



聯誠軸承有限公司

LIEN CHENG BEARINGS COMPANY





JDB650



JFB650



JFBB650



JTW650



JNA



GB250



HGB250



JDBS



JGBF



JGBU



FZH



FZL



FZP



FZPL



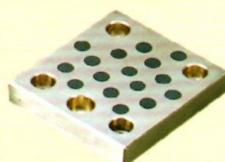
FZH/FZHL/FZH/FZPL/FZP/FZL



JTWP



JSP



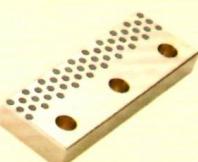
JGBX



JSP



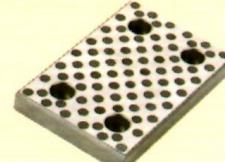
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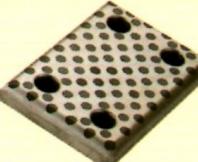
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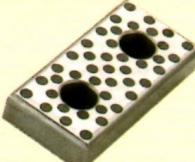
JMWP



JESF



JRP



JPG



SF-1P



SF-1F



SF-1



SF-1WC止推垫片



FB092



SF-2



SF-2WC



JF800



FB090



FB092F





◎ 產品簡述 INTRODUCTION

固體潤滑軸承是在軸承基體的金屬摩擦面上開出排列有序大小適當的孔穴，并嵌入具有獨特自潤滑性能的成型固體潤滑劑制成的自潤滑軸承。該軸承綜合了金屬基體和具有特殊配方的潤滑材料的各種優點。突破了一般軸承依靠油膜潤滑的界限性。固體潤滑軸承特別適用於無油、高溫、高負荷、低速度，防污、防蝕、防輻射，以及在水中或真空溶液浸潤而根本無法加潤滑膜的特殊工況條件下使用。

產品廣泛應用於冶金軋鋼設備、礦山機械、船舶機械、船舶工業、航天航海、水輪機、氣輪機、灌裝設備、儀器儀表、紡織機械，并在其它工業機械中有着廣闊的應用領域，并得到了越來越多的使用。

固體潤滑軸承的基體應根據軸承自身的工況條件而定。常用的材料有高力黃銅、錫青銅、鑄鐵等多種合金，嵌入的固體潤滑材料主要以天然黑鉛、人工石墨、MOS₂以及以PTFE為基體的兩大品種。根據軸承自身工況條件，通過不同金屬基體和嵌入固體潤滑劑的組合，可保證產品能滿足各種溫度、負荷、運動和介質等工況條件的特殊需要，并保證穩定可靠地工作。

Solid-lubricant-inlaid bushing is the self-lubricant bushing which is based on the metal friction surface of the bushing basement where holes are spreaded reasonably in proper size and specific solid lubricant which has self-lubricant function is inserted. This kind of bushing has included the advantages of the metal basement and lubricant materials that has the specific direction for producing chemicals. It has broken in the limit of general bushings that depend on oil film. Solid-lubricant-inlaid bushing is especially applied in oil-free high temperature, High load, low speed, contamination resistance, corrosion resistance radiation resistance as well as the use under such special work conditions as in the water or being soaked by vacuum solution so that cannot add lubricant oil film. The products is widely applied in metallurgy and steel-rolling equipment, mine machinery, shipping machinery, shipping industry. Space voyage, hydraulic turbine, gas turbine, filling equipment, instruments and weave machinery. It also has a wide rang of application in other industrial and agriculture machinery. And it is being used more and more widely.

The basement of the solid-lubricant-inlaid bushing depends on work conditions of the bushing depends on work conditions of the bushing itself. The commonly used materials are high strength brass tin bronze, etc. The inserted solid lubricant materials are mainly two kinds of which based on nature black lead manpower graphite, MOS₂ as well as PTFE. According to the bushing's own work condition, it can ensure that the product can meet various temperatures, loads, movements and medium through the combination between different metal basement and solid-lubricant and ensure that it can work steadily and credibly.



◎ 主要材料推薦 MAIN MATERIALS RECOMMENDATION

合金材質 Metal type

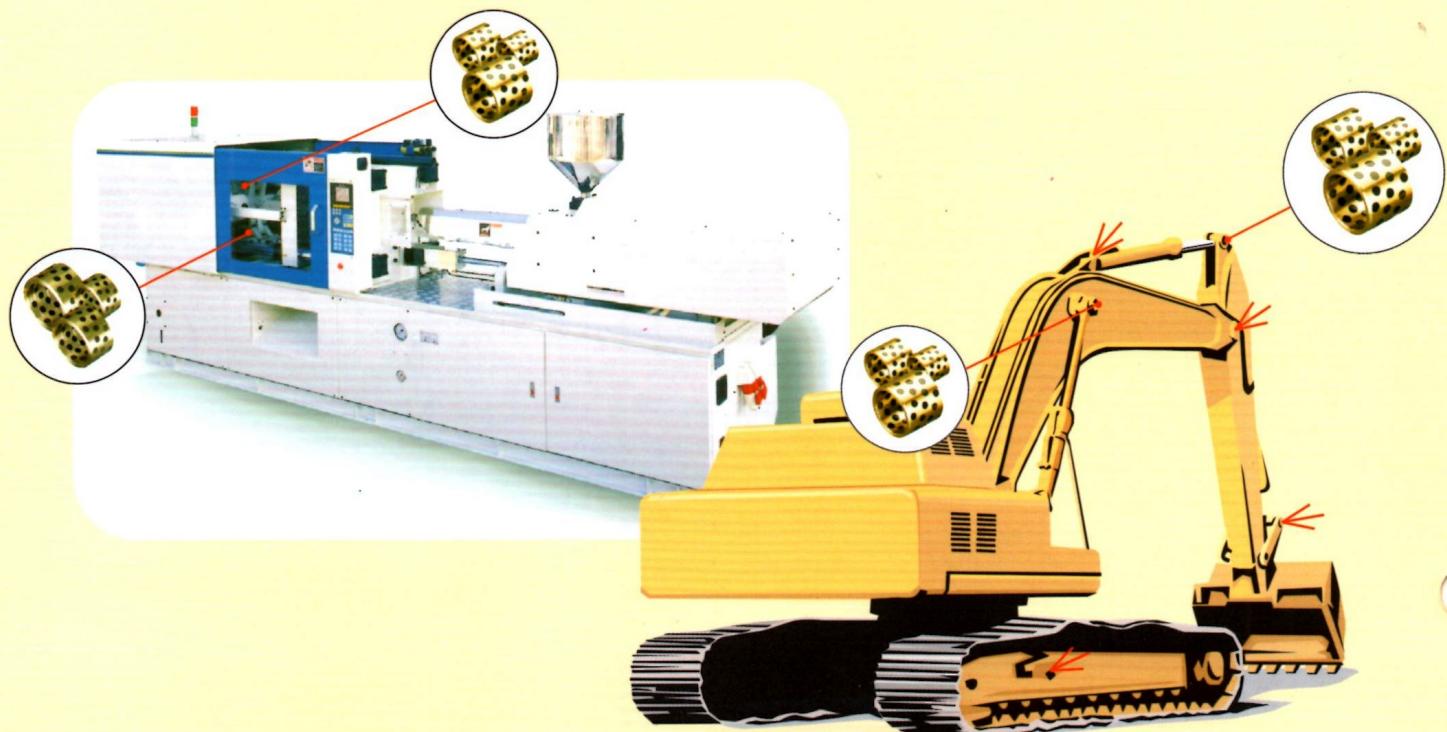
LSB Standard LSB標準	Cast bronze 高力黃銅	Copper alloy 銅合金	Copper alloy 銅合金	Copper alloy 銅合金	Strong cast bronze 特硬高力黃銅	Cast iron 鑄鐵
Base material 基本材質	CuZn24Al6	CuSn5Zn5Pb5	CuAl10Ni5	CuSn12	CuZn24Al6	HT250
Hardness HB 硬度	>210	>70	>150	>80	>250	>160
Tensile strength 抗拉強度 N/mm ²	>750	>200	>500	>360	>800	>250
Elongation%伸長率	>12	15	>10	>8	>4	
Coefficient of linear expansion 热脹系数	1.9*10 ⁻⁵ /°C	1.8*10 ⁻⁵ /°C	1.6*10 ⁻⁵ /°C	1.8*10 ⁻⁵ /°C	1.9*10 ⁻⁵ /°C	1.0*10 ⁻⁵ /°C
Limit Temp. 温度	300°C	400°C	400°C	400°C	300°C	400°C
Max. Load N/mm ² 最大動承載	100	60	50	70	150	10
Max. Speed m/min 最大綫速度	15	10	20	10	10	15
Max. PV 最大PV N/mm ² m/min	200	200	200	200	200	40
壓縮永久變形量 400N/mm ²	<0.01	<0.05	<0.04	<0.05	<0.005	<0.015

同時LCB可以根據客戶的特別要求提供HB>270及HB>300的特高硬銅材料

As special request LCB also can supply the strong cast bronze of special high hardness HB>270, HB>300

◎ 固體潤滑劑 SOLID LUBRICANTS

固體潤滑劑 Lubricant	特性 Features	典型用途 Typical application
高純石墨+添加劑 SI1 Graphite+add	很好的耐磨性和化學穩定性，使用溫度<400°C Excellent resistance against chemical attacks and low friction. Temp limit 400°C	適用於一般機械，在大氣中使用。 Suite for general machines and under atmosphere
SL4+MOS2 PTFE+MOS2+CF	極低的摩擦系數和很好的水潤滑性，使用溫度<300°C Lowest in friction and good of water lubrication, Temp. limit 300°C	適用於水、海水潤滑，如船舶，水工弧門，水輪機，制藥飲料機械等。 Ship, hydraulic turbine, gas turbine etc.



◎ 典型用途

1. 可長時間在無油潤滑條件下工作。
2. 更適合于重載低速工況條件，具有很好的耐磨性和極低的摩擦系數。
3. 適合于往復、旋轉和間歇運動等油膜難以形成的場合。
4. 具有耐腐蝕和抗化學性。
5. 適用于 $-40^{\circ}\text{C} + 300^{\circ}\text{C}$ 的溫度範圍。
6. 免維修，使用壽命長。

◎ 典型用途

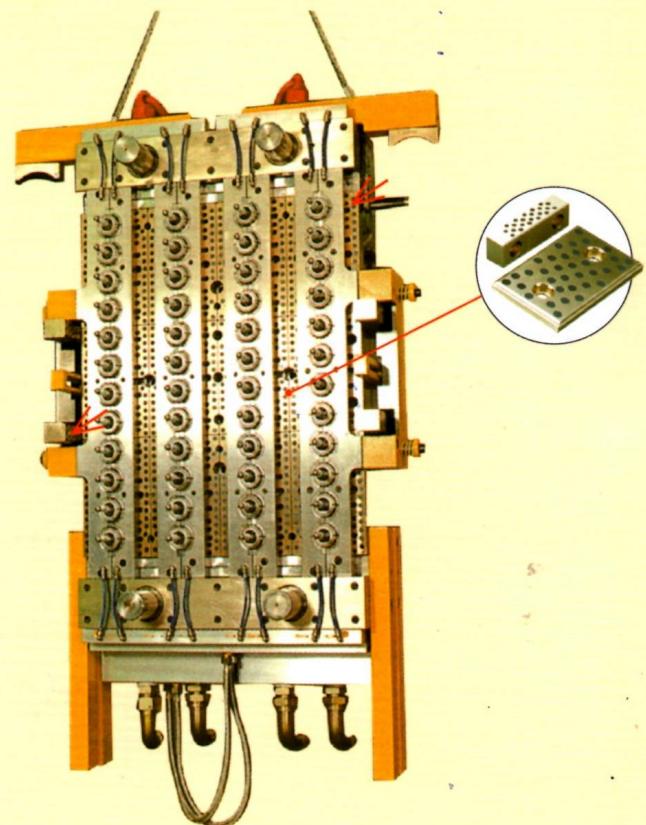
1. 重載、低速自潤滑如水壩工作弧門支鉸軸承，事故門軸承，水輪機軸承等。
2. 使用于高溫場合，如鋼鐵廠、冶金設備、軋機、輸送輥道、高溫鼓風爐、烘幹爐用軸承。
3. 汽機車工業、復蓋件衝壓模、組裝流水線、傳送帶等用軸承。
4. 其它工業用軸承，工程機械、注塑機、各種高精度模具等。以及化工機械、食品機械、造紙機械、紡織印染機械等需耐蝕耐水浸潤場合，重載低速無法加油的工況場合。

◎ APPLICATION

1. Use for high load low speed and self-lub. like dam gate and water gate bushes, hydraulic turbine bushes etc.
2. Use for high temp. such as iron and steel factory machines and so on.
3. Automobile production, like assembly lines, press lines, conveyor lines and so on.
4. Heavy duty machineries like steel rolling mills, injection machines, press dies etc.
5. And any others like chemical machines, food processing machines, paper mills, textile machines etc.

