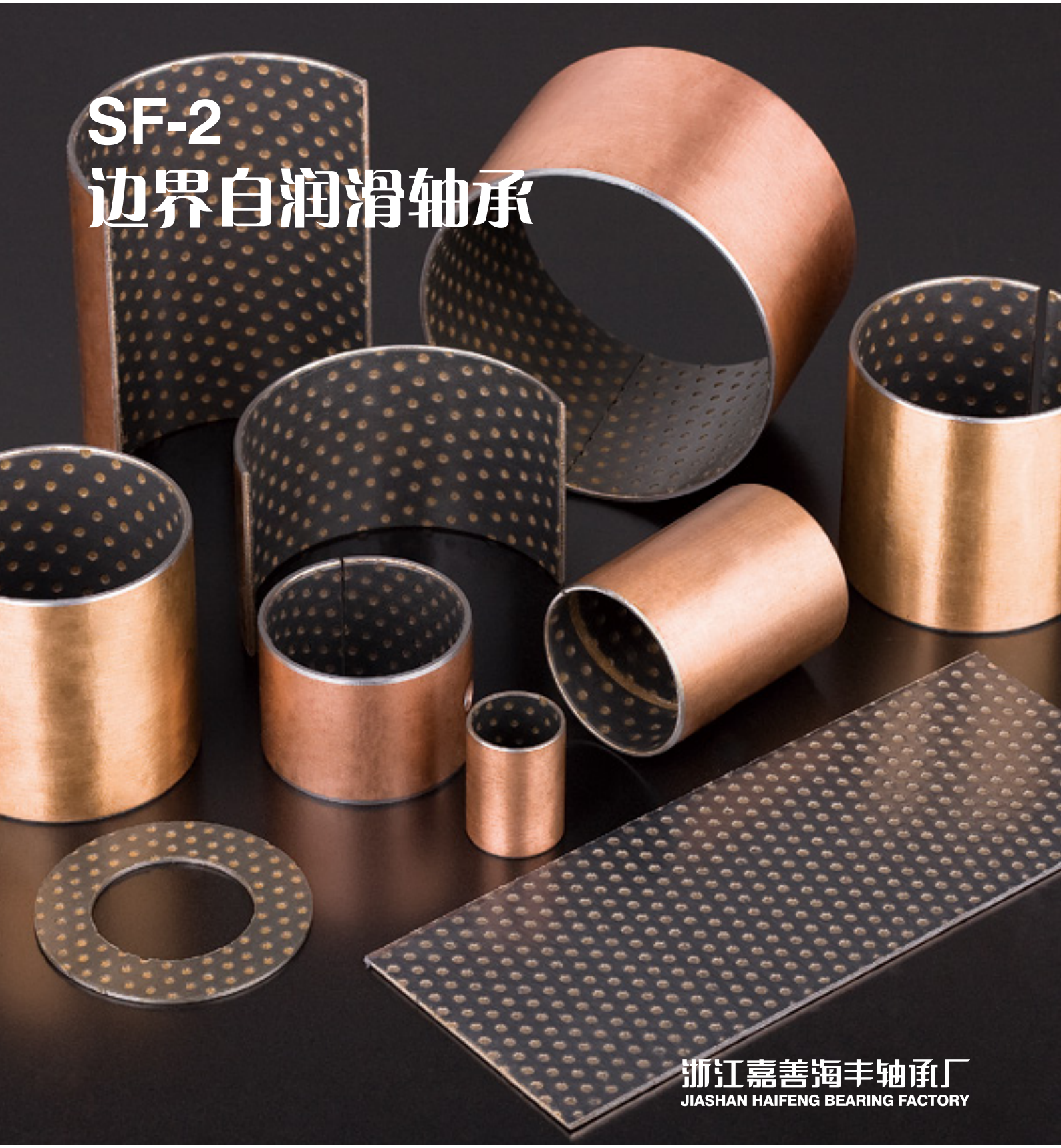
HFb
SLIDING BEARING

SF-2
边界自润滑轴承



浙江嘉善海丰轴承厂
JIASHAN HAIFENG BEARING FACTORY

公司简介
INTRODUCTION

嘉善海丰轴承厂（HFB）是一家专业从事轴承设计生产的实体企业，位于浙江嘉善县，地处长三角都市经济圈，与上海、苏州、杭州接壤，地理位置优越，交通便利。

公司生产的产品主要产品SF-1系列无油润滑轴承，SF-2系列边界润滑轴承，FZ系列钢球保持架，JDB系列固体润滑轴承，JF系列双金属轴承，FB系列青铜卷制轴承系列等多个系列产品。

