

SELF-LUBRICATING BEARING

SAVI 萨维
Self-lubricating Bearing

自润滑免维护滑动轴承
SAVI Solid-lubricating
and Maintenance-free
Sliding Bearings

嘉兴萨维精密机械有限公司
Jiaxing Savi Precision Machinery Co., Ltd.

精益求精

我们的承诺是始终不渝地创造新业绩

Excellence

Our commitment is to consistently
create new achievements



关于萨维 Savi Introduction

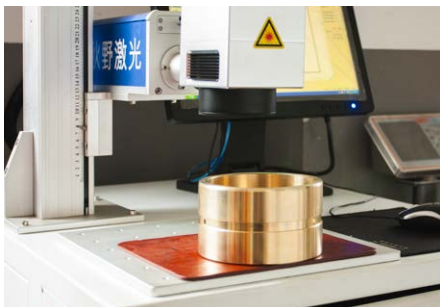


嘉兴萨维精密机械有限公司地处长三角浙江嘉善，东距上海南距杭州，北距苏州都不超百公里，水陆运输交通极为方便。长期研究开发无油自润滑轴承，经过多年的努力已相继开发了 JDB 固体润滑轴承（石墨铜套）、实体浇铸铜套、SF-1（DU）系列无油自润滑轴承、SF-2(DX) 系列边界润滑轴承、JF800 系列双金属轴承、FB090 系列青铜卷制轴承、工程塑料轴承（EP）、塑料直线滑动轴承（LIN）、陶瓷滚动轴承、纤维缠绕轴承等几大系列的产品。

公司将在轴承型号的选择，应用，性能测试，技术交流等方面向用户提供完善的服务，使客户达到提高效率，降低消耗，节约成本，保护环境的目的。我们的轴承工程师将为您解决一系列的轴承问题，欢迎广大客户前来咨询，洽谈！



Jiaying Savi Precision Machinery Co., Ltd. is located in Jiashan, Zhejiang Yangtze River Delta, south west of Shanghai, Hangzhou, Suzhou, do not exceed one hundred kilometers north, water and land transport is extremely convenient. Long-term research and development of oil-free self-lubricating bearings, after years of effort have successively developed JDB solid lubricating bearings (graphite copper sleeve), solid casting copper sleeve, SF-1 (DU) oil-free self-lubricating bearings, SF-2 (DX) series boundary lubricating bearings, JF800 series bimetal bearings, FB090 bronze series of rolling bearings, plastic bearings (EP), plastic linear plain bearings (LIN), ceramic bearings, filament-wound bearings, and other major series of products.



The company will provide better services to users in the bearing model selection, application, performance testing, technical exchanges, etc., enabling customers to achieve improve efficiency, reduce consumption, save costs and protect the environment. Our engineers will solve your bearing series bearing problems, welcome customers to consult, negotiate!

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产品目录 Product Catalog

01

EP工程塑料自润滑轴承



02

LIN工程塑料直线轴承



03

SBR直线导向系统



04

JDB固体润滑轴承



05

金属复合系列自润滑轴承



06

青铜基卷制轴承



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双金属卷制类复合轴承



08

GB非金属滚动轴承



09

FZ 钢球保持架





EP 工程塑料轴承
EP Plastic Bearings



EP 工程塑料轴承
EP Plastic Bearings



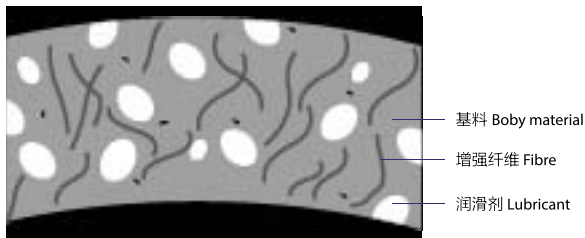
EP 系列塑料轴承技术 EP Technical Reference

EP 系列材料结构特点 Material Feature of EP series

EP 系列材料之所以具有优秀的自润滑性和耐磨性主要是工程师们充分利用了自润滑材料改性技术，在高性能工程塑料中采用高强度纤维提高了材料的承载和特种润滑脂降低了材料的摩擦系数(图表 1)，从而提高了材料的综合耐磨性能延长了轴承的使用寿命。高性能工程塑料作为基料主要作为耐磨载体；增强纤维提高了轴承在承载和抗冲击性能；特种润滑脂降低了轴承的摩擦系数起自润滑作用。

Engineers are dedicated on the performance improvement on the self-lubricating materials derives the result that EP Series Materials are with excellent self-lubricating features and wear resistance Features. High-strength fibers used in the engineering plastics fantastically improve the material load(Graph1). Special grease immersion in the plastic can decrease the friction coefficient of the material therefore to prolong the bearing service life.

图表 1 EP 系列材料内部结构示意图
Graph1 EP inner structure



High-performance engineering plastics body material mainly service as wear-resistant vector. The reinforced fiber improves the load and impact resistant capacity of the bearing. Special grease decreases the friction coefficient for a better self-lubricating performance.

图表 2 塑料轴承与传统复合轴承的磨损
Graph2 Surface wear (Plastic Bearing vs Metal bearing)



EP 塑料轴承整体润滑材料使用寿命长
Plastic bearing has longer service life

传统含油轴承内部润滑油极易耗尽而失效
Metal bearing lubricating oil is easy to be failed

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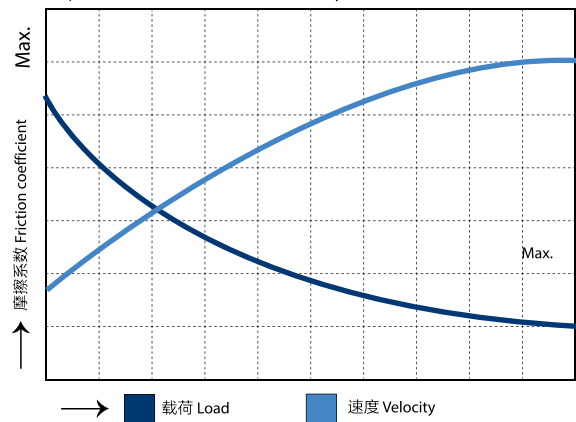
EP 系列塑料轴承技术 EP Technical Reference

EP 系列塑料轴承摩擦系数 EP Series Bearing Friction Coefficient

EP 系列塑料轴承的自润滑性能通过改性技术在基料中添加固体润滑脂和功能纤维实现，摩擦系数通过固体润滑脂降低，同时摩擦系数还受到工作载荷、运行速度以及轴表面粗糙度的影响。摩擦系数一般都会随着工作载荷的逐步增加而降低，随着运行速度的加快而升高（见图表 3）。摩擦系数与轴表面粗糙度的关系见图表 3。

The self-lubricating feature of the EP bearing is achieved by adding solid lubricants and functional fibers into the body material and the friction coefficient is decreased by the solid lubricate grease immersion. The friction coefficient is affected by the load, operating speed and shaft roughness. The friction coefficient is generally decreased along the load increasing and increased along the operating speed (see Graph 3). Please refer to Graph 3 for the relation between the friction coefficient and shaft roughness.

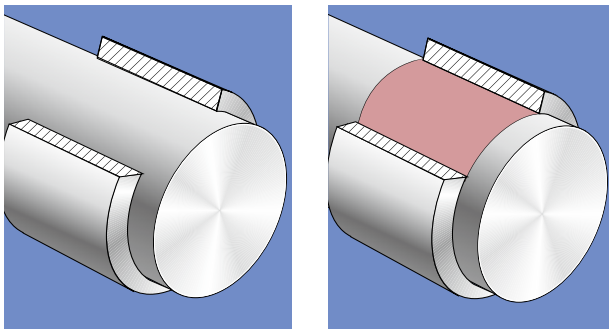
图表 3 摩擦系数 - 载荷 - 速度
Graph 3 Friction coefficient, Load and Velocity



EP 系列塑料轴承磨损 The Initial Run-in Wear of EP Series

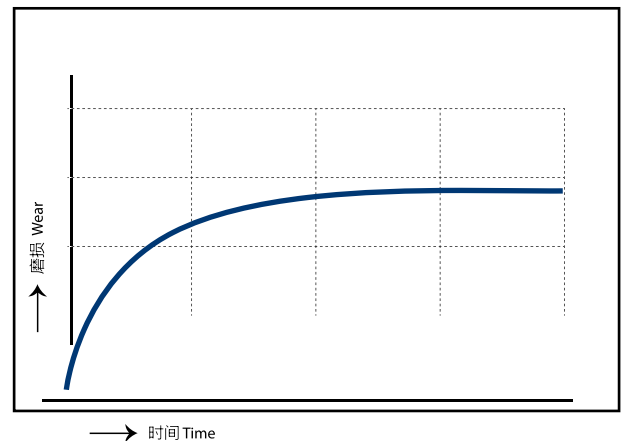
任何自润滑轴承只要一在载荷下工作，轴承就会产生细微磨损。EP 系列轴承同样如此，在启动阶段，当细微磨损发生时润滑脂就会渗出逐渐填满摩擦面和转移到对磨轴表面（图表 4），当对磨轴工作区域被润滑脂布满后形成一层很薄的润滑隔离膜，此时轴承的起始磨损几乎结束，在后期长时间的工作中轴承的磨损速率大大降低且较稳定（图表 5）。

图表 4：运行后，润滑膜形成
Graph 4: After operation, lubricating oil film formed



Slightly wear off will occur as soon as the self-lubricating bearing is applied with a certain load. It is the same to the EP series bearings, when the slightly wear occurs, the immersed oil (grease) will infiltrate out from the bearing filling the wear off area of the bearing as well as the mating material to form the lubricating film (Graph 4) and therefore interrupt the wear process. In this way, the aforementioned working method of the plastic bearings improves the wear resistance feature of the bearings and maintain the further operation stable (Graph 5).

图表 5：轴承磨损随工作时间变化曲线图
Graph 5: Wear against operation time





EP 系列塑料轴承技术 EP Technical Reference

技术参数 Technical Parameters

基本类型 Basic Types		EPT	EPG	EPH	EPX	EPJ
密度	Density	1.46g/cm ³	1.46g/cm ³	1.65g/cm ³	1.44g/cm ³	1.48g/cm ³
摩擦系数	The coefficient of friction	0.05-0.15	0.08-0.18	0.07-0.20	0.09-0.25	0.05-0.15
最大 PV 值	Max. PV(dry)	0.4 (N/mm ² × m/s)	0.5 (N/mm ² × m/s)	1.4 (N/mm ² × m/s)	1.5 (N/mm ² × m/s)	0.4 (N/mm ² × m/s)
最大旋转速度值	Max. rotating velocity	1.0m/s	1.0m/s	1.0m/s	1.5m/s	1.5m/s
最大摇摆速度值	Max. oscillating velocity	0.7m/s	0.7m/s	0.7m/s	1.1m/s	1.1m/s
最大直线速度值	Max. linear velocity	3.0m/s	4.0m/s	3.0m/s	5.0m/s	8.0m/s
抗拉强度	Tensile strength	80MPa	200MPa	180MPa	170MPa	75MPa
抗压强度 (轴向)	Compressive strength(Axial)	65MPa	80MPa	80MPa	100MPa	60MPa
弹性模量	E- module	2300MPa	7700MPa	12000MPa	7900MPa	2400MPa
允许表面静压力	Allow the surface static pressure	35MPa	80MPa	90MPa	150MPa	35MPa
洛氏硬度	Rockwell hardness	108HRR	112HRR	118HRR	120HRR	107HRR
连续工作温度	Continuous work temperature	-40℃ ~80℃	-40℃ ~130℃	-40℃ ~200℃	-100℃ ~250℃	-50℃ ~90℃
短时运行速度	Short- time	-40℃ ~120℃	-40℃ ~220℃	-40℃ ~260℃	-100℃ ~315℃	-50℃ ~120℃
导热性	Thermal conductivity	0.2W/M*K	0.25W/M*K	0.6W/M*K	0.6W/M*K	0.25W/M*K
最大吸水率 23℃	Max. water absorption, 23℃	0.20%	0.70%	<0.1%	0.10%	0.20%



EP 系列塑料轴承技术 EP Technical Reference

轴承的载荷 The Bearing Load

载荷计算方法 Load capacity calculation

载荷计算方法 Load capacity calculation

$$P = \frac{F}{d \times L} \quad (\text{N/mm}^2)$$

F= 轴承承载值 Load (N)

d= 轴径 Shaft (mm²)

L= 轴径长度 Bearing Length(mm²)

载荷计算方法 Load capacity calculation

$$P = \frac{4F}{\pi(D^2-d^2)} \quad (\text{N/mm}^2)$$

F= 垫片承载值 Load (N)

D= 垫片外径 Washer OD(mm²)

d= 垫片内径 Washer ID(mm²)

由于受配合间隙、材料强度、内部油槽等原因的影响，轴承的真正承载面压 (P_{act}) 会大于理论计算值 (P_{mean})。

最大表面静载荷 Maximum surface static load

轴承实际工作动载荷往往略小于数据表中推荐最大表面静载荷，由于轴与轴承配合总是存在间隙，所以轴承实际工作承载面积并不是轴承的投影面积，此面积的大小由配合轴公差尺寸所决定。此值适合于轴静止不动或运行速度低于 0.01m/s，更高的载荷在运行时间很短也是可能的（短时间指 3 分钟以内）。

线速度计算公式 Calculation of Linear Speed

◇ 旋转运动 Rotating motion

$$V = \frac{\pi \times d \times n}{1000 \times 60} \quad (\text{m/s})$$

d= 轴径 Shaft (mm)

n= 转速 / 分 Rpm

◇ 摇摆运动 Oscillation motion

$$V = \frac{\pi \times d \times C \times \theta}{1000 \times 360 \times 60} \quad (\text{m/s})$$

d= 轴径 Shaft (mm)

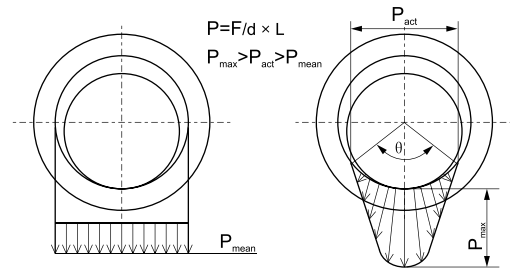
C= 摇摆频率 (次数 / 分) Frequency

θ = 摇摆角度 Oscillating angle

轴承 PV 值 PV Value of Bearings

PV 值是指轴承在一定的载荷和线速度条件下的乘积值，轴承的 PV 值是评价滑动轴承综合性能的一个重要指标。实际 PV 值与轴承的使用寿命成反比关系（图表 12），因此建议设计时尽可能使用比较低的 PV 值，以确保轴承会有更长的使用寿命。

PV is the product of the specific bearing load P and the sliding speed V. It is a very important design data for the bearing application. The PV value is inverse proportional to the bearing service life (Graph 12). So it is recommended to consider a lower design PV value during the bearing the bearing selection.



As the factor of clearance, bushes chamfer, oil groove ect, The actually load (P_{act}) is higher than theory of calculation(P_{mean})

The actual dynamic load is usually less than the maximum surface static load recommended in the data sheet. Due to the clearance exists between the shaft and bearings, the actual working surface area are not the same as the projected area of the bearing, The working area is depended on the clearance between the shaft and the bearing. The value in the datasheet is valid when the shaft is less than 0.01m/s. The value could also be applicable for a short run (shorter than 3 minutes) condition.

◇ 往复运动 Reciprocating motion

$$V = \frac{\pi \times d \times n}{1000 \times 60} \quad (\text{m/s})$$

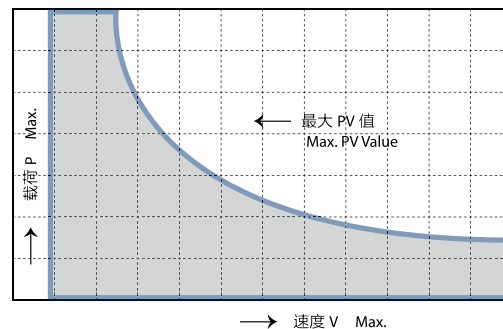
S= 行程长度 Stoke

distance (m)

C= 往复运动 (次数 / 分)

Frequency

图表 12: 轴承 PV Graph 12: PV Value





EPT 塑料轴承 EPT Plastic Bearings



标准产品规格表 Standard Specification Sheet:P172

产品特性 Product Features

- 通用性最强的塑料轴承。可满足工作温度 80 度以下的大部分应用场合，出色的耐磨性能和合理的价格往往是设计工程师的首选材料。
- 连续使用温度：-40℃ ~ 80℃；
- 通用性强适合多数中低载荷场合；
- 适合干运行、免维护；
- 不同轴材料磨损很小；
- 较低的摩擦系数；
- The most common plastic bearing material. It is suitable for the application with working temperature not higher than 80℃. It is the preferable material with good wear resistance and economic efficient for a new designation.
- Continuous working temperature: -40℃ ~ 80℃；
- Very common; suitable for most of average and low load;
- Maintenance-free dry operation;
- Light wear against different shaft materials;
- Low friction.

主要性能数据表 The Material Data Sheet

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	EPT
密度 Density	ISO1183	g/cm ³	1.46
颜色 Color			深灰 Dark Grey
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.05-0.15
最大 P.V 值 Max.PV (dry)		n/mm ² × m/s	0.4
最大旋转速度值 Max.rotating velocity		m/s	1.0
最大摇摆速度值 Max.oscillating velocity		m/s	0.7
最大直线速度值 Max.linear velocity		m/s	3.0
抗拉强度 Tensile strength	ISO527	MPa	80
抗压强度 (轴向) Compressive strength(Axial)		MPa	65
弹性模量 E-module	ISO527	MPa	2300
允许最大表面静压力 (20℃) Max.static pressure of the surface, 20℃		MPa	35
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	108
连续工作温度 continuous work temperature		℃	-40/80
短时运行温度 Short-time		℃	-40/120
导热性 Thermal conductivity	ASTME1461	W/m k	0.2
线性热膨胀系数 Linear coef.of thermal expansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	10
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	0.2
最大吸水率 23℃ Max. water absorption,23℃		%	1.2
燃烧性能 Flammability	UL94		HB
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ¹²
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ¹⁵



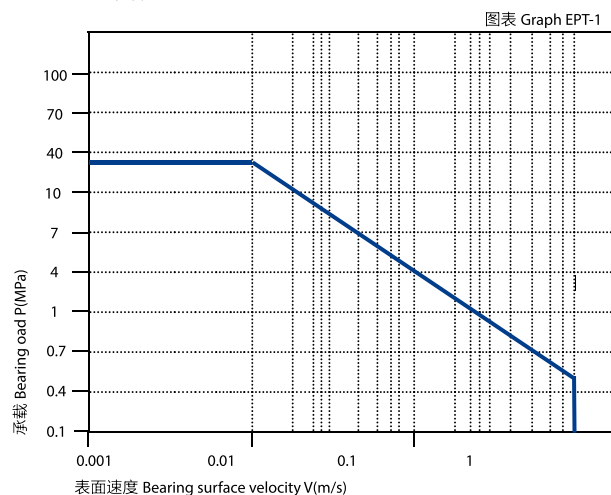
EPT 塑料轴承 EPT Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPT 系列轴承最大运行 PV 值为 $0.4\text{N/mm}^2\cdot\text{m/s}$; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPT-1。

The max PV value of the EPT series bearing is $0.4\text{N/mm}^2\cdot\text{m/s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPT-1).

■ PV 图表 Permissible PV value for EPT



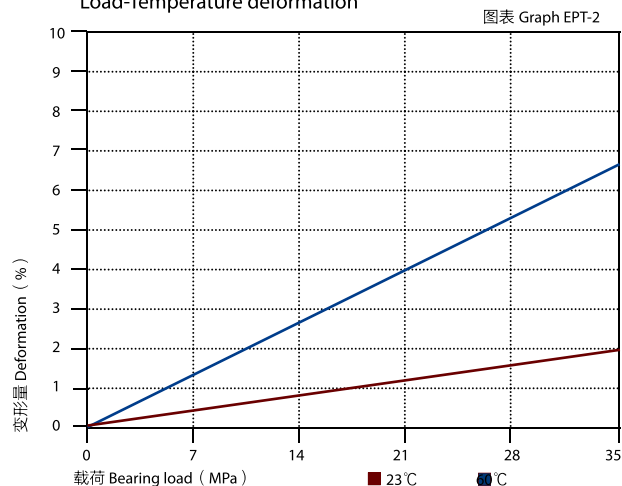
轴承的载荷、速度、温度 The Relation of Load, Speed and Temperature

EPT 系列轴承可承受最大静载荷为 35Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPT-2;

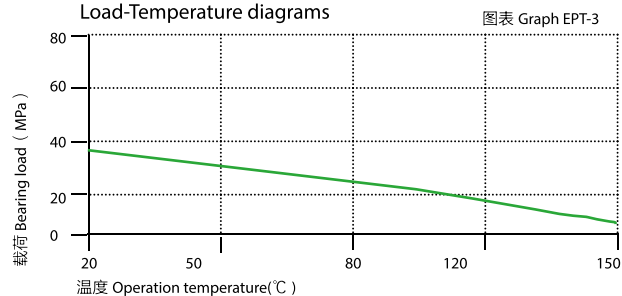
轴承实际工作载荷小于 35Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 ($V_{\text{max}}: 1.0\text{m/s}$) 会导致摩擦温度上升, 而温度上升 ($T_{\text{max}}: 80^\circ\text{C}$) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPT-3。

EPT allows the max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPT-2; The actual load capacity of bearing is slightly less than 35Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\text{max}}: 1.0\text{m/s}$) results into higher temperature ($T_{\text{max}}: 80^\circ\text{C}$) which decreases the load capacity of the bearing. Please refer to the Graph EPT-3 for such variation.

■ 载荷 - 温度 - 变形量图表
Load-Temperature deformation



■ 载荷 - 温度图表
Load-Temperature diagrams





EPT 塑料轴承 EPT Plastic Bearings

轴承的摩擦系数、磨损、轴材料

摩擦系数 Friction Factor

EPT 轴承摩擦系数受运动速度以及轴承载荷变化影响相对较小（见图表 EPT-4 与 EPT-5），这也是 EPT 作为塑料轴承通用型号选择的因素；此轴承可以保持一直比较低的摩擦系数从而确保了整个摩擦磨损性能的优越性。根据图表 EPT-6 显示 EPT 轴承的摩擦系数还会受到对磨轴表面粗糙度的影响而发生变化，我们推荐此轴承使用轴表面粗糙度值为 Ra0.3~0.5um。

EPT friction factor is not sensitive to the operation speed and bearing loading(see Graph EPT-4 and Graph EPT-5). The above features are the most common considerations for the bearing material selection. The friction of EPT could be maintained at a relatively lower level so that the good wearing features are guaranteed.From the Graph EPT-6, we could see that the friction factor is variable against the changing of shaft roughness. The recommended shaft roughness is Ra0.3~0.5.

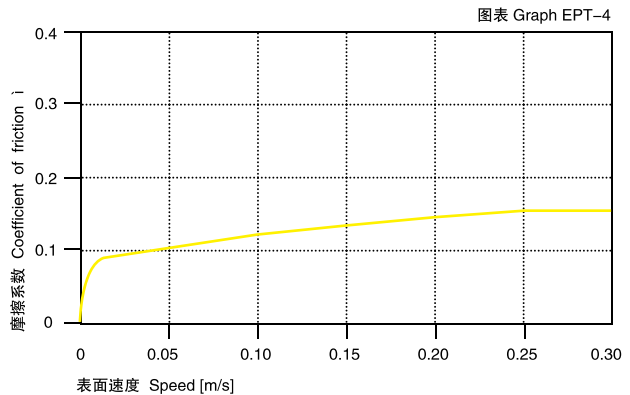
EPT	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05-0.15	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

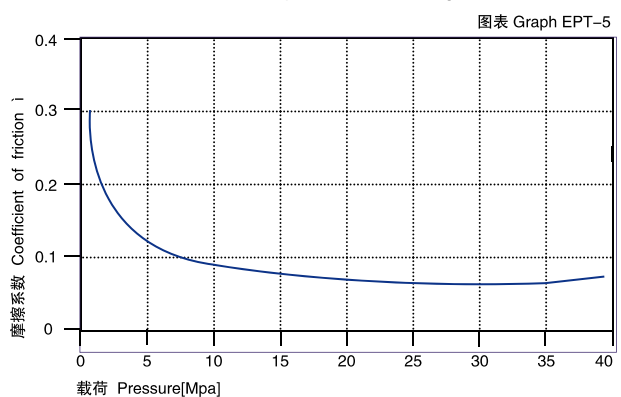
轴材料对轴承的磨损有很大影响，但 EPT 轴承适合几乎所有的轴材料；通过图表 EPT-7 与图表 EPT-8 可以看出当使用硬铬钢轴或硬化钢轴以及硬化铝轴时 EPT 轴承的磨损特征都非常出色。

The shaft material is an important media for the bearing wearing but EPT is suitable for almost all kinds of shaft materials. Graph EPT-7 and Graph EPT-8 show that the wearing feature of EPT is excellent when the shaft material are hardened chrome steel or hardened steel or hardened Aluminum.

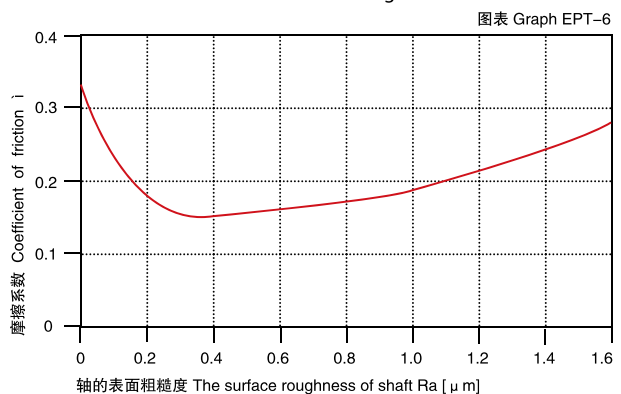
摩擦系数与速度变化关系图表 P=2MPa
coefficient of friction & the speed of bearing, P=2Mpa



摩擦系数与载荷变化关系图表 v=0.2m/s
coefficient of friction & the pressure of bearing, v=0.2m/s



摩擦系数与载荷变化关系图表
coefficient of friction & the surface roughness of shaft





EPT 塑料轴承 EPT Plastic Bearings

化学抗性 Chemical Resistance

EPT 塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

EPT is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water Absorbability

在标准大气压中，EPT 塑料轴承的吸水率为 0.2%，浸泡水中最大平衡率为 1.2%；由于其具有低吸水率的特性，故此轴承可以用于一般潮湿环境中。

The water absorb rate of EPT is 0.2% under the atmospheric pressure while it is 1.2% when the material is immersed into water. With its low water absorbability, the material is suitable for humid environment applications.

抗 UV 性能 UV Resistance

EPT 长久暴露在紫外线下颜色基本不会改变。材料的硬度，抗压强度和耐磨性都不会改变。

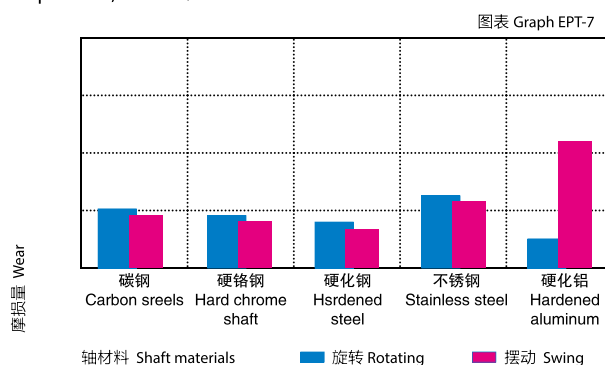
EPT can maintain its color unchanged when it is exposed into the UV ray. The hardness, Compressive strength and wear resistance of the material is also stable under such condition.

轴承安装 Bearing Installation

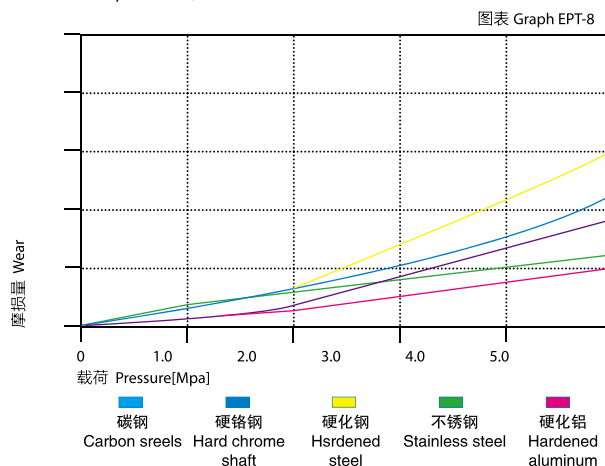
EPT 系列轴承配合公差 The Interfit Tolerance

直径 mm ² d	压装后公差 E10 Tolerance after fit	安装孔径 H7 Fit Housing	配合轴径 h9 Fit Shaft
> 0~3	+0.014~+0.054	0~+0.010	0~0.025
> 3~6	+0.020~+0.068	0~+0.012	0~0.030
> 6~10	+0.025~+0.083	0~+0.015	0~0.036
> 10~18	+0.032~+0.102	0~+0.018	0~0.043
> 18~30	+0.040~+0.124	0~+0.021	0~0.052
> 30~50	+0.050~+0.150	0~+0.025	0~0.062
> 50~80	+0.060~+0.180	0~+0.030	0~0.074
> 80~120	+0.072~+0.212	0~+0.035	0~0.087
> 120~180	+0.085~+0.245	0~+0.040	0~0.100

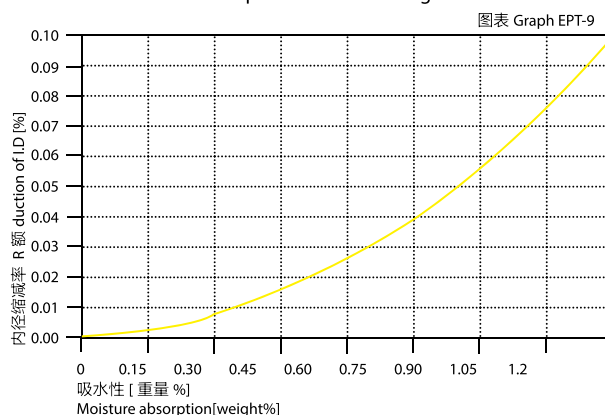
- 在不同轴材料上旋转时的磨损量 P=2MPa, v=0.2m/s
The bearing wear under rotating with different shaft materials, p=2MPa, v=0.2m/s



- 旋转磨损随轴材料与压力变化关系 v=0.2m/s
The bearing wear & pressure under rotating with different shaft materials, v=0.2m/s



- 吸水率的影响
Effect of moisture absorption on EPT bearings





EPG 塑料轴承 EPG Plastic Bearings



标准产品规格表 Standard Specification Sheet:P176

产品特性 Product Features

- 中高载荷下的应用能手。作为纤维增强和润滑的完美结合材料，可在 130 度下广泛被应用。
- 连续使用温度：-40℃ ~ 130℃；
- 适合中等载荷，通用性好；
- 适合干运行、免维护；
- 适用于不同轴材料；
- 用于旋转、摆动运动；
- 抗灰尘能力强。
- Best for middle to high load applications. With the perfect combination of reinforced fibre and good lubrication feature, this material is suitable to be used under the temperature of 130℃ .
- Continuous working temperature: -40℃ ~ 130℃ ;
- Suitable for medium and high load operation;
- Maintenance-free dry operation;
- Applicable for various shaft materials;
- Good for rotation and oscillating operation;
- Excellent dust resistance.

主要性能数据表 The Material Data Sheet

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	EPG
密度 Density	ISO1183	g/cm ³	1.46
颜色 Color			深灰 Dark Grey
对钢的动摩擦系数 Dynamic friction/ steel(dry)			0.08-0.18
最大 P.V 值 Max. PV (dry)		n/mm ² × m/s	0.5
最大旋转速度值 Max. rotating velocity		m/s	1.0
最大摇摆速度值 Max. oscillating velocity		m/s	0.7
最大直线速度值 Max. linear velocity		m/s	4.0
抗拉强度 Tensile strength	ISO527	MPa	200
抗压强度 (轴向) Compressive strength(Axial)		MPa	80
弹性模量 E-module	ISO527	MPa	7700
允许最大表面静压力 (20℃)Max.static pressure of the surface, 20℃		MPa	80
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	112
连续工作温度 continuous work temperature		℃	-40/130
短时运行温度 Short-time		℃	-40/220
导热性 Thermal conductivity	ASTME1461	W/m k	0.25
线性热膨胀系数 Linear coef. of thermal expansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	9
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	0.7
最大吸水率 23℃ Max. water absorption, 23℃		%	4.0
燃烧性能 Flammability	UL94		HB
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ¹³
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ¹¹

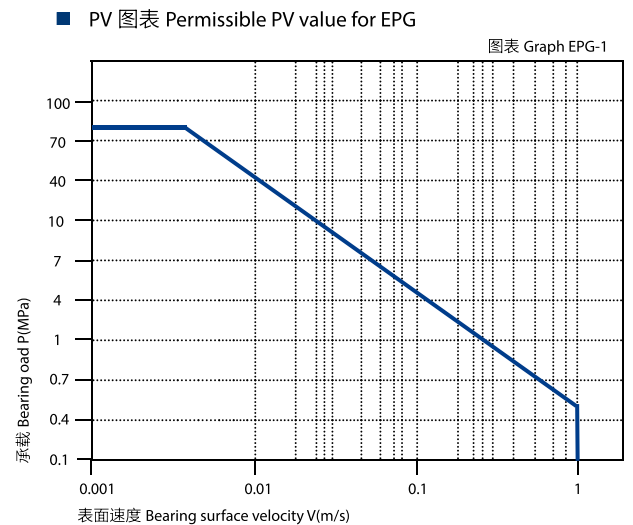


EPG 塑料轴承 EPG Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPG 系列轴承最大运行 PV 值为 $0.5\text{N/mm}^2\text{m/s}$; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPG-1。

The max PV value of the EPG series bearing is $0.5\text{N/mm}^2\text{m/s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPG-1).

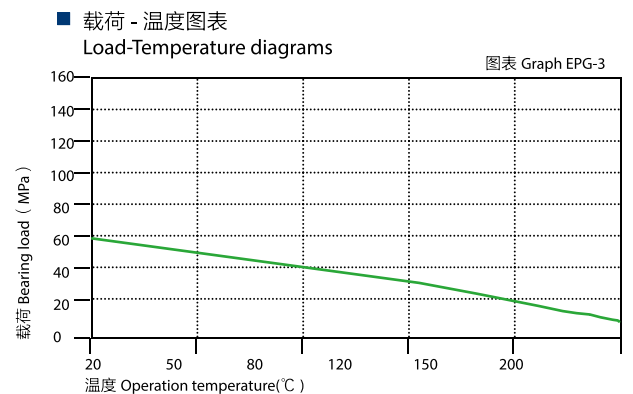
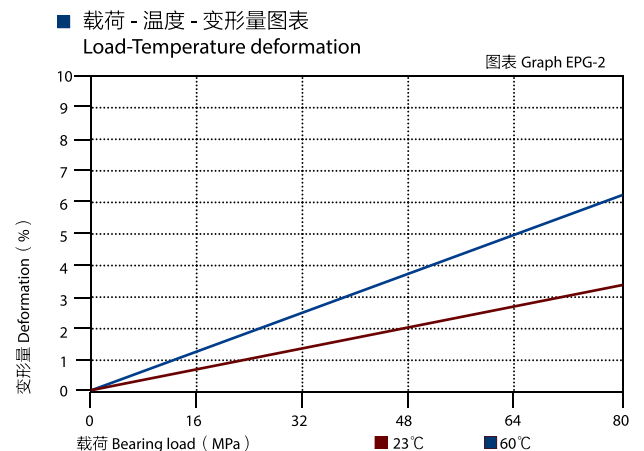


轴承的载荷、速度、温度 The Relation of Load, Speed and Temperature

EPG 系列轴承可承受最大静载荷为 80Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPG-2;

轴承实际工作载荷小于 80Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 ($V_{\max}: 1.0\text{m/s}$) 会导致摩擦温度上升, 而温度上升 ($T_{\max}: 130^\circ\text{C}$) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPG-3。

EPG allows the max static load of 80Mpa, The max compressive deformation rate under the max load is listed in Graph EPG-2; The actual load capacity of bearing is slightly less than 80Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\max}: 1.0\text{m/s}$) results into higher temperature ($T_{\max}: 130^\circ\text{C}$) which decreases the load capacity of the bearing. Please refer to the Graph EPG-3 for such variation.





EPG 塑料轴承 EPG Plastic Bearings

轴承的摩擦系数、磨损、轴材料

摩擦系数 Friction Factor

滑动轴承的摩擦系数与轴承的载荷、运行速度以及轴材料表面粗糙度都息息相关；EPG 轴承的摩擦系数随着载荷的增加而降低（图表 EPG-5），随着运行速度的增加而升高（图表 EPG-4）；这就表明 EPG 轴承适用于高载低速的应用场合；而轴表面粗糙度越光滑或者越粗糙都会导致轴承的摩擦系数增加，EPG 推荐的表面粗糙度是在 Ra0.5~Ra0.8（图表 EPG-6）；

The friction factor of the sliding bearings is relative to the bearing load, operation speed and the roughness of the shaft material. EPG Bearing Friction factor decreased along with the increasing of the loading(See Graph EPG-5) and increased along with the increasing of the operation speed(See Graph EPG-4). The above feature induces the EPG material is applicable for the high load and low speed operation while too smooth and too rough surface may result into the increasing of friction factor. The recommended surface roughness of EPG is Ra0.5~ Ra0.8(See Graph EPG)

EPG	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.08~0.18	0.09	0.04	0.04

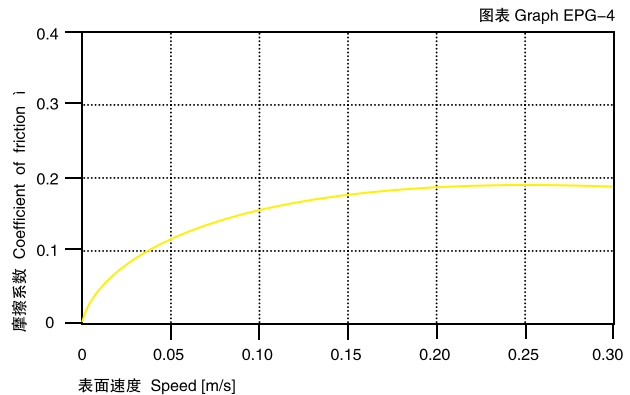
磨损与轴材料 Wearing and shaft material

通过轴承在不同轴上的测试表明 EPG 低载时在碳钢轴和硬铬轴运行性能最好（见图表 EPG-7 和图表 EPG-8）；当然，随着轴承承受载荷的增加，对轴硬度要求也越高；较软的轴容易先产生磨损，导致轴承磨损也随之加大。当轴承的载荷超过 2MPa 时，轴承的磨损会随着轴硬度的增加而随之减少。

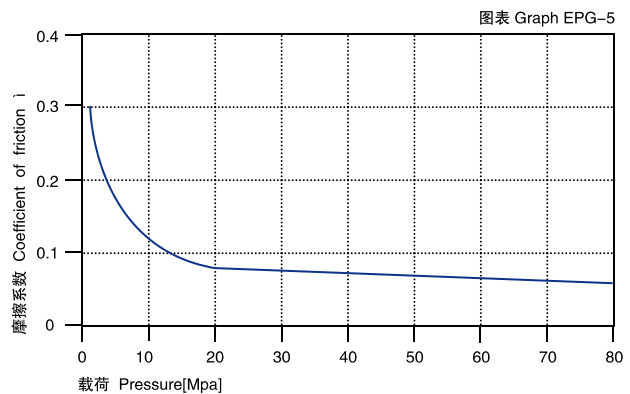
图表 EPG-8 表明 EPG 在摆动运动下的效果要好于旋转运动，在同等的工况条件下摆动运动下的磨损要小于旋转运动，特别是在高载荷下这种趋势就越明显。

Test of the bearing against various shaft materials shows that the material EPG features the best performance where the shaft material is carbon steel and hard chrome steel under low loading. (See Graph EPG-7 and Graph EPG-8). Therefore, the higher the load is, the more critical the hardness of the shaft will have to be. The softer shaft .

