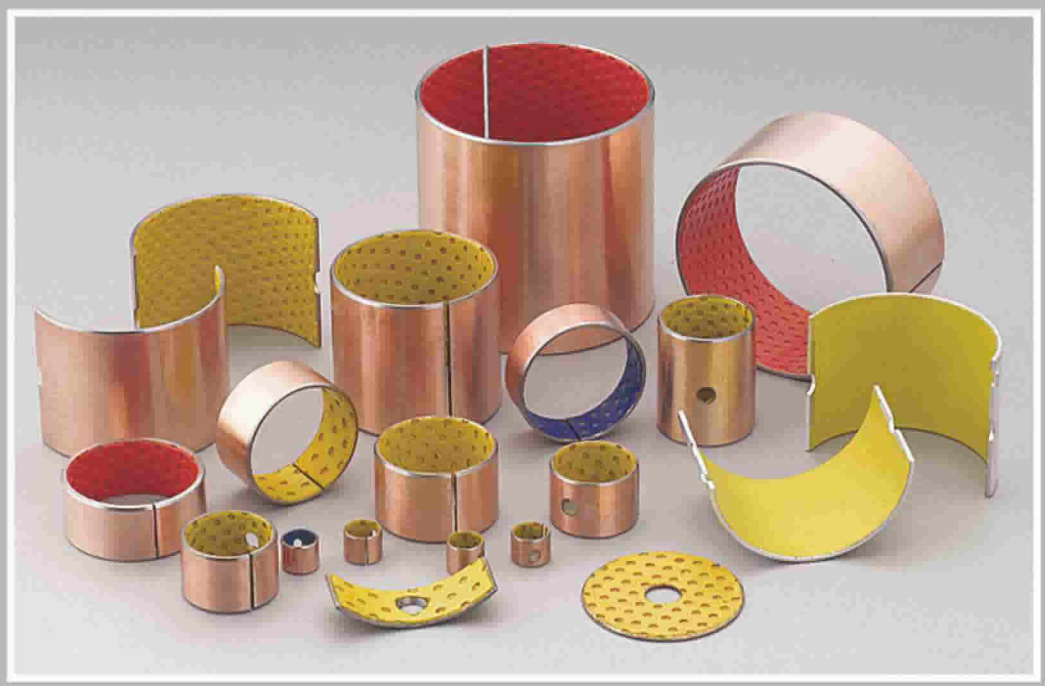
Tech. Data

Max. load	Static	250N/mm2
	Very low speed	140N/mm2
	Rotating oscillating	60N/mm2
Max. PV dry running	Short-term operation	3.6N/mm2*m/3
	Continuous operation	1.8N/mm2*m/3
Temp. limit		-195℃~+280℃

Friction coefficient		0.03~0.20
Max. speed	Dry running	2m/s
	Hydrodynamic operation	>2m/s
Thermal conductivity		42W(m*K)-1
Coefficient of thermal expansion		11*10-6*K-1

Typical Applications

This material meets the demanding criteria for long life and trouble-free performance with or without lubrication.
Automotive: tractors, combines, crop sprayers, earthmovers, graders and other construction, auto machines, specific uses in power steering cylinders, steering gear thrust washers, disc brakes, calipers and pistons, shock absorbers, governor linkage, windshield wiper motor, tilt gear assemblies...
Business machines: photocopy machines, typewriters, mail sorters, postage meter systems, computer terminal printers and peripheral equipment, automatic printing devices, mail processing machinery...
Hydraulics and valves: pumps including gear, rotary, water, axial piston, and other types, ball, butterfly, poppet steam, and other valves and valve trunnions...
Home appliances: tape recorders, refrigerators, air conditioners, cleaners, polishers, sewing machines, ovens, dishwashers, clothes washing machines...And materials handling, marine engine, packaging, textile equipment, tools...etc.