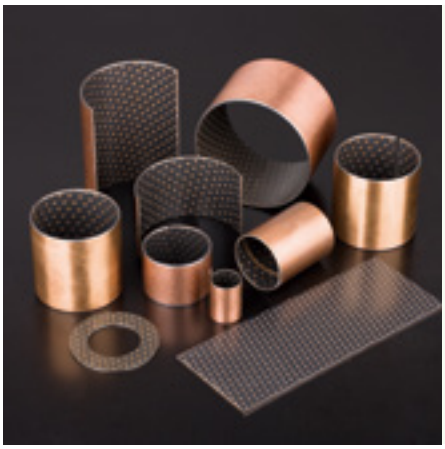
产品广泛应用于冶金、汽车、矿山、石油、化工、电机电器、船舶、印刷、机械、水利、模具、铁路机车等领域。

欢迎广大海内外客户与我们洽谈业务，我们将竭诚为您提供一流的产品，一流的服务。

Jiashan Haifeng bearings Co., Ltd, is specialized in manufacturing sliding bearing. Our main products are: SF-1(DU) self-lubricating bearings, SF-2(DX) boundary self-lubricating bearings, JF bi-metal bearings, JDB cast bronze with solid lubricants bearings, FB090 bronze bearings, FZ ball retainer, FR PTFE tape, FD bronze powder with PTFE tape, FU sintered bronze bearings etc.

We can supply products with stable quality, and has won the trophy and certificate authorities. It is widely used in hydraulic elements, automobile, Metallurgical Mines, Ocean Station Vessel, Industrial Machinery, Petroleum Industry Machinery, Textile machine, lifting appliance, Printing, foods and Construction Machinery etc.

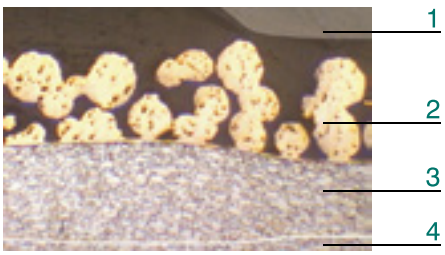
We are committed to supplying products of the highest quality and providing a comprehensive and professional service.



SF-2 碳钢基边界无铅自润滑轴承
Marginal Pb-free self-lubricating bearing

该产品以优质低碳钢为基体，中间烧结球形青铜层，表面轧制改性聚甲醛。在边界润滑条件下可长期使用而不加油，耐磨层表面有储油坑。产品广泛应用于冶金机械、矿山机械、水利机械、汽机车、建筑机械、农用机械、轧钢行业等。

SF-2 Marginal Pb-free self-lubricating bearing is used steel-backing as its structure, sintered porous bronze as its interlayer, surface inlaid the modified POM. Suitable for marginally lubricated and dry operation on the conditions of lubrication indents grease. It has been widely applied to metallurgical machinery, Mine machinery, water conservancy machinery, vapor locomotive, building machinery, agriculture machinery, steel rolling industry etc.



1.聚甲醛与纤维混合物　2.球形青铜粉
3.钢背　4.电镀层
1.POM with fiber　2.Porous bronze
3.Steel backing　4.Tin–plating

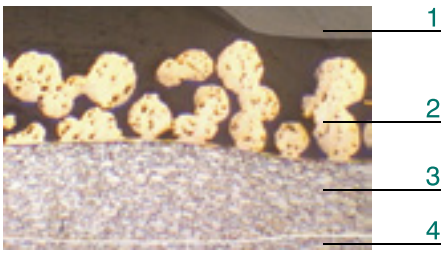
※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
	动载 Dynamic load	140N/mm^2
最高线速度 V Max Sliding Speed	脂润滑 Grease lubrication	2.5m/s
最高PV值 Max PV Value Limit	脂润滑 Grease lubrication	2.8N/mm^2 · m/s
摩擦系数 μ Friction coefficient	脂润滑 Grease lubrication	0.05 ~ 0.25
使用温度 Working temperature		–40℃ ~ +130℃
导热系数 Thermal conductivity		4W/m · K
热膨胀系数 Coefficient of thermal expansion		11 × 10^{-6}/K