◎ APPLICATION

1. May work without any oil for long period.
2. Extremely high load capacity, good anti-wear and low friction.
3. Particularly appropriate for low speed and high load.
4. Suitable for reciprocating, oscillation or intermittent motion where oil film is hard to be formed.
5. Good chemical resistant and anti-corrosion characteristics.
6. Can be used in wide range of temp.



◎ SF-1 無油潤滑軸承 OILLESS SLIDE BEARINGS



最大承載壓力	Load capacity	140N/mm ²
適應溫度範圍	Temperature limit	-195°C~+270°C
最高滑動速度	Speed limit	2m/s
摩擦系數	Friction clef	0.04~0.20
允許最高PV值(幹)	PV limit (dry)	3.6N/mm ² · m/s
允許最高PV值(油)	PV limit (oil)	50N/mm ² · m/s

該產品是以鋼板為基體，中間燒結球形青銅粉，表面軋制聚四氟乙烯(PTFE)和鉛的混合物，由卷制而成的滑動軸承。

具有摩擦系數小、耐磨、抗腐蝕性好和無油潤滑的特點。使用該產品能降低成本、減少機械體積，避免咬軸現象和降低機械噪音等優點。

目前已廣泛應用於各種機械的滑動部位，如印刷機、紡織機、煙草機、健身器、液壓搬運車、微電機、汽車、摩托車與農林業機械等。

SF-1 is steel-based, a sintered porous bronze particles interlayer and rolled with PTFE and Pb mixture as surface layer.

This is of low friction coefficient, anti-wear, anti-corrosion and can be used without oil. Moreover, it is of low cost, low vibration and low noise and small volume.

SF-1 is widely used in various sliding articles of different kind of machines such as printing machines, textile machines, tobacco machines, gymnastic machines, hydraulic vehicles, automobiles, motorcycles, agriculture and forests machines and so on.

一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ SF-1T 齒輪泵專用軸承 GEAR OIL PUMP BEARING



最大承載壓力	Load capacity	140N/mm ²
適應溫度範圍	Temperature limit	-195°C~+260°C
最高滑動速度	Speed limit	2m/s
摩擦系數 μ	Friction clef	0.03~0.18
允許最高PV值(幹)	PV limit (dry)	4.3N/mm ² · m/s
允許最高PV值(油)	PV limit (oil)	60N/mm ² · m/s

該產品是在SF-1材料的結構基礎上，根據齒輪油泵的高PV值工況條件而設計推出的特殊配方產品。

特別適應於流體動力潤滑或境界潤滑的中高壓齒輪油泵，油泵壓力：16-25Mpa，線速度3.5-5m/s。具有摩擦系數小而穩定，耐磨性能好、抗衝擊的優點。在流體潤滑境界下PV值可達到120N/mm² · m/s是各種齒輪油泵、柱塞泵、葉片泵的最佳選擇。

SF-1T is a new kind of SF-1 which composes of a specially designed surface layer of PTFE formulations and is specifically applied for the high PV bushes of gear oil pumps.

SF-1T is to be used in hydrodynamic or boundary lubricating condition of medium or high pressure gear oil pumps such as P=16-25Mpa, V= 3.5-5m/s. It shows the benefit of low friction coefficient, wear resistant and anti-impact properties. At hydrodynamic lubrication, the PV limit reaches to 120N/mm² · m/s. It is a best choice for various kinds of gear pumps as well as plunger pumps, vane pumps and so on.

一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ SF-1B 青銅基軸承 BRONZE BASED BEARING



最大承載壓力	Load capacity	140N/mm ²
適應溫度範圍	Temperature limit	-195°C~+300°C
最高滑動速度	Speed limit	2m/s
摩擦系數 μ	Friction clef	0.04~0.18
允許最高PV值(幹)	PV limit (dry)	4.3N/mm ² · m/s
允許最高PV值(油)	PV limit (oil)	50N/mm ² · m/s

該產品是以錫青銅板為基體，中間燒結青銅球形粉，表面軋制PTFE和耐高溫填充材料而成。

它具有很高的安全系數，在連續工作不能停機修理的場所和高溫不能加油的場所特別適用。目前已廣泛應用在冶金鋼鐵工業，連鑄機方坯滾道、高溫爐鋼環部位、水泥灌漿泵和螺旋式輸送機上。它可以在外部組合鋼套，或制成翻邊，端面、內孔同時摩擦使用。

This product is tin bronze based with bronze powder inside and PTFE surfaced and filled with anti-high-temperature material. It is very safe and specially used in the place can't stop for repair and can't add oil because of high temperature.

This is widely used in steel metallurgy industry such as roller grooves of successive casting machines, cement grouting pumps and screw conveyors for cement. It can also be composed in steel housing or fabricated into flanged bushes which can move both in radial and in axial directions.

一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.



◎ SF-1P 往復運動軸承 RECIPROCATING MOTION BEARING



最大承載壓力	Load capacity	140N/mm ²
適應溫度範圍	Temperature limit	-195°C~+270°C
最高滑動速度	Speed limit	2m/s
摩擦系數 μ	Friction clef	0.04~0.20
允許最高PV值(幹)	PV limit (dry)	3.6N/mm ² · m/s
允許最高PV值(油)	PV limit (oil)	50N/mm ² · m/s

該產品是在SF-1材料的結構基礎上，根據往復運動的特殊工況條件而設計的新穎配方產品，其性能與國外DD2相似。

具有斷油條件下潤滑能力強、耐磨性能好、保持油膜清晰等優點。該產品能較好地保護對磨軸表面不受磨損，特別適用往復頻繁大側向壓力場合。

目前該產品以廣泛地應用於汽車減震器、摩托車減震器、各種液壓油缸、液壓馬達、氣動元件等領域。

SF-1P is particularly suitable for bushes in reciprocating motion, and the surface layer is lately optimized formulation, and the properties are similar to that of the foreign product designated as DD2.

It is efficient even under sudden break off of the lubricating oil. It is wear resistant, and so can keep the lubricating oil clear after long period of working. It can protect the mating metal surface from wearing, particularly suitable for reciprocating motion

SF-1P is used widely as oil damping vibrating absorber of automobiles, motorcycles and various hydraulic cylinders, hydraulic motors and pneumatic elements.

一般推薦座孔公差為H7, 軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ SF-2 邊界潤滑軸承 MARGINAL LUBRICAT BEARING



最大承載壓力	Load capacity	140N/mm ²
適應溫度範圍	Temperature limit	-40°C~+130°C
最高滑動速度	Speed limit	2m/s
摩擦系數 μ	Friction clef	0.05~0.25
允許最高PV值(幹)	PV limit (dry)	2.8N/mm ² · m/s
允許最高PV值(油)	PV limit (oil)	22N/mm ² · m/s

該產品以鋼板為基體、燒結球型錫青銅粉為中間層，表面軋制改性聚甲醛(POM)並有儲油坑。

該產品表面塑料厚度0.5mm，具有較好的耐磨性能，在少油或間隙斷油條件下能正常工作。它適應於常溫條件下工作和低速重載的場所，以取代傳統的銅套，既降低成本又延長使用壽命。產品已廣泛應用於汽車底盤、鍛壓機床、冶金礦山機械、工程機械、水電、軋鋼行業等領域。

This is a steel based, spherical bronze powder as interlayer and overlaid by a layer of POM, the surface of which is provided with oil indentations.

The thickness of the plastics layer is about 0.5mm. A trace of oil or grease may be utilized and may work successfully under heavy load with oscillating motion and those which start and stop frequently under load. Moreover, it is of low cost and long life. This kind of material is now widely used as bushes in chassis of automobiles, forging presses, metallurgical and mining machines, civil engineering machines, hydroelectric industrial machines and steel strip cold rolling machines.

◎ JF-800 雙金屬軸承 DOUBLE METAL LAYER BEARING



最大承載壓力	Load capacity	120N/mm ²
適應溫度範圍	Temperature limit	-100°C~+200°C
最高滑動速度	Speed limit	2m/s
合金材料	Chemical compositions	Cu80Pb10Sn10
合金層硬度	Brinnal hardness	HB(60-90)

該產品是以優質低碳鋼背為基體，表面燒結鉛錫青銅合金，經數次高溫燒結和致密軋制而形成銅、鋼一體的雙金屬帶材。

該產品具有結合強度高、承載能力大、耐磨性能好等優點。特別適合於中速中載及低速高載等場合。通過特殊工藝手段，可以在摩擦面上加工出各種油槽和油穴及油孔，從而適應不同潤滑工況條件下使用。產品以廣泛應用在汽車發動機、底盤、摩托車離合器、齒輪泵擦板和起重設備等領域。

This kind of bush is wrapped by double layer metal strip. The strip is based on steel backing and incorporated with bronze surface. The bronze layer is sintered twice under high temperature and calendered firmly onto the steel strip.

The high bonding strength, load capacity and wear resistance make it withstand medium speed, medium load and low speed, high load conditions.

The surface may be incorporated with various kinds of oil grooves, oil pockets or oil indentations, which is properly designed in order to meet different necessities of various lubricating conditions. It is widely applied on various automobile engines, vehicle chassis, motorcycle clutches, rubbing plate of gear pumps and other hoist machines.

一般推薦座孔公差為H7, 軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ FB090 青銅卷制軸承 WRAPPED BRONZE BEARING



最大承載壓力	Load Capacity	75N/mm ²
適用溫度範圍	Temp Limit	-80°C~200°C
最高滑動速度	Speed Limit	2m/s
基體材質	Base material	CuSn8P0.3或CuSn6.5P0.1
基本硬度	Hardness	HB90~120

FB090青銅卷制軸承采用特殊配方的高密度銅合金帶材為基體，表面軋制菱形油穴或油槽。具有密度高、承載壓力大、耐磨性能好、使用壽命長等優點，以取代傳統的鑄造銅套，可以縮小機械體積，降低成本。FB090已廣泛應用於起重機械、建築機械、汽車拖拉機行業、機床工業及采礦機械中，還可以制成軸瓦、翻邊軸套、止推墊片和球碗等形式。可提供產品：直套、翻邊軸套、止推墊片、板材、軸瓦、滑板、鋼套組合件。

FB090 bronze reeling bearing adopts special formula and high density copper alloy strip as base, whose surface is rolled by diamond oil cave or oil groove. Characterized by high density, high pressure of bearing the weight, well wearing performance and long service life and substituted for traditional founding copper liner, it may shorten mechanical volume and reduce cost. FB090 has been widely used in lifting machine, construction machine, auto and tractor industry, machine tool industry and mining machinery, and it may also be produced many forms of shaft tile, turn-up shaft sleeve, stop push gasket shim, ball bowl and so on.

It may supply the products: upright liner, turn-up shaft sleeve, plate, shaft tile, slide and steel liner combination.

一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ FB092 青銅卷制軸承 WRAPPED BRONZE BEARING



最大承載壓力	Load Capacity	60N/mm ²
適用溫度範圍	Temp Limit	-100°C~200°C
最高滑動速度	Speed Limit	2.5m/s
基體材質	Base material	CuSn8P0.3或CuSn6.5P0.1
基本硬度	Hardness	HB 90~120

FB092青銅卷制軸承，以青銅為基體，設計均勻有序的注油孔，在裝配後注入潤滑油脂，再配置端面密封而使用。該軸承具有存油量大、安裝方便、設計體積小的優點，而且可以取代銅套使用，大大地降低成本。適用於中載、低速的場合。例：輸送機、升降機、卷揚機、校平機等。

可提供產品：直套、翻邊軸套、止推墊片、板材、軸瓦、滑板、鋼套組合件。

FB092 bronze reeling system bearing used bronze as base designs uniform and orderly oil hole, instills lubrication grease after assembly, configures end seal and is used. The bearing is characterized by large storing oil, convenient installation and small designing volume. It can also substitute for copper liner that sharply reduces the cost. It is applicable to the situation of medium load and low velocity. For instance, conveyers, lifts, winding engines, smoothing machines and so on.

It may supply the products: upright liner, turn-up shaft sleeve, plate, shaft tile, slide and steel liner combination.

一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.

◎ FR 四氟軟帶軸承 PTFE SOFT STRIPE BEARING



最大承載壓力	Load capacity	30N/mm ²
適應溫度範圍	Temperature limit	-40°C~+260°C
最高滑動速度	Speed limit	2.5m/s
摩擦系數	Friction clef	0.05~0.20
允許最高PV值(幹)	PV limit (dry)	1.65N/mm ² • m/s

該產品以青銅絲網為基體，通過特殊工藝，表面軋制聚四氟乙烯(PTFE)和其它填充減摩材料的混合物。

它具有較低的摩擦系數、較好的耐磨特性。由於它的柔軟性能好，可以做鋼與鋼對磨的隔膜，實現無間隙、無噪音、無油潤滑、無保養、無污染的理想目的。目前，產品已廣泛應用在紡織機械、關節軸承、汽車門鉸鏈及儀器儀表、汽車操縱杆等場合。

This is a composites material with bronze wire mesh as frame and rolled with a film of filled poly tetrafluoroethylene.