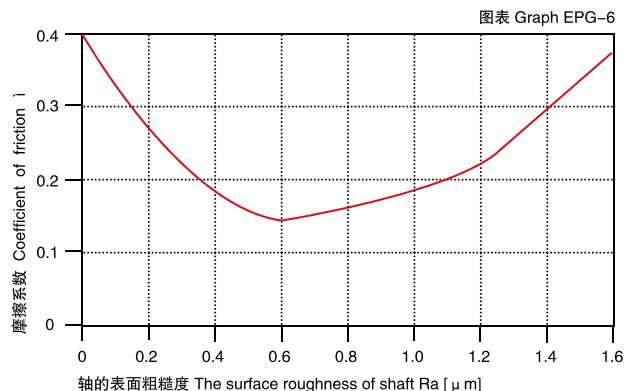
摩擦系数与速度变化关系图表 P=2MPa
coefficient of friction & the speed of bearing, P=2Mpa



摩擦系数与载荷变化关系图表 v=0.2m/s
coefficient of friction & the pressure of bearing, v=0.2m/s



摩擦系数与轴表面粗糙度变化关系图表
coefficient of friction & the surface roughness of shaft





EPG 塑料轴承 EPG Plastic Bearings

will be worn off sooner and as a result, the bearing wearing will be increased. But when the loading is increased over 2MPa, the wearing of the bearing will be better along with the increasing of the shaft hardness.

Refer to Graph EPG-8. It shows that the material EPG is better under the oscillation operation comparing with the rotation operation. Under the same condition, the wearing feature of the oscillation operation is much better than that of rotation operation. This feature is sharply improved under higher loading.

化学抗性 Chemical Resistance

EPG 塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。EPG is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water Absorbability

在标准大气压中，EPG 塑料轴承的吸水率为 0.7%，浸泡水中最大平衡率为 4.0%；由于此吸水率的特性，我们必须考虑此轴承的应用环境。

The water absorb rate of EPG is 0.7% under the atmospheric pressure while it is 4.0% when the material is immersed into water. The application environment has to be considered because of its water absorb properties.

抗 UV 性能 UV Resistance

EPG 长久暴露在紫外线下颜色基本不会改变。材料性能基本都不会发生改变。

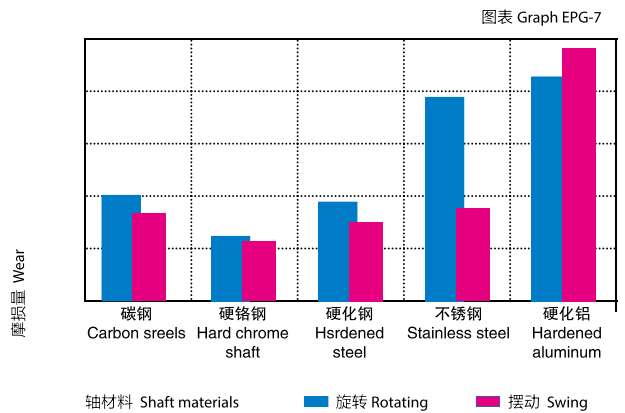
EPG can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

轴承安装 Bearing Installation

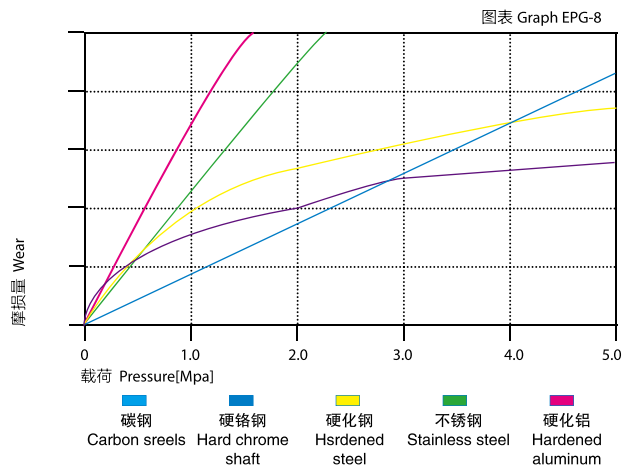
EPG 系列轴承配合公差 The Interfit Tolerance

直径 mm ² d	压装后公差 E10 Tolerance after fit	安装孔径 H7 Fit Housing	配合轴径 h9 Fit Shaft
> 0~3	+0.014~+0.054	0~+0.010	0~-0.025
> 3~6	+0.020~+0.068	0~+0.012	0~-0.030
> 6~10	+0.025~+0.083	0~+0.015	0~-0.036
> 10~18	+0.032~+0.102	0~+0.018	0~-0.043
> 18~30	+0.040~+0.124	0~+0.021	0~-0.052
> 30~50	+0.050~+0.150	0~+0.025	0~-0.062
> 50~80	+0.060~+0.180	0~+0.030	0~-0.074
> 80~120	+0.072~+0.212	0~+0.035	0~-0.087
> 120~180	+0.085~+0.245	0~+0.040	0~-0.100

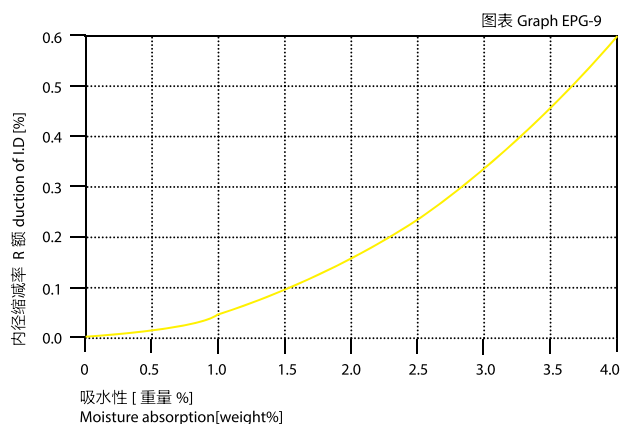
在不同轴材料上旋转时的磨损量 P=2MPa, v=0.2m/s
The bearing wear under rotating with different shaft materials, p=2MPa, v=0.2m/s



旋转磨损随轴材料与压力变化关系 v=0.2m/s
The bearing wear & pressure under rotating with different shaft materials, v=0.2m/s



吸水率的影响
Effect of moisture absorption on EPT bearings





EPH 塑料轴承 EPH Plastic Bearings



标准产品规格表 Standard Specification Sheet:P176

产品特性 Product Features

- 高温和良好的化学抗性材料。可在 200 度下连续使用，也适用于潮湿环境甚至化学液体中。硬质材料与之配合使用较好。
- 连续使用温度：-40℃ ~ 200℃；
- 适合多数中高载荷场合；
- 适合干运行、免维护；
- 良好的化学抗性；
- 适合潮湿环境中使用。
- High temperature material with good chemical resistance feature. It could be continuously used under the temperature of 200℃, it is also suitable to be used in the humid environment and even inside the chemical liquids. It is best to be used against hard materials.
- Continuous working temperature:-40℃ ~ 200℃ ;
- Suitable for medium and high load operation;
- Maintenance-free dry operation;
- Good chemical resistance;
- Suitable for humid environment.

主要性能数据表 The Material Data Sheet

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	EPH
密度 Density	ISO1183	g/cm ³	1.65
颜色 Color			黑色 Black
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.07-0.20
最大 PV 值 Max. PV (dry)		n/mm ² × m/s	1.4
最大旋转速度值 Max. rotating velocity		m/s	1.0
最大摇摆速度值 Max. oscillating velocity		m/s	0.7
最大直线速度值 Max. linear velocity		m/s	3.0
抗拉强度 Tensile strength	ISO527	MPa	180
抗压强度 (轴向) Compressive strength(Axial)		MPa	80
弹性模量 E-module	ISO527	MPa	12000
允许最大表面静压力 (20℃) Max.static pressure of the surface, 20℃		MPa	90
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	118
连续工作温度 continuous work temperature		℃	-40/200
短时运行温度 Short-time		℃	-40/260
导热性 Thermal conductivity	ASTME1461	W/m k	0.6
线性热膨胀系数 Linear coef. of thermal expansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	4
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	0.04
最大吸水率 23℃ Max. water absorption, 23℃		%	< 0.1
燃烧性能 Flammability	UL94		V0
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ⁴
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ⁵

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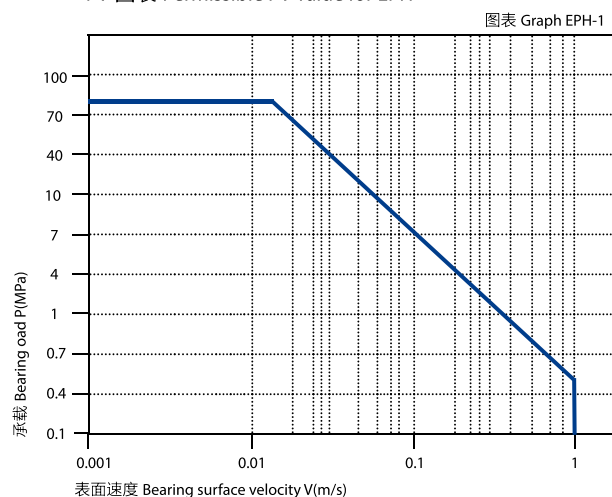
EPH 塑料轴承 EPH Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPH 系列轴承最大运行 PV 值为 $1.4\text{N/mm}^2\cdot\text{m/s}$; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPH-1。

The max PV value of the EPH series bearing is $1.4\text{N/mm}^2\cdot\text{m/s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPH-1).

■ PV 图表 Permissible PV value for EPH



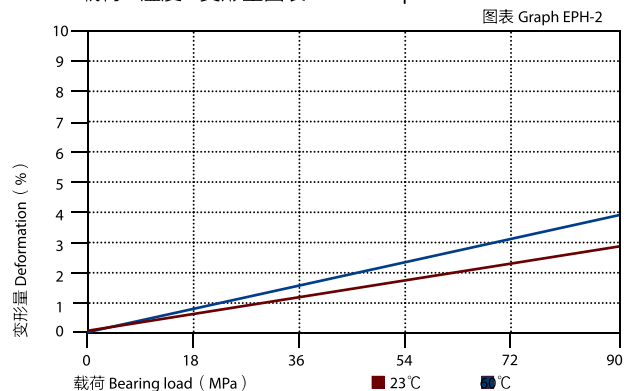
轴承的载荷、速度、温度 The Relation of Load, Speed and Temperature

EPH 系列轴承可承受最大静载荷为 90Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPH-2;

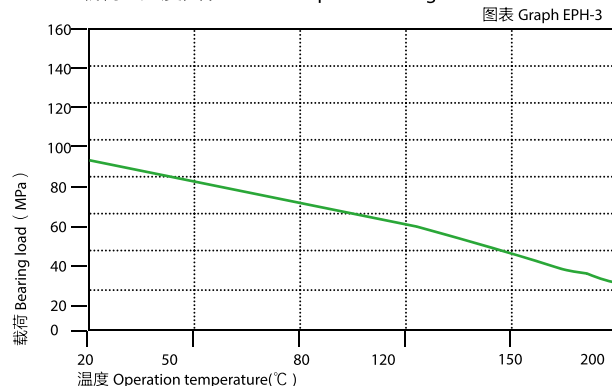
轴承实际工作载荷小于 90Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 ($V_{\max}: 1.0\text{m/s}$) 会导致摩擦温度上升, 而温度上升 ($T_{\max}: 200^\circ\text{C}$) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPH-3。

EPH allows the max static load of 90Mpa, The max compressive deformation rate under the max load is listed in Graph EPH-2; The actual load capacity of bearing is slightly less than 90Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\max}: 1.0\text{m/s}$) results into higher temperature ($T_{\max}: 200^\circ\text{C}$) which decreases the load capacity of the bearing. Please refer to the Graph EPH-3 for such variation.

■ 载荷 - 温度 - 变形量图表 Load-Temperature deformation



■ 载荷 - 温度图表 Load-Temperature diagrams





EPH 塑料轴承 EPH Plastic Bearings

轴承的摩擦系数、磨损、轴材料

摩擦系数 Friction Factor

图表 EPH-4 表明 EPH 轴承在载荷保持不变时旋转下的摩擦系数会随着速度的增加而略有减低；图表 EPH-5 表明 EPH 轴承在速度保持不变时旋转下的摩擦系数会随着载荷的增加而逐步降低，特别是在载荷小于 30Mpa 的情况下。图表 EPH-6 表明 EPH 轴承的对磨轴粗糙度在 Ra0.1~0.4um 时摩擦系数几乎没有变化，但当轴表面粗糙度大于 Ra0.4 时摩擦系数会快速上升；我们推荐使用轴的粗糙度为 Ra0.1~0.4um。

Friction factor will be slightly decreased along with the speed increasing under certain loading of the rotation operation(See Graph EPH-4) and it will be slightly decreased along with the loading increasing under certain speed of the rotation operation especially when the loading is less than 30Mpa. Graph EPH tells that the friction of the EPH is not changed at all when the shaft roughness is between Ra0.1 to Ra0.4 and will be considerably increased when the shaft roughness is over Ra0.4. So the recommended shaft roughness is Ra0.1-Ra0.4.

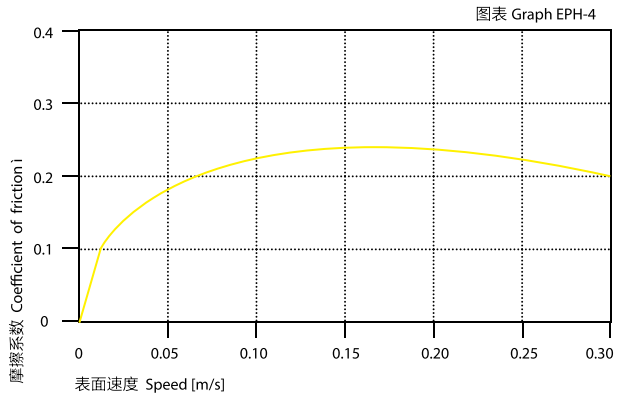
EPG	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.07~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

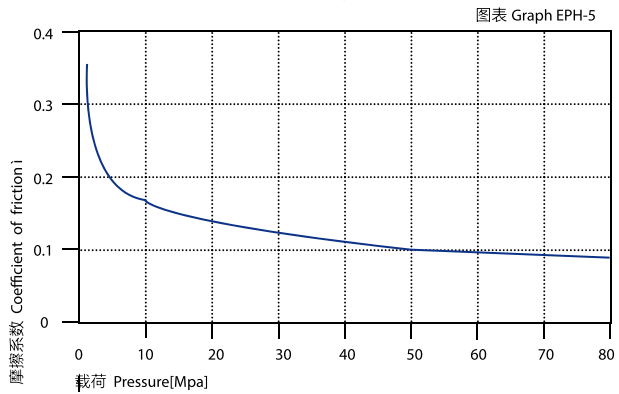
图表 EPH-7 表明 EPH 轴承在低载荷旋转运动时适合大多数轴材料，而在高载旋转下硬化钢轴表现尤为突出（见图表 EPH-7）；图表 EPH-8 显示 EPH 轴承在采用不锈钢轴摆动运动下较为合适，而在旋转运动中碳钢轴和硬化钢轴效果比较好。

Graph EPH-7 shows that EPH is suitable for most of the shaft materials under low loading rotation operation and it is good for hardened carbon steel shaft under high loading rotation operation(see Graph EPH-7), From Graph EPH-8, we can also read that EPH is suitable for stainless steel shaft under oscillation operation and good for hot rolled carbon steel and hardness carbon steel shaft under rotation operation.

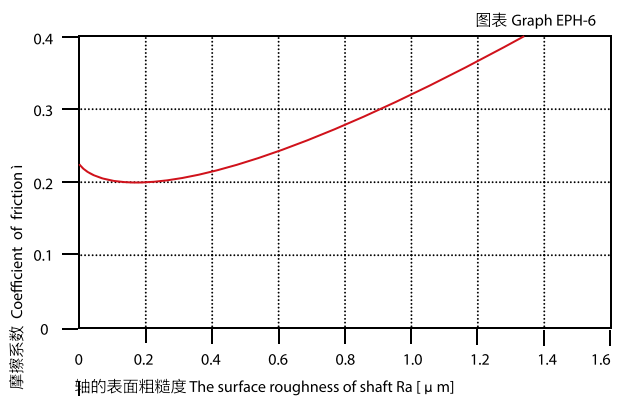
摩擦系数与速度变化关系图表 P=2MPa
coefficient of friction & the speed of bearing, P=2Mpa



摩擦系数与载荷变化关系图表 v=0.2m/s
coefficient of friction & the pressure of bearing, v=0.2m/s



摩擦系数与载荷变化关系图表
coefficient of friction & the surface roughness of shaft



+

EPH 塑料轴承 EPH Plastic Bearings

化学抗性 Chemical Resistance

EPH 塑料轴承具有良好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of EPH is fairly good against most of Acid and Alkalis.

吸水性 Water Absorbability

在标准大气压中，EPH 塑料轴承的吸水率极低为 0.1%，浸泡水中最大平衡率为 0.3%；因此材料不会吸水而发生性能和尺寸变化，适用于潮湿环境甚至水下。

The water absorb rate of EPH is 0.1% under the atmospheric pressure while it is 0.3% when the material is immersed into water. The material performance and dimensions of the material is stabilized for the applications under humid environment.

抗 UV 性能 UV Resistance

EPH 长久暴露在紫外线下材料表面会发生蜕变，抗塔强度会下降。

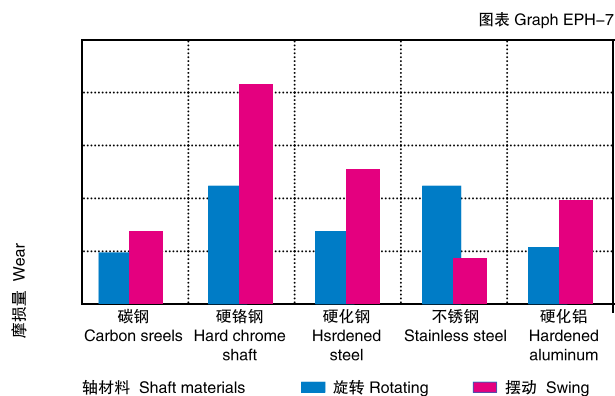
Disintegration could be possible for the material EPH after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

轴承安装 Bearing Installation

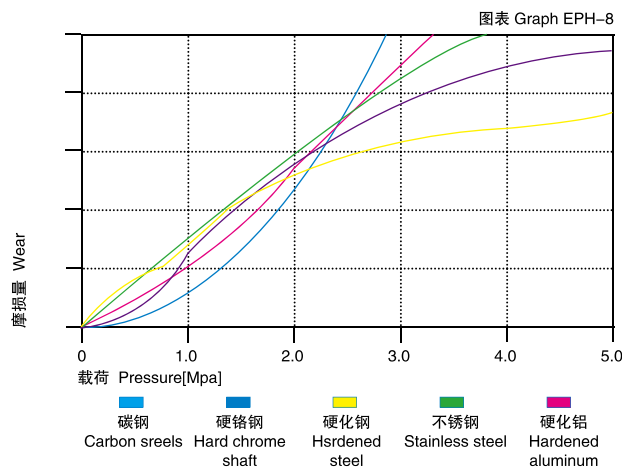
EPH 系列轴承配合公差 The Interfit Tolerance

直径 mm ² d	压装后公差 E10 Tolerance after fit	安装孔径 H7 Fit Housing	配合轴径 h9 Fit Shaft
> 0~3	+0.014~+0.054	0~+0.010	0~-0.025
> 3~6	+0.020~+0.068	0~+0.012	0~-0.030
> 6~10	+0.025~+0.083	0~+0.015	0~-0.036
> 10~18	+0.032~+0.102	0~+0.018	0~-0.043
> 18~30	+0.040~+0.124	0~+0.021	0~-0.052
> 30~50	+0.050~+0.150	0~+0.025	0~-0.062
> 50~80	+0.060~+0.180	0~+0.030	0~-0.074
> 80~120	+0.072~+0.212	0~+0.035	0~-0.087
> 120~180	+0.085~+0.245	0~+0.040	0~-0.100

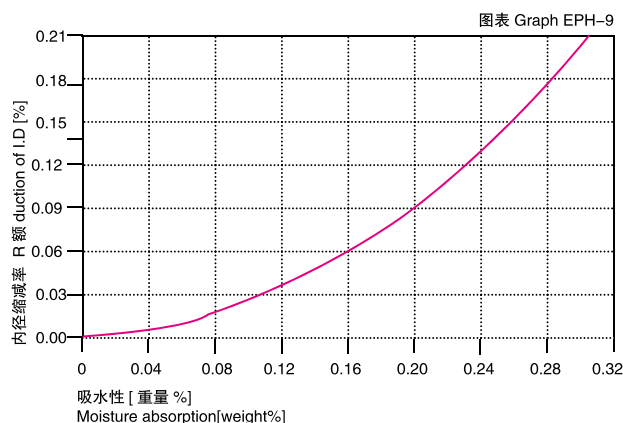
■ 在不同轴材料上旋转时的磨损量 P=2MPa, v=0.2m/s
The bearing wear under rotating with different shaft materials, p=2MPa, v=0.2m/s



■ 旋转磨损随轴材料与压力变化关系 v=0.2m/s
The bearing wear & pressure under rotating with different shaft materials, v=0.2m/s



■ 吸水率的影响
Effect of moisture absorption on EPT bearings





EPX 塑料轴承 EPX Plastic Bearings



标准产品规格表 Standard Specification Sheet:P180

产品特性 Product Features

- 高温 250 度自润滑材料。高化学抗性可被用于多数腐蚀性液体中。高承载能力，一般用于高温或高化学腐蚀场合。
- 连续使用温度：-100℃ ~ 250℃；
- 适合高载荷运用；
- 高温下保持较高的承载能力；
- 较广泛的化学抗性；
- 非常低的吸水率；
- 较高的抗压强度。
- Self-lubricated material for high temperature up to 250 °C . With its high chemical resistance feature, it could be used inside most common chemical liquids. It is a high load material for the applications of high temperature and critical chemical environments.
- Continuous working temperature: -40℃ ~ 250℃ ;
- Suitable for high load operation;
- High load capacity at higher temperature;
- Good chemical resistance;
- Low water absorption;
- High pressure resistance.

主要性能数据表 The Material Data Sheet

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	EPX
密度 Density	ISO1183	g/cm ³	1.44
颜色 Color			黑色 Black
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.09-0.25
最大 P.V 值 Max. PV (dry)		n/mm ² × m/s	1.5
最大旋转速度值 Max. roatating velocity		m/s	1.5
最大摇摆速度值 Max. oscillating velocity		m/s	1.1
最大直线速度值 Max. linear velocity		m/s	5.0
抗拉强度 Tensile strength	ISO527	MPa	170
抗压强度 (轴向) Coppressive strength(Axial)		MPa	100
弹性模量 E-module	ISO527	MPa	7900
允许最大表面静压力 (20℃) Max.static pressure of the surface, 20℃		MPa	150
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	120
连续工作温度 continuous work temperature		℃	-100/250
短时运行温度 Short-time		℃	-100/315
导热性 Thermal conductivity	ASTME1461	W/m k	0.6
线性热膨胀系数 Linear coef. of thermal eapansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	5
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	0.1
最大吸水率 23℃ Max. water absorption, 23℃		%	0.5
燃烧性能 Flammability	UL94		V0
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ⁸
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ⁷

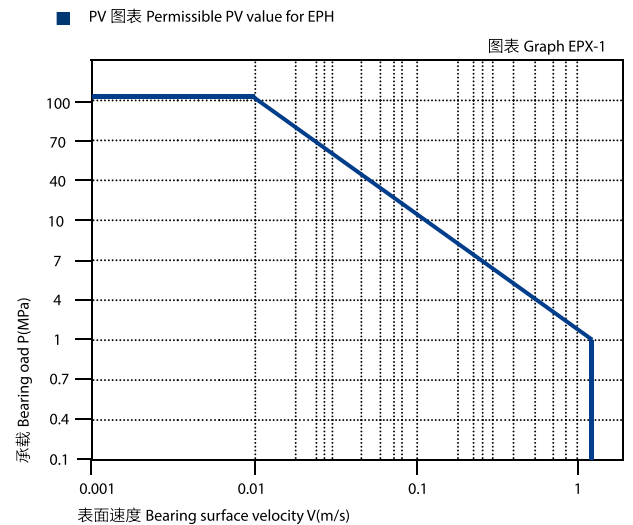


EPX 塑料轴承 EPX Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPX 系列轴承最大运行 PV 值为 $1.5\text{N/mm}^2\cdot\text{m/s}$; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPX-1。

The max PV value of the EPX series bearing is $1.5\text{N/mm}^2\cdot\text{m/s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPX-1).

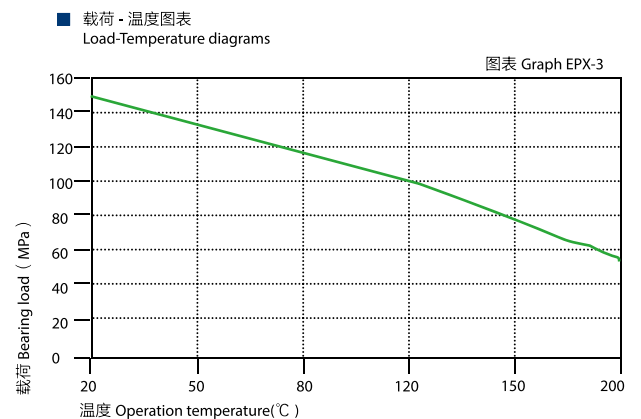
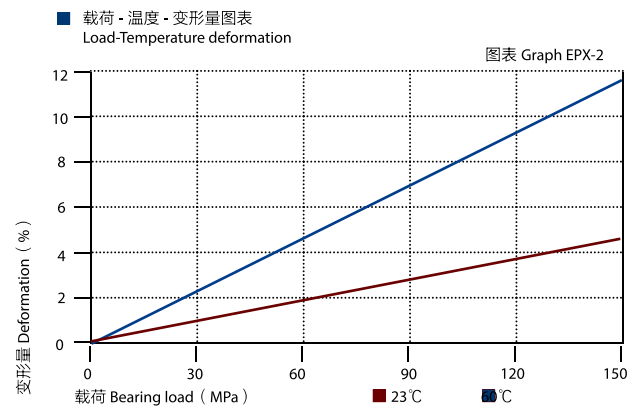


轴承的载荷、速度、温度 The Relation of Load, Speed and Temperature

EPX 系列轴承可承受最大静载荷为 150Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPX-2;

轴承实际工作载荷小于 150Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 ($V_{\max}: 1.5\text{m/s}$) 会导致摩擦温度上升, 而温度上升 ($T_{\max}: 250^\circ\text{C}$) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPX-3。

EPX allows the max static load of 150Mpa, The max compressive deformation rate under the max load is listed in Graph EPX-2; The actual load capacity of bearing is slightly less than 150Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\max}: 1.5\text{m/s}$) results into higher temperature ($T_{\max}: 250^\circ\text{C}$) which decreases the load capacity of the bearing. Please refer to the Graph EPX-3 for such variation.





EPX 塑料轴承 EPX Plastic Bearings

轴承的摩擦系数、磨损、轴材料

摩擦系数 Friction Factor

图表 EPX-4 表明 EPX 轴承的摩擦系数在载荷一定时随着运行速度的增加而逐渐升高；图表 EPX-5 表明 EPX 轴承在速度一定载荷在 20Mpa 以内时摩擦系数会随着载荷的逐步增加而快速降低，而当载荷高于 20Mpa 时摩擦系数的变化却比较平缓。图表 EPX-6 表明 EPX 轴承比较适合轴表面粗糙度为 Ra0.6~0.8um。

EPX Bearing Friction factor is increased along with the increasing of the operation speed under certain loading(See Graph EPX-4). The friction factor of EPX is decreased along with the loading increasing not over 20Mpa(See Graph EPX-5). The friction factor will not change much along with the speed when the loading is over 20Mpa. The Graph EPX-6 shows that the bearing could achieve its best performance when the counter shaft surface roughness is around Ra0.6 to Ra0.8.

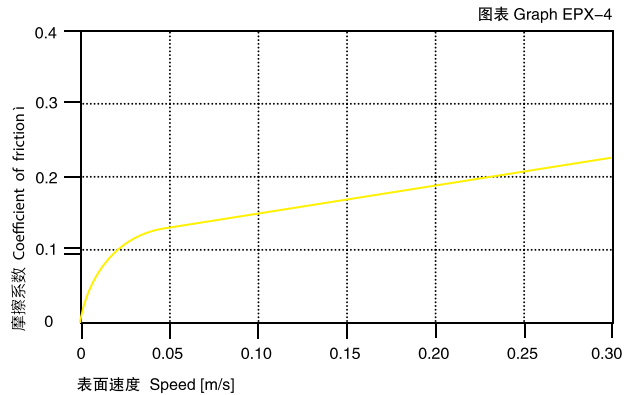
EPG	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.07~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

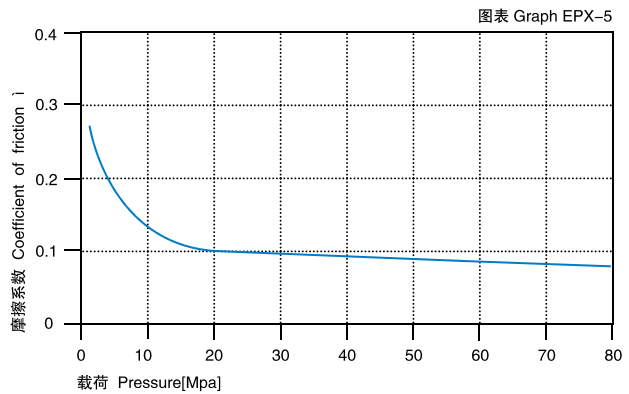
图表 EPX-7 表明和图表 EPX-8 测试表明了 EPX 轴承在不同轴材料上的运行磨损对比，在载荷 2Mpa 以下旋转运动时不锈钢轴和碳钢轴比较适合，而当载荷超过 2Mpa 时在硬化钢轴和碳钢轴上的运行效果较好。图表 EPX-7 表明 EPX 轴承比较适合用于旋转运动；特别值得注意的是图表 EPX-9 表明 EPX 轴承在常温 23℃ 下的摩擦磨损性能并没有在高温 150℃ 下优秀。

Graph EPX-7 and Graph EPX-8 shows the test results of the material EPX running against different shaft material. It is suitable for stainless steel and hot rolled carbon steel shaft when the loading is less than 2Mpa and it will be more suitable for heat treated steel and carbon steel shaft when the loading is over 2Mpa. Graph EPX-7 shows EPX is good for rotation operation. Specially, from the Graph EPX-9, it is read that EPX is with better performance under high temperature around 150℃ comparing with under the ambient temperature of 23℃.

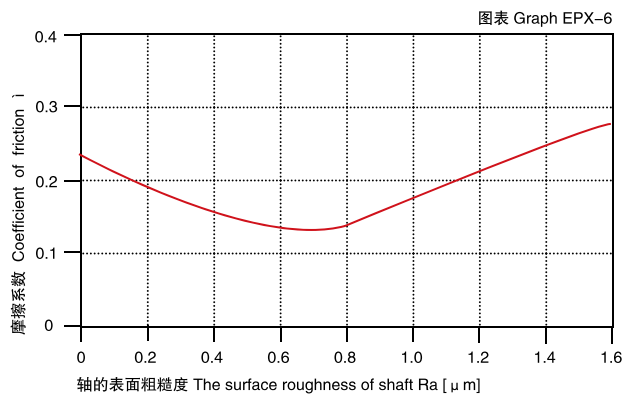
摩擦系数与速度变化关系图表 P=2MPa
coefficient of friction & the speed of bearing, P=2Mpa



摩擦系数与载荷变化关系图表 v=0.2m/s
coefficient of friction & the pressure of bearing, v=0.2m/s



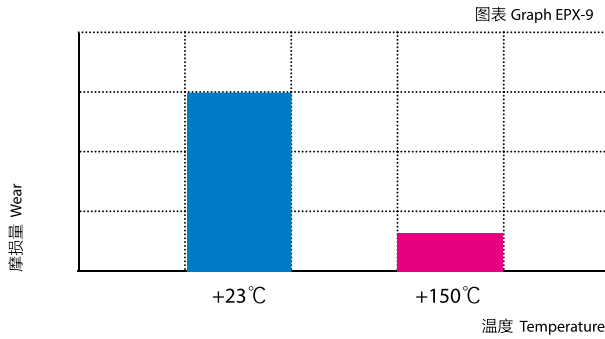
摩擦系数与轴表面粗糙度变化关系图表
coefficient of friction & the surface roughness of shaft





EPX 塑料轴承 EPX Plastic Bearings

■ 在不同轴材料上旋转时的磨损量 $P=2\text{MPa}$, $v=0.2\text{m/s}$
The bearing wear under rotating with different shaft materials, $p=2\text{MPa}$, $v=0.2\text{m/s}$



化学抗性 Chemical Resistance

EPX 塑料轴承具有良好的化学抗性，能抵抗浓度 65% 的强酸。

The Chemical Resistance of EPX is very good. It can work well in the heavy acid of 65%.

吸水性 Water Absorbability

在标准大气压中，EPX 塑料轴承的吸水率极低为 0.1%，浸泡水中最大平衡率为 0.5%；因此材料不会吸水而发生性能和尺寸变化，适用于潮湿环境。

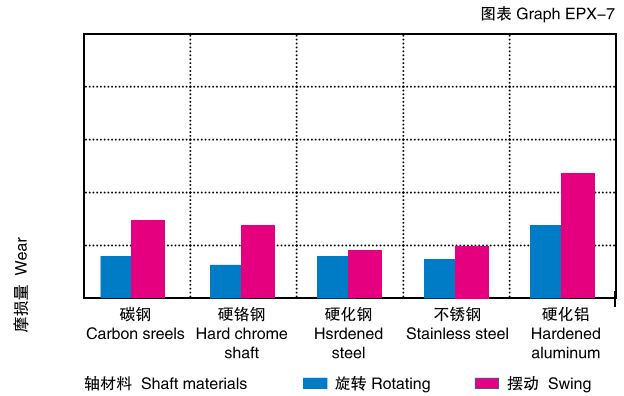
The water absorb rate of EPX is 0.1% under the atmospheric pressure while it is 0.5% when the material is immersed into water. The material performance and dimensions of the material is stabilized for the applications under humid environment.

抗 UV 性能 UV Resistance

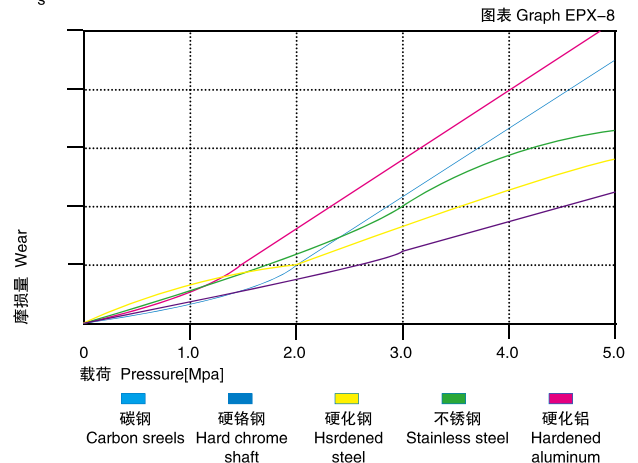
EPX 长久暴露在紫外线下材料性能不会发生变化。

applications under humid environment. EPX can maintain its performance to be stable even exposed in the UV ray for long period.

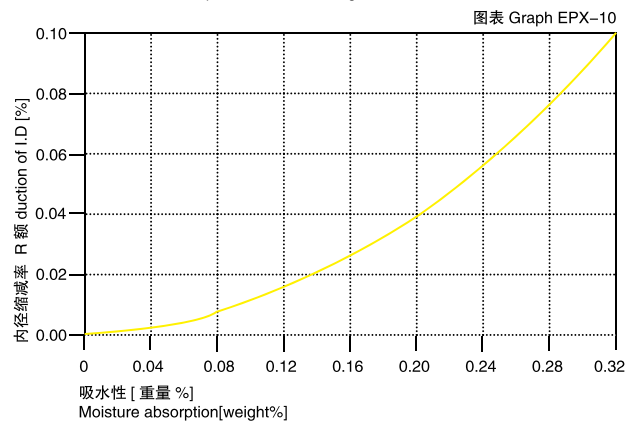
■ 在不同轴材料上旋转时的磨损量 $P=2\text{MPa}$, $v=0.2\text{m/s}$
The bearing wear under rotating with different shaft materials, $p=2\text{MPa}$, $v=0.2\text{m/s}$



■ 旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$
The bearing wear & pressure under rotating with different shaft materials, $v=0.2\text{m/s}$



■ 吸水率的影响
Effect of moisture absorption on EPX bearings





EPJ 塑料轴承 EPJ Plastic Bearings



标准产品规格表 Standard Specification Sheet:P172

产品特性 Product Features

- 低摩擦系数和高耐磨性完美结合。旋转、直线和摆动应用中耐磨性和摩擦系数几乎保持一致。对轴材料硬度要求较低。不适合极高载荷。
- 连续使用温度：-50℃ ~ 90℃；
- 适合干运行、免维护；
- 不同轴材料磨损很小；
- 较低的摩擦系数；
- 适用于软轴；
- 吸水性较低。
- Low friction and high wear resistance. It could maintain a good stable wear resistance and friction factor for the rotation, linear and oscilation movement. It has no critical hardness requirement to the shaft.
- Continuous working temperature: -50℃ ~ 90℃ ;
- Maintenance-free dry operation;
- Small wear off amount against various shaft materials;
- Lower friction;
- Suitable for soft shaft;
- Low water absorption.

主要性能数据表 The Material Data Sheet

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	EPJ
密度 Density	ISO1183	g/cm ³	1.48
颜色 Color			黄色 Yellow
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.05-0.15
最大 PV 值 Max. PV (dry)		n/mm ² × m/s	0.4
最大旋转速度值 Max. roatating velocity		m/s	1.5
最大摇摆速度值 Max. oscillating velocity		m/s	1.1
最大直线速度值 Max. linear velocity		m/s	8.0
抗拉强度 Tensile strength	ISO527	MPa	75
抗压强度 (轴向) Coppressive strength(Axial)		MPa	60
弹性模量 E-module	ISO527	MPa	2400
允许最大表面静压力 (20℃) Max. static pressure of the surface, 20℃		MPa	35
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	107
连续工作温度 continuous work temperature		℃	-50/90
短时运行温度 Short-time		℃	-50/120
导热性 Thermal conductivity	ASTME1461	W/m k	0.25
线性热膨胀系数 Linear coef. of thermal eapansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	9
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	0.2
最大吸水率 23℃ Max. water absorption, 23℃		%	1.2
燃烧性能 Flammability	UL94		HB
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ¹³
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ¹²

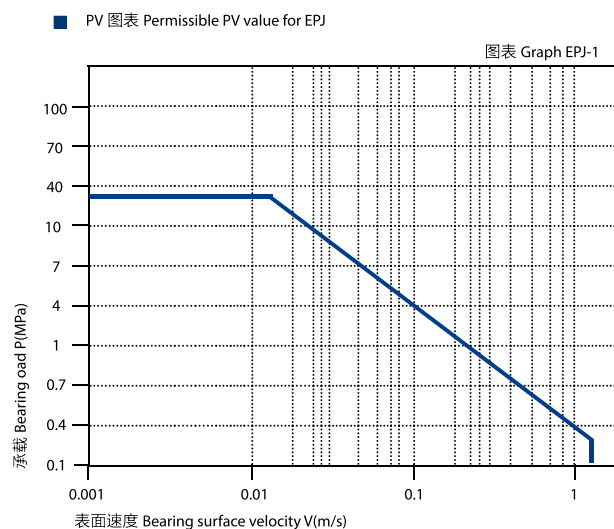


EPJ 塑料轴承 EPJ Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPJ 系列轴承最大运行 PV 值为 $0.4\text{N/mm}^2\cdot\text{m/s}$; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPJ-1。

The max PV value of the EPJ series bearing is $0.4\text{N/mm}^2\cdot\text{m/s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPJ-1).