SF-2Y 碳钢基边界无铅自润滑轴承
Marginal Pb-free self-lubricating bearing

该产品与SF–2具有相同结构和使用性能，在边界润滑条件下可长期使用而不加油，耐磨层表面有储油坑。产品广泛应用于冶金机械、矿山机械、水利机械、汽机车、建筑机械、农用机械、轧钢行业等。

SF-2Y has the same structure and functional performance with SF-2. It can work long time without oil in the condition of prelubricated with lubrication indents.Widely applied to metallurgy machinery, Mining machinery, water conservancy machinery, automobile, building machinery, agriculture machinery, rolling steel industry etc.



1.聚甲醛与纤维混合物　2.球形青铜粉
3.钢背　4.电镀层
1.POM with fiber　2.Porous bronze
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※技术参数：Technical Data

性能指标 Performance index		数据 Data
最大承载 P Max Load Capacity	静载 Static load	250N/mm^2
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最高PV值 Max PV Value Limit	脂润滑 Grease lubrication	2.8N/mm^2 · m/s
摩擦系数 μ Friction coefficient	脂润滑 Grease lubrication	0.05 ~ 0.25
使用温度 Working temperature		–40℃ ~ +130℃
导热系数 Thermal conductivity		4W/m · K
热膨胀系数 Coefficient of thermal expansion		11 × 10^{-6}/K

SF-2/2Y 标准公制轴套
Metric Standard Bushing

轴套外径公差表
Bushing O.D.Tolerances Table

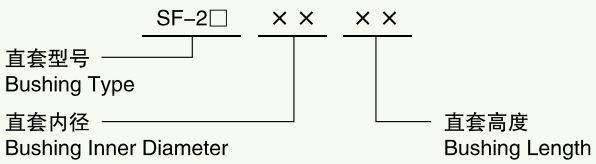
外径 ϕD Outer Diameter ϕD	外径公差 Outer Diameter Tolerance
ϕD≤10	+0.055 +0.025
10 < ϕD≤18	+0.065 +0.030
18 < ϕD≤30	+0.075 +0.035
30 < ϕD≤50	+0.085 +0.045
50 < ϕD≤80	+0.100 +0.055
80 < ϕD≤120	+0.120 +0.070
120 < ϕD≤180	+0.170 +0.100
180 < ϕD≤250	+0.210 +0.130
250 < ϕD≤305	+0.260 +0.170

轴套壁厚公差
Bushing Wall Thickness Tolerances Table

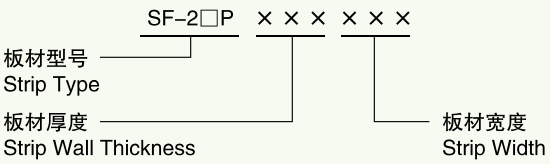
内径 ϕd Inner Diameter ϕd	壁厚公差t Wall Thickness Tolerance
8≤ ϕd≤18	$1.0\ ^{-0.020}_{-0.045}$
18 < ϕd≤25	$1.5\ ^{-0.025}_{-0.055}$
25 < ϕd < 45	$2.0\ ^{-0.030}_{-0.065}$
45≤ ϕd < 80	$2.5\ ^{-0.040}_{-0.085}$
ϕd≥80	$2.5\ ^{-0.055}_{-0.115}$