This is of low friction and low wear, and is rather soft and is to be applied readily by inserting between the two rubbing metal surfaces, and can fulfill the ideal aim of no noise, no lubricating, no maintenance and no pollution.

At present, this is applied in those mechanical elements under relatively low load and low speed, such as in textile machines, spherical bearings, automobile door hinge and the operating rod for cars.

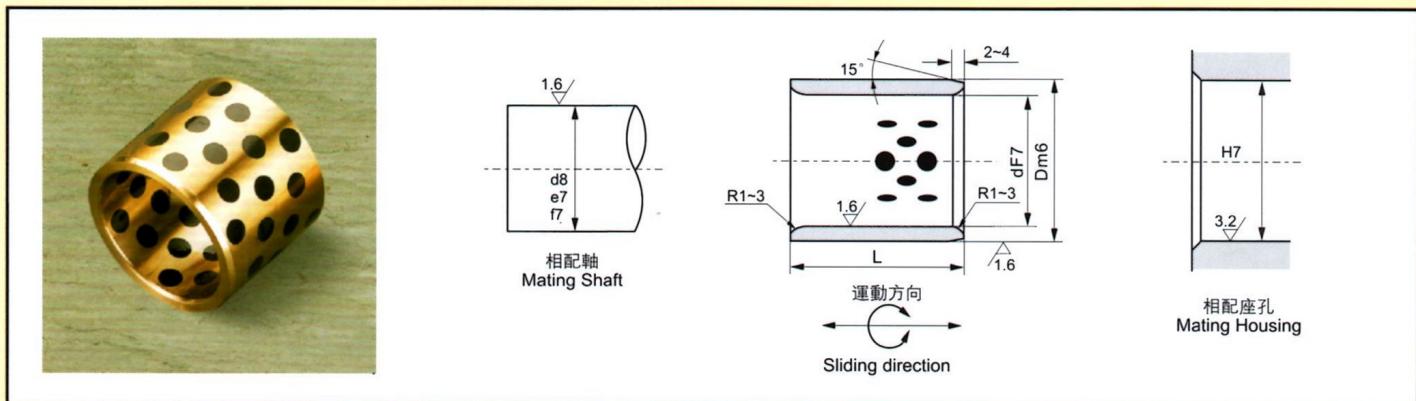
一般推薦座孔公差為H7，軸徑公差為h8。

Recommend housing tolerance H7 and the shaft h8.



◎ JDB 固體潤滑軸承標準公制尺寸

SOLID-LUBRICANTS BEARING STANDARD METRIC SIZE



(單位)Unit: mm

d	D	IdF7	ODm6	$L^{-0.10}_{-0.30}$																	
				10	12	15	16	20	25	30	35	40	50	60	70	80	100	120	130	140	150
14	20	14	20	1410	1412	1415		1420	1425	1430											
15	21	15	+0.034	21	1510	1512	1515	1516	1520	1525	1530										
16	22	16	+0.016	22	+0.021	1610	1612	1615	1616	1620	1625	1630	1635	1640							
18	24	18		24		1812	1815	1816	1820	1825	1830	1835	1840								
20	28	20		28		2010	2012	2015	2016	2020	2025	2030	2035	2040	2050						
22	32	22	+0.041	32		2212	2215		2220	2225											
25	33	25	+0.020	33		2512	2515	2516	2520	2525	2530	2535	2540	2550	2560						
30	38	30		38	+0.025	3012	3015		3020	3025	3030	3035	3040	3050	3060						
35	45	35		45				3520	3525	3530	3535	3540	3550	3560							
40	50	40		50				4020	4025	4030	4035	4040	4050	4060	4070	4080					
45	55	45	+0.050	55					4530	4535	4540	4550	4560								
50	60	50	+0.025	60					5030	5035	5040	5050	5060	5070	5080						
50	62	50		62					506230	506235	506240	506250	506260	506270							
50	65	50		65					506530		506540	506550	506560	506570	506580	5065100					
55	70	55		70	+0.030						5540	5550	5560	5570							
60	74	60		74					6030	6035	6040	6050	6060	6070	6080						
60	75	60		75					607530	607535	607540	607550	607560	607570	607580	6075100					
63	75	63		75									6360	6370	6380						
65	80	65		80								6550	6560	6570	6580						
70	85	70	+0.060	85	+0.030					7035	7040	7050	7060	7070	7080	70100					
70	90	70		90								709050	709060	709070	709080						
75	90	75		90									7560	7570	7580	75100					
75	95	75		95	+0.035								7560	7570	7580	75100					
80	96	80		96	+0.013							8040	8050	8060	8070	8080	80100	80120			
80	100	80		100								8010040	8010050	8010060	8010070	8010080	80100100	80100120		80100140	
90	110	90		110					9030			9050	9060	9070	9080	90100	90120				
100	120	100	+0.071	120	+0.036								10060	10070	10080	100100	100120		100140		
110	130	110		130											11080	110100	110120				
120	140	120		140											12080	120100	120120		120140		
125	145	125		145												125100	125120				
130	150	130		150	+0.040	+0.015										130100		130130			
140	160	140	+0.083	160	+0.043											140100			140140		
150	170	150		170												150100				150150	
160	180	160		180												160100				160150	

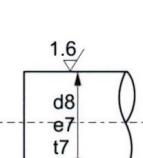
JDB 系列產品還可根據用戶不同的要求，按來圖加工不同的幾何形狀產品，但要注明摩擦面及摩擦運動方向。

JDB series products can process different shape according to user's different request, but the user should indicate that the surface and the movement direction of friction.

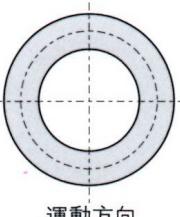


◎ JFB 固體潤滑軸承標準公制尺寸

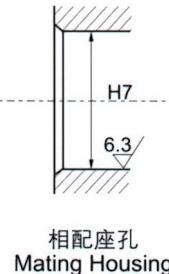
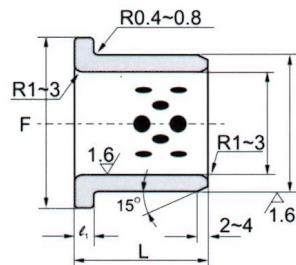
SOLID-LUBRICANTS BEARING STANDARD METRIC SIZE



相配軸
Mating Shaft



運動方向
Sliding direction



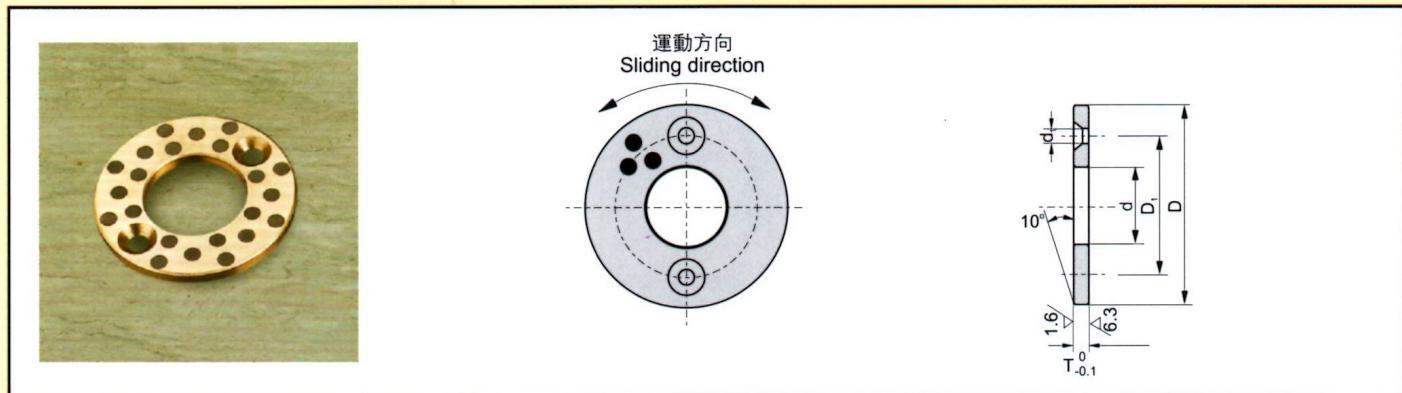
相配座孔
Mating Housing

(單位)Unit: mm

d	D	IDE7	ODr6	F	ϵ_1 -0.10	L -0.10 -0.30									
						15	20	25	30	35	40	50	60	80	100
10	14	10	+0.040 +0.025	14	+0.034 +0.023	22	2	1015	1020						
12	18	12		18		25		1215	1220						
13	19	13		19		26		1315	1320						
14	20	14	+0.050 +0.032	20		27	3	1415	1420						
15	21	15		21	+0.041 +0.028	28		1515	1520	1525	1530				
16	22	16		22		29		1615	1620	1625	1630				
20	30	20		30		40		2015	2020	2025	2030		2040		
25	35	25	+0.061 +0.040	35		45		2515	2520	2525	2530		2540		
30	40	30		40			50		3020	3025	3030	3035	3040	3050	
31.5	40	31.5		40	+0.050 +0.034				3120			3135			
35	45	35		45		60	5		3520		3530		3540	3550	
40	50	40	+0.075 +0.050	50		65			4020		4030		4040	4050	
45	55	45		55		70				4530		4540	4550	4560	
50	60	50		60	+0.060 +0.041	75				5030		5040	5050	5060	
55	65	55		65		80						5540		5560	
60	75	60		75	+0.062 +0.043	90						6040	6050		6080
63	75	63	+0.090 +0.060	75		85	7.5								6367
70	85	70		85		105						7050		7080	
75	90	75		90	+0.073 +0.051	110								7560	
80	100	80		100		120							8060	8080	
90	110	90		110	+0.076 +0.054	130	10						9060	9080	
100	120	100	+0.107 +0.072	120		150								10080	
120	140	120		140	+0.088 +0.063	170								12080	



◎ JTW 標準止推墊片尺寸 STANDARD SIZE OF JTW THRUST WASHERS

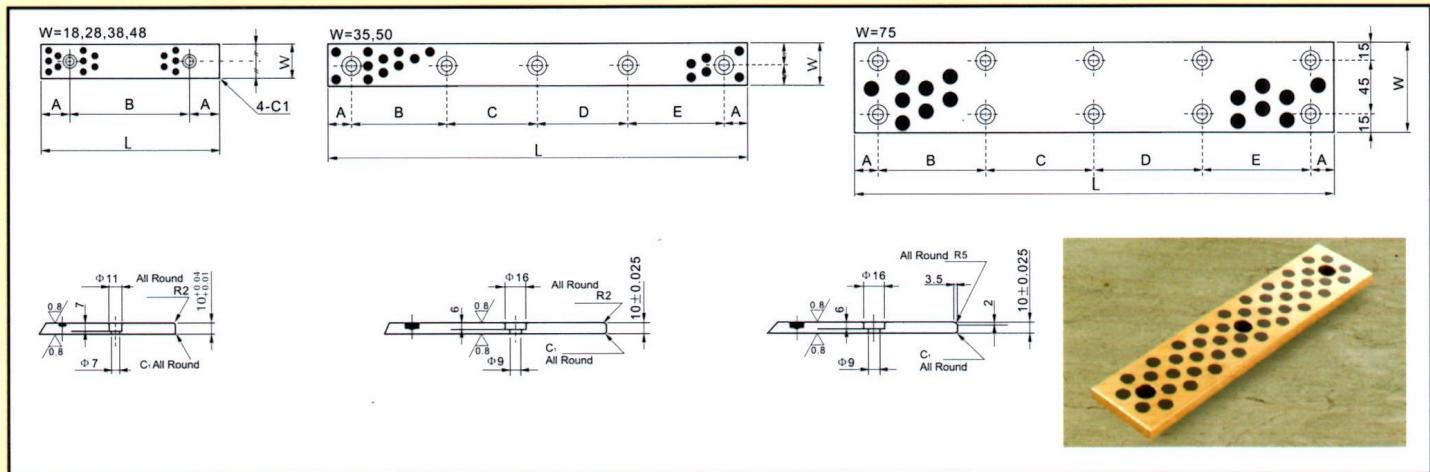


(單位)Unit: mm

Standard No. 規格	d	D	T 0 -0.1	Bolt 螺栓			
				D ₁	Q'ty 數量	size 尺寸	d ₁
JTW -10	10.2	30		-----	-----	-----	-----
JTW -12	12.2						
JTW -13	13.2	40		28			
JTW -14	14.2		3		2	M 3	3.5
JTW -15	15.2			35			
JTW -16							
JTW -16N	16.2						
JTW -18	18.2	50		35	2	M 3	3.5
JTW -20						M 5	6
JTW -20N	20.2						
JTW -25				40	2	M 5	6
JTW -25N	25.2	55	5				
JTW -30	30.2	60		45		M 5	6
JTW -35	35.2	70		50			
JTW -40	40.2	80		60			
JTW -45	45.3	90	7	67.5		M 6	7
JTW -50	50.3	100		75			
JTW -55	55.3	110		85			
JTW -60	60.3	120		90			
JTW -65	65.3	125		95			
JTW -70	70.3	130		100		M 8	9
JTW -75	75.3	140		110			
JTW -80	80.3	150		120			
JTW -90	90.5	170		140			
JTW -100	100.5	190		160		M 10	11
JTW -120	120.5	200		175			