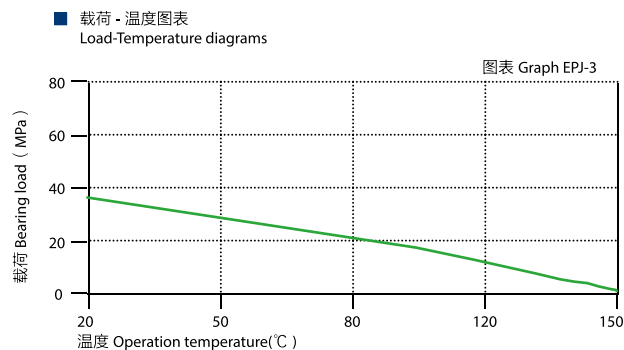
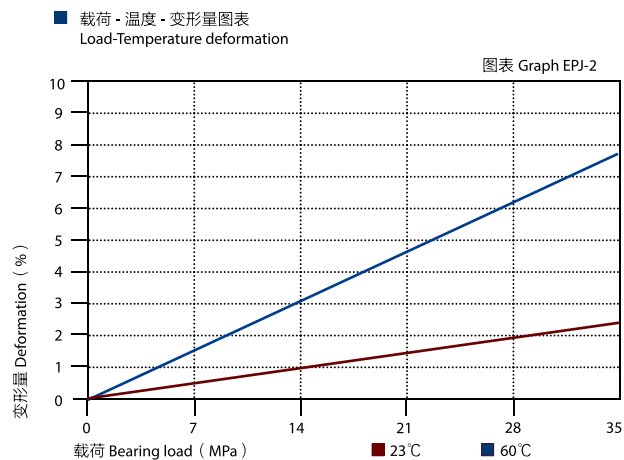


轴承的载荷、速度、温度 The Relation of Load, Speed and Temperature

EPJ 系列轴承可承受最大静载荷为 35Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPJ-2;

轴承实际工作载荷小于 35Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 ($V_{\text{max}}: 1.5\text{m/s}$) 会导致摩擦温度上升, 而温度上升 ($T_{\text{max}}: 90^\circ\text{C}$) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPJ-3。

EPJ allows the max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPJ-2; The actual load capacity of bearing is slightly less than 35Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\text{max}}: 1.5\text{m/s}$) results into higher temperature ($T_{\text{max}}: 90^\circ\text{C}$) which decreases the load capacity of the bearing. Please refer to the Graph EPJ-3 for such variation.





EPJ 塑料轴承 EPJ Plastic Bearings

轴承的摩擦系数、磨损、轴材料

摩擦系数 Friction Factor

图表 EPJ-4 表明 EPJ 轴承的摩擦系数在载荷一定随着运行速度的变化率比较少；图表 EPJ-5 在运动速度一定摩擦系数在载荷小于 10Mpa 时变化率较大，而在载荷大于 10Mpa 是变化率也逐渐减小；图表 EPJ-6 表明 EPJ 轴材料的粗糙度越大摩擦系数也随之越大，但当粗糙度大于 Ra0.5 时摩擦系数也趋于平稳；此轴承适用于轴粗糙度为 Ra=0.1~0.4um。

EPJ Bearing Friction factor Varies only little amount along with the operation speed changing(See Graph EPJ-4). When the operation speed is relatively stable, the friction factor varies a lot while the load is less than 10Mpa(See Graaph EPJ-5). At the same time, it does not very much when the loading is greater than 10Mpa. Rough surface may result into the increasing of friction factor of the EPJ material but when the roughness of the surface is greater than Ra0.5, The friction factor will remain relatively stable again. The recommended shaft surface roughness is Ra0.1~Ra0.4 for the EPJ material.

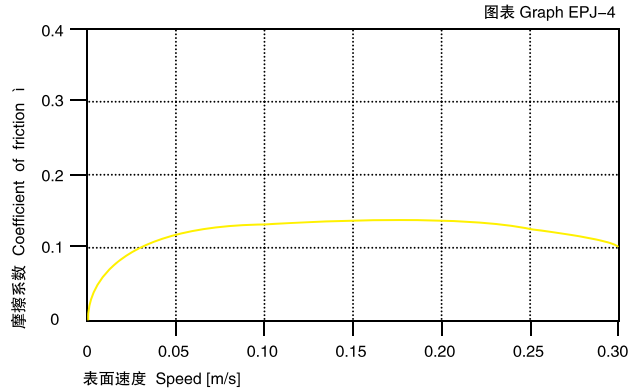
EPG	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.15	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

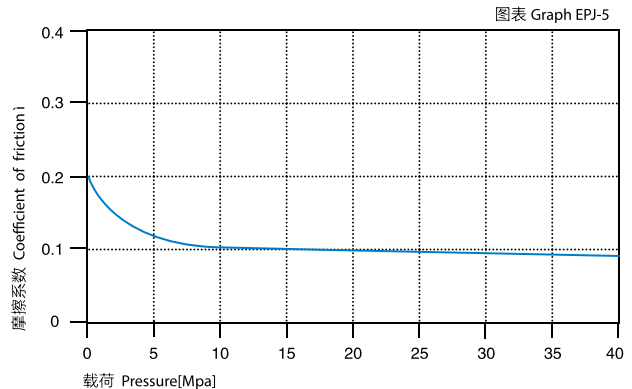
图表 EPJ-7 是 EPJ 轴承在不同轴上运行磨损测试结果；图表 EPJ-8 表明当 EPJ 在载荷低于 2Mpa 下运行时适合不同的轴材料，但在硬铬轴上的摩擦磨损最小；当载荷继续增大时，此轴承在不锈钢轴的耐磨性能尤为突出。图表 EPJ-8 表明 EPJ 轴承比较适合用于旋转运动，但无论是在旋转运动还是摆动运动此轴承在硬铬轴上的运用效果是最好的。

Test of the bearing against various shaft materials shows that the material EPJ features the best performance where the shaft material is hard chrome steel with loading less than 2Mpa. (See Graph EPJ-7). Therefore, the higher the load is increased, the wear-resistance of the bearing will be better against the stainless steel shaft. Refer to Graph EPJ-8, the material EPJ is suitable for rotation operation. Ether to be used under rotation operation or the oscillation operation. It is the best suitable material for the application against hard chrome steel shaft.

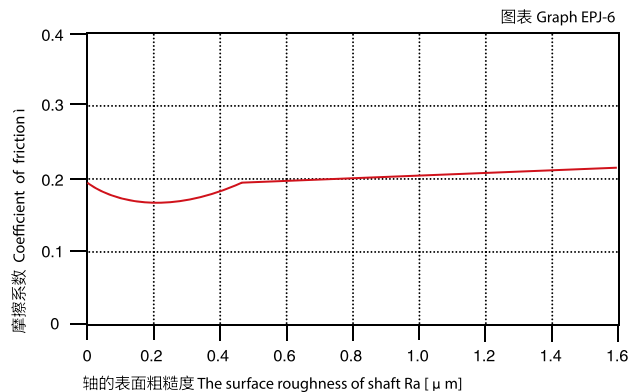
摩擦系数与速度变化关系图表 P=2MPa
coefficient of friction & the speed of bearing, P=2Mpa



摩擦系数与载荷变化关系图表 v=0.2m/s
coefficient of friction & the pressure of bearing, v=0.2m/s



摩擦系数与轴粗糙度变化关系图表
coefficient of friction & the surface roughness of shaft





EPJ 塑料轴承 EPJ Plastic Bearings

化学抗性 Chemical Resistance

EPJ 塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

EPJ is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water Absorbability

在标准大气压中，EPJ 塑料轴承的吸水率极低为 0.2%，浸泡水中最大平衡率为 1.2%；由于其具有低吸水率的特性，故此轴承可以用于一般潮湿环境中。

The water absorb rate of EPH is 0.2% under the atmospheric pressure while it is 1.2% when the material is immersed into water. With its low water absorbability, the material is suitable for humid environment applications.

抗 UV 性能 UV Resistance

EPJ 长久暴露在紫外线下颜色基本不会发生改变。材料的硬度，抗压强度和耐磨性能都不会改变。

EPJ can maintain its color unchanged when it is exposed into the UV ray. The hardness, Compressive strength and wear resistance of the material is also stable under such condition.

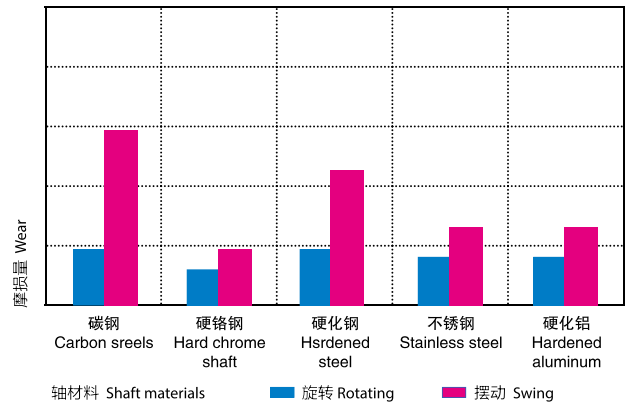
轴承安装 Bearing Installation

EPJ 系列轴承配合公差 The Interfit Tolerance

直径 mm ² d	压装后公差 E10 Tolerance after fit	安装孔径 H7 Fit Housing	配合轴径 h9 Fit Shaft
> 0~3	+0.014~+0.054	0~+0.010	0~-0.025
> 3~6	+0.020~+0.068	0~+0.012	0~-0.030
> 6~10	+0.025~+0.083	0~+0.015	0~-0.036
> 10~18	+0.032~+0.102	0~+0.018	0~-0.043
> 18~30	+0.040~+0.124	0~+0.021	0~-0.052
> 30~50	+0.050~+0.150	0~+0.025	0~-0.062
> 50~80	+0.060~+0.180	0~+0.030	0~-0.074
> 80~120	+0.072~+0.212	0~+0.035	0~-0.087
> 120~180	+0.085~+0.245	0~+0.040	0~-0.100

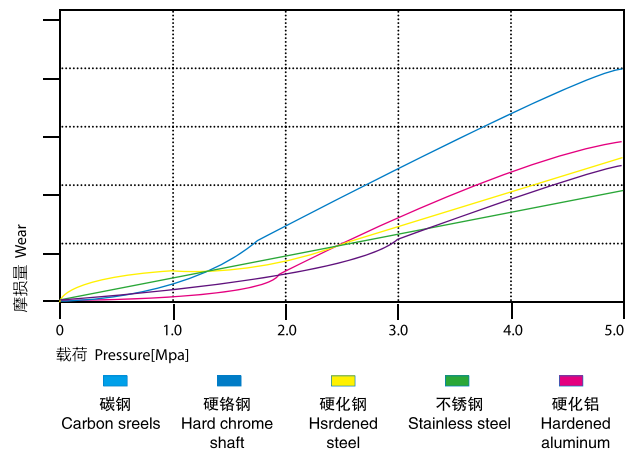
在不同轴材料上旋转时的磨损量 P=2MPa, v=0.2m/s
The bearing wear under rotating with different shaft materials, p=2MPa, v=0.2m/s

图表 Graph EPJ-7



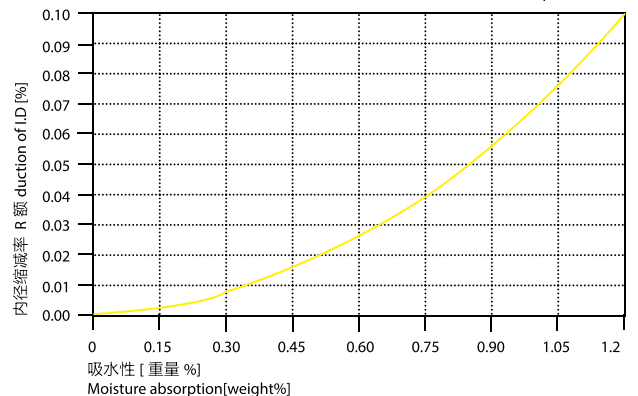
旋转磨损随轴材料与压力变化关系 v=0.2m/s
The bearing wear & pressure under rotating with different shaft materials, v=0.2m/s

图表 Graph EPJ-8



吸水率的影响
Effect of moisture absorption on EPT bearings

图表 Graph EPJ-9





EPS1 塑料轴承 EPS1 Plastic Bearings



标准产品规格表 Standard Specification Sheet:P184

产品特性 Product Features

- 高速低成本解决方案。耐高温 260 度下几乎能抵抗所有的化学液体腐蚀。不适合极高载荷。环境温度高于 135 度需考虑额外限位装置。
- 连续使用温度：-200℃ ~260℃；
- 适合干运动、免维护；
- 低摩擦系数要求；
- 适合轻载高速运动；
- 高化学抗性；
- 适合在液体运行。
- Economic solution for high speed application. Under the temperature of 260 °C , the material can still have good chemical resistance feature. It is not suitable for high load application. When the temperature is higher than 135 °C ,additional location ring is necessary.
- Continuous working temperature: -200°C -260°C；
- Maintenance-free dry operation;
- Low friction requirement;
- High surface speed under low load;
- High chemical resistance;
- Suitable for working in liquid.

主要性能数据表 The Material Data Sheet

一般性能 Common Capabilty	试验方法 Testing Method	单位 Unit	EPS1
密度 Density	ISO1183	g/cm ³	2.13
颜色 Color			黑色 Black
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.08-0.18
最大 PV 值 Max.PV (dry)		n/mm ² × m/s	0.3
最大旋转速度值 Max.roatating velocity		m/s	2.0
最大摇摆速度值 Max.oscillating velocity		m/s	1.4
最大直线速度值 Max.linear velocity		m/s	5
抗拉强度 Tensile strength	ISO527	MPa	13
抗压强度 (轴向) Coppingressive strength(Axial)		MPa	8
弹性模量 E-module	ISO527	MPa	790
允许最大表面静压力 (20℃) Max.static pressure of the surface, 20℃		MPa	8
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	78
连续工作温度 continuous work temperature		℃	-200/260
短时运行温度 Short-time		℃	-200/310
导热性 Thermal conductivity	ASTME1461	W/m k	0.25
线性热膨胀系数 Linear coef.of thermal eapansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	12
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	< 0.1
最大吸水率 23℃ Max. water absorption,23℃		%	< 0.1
燃烧性能 Flammability	UL94		V 0
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ⁴
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ³



EPS2 塑料轴承 EPS2 Plastic Bearings



标准产品规格表 Standard Specification Sheet:P184

产品特性 Product Features

- 符合 FDA 标准的高速高温材料。极地的摩擦系数，适用于低载荷下的高速运动。抗化学液体腐蚀性能同样出色。环境温度高于 135 度需考虑额外限位装置。
- 连续使用温度：-200℃ -260℃；
- 适合中等载荷与高速运动；
- 软轴许可；
- 高化学抗性；
- 适合在液体运行；
- FDA 等级允许食品和药品接触。
- High speed and high temperature material conforms to FDA regulations. With low friction, it is suitable for low load high speed applications. It has excellent chemical resistance feature. When the temperature is higher than 135 °C ,additional location ring is necessary.
- Continuous working temperature:-200°C -260°C ;
- Middle load and high surface speed;
- Soft material resistance;
- High chemical resistance;
- Suitable for working in liquid;
- Meet FDA standards for contact with food.

主要性能数据表 The Material Data Sheet

一般性能 Common Capabilty	试验方法 Testing Method	单位 Unit	EPS ₂
密度 Density	ISO1183	g/cm ³	2.02
颜色 Color			黄色 Yellow
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.05-0.15
最大 PV 值 Max.PV (dry)		n/mm ² × m/s	0.4
最大旋转速度值 Max.roatating velocity		m/s	2.0
最大摇摆速度值 Max.oscillating velocity		m/s	3.5
最大直线速度值 Max.linear velocity		m/s	7
抗拉强度 Tensile strength	ISO527	MPa	18
抗压强度（轴向）Coppressive strength(Axial)		MPa	10
弹性模量 E-module	ISO527	MPa	830
允许最大表面静压力（20℃）Max.static pressure of the surface, 20℃		MPa	10
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	78
连续工作温度 continuous work temperature		℃	-200/260
短时运行温度 Short-time		℃	-200/310
导热性 Thermal conductivity	ASTME1461	W/m k	0.25
线性热膨胀系数 Linear coef.of thermal eapansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	13
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	< 0.1
最大吸水率 23℃ Max. water absorption,23℃		%	< 0.1
燃烧性能 Flammability	UL94		V 0
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ¹³
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ¹²



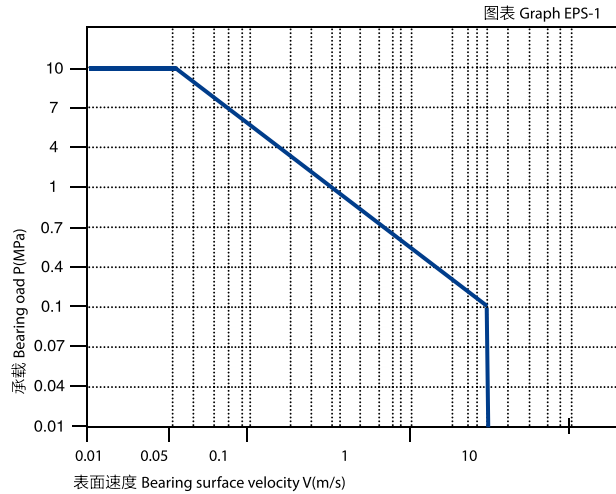
EPS2 塑料轴承 EPS2 Plastic Bearings

轴承 PV 值 PV Value of Bearings

EPS 系列轴承最大运行 PV 值为 0.4N/mm²*m/s; 由此决定轴承所承受的载荷与速度成反比, 详情查阅图表 EPS-1。

The max PV value of the CSB-EPB series bearing is 0.4N/mm²*m/s which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPS-1).

■ PV 图表 Permissible PV value for EPS



轴承 PV 值 PV Value of Bearings

轴承的载荷、速度、温度

The Relation of load, Speed and Temperature;

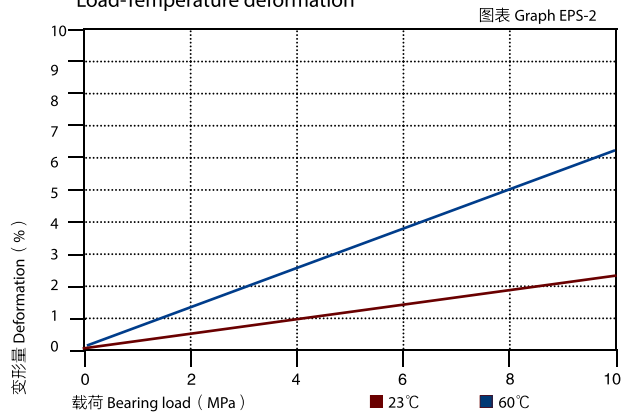
EPS 系列轴承可承受最大静载荷为 10Mpa, 在此载荷下轴承的最大压缩变形量参考图表 EPS-2;

轴承实际工作载荷小于 10Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (Vmax:5.0m/s) 会导致摩擦温度上升, 而温度上升 (Tmax:260℃) 会导致轴承的承载能力逐渐减弱, 载荷随轴承工作温度变化情况参考图表 EPS-3。

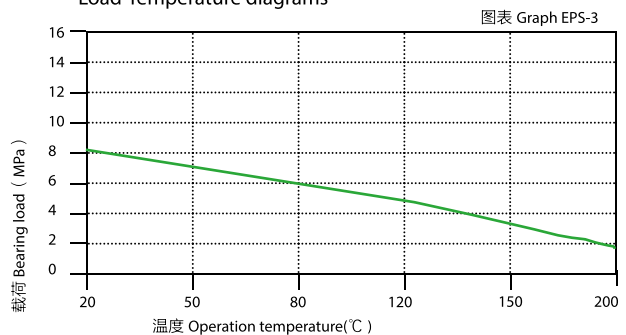
EPS allows the max static load of 10Mpa, The max compressive deformation rate under the max load is listed in Graph EPS-2;

The actual load capacity of bearing is slightly less than 10Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax:5.0m/s) results into higher temperature (Tmax:260℃) which decreases the load capacity of the bearing. Please refer to the Graph EPS-3 for such variation.

■ 载荷 - 温度 - 变形量图表
Load-Temperature deformation



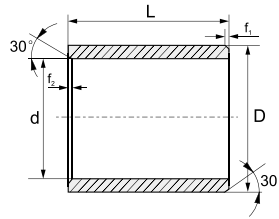
■ 载荷 - 温度图表
Load-Temperature diagrams





EP 系列规格表 EP Series Specification Table

直套 Metric Cylindrical Bushes



推荐安装公差 Recommend fitting tolerance

座孔 Housing: H7

轴 Shaft: H9

EP-0608-06

材料 Material	d	D	L
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d	f ₁	f ₂
d ≤ 10	0.5	0.5
10 < d ≤ 30	0.8	0.5
30 < d	1.2	0.5

直套系列尺寸规格表（各不同材料尺寸表通用）

型号 model	内径 d	压装座孔内径 d 公差	外径 D	高度 L
EP-0304-03	3	+0.014/+0.054	4.5	3
EP-0304-06	3	+0.014/+0.054	4.5	6
EP-0305-05	3	+0.014/+0.054	5.5	5
EP-0405-06	4	+0.020/+0.068	5.5	6
EP-0406-06	4	+0.020/+0.068	6	6
EP-0507-05	5	+0.020/+0.068	7	5
EP-0507-08	5	+0.020/+0.068	7	8
EP-0507-10	5	+0.020/+0.068	7	10
EP-0507-18	5	+0.020/+0.068	7	18
EP-0608-04	6	+0.020/+0.068	8	4
EP-0608-06	6	+0.020/+0.068	8	6
EP-0608-08	6	+0.020/+0.068	8	8
EP-0608-10	6	+0.020/+0.068	8	10
EP-0608-11	6	+0.020/+0.068	8	11
EP-0810-05	8	+0.025/+0.083	10	5
EP-0810-06	8	+0.025/+0.083	10	6
EP-0810-08	8	+0.025/+0.083	10	8
EP-0810-10	8	+0.025/+0.083	10	10
EP-0810-11	8	+0.025/+0.083	10	11
EP-0810-12	8	+0.025/+0.083	10	12
EP-0810-15	8	+0.025/+0.083	10	15
EP-0811-10	8	+0.025/+0.083	11	10
EP-0812-10	8	+0.025/+0.083	12	10
EP-0911-06	9	+0.025/+0.083	11	6
EP-1012-04	10	+0.025/+0.083	12	4
EP-1012-05	10	+0.025/+0.083	12	5
EP-1012-06	10	+0.025/+0.083	12	6
EP-1012-08	10	+0.025/+0.083	12	8
EP-1012-10	10	+0.025/+0.083	12	10
EP-1012-12	10	+0.025/+0.083	12	12
EP-1012-15	10	+0.025/+0.083	12	15
EP-1014-10	10	+0.013/+0.071	14	10
EP-1014-16	10	+0.025/+0.083	14	16
EP-1012-18	10	+0.025/+0.083	12	18
EP-1012-20	10	+0.025/+0.083	12	20
EP-1214-06	12	+0.032/+0.102	14	6
EP-1214-08	12	+0.032/+0.102	14	8
EP-1214-10	12	+0.032/+0.102	14	10
EP-1214-12	12	+0.032/+0.102	14	12
EP-1214-15	12	+0.032/+0.102	14	15
EP-1214-20	12	+0.032/+0.102	14	20

直套系列尺寸规格表（各不同材料尺寸表通用）

型号 model	内径 d	压装座孔内径 d 公差	外径 D	高度 L
EP-1820-20	18	+0.032/+0.102	20	20
EP-1820-25	18	+0.032/+0.102	20	25
EP-2022-12	20	+0.040/+0.124	22	12
EP-2022-15	20	+0.040/+0.124	22	15
EP-2022-28	20	+0.040/+0.124	22	28
EP-2023-10	20	+0.040/+0.124	23	10
EP-2023-15	20	+0.040/+0.124	23	15
EP-2023-20	20	+0.040/+0.124	23	20
EP-2023-23	20	+0.040/+0.124	23	23
EP-2023-25	20	+0.040/+0.124	23	25
EP-2023-30	20	+0.040/+0.124	23	30
EP-2025-15S	20	+0.020/+0.104	25	15
EP-2125-32	21	+0.040/+0.124	25	32
EP-2225-15	22	+0.040/+0.124	25	15
EP-2225-20	22	+0.040/+0.124	25	20
EP-2225-25	22	+0.040/+0.124	25	25
EP-2225-30	22	+0.040/+0.124	25	30
EP-2528-10	25	+0.040/+0.124	28	10
EP-2528-12	25	+0.040/+0.124	28	12
EP-2528-15	25	+0.040/+0.124	28	15
EP-2528-20	25	+0.040/+0.124	28	20
EP-2528-25	25	+0.040/+0.124	28	25
EP-2528-30	25	+0.040/+0.124	28	30
EP-2529-25	25	+0.040/+0.124	29	25
EP-2530-25S	25	+0.020/+0.104	30	25
EP-2832-20	28	+0.040/+0.124	32	20
EP-2832-25	28	+0.040/+0.124	32	25
EP-2832-30	28	+0.040/+0.124	32	30
EP-3034-20	30	+0.040/+0.124	34	20
EP-3034-25	30	+0.040/+0.124	34	25
EP-3034-30	30	+0.040/+0.124	34	30
EP-3034-40	32	+0.040/+0.124	34	40
EP_3236-20	32	+0.050/+0.150	36	20
EP-3236-23	32	+0.050/+0.150	36	23
EP-3236-25	32	+0.050/+0.150	36	25
EP-3236-30	32	+0.050/+0.150	36	30
EP-3236-40	32	+0.050/+0.150	36	40
EP-3539-15	35	+0.050/+0.150	39	15
EP-3539-20	35	+0.050/+0.150	39	20
EP-3539-25	35	+0.050/+0.150	39	25
EP-3539-30	35	+0.050/+0.150	39	30



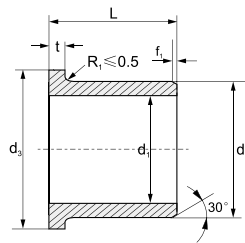
EP 系列规格表 EP Series Specification Table

型号	内径 d1	公差	外径 d2	高度 L
EP-1214-25	12	+0.032/+0.102	14	25
EP-1215-20	12	+0.032/+0.102	15	20
EP-1315-07	13	+0.032/+0.102	15	7
EP-1315-10	13	+0.032/+0.102	15	10
EP-1416-08	14	+0.032/+0.102	16	8
EP-1416-10	14	+0.032/+0.102	16	10
EP-1416-15	14	+0.032/+0.102	16	15
EP-1416-20	14	+0.032/+0.102	16	20
EP-1416-25	14	+0.032/+0.102	16	25
EP-1517-10	15	+0.032/+0.102	17	10
EP-1517-15	15	+0.032/+0.102	17	15
EP-1517-17	15	+0.032/+0.102	17	17
EP-1517-20	15	+0.032/+0.102	17	20
EP-1517-25	15	+0.032/+0.102	17	25
EP-1618-10	16	+0.032/+0.102	18	10
EP-1618-12	16	+0.032/+0.102	18	12
EP-1618-15	16	+0.032/+0.102	18	15
EP-1618-20	16	+0.032/+0.102	18	20
EP-1616-25	16	+0.032/+0.102	18	25
EP-1620-16S	16	+0.016/+0.086	20	16
EP-1820-15	18	+0.032/+0.102	20	15

型号	内径 d1	公差	外径 d2	高度 L
EP-3539-40	35	+0.050/+0.150	39	40
EP-359-50	35	+0.050/+0.150	39	50
EP-4044-20	40	+0.050/+0.150	44	20
EP-4044-30	40	+0.050/+0.150	44	30
EP-4044-40	40	+0.050/+0.150	44	40
EP-4044-50	40	+0.050/+0.150	44	50
EP-4550-30	45	+0.050/+0.150	50	30
EP-4550-40	45	+0.025/+0.125	50	40
EP-4550-50	45	+0.050/+0.150	50	50
EP-5055-20	50	+0.050/+0.150	55	20
EP-5055-30	50	+0.050/+0.150	55	30
EP-5055-40	50	+0.050/+0.150	55	40
EP-5055-50	50	+0.050/+0.150	55	50
EP-8590-40	85	+0.036/+0.176	90	40

*d 公差为压入标准 H7 座孔 (符合 ISO3547-1) 后公差
*Tolerance d: after being pressed into housing H7 (ISO3547-1)

翻边轴套 Metric F flange Bushes



推荐安装公差 Recommend fitting tolerance

座孔 Housing: H7

轴 Shaft: H9

订购编码 Order P/N:

EP F -0608 -06



翻边轴座 Flange Bushes

材料 Material

d	f ₁
d ≤ 10	0.5
10 < d ≤ 30	0.8
30 < d	1.2

型号	内径 d1	压装座孔内径 d 公差	外径 d2	法兰外径 d3	高度 L	法兰厚度 e1
EPF-0304-03	3	+0.014/+0.054	4.5	7.5	3	0.75
EPF-0304-05	3	+0.014/+0.054	4.5	7.5	5	0.75
EPF-0507-04	5	+0.020/+0.068	7	11	4	1
EPF-0507-05	5	+0.020/+0.068	7	11	5	1
EPF-0608-04	6	+0.020/+0.068	8	12	4	1
EPF-0608-06	6	+0.020/+0.068	8	12	6	1
EPF-0608-08	6	+0.020/+0.068	8	12	8	1
EPF-0608-10	6	+0.020/+0.068	8	12	10	1
EPF-0810-05	8	+0.025/+0.083	10	15	5	1
EPF-0810-07	8	+0.025/+0.083	10	15	7	1
EPF-0810-09	8	+0.025/+0.083	10	15	9	1
EPF-0810-10	8	+0.025/+0.083	10	15	10	1
EPF-081014-12	8	+0.025/+0.083	10	14	12	1
EPF-0810-12	8	+0.025/+0.083	10	15	12	1
EPF-0810-13	8	+0.025/+0.083	10	18	13	1
EPF-081017-13	8	+0.025/+0.083	10	17	15	1
EPF-081216-10	8	+0.013/+0.071	12	16	10	2
EPF-1012-05	10	+0.025/+0.083	12	18	5	1
EPF-1012-06	10	+0.025/+0.083	12	18	6	1
EPF-1012-07	10	+0.025/+0.083	12	18	7	1
EPF-1012-08	10	+0.025/+0.083	12	18	8	1
EPF_1012-09	10	+0.025/+0.083	12	18	9	1

型号	内径 d1	压装座孔内径 d 公差	外径 d2	法兰外径 d3	高度 L	法兰厚度 e1
EPF-1517-17	15	+0.032/+0.102	17	23	17	1
EPF-1517-20	15	+0.032/+0.102	17	23	20	1
EPF-1518-12	15	+0.032/+0.102	18	23	12	1
EPF-1517-25	15	+0.032/+0.102	1	23	25	1
EPF-1618-12	16	+0.032/+0.102	18	24	12	1
EPF-1618-17	16	+0.032/+0.102	18	24	17	1
EPF-161822-22	16	+0.016/+0.086	18	22	22	2
EPF-162024-16	16	+0.016/+0.086	20	24	16	2
EPF-162024-22	16	+0.016/+0.086	20	24	22	2
EPF-1820-12	18	+0.032/+0.102	20	26	12	1
EPF-1820-17	18	+0.032/+0.102	20	26	17	1
EPF-1820-20	18	+0.032/+0.102	20	26	20	1
EPF-182024-22	18	+0.016/+0.086	20	24	22	2
EPF-2022-15	20	+0.040/+0.124	23	25	15	1
EPF-2023-11	20	+0.040/+0.124	23	30	11	1.5
EPF-2023-11.5	20	+0.040/+0.124	23	30	11.5	1.5
EPF-2023-16	20	+0.040/+0.124	23	30	16	1.5
EPF-2023-16.5	20	+0.040/+0.124	23	30	16.5	1.5
EPF-2023-21.5	20	+0.040/+0.124	23	30	21.5	1.5
EPF-2023-25	20	+0.040/+0.124	23	30	25	1.5
EPF-202330-15	20	+0.040/+0.124	23	30	15	2
EPF-202330-22	20	+0.040/+0.124	23	30	22	2



EP 系列规格表 EP Series Specification Table

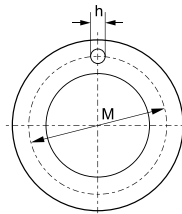
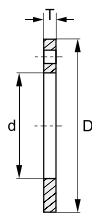
翻边系列尺寸规格表 (各不同材料尺寸表通用)

型号	内径 d1	压装座孔内径 d 公差	外径 d2	法兰外径 d3	高度 L	法兰厚度 e1
EPF-1012-10	10	+0.025/+0.083	12	18	10	1
EPF-1012-12	10	+0.025/+0.083	12	18	12	1
EPF-1012-15	10	+0.025/+0.083	12	18	15	1
EPF-1012-17	10	+0.025/+0.083	12	18	17	1
EPF-101216-12	10	+0.013/+0.071	12	16	12	2
EPF-1214-04	12	+0.032/+0.102	14	20	4	1
EPF-1214-05	12	+0.032/+0.102	14	20	5	1
EPF-1214-06	12	+0.032/+0.102	14	20	6	1
EPF-1214-07	12	+0.032/+0.102	14	20	7	1
EPF-1214-09	12	+0.032/+0.102	14	20	9	1
EPF-1214-10	12	+0.032/+0.102	14	20	10	1
EPF-1214-12	12	+0.032/+0.102	14	20	12	1
EPF-1214-13	12	+0.032/+0.102	14	20	13	1
EPF-1214-15	12	+0.032/+0.102	14	20	15	1
EPF-1214-17	12	+0.032/+0.102	14	20	17	1
EPF-1214-18	12	+0.032/+0.102	14	20	18	1
EPF-1012-20	12	+0.032/+0.102	14	20	20	1
EPF-121417-04	12	+0.032/+0.102	14	17	4	1
EPF-121417-05	12	+0.032/+0.102	14	17	5	1
EPF-121417-12	12	+0.016/+0.086	14	18	12	2
EPF-121417-25	12	+0.032/+0.102	14	18	25	1
EPF-121417-40	12	+0.016/+0.086	14	18	40	2
EPF-121417-10	12	+0.016/+0.086	16	20	10	2
EPF-1416-052	14	+0.032/+0.102	16	22	5.2	1
EPF-1416-08	14	+0.032/+0.102	16	22	8	1
EPF-1416-10	14	+0.032/+0.102	16	22	10	1
EPF-1416-12	14	+0.032/+0.102	16	22	12	1
EPF-1416-17	14	+0.032/+0.102	16	22	17	1
EPF-141620-06	14	+0.016/+0.086	16	20	6	2
EPF-141620-15	14	+0.016/+0.086	16	20	15	2
EPF-151720-05	15	+0.032/+0.102	17	20	5	1
EPF-1517-09	15	+0.032/+0.102	17	23	9	1
EPF-1517-12	15	+0.032/+0.102	17	23	12	1
EPF-151720-12	15	+0.032/+0.102	17	20	12	1

翻边系列尺寸规格表 (各不同材料尺寸表通用)

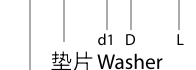
型号	内径 d1	压装座孔内径 d 公差	外径 d2	法兰外径 d3	高度 L	法兰厚度 e1
EPF-202430-20	20	+0.020/+0.104	24	30	20	2
EPF-202530-15	20	+0.020/+0.104	25	30	15	2
EPF-202732-20	20	+0.020/+0.104	27	32	20	2
EPF-2225-11.5	22	+0.040/+0.124	25	32	11.5	1.5
EPF-2528-11	25	+0.040/+0.124	28	35	11	1.5
EPF-2528-11.5	25	+0.040/+0.124	28	35	11.5	1.5
EPF-2528-16	25	+0.040/+0.124	28	35	16	1.5
EPF-2528-16.5	25	+0.040/+0.124	28	35	16.5	1.5
EPF-2528-21	25	+0.040/+0.124	28	35	21	1.5
EPF-252835-32	25	+0.020/+0.104	28	35	32	2
EPF-3034-16	30	+0.040/+0.124	34	42	16	2
EPF-3034-26	30	+0.040/+0.124	34	42	26	2
EPF-3034-37	30	+0.040/+0.124	34	42	37	2
EPF-3034-32	30	+0.040/+0.124	34	42	32	2
EPF-303445-18	30	+0.020/+0.104	34	42	18	2
EPF-303445-22	30	+0.020/+0.104	34	45	22	2
EPF-303445-32	30	+0.040/+0.124	34	45	32	2
EPF-3236-16	32	+0.050/+0.150	36	40	16	2
EPF-3236-26	32	+0.050/+0.150	36	40	26	2
EPF-3539-16	35	+0.050/+0.150	39	47	16	2
EPF-3539-26	35	+0.050/+0.150	39	47	26	2
EPF-353950-22	35	+0.025/+0.125	39	50	22	2
EPF-4044-30	40	+0.050/+0.150	44	52	30	2
EPF-4044-40	40	+0.050/+0.150	44	52	40	2
EPF-4550-50	45	+0.050/+0.150	50	58	50	2
EPF-455060-45	45	+0.025/+0.125	50	60	45	2.5
EPF-5055-20	50	+0.050/+0.150	55	63	20	2
EPF-5055-30	50	+0.050/+0.150	55	63	30	2
EPF-5055-40	50	+0.050/+0.150	55	63	40	2
EPF-5055-50	50	+0.050/+0.150	55	63	50	2
EPF-505563-50	50	+0.025/+0.125	55	63	50	2
EPF-657080-60	65	+0.030/+0.150	70	80	60	2.5
EPF-9095110-50	90	+0.036/+0.176	95	110	50	2.5

垫片 Metric Thrust Washer



订购编码 Order P/N:

EP W - 08 18 - 015



材料 Material

垫片系列尺寸规格表 (各不同材料尺寸表通用)

型号	内径 d	外径 d	厚度 T	定位孔圆心直径	定位孔直径
EPW-0815-005	8	15	0.5		
EPW-0818-015	8	18	1.5	13	1.5
EPW-1018-015	10	18	1.5	15	1.5
EPW-1224-015	12	24	1.5	18	1.5
EPW-1426-015	14	26	1.5	20	2
EPW-1630-015	16	30	1.5	23	2
EPW-1832-015	18	32	1.5	25	2
EPW-2030-015	20	30	1.5		

垫片系列尺寸规格表 (各不同材料尺寸表通用)

型号	内径 d	外径 d	厚度 T	定位孔圆心直径	定位孔直径
EPW-2036-015	20	36	1.5	38	3
EPW-2238-015	22	38	1.5	30	3
EPW-2442-015	24	42	1.5	33	3
EPW-2644-015	26	44	1.5		
EPW-2644-015	26	44	1.5	35	3
EPW-2848-015	28	48	1.5	38	4
EPW-3254-015	32	54	1.5	43	4
EPW-3254-015	32	54	1.5		
EPW-4266-015	42	66	1.5	54	4
EPW-4874-020	48	74	2	61	4



LIN 塑料直线轴承 LIN Plastic Linear Bearings

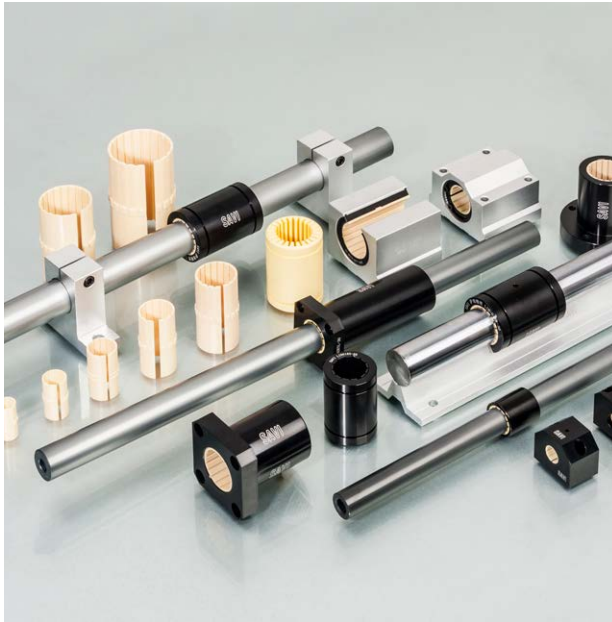


LIN 塑料直线轴承 LIN Plastic Linear Bearings



LIN 系列直线轴承

LIN Series Linear Bearings



产品特性 Product Features

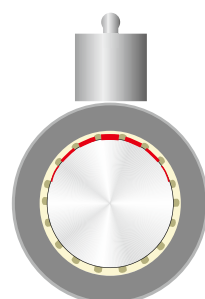
- 自润滑免维护塑料直线轴承。无噪音运行。适合在极其恶劣的粉尘环境中连续使用。允许被食品药品包装机械清洗液清洗。对轴材料硬度以及安装孔的精度要求较低。
- 免维护、长期干运行、无噪音；
- 适合灰尘中长期运行；
- 耐腐蚀，适合用消毒液清洗；
- 斜槽设计更强的对轴保护能力；
- 减小了槽宽以增强承载能力；
- 安装和替换简易；
- 适合轻量化设计。
- Maintenance free plastic linear bearing. Low noise operation is suitable for continuously application under the critical dusty environment. It is washable by the clean detergent of the food machine. There is no critical requirement about the shaft hardness or the mounting holes of the housing;
- Maintenance-free, Drying working, noiseless;
- Suitable for long-time running in dusty environment;
- Corrosion resistance; Cleaning with disinfectant lotion;
- Inclined groove designation provides better protection to the shaft;
- Narrowed groove improves the load capacity;
- Easy installation and replacement;
- Suitable for lightweight design.