可供标准产品的标注方式
Standard Bushing Label Mode

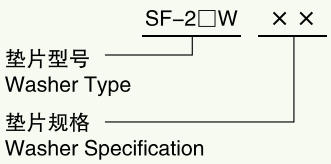
■ 直套标注方式 Bushing Label Mode



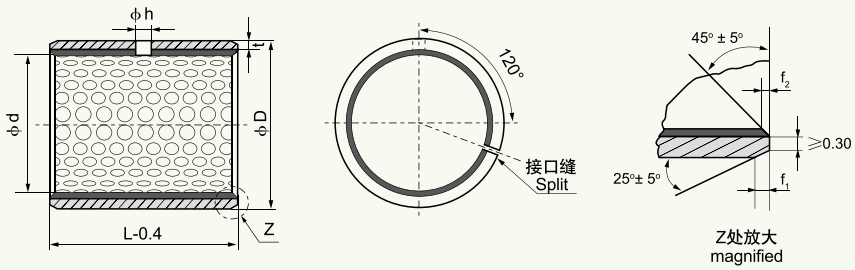
■ 板材标注方式 Strip Label Mode



■ 垫片标注方式 Washer Label Mode



SF-2/2Y 标准公制轴承
Metric Standard bearings



※标准直套标注方式：Standard Bushing Label Mode SF–2□ 1010

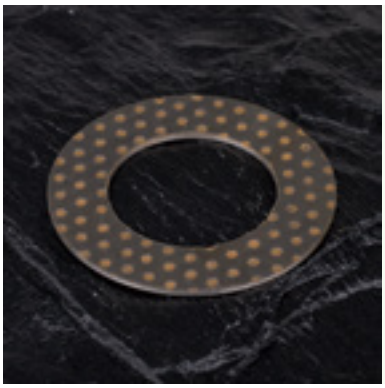
单位Unit: mm

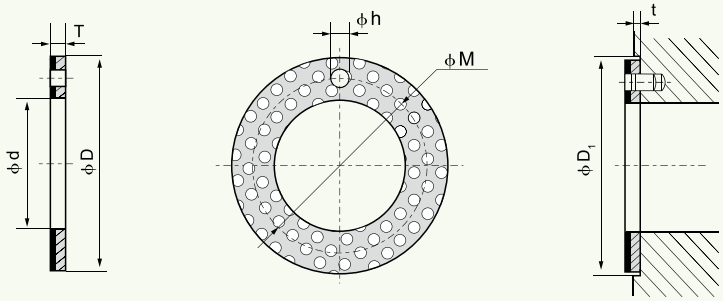
型号 Type	外径 ϕD	内径 ϕd	相配轴径 Axle	相配座孔 Housing H7	ϕh	f_1	f_2	L – 0.4						
								10	15	20	25	30	40	50
SF–2□	12	10	$10^{\ 0}_{-0.022}$	$12^{+0.008}_{\ 0}$	ϕ4	0.6	0.3	1010	1015	1020				
SF–2□	14	12	$12^{\ 0}_{-0.027}$	$14^{+0.015}_{\ 0}$				1210	1215	1220				
SF–2□	16	14	$14^{\ 0}_{-0.027}$	$16^{+0.015}_{\ 0}$					1415	1420				
SF–2□	17	15	$15^{\ 0}_{-0.027}$	$17^{+0.015}_{\ 0}$					1515	1520	1525			
SF–2□	18	16	$16^{\ 0}_{-0.027}$	$18^{+0.018}_{\ 0}$					1615	1620	1625			
SF–2□	19	17	$17^{\ 0}_{-0.027}$	$19^{+0.018}_{\ 0}$					1715	1720	1725			
SF–2□	20	18	$18^{\ 0}_{-0.027}$	$20^{+0.018}_{\ 0}$					1815	1820	1825			
SF–2□	23	20	$20^{\ 0}_{-0.033}$	$23^{+0.018}_{\ 0}$		0.8	0.4		2015	2020	2025	2030		
SF–2□	25	22	$22^{\ 0}_{-0.033}$	$25^{+0.018}_{\ 0}$					2215	2220	2225	2230		
SF–2□	27	24	$24^{\ 0}_{-0.033}$	$27^{+0.018}_{\ 0}$	ϕ6					2420	2425	2430		
SF–2□	28	25	$25^{\ 0}_{-0.033}$	$28^{+0.021}_{\ 0}$						2520	2525	2530		
SF–2□	32	28	$28^{\ 0}_{-0.033}$	$32^{+0.021}_{\ 0}$		1.2	0.6			2820	2825	2830		
SF–2□	34	30	$30^{\ 0}_{-0.033}$	$34^{+0.021}_{\ 0}$						3020	3025	3030	3040	
SF–2□	36	32	$32^{\ 0}_{-0.039}$	$36^{+0.021}_{\ 0}$						3220	3225	3230	3240	
SF–2□	39	35	$35^{\ 0}_{-0.039}$	$39^{+0.021}_{\ 0}$						3520	3525	3530	3540	
SF–2□	44	40	$40^{\ 0}_{-0.039}$	$44^{+0.021}_{\ 0}$	ϕ8					4020	4025	4030	4040	
SF–2□	50	45	$45^{\ 0}_{-0.039}$	$50^{+0.025}_{\ 0}$		1.6	0.8			4520	4525	4530	4540	
SF–2□	55	50	$50^{\ 0}_{-0.039}$	$55^{+0.025}_{\ 0}$								5030	5040	5050
SF–2□	60	55	$55^{\ 0}_{-0.045}$	$60^{+0.025}_{\ 0}$								5530	5540	5550
SF–2□	65	60	$60^{\ 0}_{-0.045}$	$65^{+0.025}_{\ 0}$								6030	6040	6050
SF–2□	70	65	$65^{\ 0}_{-0.045}$	$70^{+0.025}_{\ 0}$								6530	6540	6550
SF–2□	75	70	$70^{\ 0}_{-0.045}$	$75^{+0.025}_{\ 0}$								7030	7040	7050
SF–2□	80	75	$75^{\ 0}_{-0.045}$	$80^{+0.025}_{\ 0}$								7530	7540	7550