◎ JSP 標準滑板尺寸表 STANDARD SIZE TABLE OF JSP SLIDE PLATE

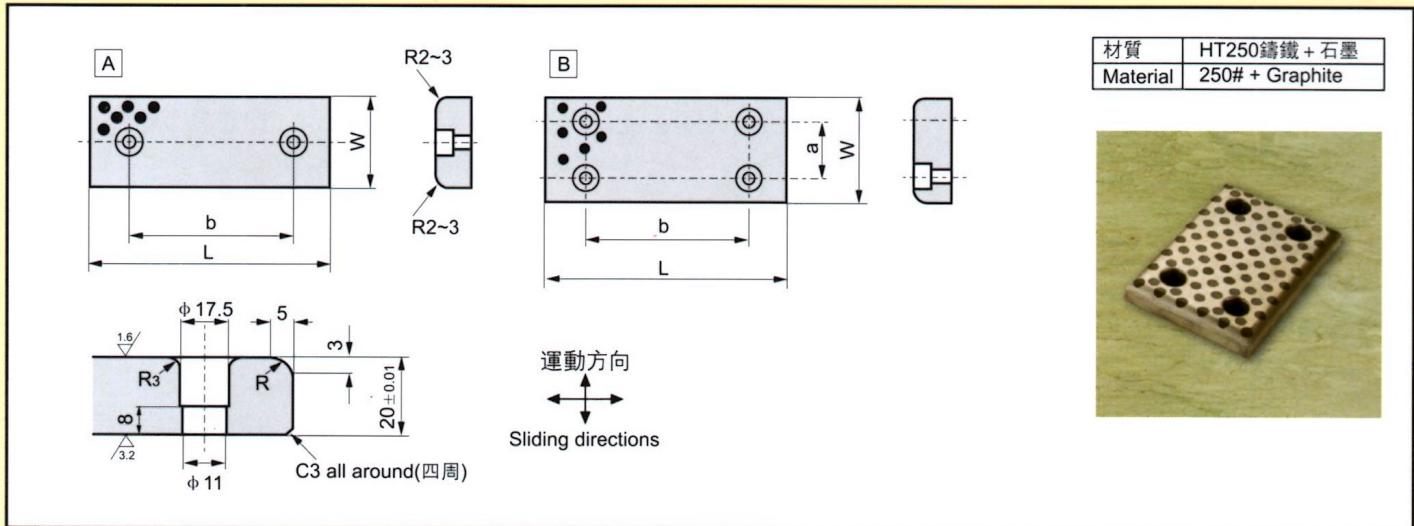


(單位)Unit: mm

規格標志 Designation	寬度 W	長度 L	A	B	C	D	E	平頂螺釘 Flat Head Screw	孔數 No.of Holes
JSP-1875	18	75	15	45				M6	2
JSP-18100	18	100	25	50				M6	2
JSP-18125	18	125	25	75				M6	2
JSP-18150	18	150	25	100				M6	2
JSP-2875	28	75	15	45				M6	2
JSP-28100	28	100	25	50				M6	2
JSP-28125	28	125	25	75				M6	2
JSP-28150	28	150	25	100				M6	2
JSP-35100	35	100	20	60				M8	2
JSP-35150	35	150	20	55	55			M8	3
JSP-35200	35	200	20	55	50	55		M8	4
JSP-35250	35	250	20	70	70	70		M8	4
JSP-35300	35	300	20	65	65	65	65	M8	5
JSP-35350	35	350	20	80	75	75	80	M8	5
JSP-3875	38	75	15	45				M6	2
JSP-38100	38	100	25	50				M6	2
JSP-38125	38	125	25	75				M6	2
JSP-38150	38	150	25	100				M6	2
JSP-4875	48	75	15	45				M6	2
JSP-48100	48	100	25	50				M6	2
JSP-48125	48	125	25	75				M6	2
JSP-48150	48	150	25	100				M6	2
JSP-50100	50	100	20	60				M8	2
JSP-50150	50	150	20	55	55			M8	3
JSP-50200	50	200	20	55	50	55		M8	4
JSP-50250	50	250	20	70	70	70		M8	4
JSP-50300	50	300	20	65	65	65	65	M8	5
JSP-50400	50	400	20	90	90	90	90	M8	5
JSP-75150	75	150	20	110				M8	4
JSP-75200	75	200	20	80	80			M8	6
JSP-75250	75	250	20	105	105			M8	6
JSP-75300	75	300	20	85	90	85		M8	8
JSP-75400	75	400	20	120	120	120		M8	8
JSP-75500	75	500	20	115	115	115	115	M8	10



◎ JTP 自潤滑板 OILLESS MIDDLE WEAR PLATE



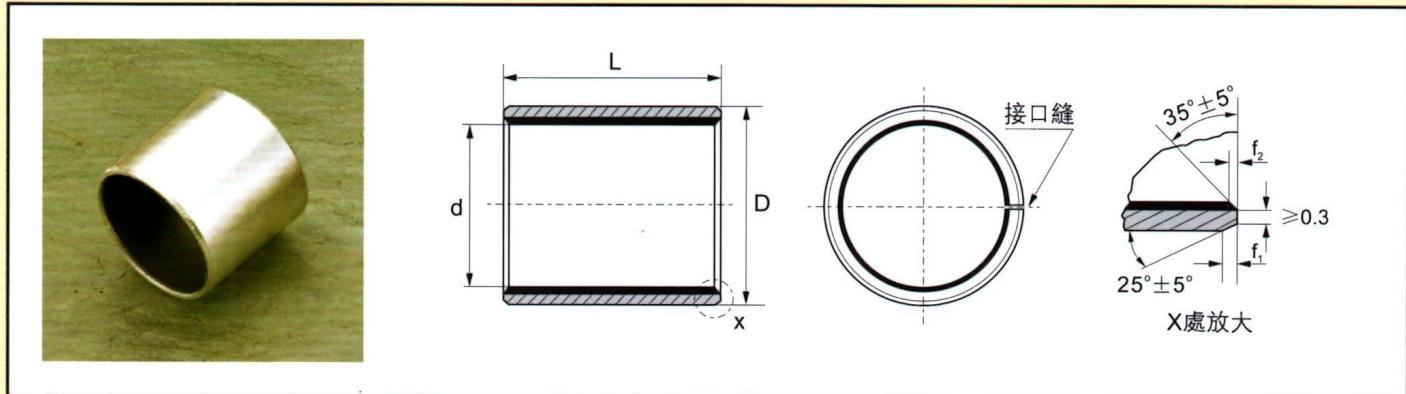
Unit(單位):mm

Standard No. 規格	W	L	a	b	Sketch 圖示
JTP-28 × 75		75		45	
JTP-28 × 100		100		50	
JTP-28 × 125	28	125	-	75	
JTP-28 × 150		150		100	
JTP-28 × 200		200		150	
JTP-38 × 75		75		45	
JTP-38 × 100		100		50	
JTP-38 × 125	38	125	-	75	
JTP-38 × 150		150		100	
JTP-38 × 200		200		150	
JTP-48 × 75		75		45	
JTP-48 × 100		100		50	
JTP-48 × 125	48	125	-	75	A
JTP-48 × 150		150		100	
JTP-48 × 200		200		150	
JTP-58 × 75		75		45	
JTP-58 × 100	58	100	-	50	
JTP-58 × 150		150		100	
JTP-75 × 75		75		25	
JTP-75 × 100		100		50	
JTP-75 × 125	75	125	-	75	
JTP-75 × 150		150		100	
JTP-75 × 200		200		150	
JTP-100 × 100		100		50	
JTP-100 × 125		125		75	
JTP-100 × 150	100	150	50	100	
JTP-100 × 200		200		150	
JTP-100 × 250		250		200	
JTP-125 × 125		125		75	
JTP-125 × 150	125	150	50	100	
JTP-125 × 200		200		150	
JTP-125 × 250		250		200	B
JTP-150 × 150		150		100	
JTP-150 × 200	150	200	100	150	
JTP-150 × 250		250		200	
JTP-150 × 300		300		250	
JTP-200 × 200		200		150	
JTP-200 × 250	200	250	150	200	
JTP-200 × 300		300		250	

注：除以上規格尺寸外，可按客戶圖紙製造。



◎ SF-1 標準襯套尺寸 STANDARD SIZE OF SF-1 BEARING



(單位)Unit: mm

d	D	軸徑	座孔 H7	壁厚		f ₁	f ₂	L ⁰ _{-0.40} ($\leq \phi 28$ L-0.30) ($> \phi 30$ L-0.40)									
				最小	最大			6	8	10	12	15	20	25	30	40	50
6	8	6 ^{-0.013} _{-0.028}	8 ^{+0.015}	0.980	1.005	0.5	0.3	0606	0608	0610							
8	10	8 ^{-0.013} _{-0.028}	10 ^{+0.015}					0806	0808	0810	0812	0815					
10	12	10 ^{-0.016} _{-0.034}	12 ^{+0.018}					1006	1008	1010	1012	1015	1020				
12	14	12 ^{-0.016} _{-0.034}	14 ^{+0.018}					1206	1208	1210	1212	1215	1220	1225			
13	15	13 ^{-0.016} _{-0.034}	15 ^{+0.018}						1310			1320					
14	16	14 ^{-0.016} _{-0.034}	16 ^{+0.018}							1410	1412	1415	1420	1425			
15	17	15 ^{-0.016} _{-0.034}	17 ^{+0.018}							1510	1512	1515	1520	1525			
16	18	16 ^{-0.016} _{-0.034}	18 ^{+0.018}							1610	1612	1615	1620	1625			
17	19	17 ^{-0.016} _{-0.034}	19 ^{+0.021}							1710	1712		1720				
18	20	18 ^{-0.016} _{-0.034}	20 ^{+0.021}							1810	1812	1815	1820	1825			
20	23	20 ^{-0.020} _{-0.041}	23 ^{+0.021}	1.475	1.505	0.8	0.4			2010	2012	2015	2020	2025	2030		
22	25	22 ^{-0.020} _{-0.041}	25 ^{+0.021}							2210	2212	2215	2220	2225	2230		
24	27	24 ^{-0.020} _{-0.041}	27 ^{+0.021}								2415	2420	2425	2430			
25	28	25 ^{-0.020} _{-0.041}	28 ^{+0.021}							2510	2512	2515	2520	2525	2530	2540	2550
28	32	28 ^{-0.020} _{-0.041}	32 ^{+0.025}	1.970	2.005	1.0	0.6				2815	2820	2825	2830	2840		
30	34	30 ^{-0.020} _{-0.041}	34 ^{+0.025}							3012	3015	3020	3025	3030	3040		
32	36	32 ^{-0.025} _{-0.050}	36 ^{+0.025}								3220		3230	3240			
35	39	35 ^{-0.025} _{-0.050}	39 ^{+0.025}							3512	3515	3520	3525	3530	3540	3550	
38	42	38 ^{-0.025} _{-0.050}	42 ^{+0.025}							3815			3830	3840			
40	44	40 ^{-0.025} _{-0.050}	44 ^{+0.025}							4012		4020	4025	4030	4040	4050	

注：孔徑壁厚符合樣本，寬度尺寸不在樣本範圍內客戶提出要求，製造廠可定制加工。

Note: Aperture and wall-thickness accord with sample. If buyer has other demand on the size, we can do it.