LIN 直线轴承高承载能力

LIN series bearing with high loading capability

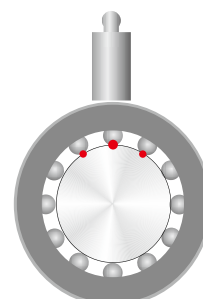
LIN 直线轴承作为一种直线滑动轴承，工作面是以面形式与轴表面接触，而转动的滚珠直线轴承是以点线的形式和轴表面接触；这就决定了较大接触面的 LIN 系列直线轴承具有比滚珠直线轴承更高的承载能力。

As a linear sliding bearings, the contacting of the bearing and the shaft is a surface instead of point contact of the traditional ball bearings. So it results in that the surface contacting LIN series linear sliding bearings are with better loading capability than the sliding ball bearings.



LIN 直线滑动轴承
LIN Linear bearing

高载
High load



滚珠直线轴承
Ball linear bearing

轻载
Low load

+

LIN 系列塑料轴承 LIN Series Linear Bearings

LIN 直线轴承在污垢，灰尘中干运行 LIN series linear sliding bearing used in critical of containments and dusts



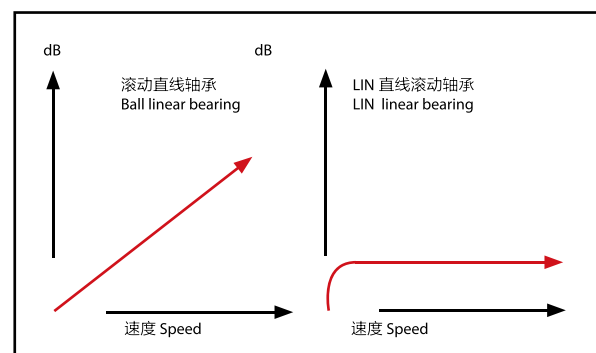
LIN 直线轴承滑动膜是专门为干运行而开发的高性能材料；特殊的专利结构设计允许轴承在污垢、灰尘或沙粒中平稳运行，螺旋式结构设计能使得脏物很快速的落入到设计的凹槽中，并通过不断的直线运动最终被从凹槽中带出直线轴承系统。而传统的金属滚动直线轴承在有污垢、灰尘或沙粒存在的情况下会很容易出现卡死、跑珠等现象而卡死，甚至会因卡死现象导致轴被拉伤。

LIN series sliding membrane is an excellent material specially designed for dry operation. The patented designation of this material allows the bearing to be used in the critical conditions such as in containments and dusts. The spiral groove designation allows the containments or dusts entering the grooves and be brought out of the bearing system finally while the traditional sliding ball bearings will be blocked by the entered containments and therefore cause the breakout of the bearing system causing shaft or bearing damages.

LIN 直线轴承在污垢，灰尘中干运行 LIN series linear sliding bearing operation with low noise

金属滚珠直线轴承由于滚珠在运动过程中与保持架体之间的撞击所发出的噪音，而且这种噪音会随着速度的加快而增高。但 LIN 直线轴承的工作面为滑动摩擦设计，所以在运行过程中只能发出较低的摩擦声，运行噪音非常低。

Metal ball sliding bearings generates high noise by the crashing of balls to the shafts during the operation and the noise will be sharply increased when the operation speed goes higher while the LIN series linear sliding bearings are with the surface contacting structure which ensures a lower operation noise level.



■ 噪音曲线对比图 Comparison of noise development

LIN 直线轴承允许经常接触清洗液 LIN series linear sliding bearing allows the access of cleaning solution

LIN 直线轴承被经常用于食品包装机械的导向机构中，经常受到清洗液的冲刷；多年的使用证明 LIN 直线轴承正如所设计的那样足够抵抗各类碱性清洗液的腐蚀，甚至能整体浸泡在液体介质中运行。



LIN 系列直线轴承 LIN Series Linear Bearings

滑动膜性能数据表 Sliding Membrane Material Data Sheets

一般性能 Common Capability	试验方法 Testing Method	单位 Unit	LIN
密度 Density	ISO1183	g/cm ³	1.48
颜色 Color			黄色 Yellow
对钢的动摩擦系数 Dynamic friction/steel(dry)			0.05-0.15
最大 P.V 值 Max.PV (dry)		n/mm ² × m/s	0.4
最大旋转速度值 Max.rotating velocity		m/s	1.5
最大摇摆速度值 Max.oscillating velocity		m/s	1.1
最大直线速度值 Max.linear velocity		m/s	8.0
抗拉强度 Tensile strength	ISO527	MPa	75
抗压强度 (轴向) Coppressive strength(Axial)		MPa	60
弹性模量 E-module	ISO527	MPa	2400
允许最大表面静压力 (20℃) Max.static pressure of the surface, 20℃		MPa	35
洛氏硬度 Rockwell hardness	ISO2039-2	HRR	107
连续工作温度 continuous work temperature		℃	-50/90
短时运行温度 Short-time		℃	-50/120
导热性 Thermal conductivity	ASTME1461	W/m k	0.25
线性热膨胀系数 Linear coef.of thermal eapansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	9
RH50/23℃时的吸湿性 Moisture absorbtion RH50/23℃	ASTMD570	%	0.3
燃烧性能 Flammability	UL94		HB
体电阻率 Volume resistivity	IEC60093	Ω cm	> 10 ¹³
面电阻率 Surface resistivity	IEC60093	Ω	> 10 ¹²

LIN 直线轴承承载能力 LIN Load Capacity

滑动膜材料: LIN

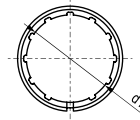
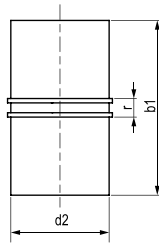
Sliding membrane material:LIN

公称内径 Inside nominal diameter	最大许可动载荷 Dynamic Load P=5MPa		最大许可动载荷 Max.Static Load P=35MPa	
	LIN-01 滑动膜系列 LIN-01 series of sliding membranes	LIN-02 滑动膜系列 LIN-02 series of sliding membranes	LIN-01 滑动膜系列 LIN-01 series of sliding membranes	LIN-02 滑动膜系列 LIN-02 series of sliding membranes
10	870N	780N	6090N	5460N
12	1152N	1008N	8064N	7056N
16	1728N	1440N	12096N	10080N
20	2700N	1800N	18900N	12600N
25	4350N	3000N	30650N	21000N
30	6120N	4500N	42840N	31500N
40	9600N	7200N	67200N	50400N
50	15000N	10500N	105000N	73500N



LIN 系列塑料轴承 LIN Series Linear Bearings technology

LIN-01 系列滑动膜 LIN-01 Series of Sliding Membranes

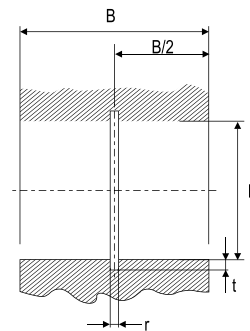


座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 mm ²	b1 mm ²	r(-0.1/-0.2) mm ²	重量 Weight g
LIN-01-10	10	+0.030/-0.070	12	29	3.0	1.3
LIN-01-12	12	+0.030/-0.070	14	31	3.0	1.6
LIN-01-16	16	+0.030/-0.070	18	35	3.5	2.2
LIN-01-20	20	+0.030/-0.070	23	44	5.0	5.0
LIN-01-25	25	+0.030/-0.070	28	57	5.0	8.0
LIN-01-30	30	+0.040/-0.085	34	67	5.0	15.1
LIN-01-40	40	+0.040/-0.085	44	79	6.0	25.6
LIN-01-50	50	+0.040/-0.085	55	99	7.0	50.6

装配尺寸 Installation size

订购编码 Order P/N	轴径 Shaft mm ²	D mm ² h7	B mm ² h10	r mm ²	t mm ²
LIN-01-10	10	12	29	3.0	1.0
LIN-01-12	12	14	32	3.0	1.0
LIN-01-16	16	18	36	3.5	1.0
LIN-01-20	20	23	45	5.0	1.0
LIN-01-25	25	28	58	5.0	1.0
LIN-01-30	30	34	68	5.0	1.0
LIN-01-40	40	44	80	6.0	1.5
LIN-01-50	50	55	100	7.0	1.5



配合 LIN-01 系列滑动膜产品系列： Membranes of the LIN-01 Series are used in:



订购编码 Order P/N:

LIN-01 - 10

内径 Inner diameter

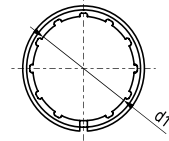
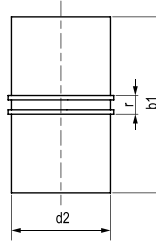
标准开口系列 01K
Standard split type 01K

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LIN 系列塑料轴承

LIN Series Linear Bearings technology

LIN-02 系列滑动膜 LIN-02 Series of Sliding Membranes

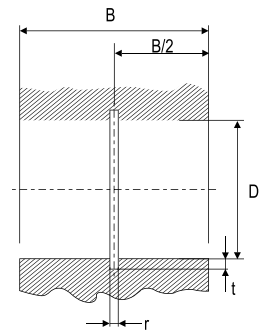


座孔 Housing:h7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 mm ²	b1 mm ²	r(-0.1/-0.2) mm ²	重量 Weight g
LIN-02-10	10	+0.030/-0.070	12	25	3.0	1.1
LIN-02-12	12	+0.030/-0.070	14	27	3.0	1.4
LIN-02-16	16	+0.030/-0.070	18	29	3.5	1.9
LIN-02-20	20	+0.030/-0.070	23	29	5.0	3.3
LIN-02-25	25	+0.030/-0.070	28	39	5.0	5.5
LIN-02-30	30	+0.040/-0.085	34	49	5.0	11.1
LIN-02-40	40	+0.040/-0.085	44	59	6.0	19.0
LIN-02-50	50	+0.050/-0.100	55	69	7.0	35.3

装配尺寸 Installation size

订购编码 Order P/N	轴径 Shaft mm ²	D mm ² h7	B mm ² h10	r mm ²	t mm ²
LIN-02-10	10	12	26	3.0	1.0
LIN-02-12	12	14	28	3.0	1.0
LIN-02-16	16	18	30	3.5	1.0
LIN-02-20	20	23	30	5.0	1.0
LIN-02-25	25	28	40	5.0	1.0
LIN-02-30	30	34	50	5.0	1.0
LIN-02-40	40	44	60	6.0	1.5
LIN-02-50	50	55	70	7.0	1.5

配合 LIN-02 系列滑动膜产品系列：
Membranes of the LIN-02 Series are used in:

订购编码 Order P/N:

LIN-02-10

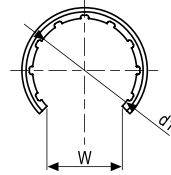
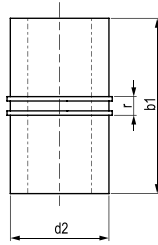
— 内径 Inner diameter

— 标准开口系列 02
Standard series02



LIN 系列塑料轴承 LIN Series Linear Bearings technology

LIN-01K 系列滑动膜 LIN-01K Series of Sliding Membranes

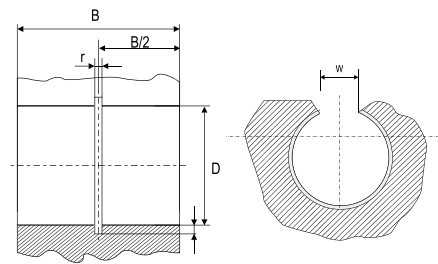


座孔 Housing:h7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 mm ²	b1 mm ²	W+0.2 mm ²	r(-0.1/-0.2) mm ²	重量 Weight g
LIN-01K-10	10	+0.030/-0.070	12	29	7.3	3.0	1.0
LIN-01K-12	12	+0.030/-0.070	14	31	9.0	3.0	1.3
LIN-01K-16	16	+0.030/-0.070	18	35	11.6	3.5	1.9
LIN-01K-20	20	+0.030/-0.070	23	44	12.0	5.0	4.5
LIN-01K-25	25	+0.030/-0.070	28	57	14.5	5.0	7.5
LIN-01K-30	30	+0.040/-0.085	34	67	16.6	5.0	14.5
LIN-01K-40	40	+0.040/-0.085	44	79	21.0	6.0	24.5
LIN-01K-50	50	+0.050/-0.100	55	99	25.5	7.0	49.0

装配尺寸 Installation size

订购编码 Order P/N	轴径 Shaft mm ²	D mm ² h7	B mm ² h10	r mm ²	t mm ²
LIN-01K-10	10	12	29	3.0	2.6
LIN-01K-12	12	14	32	3.0	3.1
LIN-01K-16	16	18	36	3.5	3.6
LIN-01K-20	20	23	45	5.0	3.6
LIN-01K-25	25	28	58	5.0	4.1
LIN-01K-30	30	34	68	5.0	1.1
LIN-01K-40	40	44	80	6.0	5.1
LIN-01K-50	50	55	100	7.0	6.1



配合 LIN-01K 系列滑动膜产品系列： Membranes of the LIN-01K Series are used in:



订购编码 Order P/N:

LIN-01K-10

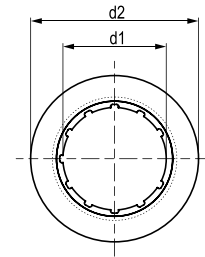
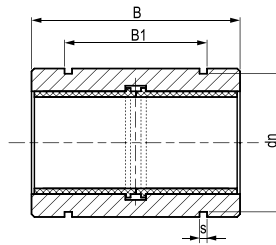
内径 Inner diameter

标准开口系列 01K
Standard split type 01K



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01R 系列滑动膜 LIN-01R Linear Bwarrings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 h7 mm ²	B h10 mm ²	B1 H10 mm ²	dn h10 mm ²	s H10 mm ²
LIN-01R-10	10	+0.030/+0.088	19	29	21.6	17.5	1.3
LIN-01R-12	12	+0.030/+0.088	22	32	22.6	20.5	1.3
LIN-01R-16	16	+0.030/+0.088	26	36	24.6	24.2	1.3
LIN-01R-20	20	+0.030/+0.091	32	45	31.2	29.6	1.6
LIN-01R-25	25	+0.030/+0.091	40	58	43.7	36.5	1.85
LIN-01R-30	30	+0.040/+0.110	47	68	51.7	43.5	1.85
LIN-01R-40	40	+0.040/+0.115	62	80	60.3	57.8	2.15
LIN-01R-50	50	+0.050/+0.130	75	100	77.3	70.5	2.65

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01R-10	10	19	0/+0.021	870N	6090N	12
LIN-01R-12	12	22	0/+0.021	1152N	8064N	20
LIN-01R-16	16	26	0/+0.021	1728N	12096N	28
LIN-01R-20	20	32	0/+0.025	2700N	18900N	50
LIN-01R-25	25	40	0/+0.025	4350N	30650N	104
LIN-01R-30	30	47	0/+0.025	6120N	42840N	163
LIN-01R-40	40	62	0/+0.030	9600N	67200N	341
LIN-01R-50	50	75	0/+0.030	15000N	105000N	589

订购编码 Order P/N: LIN-01 R-10

— 内径 Inner diameter

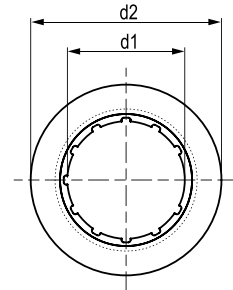
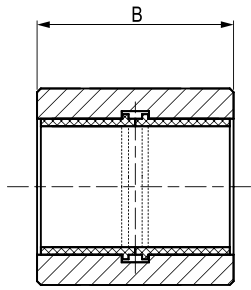
— 保持器 Aluminum housing

— LIN-01 系列标准滑动膜
Standard membranes type LIN-01



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-02R 系列直线轴承 LIN-02R Linear Bearings

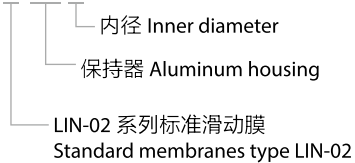


座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm	公差 Tolerance mm	d2 h7 mm	B h10 mm
LIN-02R-10	10	+0.030/+0.088	17	26
LIN-02R-12	12	+0.030/+0.088	19	28
LIN-02R-16	16	+0.030/+0.088	24	30
LIN-02R-20	20	+0.030/+0.091	28	30
LIN-02R-25	25	+0.030/+0.091	35	40
LIN-02R-30	30	+0.040/+0.110	40	50
LIN-02R-40	40	+0.040/+0.115	52	60
LIN-02R-50	50	+0.050/+0.130	62	70

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-02R-10	10	17	0/+0.018	780N	5460N	9
LIN-02R-12	12	19	0/+0.021	1008N	7056N	11
LIN-02R-16	16	24	0/+0.021	1440N	10080N	17
LIN-02R-20	20	28	0/+0.021	1800N	12600N	18
LIN-02R-25	25	35	0/+0.025	3000N	21000N	41
LIN-02R-30	30	40	0/+0.025	4500N	31500N	56
LIN-02R-40	40	52	0/+0.030	7200N	50400N	113
LIN-02R-50	50	62	0/+0.030	10500N	73500N	152

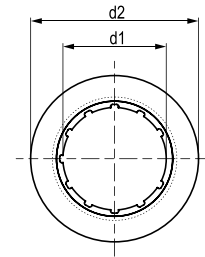
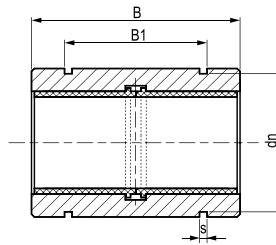
订购编码 Order P/N: LIN-02 R-10





LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01RS 系列滑动膜 LIN-01RS Linear Bwarings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 h7 mm ²	B h10 mm ²	B1 H10 mm ²	dn h10 mm ²	s H10 mm ²
LIN-01RS-10	10	+0.030/+0.088	19	29	21.6	17.5	1.3
LIN-01RS-12	12	+0.030/+0.088	22	32	22.6	20.5	1.3
LIN-01RS-16	16	+0.030/+0.088	26	36	24.6	24.2	1.3
LIN-01RS-20	20	+0.030/+0.091	32	45	31.2	29.6	1.6
LIN-01RS-25	25	+0.030/+0.091	40	58	43.7	36.5	1.85
LIN-01RS-30	30	+0.040/+0.110	47	68	51.7	43.5	1.85
LIN-01RS-40	40	+0.040/+0.115	62	80	60.3	57.8	2.15
LIN-01RS-50	50	+0.050/+0.130	75	100	77.3	70.5	2.65

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01RS-10	10	19	0/+0.021	870N	6090N	12
LIN-01RS-12	12	22	0/+0.021	1152N	8064N	20
LIN-01RS-16	16	26	0/+0.021	1728N	12096N	28
LIN-01RS-20	20	32	0/+0.025	2700N	18900N	50
LIN-01RS-25	25	40	0/+0.025	4350N	30650N	104
LIN-01RS-30	30	47	0/+0.025	6120N	42840N	163
LIN-01RS-40	40	62	0/+0.030	9600N	67200N	341
LIN-01RS-50	50	75	0/+0.030	15000N	105000N	589

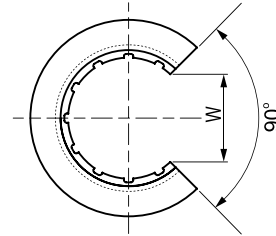
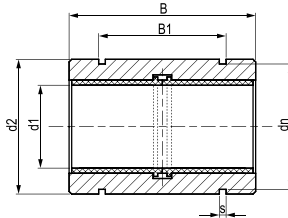
订购编码 Order P/N: LIN-01 RS -10

- 内径 Inner diameter
- 保持器 Aluminum housing
- LIN-01 系列标准滑动膜
Standard membranes type LIN-01



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01RK 系列直线轴承 LIN-01RK Linear Bearings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 h7 mm ²	B h10 mm ²	B1 H10 mm ²	W mm ²	s H10 mm ²	dn h10 mm ²
LIN-01RK-10	10	+0.030/+0.088	19	29	21.6	7.3	1.30	17.5
LIN-01RK-12	12	+0.030/+0.088	22	32	22.6	9.0	1.30	20.5
LIN-01RK-16	16	+0.030/+0.088	26	36	24.6	11.6	1.30	24.2
LIN-01RK-20	20	+0.030/+0.091	32	45	31.2	12.0	1.60	29.6
LIN-01RK-25	25	+0.030/+0.091	40	58	43.7	14.5	1.85	36.5
LIN-01RK-30	30	+0.040/+0.110	47	68	51.7	16.6	1.85	43.5
LIN-01RK-40	40	+0.040/+0.115	62	80	60.3	21.0	2.15	57.8
LIN-01RK-50	50	+0.050/+0.130	75	100	77.3	25.5	2.65	70.5

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01RK-10	10	19	0/+0.021	870N	6090N	9
LIN-01RK-12	12	22	0/+0.021	1152N	8064N	15
LIN-01RK-16	16	26	0/+0.021	1728N	12096N	21
LIN-01RK-20	20	32	0/+0.025	2700N	18900N	37
LIN-01RK-25	25	40	0/+0.025	4350N	30650N	78
LIN-01RK-30	30	47	0/+0.025	6120N	42840N	122
LIN-01RK-40	40	62	0/+0.030	9600N	67200N	256
LIN-01RK-50	50	75	0/+0.030	15000N	105000N	442

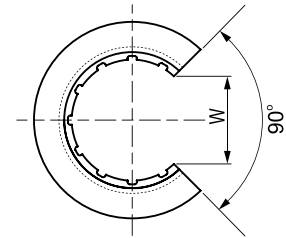
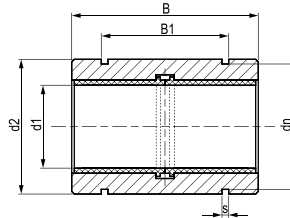
订购编码 Order P/N: LIN-01 RK-10

- 内径 Inner diameter
- 保持器 Aluminum housing
- LIN-01 系列标准滑动膜
Standard membranes type LIN-01

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LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01RSK 系列直线轴承 LIN-01RSK Linear Bearings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 h7 mm ²	B h10 mm ²	B1 H10 mm ²	W mm ²	s H10 mm ²	dn h10 mm ²
LIN-01RSK-10	10	+0.030/+0.088	19	29	21.6	7.3	1.30	17.5
LIN-01RSK-12	12	+0.030/+0.088	22	32	22.6	9.0	1.30	20.5
LIN-01RSK-16	16	+0.030/+0.088	26	36	24.6	11.6	1.30	24.2
LIN-01RSK-20	20	+0.030/+0.091	32	45	31.2	12.0	1.60	29.6
LIN-01RSK-25	25	+0.030/+0.091	40	58	43.7	14.5	1.85	36.5
LIN-01RSK-30	30	+0.040/+0.110	47	68	51.7	16.6	1.85	43.5
LIN-01RSK-40	40	+0.040/+0.115	62	80	60.3	21.0	2.15	57.8
LIN-01RSK-50	50	+0.050/+0.130	75	100	77.3	25.5	2.65	70.5

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-01RSK-10	10	19	0/+0.021	870N	6090N	9
LIN-01RSK-12	12	22	0/+0.021	1152N	8064N	15
LIN-01RSK-16	16	26	0/+0.021	1728N	12096N	21
LIN-01RSK-20	20	32	0/+0.025	2700N	18900N	37
LIN-01RSK-25	25	40	0/+0.025	4350N	30650N	78
LIN-01RSK-30	30	47	0/+0.025	6120N	42840N	122
LIN-01RSK-40	40	62	0/+0.030	9600N	67200N	256
LIN-01RSK-50	50	75	0/+0.030	15000N	105000N	442

订购编码 Order P/N: LIN-01 RSK-10

内径 Inner diameter

保持器 Aluminum housing

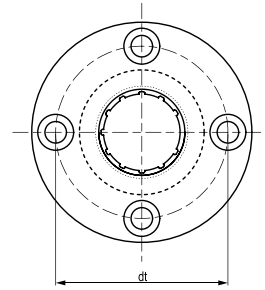
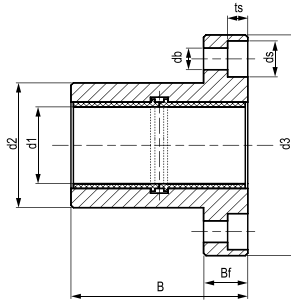
LIN-01 系列标准滑动膜

Standard membranes type LIN-01



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01RF 系列直线轴承 LIN-01RF Linear Bearings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 h7 mm ²	dt mm ²	d3 mm ²	B mm ²	Bf mm ²	ts mm ²	db mm ²	ds mm ²
LIN-01RF-10	10	+0.030/+0.088	19	29	39	29	9	4.1	4.5	7.5
LIN-01RF-12	12	+0.030/+0.088	22	32	42	32	9	4.1	4.5	7.5
LIN-01RF-16	16	+0.030/+0.088	26	36	46	36	9	4.1	4.5	7.5
LIN-01RF-20	20	+0.030/+0.091	32	43	54	45	11	5.1	5.5	9.0
LIN-01RF-25	25	+0.030/+0.091	40	51	62	58	11	5.1	5.5	9.0
LIN-01RF-30	30	+0.040/+0.110	47	62	76	68	14	6.1	6.6	11.0
LIN-01RF-40	40	+0.040/+0.115	62	80	98	80	18	8.1	9.0	14.0
LIN-01RF-50	50	+0.050/+0.130	75	94	112	100	18	8.1	9.0	14.0

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01RF-10	10	19	0/+0.021	870N	6090N	34
LIN-01RF-12	12	22	0/+0.021	1152N	8064N	43
LIN-01RF-16	16	26	0/+0.021	1728N	12096N	54
LIN-01RF-20	20	32	0/+0.025	2700N	18900N	91
LIN-01RF-25	25	40	0/+0.025	4350N	30650N	154
LIN-01RF-30	30	47	0/+0.025	6120N	42840N	266
LIN-01RF-40	40	62	0/+0.030	9600N	67200N	555
LIN-01RF-50	50	75	0/+0.030	15000N	105000N	852

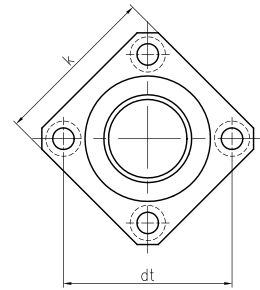
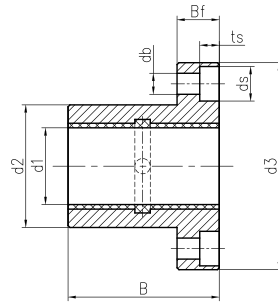
订购编码 Order P/N: LIN-01 RF-10

- └─ 内径 Inner diameter
- └─ 圆法兰保持器
Round Flange Aluminum housing
- └─ LIN-01 系列标准滑动膜
Standard membranes type LIN-01

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LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01RT 方法塑料直线轴承 Angular Flange Linear Bearings



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	d2 mm ²	d3 mm ²	dt mm ²	k mm ²	B mm ²	Bf mm ²	ts mm ²	db mm ²	ds mm ²
LIN-01RT-10	10	19	39	29	30	29	9	4.1	4.5	7.5
LIN-01RT-12	12	22	42	32	32	32	9	4.1	4.5	7.5
LIN-01RT-16	16	26	46	36	35	36	9	4.1	4.5	7.5
LIN-01RT-20	20	32	54	43	42	45	11	5.1	5.5	9.0
LIN-01RT-25	25	40	62	51	50	58	11	5.1	5.5	9.0
LIN-01RT-30	30	47	76	62	60	68	14	6.1	6.6	11.0
LIN-01RT-40	40	62	98	80	75	80	18	8.1	9.0	14.0
LIN-01RT-50	50	75	112	94	88	100	18	8.1	9.0	14.0

订购编码 Order P/N	轴径 Shaft mm ²	座孔 Housing mm ² H7	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-01RT-10	10	19	0/+0.021	870N	6090N	34
LIN-01RT-12	12	22	0/+0.021	1152N	8064N	43
LIN-01RT-16	16	26	0/+0.021	1728N	12096N	54
LIN-01RT-20	20	32	0/+0.025	2700N	18900N	91
LIN-01RT-25	25	40	0/+0.025	2350N	30650N	154
LIN-01RT-30	30	47	0/+0.025	6120N	42840N	266
LIN-01RT-40	40	62	0/+0.030	9600N	67200N	555
LIN-01RT-50	50	75	0/+0.030	15000N	105000N	852

订购编码 Order P/N: LIN-01 RT-10

└─ 内径 Inner diameter

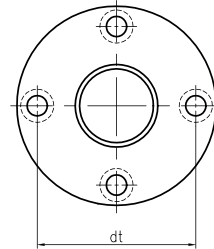
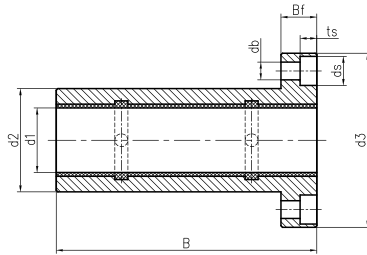
└─ 方法兰保持器 Aluminum housing

└─ 系列号 Design No



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-02RFL 加长型法兰塑料直线轴承 Angular Flange Linear Bearings (Long design)



座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	d2 mm ²	d3 mm ²	dt mm ²	k mm ²	B mm ²	Bf mm ²	ts mm ²	db mm ²	ds mm ²
LIN-02RFL-10	10	19	39	29	30	52	9	4.1	4.5	7.5
LIN-02RFL-12	12	22	42	32	32	57	9	4.1	4.5	7.5
LIN-02RFL-16	16	26	46	36	35	70	9	4.1	4.5	7.5
LIN-02RFL-20	20	32	54	43	42	80	11	5.1	5.5	9.0
LIN-02RFL-25	25	40	62	51	50	112	11	5.1	5.5	9.0
LIN-02RFL-30	30	47	76	62	60	123	14	6.1	6.6	11.0
LIN-02RFL-40	40	62	98	80	75	151	18	8.1	9.0	14.0
LIN-02RFL-50	50	75	112	94	88	192	18	8.1	9.0	14.0

订购编码 Order P/N	轴径 Shaft mm ²	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限动载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-02RFL-10	10	+0.030/+0.080	1300	9100	44
LIN-02RFL-12	12	+0.030/+0.080	1680	11760	57
LIN-02RFL-16	16	+0.030/+0.080	2400	16800	79
LIN-02RFL-20	20	+0.030/+0.091	3000	21000	126
LIN-02RFL-25	25	+0.030/+0.091	5000	35000	249
LIN-02RFL-30	30	+0.030/+0.110	7500	52500	388
LIN-02RFL-40	40	+0.030/+0.115	12000	84000	835
LIN-02RFL-50	50	+0.030/+0.130	17500	122500	1352

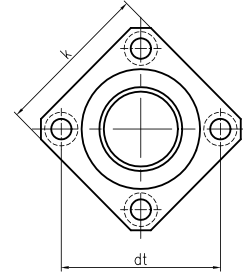
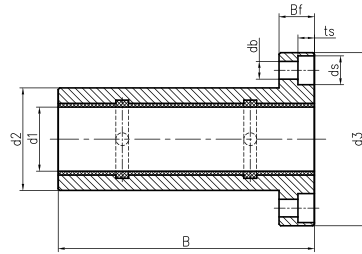
订购编码 Order P/N: LIN-02 RFL-10

- 内径 Inner diameter
- 圆法兰加长型保持器
Round Flange Aluminum housing(Long Design)
- LIN-02 系列标准滑动膜 LIN-02 Standard membranes

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LIN 系列直线轴承 LIN Series Linear Bearings

LIN-02RTL 加长型方法兰塑料直线轴承 Angular Flange Linear Bearings (Long design)

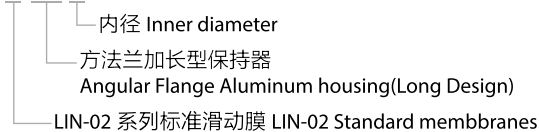


座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	d2 mm ²	d3 mm ²	dt mm ²	k mm ²	B mm ²	Bf mm ²	ts mm ²	db mm ²	ds mm ²
LIN-02RTL-10	10	19	39	29	30	52	9	4.1	4.5	7.5
LIN-02RTL-12	12	22	42	32	32	57	9	4.1	4.5	7.5
LIN-02RTL-16	16	26	46	36	35	70	9	4.1	4.5	7.5
LIN-02RTL-20	20	32	54	43	42	80	11	5.1	5.5	9.0
LIN-02RTL-25	25	40	62	51	50	112	11	5.1	5.5	9.0
LIN-02RTL-30	30	47	76	62	60	123	14	6.1	6.6	11.0
LIN-02RTL-40	40	62	98	80	75	151	18	8.1	9.0	14.0
LIN-02RTL-50	50	75	112	94	88	192	18	8.1	9.0	14.0

订购编码 Order P/N	轴径 Shaft mm ²	公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-02RTL-10	10	+0.030/+0.080	1300	9100	44
LIN-02RTL-12	12	+0.030/+0.080	1680	11760	57
LIN-02RTL-16	16	+0.030/+0.080	2400	16800	79
LIN-02RTL-20	20	+0.030/+0.091	3000	21000	126
LIN-02RTL-25	25	+0.030/+0.091	5000	35000	249
LIN-02RTL-30	30	+0.030/+0.110	7500	52500	388
LIN-02RTL-40	40	+0.030/+0.115	12000	84000	835
LIN-02RTL-50	50	+0.030/+0.130	17500	122500	1352

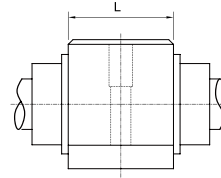
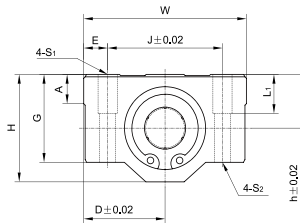
订购编码 Order P/N: LIN-02 RTL-10





LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01G 系列窄设计直线轴承座 LIN-01G Pillow Block, Short Design



轴 Shaft: h6-h9

订购编码 Order P/N	安装轴承 Bearing mm ²	轴径 Shaft mm ²	尺寸 Size(mm ²)										
			h	D	W	H	G	A	J	E	S ₁ ×L ₁	S ₂	L
LIN-01G-16	LIN-01R-16	φ16	19	25	50	38.5	32.5	9	36	7	M5×12	φ4.3	22.3
LIN-01G-20	LIN-01R-20	φ20	21	27	54	41	35	11	40	7	M6×12	φ5.2	28.3
LIN-01G-25	LIN-01R-25	φ25	26	38	76	51.5	41	12	54	11	M8×18	φ7	40.4
LIN-01G-30	LIN-01R-30	φ30	30	39	78	59.5	49	15	58	10	M8×18	φ7	48.4
LIN-01G-40	LIN-01R-40	φ40	40	51	102	78	62	20	80	11	M10×25	φ8.7	56.4

订购编码 Order P/N	内径 I.D mm ²	I.D 公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01G-16	16	+0.030/-0.088	1728N	12096N	67
LIN-01G-20	20	+0.030/-0.091	2700N	18900N	90
LIN-01G-25	25	+0.030/-0.091	4350N	30650N	193
LIN-01G-30	30	+0.040/-0.110	6120N	42840N	260
LIN-01G-40	40	+0.040/-0.115	9600N	67200N	641

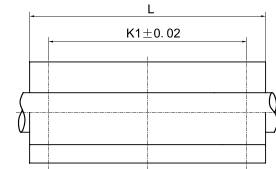
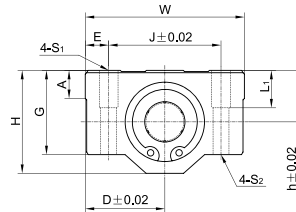
订购编码 Order P/N: LIN-01 G-16

- 轴承内径 Inner diameter
- 窄设计直线轴承座
Pillow block, short design
- LIN-01R 系列直线轴承 LIN-01R Standard Bearings



LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01GN 系列标准设计直线轴承座 LIN-01GN Pillow block, Standard design

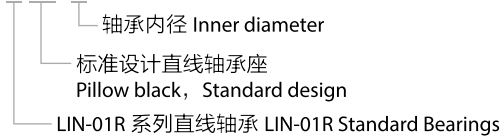


轴 Shaft: h6-h9

订购编码 Order P/N	安装轴承 Bearing mm ²	轴径 Shaft mm ²	尺寸 Size(mm ²)										
			h	D	W	H	G	A	J	E	S ₁ ×L ₁	S ₂	L
LIN-01GN-16	2xLIN-01R-16	φ16	19	25	50	38.5	32.5	9	36	7	M5×12	φ4.3	89
LIN-01GN-20	2xLIN-01R-20	φ20	21	27	54	41	35	11	40	7	M6×12	φ5.2	106
LIN-01GN-25	2xLIN-01R-25	φ25	26	38	76	51.5	41	12	54	11	M8×18	φ7	136
LIN-01GN-30	2xLIN-01R-30	φ30	30	39	78	59.5	49	15	58	10	M8×18	φ7	154
LIN-01GN-40	2xLIN-01R-40	φ40	40	51	102	78	62	20	80	11	M10×25	φ8.7	180

订购编码 Order P/N	内径 I.D mm ²	I.D 公差 Tolerance mm ²	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35MPa	重量 (g) Weight
LIN-01GN-16	16	+0.030/-0.088	3456N	24192N	250
LIN-01GN-20	20	+0.030/-0.091	5400N	37800N	318
LIN-01GN-25	25	+0.030/-0.091	8400N	61300N	686
LIN-01GN-30	30	+0.040/-0.110	12240N	85680N	905
LIN-01GN-40	40	+0.040/-0.115	19200N	134400N	2041

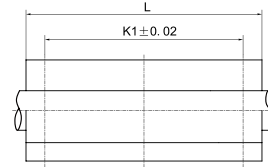
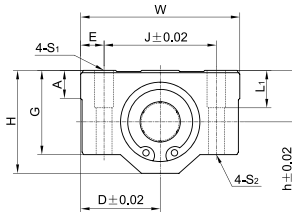
订购编码 Order P/N: LIN-01 GN-16





LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01GL 系列标准设计直线轴承座 LIN-01GL Pillow block, Standard design



轴 Shaft: h6-h9

订购编码 Order P/N	安装轴承 Bearing mm	轴径 Shaft mm	尺寸 Size(mm)										
			h	D	W	H	G	A	J	E	S ₁ ×L ₁	S ₂	L
LIN-01GL-16	2xLIN-11R-16	φ16	19	25	50	38.5	32.5	9	36	7	M5×12	φ4.3	89
LIN-01GL-20	2xLIN-11R-20	φ20	21	27	54	41	35	11	40	7	M6×12	φ5.2	106
LIN-01GL-25	2xLIN-11R-25	φ25	26	38	76	51.5	41	12	54	11	M8×18	φ7	136
LIN-01GL-30	2xLIN-11R-30	φ30	30	39	78	59.5	49	15	58	10	M8×18	φ7	154
LIN-01GL-40	2xLIN-11R-40	φ40	40	51	102	78	62	20	80	11	M10×25	φ8.7	180

订购编码 Order P/N	内径 I.D mm	I.D 公差 Tolerance mm	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-01GL-16	16	+0.030/-0.088	3456N	24192N	250
LIN-01GL-20	20	+0.030/-0.091	5400N	37800N	318
LIN-01GL-25	25	+0.030/-0.091	8400N	61300N	686
LIN-01GL-30	30	+0.040/-0.110	12240N	85680N	905
LIN-01GL-40	40	+0.040/-0.115	19200N	134400N	2041

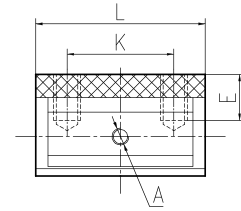
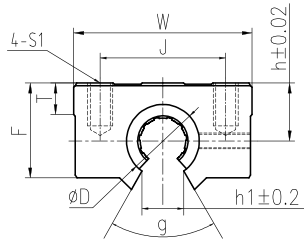
订购编码 Order P/N: LIN-01 GL-16

- 轴承内径 Inner diameter
- 标准设计直线轴承座
Pillow block, Standard design
- LIN-11R 系列直线轴承 LIN-11R Standard Bearings

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LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01GK 系列窄设计直线轴承座 LIN-01GK Pillow Block, Short Design