SF-2/2Y 标准公制轴承
Metric Standard bearings

型号 Type	外径 ϕD	内径 ϕd	相配轴径 Axle	相配座孔 Housing H7	Hole ϕh	f_1	f_2	L – 0.4					
								40	50	60	80	100	120
SF–2□	85	80	$80\ ^{0}_{-0.045}$	$85\ ^{+0.035}_{0}$	ϕ9.5	1.6	0.8	8040	8050	8060			
SF–2□	90	85	$85\ ^{0}_{-0.054}$	$90\ ^{+0.035}_{0}$				8540	8550	8560			
SF–2□	95	90	$90\ ^{0}_{-0.054}$	$95\ ^{+0.035}_{0}$					9050	9060	9080		
SF–2□	100	95	$95\ ^{0}_{-0.054}$	$100\ ^{+0.035}_{0}$					9550	9560	9580		
SF–2□	105	100	$100\ ^{0}_{-0.054}$	$105\ ^{+0.035}_{0}$					10050	10060	10080	100100	
SF–2□	110	105	$105\ ^{0}_{-0.054}$	$110\ ^{+0.035}_{0}$					10550	10560	10580	105100	
SF–2□	115	110	$110\ ^{0}_{-0.054}$	$115\ ^{+0.035}_{0}$					11050	11060	11080	110100	
SF–2□	120	115	$115\ ^{0}_{-0.054}$	$120\ ^{+0.035}_{0}$					11550	11560	11580	115100	
SF–2□	125	120	$120\ ^{0}_{-0.054}$	$125\ ^{+0.040}_{0}$						12060	12080	120100	
SF–2□	130	125	$125\ ^{0}_{-0.063}$	$130\ ^{+0.040}_{0}$						12560	12580	125100	
SF–2□	135	130	$130\ ^{0}_{-0.063}$	$135\ ^{+0.040}_{0}$						13060	13080	130100	
SF–2□	140	135	$135\ ^{0}_{-0.063}$	$140\ ^{+0.040}_{0}$						13560	13580	135100	
SF–2□	145	140	$140\ ^{0}_{-0.063}$	$145\ ^{+0.040}_{0}$						14060	14080	140100	
SF–2□	150	145	$145\ ^{0}_{-0.063}$	$150\ ^{+0.040}_{0}$						14560	14580	145100	
SF–2□	160	155	$155\ ^{0}_{-0.063}$	$160\ ^{+0.040}_{0}$							15580	155100	155120
SF–2□	170	165	$165\ ^{0}_{-0.063}$	$170\ ^{+0.040}_{0}$							16580	165100	165120
SF–2□	180	175	$175\ ^{0}_{-0.063}$	$180\ ^{+0.040}_{0}$							17580	175100	175120
SF–2□	190	185	$185\ ^{0}_{-0.072}$	$190\ ^{+0.046}_{0}$							18580	185100	185120
SF–2□	200	195	$195\ ^{0}_{-0.072}$	$200\ ^{+0.046}_{0}$							19580	195100	195120
SF–2□	210	205	$205\ ^{0}_{-0.072}$	$210\ ^{+0.046}_{0}$							20580	205100	205120
SF–2□	220	215	$215\ ^{0}_{-0.072}$	$220\ ^{+0.046}_{0}$							21580	215100	215120
SF–2□	230	225	$225\ ^{0}_{-0.072}$	$230\ ^{+0.046}_{0}$							22580	225100	225120
SF–2□	240	235	$235\ ^{0}_{-0.072}$	$240\ ^{+0.046}_{0}$							23580	235100	235120
SF–2□	250	245	$245\ ^{0}_{-0.072}$	$250\ ^{+0.046}_{0}$							24580	245100	245120
SF–2□	260	255	$255\ ^{0}_{-0.081}$	$260\ ^{+0.052}_{0}$							25580	255100	255120
SF–2□	270	265	$265\ ^{0}_{-0.081}$	$270\ ^{+0.052}_{0}$							26580	265100	265120
SF–2□	280	275	$275\ ^{0}_{-0.081}$	$280\ ^{+0.052}_{0}$								275100	275120
SF–2□	290	285	$285\ ^{0}_{-0.081}$	$290\ ^{+0.052}_{0}$								285100	285120
SF–2□	300	295	$295\ ^{0}_{-0.081}$	$300\ ^{+0.052}_{0}$								295100	295120
SF–2□	305	300	$300\ ^{0}_{-0.081}$	$305\ ^{+0.052}_{0}$								300100	300120