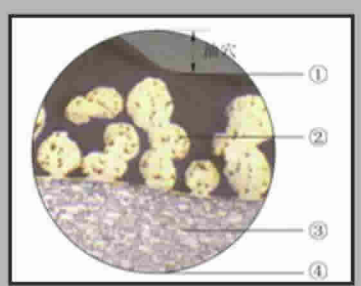


Steel Bronze Powder with POM Marginal Bearings(YF-20)

Features

Suitable for rotating and oscillating movement, less maintenance requirements due to the long re-lubrication intervals, lower wear, lower susceptibility to edge loading, no absorption of water and therefore no swelling, good damping behaviours, good resistance to shock loads.

Structure



1.POM thickness 0.30~0.50 mm, it provides high wear resistance and low friction even with only minute volume of lubricant are supplied, this bearing surface carries a pattern of circular indents which should be filled with grease on assembly of the bearing.
2.Sintered bronze powder thickness 0.20-0.35mm, provides max. thermal conductivity away from the bearing surface, also serves as a reservoir for the resin mixture.
3. Low-carbon steel, provides exceptionally high load carrying capacity, excellent heat dissipation.
4. Copper/Tin plating thickness 0.002mm

Tech. Data

Max. load	Static	250N/mm2
	Very low speed	140N/mm2
	Rotating oscillating	70N/mm2
Max. PV		3N/mm2*m/s
Temp. limit		-40℃~+110℃

Friction coefficient		0.05~0.20
Max. speed	Pre-lubricated	2m/s
	Oiling Grease	>2m/s
Thermal conductivity		4W(m*K)-1
Friction coefficient		11*10-6*K-1

Typical Applications

Recommended for applications involving intermittent operation or boundary lubrication... Automotive: suspension joints, kingpin assemblies and stub axles of tucks, automobile driving joint hinges, steering and other linkages, articulation joints, rear chassis hinges, fair leader rollers...

Bimetal Wrapped Bearings(YF-30)

Features

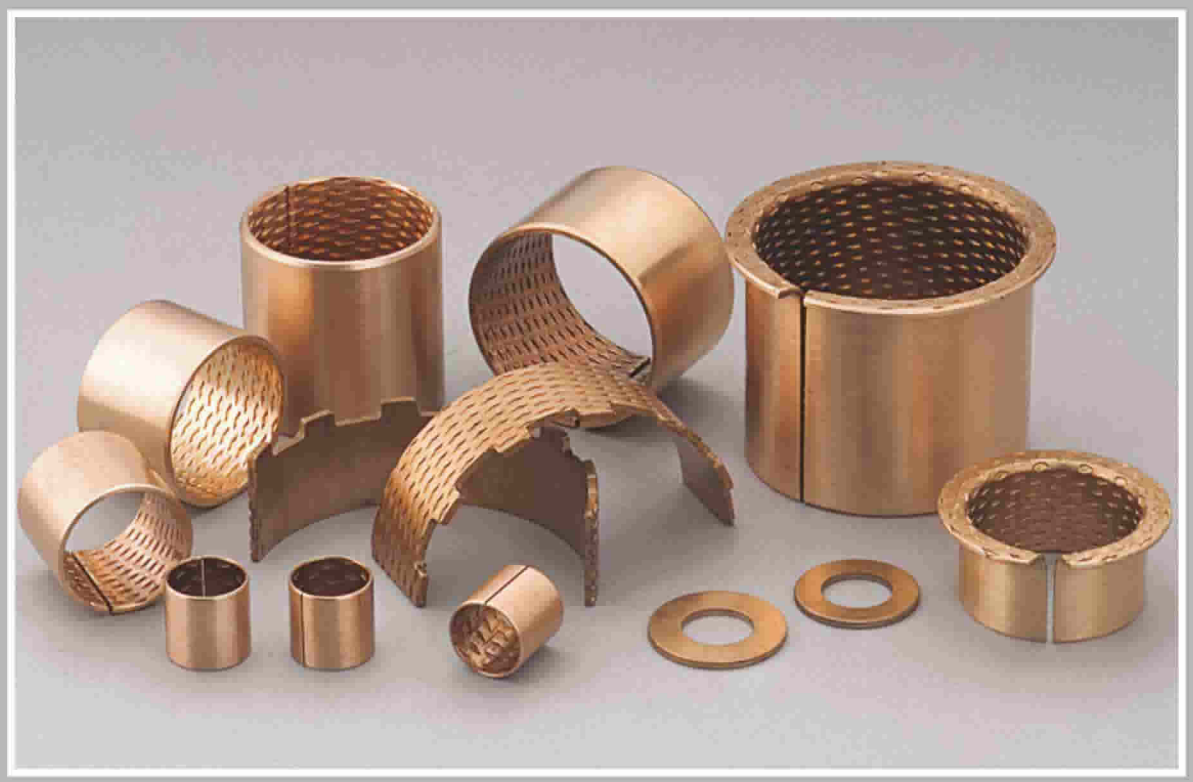
Steel shell backed with a lead bronze lining bearing material for oil lubricated applications. This material has high load capacity and good fatigue properties. It is widely used in automotive applications such as compressors, steering gear, power steering, pedal bearings, king-pin bushes, tailgate pivots,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