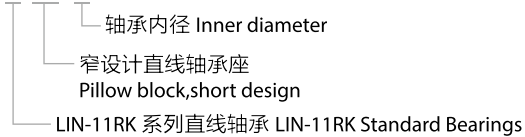


轴 Shaft: h6-h9

订购编码 Order P/N	安装轴承 Bearing mm	轴径 Shaft mm	尺寸 Size(mm)												
			D(H7)	h	W	L	F	h1	T	A	g	J	K	E	S1
LIN-01GK-16	LIN-11RK-16	φ16	28	19	49.7	46.4	32.3	17	11	M5	60°	37	40	15	M5
LIN-01GK-20	LIN-11RK-20	φ20	32	21	54.1	51.3	35.2	17	11.8	M5	60°	41	35	17	M5
LIN-01GK-25	LIN-11RK-25	φ25	40	26	76	66.4	42.2	21	12.5	M6	60°	54	50	20	M6
LIN-01GK-30	LIN-11RK-30	φ30	45	30	78	71.5	49.1	21	15.5	M6	60°	58	55	25	M8

订购编码 Order P/N	内径 I.D mm	I.D 公差 Tolerance mm	极限动载荷 Dynamic Load P=5MPa	极限静载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-01GK-16	16	+0.030/-0.088	1728N	12096N	125
LIN-01GK-20	20	+0.030/-0.091	2700N	18900N	159
LIN-01GK-25	25	+0.030/-0.091	4350N	30650N	343
LIN-01GK-30	30	+0.040/-0.110	6120N	42840N	450

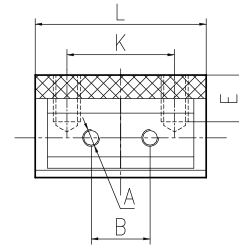
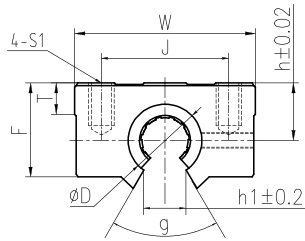
订购编码 Order P/N: LIN-01 GK-16





LIN 系列直线轴承 LIN Series Linear Bearings

LIN-01GKL 系列标准设计直线轴承座 LIN-01GKL Pillow block, Standard design

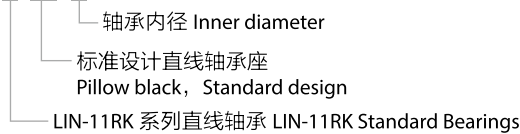


轴 Shaft: h6-h9

订购编码 Order P/N	安装轴承 Bearing mm	轴径 Shaft mm	尺寸 Size(mm)													
			D(H7)	h	W	L	F	h1	T	A	B	g	J	K	E	S1
LIN-01GKL-16	LIN-11RK-16 × 2	φ16	28	19	49.7	46.4	32.3	17	11	M5	41	60°	37	70	15	M5
LIN-01GKL-20	LIN-11RK-20 × 2	φ20	32	21	54.1	51.3	35.2	17	11.8	M5	47	60°	41	80	17	M5
LIN-01GKL-25	LIN-11RK-25 × 2	φ25	40	26	76	66.4	42.2	21	12.5	M6	63	60°	54	110	20	M6
LIN-01GKL-30	LIN-11RK-30 × 2	φ30	45	30	78	71.5	49.1	21	15.5	M6	70	60°	58	115	25	M8

订购编码 Order P/N	内径 I.D mm	I.D 公差 Tolerance mm	极限动载荷 Dynamic Load P=5MPa	极限动载荷 Static Load P=35Mpa	重量 (g) Weight
LIN-01GKL-16	16	+0.030/-0.088	3456N	24192N	250
LIN-01GKL-20	20	+0.030/-0.091	5400N	37800N	318
LIN-01GKL-25	25	+0.030/-0.091	8400N	61300N	686
LIN-01GKL-30	30	+0.040/-0.110	12240N	85680N	905

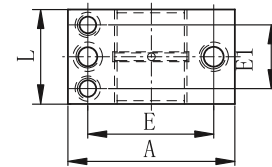
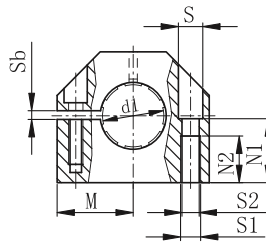
订购编码 Order P/N: LIN-01 GKL-16



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LIN 系列直线轴承 LIN Series Linear Bearings

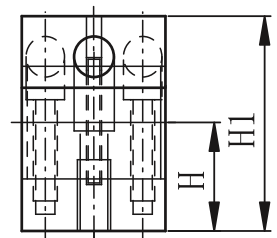
LIN-05 高精度直线轴承座 LIN-05 Precision linear bearing



订购编码 Order P/N	轴 Axis mm ²	公差 Tolerance mm ²	F max. 动态 P=5 MPa	F max. 静态 P=35 MPa	重量 Weight g
LIN-05-12	12	可调	840	5,880	78
LIN-05-16	16	可调	1,200	8,400	106
LIN-05-20	20	可调	1,500	10,500	132
LIN-05-25	25	可调	2,500	17,500	253
LIN-05-30	30	可调	3,750	26,250	374
LIN-05-40	40	可调	6,000	42,000	713
LIN-05-50	50	可调	8,750	61,250	1,168

装配尺寸 Installation size

订购编码 Order P/N	d1	H +0.01 -0.014	H1	A	M	E ±0.15	E1 ±0.15	S	S1	S2	Sb	N1	N2	L
LIN-05-12	12	17	33	40	20.0	29	18.0	8.0	4.3	M5	2	16	11	28
LIN-05-16	16	19	38	45	22.5	34	19.0	8.0	4.3	M5	2	18	11	30
LIN-05-20	20	23	45	53	26.5	40	20.0	9.5	5.3	M6	2	22	13	30
LIN-05-25	25	27	54	62	31.0	48	25.5	11.0	6.6	M8	2	29	18	50
LIN-05-30	30	30	60	67	33.5	53	30.5	11.0	6.6	M8	2	29	18	50
LIN-05-40	40	39	76	87	43.5	69	36.0	15.0	8.4	M10	2	38	22	60
LIN-05-50	50	47	92	103	51.5	82	44.0	18.0	10.5	M12	2	46	26	70



订购编码 Order P/N: LIN-05-12

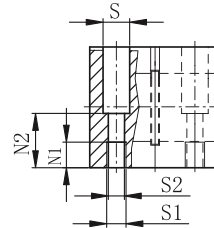
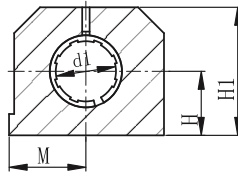
内径 Inner diameter

标准开口系列 05
Standard series05



LIN 系列直线轴承 LIN Series Linear Bearings

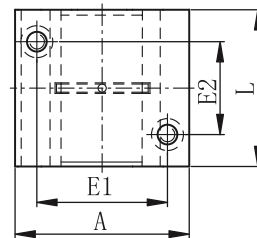
LIN-06 加长型高精度直线轴承座 LIN-06 Long precision linear bearing



订购编码 Order P/N	轴 Axis mm ²	公差 Tolerance mm ²	F max. 动态 P=5 MPa	F max. 静态 P=35 MPa	重量 Weight g
LIN-06-12	12	+0.030 +0.088	960	6,720	121
LIN-06-16	16	+0.030 +0.088	1,440	10,080	211
LIN-06-20	20	+0.030 +0.091	2,250	15,750	323
LIN-06-25	25	+0.030 +0.091	3,625	25,375	651
LIN-06-30	30	+0.040 +0.110	5,100	35,700	1,050
LIN-06-40	40	+0.040 +0.115	8,000	56,000	1,820
LIN-06-50	50	+0.050 +0.130	12,500	87,500	3,250

装配尺寸 Installation size

订购编码 Order P/N	d1	H +0.01 -0.014	H1	A	M	E ±0.15	E1 ±0.15	S	S1	S2	N1	N2	L
LIN-06-12	12	18	35	43	25.1	32	23	8.0	M5	4.3	16.5	11	39
LIN-06-16	16	22	42	53	26.5	40	26	10.0	M6	5.3	21.0	13	43
LIN-06-20	20	25	50	60	30.0	45	32	11.0	M8	6.6	24.0	18	54
LIN-06-25	25	30	60	78	39.0	60	40	15.0	M10	8.4	29.0	22	67
LIN-06-30	30	35	70	87	43.5	68	45	15.0	M10	8.4	34.0	22	79
LIN-06-40	40	45	90	108	54.0	86	58	18.0	M12	10.5	44.0	26	91
LIN-06-50	50	50	105	132	66.0	108	50	20.0	M16	13.5	49.0	34	113



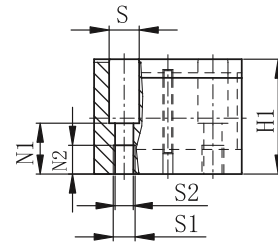
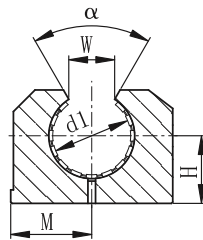
订购编码 Order P/N: LIN-06-12

- 内径 Inner diameter
- 标准开口系列 06
Standard series06



LIN 系列直线轴承 LIN Series Linear Bearings

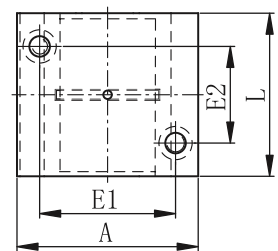
LIN-06K 加长型高精度直线轴承座 LIN-06K Long precision linear bearing



订购编码 Order P/N	轴 Axis mm ²	公差 Tolerance mm ²	F max. 动态 P=5 MPa			F max. 静态 P=35 MPa			重量 Weight g
			0°	90°	180°	0°	90°	180°	
LIN-06K-12	12	+0.030+0.088	960	635	240	6,720	4,445	1,680	95
LIN-06K-16	16	+0.030+0.088	1,440	990	396	10,080	6,943	2,772	158
LIN-06K-20	20	+0.030+0.091	2,250	1,800	900	15,750	12,600	6,300	266
LIN-06K-25	25	+0.030+0.091	3,625	2,953	1,523	25,375	20,670	10,658	530
LIN-06K-30	30	+0.040+0.110	5,100	4,250	2,278	35,700	29,735	15,946	818
LIN-06K-40	40	+0.040+0.115	8,000	6,810	3,800	56,000	47,660	26,600	1,485
LIN-06K-50	50	+0.050+0.130	12,500	10,750	6,125	87,500	75,265	42,875	2,750

装配尺寸 Installation size

订购编码 Order P/N	d1	H	H1	A	M	E ±0.15	E1 ±0.15	S	S1	S2	N1	N2	w -1	α °	L
LIN-06K-12	12	18	28	43	21.5	32	23	8.0	M5	4.3	16.5	11	10.2	78	39
LIN-06K-16	16	19	35	53	26.5	40	26	10.0	M6	5.3	21.0	13	11.6	78	43
LIN-06K-20	20	22	42	60	30.0	45	32	11.0	M8	6.6	24.0	18	12.0	60	54
LIN-06K-25	25	30	51	78	39.0	60	40	15.0	M10	8.4	29.0	22	14.5	60	67
LIN-06K-30	30	35	60	87	43.5	68	45	15.0	M10	8.4	34.0	22	16.6	57	79
LIN-06K-40	40	45	77	108	45.0	86	58	18.0	M12	10.5	44.0	26	21.0	56	91
LIN-06K-50	50	50	88	132	66.0	108	50	20.0	M16	13.5	49.0	34	25.5	54	113



订购编码 Order P/N: LIN-06K-12

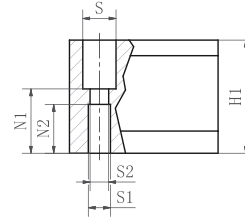
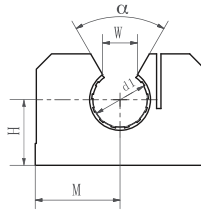
内径 Inner diameter

标准开口系列 06
Standard series05



LIN 系列直线轴承 LIN Series Linear Bearings

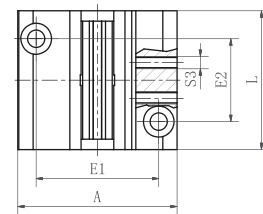
LIN-06E 加长型高精度直线轴承座 LIN-06E Long precision linear bearing



订购编码 Order P/N	轴 Axis mm ²	公差 Tolerance mm ²	F max. 动态 P=5 MPa			F max. 静态 P=35 MPa			重量 Weight g
			0°	90°	180°	0°	90°	180°	
LIN-06E-12	12	可调	960	635	240	6,720	4,445	1,680	100
LIN-06E-16	16	可调	1,440	990	396	10,080	6,943	2,772	160
LIN-06E-20	20	可调	2,250	1,800	900	15,750	12,600	6,300	270
LIN-06E-25	25	可调	3,625	2,953	1,523	25,375	20,670	10,658	530
LIN-06E-30	30	可调	5,100	4,250	2,278	35,700	29,735	15,946	820
LIN-06E-40	40	可调	8,000	6,810	3,800	56,000	47,660	26,600	1,490
LIN-06E-50	50	可调	12,500	10,750	6,125	87,500	75,265	42,875	2,750

装配尺寸 Installation size

订购编码 Order P/N	d1	H	H1	A	M	E ±0.15	E1 ±0.15	S	S1	S2	N1	N2	w -1	α °	L
LIN-06E-12	12	18	28	43	21.5	32	23	8.0	M5	4.3	16.5	11	10.2	78	39
LIN-06E-16	16	19	35	53	26.5	40	26	10.0	M6	5.3	21.0	13	11.6	78	43
LIN-06E-20	20	22	42	60	30.0	45	32	11.0	M8	6.6	24.0	18	12.0	60	54
LIN-06E-25	25	30	51	78	39.0	60	40	15.0	M10	8.4	29.0	22	14.5	60	67
LIN-06E-30	30	35	60	87	43.5	68	45	15.0	M10	8.4	34.0	22	16.6	57	79
LIN-06E-40	40	45	77	108	45.0	86	58	18.0	M12	10.5	44.0	26	21.0	56	91
LIN-06E-50	50	50	88	132	66.0	108	50	20.0	M16	13.5	49.0	34	25.5	54	113



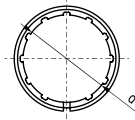
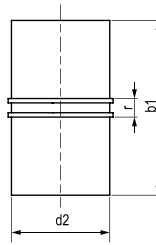
订购编码 Order P/N: LIN-06E--12

- 内径 Inner diameter
- 标准开口系列 06
Standard series05

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LIN 系列直线轴承 LIN Series Linear Bearings

LIN-00 系列滑动膜 LIN-00 Series of Sliding Membranes

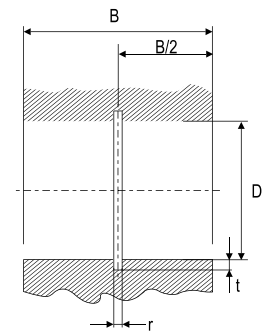


座孔 Housing:H7 轴 Shaft:h6-h9

订购编码 Order P/N	d1 mm ²	公差 Tolerance mm ²	d2 mm ²	b1 mm ²	r(-0.1/-0.2) mm ²	重量 Weight g
LIN-00-10	10	+0.030/-0.070	12	29	3.0	1.3
LIN-00-12	12	+0.030/-0.070	14	31	3.0	1.6
LIN-00-16	16	+0.030/-0.070	18	35	3.5	2.2
LIN-00-20	20	+0.030/-0.070	23	44	5.0	5.0
LIN-00-25	25	+0.030/-0.070	28	57	5.0	8.0
LIN-00-30	30	+0.040/-0.085	34	67	5.0	15.1
LIN-00-40	40	+0.040/-0.085	44	79	6.0	25.6
LIN-00-50	50	+0.040/-0.085	55	99	7.0	50.6

装配尺寸 Installation size

订购编码 Order P/N	轴径 Shaft mm ²	D mm ² h7	B mm ² h10	r mm ²	t mm ²
LIN-00-10	10	12	29	3.0	1.0
LIN-00-12	12	14	32	3.0	1.0
LIN-00-16	16	18	36	3.5	1.0
LIN-00-20	20	23	45	5.0	1.0
LIN-00-25	25	28	58	5.0	1.0
LIN-00-30	30	34	68	5.0	1.0
LIN-00-40	40	44	80	6.0	1.5
LIN-00-50	50	55	100	7.0	1.5



配合 LIN-00 系列滑动膜产品系列： Membranes of the LIN-01 Series are used in:



订购编码 Order P/N:

LIN-00 - 10

内径 Inner diameter

标准开口系列 01K
Standard split type 01K

+

SRB 直线导向系统
SRB Linear Guide System



SRB 直线导向系统
SRB Linear Guide System

+

SBR-G 高精度直线钢轴 Precision Steel Shafts



产品特性 Product Features

- 轴材料 Shaft Material: GCr15
- 硬度 Hardness: $62 \pm 2\text{HRC}$
- 表面 Surface: 镀硬铬 Hard Chromed Plated
- 粗糙度 Surface Finish: Ra0.4
- 直线度 Straightness: $0.01\text{mm}/1000\text{mm}$
- 圆度 Roundness: $\leq 1/2\Phi$ 公差 Tolerance
- 特殊轴可根据要求定制, 请联系我们

Special shafts can be manufactured according to your requirement.
Please contact with us.

标准规格 Standard Size Sheet

订购编码 Order P/N	直径 mm ²	公差 Tolerance g6	标准长度 Standard Length (mm)													硬化厚度 Hardening Depth mm ²	重量 Weight kg/m			
			200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000			2500	3000	
SBR-G-06	6	-0.004/-0.012	●	●	●	●	●	●	●	●	●	●	●						0.80	0.23
SBR-G-08	8	-0.005/-0.014		●	●	●	●	●	●	●	●	●	●	●					0.80	0.40
SBR-G-10	10	-0.005/-0.014		●	●	●	●	●	●	●	●	●	●	●	●				1.00	0.62
SBR-G-12	12	-0.006/-0.017		●	●	●	●	●	●	●	●	●	●	●	●	●			1.00	0.89
SBR-G-16	16	-0.006/-0.017			●	●	●	●	●	●	●	●	●	●	●	●			1.00	1.58
SBR-G-20	20	-0.007/-0.020			●	●	●	●	●	●	●	●	●	●	●	●			1.50	2.47
SBR-G-25	25	-0.007/-0.020			●	●	●	●	●	●	●	●	●	●	●	●			1.50	3.85
SBR-G-30	30	-0.007/-0.020			●	●	●	●	●	●	●	●	●	●	●	●			1.50	5.55
SBR-G-40	40	-0.009/-0.025				●	●	●	●	●	●	●	●	●	●	●			2.00	9.87
SBR-G-50	50	-0.009/-0.025				●	●	●	●	●	●	●	●	●	●	●			2.00	15.40

订购编码 Order P/N: SBR-G 06- 1000





SBR-A 高精度铝轴 Precision Steel Shafts



产品特性 Product Features

- 轴材料 EN AW 6061/6060
- 硬度 Hardness: 75 HB
- 表面 Surface: 硬质阳极氧化 Hard anodizing
- 表面硬度 Surface hardness: 450-550 HV
- 直线度 Straightness: EN 754-3
- 特殊轴可根据要求定制, 请联系我们

Special shafts can be manufactured according to your requirement. Please contact with us.

标准规格 Standard Size Sheet

订购编码 Order P/N	直径 mm ²	公差 Tolerance g6	标准长度 Standard Length (mm)													绝缘厚度 Insulation thickness mm ²	重量 Weight kg/m					
			200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000			2500	3000			
SBR-R-06	6	h8	●	●	●	●													-	0.08		
SBR-R-08	8	h8	●	●	●	●													-	0.14		
SBR-R-10	10	h8	●	●	●	●	●												-	0.22		
SBR-R-12	12	h8	●	●	●	●	●												-	0.32		
SBR-R-16	16	h8	●	●	●	●	●	●	●	●	●	●	●							-	0.56	
SBR-R-20	20	h8	●	●	●	●	●	●	●	●	●	●	●							-	0.88	
SBR-R-20	20	h9	●	●	●	●	●	●	●	●	●	●								2	0.32	
SBR-R-25	25	h8	●	●	●	●	●	●	●	●	●	●								-	1.37	
SBR-R-25	25	h9	●	●	●	●	●	●	●	●	●	●								3	0.59	
SBR-R-30	30	h8	●	●	●	●	●	●	●	●	●	●	●	●							7.5	1.48
SBR-R-40	40	h8	●	●	●	●	●	●	●	●	●	●	●	●							10	2.63
SBR-R-50	50	h8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	11	3.75		

订购编码 Order P/N: SBR-A-06-1000





SBR 直线支撑轴 Supported Steel Shafts



产品特性 Product Features

- 材料 Material: SCS 高精度直线轴配合铝制支撑
SCS precision steel shafts with stangardaluminum support
- 高承载 High load
- 高精度 High precision
- 低成本 Low cost
- 特殊轴可根据要求定制, 请联系我们

Special shafts can be manufactured according to your requirement.
Please contact with us.

标准规格 Standard Size Sheet

订购编码 Order P/N	直径 Φ mm ²	公差 Tolerance g6	标准长度 Standard Length mm ²	最大长度 Max.Length mm ²	N mm ²	P mm ²	硬化厚度 Hardening Depth mm ²	重量 Weight kg/m
SBR-16	16	-0.006/-0.017	190 340 640 940	3000	20	150	1.00	1.58
SBR-20	20	-0.007/-0.020	340 640 940 1240	3000	20	150	1.50	2.47
SBR-25	25	-0.007/-0.020	250 450 850 1250	3000	25	200	1.50	3.85
SBR-30	30	-0.007/-0.020	450 850 1250 1450	3000	25	200	1.50	5.55
SBR-40	40	-0.009/-0.025	460 660 860 1060 1260	3000	30	200	2.00	9.87
SBR-50	50	-0.009/-0.025	470 670 870 1070 1270	3000	35	200	2.00	15.40

订购编码 Order P/N	直径 Φ mm ²	尺寸 Size (mm ²)										
		E	h	B	H	T	F	X	Y	C	S1	S2 d1 × d2 × l
SBR-16	16	20	25	40	17.8	5	18.5	8	11.7	30	5.5	5.5 × 9.5 × 5.4
SBR-20	20	22.5	27	45	17.7	5	19	8	10	30	5.5	5.5 × 9.5 × 5.4
SBR-25	25	27.5	33	55	21	6	21.5	8	12	35	6.6	6.6 × 11 × 6.5
SBR-30	30	30	37	60	22.8	7	26.5	10.3	13	40	6.6	6.6 × 11 × 6.5
SBR-40	40	37.5	48	75	29.5	9	38	15.5	17	55	9	9 × 14 × 8.6
SBR-50	50	47.5	62	95	38.8	11	45	20	21	70	11	111 × 7.5 × 10.8

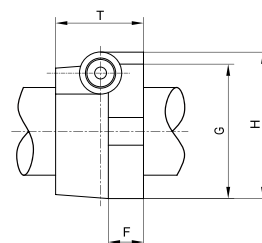
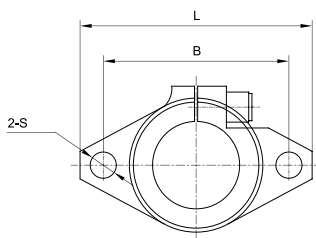
订购编码 Order P/N:

SCS-06-1000
 ———— 长度
 Length
 ———— 轴径
 Shaft diameter

+

LIN 系列直线轴承 LIN Series Linear Bearings

SHF 法兰系列轴支撑 SHF shaft end block, Flange design



订购编码 Order P/N	轴径 Shaft mm ²	尺寸 Size (mm ²)							安装螺栓 Fitting screws	安全螺栓 Safety screws	重量 (g) Weight
		L	T	F	B	G	H	S			
SHF-10	10	43	10	5	32	20	24	5.5	M5	M4	13
SHF-12	12	47	13	7	36	25	28	5.5	M5	M4	20
SHF-16	16	50	16	8	40	28	31	5.5	M5	M4	27
SHF-20	20	60	20	8	48	34	37	7	M6	M5	40
SHF-25	25	70	25	10	56	40	42	7	M6	M5	60
SHF-30	30	80	30	12	64	46	50	9	M8	M6	110
SHF-40	40	102	40	16	80	56	67	12	M10	M10	510
SHF-50	50	122	50	19	96	70	83	14	M12	M12	890

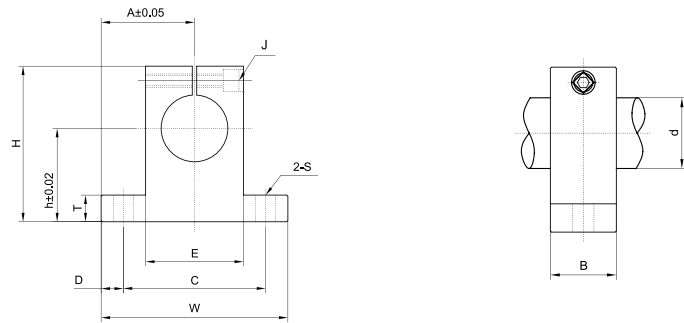
订购编码 Order P/N: SHF-06

轴径
Shaft diameter
法兰设计轴支撑
Shaft end block, Flange design

+

LIN 系列直线轴承 LIN Series Linear Bearings

SH 系列窄设计直线轴承座 SH Pillow block, Short design



订购编码 Order P/N	轴径 Shaft mm ²	尺寸 Size (mm ²)											重量 (g) Weight
		h	A	W	H	T	E	D	C	B	S	J	
SH-10	10	20	21	42	32.8	6	18	5	32	14	Φ5.5	M4	24
SH-12	12	23	21	42	37.5	6	20	5	32	14	Φ5.5	M4	30
SH-16	16	27	24	48	44	8	25	5	38	16	Φ5.5	M4	40
SH-20	20	31	30	60	51	10	30	7.5	45	20	Φ6.6	M5	70
SH-25	25	35	35	70	60	12	38	7	56	24	Φ6.6	M6	130
SH-30	30	42	42	84	70	12	44	10	64	28	Φ9	M6	180
SH-40	40	60	57	114	96	15	60	12	90	36	Φ11	M8	420
SH-50	50	70	63	126	120	18	74	13	100	40	Φ14	M12	750

订购编码 Order P/N: SH-06

轴径
Shaft diameter
标准设计轴支撑
Shaft end block, Standard design

+

JDB 固体润滑轴承

JDB Solid-lubricating Bearings



JDB 固体润滑轴承

JDB Solid-lubricating Bearings

+

JDB 固体润滑轴承 JDB Solid-lubricating Bearings





JDB 固体润滑轴承

JDB Solid-lubricating Bearings





JDB 固体润滑轴承 JDB Solid-Lubricant Bearings

合金材料 Alloy Material

对应牌号 Corresponding Brands	型号 Type	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
国际牌号 GB1776-87 China Brands GB1776-87		ZCuZn25 Al6Fe3Mn3	ZCuSn6 Zn6Pb3	钢 (steel)+ ZCuSn6 Zn6Pb3	GCr15	HT250
国际 ISO1338 International ISO1338		GCuZn25 Al6Fe3Mn3	GCuSn6 Zn6Pb3	钢 (steel)+ CuSn6Zn6Pb3 Fe3Ni5	B1	-
德国 DIN Germany DIN		G-CuZn25 Al5	GB-CuSn5 Zn5Pb5	钢 (steel)+ CuSn6Zn6 Pb3Ni	100Cr6	-
日本 JIS Japan JIS		HBsC4	BC6	BC6	SUJ2	FC250
美国 ASTM/UNS America ASTM/UNS		C86300	C83600	C83600	52100	Class40
英国标准 (BS) England Standard		HTB2	LG2	LG2	-	-

技术参数 Technical Data

性能指标 Performance index	型号 Type	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
最大动承载 P (N/mm ²) Max Move Load Capacity		100	60	70	250	60
最大滑动速度 V (m/s) Max Sliding Speed	干(dry) 0.4 油(oil) 0.5		2	2	0.1	0.5
最高PV值 (N/mm ² ·m/s) Max PV Value Limit		3.8	0.5	0.6	2.5	0.8
密度 ρ (g/cm ³) Density		8.0	8.0	7.6	7.8	7.3
抗拉强度 (N/mm ²) Tensile Strength		> 600	> 250	> 500	> 1500	> 250
延伸率 (%) Elongation		> 10	> 4	> 10	-	-
硬度 (HB) Hardness		> 210	> 80	> 80	HRC > 55	> 160
最高使用温度 °C Max Working Temperature		300	350	300	350	400
摩擦系数 μ Friction coefficient				油润滑: 0.03 Oil Lubrication:0.03		干摩擦: 0.16 Dry Friction:0.16



JDB 固体润滑轴承 JDB Solid-Lubricant Bearings

材料合金化学成份 Alloy Chemical Compositions

化学元素 Chemical elements	JDB-1	JDB-2	JDB-3	JDB-4	JDB-5
Cu (%)	Rest	Rest	Rest	-	-
Sn (%)	-	6	6	-	-
Zn (%)	25	6	6	-	-
Ni (%)	-	-	-	-	-
Al (%)	6	-	-	-	-
Fe (%)	3	-	-	Rest	Rest
Mn (%)	3	-	-	0.20 ~ 0.40	0.905 ~ 1.3
Cr (%)	-	-	-	1.30 ~ 1.65	-
C (%)	-	-	-	0.95 ~ 1.05	2.5 ~ 4
Si (%)	-	-	-	0.15 ~ 0.35	1.0 ~ 1.3
Pb (%)	-	3	3	-	-

固体润滑剂 Solid Lubricants

固体润滑剂 Lubricant	高纯石墨+添加剂 SL1 Graphite	SL4+MoS ₂ PTFE+MoS ₂ +CF
特性 Features	很好的耐磨性和化学稳定性, 使用温度 < 400℃ Good wear performance and chemical stability, temperature limit 400℃	极低的摩擦系数和很好的水润滑性, 使用温度 < 300℃ Lowest friction coefficient and good water lubrication, temperature limit 300℃
典型用途 Typical application	应用于一般机械, 在大气中使用 Suit for general machines and under atmosphere	应用于水、海水润滑、如船舶 Suit for water and seawater lubricant, such as ship

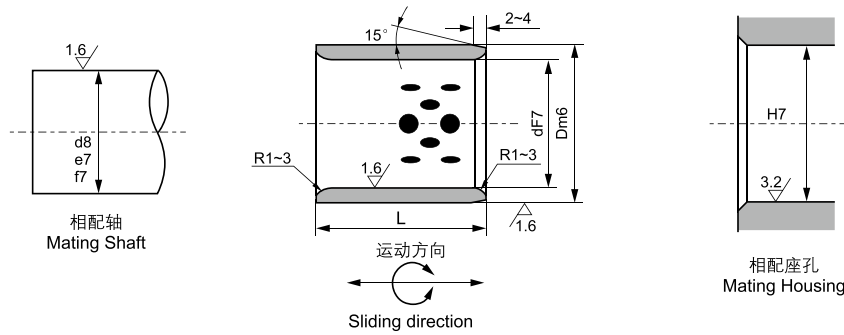
镶嵌式固体润滑轴承的优点 The Advantages of the Solid-lubricant-Embedded Bearings

- 1、无给油可使用
Dry operation.
- 2、高载荷、低转速的情况, 仍可发挥优越的性能
Can be Performed well with high load and low speed.
- 3、往返运动、摇摆运动、起动停止频繁等油膜形成困难的场所, 仍可发挥优越的耐磨性
Reciprocating motion, wagging motion, start and stop frequently are difficulty for keeping oil film. It still may play advantageous of wear-resistance.
- 4、优越的耐药品性及耐蚀性
Excellent chemical resistance and anti-corrosion.
- 5、设计灵活、简单、方便, 丰富的标准品, 可配标准轴心使用
Flexible, simple, convenient and abundant designing of standard, can be choosed by standard axes.



JDB 自润滑直套轴承标准公制尺寸

JDB Self-lubricating Straight Bearings Standard Metric Size



单位Unit: mm

d	D	d F7	D m6	L $\begin{matrix} -0.10 \\ -0.30 \end{matrix}$													
				8	10	12	15	16	20	25	30	35	40	50	60	70	80
8	12	8	12	081208	081210	081212	081215										
10	14	10	14 $\begin{matrix} +0.028 \\ +0.013 \end{matrix}$	101408 $\begin{matrix} +0.018 \\ +0.007 \end{matrix}$	101410	101412	101415	101416	101420								
12	18	12	18		121810	121812	121815	121816	121820	121825	121830						
13	19	13	19		131910	131912	131915	131916	131920	131925	131930						
14	20	14	20		142010	142012	142015	142016	142020	142025	142030						
15	21	15	21 $\begin{matrix} +0.034 \\ +0.016 \end{matrix}$		152110	152112	152115	152116	152120	152125	152130	152135					
16	22	16	22 $\begin{matrix} +0.021 \\ +0.008 \end{matrix}$		162210	162212	162215	162216	162220	162225	162230	162235	162240				
18	24	18	24		182410	182412	182415	182416	182420	182425	182430	182435	182440				
20	28	20	28		202810	202812	202815	202816	202820	202825	202830	202835	202840	202850			
22	32	22	32			223212	223215	223216	223220	223225	223230	223235	223240	223250			
25	33	25	33 $\begin{matrix} +0.041 \\ +0.020 \end{matrix}$			253312	253315	253316	253320	253325	253330	253335	253340	253350	253360		
30	38	30	38			303812	303815	303816	303820	303825	303830	303835	303840	303850	303860		
35	45	35	45						354520	354525	354530	354535	354540	354550	354560	354570	
40	50	40	50 $\begin{matrix} +0.025 \\ +0.009 \end{matrix}$						405020	405025	405030	405035	405040	405050	405060	405070	405080
45	55	45	55 $\begin{matrix} +0.050 \\ +0.025 \end{matrix}$								455530	455535	455540	455550	455560	455570	455580
50	60	50	60								506030	506035	506040	506050	506060	506070	506080

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JDB 自润滑直套轴承标准公制尺寸

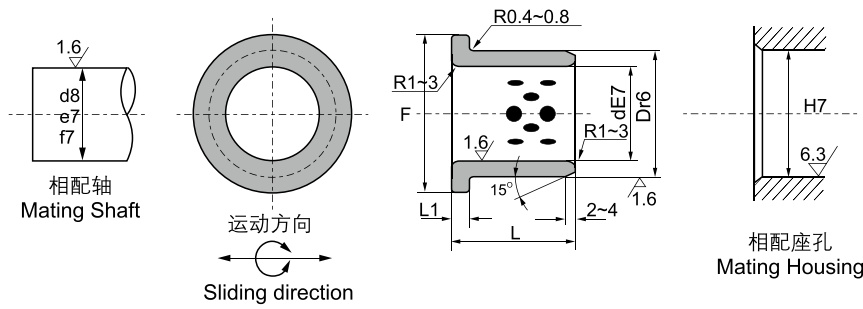
JDB Self-lubricating Straight Bearings Standard Metric Size

单位Unit: mm²

d	D	df7	Dm6	L ^{-0.10 -0.30}											
				30	35	40	50	60	70	80	100	120	130	140	150
50	62	50	62	506230	506235	506240	506250	506260	506270						
50	65	50 ^{+0.050 +0.025}	65	506530	506535	506540	506550	506560	506570	506580	5065100				
55	70	55	70	557030	557035	557040	557050	557060	557070	557080	5570100				
60	74	60	75 ^{+0.030 +0.011}	607430	607435	607440	607450	607460	607470	607480	6074100				
60	75	60	75	607530	607535	607540	607550	607560	607570	607580	6075100				
63	75	63	75		637535	637540	637550	637560	637570	637580	6375100				
65	80	65	80		658035	658040	658050	658060	658070	658080	6580100				
70	85	70 ^{+0.060 +0.030}	85		708535	708540	708550	708560	708570	708580	7085100				
70	90	70	90		709035	709040	709050	709060	709070	709080	7090100				
75	90	75	90			759040	759050	759060	759070	759080	7590100				
75	95	75	95			759540	759550	759560	759570	759580	7595100	7595120			
80	96	80	96 ^{+0.035 +0.013}			809640	809650	809660	809670	809680	8096100	8096120	8096130		
80	100	80	100			8010040	8010050	8010060	8010070	8010080	80100100	80100120	80100130	80100140	
90	110	90	110				9011050	9011060	9011070	9011080	90110100	90110120	90110130	90110140	
100	120	100	120					10012060	10012070	10012080	100120100	100120120	100120130	100120140	
110	130	110 ^{+0.071 +0.036}	130							11013080	110130100	110130120	110130130	110130140	
120	140	120	140							12014080	120140100	120140120	120140130	120140140	
125	145	125	145								125145100	125145120	125145130	125145140	
130	150	130	150 ^{+0.040 +0.015}								130150100	130150120	130150130	130150140	130150150
140	160	140 ^{+0.083 +0.043}	160								140160100	140160120	140160130	140160140	140160150
150	170	150	170								150170100	150170120	150170130	150170140	150170150
160	180	160	180								160180100	160180120	160180130	160180140	160180150



JFB 自润滑翻边轴承标准公制尺寸 JFB Self-lubricating Flange Bearings Standard Metric Size

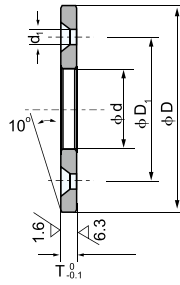
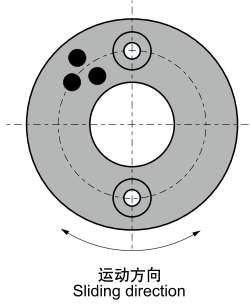


单位Unit: mm

d	D	d E7	D r6	F	L ₁	L														
						15	20	25	30	35	40	50	60	80	100					
10	14	10	^{+0.040} / _{+0.025}	14	22	2	1015	1020												
12	18	12		18	^{+0.034} / _{+0.023}	25	1215	1220												
13	19	13		19		26	1315	1320												
14	20	14	^{+0.050} / _{+0.032}	20		27	1415	1420	1425											
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		2020	2025	2030	2035									
25	35	25	^{+0.061} / _{+0.040}	35		45		2520	2525	2530	2535	2540								
30	40	30		40		50		3020	3025	3030	3035	3040	3050							
35	45	35		45	^{+0.050} / _{+0.034}	60			3525	3530	3535	3540	3550							
40	50	40		50		65				4030	4035	4040	4050							
45	55	45	^{+0.075} / _{+0.050}	55		70				4530	4535	4540	4550	4560						
50	60	50		60	^{+0.060} / _{+0.041}	75					5035	5040	5050	5060						
55	65	55		65		80						5540	5550	5560						
60	75	60		75	^{+0.062} / _{+0.043}	90						6040	6050	6060	6080					
70	85	70	^{+0.090} / _{+0.060}	85		105	7.5						7050	7060	7080					
75	90	75		90	^{+0.073} / _{+0.051}	110								7550	7560	7580	75100			
80	100	80		100		120									8060	8080	80100			
90	110	90		110		130										9060	9080	90100		
100	120	100	^{+0.107} / _{+0.072}	120	^{+0.076} / _{+0.054}	150	10									10060	10080	100100		
120	140	120		140	^{+0.088} / _{+0.063}	170											12060	12080	120100	

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JTW 自润滑止推垫片标准公制尺寸 JTW Self-lubricating Thrust Washer Standard Metric Size

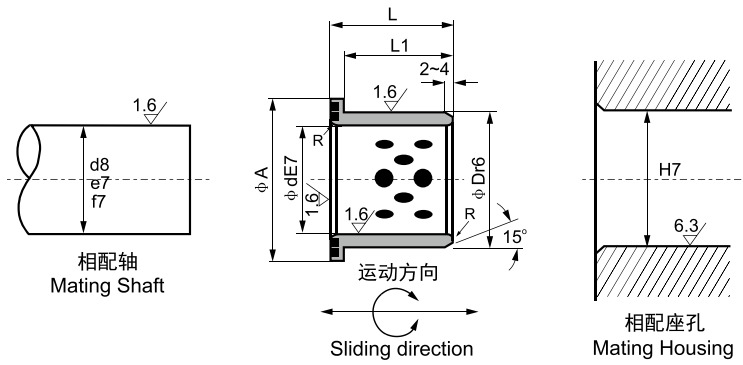


单位Unit: mm

型号规格 Standard No.	ϕd	ϕD	$T_{-0.10}^0$	ϕD_1	螺孔 Bolt Hole		孔数 Bore Number
					平头螺钉 Crop Bolt	ϕd_1	
JDB-JTW-10	10.2	30		20			
JDB-JTW-12	12.2						
JDB-JTW-13	13.2	40		28			
JDB-JTW-14	14.2		3		M3	3.5	
JDB-JTW-15	15.2						
JDB-JTW-16	16.2						
JDB-JTW-18	18.2	50		35			2
JDB-JTW-20	20.2						
JDB-JTW-25	25.2	55	5	40	M5	6	
JDB-JTW-30	30.2	60		45			
JDB-JTW-35	35.2	70		50			
JDB-JTW-40	40.2	80	7	60			
JDB-JTW-45	45.3	90		70	M6	7	
JDB-JTW-50	50.3	100		75			
JDB-JTW-55	55.3	110		85			
JDB-JTW-60	60.3	120	8	90			
JDB-JTW-65	65.3	125		95			
JDB-JTW-70	70.3	130		100	M8	9	
JDB-JTW-75	75.3	140		110			4
JDB-JTW-80	80.3	150	10	120			
JDB-JTW-90	90.5	170		140			
JDB-JTW-100	100.5	190		160	M10	11	
JDB-JTW-120	120.5	200		175			