SF-2/2Y 标准公制垫片
Metric Standard Washer



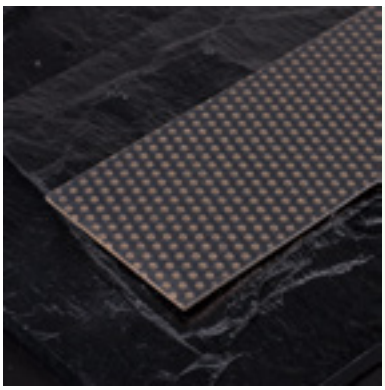


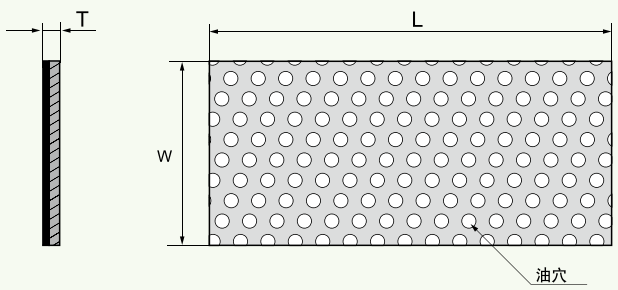
※标准垫片标注方式：Standard Washer Label Mode SF–2□ WC 10

单位Unit: mm

相配轴径 Axle	型号规格 Designation	垫片尺寸 Washer Dimension				安装尺寸 Installation Size		
		$\phi D\ ^{0}_{-0.25}$	$\phi d\ ^{+0.25}_{0}$	$T\ ^{0}_{-0.050}$	$\phi M \pm 0.125$	$\phi h\ ^{+0.40}_{+0.10}$	$t \pm 0.20$	$\phi D_1\ ^{+0.12}_{0}$
8	SF–2□WC 10	20	10	1.5	15	1.5	1.0	20
10	SF–2□WC 12	24	12		18			24
12	SF–2□WC 14	26	14		20	2.0		26
14	SF–2□WC 16	30	16		23			30
16	SF–2□WC 18	32	18	2.0	25			32
18	SF–2□WC 20	36	20		28	3.0		36
20	SF–2□WC 22	38	22		30			38
22	SF–2□WC 24	42	24		33			42
24	SF–2□WC 26	44	26		35			44
26	SF–2□WC 28	48	28		38	4.0		48
30	SF–2□WC 32	54	32		43			54
36	SF–2□WC 38	62	38		50			62
40	SF–2□WC 42	66	42		54			66
46	SF–2□WC 48	74	48		61		1.5	74
50	SF–2□WC 52	78	52		65			78
60	SF–2□WC 62	90	62		76			90