◎ SF-1 標準襯套尺寸 STANDARD SIZE OF SF-1 BEARING

(單位)Unit: mm

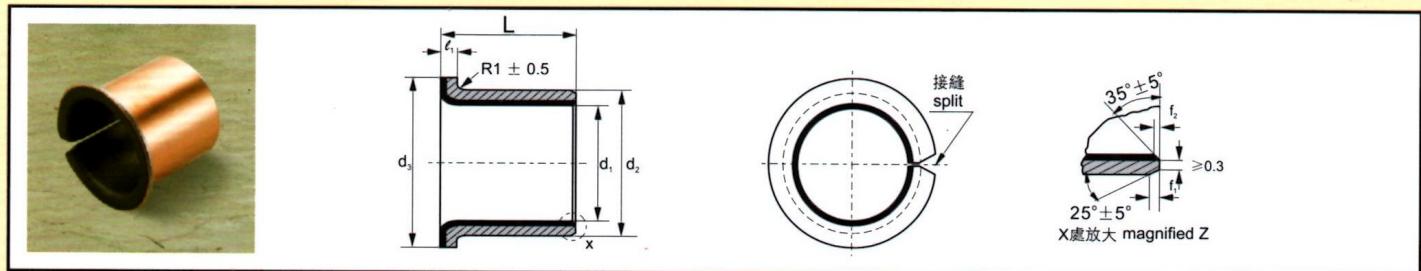
d	D	軸徑	座孔 H7	壁厚		f ₁	f ₂	L ⁰ _{-0.40}									
				最小	最大			20	25	30	40	50	60	70	80	100	115
45	50	45 ^{-0.025} _{-0.050}	50 ^{+0.025}	2.460	2.505	1.2	0.8	4520	4525	4530	4540	4550					
50	55	50 ^{-0.025} _{-0.050}	55 ^{+0.030}					5020		5030	5040	5050	5060				
55	60	55 ^{-0.030} _{-0.060}	60 ^{+0.030}						5530	5540	5550	5560					
60	65	60 ^{-0.030} _{-0.060}	65 ^{+0.030}						6030	6040	6050	6060	6070				
65	70	65 ^{-0.030} _{-0.060}	70 ^{+0.030}						6530	6540	6550	6560	6570				
70	75	70 ^{-0.030} _{-0.060}	75 ^{+0.030}						7040	7050	7060	7070	7080				
75	80	75 ^{-0.030} _{-0.060}	80 ^{+0.030}						7530	7540	7550	7560	7570	7580			
80	85	80 ^{-0.030}	85 ^{+0.035}	2.440	2.490	1.4	0.8			8040	8050	8060	8070	8080	80100		
85	90	85 ^{-0.035}	90 ^{+0.035}							8540		8560		8580	85100		
90	95	90 ^{-0.035}	95 ^{+0.035}							9040	9050	9060		9080	90100		
95	100	95 ^{-0.035}	100 ^{+0.035}								9550	9560		9580	95100		
100	105	100 ^{-0.035}	105 ^{+0.035}								10050	10060		10080		100115	
105	110	105 ^{-0.035}	110 ^{+0.035}									10560		10580		105115	
110	115	110 ^{-0.035}	115 ^{+0.035}										11060		11080		110115
120	125	120 ^{-0.035}	125 ^{+0.040}	2.415	2.465	1.4	0.8					12060		12080	120100		
125	130	125 ^{-0.040}	130 ^{+0.040}									12560			125100	125115	
130	135	130 ^{-0.040}	135 ^{+0.040}									13060		13080	130100		
140	145	140 ^{-0.040}	145 ^{+0.040}									14060		14080	140100		
150	155	150 ^{-0.040}	155 ^{+0.040}									15060		15080	150100		
160	165	160 ^{-0.040}	165 ^{+0.040}									16060		16080	160100	160115	
180	185	180 ^{-0.040}	185 ^{+0.046}											18080	180100		
190	195	190 ^{-0.046}	195 ^{+0.046}	2.415	2.465	1.4	0.8							19080	190100		
200	205	200 ^{-0.046}	205 ^{+0.046}									20060		20080	200100		
220	225	220 ^{-0.046}	225 ^{+0.046}											22080	220100		
250	255	250 ^{-0.046}	255 ^{+0.052}	2.415	2.465	1.4	0.8							25080	250100		
260	265	260 ^{-0.052}	265 ^{+0.052}											26080	260100		
280	285	280 ^{-0.052}	285 ^{+0.052}											28080	280100		
300	305	300 ^{-0.052}	305 ^{+0.052}											30080	300100		

SF-1系列產品還可根據不同工況條件選擇不同的基體材料，如：青銅基板、不銹鋼基板、以及“無Pb”等配方產品。

SF-1 series products can choose different base material according to different operating condition. For example: Bronze base plate, stainless steel base plate, and “No Pb” products, etc.



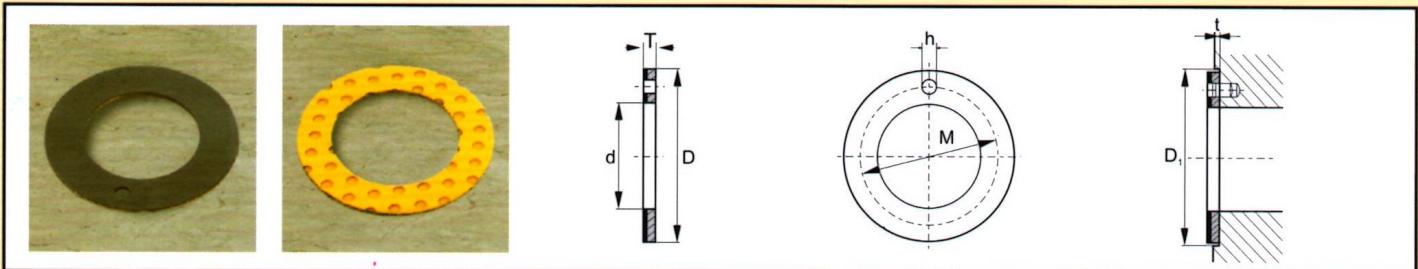
◎ SF-1F 翻邊軸承標準尺寸表 FLANGED BEAR SERIES STANDARD SIZE TABLE



(單位)Unit: mm

軸徑 (Shaft)	座孔 (Housing)	規格標志 (Desc.)	尺寸(Size)					$f_1-0.2$	f_1	f_2
			d_1	d_2	$d_3 \pm 0.5$	$L \pm 0.25$				
6 -0.013 -0.028	8 ^{+0.015}	SF-1F 06040	6	8	12	4	1	0.5	0.3	
8 -0.013 -0.028		SF-1F 06070				7				
10 -0.016 -0.034	12 ^{+0.018}	SF-1F 08055	8	10	15	5.5	1.5	0.8	0.4	
12 -0.016 -0.034		SF-1F 08075				7.5				
14 -0.016 -0.043	14 ^{+0.018}	SF-1F 10070	10	12	18	7	2	1.0	0.6	
15 -0.016 -0.034		SF-1F 10090				9				
16 -0.016 -0.034	16 ^{+0.018}	SF-1F 10120				12	1.5	0.8	0.4	
18 -0.016 -0.034		SF-1F 12070	12	14	20	7				
20 -0.020 -0.041	20 ^{+0.021}	SF-1F 12090				9	1.5	0.8	0.4	
22 -0.020 -0.041		SF-1F 12120				12				
25 -0.020 -0.041	25 ^{+0.021}	SF-1F 14120	14	16	22	12	2	1.0	0.6	
30 -0.025 -0.050		SF-1F 14170				17				
35 -0.025 -0.050	34 ^{+0.025}	SF-1F 15090				9	2	1.0	0.6	
40 -0.025 -0.050		SF-1F 15120	15	17	23	12				
40 -0.025 -0.050	39 ^{+0.025}	SF-1F 15170				17	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 16120	16	18	24	12				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 16170				17	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 18120				12				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 18170	18	20	26	17	2	1.0	0.6	
40 -0.025 -0.050		SF-1F 18200				20				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 20115				11.5	2	1.0	0.6	
40 -0.025 -0.050		SF-1F 20165	20	23	30	16.5				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 20215				21.5	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 22150	22	25	32	15				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 22200				20	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 25115	25	28	35	11.5				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 25165				16.5	2	1.0	0.6	
40 -0.025 -0.050		SF-1F 25215				21.5				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 30160	30	34	42	16	2	1.0	0.6	
40 -0.025 -0.050		SF-1F 30260				26				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 35160	35	39	47	16	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 35260				26				
40 -0.025 -0.050	44 ^{+0.025}	SF-1F 40260	40	44	53	26	1.5	0.8	0.4	
40 -0.025 -0.050		SF-1F 40400				40				

◎ SF-1与SF-2 標準墊片尺寸表 STANDARD PILE SIZE TABLE FOR SF-1 AND SF-2



(單位)Unit: mm

軸徑	代號	墊片尺寸				安裝尺寸		D ₁ +0.12
		d +0.25	D -0.25	T -0.05	M ± 0.125	h ^{+0.4} _{+0.1}	t ± 0.2	
8	WC 10	10	20		15	1.5		20
10	WC 12	12	24		18			24
12	WC 14	14	26		20			26
14	WC 16	16	30		23	2		30
16	WC 18	18	32		25			32
18	WC 20	20	36		28			36
20	WC 22	22	38		30	3	1	38
22	WC 24	24	42		33			42
24	WC 26	26	44		35			44
26	WC 28	28	48		38			48
30	WC 32	32	54		43			54
36	WC 38	38	62		50			62
40	WC 42	42	66		54			66
46	WC 48	48	74		61			74
50	WC 52	52	78		65			78
60	WC 62	62	90		76			90



◎ SF-1, SF-1F 襯套壁厚公差按DIN 1494第二部分

THE BUSH WALLTHICKNESS TOLERANCE FOR SF-1, SF-1F
IS ACCORDING TO DIN 1494 PART II

Unit(單位):mm

軸套內徑尺寸 Norminal bush bore	壁厚 Wall Thickness	壁厚公差 Tolerance for Wall Thickness
5≤d<20	1.0	+0.005 -0.020
20≤d<28	1.5	+0.005 -0.025
28≤d<45	2.0	+0.005 -0.030
45≤d<80	2.5	+0.005 -0.040
80≤d<120	2.5	-0.010 -0.060
120≤d	2.5	-0.035 -0.085

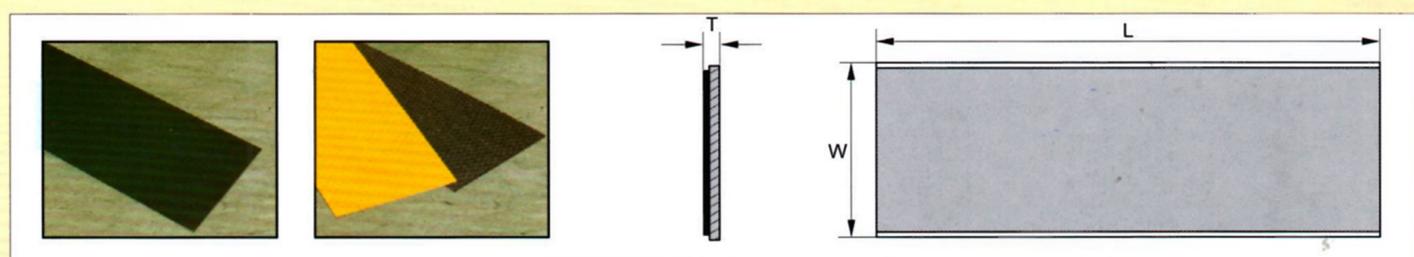
◎ SF-1, SF-2, SF-1F襯套外徑公差按DIN 1494第二部分

THE TOLERANCE FOR OUTSIDE DIAMETER OF SF-1, SF-2 AND SF-1F
BUSH ACCORDING TO DIN 1494 PART II

Unit(單位):mm

外徑尺寸 Norminal outside diameter	外徑公差 Tolerance for outside diamter
D≤10	+0.055 +0.025
10<D≤18	+0.065 +0.030
18<D≤30	+0.075 +0.035
30<D≤50	+0.085 +0.045
50<D≤80	+0.100 +0.055
80<D≤120	+0.120 +0.070
120<D≤180	+0.170 +0.100
180<D≤250	+0.210 +0.130
250<D≤305	+0.260 +0.170