JFBB 自润滑翻边轴套标准公制尺寸 JFBB Self-lubricant Flange Bushings Standard Metric Size

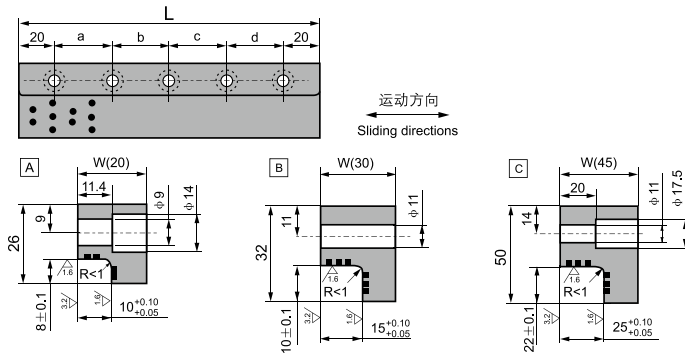


单位unit:mm

型号规格 Standard No.	ϕ d E7	ϕ D r6	ϕ A	L1	L
JDB-JFBB-12 × 15	12	18	25	11	15
JDB-JFBB-16 × 20	16	22	30	15	20
JDB-JFBB-20 × 25	20	28	36	20	25
JDB-JFBB-25 × 30	25	33	43	25	30
JDB-JFBB-30 × 35	30	38	48	30	35
JDB-JFBB-40 × 45	40	50	60	40	45
JDB-JFBB-50 × 55	50	62	75	49	55
JDB-JFBB-60 × 65	60	74	90	58	65



JSP 滑板标准公制尺寸 JSP Wear Plate Standard Metric Size



单位Unit: mm²

型号规格 Standard No.	W	L	螺孔 Bolt Hole				螺孔 Size	数量 Q'ty	图示 Sketch
			a	b	c	d			
JDB-JSP-20 × 100	20	100	60	—	—	—	M8	2	A
JDB-JSP-20 × 150		150	55	55	—	—		3	
JDB-JSP-20 × 200		200	55	50	55	—		4	
JDB-JSP-30 × 100	30	100	60	—	—	—	M10	2	B
JDB-JSP-30 × 150		150	55	55	—	—		3	
JDB-JSP-30 × 200		200	55	50	55	—		4	
JDB-JSP-30 × 250	45	250	70	70	70	—	M10	4	C
JDB-JSP-45 × 200		200	55	50	55	—		4	
JDB-JSP-45 × 250		250	70	70	70	—		4	
JDB-JSP-45 × 300	45	300	65	65	65	65	M10	5	C
JDB-JSP-45 × 350		350	80	75	75	80		5	

+

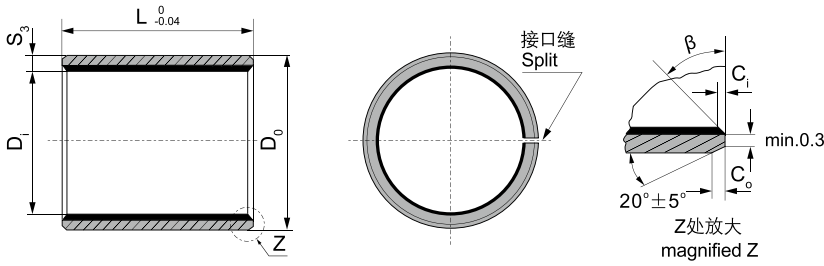
SF-10 自润滑轴套
SF-10 Self-lubricating Bushes



SF-10 自润滑轴承
SF-10 Self-lubricating Bearings



SF-10 轴套规格及公差 SF-10 Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S ₃	C _o	C _i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	30° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	30° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	30° ± 5°

轴径(f7) Shaft D _s	座孔(H7) Housing D _H	(OD) 外径公差 Tolerance D _o	(ID)压装后 内孔公差 After fixed D _{i,a}	配合间隙 Clearance D _D	壁厚 Wall thick- ness S ₃	长度 (L) (mm)															
						6	8	10	12	15	20	25	30	40	50						
6	-0.010 -0.022	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000	0606	0608	0610											
8	-0.013 -0.028	10	+0.015	10	+0.055 +0.025	8.055 7.990	0.083 0.003	0806	0808	0810	0812	0815									
10	-0.013 -0.028	12	+0.018	12	+0.065 +0.030	10.058 9.990	0.086 0.003	1006	1008	1010	1012	1015	1020								
12	-0.016 -0.034	14	+0.018	14	+0.065 +0.030	12.058 11.990		1206	1208	1210	1212	1215	1220	1225							
13	-0.016 -0.034	15	+0.018	15	+0.065 +0.030	13.058 12.990				1310	1312	1315	1320	1325							
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990	0.092 0.006			1410	1412	1415	1420	1425							
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990				1510	1512	1515	1520	1525							
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990				1610	1612	1615	1620	1625							
17	-0.016 -0.034	19	+0.021	19	+0.075 +0.035	17.061 16.990	0.095 0.006			1710	1712	1715	1720	1725							
18	-0.016 -0.034	20	+0.021	20	+0.075 +0.035	18.061 17.990				1810	1812	1815	1820	1825							
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990				2010	2012	2015	2020	2025	2030						
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990	0.112 0.010			2210	2212	2215	2220	2225	2230						
24	-0.020 -0.041	27	+0.021	27	+0.075 +0.035	24.071 23.990				2410	2412	2415	2420	2425	2430						
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990				2510	2512	2515	2520	2525	2530	2540	2550				
28	-0.020 -0.041	32	+0.025	32	+0.085 +0.045	28.085 27.990	0.126 0.010				2812	2815	2820	2825	2830	2840	2850				
30	-0.020 -0.041	34	+0.025	34	+0.085 +0.045	30.085 29.990					3012	3015	3020	3025	3030	3040	3050				
32	-0.025 -0.050	36	+0.025	36	+0.085 +0.045	32.085 31.990					3212	3215	3220	3225	3230	3240	3250				
35	-0.025 -0.050	39	+0.025	39	+0.085 +0.045	35.085 34.990	0.135 0.015				3512	3515	3520	3525	3530	3540	3550				
38	-0.025 -0.050	42	+0.025	42	+0.085 +0.045	38.085 37.990					3812	3815	3820	3825	3830	3840	3850				
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990					4012	4015	4020	4025	4030	4040	4050				

单位Unit: mm



SF-10 轴套规格及公差

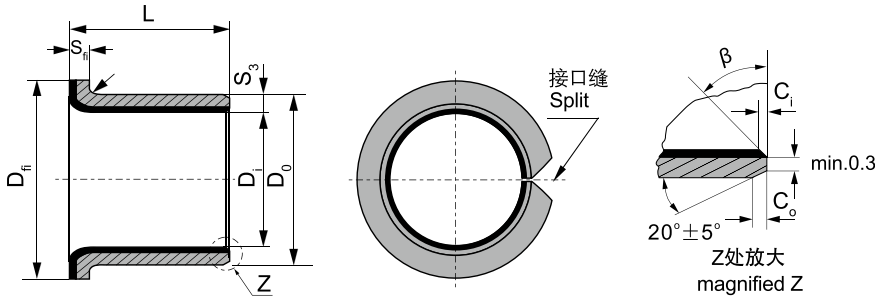
SF-10 Sleeve Bushing Specification & Tolerance

轴径(f7) Shaft D _s	座孔(H7) Housing D _H	(OD) 外径公差 Tolerance D _O		(ID)压装后 内孔公差 After fixed D _{ia}		配合间隙 Clearance D _D	壁厚 Wall thick- ness S ₃	长度 L ⁰ _{-0.40}													
								20	25	30	40	50	60	70	80	100	115				
45	-0.050 -0.025	50	+0.025	50	+0.085 +0.045	45.105 44.990	0.155 0.015		4520	4525	4530	4540	4550								
50	-0.050 -0.025	55	+0.030	55	+0.100 +0.055	50.110 49.990	0.160 0.015		5020	5025	5030	5040	5050	5060							
55	-0.060 -0.030	60	+0.030	60	+0.100 +0.055	55.110 54.990					5530	5540	5550	5560							
60	-0.060 -0.030	65	+0.030	65	+0.100 +0.055	60.110 59.990		2.505 2.460				6030	6040	6050	6060	6070					
65	-0.060 -0.030	70	+0.030	70	+0.100 +0.055	65.110 64.990	0.170 0.020					6530	6540	6550	6560	6570					
70	-0.060 -0.030	75	+0.030	75	+0.100 +0.055	70.110 69.990						7030	7040	7050	7060	7070	7080				
75	-0.060 -0.030	80	+0.030	80	+0.100 +0.055	75.110 74.990						7530	7540	7550	7560	7570	7580				
80	-0.045	85	+0.035	85	+0.120 +0.070	80.155 80.020	0.201 0.020						8040	8050	8060	8070	8080	80100			
85	-0.054	90	+0.035	90	+0.120 +0.070	85.155 85.020							8540	8550	8560	8570	8580	85100			
90	-0.054	95	+0.035	95	+0.120 +0.070	90.155 90.020							9040	9050	9060	9070	9080	90100			
95	-0.054	100	+0.035	100	+0.120 +0.070	95.155 95.020	0.209 0.020	2.490 2.440						9550	9560	9570	9580	95100			
100	-0.054	105	+0.035	105	+0.120 +0.070	100.155 100.020								10050	10060	10070	10080	100100	100115		
105	-0.054	110	+0.035	110	+0.120 +0.070	105.155 105.020									10560	10570	10580	105100	105115		
110	-0.054	115	+0.035	115	+0.120 +0.070	110.115 110.020										11060	11070	11080	110100	110115	
120	-0.054	125	+0.040	125	+0.170 +0.100	120.210 120.070	0.264 0.070									12060	12070	12080	120100	120115	
125	-0.063	130	+0.040	130	+0.170 +0.100	125.210 125.070										12560	12570	12580	125100	125115	
130	-0.063	135	+0.040	135	+0.170 +0.100	130.210 130.070		2.465 2.415								13060	13070	13080	130100	130115	
140	-0.063	145	+0.040	145	+0.170 +0.100	140.210 140.070	0.273 0.070									14060	14070	14080	140100	140115	
150	-0.063	155	+0.040	155	+0.170 +0.100	150.210 150.070										15060	15070	15080	150100	150115	
160	-0.063	165	+0.040	165	+0.170 +0.100	160.210 160.070										16060	16070	16080	160100	160115	
180	-0.063	185	+0.046	185	+0.210 +0.130	180.216 180.070	0.279 0.070									18060	18070	18080	180100		
190	-0.072	195	+0.046	195	+0.210 +0.130	190.216 190.070		2.465 2.415								19060	19070	19080	190100		
200	-0.072	205	+0.046	205	+0.210 +0.130	200.016 200.070	0.288 0.070									20060	20070	20080	200100		
220	-0.072	225	+0.046	225	+0.210 +0.130	220.216 220.070										22060	22070	22080	220100		
250	-0.072	255	+0.052	255	+0.260 +0.170	250.222 250.070	0.294 0.070											25080	250100		
260	-0.081	265	+0.052	265	+0.260 +0.170	260.222 260.070		2.465 2.415										26080	260100		
280	-0.081	285	+0.052	285	+0.260 +0.170	280.222 280.070	0.303 0.070											28080	280100		
300	-0.081	305	+0.052	305	+0.260 +0.170	300.222 300.070												30080	300100		



SF-10F 翻边轴套规格及公差

SF-10F Flange Bushing Specification & Tolerance



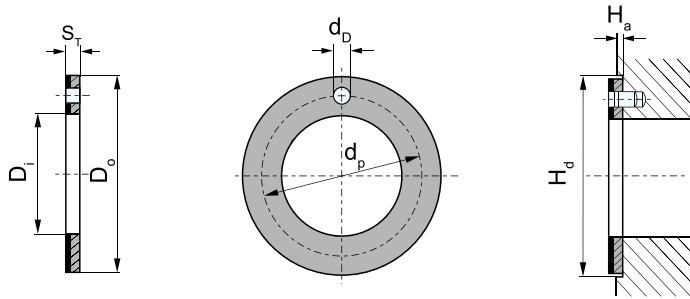
S ₃	1.0	1.5	2.0	2.5
r	1 ^{-0.5}	1 ± 0.5	1.5 ± 0.5	2 ± 0.5

单位Unit: mm

轴径 (F7) Shaft D _s	座孔 (H7) Housing D _H	(OD) 外径公差 Tolerance D _o	(ID) 压装后 内孔公差 After fixed D _{ia}	配合间隙 Clearance C _o	Designation 型号规格	Wall thickness 壁厚 S ₃	尺寸 Dimension					
							D _i	D _o	D _{fi} ± 0.5	L ± 0.25	S _{fi} - 0.2	
6	-0.013 -0.028	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000	6	8	12	4	7
8	-0.013 -0.028	10	+0.015	10	+0.055 +0.025	8.055 7.990	0.083 0.003	8	10	15	5.5 7.5	7
10	-0.016 -0.034	12	+0.018	12	+0.055 +0.025	10.058 9.990	0.086 0.003	10	12	18	9	12
12	-0.016 -0.034	14	+0.018	14	+0.065 +0.030	12.058 11.990	0.092 0.006	12	14	20	9	12
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990	0.092 0.006	14	16	22	12	17
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990	0.095 0.006	15	17	23	12	17
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990	0.095 0.006	16	18	24	12	17
18	-0.016 -0.034	20	+0.021	20	+0.075 +0.035	18.061 17.990	0.095 0.006	18	20	26	12	17
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990	0.112 0.010	20	23	30	11.5	16.5
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990	0.112 0.010	22	25	32	15	20
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990	0.126 0.010	25	28	35	11.5	16.5
30	-0.025 -0.050	34	+0.025	34	+0.075 +0.035	30.085 29.990	0.126 0.010	30	34	42	16	26
35	-0.025 -0.050	39	+0.025	39	+0.085 +0.045	35.085 34.990	0.135 0.015	35	39	47	16	26
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990	0.135 0.015	40	44	53	26	40



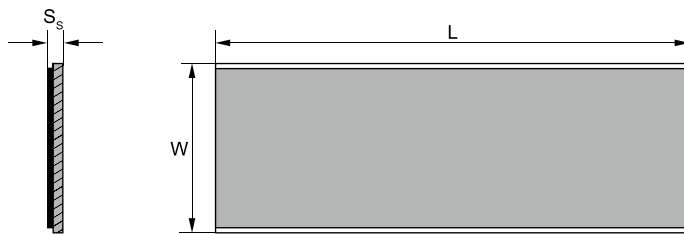
SF-10W 垫片规格及公差 SF-10W Thrust Washer Specification & Tolerance



单位Unit: mm

轴径 Shaft D_s	型号规格 Standard No.	垫片尺寸 Washer size				安装尺寸 Assemble size		
		$D_i+0.25$	$D_o-0.25$	$S_T-0.05$	$d_p \pm 0.125$	$d_{D+0.1}^{+0.4}$	$H_a \pm 0.2$	$H_d+0.12$
8	W10	10	20		15			20
10	W12	12	24		18	1.5		24
12	W14	14	26		20			26
14	W16	16	30		23	2		30
16	W18	18	32		25			32
18	W20	20	36		28			36
20	W22	22	38	1.5	30		1	38
22	W24	24	42		33	3		42
24	W26	26	44		35			44
26	W28	28	48		38			48
30	W32	32	54		43			54
36	W38	38	62		50			62
40	W42	42	66		54	4		66
46	W48	48	74		61			74
50	W52	52	78	2	65		1.5	78
60	W62	62	90		76			90

SF-10SP 板材规格及公差 SF-10SP Strip Specification & Tolerance



单位Unit: mm

型号规格 Standard No.	长度 $L \pm 1$	宽度 $W \pm 1$	厚壁 Wall thickness $S_s-0.05$
SP	500	150	1.0
SP	500	150	1.5
SP	500	150	2.0
SP	500	150	2.5

+

SF-20 边界自润滑轴套

SF-20 Marginal Self-lubricating Bushes



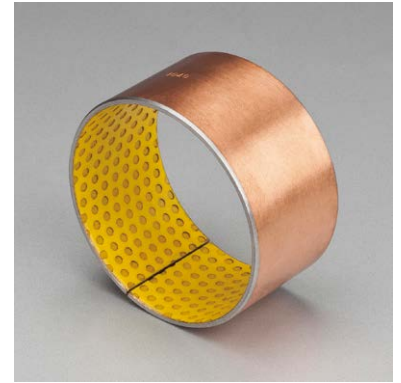
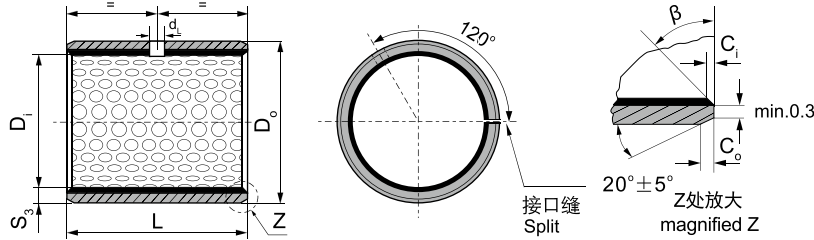
SF 边界自润滑轴承

SF Marginal Self-lubricating Bearings



SF-20 轴承规格及公差

SF-20 Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S ₃	C _o	C _i	β	S ₃	C _o	C _i	β
1.0	0.6 ± 0.3	0.30 ± 0.2	30° ± 5°	2.00	1.2 ± 0.4	0.50 ± 0.3	30° ± 5°
1.5	0.7 ± 0.3	0.50 ± 0.2	30° ± 5°	2.50	1.8 ± 0.6	0.80 ± 0.3	45° ± 5°

单位Unit: mm

轴径 Shaft D _s h8	座孔 Housing H7 D _H	(OD) 外径公差 Tolerance D _o	(ID)压装后 内孔公差 After fixed D _{i,a}	配合间隙 Clearance D _D	壁厚 Wall thick- ness S ₃	油孔 Oil hole d _L	长度 L ⁰ _{-0.40}													
							10	15	20	25	30	35	40	45	50	60				
10	-0.022	12 +0.018	12 +0.065 +0.030	10.108 10.040	0.130 0.040	4	1010	1015	1020											
12	-0.027	14 +0.018	14 +0.065 +0.030	12.108 12.040		4	1210	1215	1220											
14	-0.027	16 +0.018	16 +0.065 +0.030	14.108 14.040	0.135 0.040	4		1415	1420											
15	-0.027	17 +0.018	17 +0.065 +0.030	15.108 15.040		4		1515	1520	1525										
16	-0.027	18 +0.018	18 +0.065 +0.030	16.108 16.040		4		1615	1620	1625										
18	-0.027	20 +0.021	20 +0.075 +0.035	18.111 18.040	0.138 0.040	4		1815	1820	1825										
20	-0.033	23 +0.021	23 +0.075 +0.035	20.131 20.050		4		2015	2020	2025	2030									
22	-0.033	25 +0.021	25 +0.075 +0.035	22.131 22.050	0.164 0.050	4		2215	2220	2225	2230									
25	-0.033	28 +0.021	28 +0.075 +0.035	25.131 25.050		4		2515	2520	2525	2530									
28	-0.033	32 +0.025	32 +0.085 +0.045	28.155 28.060	0.188 0.060	6			2820	2825	2830									
30	-0.033	34 +0.025	34 +0.085 +0.045	30.155 30.060		6			3020	3025	3030	3035	3040							
35	-0.039	39 +0.025	39 +0.085 +0.045	35.155 35.060	0.194 0.060	6			3520	3525	3530	3535	3540							
40	-0.039	44 +0.025	44 +0.085 +0.045	40.155 40.060		6			4020	4025	4030	4035	4040	4045	4050					
45	-0.039	50 +0.025	50 +0.085 +0.045	45.195 45.080	0.234 0.080	6			4520	4525	4530	4535	4540	4545	4550					
50	-0.039	55 +0.030	55 +0.100 +0.055	50.200 50.080	0.239 0.080	8					5030	5035	5040	5045	5050	5060				
55	-0.046	60 +0.030	60 +0.100 +0.055	55.200 55.080	0.246 0.080	8					5530	5535	5540	5545	5550	5560				
60	-0.046	65 +0.030	65 +0.100 +0.055	60.200 60.080		8					6030	6035	6040	6045	6050	6060				



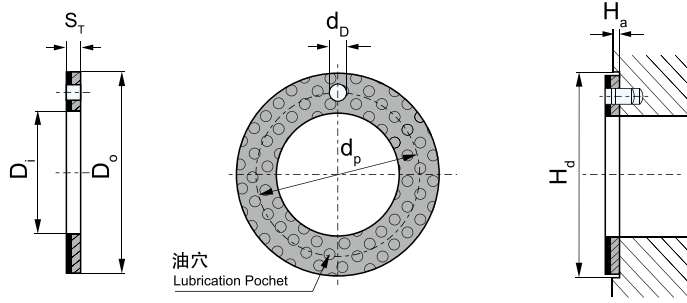
SF-20 轴承规格及公差

SF-20 Sleeve Bushing Specification & Tolerance

轴径 Shaft D _s h8	座孔 Housing H7 D _H	(OD) 外径公差 Tolerance D _O	(ID)压装后 内孔公差 After fixed D _{Ia}	配合间隙 Clearance D _D	壁厚 Wall thick-ness S ₃	油孔 Oil hole d _i	长度 L ⁰ _{-0.40}													
							40	50	60	80	90	95	100	110	120					
65	-0.046	70 +0.030	70 +0.100 +0.055	65.200 65.080				6540	6550	6560										
70	-0.046	75 +0.030	75 +0.100 +0.055	70.200 70.080	0.246 0.080	2.460 2.415	8	7040	7050	7060	7080									
75	-0.046	80 +0.030	80 +0.100 +0.055	75.200 75.080				7540	7550	7560	7580									
80	-0.046	85 +0.035	85 +0.120 +0.070	80.265 80.100	0.313 0.100			8040	8050	8060	8080									
85	-0.054	90 +0.035	90 +0.120 +0.070	85.265 85.100				8540	8550	8560	8580									
90	-0.054	95 +0.035	95 +0.120 +0.070	90.265 90.100				9040	9050	9060	9080	9090								
100	-0.054	105 +0.035	105 +0.120 +0.070	100.265 100.100	0.321 0.100				10050	10060	10080	10090	10095							
105	-0.054	110 +0.035	110 +0.120 +0.070	105.265 105.100					10550	10560	10580	10590	10595	105100	105110					
110	-0.054	115 +0.035	115 +0.120 +0.070	110.265 110.110			9.5		11050	11060	11080	11090	11095	110100	110110					
120	-0.054	125 +0.040	125 +0.170 +0.100	120.270 120.110					12050	12060	12080	12090	12095	120100	120110					
125	-0.063	130 +0.040	130 +0.170 +0.100	125.270 125.110					12550	12560	12580	12590	12595	125100	125110					
130	-0.063	135 +0.040	135 +0.170 +0.100	130.270 130.110					13050	13060	13080	13090	13095	130100	130110					
140	-0.063	145 +0.040	145 +0.170 +0.100	140.270 140.110	0.324 0.100				14050	14060	14080	14090	14095	140100	140110					
150	-0.063	155 +0.040	155 +0.170 +0.100	150.270 150.110		2.450 2.385			15050	15060	15080	15090	15095	150100	150110					
160	-0.063	165 +0.040	165 +0.170 +0.100	160.270 160.110					16050	16060	16080	16090	16095	160100	160110					
170	-0.063	175 +0.040	175 +0.170 +0.100	170.270 170.110					17050	17060	17080	17090	17095	170100	170110					
180	-0.063	185 +0.046	185 +0.210 +0.130	180.276 180.110			9.5		18050	18060	18080	18090	18095	180100	180110					
190	-0.072	195 +0.046	195 +0.210 +0.130	190.276 190.110					19050	19060	19080	19090	19095	190100	190110	190120				
200	-0.072	205 +0.046	205 +0.210 +0.130	200.276 200.110	0.339 0.110				20050	20060	20080	20090	20095	200100	200110	200120				
220	-0.072	225 +0.046	225 +0.210 +0.130	220.276 220.110					22050	22060	22080	22090	22095	220100	220110	220120				
240	-0.072	245 +0.046	245 +0.210 +0.130	240.276 240.110					24050	24060	24080	24090	24095	240100	240110	240120				
250	-0.072	255 +0.052	255 +0.260 +0.170	250.282 250.110			9.5		25050	25060	25080	25090	25095	250100	250110	250120				
260	-0.081	265 +0.052	265 +0.260 +0.170	260.282 260.110					26050	26060	26080	26090	26095	260100	260110	260120				
280	-0.081	285 +0.052	285 +0.260 +0.170	280.282 280.110	0.354 0.110				28050	28060	28080	28090	28095	280100	280110	280120				
300	-0.081	305 +0.052	305 +0.260 +0.170	300.282 300.110					30050	30060	30080	30090	30095	300100	300110	300120				



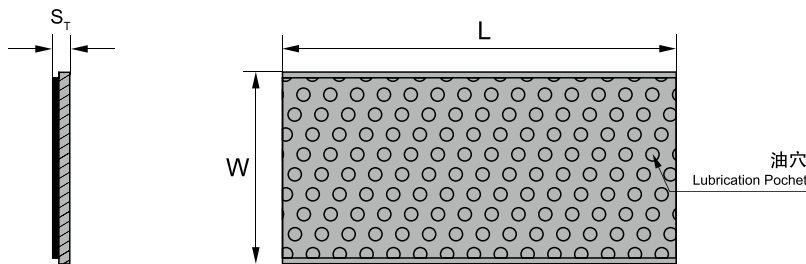
SF-20W 垫片规格及公差 SF-20W Thrust Washer Specification & Tolerance



单位Unit: mm

轴径 Shaft D _s	型号规格 Standard No.	垫片尺寸 Washer size				安装尺寸 Assemble size			
		D _i +0.25	D _o -0.25	S _T -0.05	d _p ±0.125	d _b	^{+0.4} / _{+0.1}	H _a ±0.2	H _d +0.12
8	W10	10	20		15				20
10	W12	12	24		18		1.5		24
12	W14	14	26		20				26
14	W16	16	30		23		2		30
16	W18	18	32		25				32
18	W20	20	36		28				36
20	W22	22	38	1.5	30		3	1	38
22	W24	24	42		33				42
24	W26	26	44		35				44
26	W28	28	48		38				48
30	W32	32	54		43				54
36	W38	38	62		50				62
40	W42	42	66		54		4		66
46	W48	48	74		61				74
50	W52	52	78	2	65			1.5	78
60	W62	62	90		76				90

SF-20SP 板材标准公制尺寸 SF-20SP Strip Standard Metric Size



单位Unit: mm

型号规格 Standard No.	长度 L ± 1	宽度 W ± 1	厚壁 Wall thickness S _s -0.05
P	500	150	1.0
P	500	150	1.5
P	500	150	2.0
P	500	150	2.5

+

FB090 青铜卷制轴承
FB090 Bronze-Wrapped Bearings



FB090 青铜卷制轴承
FB090 Bronze-Wrapped Bearings

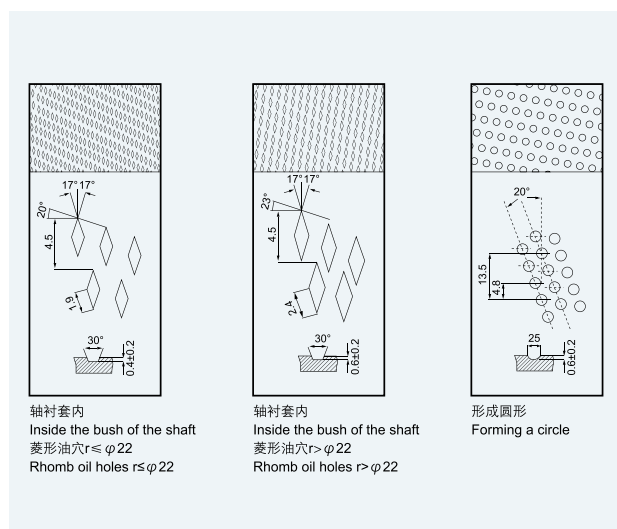
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FB090 系列青铜卷制轴套 FB090 Bronze-Wrapped Bushes

材料结构 Material Structure

采用高密度青铜卷制成形或球形油袋、油穴特殊合成内部表面以减少磨损延长使用时间并且很好的做到防腐功能。

High-density bronze is rolled into shape or oil bags and oil holes specially integrated into the inner surface to reduce the wearing and prolong the service hours. Besides, it has excellent anti-corrosion functions.



应用范围 Application scope

此系列轴承广泛应用于农用、建设机械以及工程机械等。

This series of bearing is widely applied to agricultural, construction and engineering machineries, etc.

油穴类别(依据 DIW1494/ISO3457)。

Categories of oil holes (As per to DIW1494/ISO3457)。

化学成分 Chemical Composition

材料 Material: CuSn8P	铜 Cu	锡 Sn	磷 P
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物理特性 Physical Property

JLB090	
密度 Density	8.8g/cm ³
散热热胀 Heat Emission and Expansion	18.5 × 10 ⁻⁶ × K ⁻¹
热传导 Heat Conducting	58W(m·k)
硬度 Hardness	90~150HB
抗压强度 Compression strength	470N/mm ²
延伸率 Extensile	40%

标准衬套公差 (依据 DIW W91/1503547)

Standard tolerance for bushes(As per to DIW W91/1503547)

标准直径 Standard Dia.	衬套外径 O.D.Size	相配座孔 Housing Bore	衬套内径 I.D.Size	相配轴径 Axle
10~18	+0.065	+0.018	+0.046	-0.016
	+0.030	0	0	-0.043
18~30	+0.075	+0.021	+0.052	-0.020
	+0.035	0	0	-0.020
30~50	+0.085	+0.025	+0.062	-0.025
	+0.045	0	0	-0.064
50~80	+0.100	+0.030	+0.074	-0.030
	+0.055	0	0	-0.076
80~120	+0.120	+0.035	+0.087	-0.036
	+0.070	0	0	-0.090
120~180	+0.170	+0.400	+0.100	-0.043
	+0.100	0	0	-0.106
180~250	+0.210	+0.046	+0.115	-0.050
	+0.130	0	0	-0.122
250~315	+0.260	+0.052	+0.130	-0.056
	+0.170	0	0	-0.137

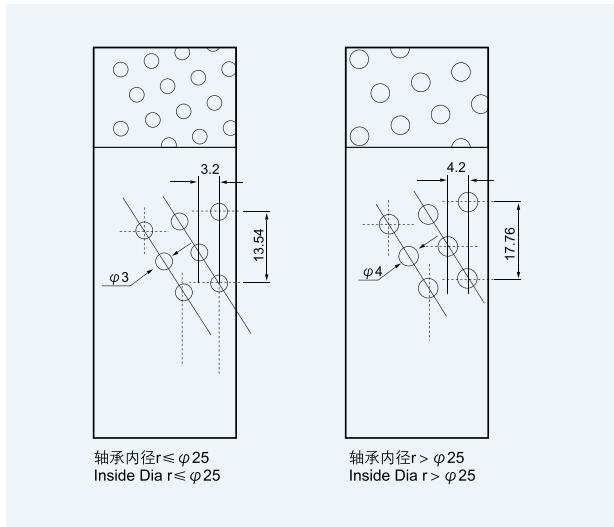


FB092 系列青铜卷制轴套 FB092 Bronze-Wrapped Bushes

材料结构 Material Structure

采用高密度青铜卷制成形或球形油袋、油穴特殊合成内部表面以减少磨损延长使用时间并且很好的做到防腐功能。

High-density bronze is rolled into shape or oil bags and oil holes, specially integrated into the inner surface to reduce the wearing and prolong the service hours. Besides, it has excellent anti-corrosion functions.



应用范围 Application scope

此系列轴承广泛应用于农用、建设机械以及工程机械等。

This series of bearing is widely applied to agricultural, construction and engineering machineries, etc.

化学成分 Chemical Composition

材料 Material: CuSn8P	铜 Cu	锡 Sn	磷 P
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物理特性 Physical Property

JLB090	
密度 Density	8.8g/cm ³
散热热胀 Heat Emission and Expansion	18.5 × 10 ⁻⁶ × K ⁻¹
热传导 Heat Conducting	58W(m-k)
硬度 Hardness	90~150HB
抗压强度 Compression strength	470N/mm ²
延伸率 Extensile	40%

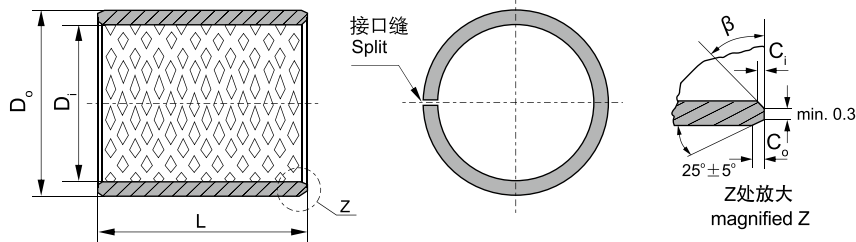
标准衬套公差 (依据 DIW W91/1503547)

Standard tolerance for bushes (As per to DIW W91/1503547)

标准直径 Standard Dia.	衬套外径 O.D.Size	相配座孔 Housing Bore	衬套内径 I.D.Size	相配轴径 Axle
10~18	+0.065	+0.018	+0.046	-0.016
	+0.030	0	0	-0.043
18~30	+0.075	+0.021	+0.052	-0.020
	+0.035	0	0	-0.020
30~50	+0.085	+0.025	+0.062	-0.025
	+0.045	0	0	-0.064
50~80	+0.100	+0.030	+0.074	-0.030
	+0.055	0	0	-0.076
80~120	+0.120	+0.035	+0.087	-0.036
	+0.070	0	0	-0.090
120~180	+0.170	+0.400	+0.100	-0.043
	+0.100	0	0	-0.106
180~250	+0.210	+0.046	+0.115	-0.050
	+0.130	0	0	-0.122
250~315	+0.260	+0.052	+0.130	-0.056
	+0.170	0	0	-0.137



FB090 青铜轴套规格及公差 FB090 Bronze Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S ₃	C _o	C _i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	35° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	35° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	35° ± 5°

单位Unit: mm

内径 D _i φ d	外径 D _o φ D	长度 L ⁰ _{-0.40}													
		10	15	20	25	30	35	40	50	60	70	80	90	100	
10	12	1010	1015	1020											
12	14	1210	1215	1220											
14	16	1410	1415	1420	1425										
15	17	1510	1515	1520	1525										
16	18	1610	1615	1620	1625										
18	20	1810	1815	1820	1825										
20	23	2010	2015	2020	2025										
22	25	2210	2215	2220	2225	2230									
24	27		2415	2420	2425	2430									
25	28		2515	2520	2525	2530									
28	31		2815	2820	2825	2830									
30	34		3015	3020	3025	3030	3035	3040							
32	36		3215	3220	3225	3230	3235	3240							
35	39		3515	3520	3525	3530	3535	3540							
40	44			4020	4025	4030	4035	4040	4050						
45	50			4520	4525	4530	4535	4540	4550						
50	55			5020	5025	5030	5035	5040	5050	5060					
55	60			5520	5525	5530	5535	5540	5550	5560					
60	65				6025	6030	6035	6040	6050	6060	6070				
65	70					6530	6535	6540	6550	6560	6570				
70	75					7030	7035	7040	7050	7060	7070	7080			
75	80					7530	7535	7540	7550	7560	7570	7580			
80	85					8030	8035	8040	8050	8060	8070	8080			
85	90					8530	8535	8540	8550	8560	8570	8580	8590		
90	95					9030	9035	9040	9050	9060	9070	9080	9090		
95	100							9540	9550	9560	9570	9580	9590	95100	



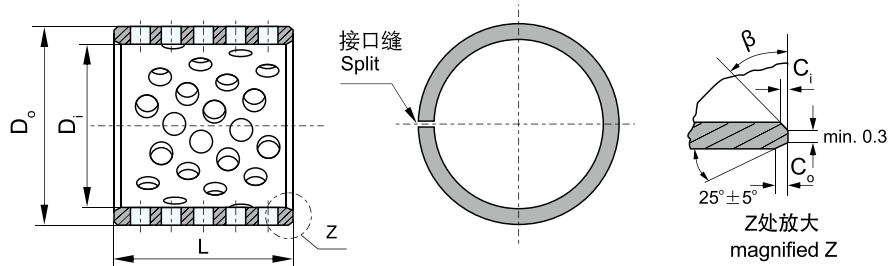
FB090 青铜轴套规格及公差

FB090 Bronze Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_o ϕD	长度 L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$										
		25	30	35	40	50	60	70	80	90	100	
100	105					10050	10060	10070	10080	10090	100100	
105	110					10550	10560	10570	10580	10590	105100	
110	115					11050	11060	11070	11080	11090	110100	
115	120					11550	11560	11570	11580	11590	115100	
120	125						12060	12070	12080	12090	120100	
125	130						12560	12570	12580	12590	125100	
130	135						13060	13070	13080	13090	130100	
135	140						13560	13570	13580	13590	135100	
140	145						14060	14070	14080	14090	140100	
145	150						14560	14570	14580	14590	145100	
150	155						15060	15070	15080	15090	150100	
155	160						15560	15570	15580	15590	155100	
160	165						16060	16070	16080	16090	160100	
165	170						16560	16570	16580	16590	165100	
170	175						17060	17070	17080	17090	170100	
175	180						17560	17570	17580	17590	175100	
180	185						18060	18070	18080	18090	180100	
185	190						18560	18570	18580	18590	185100	
190	195						19060	19070	19080	19090	190100	
195	200						19560	19570	19580	19590	195100	
200	205						20060	20070	20080	20090	200100	
205	210						20560	20570	20580	20590	205100	
215	220						21560	21570	21580	21590	215100	
225	230						22560	22570	22580	22590	225100	
230	235						23060	23070	23080	23090	230100	
240	245						24060	24070	24080	24090	240100	
250	255						25060	25070	25080	25090	250100	
260	265						26060	26070	26080	26090	260100	
270	275						27060	27070	27080	27090	270100	
280	285						28060	28070	28080	28090	280100	
290	295						29060	29070	29080	29090	290100	
300	305						30060	30070	30080	30090	300100	



FB092 青铜轴套规格及公差 FB092 Bronze Sleeve Bushing Specification & Tolerance



内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	$35^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$35^\circ \pm 5^\circ$
1.50	0.7 ± 0.3	0.50 ± 0.3	$35^\circ \pm 5^\circ$

单位Unit: mm

内径 D_i ϕd	外径 D_o ϕD	长度 L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$													
		10	15	20	25	30	35	40	50	60	70	80	90	100	
10	12	1010	1015	1020											
12	14	1210	1215	1220											
14	16	1410	1415	1420	1425										
15	17	1510	1515	1520	1525										
16	18	1610	1615	1620	1625										
18	20	1810	1815	1820	1825										
20	23	2010	2015	2020	2025										
22	25	2210	2215	2220	2225	2230									
24	27		2415	2420	2425	2430									
25	28		2515	2520	2525	2530									
28	31		2815	2820	2825	2830									
30	34		3015	3020	3025	3030	3035	3040							
32	36		3215	3220	3225	3230	3235	3240							
35	39		3515	3520	3525	3530	3535	3540							
40	44			4020	4025	4030	4035	4040	4050						
45	50			4520	4525	4530	4535	4540	4550						
50	55			5020	5025	5030	5035	5040	5050	5060					
55	60			5520	5525	5530	5535	5540	5550	5560					
60	65				6025	6030	6035	6040	6050	6060	6070				
65	70					6530	6535	6540	6550	6560	6570				
70	75					7030	7035	7040	7050	7060	7070	7080			
75	80					7530	7535	7540	7550	7560	7570	7580			
80	85					8030	8035	8040	8050	8060	8070	8080			
85	90					8530	8535	8540	8550	8560	8570	8580	8590		
90	95					9030	9035	9040	9050	9060	9070	9080	9090		
95	100							9540	9550	9560	9570	9580	9590	95100	



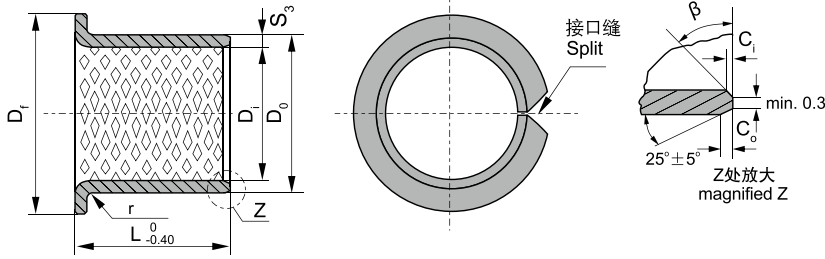
FB092 青铜轴套规格及公差

FB092 Bronze Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_o ϕD	长度L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$									
		25	30	35	40	50	60	70	80	90	100
100	105					10050	10060	10070	10080	10090	100100
105	110					10550	10560	10570	10580	10590	105100
110	115					11050	11060	11070	11080	11090	110100
115	120					11550	11560	11570	11580	11590	115100
120	125						12060	12070	12080	12090	120100
125	130						12560	12570	12580	12590	125100
130	135						13060	13070	13080	13090	130100
135	140						13560	13570	13580	13590	135100
140	145						14060	14070	14080	14090	140100
145	150						14560	14570	14580	14590	145100
150	155						15060	15070	15080	15090	150100
155	160						15560	15570	15580	15590	155100
160	165						16060	16070	16080	16090	160100
165	170						16560	16570	16580	16590	165100
170	175						17060	17070	17080	17090	170100
175	180						17560	17570	17580	17590	175100
180	185						18060	18070	18080	18090	180100
185	190						18560	18570	18580	18590	185100
190	195						19060	19070	19080	19090	190100
195	200						19560	19570	19580	19590	195100
200	205						20060	20070	20080	20090	200100
205	210						20560	20570	20580	20590	205100
215	220						21560	21570	21580	21590	215100
225	230						22560	22570	22580	22590	225100
230	235						23060	23070	23080	23090	230100
240	245						24060	24070	24080	24090	240100
250	255						25060	25070	25080	25090	250100
260	265						26060	26070	26080	26090	260100
270	275						27060	27070	27080	27090	270100
280	285						28060	28070	28080	28090	280100
290	295						29060	29070	29080	29090	290100
300	305						30060	30070	30080	30090	300100



FB090F 青铜翻边轴套规格及公差 FB090F Bronze Flange Bushing Specification & Tolerance



S_3	1.0	1.5	2.0	2.5
r	$1^{+0.05}$	1 ± 0.5	1.5 ± 0.5	2 ± 0.5

单位Unit: mm

内径 D_i ϕd	外径 D_o ϕD	法兰外径 D_f	长度 L ${}^0_{-0.40}$													
			15	20	25	30	35	40	50	60	70	80	90			
25	28	35	25150	25200	25250											
30	34	45		30200	30250	30300										
35	39	50		35200	35250	35300	35350									
40	44	55			40250	40300	40350	40400								
45	50	60				45300	45350	45400	45500							
50	55	65				50300	50350	50400	50500							
55	60	70				55300	55350	55400	55500							
60	65	75				60300	60350	60400	60500	60600						
65	70	80				65300	65350	65400	65500	65600						
70	75	85					70350	70400	70500	70600	70700					
75	80	90					75350	75400	75500	75600	75700					
80	85	100					80350	80400	80500	80600	80700	80800				
90	95	110							90500	90600	90700	90800	90900			
100	105	120							100500	100600	100700	100800	100900			
110	115	130							110500	110600	110700	110800	110900			
120	125	140							120500	120600	120700	120800	120900			
130	135	155								130600	130700	130800	130900			
140	145	165								140600	140700	140800	140900			
150	155	180								150600	150700	150800	150900			
160	165	190								160600	160700	160800	160900			
170	175	200								170600	170700	170800	170900			
180	185	215								180600	180700	180800	180900			
190	195	225								190600	190700	190800	190900			
200	205	235								200600	200700	200800	200900			
225	230	260								225600	225700	225800	225900			
250	255	290								250600	250700	250800	250900			
265	270	305								265600	265700	265800	265900			
285	290	325								285600	285700	285800	285900			
300	305	340								300600	300700	300800	300900			

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JF-800 双金属自润滑轴套

JF-800 Bimetallic Self-lubricating Bushes



JF-800 双金属自润滑轴承

JF-800 Bimetallic Self-lubricating Bearings



JF-800 双金属自润滑轴套

JF-800 Bimetallic Self-lubricating Bushes

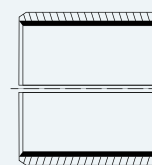
JLB-800系列双金属轴套、轴瓦、止推垫片，以优质低碳钢为基体，表面烧结青铜粉，适用于高载低速下的旋转，摇摆运动。具有摩擦系数低、耐磨性能好、使用寿命长、抗咬合性能好等特点，铜合金层可根据要求加工出各种类型的油穴、油槽。产品被广泛应用于矿山机械、汽机车、建筑机械、农用机械、轧钢机械等。

JLB-800 Bimetallic self-lubricating bearing used high quality low-carbon steel plate as base, sintered porous bronze as its surface, suitable for rotatory oscillating, reciprocating movements on the conditions of high load, low speed, low friction, well wear resistance, long lifetime and better prevent from holding-on. The bronze layer surface can be machined with various of grooves, oil pockets in terms of different work condition. The product is widely used in mining machinery, automobile, building machinery, agriculture equipment, rolling steel industry etc.