SF-2PS 标准公制滑板
Metric Standard Strip





※标准滑板标注方式：Standard Strip Label Mode SF–2□ SP 010130

单位Unit: mm

相配轴径 Axle	长度 Length $L\ ^{+5.0}_{0}$	宽度 Width $W\ ^{+2.0}_{0}$	厚度 Thickness $T\ ^{0}_{-0.050}$
SF–2□SP 010130	500	130	1.0
SF–2□SP 015130	500	130	1.5
SF–2□SP 020130	500	130	2.0
SF–2□SP 025130	500	130	2.5

卷制轴套的检验方法
Wrapped Bearings Installion

※ **通用外径检验方法（ISO3547-2: 1999 Test B）:**

Common test method of outside diameter（ISO3547-2：1999 Test B:

轴套用手压入环规通端（最大用力250N），通过

Press the bushes into the GO ring gauge and then push them through with hand pressure

(maximum force 250N)

轴套用同样方法与同样力，压入环规止端，不通过

On the other hand with the same force, It shall not be possible for them to go into the

NOGO ring gauge

※ **通用的内径检验方法（ISO3547-2: 1999 Test C）:**

Common test method of inner diameter test（ISO3547-2: 1999 Test C）:

检验内径，轴承压入环规，塞规通端通过用较小力，塞规止端通不过用力最大不超过250N。

To check the inner diameter, the bush is to be press into a ring gauge. The GO plug gauge shall be inserted by a minimum effort. The NOGO Plug gauge shall not be insert by mutual pressure (maximum force 250N)

(注意：当轴承压入环规，轴承外径可能会被永久减小）

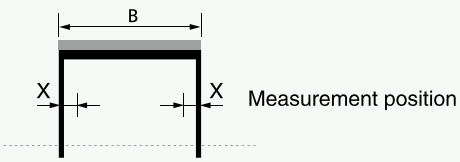
Note: When the bush is pressed into the ring gague, It is possible that There will be a permanent reduction in the outside diameter)

※ **通用的壁厚测量方法:**

Common methed of wall thickness measurement:

轴承的壁厚测量一点、二点、三点，在轴向上依据轴承高度尺寸

The wall thickness is measured at one, two or three positions axially according to the bearing dimensions.



B[mm]	X[mm]	measurement position
B≤15	B/2	1
15＜B≤50	4	2
50＜B≤90	6 and B/2	3
B＞90	8 and B/2	3

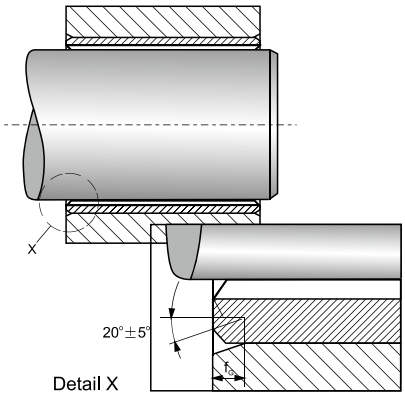
轴承安装设计
Densign of Bearing Arrangement

※直套 Cylindrical Bushes

座孔被倒角$f_G \times 20^\circ \pm 5^\circ$，使衬套压入座孔变的更加容易。

The housing bore should have a chamfer $f_G \times 20^\circ \pm 5^\circ$, The chamfer makes it easier to press the bushes Into the housing.

座孔直径 Housing bore diameter d_G	座孔倒角 Chamfer of housing f_G
$d_G \leqslant 30$	$0.8 \pm 0.3 \times 20^\circ \pm 5^\circ$
$30 < d_G \leqslant 80$	$1.2 \pm 0.4 \times 20^\circ \pm 5^\circ$
$80 < d_G \leqslant 180$	$1.8 \pm 0.8 \times 20^\circ \pm 5^\circ$
$d_G > 180$	$2.5 \pm 1.0 \times 20^\circ \pm 5^\circ$

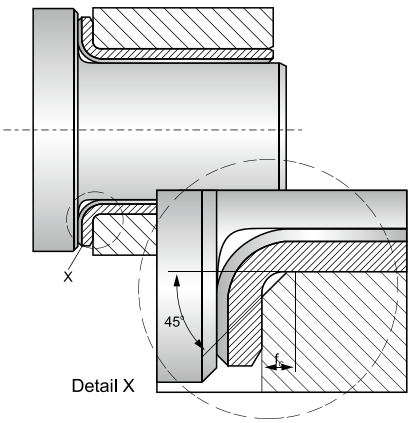


※翻边套 Flange Bushes

关于翻边套，从翻边套口到轴向转换组件必须考虑半径的转变，切面要有一个足够大的倒角。以防翻边套口聚集污垢后仍然可以支持轴向载荷部件的边缘。

The radius at the transition from the radial to the axial Component must be taken into consideration for falange bushes A sufficiently large chamfer must be provided on the housing to prevent the flanged bushes fouing in the area of the radius Sufficient support must be provided for the flange inapplications With axial loading.