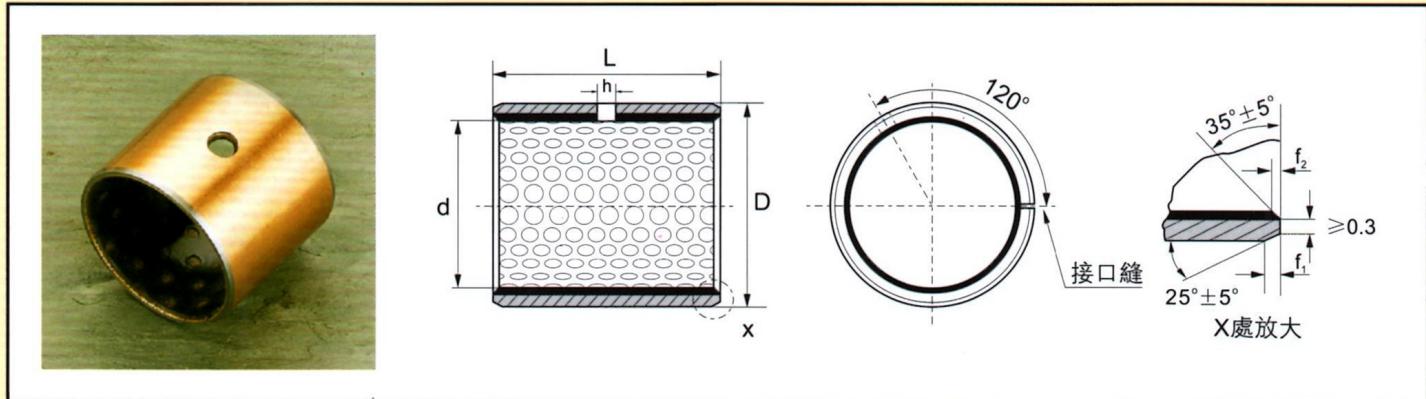
◎ SF-1, SF-2 板材 STANDARD STRIP



代號 Type	長度 Length ± 1	寬度 Width ± 1	壁厚 Thickness -0.0 4
SF-1 SF-2	500	150	1.0
SF-1 SF-2	500	150	1.5
SF-1 SF-2	500	150	2.0
SF-1 SF-2	500	150	2.5



◎ SF-2 標準襯套尺寸 STANDARD SERIES OF SF-2 BUSH



Unit(單位):mm

d	D	軸徑 h8	座孔 H7	壁厚		油孔	f ₁	f ₂	L ₀ -0.40								
				最小	最大				10	15	20	25	30	35	40	45	50
10	12	10 _{-0.022}	12 ^{+0.018}	0.955	0.980	4	0.5	0.3	1010	1015	1020						
12	14	12 _{-0.027}	14 ^{+0.018}						1210	1215	1220						
14	16	14 _{-0.027}	16 ^{+0.018}						1415	1420							
15	17	15 _{-0.027}	17 ^{+0.018}						1515	1520	1525						
16	18	16 _{-0.027}	18 ^{+0.018}						1615	1620	1625						
18	20	18 _{-0.027}	20 ^{+0.021}						1815	1820	1825						
20	23	20 _{-0.033}	23 ^{+0.021}	1.445	1.475	0.8	0.4		2015	2020	2025	2030					
22	25	22 _{-0.033}	25 ^{+0.021}						2215		2225						
25	28	25 _{-0.033}	28 ^{+0.021}						2515	2520	2525	2530					
28	32	28 _{-0.033}	32 ^{+0.025}							2820		2830					
30	34	30 _{-0.033}	34 ^{+0.025}	1.935	1.970	6	1.0	0.6			3020	3025	3030		3040		
35	39	35 _{-0.039}	39 ^{+0.025}							3520		3530	3535	3540			
40	44	40 _{-0.039}	44 ^{+0.025}							4020		4030		4040		4050	
45	50	45 _{-0.039}	50 ^{+0.025}							4520		4530		4540	4545	4550	
50	55	50 _{-0.039}	55 ^{+0.030}	2.415	2.460	8	1.2	0.8				5030		5040		5050	5060
55	60	55 _{-0.046}	60 ^{+0.030}								5530		5540		5550	5560	
60	65	60 _{-0.046}	65 ^{+0.030}								6030		6040		6050	6060	

注：孔徑壁厚符合樣本，寬度尺寸不在樣本範圍內客戶提出要求，製造廠可定制加工

Note: Aperture and wall-thickness accord with sample. If buyer has other demand on the size, we can do it.

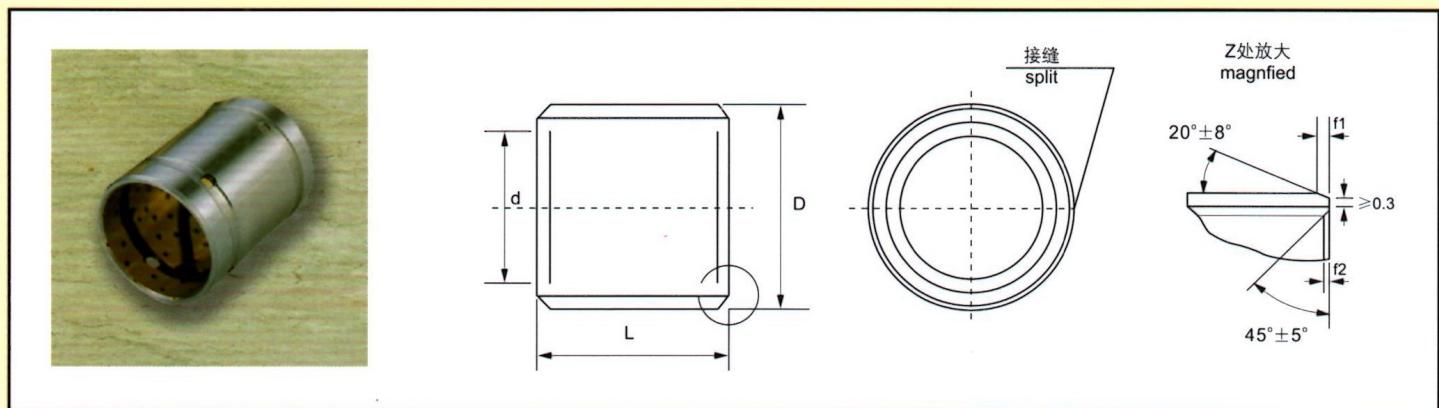


◎ SF-2 標準襯套尺寸 STANDARD SERIES OF SF-2 BUSH

Unit(單位):mm

d	D	軸徑 h8	座孔 H7	壁厚		油孔	f ₁	f ₂	L ⁰ _{-0.40}									
				最小	最大				40	50	60	80	90	95	100	110	120	
65	70	65 _{-0.046}	70 ^{+0.030}	2.415	2.460	8	1.2	0.8	6540		6560							
70	75	70 _{-0.046}	75 ^{+0.030}						7040	7050		7080						
75	80	75 _{-0.046}	80 ^{+0.030}						7540		7560	7580						
80	85	80 _{-0.046}	85 ^{+0.035}						8040		8060	8080						
85	90	85 _{-0.054}	90 ^{+0.035}						8540		8560	8580						
90	95	90 _{-0.054}	95 ^{+0.035}						9040		9060	9080	9090					
100	105	100 _{-0.054}	105 ^{+0.035}						10050		10080		10095					
105	110	105 _{-0.054}	110 ^{+0.035}							10560	10580		10595		105110			
110	115	110 _{-0.054}	115 ^{+0.035}							11060	11080		11095		110110			
120	125	120 _{-0.054}	125 ^{+0.040}								12060	12080				120110		
125	130	125 _{-0.063}	130 ^{+0.040}								12560					125110		
130	135	130 _{-0.063}	135 ^{+0.040}							13050	13060	13080			130100			
140	145	140 _{-0.063}	145 ^{+0.040}							14050	14060	14080			140100			
150	155	150 _{-0.063}	155 ^{+0.040}							15050	15060	15080			150100			
160	165	160 _{-0.063}	165 ^{+0.040}							16050	16060	16080			160100			
170	175	170 _{-0.063}	175 ^{+0.040}							17050		17080			170100			
180	185	180 _{-0.063}	185 ^{+0.046}							18050	18060	18080			180100			
190	195	190 _{-0.072}	195 ^{+0.046}							19050	19060	19080			190100		190120	
200	205	200 _{-0.072}	205 ^{+0.046}							20050	20060	20080			200100		200120	
220	225	220 _{-0.072}	225 ^{+0.046}							22050	22060	22080			220100		220120	
240	245	240 _{-0.072}	245 ^{+0.046}							24050	24060	24080			240100		240120	
250	255	250 _{-0.072}	255 ^{+0.052}							25050	25060	25080			250100		250120	
260	265	260 _{-0.081}	265 ^{+0.052}							26050	26060	26080			260100		260120	
280	285	280 _{-0.081}	285 ^{+0.052}							28050	28060	28080			280100		280120	
300	305	300 _{-0.081}	305 ^{+0.052}							30050	30060	30080			300100		300120	