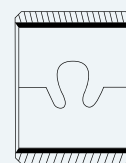
材料特性 Material Characteristic

材料牌号 Material Trademark	合金成份 Alloy Composition	合金硬度 Alloy Hardness	国际标准 International Standard
JLB-800	CuPb10Sn10	70 ~ 100HB	SAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B. D57. Federal Mogul HF2. Glacier SY. Glyco66. Miba2. 1010. Taiho HF2. Kar I Schmiat KS940SSAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B D57. Federal Mogul HF2 Glacier SY. Glyco66. Miba2. 1010. Taiho HF2. Karl Schmiat Ks940s
JLB-720	CuPb24Sn4	45 ~ 70HB	SAE=799. GLYCO 68. JIS-LBC6. DAIDO L23. Claciersx. ACLF250
JLB-700	CuPb30	30 ~ 45HB	SAE-783. GLYCO74. JIS-AJL
JLB-2	AlSn20Cu	30 ~ 40HB	SAE-48. JIS-KJ3
JLB-930	CuPb6.5P0.1	69 ~ 90HB	

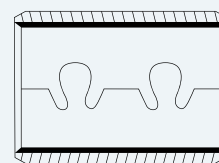
卷制轴承搭口形式 Material Characteristic



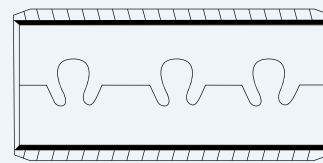
A



B



C

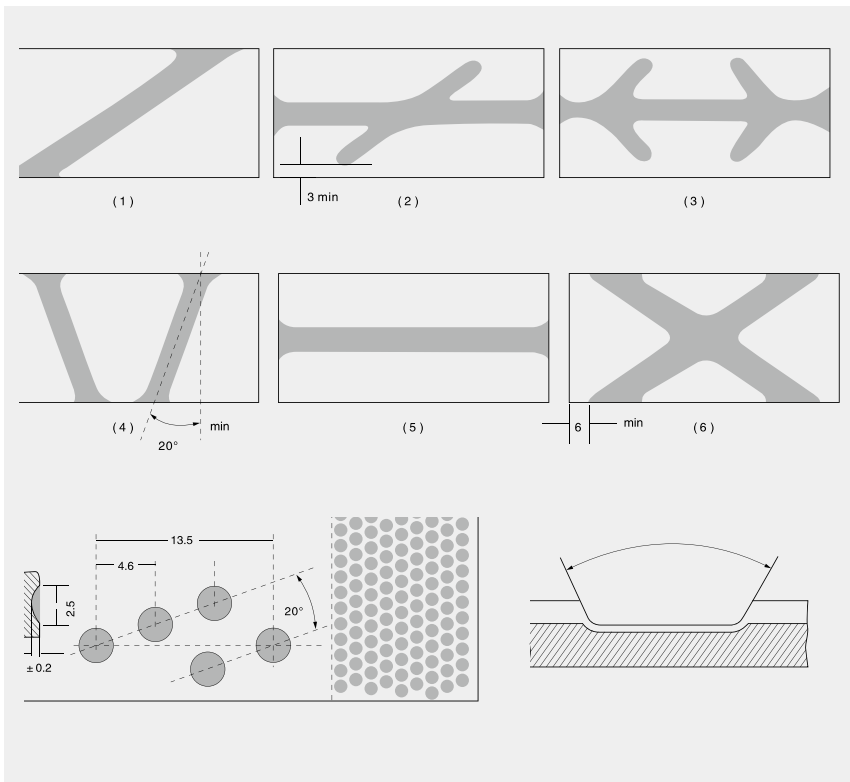


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JF-800 双金属自润滑轴套 JF-800 Bimetallic Self-lubricating Bushes

双金属自润滑轴承的油槽形状 Bi-metal self lubricating bearings tank shape



可供标准产品:

直套P31, 翻边轴套P33。

可供非标产品:

直套, 翻边轴套, 止推垫片, 板材, 轴瓦, 滑板, 钢套组合件。

Standard Size:

Stright Bearing P31, Flange Bearing P33.

Non-Standard Size:

Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

双金属轴套表面粗糙度 Surface Roughness of Bimetal Bushes

项目 List	精密轴套(尺寸到位) Bronze Surface	轴套钢合金面 Bronze Surface
轴套钢合金面 Bronze Surface	R20.8	R26.3
钢背面 Steel Backing	R21.6	R210
其它表面 Other Surfaces	R22.5	R2100

根据 DIN4768 第一部分 According to DIN4768, Part1



JF-800 双金属自润滑轴套

JF-800 Bimetallic Self-lubricating Bushes

技术参数 Technical Data

性能指标 Performance index	型号 Type	JLB-800	JLB-720	JLB-700	JLB-2	JLB-930
最大承载 P (N/mm ²) Max Load Capacity		150	130	120	100	150
拉伸强度 (N/mm ²) Tensile Strength		185	150	200	200	185
最大线速度 (油润滑) V(m/s) Max Sliding Speed (Oil Lubrication)		5	10	15	25	5
摩擦系数 μ Friction coefficient		0.05 ~ 0.20	0.06 ~ 0.16	0.08 ~ 0.16	0.08 ~ 0.17	0.06 ~ 0.16
最高PV值 N/mm ² ·m/s Max PV Value Limit	脂润滑 Grease lubrication	2.8	2.8	2.5	-	2.8
	油润滑 Oil lubrication	10	10	8	6	-

应用特性 Application Characteristics

材料牌号 Material Trademark	适用条件 Using Conditions	适用场合 Use Occasions
JLB-800	很高的耐疲劳强度和承载能力，抗冲击能力强，耐磨性、耐腐蚀性好 High resistance to fatigue strength and load capacity, with high shock resistance good wearing and good corrosion resistance.	中速、高冲击载荷的衬套，内燃机连杆活塞销衬套 Fit for middle load, high speed, bushes, washer and connecting rod bearing in internal combustion engine used in machanical equipment and high shock bushing.
JLB-720	较高的耐疲劳强度和承载能力、较好的滑动性能，易受润滑油腐蚀 Good resistance to fatigue strength and high load capacity, good performance of sliding, liable to be corrupted by lubrication oil.	中载中速、高速内燃机主轴套和连杆轴套 middle load middle speed, principle axis of internal combustion engine.
JLB-700	较高的耐疲劳强度、承载能力、抗冲击能力 Good resistance to fatigue strength, load capacity, shock resistance.	用于内燃机主轴和连杆轴承、止推垫片 Principle axis of internal combustion engine, connecting rod bushing.
JLB-2	良好的抗咬性、异物埋没性，工作表面镀软合金层 Good performance of anti-seizing, covering eyewinker, soft alloy be plated on working surface.	高速中低载荷的内燃机主轴套，连杆轴套 High speed, middle or low load, principle axis internal combustion engine
JLB-930	中等的耐疲劳强度和承载能力，良好的抗腐蚀性，较好轴承滑动性能。 Moderate fatigue strength, and load capacity, good wrrsion resistance good performance of bearing sliding.	高速低载的内燃机轴瓦、气压机、制冷机轴套 High speed, low load, internal combustion engine half bearing, bushing used in compressing and refrigerating machine.

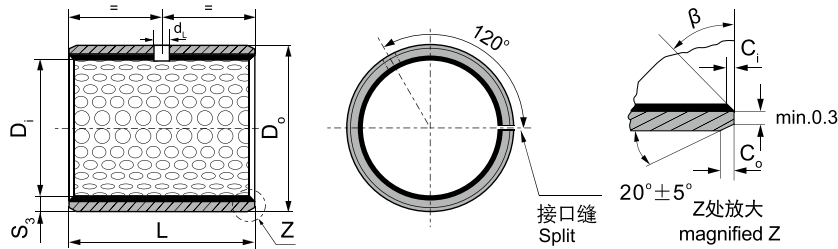
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JF-800 双金属翻边轴承规格及公差
JF-800 Bimetal Flange Bushing Specification & Tolerance





JF-800 双金属轴承规格及公差 JF-800 Bimetal Sleeve Bearing Specification & Tolerance



内外倒角 ID and OD chamfers

S ₃	C _o	C _i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	35° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	35° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	35° ± 5°

S ₃	C _o	C _i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	35° ± 5°
2.50	1.8 ± 0.6	0.60 ± 0.3	45° ± 5°

单位unit:mm²

内径 D _i φ d	外径 D _o φ D	轴径(h8) Shaft D _s	座孔(H7) Housing D _H	压装后 内孔公差 Arter fixed D _{i,a}	配合间隙 Clearance C _o	壁厚 Wall thickness S ₃	油孔 Oil hole d _L	长度 L ₀₋₄₀							
								10	15	20	25	30	40	50	
10	12	10 _{-0.022}	12 ^{+0.018}		0.170 0.010			1010	1015	1020					
12	14	12 _{-0.027}	14 ^{+0.018}					1210	1215	1220					
14	16	14 _{-0.027}	16 ^{+0.018}	+0.148 +0.010	0.175 0.010	0.995 0.935	4	1410	1415	1420					
15	17	15 _{-0.027}	17 ^{+0.018}					1510	1515	1520					
16	18	16 _{-0.027}	18 ^{+0.018}					1610	1615	1620					
18	20	18 _{-0.027}	20 ^{+0.021}	+0.151 +0.010	0.178 0.010			1810	1815	1820	1825				
20	23	20 _{-0.033}	23 ^{+0.021}					2010	2015	2020	2025				
22	25	22 _{-0.033}	25 ^{+0.021}	+0.161 +0.020	0.194 0.020	1.490 1.430		2210	2215	2220	2225				
24	27	24 _{-0.033}	27 ^{+0.021}					2410	2415	2420	2425	2430			
25	28	25 _{-0.033}	28 ^{+0.021}						2515	2520	2525	2530			
26	30	26 _{-0.033}	30 ^{+0.021}	+0.181 +0.040	0.214 0.040				2615	2620	2625	2630			
28	32	28 _{-0.033}	32 ^{+0.025}		0.218 0.040		6		2815	2820	2825	2830	2840		
30	34	30 _{-0.033}	34 ^{+0.025}						3015	3020	3025	3030	3040		
32	36	32 _{-0.039}	36 ^{+0.025}	+0.185 +0.040		1.980 1.920			3215	3220	3225	3230	3240		
35	39	35 _{-0.039}	39 ^{+0.025}		0.224 0.040					3520	3525	3530	3540	3550	
38	42	38 _{-0.039}	42 ^{+0.025}				8			3820	3825	3830	3840	3850	
40	44	40 _{-0.039}	44 ^{+0.025}							4020	4025	4030	4040	4050	

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JF-800 双金属轴承规格及公差

JF-800 Bimetal Sleeve Bushing Specification & Tolerance

内径 D _i φ d	外径 D _o φ D	轴径(h8) Shaft D _s	座孔(H7) Housing D _H	压装后 内孔公差 Arter fixed D _{ia}	配合间隙 Clearance C _D	壁厚 Wall thickness S ₃	油孔 Oil hole d _L	长度 L ⁰ _{-0.40}									
								25	30	40	50	60	80	90	100		
45	50	45 _{-0.039}	50 ^{+0.025}	+0.225 +0.080	0.264 0.080			4525	4530	4540	4550						
50	55	50 _{-0.039}	55 ^{+0.030}		0.269 0.080				5030	5040	5050	5060					
55	60	55 _{-0.046}	60 ^{+0.030}						5530	5540	5550	5560					
60	65	60 _{-0.046}	65 ^{+0.030}	+0.230 +0.080	0.276 0.080		8		6030	6040	6050	6060					
65	70	65 _{-0.046}	70 ^{+0.030}						6530	6540	6550	6560					
70	75	70 _{-0.046}	75 ^{+0.030}						7030	7040	7050	7060	7080				
75	80	75 _{-0.046}	80 ^{+0.030}						7530	7540	7550	7560	7580				
80	85	80 _{-0.046}	85 ^{+0.035}		0.281 0.080				8030	8040	8050	8060	8080	8090			
85	90	85 _{-0.054}	90 ^{+0.035}						8530	8540	8550	8560	8580	8590	85100		
90	95	90 _{-0.054}	95 ^{+0.035}							9040	9050	9060	9080	9090	90100		
95	100	95 _{-0.054}	100 ^{+0.035}	+0.235 +0.080		2.460 2.400					9550	9560	9580	9590	95100		
100	105	100 _{-0.054}	105 ^{+0.035}		0.289 0.080						10050	10060	10080	10090	100100		
105	110	105 _{-0.054}	110 ^{+0.035}								10550	10560	10580	10590	105100		
110	115	110 _{-0.054}	115 ^{+0.035}				9.5				11050	11060	11080	11090	110100		
115	120	115 _{-0.054}	120 ^{+0.035}								11550	11560	11580	11590	115100		
120	125	120 _{-0.054}	125 ^{+0.040}								12050	12060	12080	12090	120100		
125	130	125 _{-0.063}	130 ^{+0.040}									12560	12580	12590	125100		
130	135	130 _{-0.063}	135 ^{+0.040}									13060	13080	13090	130100		
135	140	135 _{-0.063}	140 ^{+0.040}	+0.240 +0.080	0.303 0.080							13560	13580	13590	135100		
140	145	140 _{-0.063}	145 ^{+0.040}									14060	14080	14090	140100		
150	155	150 _{-0.063}	155 ^{+0.040}									15060	15080	15090	150100		

+

JDB 固体润滑轴承
JDB Solid-lubricating Bearings



JDB 固体润滑轴承
JDB Solid-lubricating Bearings



GB 塑料滚动轴承 GB Plastic Rolling Bearings



产品特性 Product Features

GDB 系列塑料滚动轴承内外圈以及保持架均采用优质工程塑料制成，滚珠材料为不锈钢（选配）、玻璃、陶瓷等，GDB 系列塑料滚动轴承具有良好的自润滑性能和耐磨蚀性能突出的是比 EP 系列塑料滚动轴承具有极其高的运行速度，GDB 系列轴承弥补了 EP 系列轴承不能在高速运动使用的场合。

GDB series plastic rolling bearing is made of high quality engineering plastic. The balls are Stainless steel, Glass, Ceramics materias. This series of bearing are with perfect self-lubricating feature and anti-corrosion feature. Comparing with the normal EP series plastic bushings, the GDB series plastic rolling bearing are suitable to be applied under high speed and therefore meet the high speed application that normal EP is not workable.

GB10 全塑料直线轴承 Plasic Linear Bearings



GDB10 作为通用性最强的塑料滚动轴承具有良好的强度和耐磨性，由于其材料自身的润滑性噪音较低；此类轴承碱性环境下表现良好但不适合在酸性环境下长期运行。标准配置内外圈材料为：改良 POM，保持架材料为：改良 PA，滚珠材料为：玻璃球或不锈钢（选配）；长期连续使用温度 -40~+80℃。

GDB10 has good strength and wear resistance as a generic plastic rolling bearing, the operation noise very low because the self-lubrication of the material; these bearings perform well in an alkaline environment but not for long-term operation in an acidic environment. The standard material of inner and outer ring: POM, cage material: PA, ball material: glass or stainless steel; The long-term operation temperature: -40~+80℃.

GB20 塑料滚动轴承 Series plastic rolling Bearings



GDB20 塑料滚动轴承具有低摩擦以及低温应用特性；此类轴承适合在酸碱交替环境下长期运行。标准配置内外圈材料为：改良 UPE，保持架材料为：改良 UPE，滚珠材料为：玻璃球或不锈钢（选配）；长期连续使用温度 -150~+120℃。

GDB20 series of plastic rolling bearing with low working temperature properties; these bearings are suitable for long-term operation in the acid-base alternate environment. The standard material of inner and outer ring: UPE, cage material: UPE, ball material: glass or stainless steel; The long-term operation temperature: -100~+150℃.

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GB 塑料滚动轴承 GB Plastic Rolling Bearings

GB30 塑料滚动轴承 Series plastic rolling Bearings



GDB30 系列塑料滚动轴承具有耐高低温、高承载以及最好的抗腐蚀性性能；可应用在强酸、强碱、无机、有机盐、海水等领域。标准配置内外圈材料为：陶瓷；保持架材料为：改良 PTFE 或改良 PEEK；滚珠材料：陶瓷；长期连续使用温度 -200~+250℃。

GDB30 series of plastic rolling bearing can work under very high temperature and low temperature. These bearings with high load and the best corrosion resistance; these bearings are good working under acid, alkaline, organic and inorganic salt as in sea water environments; The standard material of inner and outer ring: Ceramics, cage material: PTFE or PEEK, ball material: Ceramics; The long-term operation temperature: -200~+250℃ .

GB40 塑料滚动轴承 Series plastic rolling Bearings



GDB40 系列塑料滚动轴承具有极好的机械强度和耐磨性能，此产品能在 150 度的高温下正常使用，并具有极好的抗腐蚀性性能几乎在所有的腐蚀环境下运行；标准配置内外圈材料为：改良 PEEK；保持架材料为：改良 PEEK，滚珠材料为：陶瓷；长期连续使用温度 -100~+150℃。

GDB40 series of plastic rolling bearing has excellent mechanical strength and wear resistance, Max. operation temperature 150 °C , these bearings has excellent corrosion resistance to almost all corrosive environment; The standard material of inner and outer ring: PEEK, cage material: PEEK, ball material: Ceramics; The long-term operation temperature: -100~+150℃ .

GB50 塑料滚动轴承 Series plastic rolling Bearings



GDB50 系列塑料滚动轴承具有耐高低温、高承载以及最好的抗腐蚀性性能；可应用在强酸、强碱、无机、有机盐、海水等领域。标准配置内外圈材料为：陶瓷；保持架材料为：改良 PTFE 或改良 PEEK；滚珠材料：陶瓷；长期连续使用温度 -200~+250℃。

GDB50 series of plastic rolling bearing can work under very high temperature and low temperature. These bearings with high load and the best corrosion resistance; these bearings are good working under acid, alkaline, organic and inorganic salt as in sea water environments; The standard material of inner and outer ring: Ceramics, cage material: PTFE or PEEK, ball material: Ceramics; The long-term operation temperature: -200~+250℃ .



GB 滚动轴承尺寸规格表

GB Rolling Bearings Dimensions Table

订购编码 Order P/N	d mm ²	D mm ²	B mm ²	极限静载荷 Max.static load N	极限动载荷 Max.dynamic load N	极限转速 Max.speed RPM
GB10-623	3	10	4	25	40	4050
GB10-624	4	13	5	35	50	3240
GB10-625	5	16	5	40	55	2745
GB10-626	6	-	6	40	60	2340
GB10-607	7	19	6	35	50	2340
GB10-627	7	22	7	45	65	1980
GB10-608	8	22	7	45	65	1980
GB10-609	9	24	7	50	75	1845
GB10-629	9	26	8	60	85	1710
GB10-6000	10	26	8	75	110	1710
GB10-6200	10	30	9	110	140	1485
GB10-6300	10	35	11	160	235	1260
GB10-6001	12	28	8	90	135	1575
GB10-6201	12	32	10	125	180	1395
GB10-6301	12	37	12	175	260	1170
GB10-6002	15	32	9	110	160	1395
GB10-6202	15	35	11	140	210	1260
GB10-6302	15	42	13	215	310	1080
GB10-16002	15	32	8	110	160	1350
GB10-6003	17	35	10	140	200	1260
GB10-6203	17	40	12	180	265	1125
GB10-6303	17	47	14	250	375	945
GB10-16003	17	35	8	135	200	1260
GB10-6004	20	42	12	165	250	1080
GB10-6204	20	47	14	225	350	945
GB10-6304	20	52	15	290	440	855
GB10-16004	20	42	8	160	240	1035
GB10-6005	25	47	12	200	300	945
GB10-6205	25	52	15	265	400	855
GB10-6305	25	62	17	330	500	655
GB10-16005	25	47	8	175	260	945
GB10-6006	30	55	13	235	350	810
GB10-6206	30	62	16	300	450	720
GB10-6306	30	72	19	380	580	610
GB10-16006	30	55	9	200	310	810
GB10-6007	35	62	14	265	400	720
GB10-6207	35	72	17	340	515	630
GB10-6307	35	80	21	405	625	540
GB10-16007	35	62	9	240	350	720
GB10-6008	40	68	15	290	430	675
GB10-6208	40	80	18	365	550	560
GB10-6308	40	90	23	455	690	468
GB10-16008	40	68	9	250	375	675
GB10-6009	45	75	16	315	465	585
GB10-6209	45	85	19	390	600	522
GB10-6309	45	100	25	450	750	450
GB10-16009	45	75	10	275	415	585
GB10-6010	50	80	16	325	480	540
GB10-6210	50	90	20	450	640	495
GB10-6011	55	90	18	335	500	495
GB10-6211	55	100	21	500	665	450
GB10-6012	60	95	18	350	530	450
GB10-6212	60	110	22	525	730	405
GB10-6013	65	100	18	365	555	430
GB10-6014	70	110	20	380	590	405



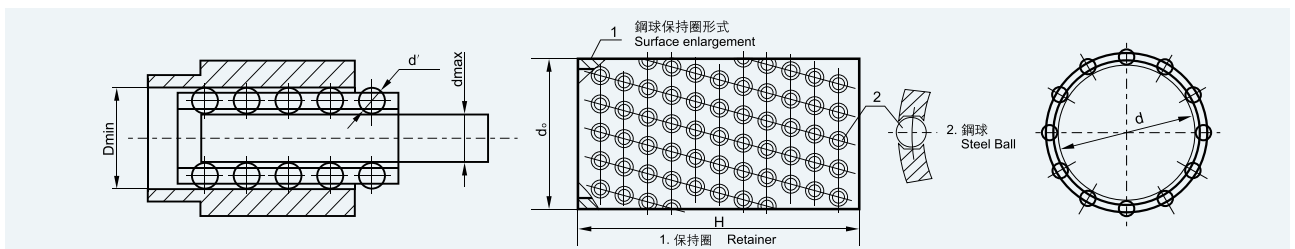
FZ 钢球保持架 FZ Ball Retainer Bearing



产品简介 Introduction

FZH (铜基)、FZL (铝基)、FZP (树脂基) 钢球保持圈, 分别以铜合金、硬铝合金、POM树脂为基体, 在其外圆表面上, 加工出排列有序、大小适当, 形状特殊的孔穴, 在其孔穴中镶入滚动轴承钢球。采用最新的沟槽圆周锁球工艺, 有效地解决了传统式锁球和压痕式锁球不能完全防止钢球脱落的难题。孔底加工出 90° 止口使钢球在孔内自由转动而不脱落。由于钢球的直径大于保持圈的壁厚, 所以在使用时钢球高出保持圈内、外圆表面, 直接与相配的孔与轴接触, 使基体(保持圈)浮于中间, 并相配的孔与轴半径之差小于钢球直径, 即钢球与之配合为过盈配合, 配合精度高, 轴与孔相对运动灵活。是保持圈的更新换代产品。

FZH, FZL, FZP, ball retainer are as copper, aluminium, POM 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 90° guide bushing, that will bring high precision match now the ball retainer series items are designed to rotate on the post, as well as maintainits vertical motion. we believe this will give you the benefit of increasing accjuracy.



优点与用途 Advantages and Application

传统的具有相对运动的孔与轴是有一定间隙的, 并孔与轴之间运动摩擦系数较大, 使用钢球保持圈后, 使轴与孔不直接接触, 而是通过中间微量过盈的钢球, 因而运动精度高, 滚动摩擦代替滑动摩擦, 滚动灵活, 摩擦系数小, 使用寿命长, 在既有转动、又有移动的场合, 用无油或加油的轴套与轴相配合, 虽然能满足, 但运动精度较低, 用滚动轴承, 只能满足轴相对转动的场合, 而钢球保持圈, 则上述二个条件均得到满足, 目前已广泛应用于冷冲模滚动模架、高精度机床、机床附件以及要求高精度轴向或轴径向同时运动场合。

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

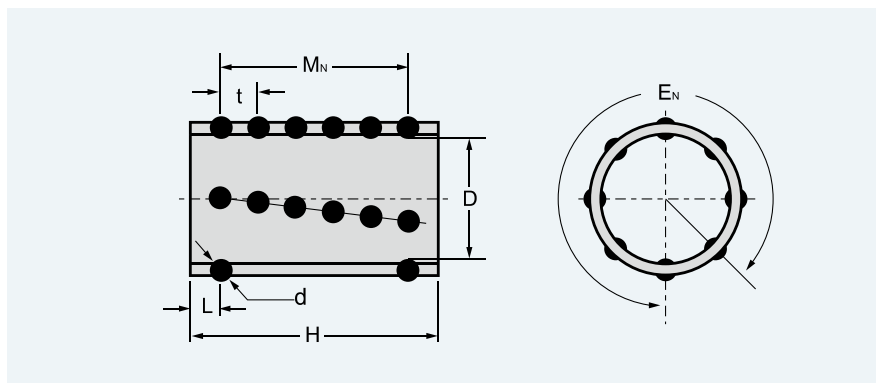
Requirements for Installed Components

- 1.导套: 材料GCr15、YB9, 热处理, 硬度HRC62~66, 技术条件按GB/T12446与轴配合应具有0.01-0.02径向过盈量, 表面粗糙度为
- 2.轴: 材料GCr15、YB9, 热处理, 硬度HRC62~66, 技术条件按GB/T12446, 轴的公差采用h5, 表面粗糙度为
- 3.测量: 用通用的测量手段(气动量仪、外径千分尺、内径千分表等)测量轴导套和钢球的尺寸偏差值, 即可求出配合后的过盈量, 即 $Y_{max}=d_{max}+2d'-D_{min}$, 要求过盈量为0.01-0.02mm²

1. Guide bushing: material GCr15, YB9, heat treatment HRC62-66, technique condition according to GB/T12446. Request 0.01-0.02mm² the surface roughness is
2. Guidie posts: matrial GR15, TB9, heat treatment HRC62-66, the tolerance of shaft is h5, the surface roughness is
- 3.Size test: it is tested by outside micrometer & dial gauge as usual. The ymax (ymax+2d'-dmin) request 0.01-0.02 mm²



FZ 钢球保持架 FZ Ball Retainer Bearing



Model	D	H	d	E_N	M_N	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

+

FU 粉末冶金含油轴套

FU Powder metallurgy oil sleeve



技术参数 Technical parameters

- 最大承载压力: 35 N/mm²
 - 最高温度: -80~+160 °C
 - 最高滑动速度: 2.5 m/s
 - 合金材质: CuSn6-6-3
 - 最高PV值: 2.45 N/mm²· m/s
-
- The maximum load pressure: 35 N/mm²
 - The highest temperature: - 80 ~+160°C
 - Maximum sliding speed: 2.5 m/s
 - Alloy material: CuSn6-6-3
 - The highest PV value: 2.45 N//mm²· m/s

应用特点 Application characteristics

FU 铜基含油轴承，是以锡青铜粉末为原料，经过模具压制，在高温中烧结后整形而成。它的基体有细微、均布的孔隙，经润滑油真空浸渍后形成含油状态。该产品具有短期不加油润滑，使用成本低，内外径尺寸可变化等特点，适应于中速、低载荷的场所使用。产品已广泛应用于家用电机、电动工具、纺织机械、化工机械、汽车工业和办公设备等场合。

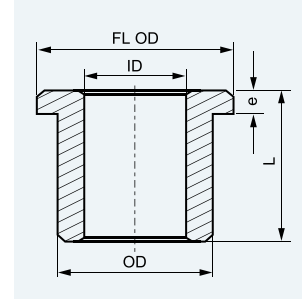
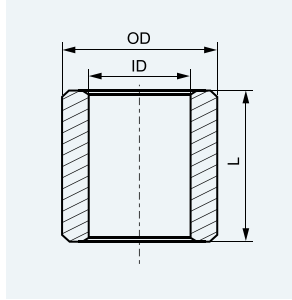
FU its copper oil-retaining bearing, bronze powder in zion as raw material, through the mould pressing, sintering temperature after in plastic. It is fine, the matrix of the pore, oil vacuum macerate formed after oil. This product has the short-term oil lubrication, using low cost, can change od characteristics, such as low speed, suitable for use of load. The products have been widely applied in household motor, electric tools, textiles machinery, chemical machinery, automobile industry and office equipment etc.

FU2 铁基含油轴承具有生产效力高、加工工时少、花费成本低、耗损材料省等优点。用一般切削加工法制造零件时材料利用率为40-50%甚至更低，而粉末冶金法的材料利用率可达95%以上并且在许多情况下可用铁基粉末冶金轴套代替铜合金轴套，从而节省大量有色金属，而且生产的制品零件性能平稳、耐磨、精度要求高，与其它金属切削方法制造的零件具有明显的经济效益。

FU2 iron-based oil bearing has several advantages, such as high production efficiency, less processing time, cost-efficient, and less wear and tear. With the general method of manufacturing machining parts, material utilization can be 40-50% or even lower, while the powder metallurgy method of material utilization uses up to 95% and in many cases can be used instead of iron-based powder metallurgy copper alloy sleeve bushings, thus saving a lot of non-ferrous metals, and the production of products, parts, steady performance, wear resistance, high precision, and other parts made of metal cutting method has obvious economic benefits.



FU 粉末冶金含油轴套 FU Powder metallurgy oil sleeve



Part No.	ID	ID	OD	L
005	04*07*08	4	7	8
636	04*08*08	4	8	8
006	04*08*10	4	8	10
007	04*08*12	4	8	12
008	04*10*10	4	10	10
647	04*12*08	4	12	8
009	05*09*05	5	9	5
010	05*09*09	5	9	9
011	05*09*11	5	9	11
012	05*10*05	5	10	5
013	05*10*10	5	10	10
014	05*10*14	5	10	14
015	06*08*08	6	8	8
016	06*10*06	6	10	6
017	06*10*10	6	10	10
018	06*10*12	6	10	12
019	06*10*14	6	10	14
020	06*12*06	6	12	6
609	06*12*10	6	12	10
021	06*12*12	6	12	12
022	06*12*15	6	12	15
625	06*12*16	6	12	16
023	06*12*25	6	12	25
024	06*14*12	6	14	12
025	07*11*08	7	11	8
026	07*11*13	7	11	13
635	07*11*14	7	11	14
027	07*14*10	7	14	10
029	08*11*16	8	11	16
030	08*12*08	8	12	8
031	08*12*10	8	12	10
032	08*12*12	8	12	12

SIZE	ID	OD	FLOD	e	L
6*12*14*2*8	6	12	14	2	8
6*12*14*2*13	6	12	14	2	13
6*12*14*2*20	6	12	14	2	20
7*12*16*2.5*8	7	12	16	2.5	8
7*12*16*2.5*14	7	12	16	2.5	14
7*12*16*2.5*20	7	12	16	2.5	20
8*14*18*3*8	8	14	18	3	8
8*14*18*3*14	8	14	18	3	14
8*14*18*3*20	8	14	18	3	20
10*14*18*2*10	10	14	18	2	10
10*14*18*2*14	10	14	18	2	14
10*14*18*2*20	10	14	18	2	20
10*16*20*3*10	10	16	20	3	10
10*16*20*3*16	10	16	20	3	16
10*16*20*3*20	10	16	20	3	20
12*16*20*2*12	12	16	20	2	12
12*16*20*2*16	12	16	20	2	16
12*16*20*2*25	12	16	20	2	25
12*18*22*3*12	12	18	22	3	12
12*18*22*3*18	12	18	22	3	18
12*18*22*3*25	12	18	22	3	25
14*20*25*3*14	14	20	25	3	14
14*20*25*3*20	14	20	25	3	20
14*20*25*3*25	14	20	25	3	25
15*22*28*3*15	15	22	28	3	15
15*22*28*3*22	15	22	28	3	22
15*22*28*3*30	15	22	28	3	30
16*22*28*3.5*15	16	22	28	3.5	15
16*22*28*3.5*22	16	22	28	3.5	22
16*22*28*3.5*30	16	22	28	3.5	30
17*25*32*4*17	17	25	32	4	17
17*25*32*4*25	17	25	32	4	25

+

设计资料

DESIGN DATA

+

轴承 PV 值 PV value of the bushing

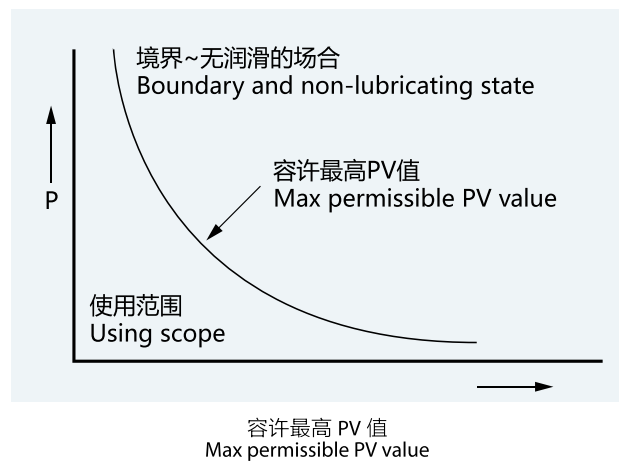
定义 Definition

- 负载压力 P: 定义为负荷除以轴承承受面的正投影面积 (单位: N/mm²);
 - 运转速度 V: 定义为对偶面上的相对线速度 (单位: m/s);
 - PV 值: 定义为轴承压力 P 和速度 V 的乘积 (单位: N/mm·m/s);
 - 容许最高 PV 值: < 容许最高压力 P × 容许最高速度 V (单位: N/mm²·m/s)。
- Load Pressure P: Load pressure equals to the result gained by making the value of load pressure divide the vertical shade projected by the load-shouldering surface of the bushing (Unit: N/mm).
 - Running Velocity V: Defined running velocity as the relative linear velocity against the mating surface (Unit: N/mm).
 - PV Value: Define PV value as the result gained by multiplying the load value P and the velocity V (Unit: N/mm·m/s).
 - permissible PV value: Max permissible value shall be smaller than the value gained by multiplying the max permissible pressure and the max permissible velocity. (Unit: N/mm·m/s).

容许最高 PV 值 Max permissible PV value

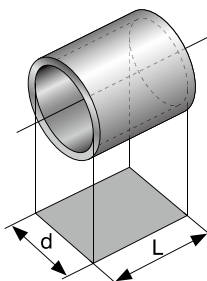
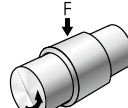
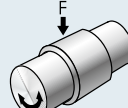
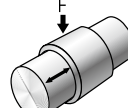
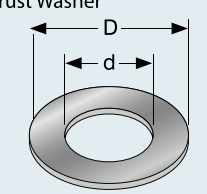
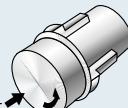

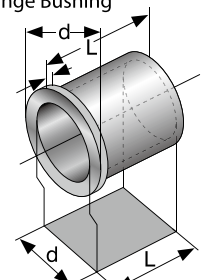
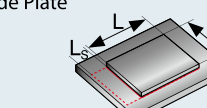
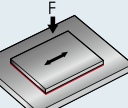
PV 值达到极限值时, 轴承可以短时间的运转。在连续的运转时, 容许最高 PV 值的选择取决于运转寿命的要求。设计时要求: 容许最高 PV 值 < 容许最高压力 P* 容许最高速度 V。见右图:

The bushing can run for a short time when achieves its max PV value. It's the running service life requirement that decides the requirement for the value. In bushing design, we require that the max permissible PV value shall be smaller than the value gained by multiplying the max permissible load pressure and the max permissible running velocity.