Chemical Compositions

Material	Alloy composition	International standard	Alloy hardness
YF-30	JIS-LBC3/SAE-797	CuPb10Sn10	HB70-100
YF-31	JIS-LBC6/SAE-799	CuPb24Sn4	HB45-70
YF-32	JIS-KJ3/SAE-48	CuPb30	HB30-45
YF-33	JIS-AJL/SAE-783	AlSn20Cu	HB30-40

Tech. Data

Max. load	Static	120N/mm2	Alloy hardness	240N/mm2
	Dynamic	60N/mm2	Temp.	-40℃~+250℃
Max. speed (Lubricated)		2m/s	Friction coefficient	0.08~0.20
Max. PV		2.8N/mm2*m/s	Thermal conductivity	60W(m*k)-1
Breaking Load		350N/mm2	Coef. of thermal expansion	14*10-6*k-1



Bronze Wrapped Bearings(YF-090)

Structure

The bearings are wrapped from a cold formed homogenous bronze (CuSn8) with exceptional material properties. The standard sizes are fitted with diamond shaped lubrication indents in the bearing surface. These indents serve as lubricant reservoirs to rapidly build up a lubrication film at the start of movement and thereafter reduce the running friction. The material is suitable for construction and agricultural machinery applications.

Tech. Data

Max. load	Static	120N/mm2	Hardness	HB 110-150
	Dynamic	40N/mm2	Elongation	40%
Max. speed (Lubricated)		2m/s	Temp.	-100℃~+200℃
Max. PV		2.8N/mm2*m/s	Friction coefficient	0.08~0.25
Tensile strength		450N/mm2	Thermal conductivity	60W(mk)-1
			Coef. of thermal expansion	15x10-6k-1

Available in the form

Straight sets, flange, thrust washers, skateboards and other non-standard parts and other products

Tolerance

Generally recommended housing bore tolerance H7,shaft tolerance f7

Bronze Wrapped Bearings with Through Holes(YF-T090)

Structure

The bearings are wrapped from a cold formed homogenous bronze (CuSn8) with exceptional material properties. The standard sizes incorporate holes, which are dispersed in a special way over the whole bearing surface. These holes serve as lubricant reservoirs to rapidly build up a lubrication film at the start of movement and thereafter reduce the running friction. The material is suitable for construction and agricultural machinery etc. where high load and slow movement occur.