◎ JF-800雙金屬軸承標準公制尺寸 BIMETAL BEARING STANDARD METRIC SIZE



Unit(單位):mm

d	D	壁厚 Wall Thickness	外徑公差 O.D. Tolerance	內徑公差 I.D.(H8) Tolerance	配合座孔 H7 Housing Bore	軸徑f7 Journal Diameter	f1	f2	L -0.4											
									10	15	20	25	30	40	50	60	80	90	100	
10	12		12 ^{+0.065} _{-0.030}	10 ^{+0.022} _{-0.000}	12 ^{+0.018} _{-0.000}	10 ^{-0.013} _{-0.028}	0.5	0.3	1010	1015	1020									
12	14		14 ^{+0.065} _{-0.030}	12 ^{+0.027} _{-0.000}	14 ^{+0.018} _{-0.000}	12 ^{-0.016} _{-0.034}	0.5	0.3	1210	1215	1220									
14	16		16 ^{+0.065} _{-0.030}	14 ^{+0.027} _{-0.000}	16 ^{+0.018} _{-0.000}	14 ^{-0.016} _{-0.034}	0.5	0.3	1410	1415	1420									
15	17	1 ^{-0.025}	17 ^{+0.065} _{-0.030}	15 ^{+0.027} _{-0.000}	17 ^{+0.018} _{-0.000}	15 ^{-0.016} _{-0.034}	0.5	0.3	1510	1515	1520									
16	18		18 ^{+0.075} _{-0.035}	16 ^{+0.027} _{-0.000}	18 ^{+0.018} _{-0.000}	16 ^{-0.016} _{-0.034}	0.8	0.4	1610	1615	1620									
18	20		20 ^{+0.075} _{-0.035}	18 ^{+0.033} _{-0.000}	20 ^{+0.021} _{-0.000}	18 ^{-0.016} _{-0.034}	0.8	0.4	1810	1815	1820	1825								
20	23		23 ^{+0.075} _{-0.035}	20 ^{+0.033} _{-0.000}	23 ^{+0.021} _{-0.000}	20 ^{-0.020} _{-0.041}	0.8	0.4	1210	1215	1220	1225								
22	25	1.5 ^{-0.030}	25 ^{+0.075} _{-0.035}	22 ^{+0.033} _{-0.000}	25 ^{+0.021} _{-0.000}	22 ^{-0.020} _{-0.041}	0.8	0.4	2210	2215	2220	2225								
24	27		27 ^{+0.075} _{-0.035}	24 ^{+0.033} _{-0.000}	27 ^{+0.021} _{-0.000}	24 ^{-0.020} _{-0.041}	1.0	0.5	2410	2415	2420	2425	2430							
25	28		28 ^{+0.075} _{-0.035}	25 ^{+0.033} _{-0.000}	28 ^{+0.021} _{-0.000}	25 ^{-0.020} _{-0.041}	1.0	0.5		2515	2520	2525	2530							
26	30		30 ^{+0.075} _{-0.035}	26 ^{+0.033} _{-0.000}	30 ^{+0.021} _{-0.000}	26 ^{-0.020} _{-0.041}	1.0	0.5	2615	2620	2625	2630								
28	32		32 ^{+0.085} _{-0.045}	28 ^{+0.033} _{-0.000}	32 ^{+0.025} _{-0.000}	28 ^{-0.020} _{-0.041}	1.0	0.5	2815	2820	2825	2830	2840							
30	34		34 ^{+0.085} _{-0.045}	30 ^{+0.039} _{-0.000}	34 ^{+0.025} _{-0.000}	30 ^{-0.020} _{-0.041}	1.2	0.6	3015	3020	3025	3030	3040							
32	36	2 ^{-0.035}	36 ^{+0.085} _{-0.045}	32 ^{+0.039} _{-0.000}	36 ^{+0.025} _{-0.000}	32 ^{-0.025} _{-0.050}	1.2	0.6	3215	3220	3225	3230	3240							
35	39		39 ^{+0.085} _{-0.045}	35 ^{+0.039} _{-0.000}	39 ^{+0.025} _{-0.000}	35 ^{-0.025} _{-0.050}	1.2	0.6		3520	3525	3530	3540	3550						
38	42		42 ^{+0.085} _{-0.045}	38 ^{+0.039} _{-0.000}	42 ^{+0.025} _{-0.000}	38 ^{-0.025} _{-0.050}	1.2	0.6		3820	3825	3830	3840	3850						
40	44		44 ^{+0.085} _{-0.045}	40 ^{+0.039} _{-0.000}	44 ^{+0.025} _{-0.000}	40 ^{-0.025} _{-0.050}	1.2	0.6		4020	4025	4030	4040	4050						
45	50		50 ^{+0.085} _{-0.045}	45 ^{+0.039} _{-0.000}	50 ^{+0.025} _{-0.000}	45 ^{-0.025} _{-0.050}	1.5	1.0		4520	4525	4530	4540	4550						
50	55		55 ^{+0.100} _{-0.050}	50 ^{+0.039} _{-0.000}	55 ^{+0.030} _{-0.000}	50 ^{-0.030} _{-0.050}	1.5	1.0			5030	5040	5050							
55	60		60 ^{+0.100} _{-0.050}	55 ^{+0.046} _{-0.000}	60 ^{+0.030} _{-0.000}	55 ^{-0.030} _{-0.050}	1.5	1.0			5530	5540	5550	5560						
60	65	2.5 ^{-0.040}	65 ^{+0.100} _{-0.050}	60 ^{+0.046} _{-0.000}	65 ^{+0.030} _{-0.000}	60 ^{-0.030} _{-0.050}	1.5	1.0			6030	6040	6050	6060						
65	70		70 ^{+0.100} _{-0.050}	65 ^{+0.046} _{-0.000}	70 ^{+0.030} _{-0.000}	65 ^{-0.030} _{-0.060}	1.5	1.0			6530	6540	6550	6560						
70	75		75 ^{+0.100} _{-0.050}	70 ^{+0.046} _{-0.000}	75 ^{+0.030} _{-0.000}	70 ^{-0.030} _{-0.060}	1.5	1.0			7030	7040	7050	7060	7080					
75	80		80 ^{+0.100} _{-0.050}	75 ^{+0.046} _{-0.000}	80 ^{+0.035} _{-0.000}	75 ^{-0.030} _{-0.060}	1.5	1.0			7530	7540	7550	7560						
80	85		85 ^{+0.120} _{-0.070}	80 ^{+0.054} _{-0.000}	85 ^{+0.035} _{-0.000}	80 ^{-0.030} _{-0.060}	1.5	1.0			8040	8050	8060	8080						
84	90		90 ^{+0.120} _{-0.070}	84 ^{+0.054} _{-0.000}	90 ^{+0.035} _{-0.000}	84 ^{-0.036} _{-0.071}	1.8	1.2			8440	8450	8460	8480						
89	95		95 ^{+0.120} _{-0.070}	89 ^{+0.054} _{-0.000}	95 ^{+0.035} _{-0.000}	89 ^{-0.036} _{-0.071}	1.8	1.2			8940	8950	8960	8980						
94	100		100 ^{+0.120} _{-0.070}	94 ^{+0.054} _{-0.000}	100 ^{+0.035} _{-0.000}	94 ^{-0.036} _{-0.071}	1.8	1.2				9450	9460	9480	9490					
99	105	3 ^{-0.045}	105 ^{+0.120} _{-0.070}	99 ^{+0.054} _{-0.000}	105 ^{+0.035} _{-0.000}	99 ^{-0.036} _{-0.071}	1.8	1.2				9950	9960	9980	9990					
104	110		110 ^{+0.120} _{-0.070}	104 ^{+0.054} _{-0.000}	110 ^{+0.035} _{-0.000}	104 ^{-0.036} _{-0.071}	1.8	1.2				10450	10460	10480						
109	115		115 ^{+0.120} _{-0.070}	109 ^{+0.054} _{-0.000}	115 ^{+0.035} _{-0.000}	109 ^{-0.036} _{-0.071}	1.8	1.2				10950	10960	10980						
114	120		120 ^{+0.120} _{-0.070}	114 ^{+0.054} _{-0.000}	120 ^{+0.040} _{-0.000}	114 ^{-0.036} _{-0.083}	1.8	1.2				11450	11460	11480						
119	125		125 ^{+0.170} _{-0.100}	119 ^{+0.054} _{-0.000}	125 ^{+0.040} _{-0.000}	119 ^{-0.036} _{-0.083}	1.8	1.2				11950	11960	11980						
123	130		130 ^{+0.170} _{-0.100}	123 ^{+0.054} _{-0.000}	130 ^{+0.040} _{-0.000}	123 ^{-0.043} _{-0.083}	2	1.5				12350	12360	12380		123100				
128	135		135 ^{+0.170} _{-0.100}	128 ^{+0.063} _{-0.000}	135 ^{+0.040} _{-0.000}	128 ^{-0.043} _{-0.083}	2	1.5				12850	12860	12880		128100				
133	140		140 ^{+0.170} _{-0.100}	133 ^{+0.063} _{-0.000}	140 ^{+0.040} _{-0.000}	133 ^{-0.043} _{-0.083}	2	1.5				13350	13360	13380		133100				
138	145		145 ^{+0.170} _{-0.100}	138 ^{+0.063} _{-0.000}	145 ^{+0.040} _{-0.000}	138 ^{-0.043} _{-0.083}	2	1.5				13860	13880			138100				
143	150		150 ^{+0.170} _{-0.100}	143 ^{+0.063} _{-0.000}	150 ^{+0.040} _{-0.000}	143 ^{-0.043} _{-0.083}	2	1.5					14360	14380			143100			
148	155	3.5 ^{-0.050}	155 ^{+0.170} _{-0.100}	148 ^{+0.063} _{-0.000}	155 ^{+0.040} _{-0.000}	148 ^{-0.043} _{-0.083}	2	1.5					14860	14880	14890					
153	160		160 ^{+0.170} _{-0.100}	153 ^{+0.063} _{-0.000}	160 ^{+0.040} _{-0.000}	153 ^{-0.043} _{-0.083}	2	1.5					15360	15380	15390					
158	165		165 ^{+0.170} _{-0.100}	158 ^{+0.063} _{-0.000}	165 ^{+0.040} _{-0.000}	158 ^{-0.043} _{-0.083}	2	1.5					15860	15880			158100			
163	170		170 ^{+0.170} _{-0.100}	163 ^{+0.063} _{-0.000}	170 ^{+0.040} _{-0.000}	163 ^{-0.043} _{-0.083}	2	1.5					16360	16380			163100			
168	175		175 ^{+0.170} _{-0.100}	168 ^{+0.063} _{-0.000}	175 ^{+0.046} _{-0.000}	168 ^{-0.043} _{-0.083}	2	1.5					16860	16880			168100			
173	180		180 ^{+0.170} _{-0.100}	173 ^{+0.063} _{-0.000}	180 ^{+0.046} _{-0.000}	173 ^{-0.043} _{-0.083}	2	1.5					17360	17380			173100			



◎ FZ 型直線軸承 FZ BALL RETAINER SERIES

產品簡述 PRODUCT BRIEF

FZH(銅基); FZL(鋁基); FZP(樹脂基)鋼球保持圈，分別以銅合金、硬鋁合金、POM樹脂為基體，并在其外圓表面上，加工出排列有序、大小適當，形狀特殊的孔穴，在其孔穴中鑲入滾動軸承鋼球。孔口采用最新的溝槽圓周鎖球工藝，有效地解決了傳統點式鎖球和壓痕鎖球不能完全防止鋼球脫落的難題。孔底加工出90°止口使鋼球在孔內自由轉動而不脫落。由於鋼球的直徑大于保持圈的壁厚，所以在使用時鋼球高出保持圈內、外圓表面，直接與相配的孔與軸接觸，使基體(保持圈)浮于中間，並且相配的孔與軸半徑之差小于鋼球直徑，即鋼球與之配合為過盈配合，配合精度高，軸與孔相對運動靈活。是保持圈的更新換代產品。

FZH, FZL and FZP ball retainer use bronze, aluminum, POM colophony as its base. They are machined some regular holes and embedded the steel-ball into. The new work-craft will prevent the ball getting out of as old. As the ball diameter is larger than the retainer's thickness, so it will face to face directly with guide bushing, this will bring high precision match. Now the ball retainer series items are designed to rotate on the post, as well as maintain its vertical motion. We believe this will give you the benefit of increasing accuracy.

優點與用途 ADVANTAGES AND APPLICATION SCOPE

傳統的具有相對運動的孔與軸是有一定間隙的，并孔與軸之間的運動磨擦系數較大，使用鋼球保持圈後，使軸與孔不直接接觸，而是中間通過有微量過盈的鋼球，因而運動精度高，滾動摩擦代替了滑動摩擦，滾動靈活，摩擦系數小，使用壽命長，在既有轉動、又有移動的場合，用無油或加油的軸套與軸相配，雖然能滿足，但運動精度較低，用滾動軸承，祇能滿足軸相對轉動的場合，而鋼球保持圈，則上述二個條件均滿足，目前已廣泛應用於冷衝模滾動模架、高精度機床、機床附件以及要求高精度軸向或軸徑向同時運動場合。

As the traditional work-craft has some grudge between bushing with posts, and the coefficient of friction is larger. Now we have changed the work-ways to steel-ball directly face to face guide bushing, so the precision is improved. It composes of both active roll and lower friction coefficient, now they have been widely used in punching machine, die machine, high precision machine which need rotation and vertical motion.

相配零件的要求 INSTALLED SPARES REQUESTED

1.導套：材料GCrl5, YB9, 熱處理，硬度HRC62~66，技術條件按GB/T12446與軸配合應具有 $0.01 \sim 0.02$ 徑向過盈量，表面粗糙度為 $\text{Ra}^{0.05}$

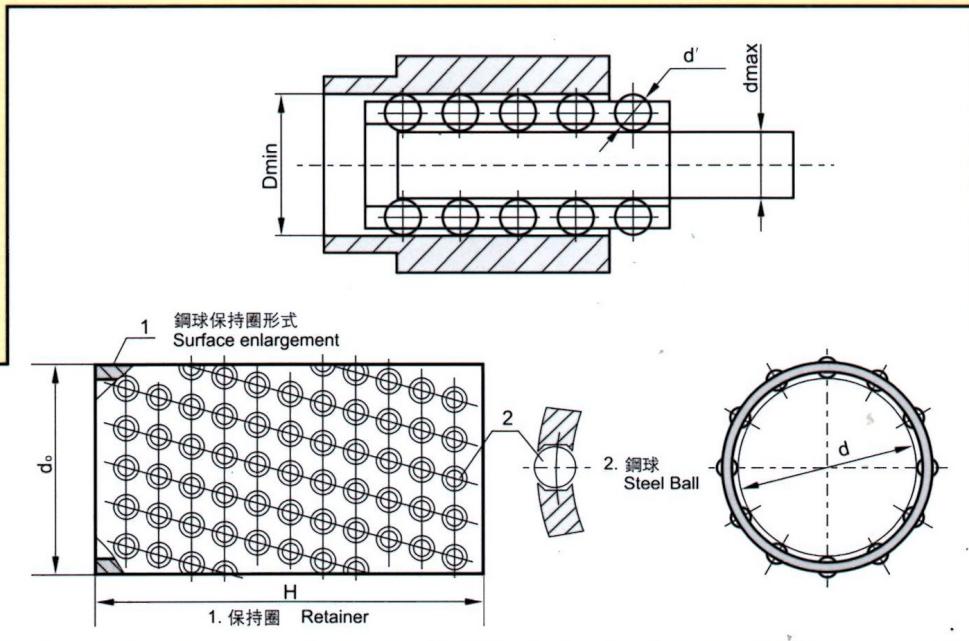
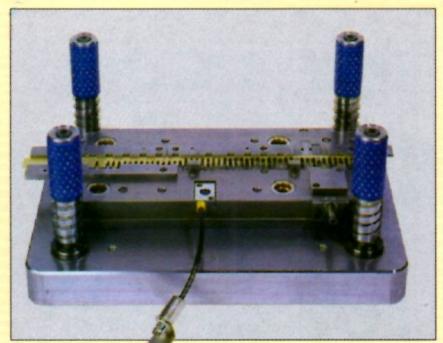
2.軸：材料GCrl5, YB9, 熱處理，硬度HRC62~66，技術條件按GB/T12446，與軸公差采用h5，表面粗糙度為 $\text{Ra}^{0.05}$

測量：用通用的測量手段（氣動量儀，外徑千分尺，內徑千分表等）測量軸、導套和鋼球的尺寸偏差值，即可求出配合後的過盈量，即 $Y_{\max}=d_{\max}+2d-d_{\min}$ ，要求過盈量為 $0.01 \sim 0.02\text{mm}$

1.GUIDE BUSHING: MATERIAL GCrl5, YB9, HEAT TREATMENT HRC62-66, TECHNIQUE CONDITION ACCORDING TO GB/T12446. THE SURFACE ROUGHNESS IS $\text{Ra}^{0.05}$