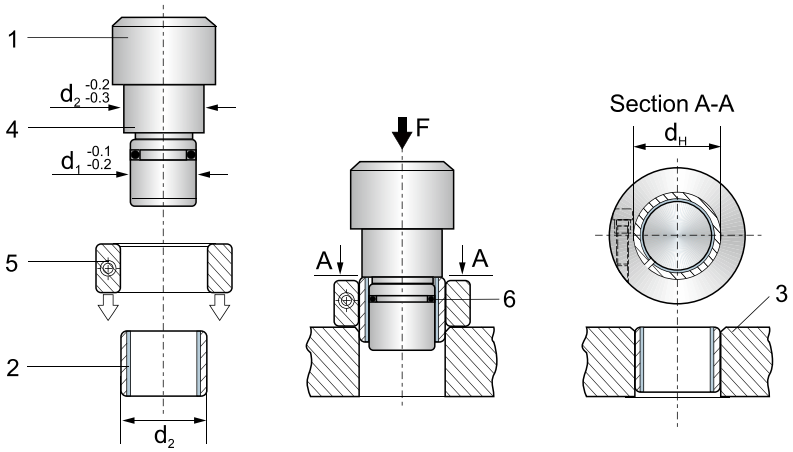
座孔直径 Housing bore diameter d_G	座孔倒角 Chamfer of housing f_G
$d_G \leqslant 10$	$1.2 \pm 0.2 \times 45^\circ \pm 5^\circ$
$d_G > 10$	$1.7 \pm 0.2 \times 45^\circ \pm 5^\circ$



滑动轴承与座孔的装配
The installation of the sliding bushing and the housing

滑动轴承与座孔装配时，要保证轴承在座孔内不发生转动和轴向移动，又要使轴承外表面和座孔充分接触，一般应保证接触面大于85%，有利于承受载荷和传导摩擦热，采用较轻级的过盈配合，既要保证使用时，轴承不会在座孔内发生相对移动，又不会使轴承外径过盈量过大致使轴承内孔变形过大为有利于装配，轴承内外表面应涂以少量油或油脂，再将轴承均匀压入。

When installing the sliding bushing and the housing, make sure the bushing doesn't roate or move. The outside surface of the bushing must have a through contact with the housing, in peneral the connecting part must be over 85%, and this will be pood for the load pressure and the conduction of friction heat. Using surplus quantity loosely, that is when it is used the bushing does not move relatively and also the surplus quantity of the bushing outside diameter, will not be too big to cause serious distortion of the bushing inside hole, when installing, it is pood to lay a little lubricant, such as oil on the inside and outside surface of the bushing. then press bushing slowly.



d≥55mm
1. 芯轴 Pressing–in arbor
2. 轴承 Bushes
3. 座孔 Housing
4. 档边尺寸 Shoulder diameter
5. 辅助套 Auxiliary ring
6. O型圈 O ring

轴承 d2	dH
>55到100	d2 $^{+0.28}_{+0.25}$
>100到200	d2 $^{+0.40}_{+0.36}$
>200到305	d2 $^{+0.50}_{+0.40}$

HFb
SLIDING BEARING

浙江嘉善海丰轴承厂
JIASHAN HAIFENG BEARING FACTORY

地址: 浙江省嘉善县魏塘镇长秀路211号
邮编: 314100
电话: 0573-84161166
传真: 0573-84162567
网址: www.hfbushing.com
邮件: 404258740@qq.com

ADD: No. 211, Changxiu Rd, Weitang Town, Jiashan, Zhejiang, China.
Post Code: 314100
TEL: +86-0573-84161166
FAX: +86-0573-84162567
Website:www.hfbushing.com
E-mail:404258740@qq.com