Tech. Data

Max. load	Static	120N/mm2	Hardness	HB 110-150
	Dynamic	40N/mm2	Elongation	40%
Max. speed (Lubricated)		2.5m/s	Temp.	-100℃~+200℃
Max. PV		2.8N/mm2*m/s	Friction coefficient	0.08~0.25
Tensile strength		450N/mm2	Thermal conductivity	60W(mk)-1
			Coef. of thermal expansion	15x10-6k-1

Available in the form

Straight sets, flange, thrust washers, skateboards and other non-standard partsand other products

Tolerance

Generally recommended housing bore tolerance H7, shaft tolerance f7

Cast Bronze Bearings with Graphite(YF-500)

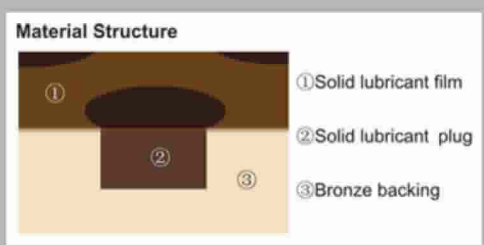
Structure

YF-500 material is made of strong cast bronze based metal with special solid lubricants embedded. The base metal withstands high load and the solid lubricants provide self-lubrication. The bearing shows excellent performance without pre-lubrication under conditions of extreme high/low temperature with low speed. This material provides a maintenance-free bearing solution, particularly for high load, intermittent of oscillating motion.

Features

- Long-term use without maintenance;
- Designed for high static load and dynamic load;
- Has a low coefficient of friction and smooth, no "sticky" phenomenon;
- Resistant to dust, corrosion resistance, impact resistance and resistance to edge load capacity;
- Metal substrate has good shock absorption;
- Be able in a wide temperature range;
- Suitable for reciprocating, rotary and oscillating so frequent and difficult to form a film starts the occasion;
- Has a very low wear rate, long service life.

Typical Applications



Main Metal Type

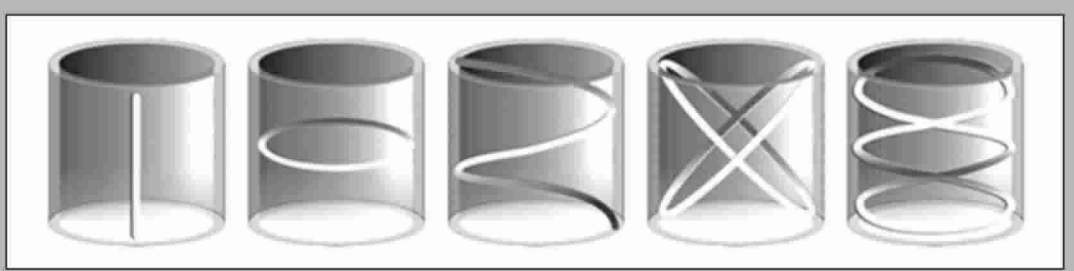
Grade	500	500S1	500S2	500S3	500S5	500HP
Material	CuZn25Al5Mn4Fe3	CuSn5Pb5Zn5	CuAl10Ni5Fe5	CuSn12	CuZn25Al5Mn4Fe3	CuZn32Al5Ni3
Density	8	8.9	7.8	8.9	8	8
HB hardness	>210	>70	>150	>95	>250	>280
Tensile strength N/mm2	>750	>200	>600	>260	>800	>540
Yeild strength N/mm2	>450	>90	>260	>150	>450	>450
Elongation %	>12	>15	>10	>8	>8	>0.3
Coefficient of linear expansion	1.9x10-5/℃	1.8x10-5/℃	1.6x10-5/℃	1.8x10-5/℃	1.9x10-5/℃	1.8x10-5/℃
Max. temp.	-40~+300	-40~+400	-40~+400	-40~+400	-40~+150	-40~+150
Max. load N/mm2	100	60	50	70	120	150
Max. speed (Dry) m/min	15	10	20	10	15	15
Max. PV N/mm2*m/min (Lubrication)	200	60	60	80	200	200
Compression deformation 300N/mm2	<0.01mm	<0.05mm	<0.04mm	<0.05mm	<0.005mm	<0.005mm

Solid Bronze Turned Bearings(YF-600)

Structure

Machined cast bronze bearings offer technically and economically favorable bearings solutions. It is with high load capability, low weight and good corrosion resistance. YIFENG can offer different types of bronze alloys according to the required life time, service etc. The tolerance is much tighter than wrapped bronze bushes.