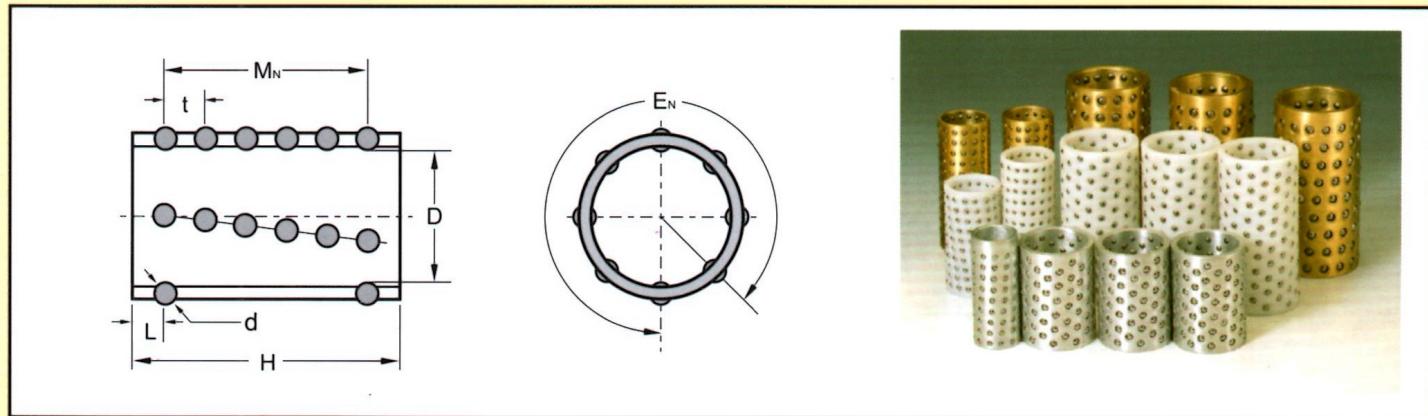
1.GUIDE POSTS: MATERIAL GCr15, YB9, HEAT TREATMENT HRC62-66, THE TOLERANCE OF SHAFT IS h5, THE SURFACE ROUGHNESS IS $\text{Ra}^{0.05}$

SIZE TEST: IT IS TESTED BY OUTSIDE MICROMETER & DIAL GAUGE AS USUAL. THE $Y_{\max}(Y_{\max}=d_{\max}+2d'-d_{\min})$ REQUEST 0.01-0.02mm





◎ FZ 標準型鋼球保持圈 BALL RETAINERS SERIES



尺寸規格及技術參數表 SIZE TABLE

(單位)Unit: mm

型號規格/Model	D	H	d	E _n	M _n	球/BALLS	t	L
FZ(X)-1950	19	50	3	12	8	96	5.5	5.75
FZ(X)-1960	19	60	3	12	10	120	5.5	5.25
FZ(X)-2050	20	50	3	12	8	96	5.5	5.75
FZ(X)-2060	20	60	3	12	10	120	5.5	5.25
FZ(X)-2250	22	50	3	14	8	112	5.5	5.75
FZ(X)-2260	22	60	3	14	10	140	5.5	5.25
FZ(X)-2360	23	60	3	14	10	140	5.5	5.25
FZ(X)-2475	24	75	3	16	13	208	5.45	4.8
FZ(X)-2550	25	50	3	16	8	128	5.5	5.75
FZ(X)-2560	25	60	3	16	10	160	5.5	5.25
FZ(X)-2575	25	75	3	16	13	208	5.45	4.8
FZ(X)-2775	27	75	3	16	13	208	5.45	4.8
FZ(X)-2860	28	60	4	14	8	112	6.5	7.25
FZ(X)-2875	28	75	4	14	11	154	6.5	5.0
FZ(X)-3060	30	60	4	14	8	112	6.5	7.25
FZ(X)-3075	30	75	4	14	11	154	6.5	5.0
FZ(X)-3260	32	60	4	16	8	128	6.5	7.25
FZ(X)-3275	32	75	4	16	11	176	6.5	5.0
FZ(X)-3290	32	90	4	16	13	208	6.5	6.0
FZ(X)-3685	36	85	4	16	12	192	6.5	6.75
FZ(X)-3690	36	90	4	16	13	208	6.5	6.0
FZ(X)-3870	38	70	5	16	8	128	8.0	7.0
FZ(X)-3890	38	90	5	16	11	176	7.9	5.5
FZ(X)-4090	40	90	5	16	11	176	7.9	5.5
FZ(X)-4590	45	90	5	18	11	198	7.9	5.5
FZ(X)-45110	45	110	5	18	13	234	8.0	7.0
FZ(X)-5090	50	90	5	20	11	220	7.9	5.5
FZ(X)-50110	50	110	5	20	13	260	8.0	7.0
FZ(X)-6090	60	90	5	22	11	242	7.9	5.5
FZ(X)-60110	60	110	5	22	13	286	8.0	7.0
FZ(X)-80130	80	130	5	28	15	420	8.0	9.0

注: FZ(X)為: FZH(銅基)、FZL(鋁基)、FZP(樹脂基)

Notes: FZ(X): FZH (Bronze based) FZL (Aluminum based) FZP (Resin based)



◎ SDB-DV 固體潤滑材料、軸承 SOLID-LUBRICANT MATERIAL BEARING

產品參數表 PRODUCT PARAMETER

類型	SDB-DV1	SDB-DV2	SDB-DV3	SDB-DV4
項目				
基板	低碳鋼	低碳鋼	不銹鋼	銅
國外類似材料	DEVA-BM1	DEVA-BM2	DEVA-BM3	DEVA-BM4
合金層基體	CuSn12+Gr	CuSn12Pb2+Gr	CuSn12+Gr	CuSn12+Gr
合金層硬度	≥HB40	≥HB40	≥HB40	≥HB40
摩擦系數(幹)	≤0.2	≤0.15	≤0.2	≤0.2
抗壓強度(N/mm ²)	300	300	300	300
極限動/靜載(N/mm ²)	30/50	30/50	30/50	30/50
最高滑動速度(N/m)	0.5	1.0	0.5	0.5
使用極限PV值(N/mm ² · m/s)	1.0	1.5	1.0	1.5
使用溫度範圍(°C)	-150~+280	-150~+280	-150~+280	-150~+280
相配軸硬度	≥HB180	≥HB180	≥HB180	≥HB180
相配軸粗糙度	0.8~+0.6	0.8~+0.6	0.8~+0.6	0.8~+0.6

◎ SF 滑動軸承應用特點 SF SOLI BEARING APPLY CHARACTERISTIC

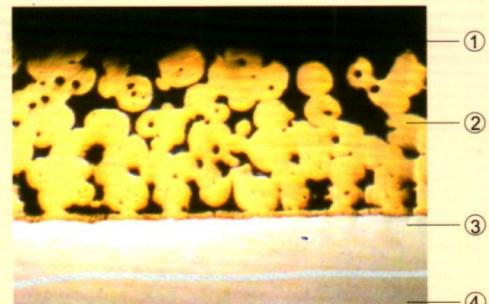
1、SF-1為PTFE/Pb混合物0.01~0.03mm，一種耐磨材料，運作過程中可形成轉移膜以保護對磨軸。

SF-2為POM0.30-0.50mm改性聚甲醛，具有很高的耐磨性能，甚至在瞬間缺油的情況下也具有較低的摩擦系數。表面排布規律的帶有螺旋角度的儲油坑。

2、銅粉層0.2~0.35mm提高耐磨材料與鋼板的結合強度，具有很好的承載能力和耐磨性。同時銅又是一種很好的導熱材料，可快速轉移軸承運作過程中的熱量。

3、低炭鋼，提高軸承的承載能力熱轉移作用。

4、銅/錫電鍍層0.002mm，使軸承有很好的耐腐蝕功能。



1、SF-1 is made of PTFE/Pb compound 0.01~0.03mm. This is a kind of abrasion-proof material which can form transferring film to protect axle when it moves.

SF-2 is made of POM0.30-0.50mm which has high abrasion-proof performance and has low friction coefficient even momentary no oil. It has oil storage holes in the surface.

2、Bronze powder layer 0.2~0.35mm can improve combining strength between abrasion-proof material and steel plate. It has good load capacity and abrasion-proof performance. Bronze is a good heat transmission material and can quickly transmit the heat produced in the motion of bearing.

3、The carbon steel base can improve the load capacity and heat transmission capacity.

4、Bronze/Sn electroplating layer is 0.002mm and can make bearing has good corrode proof performance.

◎ 軸承的選型與裝配注意事項

一、軸承的選型

用戶在設計和使用時，應當根據軸承的

- 1、使用環境； 6、對磨軸的運動類型；
- 2、有否腐蝕因素； 7、環境溫度；
- 3、所承受的壓力； 8、安裝情況；
- 4、對磨軸的滑動速度； 9、軸承成本各方面的因素，進行綜合性的考慮，這樣才能以最低的成本而得到最佳的使用價值。
- 5、對耐磨性能的要求； 10、如果在食品機械行業的客戶，請在定貨時說明；本公司另有綠色環保型產品，產品中決不含鉛。



二、裝配軸承的注意事項

- 在將軸承壓入座孔前，先用汽油將其清洗幹淨，然後放入潔淨的機油內浸油、瀝乾。
- 軸承與座孔須垂直放正，不得歪斜（如果不使用安裝芯軸安裝軸承）。
- 將軸承壓入座孔時，不得用金屬物件直接敲擊軸承，須在軸承上墊上厚木塊，最好用油壓機將其緩慢地壓入座孔，如用錘敲入，切勿用力猛擊。
- 在裝入對磨軸前，SF-2型的軸承須用潔淨的鋰基脂或硅脂塗滿軸承（不能使用二硫化鉬潤滑劑），對磨軸須用潔淨的布擦拭幹淨。

◎ OPTIONS AND ASSEMBLY OF BEARINGS

1. OPTIONS

The users should design and use according the bearings':

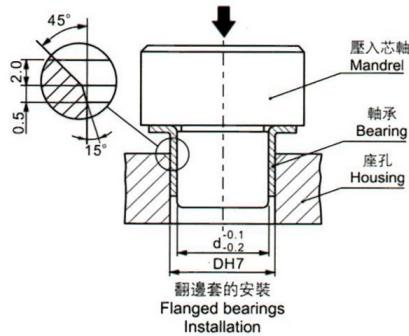
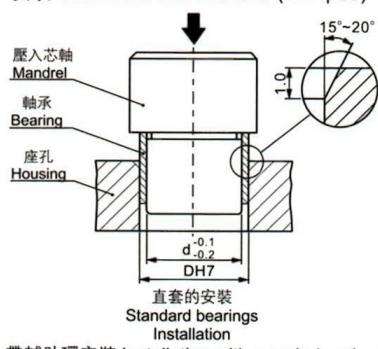
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|--|---|
| 1. Application environment | 6. Movement type of opposite-milling shaft |
| 2. Corrosive factors | 7. Environmental temperature |
| 3. Endured pressure | 8. Installation |
| 4. Slide speed of opposite-milling shaft | 9. Consider the cost of bearing and other factors to use the lowest cost to make best use. |
| 5. Requirements on wear resistant property | 10. If your company belongs to food machine industry, please remind us about it when you arrange orders. Our factory also produces pollution-free products which not contain lead ingredient. |

2. ASSEMBLY NOTICE OF BEARINGS

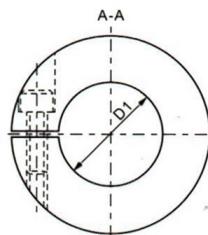
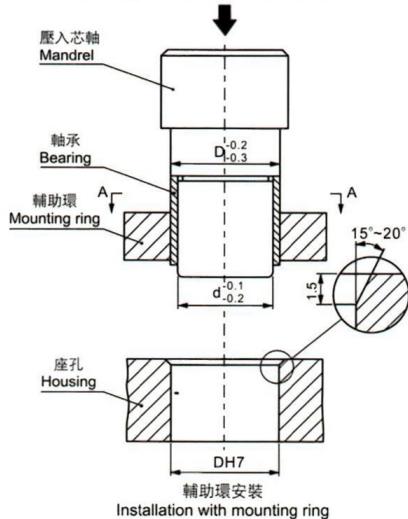
- Before pressing the bearing into the seat hole, please clean the bearing with gasoline, then immerse it in the machine oil and dry it.
- The seat hole of the bearing must be upright without slant (if the mount spindle is not used for the installation of the bearing)
- When pressing the bearing into the seat hole, do not hammer it directly with metal devices. It is necessary to pillow with thick wood block. It is better to use the oil press to press it slowly into the seat hole. If the hammer is used to knock the bearing into the hole, do not strike violently.
- Before being installed into the opposite-milling shaft, SF-2 bearing should be coated with clean lithium based grease or silicon grease (do not use molybdenum disulphides lubricant), and the opposite-milling should be wiped and cleaned with clean cloth.

◎ SF 卷制軸承的裝配 WRAPPED BEARINGS INSTALLATION

安裝 Installation with mandrel ($D \leq \phi 55$)



帶輔助環安裝 Installation with mandrel and mounting ring ($D > \phi 55$)



d	D_1
$>55-100$	$D^{+0.28}_{+0.25}$
$>100-200$	$D^{+0.40}_{+0.36}$
$>200-305$	$D^{+0.50}_{+0.46}$



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