Oil Groove



Tech. Data

Material	600	600S1	600S2	600S3	600S4	600S5
	CuZn25Al6Mn4Fe3	CuSn5Pb5Zn5	CuAl10Ni5Fe5	CuSn12	CuSn10Pb10	CuZn25Al6Mn4Fe3
Density	8.0	8.9	7.8	8.9	8.9	8.0
Yield pointN/mm2	>450	>90	>260	>150	>100	>450
Tensile strengthN/mm2	>750	>200	>600	>260	>210	>800
Elongation %	>12	>15	>10	>8	>8	>8
Hardness HB	>210	>70	>150	>95	>75	>250

Steel sleeve(YF-ST)
Bushings for off-highway construction machines

Structure

YF-ST high quality carbon steel as the base, through the rational design of oil, coated with grease during assembly makes it a long time at work when needed enough storage oil and can be evenly distributed in the surface of the bearing and shaft on, so as to achieve a long life the purpose of reducing the frequency of refueling; the same time because of the special oil system can work intrusion into the dust and other foreign matter bearing, thus reducing the maximum use of the bearing during the impact. YF-ST Another particularity is the bearing surface of the work handled through a special process, so that the surface covered by a layer of special solid lubricant, this layer of a special lubricant in the initial action quickly shifted to grinding the surface of the shaft, thereby rapidly reducing the coefficient of starting friction, improve wear resistance of the bearing.

Tech. Data

Material	S45C	Gcr15	S45C	Gcr15
Linear expansion coefficient	1.1×10-5/℃	1.1×10-5/℃	1.1×10-5/℃	1.1×10-5/℃
Temperature	-100~+300	-100~+300	-100~+300	-100~+300
Hardness	HRC≥40	HRC≥50	HRC≥40	HRC≥50
Maximum load (Mpa)	150Mpa	200Mpa	150Mpa	200Mpa
Maximum line speed (m / min)	10	10	15	15
Lubricant in the form	With film Surface coverage	Embedded in the matrix Solid plug embedded		
	0.01-0.03mm			
Tolerance with: Mating Housing Block assembly hole: H7 Mating shaft axis to match：e7/f7				

Filament Wound Self-lubricating Bearings (YF-CB)

Structure

The backing of YF-CB series material is high strength glass fiber with epoxy resin and the lubricating layer of it is PTFE wound fiber or special lubricating fiber. Therefore, this special structure performs an outstanding anti-wear feature and low friction coefficient under high load and low speed condition. Furthermore, this absolutely new idea gives better solution for high load and excellent wear resistance under dry condition

Features

With the excellent features above mentioned, YF-CB series filament wound composite bearings could be widely used to the frequently start and stop positions with rotating, oscillating and linear motion. The application of this new material is more popular than that of the previously developed engineering plastic bushings.

Features

1. The lubricating layer, which has very low friction coefficient, superior anti-wear feature and scratch resistance, is made by special PTFE fiber and high strength artificial fiber compound. It provides excellent self-lubricating features and good anti-wear feature during dry operation.
2. The back material comprises of high strength epoxy glass fiber with excellent erosion resistance feature make it possible to be used in water or sea. 3. The maxim dynamic load is 140Mpa and also certain impact load is permissible. It has good shock absorb feature and self-align characteristics.
4. The material could form an effective solid lubricating film to prevent the bearing stick to the shaft during operation.
5. The non-metallic material is isolated and light in mass. It is 75% lighter than steel and 30% lighter than Aluminum. 6. This filament wound composite bearing is suitable to be used at the frequently start and stop positions with rotating, oscillating and linear motion. 7. The CB material is recommended applied in dry condition only.

YF-CBG YF-CBB YF-CBE YF-CBP YF-CBF

SHANGHAI YIFENG BEARING CO.,LTD
No.2370, Yueluo Rd, Shanghai, China(201908)
Tel:+86 (0)21 5187 2627 Fax:+86 (0)21 56866975
E-mail:sales@yifeng.cc
Website:www.yifeng.cc