轴承 PV 值 PV value of the bushing

轴套 BUSHING	压力 PRESSURE, P PN/mm ² {kgf/cm ² }	速度 VELOCITY, V m/s {m/min}	PV值 PV Value N/mm ² *m/s {kgf/cm ² *m/min}	
直套 Sleeve Bushing 	1. 径向单向旋转 Rotating motion in single direction of radial journal 	$\frac{F}{dL}$ $\left\{ \frac{10^2 F}{dL} \right\}$	$\frac{\pi dn}{10^3}$ $\left\{ \frac{\pi dn}{10^3} \right\}$	$\frac{\pi Fn}{10^3 L}$ $\left\{ \frac{\pi Fn}{10 L} \right\}$
	2. 摇摆运动 Oscillating motion 	$\frac{F}{dL}$ $\left\{ \frac{10^2 F}{dL} \right\}$	$\frac{dc \theta}{10^3}$ $\left\{ \frac{\pi dc \theta}{180 \times 10^3} \right\}$	$\frac{Fc \theta}{10^3 L}$ $\left\{ \frac{\pi Fc \theta}{180 \times 10^2 L} \right\}$
	3. 往复运动 Reciprocating motion 	$\frac{F}{dL}$ $\left\{ \frac{10^2 F}{dL} \right\}$	$\frac{2cS}{10^3}$ $\left\{ \frac{2cS}{10^3} \right\}$	$\frac{2FcS}{10^3 dL}$ $\left\{ \frac{FcS}{5dL} \right\}$
止推垫片 Thrust Washer 	1. 旋转 Rotating motion 	$\frac{4F}{\pi(D^2-d^2)}$ $\left\{ \frac{400F}{\pi(D^2-d^2)} \right\}$	$\frac{\pi Dn}{10^3}$ $\left\{ \frac{\pi Dn}{10^3} \right\}$	$\frac{4FDn}{10^3(D^2-d^2)}$ $\left\{ \frac{4FDn}{10(D^2-d^2)} \right\}$
	2. 摇摆运动 Oscillating motion 	$\frac{4F}{\pi(D^2-d^2)}$ $\left\{ \frac{400F}{\pi(D^2-d^2)} \right\}$	$\frac{DC \theta}{10^3}$ $\left\{ \frac{\pi Dc \theta}{180 \times 10^3} \right\}$	$\frac{4FDC \theta}{10^3 \pi(D^2-d^2)}$ $\left\{ \frac{4FDC \theta}{180 \times 10(D^2-d^2)} \right\}$
翻边轴套 Flange Bushing 	1. 直套 Sleeve Bushing	翻边直套承载计算用 上述直套承载计算公式， 但 L=l+t。 Use above formulas for sleeve bushing (L=l+t)	翻边直套轴速度计算 用上述直套速度计算 公式。 Use above formulas for sleeve bushing	翻边直套轴PV值计算 用上述直套PV值计算 公式。 Use above formulas for sleeve bushing
	2. 法兰面 Flange surface	翻边法兰面承载计算 按上述垫片承载计算 公式。 Use above formulas for thrust washer	翻边法兰面速度计算 按上述垫片计算公 式。 Use above formulas for thrust washer	翻边法兰面PV值计算 按上述垫片PV值计算 公式。 Use above formulas for thrust washer
滑块 Slide Plate 	1. 往复运动 Reciprocating motion 	$\frac{F}{BL}$ $\left\{ \frac{10^2 F}{WL} \right\}$	$\frac{2cS}{10^3}$ $\left\{ \frac{2cS}{10^3} \right\}$	$\frac{2FcS}{10^3 BL}$ $\left\{ \frac{FcS}{5WL} \right\}$

F : 承载 N {kgf}
 N : 转速 S-1 {rpm}
 c : 往复圆周速度或摇摆 S-1 {cpm}
 S : 往复运动距离 m {mm}
 θ : 摇摆角度 rad { }
 d : 轴套内径 mm² {mm²}
 D : 轴套外径 mm² {mm²}
 L : 轴套长度 mm² {mm²}
 W : 板材或滑动宽度 mm² {mm²}



轴承的尺寸设计 Design of the bushing's dimension

轴承内径 Inside diameter of the bushing

轴承内径，一般由配合轴的轴径所决定。

Generally, the inside diameter of the bushing depends on the diameter of its mating axis.

轴承长度 Length of the bushing

轴承的长度由轴承面压决定。长度越长，其所承受的面压相对减少，轴承负载较轻，但此时可能造成偏位接触，或冷却效果降低，导致轴承寿命减短，故对此情况特别注意；相反的，轴承长度太短时，润滑油很快从轴承面流出，因此很难形成油膜，轴承性能即降低。一般地，轴承长度 / 轴承内径 $L/d=0.5 \sim 3$ ，但须特别注意在高负荷重时，易引起偏位接触，高速时易引起的发热情形，此种条件宜取 $L/d < 1.0$ 较适当。

The length of the bushing depends on the size of the pressure-shouldering surface. The longer the bushing, the less pressure at the surface, for the longer bushing, the load on the bushing is relatively lessened. But simultaneously, it may result in deviation contact or lower cooling efficiency and thus shorten the service life of the bushing. On the contrary, if the length of the bushing is too short, lubricating grease may quickly flow out of the bushing. Therefore, it hardly forms a grease film and capability of the bushing is accordingly debased.

(L/d 对轴承影响的比较表，特别是含油轴承)

A comparison of L/d's effect on the bushings, especially oil lubricating bushings

短轴承 ($d > L$) Short bushing ($d > L$)	比较条件 Comparison items	长轴承 ($d < L$) Long bushing ($d < L$)
小 Small	油膜压力 Force on the oil film	大 Great
多 Strong	冷却能力 Cooling ability	少 Weak
不能太大 Can not be too high	面压 Surface pressure	可取大值 Can be high
高 High	轴承偏位荷重的安全性 Safety against beating deviation	低 Low
小 Weak	轴承的刚性 Bushing rigidity	大 Strong
小 Weak	吸振能力 Shock absorbing ability	大 Strong
小 Small	空间 Space	大 Large

轴承壁厚 Bushing thickness

标准自润滑复合轴承，壁厚小为其主要优点之一，标准壁厚为 0.5mm, 0.75mm, 1.0mm, 1.5mm, 2.0mm, 2.5mm。

非标滑动轴承，在设计轴承厚度时，主要参考数据厚径比: SB/D 。

- A) 薄壁金属滑动轴承，厚径比 $SB/D=0.03 \sim 0.06$
- B) 厚壁金属滑动轴承，厚径比 $SB/D=0.08 \sim 0.12$
- C) 塑料树脂滑动轴承，厚径比 $SB/D=0.1 \sim 0.15$

The main advantage of standard composite self-lubricating bushings rest with their thin wall thickness. Standard thickness can be 0.5mm, 0.75mm, 1.0mm, 1.5mm, 2.0mm, 2.5mm.

In thickness design of the non-standard gliding bushing, the designer could consult the following proportion of SB and D.

- A) For thin wall thickness gliding metallic bushing, proportion between SB and D equals to $0.03 \sim 0.06$.
- B) For thin wall thickness gliding metallic bushing, proportion between SB and D equals to $0.08 \sim 0.12$
- C) For plastic gliding bushing, proportion between SB and D equals to $0.1 \sim 0.12$



相配座孔的设计 Design of the mating housing

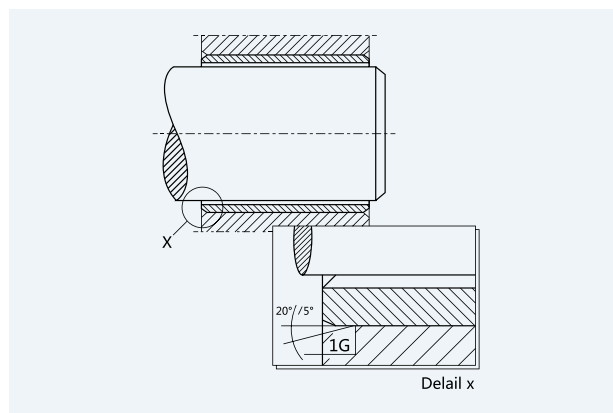
直轴承 Cylindrical bushing

相配座孔应倒角 $fG \times 20^\circ \pm 5^\circ$ ， fG 的大小根据座孔直径 dH 。

For cylindrical bushing, its mating housing must be chamfered according to the formula:

$fG \times 20^\circ \pm 5^\circ$. Value of fG depends on dH , the diameter of the housing.

座孔直径 Diameter of the housing dH	倒角尺寸 Chamfered fG
$dH \leq 30$	0.8 ± 0.3
$30 < dH \leq 80$	1.2 ± 0.4
$80 < dH \leq 180$	1.8 ± 0.8
$180 < dH$	2.5 ± 1.0

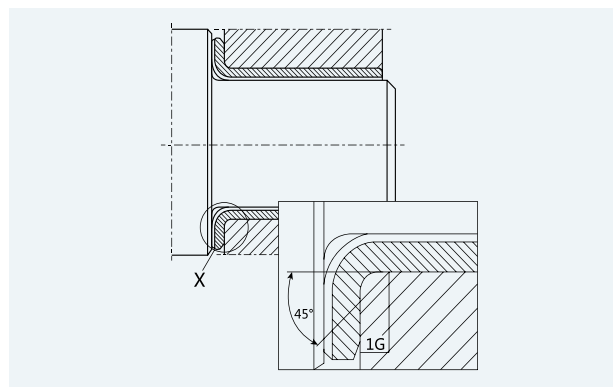


翻边轴承 Flanged bushing

对于翻边轴承相配座孔，座孔要求提供足够大的倒角以防止翻边轴承翻边半径处的变形。相配座孔倒角 $fG \times 45^\circ \pm 5^\circ$

As to the housing mating for flanged bushings, it requires the housing being chamfered big enough to avoid the deformation at the flanged circle. The housing mating shall be chamfered according to the formula: $fG \times 45^\circ \pm 5^\circ$

座孔直径 Diameter of the housing dH	倒角尺寸 Chamfered fG
$dH \leq 10$	1.2 ± 0.2
$10 < dH$	1.7 ± 0.2



轴承倒角 Bushing Chamfer

为了便于相配轴的安装和避免轴承产生偏位负荷。轴承长度方向内外必须倒角，倒角尺寸如下所示：

In order to make fixing easier and avoid deviation load, the bushing must be inner and outer chamfered in the direction of its length. Dimension of the chamfer are showing in the following form.

2.5 壁厚 Wall thickness	外倒角尺寸 Out Chamfer Dimension	内倒角尺寸 Inner Chamfer Dimension
≤ 0.5	去毛刺 Burr polished	去毛刺 Burr polished
0.75	$0.5 \pm 0.3 \times 20^\circ$	$0.3 + 0.2 \times 45^\circ$
1.0	$0.6 \pm 0.3 \times 20^\circ$	$0.3 + 0.2 \times 45^\circ$
1.5	$0.6 \pm 0.3 \times 20^\circ$	$0.4 + 0.2 \times 45^\circ$
2.0	$1.2 \pm 0.3 \times 20^\circ$	$0.6 + 0.2 \times 45^\circ$
2.5	$1.8 \pm 0.3 \times 20^\circ$	$0.6 + 0.2 \times 45^\circ$



相配轴的设计 Design of the mating axis

直套安装 Straight set of installation

自润滑轴承的性能在很大程度上受相配轴材料表面粗糙度、硬度、表面是否电镀处理的影响，高质量的相配轴表面能够延长轴承的寿命，相反粗糙的相配轴表面会降低轴承的寿命。

Surface roughness, hardness and plating of the mating axis will have great influence on the capability of the self-lubricating bushing. High-quality surface of the mating axis can prolong the life of the bushing while rough surface will shorten the life of the bushing.

相配轴表面粗糙度 Surface roughness of the mating axis

a) 在流体润滑条件下使用的自润滑轴承，相配轴表面粗糙度大时，轴与轴承的凸起部分会切断油膜，造成两者直接接触，所以要求相配轴表面做镜面加工，从而尽可能缩小油膜间隙，使其接近流体润滑的状态，如此轴承性能便可提高。

a) When self-lubricating bushings being used in the condition of fluid lubrication and the surface of the mating axis is fairly rough, the convex points on the bushing and its axis will cut the oil film and thus the surface of the axis and the bushing will directly contact with each other. therefore, to improve the capability of the bushing, it requires polishing the surface of the mating axis as smooth as a mirror, thus can reduce the clearance of the oil film and make the film work well.

b) 大多数自润滑轴承在干摩擦或边界润滑条件下使用，不需要像流体润滑条件下那样要求相配轴表面做镜面加工，只要控制其相配轴表面粗糙度 Ra=0.32 ~ 1.25 的范围即可。

b) For most self-lubricating bushings applied in the condition of dry friction or marginal lubrication, a controlled roughness from 0.32 to 1.25 is acceptable and there is no need to polish the surface of the mating axis as smooth as a mirror.

相配轴硬度 Hardness of the mating axis

无硬性杂质侵入时，使用下表推荐的轴材料及硬度，即可得到良好的效果；相反地，尽可能使用硬度较高的相配轴材料。

If there is no hard article in the lubricating condition, good performance can be achieved by using bushing materials and hardness recommended in the following form. If not, it would be better to use the harder material for the mating axis.

	轴材质 Material quality of the axis	硬度 Hardness
自润滑轴承 Self-lubricating bushing	SS41(Q255B) 一般结构钢 Common Structural steel	HB220 以上 Above 220
	S25C(25#) 以上碳素结构钢 Carbon Structural Steel	
	SUS、SUH 耐腐蚀性钢（高温-水中用）镀铬钢等 SUS、SUH anti-erosion steel(in high temperature and water), and chrome plated steel,etc.	左列轴材质的硬度依此类推

在高负荷、摇摆运动的条件下，必须将相配轴进行热处理，热处理后的硬度依据材料类推。

Under running condition with heavy load and rapid swing, the mating axis must be heat-treated. The after treatment hardness will be decided by the material of the axis.



相配轴的设计 Design of the mating axis

相配轴表面处理 Surface treatment of the mating axis

相配轴表面处理的目的在于：

- 提高耐腐蚀性
- 提高表面硬度
- 使表面平滑，提高润滑性。

Aim of this treatment:

- Improve anti-erosion quality
- Strengthen surface hardness
- Smooth the surface and enhance lubricating capability

在相配轴上电镀，可提高其耐腐蚀性，而且有效的降低粗糙摩擦，以及提高润滑性等；相配轴生锈时，所产生的硬氧化物与异物侵入，同样是摩耗原因之一，因此，建议使用者在相配轴上镀硬铬。若在海水中等类似的腐蚀条件下，相配轴必须电镀上二至三层硬铬。

If the mating axis was plated, it can not only improve the anti-erosion capability but also will enhance the lubricating capability, as with a plated coating, friction can be effectively decreased. Hard oxides and other impurities caused by the axis rust constitute one of the main abrasion causes. Therefore, we recommend the user to have the mating axis chrome plated. If the bushings are going to be used in sea water or similar erosive conditions, their mating axis must be chrome plated for 2 or 3 layers.

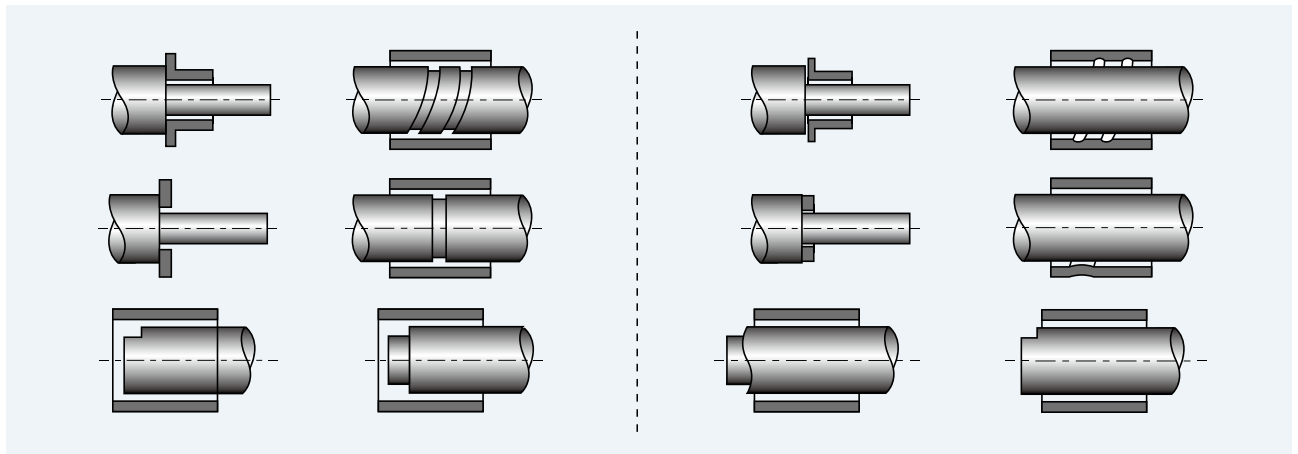
相配轴的机构设计 Structural design of the mating axis

相配轴表面粗糙、尖角毛刺、沟槽会损坏滑动层，如下图所示：

Surface roughness and keen-edged burrs or dents on the surface of the mating axis will destroy the gliding layer. Please see the following illustration for the qualified mating axis.

不正确的相配轴结构
Qualified

正确的相配轴结构
Unqualified





轴承使用寿命的计算 Calculation for the service life of bushing

自润滑轴承的寿命，除激烈的烧焦情况外，通常是以轴承内径的磨耗来决定的。自润滑轴承在干摩擦状态、边界润滑、流体润滑状态下使用，其磨耗情形有很大差异。决定自润滑轴承寿命主要因素有：负载特性及方向、润滑条件、运转速度、环境温度、相配轴硬度、对偶面的粗糙度、相配轴材料、周围空气（气体）的性质等，所以通过计算来求取确切的磨耗量是非常困难的。

With the exception of being burnt, the service life of self-lubricating bushing depends on the abrasion degree of the bushing's inner diameter. In conditions like dry friction, boundary lubrication and oil lubrication, the abrasion of the same bushing will be different. Main factors that may influence the service life are: character and direction of the load, lubrication condition, running speed, environment temperature, hardness of the mating axis, roughness of the mating surface, material of the mating axis, air quality around etc. Therefore, it's difficult to calculate the actual abrasion quantity.

在不考虑速度及负荷对轴承的影响、轴承运动方向的差异、润滑的种类、配合间隙的大小、表面粗糙度及杂质渗入程度 --- 等等因素，可以给出磨耗量 W 计算的公式：

Regardless the factors like influence from the load and speed, difference caused by running direction, kinds of lubricating oil, mating clearance, roughness and impurities penetration degree, the abrasion W can be calculated by the following formula.

$$W=K \cdot P \cdot V \cdot T \quad (\text{mm}^2)$$

P: 负载压力 Load pressure(N/mm²)

V: 运转速度 Running velocity(m/s);

K: 磨耗系数 Abrasion coefficient(mm² / (N/mm² · m/s · Hr))

T: 运转时间 Running time (Hr)

不同润滑条件下，实验所得的磨耗系数 K 值见下表：

Abrasion coefficient K gained under different lubrication conditions in the laboratory. Consult the following form for K value.

润滑条件 Lubrication conditions mm ² /(N/mm ² · m/s · Hr)	
无润滑（干摩擦） Non-lubrication(dry friction)	3 × 10 ⁻³ ~ 6 × 10 ⁻⁴
定期润滑（边界润滑） Periodical lubrication(marginal lubrication)	3 × 10 ⁻⁴ ~ 6 × 10 ⁻⁵
油润滑（流体润滑） Oil lubrication(fluids lubrication)	3 × 10 ⁻⁵ ~ 6 × 10 ⁻⁶



轴承装配过盈量的计算

Calculation of interference for bushing fixing

轴承压入座孔前：轴承外径 > 座孔内径。这种过盈装配后，在座孔里面产生较强的应力，使轴承内圆保证有较高的圆度，又能更好地固定住轴承，防止轴承在座孔内打滑磨损。过盈量的计算按下列公式：

Before the bushing is pressed into the housing: as the outside diameter of the bushing is bigger than the inside diameter of the housing, strong pressure can be available in the housing. And also this kind of fixing can assure the roundness of the bushing and make the bushing well fixed, avoiding abrasion caused by sliding of the bushing in the housing. The interference can be calculated by the following formula:

- 过盈量最小值 $\delta_{\min} = \text{轴承外径最小值 } D_{\min} - \text{座孔内径最大值 } D_{H\max}$
- 过盈量最大值 $\delta_{\max} = \text{轴承外径最大值 } D_{\max} - \text{座孔内径最小值 } D_{H\min}$
- Min interference = Min OD of the bushing- Max ID of the housing
- Max interference = Max OD of the bushing- Min ID of the housing

轴承装配后内径的计算

Calculation of the after-fixing inside diameter of the bushing

假设忽略装配后座孔的膨胀量。装配后轴承计算按下列公式：

Afer bushing mounting, providing that there is no expansion of the housing, the calculation can be carried out by the following formula.

- 轴承内径最小值 $d_{\min} = \text{座孔内径最小值 } D_{\min} - 2 \times \text{轴承壁厚最大值 } S$
- 轴承内径最大值 $d_{\max} = \text{座孔内径最大值 } D_{\max} - 2 \times \text{轴承壁厚最小值 } S$
- Min ID of the bushing $d = \text{Min ID of the housing } D - 2 \times \text{Max thickness of the bushing } S$
- Max ID of the bushing $d = \text{Min ID of the housing } D - 2 \times \text{Min thickness of the bushing } S$

轴承装配后配合间隙的计算

Clearance calculation after bushing fixing

轴承装配后，轴承的内径和轴之间保证合理的间隙是非常有必要的。配合间隙的计算按下列公式：

It's necessary to have an appropriate clearance between the inner surface of the bushing and the axis after bushing mounting. The matching clearance can be calculated by the following formula:

- 间隙最小值 $\Delta_{\min} = \text{装配后轴承内径最小值 } d_{\min} - \text{轴径最大值 } d_{j\max}$
- 间隙最大值 $\Delta_{\max} = \text{装配后轴承内径最大值 } d_{\max} - \text{轴径最小值 } d_{j\min}$
- Min clearance $\Delta_{\min} = \text{Min ID of the bushing after fixing } d_{\min} - \text{Max diameter of the axis } d_{j\max}$
- Max clearance $\Delta_{\max} = \text{Min ID of the bushing after fixing } d_{\max} - \text{Min diameter of the axis } d_{j\min}$

+

轴承的装配 Bushing fixing

装配时压入力 F 的计算公式

Formula for calculation the pressing-in force when fix the bushing

$$F=0.9 \cdot t \cdot b \cdot \Delta \cdot \frac{\sigma}{D} \text{ (N)}$$

t: 除去复合层后基本的厚度 (mm²)

b: 轴承高度 (mm²)

Δ : 应力系数 =1.9 × 105 (N/mm²)B

σ max: 过盈量 (mm²)

D: 轴承外径 (mm²)

<注>: 此时轴承外圆与座孔内圆之间的摩擦系数通常在 0.15 左右。

举例说明:

KDB100 2015(标准产品) 压入 φ 23 +0.021 0 的座孔, 求此时的压入力 F 大小。

计算:

知壁厚 SB=1.5mm², 复合层厚 0.3mm², 基体厚度 t=1.5-0.3=1.2mm²; 轴承高度 b=15; 轴承外径 D=23mm²; 过盈量 σ min=0.014mm², 过盈量 σ max=0.075mm²。

t: Thickness of the bushing after polymer laymers had removed(mm²)

b: Height of the bushing(mm²)

Δ : Stress coefficient=1.9 × 105 (N/mm²)B

σ max: interference(mm²)

D: OD of the bushing (mm²)

Note: In this case, value of friction coefficient between the bushing backing and the Housing is around 0.15.

Case illustrtion

Calculating the pressing-in force F used to press KDB100 2015(standard)the housing φ 23+0.021 0

Calculation:

Pre-known: Wall thickness S=1.5mm², thickness of the polymer layer=0.3mm², thickness of the base plate t=1.5-0.3=1.2mm²; height of the bushing b=15; OD of the bushing D=23mm², surplus=0.014mm², surplus=0.075mm²

$$F_{\min}=0.9 \cdot t \cdot b \cdot \Delta \cdot \frac{\sigma_{\min}}{D}=0.9 \times 1.2 \times 15 \times 1.9 \times 105 \times \frac{0.014}{23} \text{ (N)} \approx 1880 \text{ (N)}$$

$$F_{\max}=0.9 \cdot t \cdot b \cdot \Delta \cdot \frac{\sigma_{\max}}{D}=0.9 \times 1.2 \times 15 \times 1.9 \times 105 \times \frac{0.075}{23} \text{ (N)} \approx 10040 \text{ (N)}$$

所以, 安装时压入力 F=1880 ~ 10040 N。

Therefore, the pressing in force for fixing F=1880 ~ 10040 N

装配方法 Fixing methods

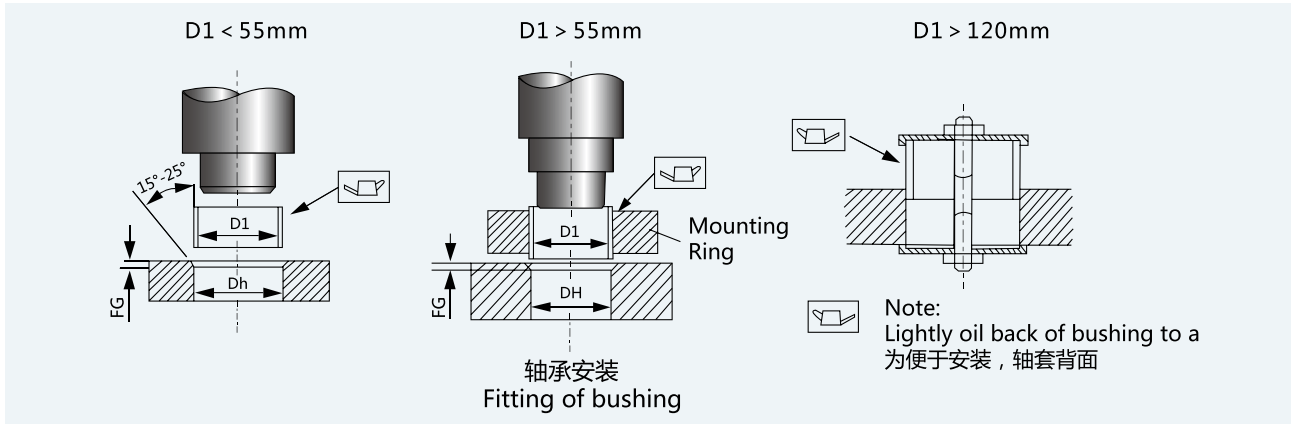
1) 直轴承的装配方法 Fixing methods for cylindrical bushings

芯轴引导棒的直径比安装后的轴承直径小 0.1 ~ 0.3mm²。芯轴最好进行热处理。为便于压装, 可在轴承外径面上图一点油, 请勿以铁锤直接敲打衬套的端面等冲击方法压入; 安装大直径 d>55mm² 轴承时, 必须采取措施, 校准轴承接缝。

Diameter of the pressing-in arbor is 0.1 ~ 0.3mm² smaller than the diameter of the bushing. It's better to have the core axis heat-treated. For easier fixing, we can add a light coating of oil on the bushing backing. Make sure not to fix the bushing into the housing by hammering its end surface. When the diameter of the bushing is more than 55mm², necessary measures must be taken to calibrate the seam position of bushing.



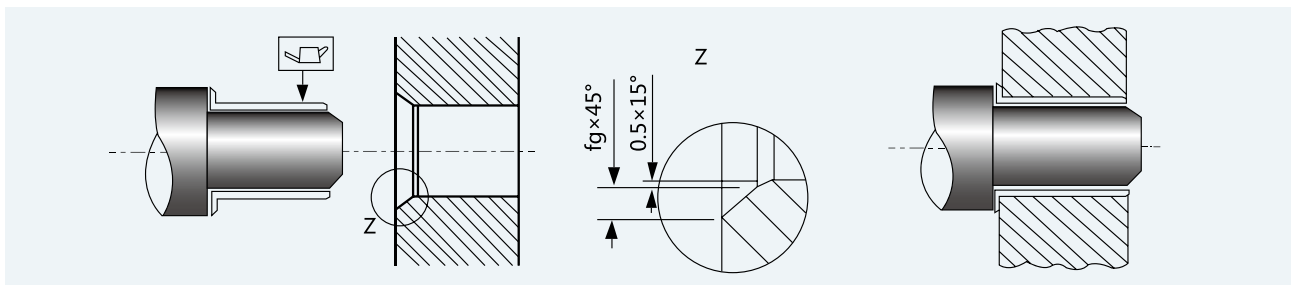
轴承的装配 Bushing fixing



2) 翻边轴承的装配方法 Fixing methods for flanged bushings

对于翻边轴承，装配时翻边处的半径应该考虑，座孔要求提供足够大的倒角，以防止翻边轴承翻边半径处的变形。翻边轴承的压装方法和直轴承基本相同，但要求翻边轴承压装芯轴凸缘外径比直轴承压装芯轴凸缘外径大些。

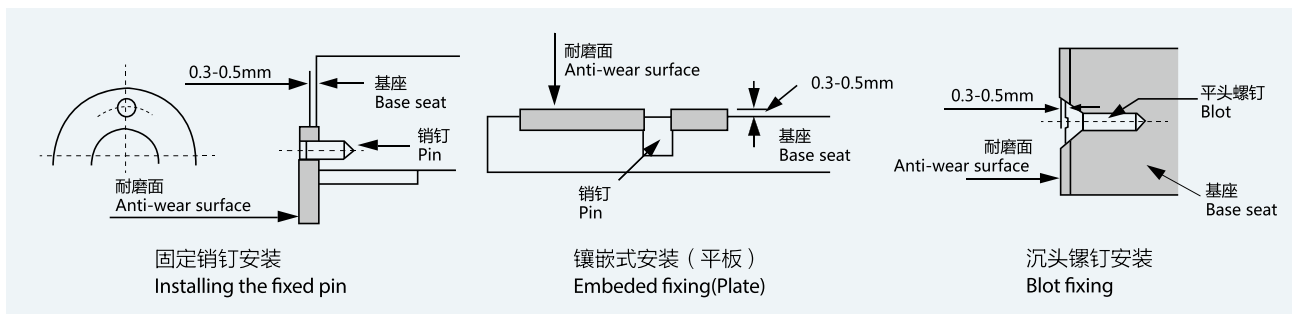
For flanged bushings, the radius at the flanged folds must be taken into account. A sufficiently large chamfer must be provided on the housing to prevent flanged bush fouling in the area of the radius. Fixing methods for the flanged bushings are similar to that for cylindrical bushings. However, the diameter of the convex part on the pressing-in arbor for flanged bushings needs to be a little bigger.



3) 止推垫片、平板的装配方法 Fixing methods for thrust washers and gliding plate.

我们推荐采用定销、沉头螺钉安装止推垫片，采用镶嵌式安装平板。安装止推垫片或平板时，要求润滑层比基座高 0.3 ~ 0.5mm² thick.

We recommend using a single dowel or countersunk head screw to fix the thrust washer. For the gliding plate we recommend the methods of enclashing. When fix the thrust washer or the gliding plate, the sliding layer shall be 0.3~0.5mm² thicker than base seat.





轴承的装配 Bushing fixing

假如采用以上方法安装不合适或者不经济的话，可采用粘着剂、激光焊接或高温焊接。采用粘着剂安装时，可以不用固定销，但其效果较差。粘着剂以环氧树脂系的合成树脂较适合。当使用激光焊接或高温焊接时，不应该超过润滑层的最高承受温度。

If the above fixing methods are not appropriate or economic, you can adopt laser welding, adhesive fixing or high temperature welding. When using adhesive fixing, dowel is optional, but the fixing effect may not be good. Adhesives like oxidized rosin and synthetic rosin is more appropriate. When using laser welding or high temperature welding, the temperature shall not exceed the max temperature that the lubricating layer could bear.

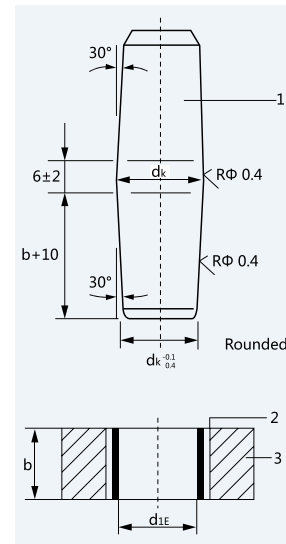
轴承安装后内径的校准 Inside diameter alignment after fixing

1) 卷制轴承内径的校准 Inside diameter alignment for common bushings

轴承安装后，通常可以直接使用。在配合间隙要求增大、或安装时由于配合过盈量太大而造成内孔变形时，可采用下图所示整形工具使轴承内孔达到所要求的尺寸，整形工具直径 d 不宜太大，否则会降低轴承寿命。见图。

Normally the bushing can be immediately put into use after it has been fixed. But if there's need to enlarge the matching clearance or due to too much surplus the inner bore of the bushing deformed, we can use the following showed molding tools to make the inner bore meet the required dimensions. Diameter of the molding tools shall not be too big; otherwise, life of the bushing may decrease. Please see the picture:

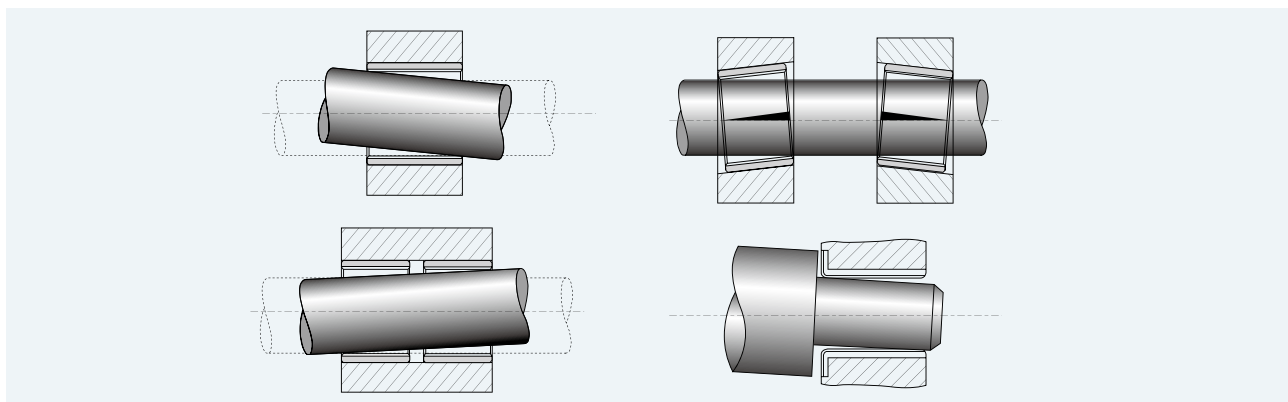
轴承内径 Dia of the axis d	要求内径 Required ID d_E	整形工具直径 Diameter of the shaping tools d_k
	d	$d+0.03$
d	$d+0.02$	$d+0.06$
	$d+0.03$	$d+0.08$
	$d+0.04$	$d+0.10$



2) 相配轴的校准 Alignment of the mating arbor

不论是径向还是轴向滑动轴承，为了避免负荷集中，安装时都要对其平行度进行校准，要求在整个宽度范围内，轴与轴承之间平行度不超出 0.02mm^2 。

In order to avoid load centralization, when fixing the bushing, radial or axial movement, parallelism between the bushing and the arbor must be aligned. It requires the parallelism not exceed 0.02mm^2 .





初始装配后轴承的维护

Bushing maintenance after initial fixing

装配后刚开始使用轴承时，应低载缓慢运转，这样做有以下好处：

For the first running after bushing was fixed, the bushing shall be worked under situations of light load and low speed, which will have the following benefits:

- 1) 使轴与轴承表面凹凸不平的平滑化，使支持轴承荷重的局部凸出面平滑
 - 2) 修正轴承变形所致的安装误差，及凹凸的表面平滑，增加接触面积。
- 1) Smooth the surface of the bushing and its mating axis and smooth the partial convex part that shoulder load.
 - 2) Rectify fixing tolerance caused by bushing deformation; smooth the surface and increase contact surface.

轴承的储存

Bushing store

轴承提供卷装或袋装，外纸箱或木箱，轴承应储藏在干净清洁、防锈的环境下。

贮存时要注意避免以下场所：

- 1) 阳光能直射的场所。
- 2) 高温高湿的场所。
- 3) 有水、酸碱腐蚀性液体的场所。
- 4) 避免重物放置其上、防止其变形。

Bushings will initially be roll packed or plastic bag packed and then will be secondly packed in carton or wooden box. Packed bushings shall be stored in clean and rust-resistant environment.

Avoid storing bushings in the following places

- 1) Place vertically in the sun
- 2) Place of high temperature and moisture
- 3) Place with water and other acid or alkali erosive liquids.
- 4) Do not place heavy articles on the carton to avoid bushing deformation

卷制轴承的检验方法

Checking methods for wrapped bushes

卷制轴承外径的检验方法 Methods for checking the outside diameter

1) 加压检测法（根据 DIN1494-2 检验方法 A) Load checking

检验胎由两半圆检验模组成，检验时，用校准芯轴 $d_{ch.2}$ 校准零位，轴承的开缝置于检验模的顶部，然后两半模相向施加检验载荷 F_{ch} ，由读数装置获得检验模下移的距离 Δz 。

The checking rig consists of two checking block halves. Align the "zero" position of the checking blocks by a setting plug $d_{ch. 2}$ and make the bush's split place at the upper half of the checking blocks and then add the same checking load F_{ch} on both of the checking halves. Read the moving distance of the halves displayed on the distance indicator and record the reading Δz .



卷制轴承的检验方法 Checking methods for wrapped bushes

1-- 开口位置
Hatch position

1-- 检验模
Verifying mould

DIN1494-2 测试 Testing A

检验模和芯棒
Verify mould and mandrel

试验力
Testing load

极限
Limit

外径
Outer diameter

$d_{ch1}=d_{ch2}= \quad \text{mm}^2$

$F_{ch} =$

$\Delta 2 = e = \quad \text{mm}^2$

$D = \quad \text{to} \quad \text{mm}^2$

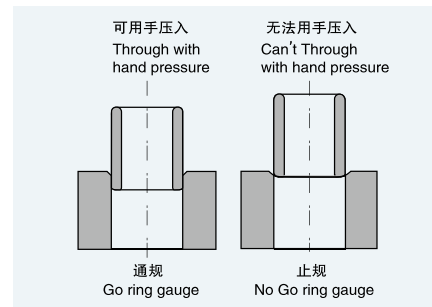
2) 环规检测法 (根据 DIN 1494-2 检验方法 B) Measuring of gauge

检验采用通、止环规进行检测,用手(最大力 250N)可将轴承推入并通过通环规;相同力情况下,不能进入止环规。

注:在某些情况下,例如:卷制轴承不圆或接缝太大,检验精度可能受到影响。

The checking is carried out by two ring gauges,a "GO" ring gauge and a "NO GO" ring gauge. It must be possible to press the bushing in "GO" ring gauge with hand pressure(max 250N). With the same force it must not be possible to press the bushing in "NO GO" ring gauge.

Note: In some cases, such as the bushing with roundness problem,or the butt joints not close tightly, the accuracy of the checking may be affected.

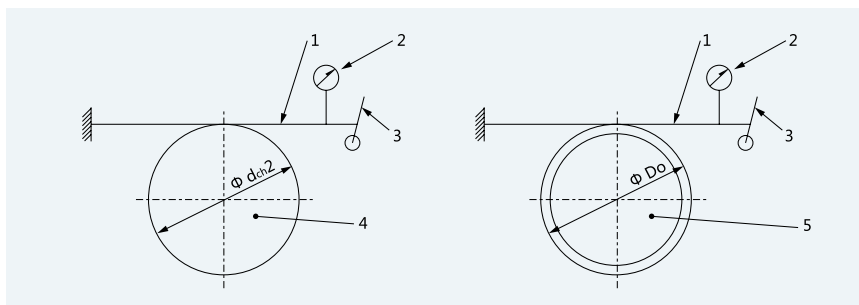


3) 带尺检测法 (根据 ISO3547-2 检验方法 D) Measuring of rule

为了测量尺寸较大的轴承外径,可以用带尺来测量圆周长。用测量带尺在轴承宽度的中线上沿轴承 360°,施加足够的拉力使用使开口闭合。测量带尺绕外径等于轴承公称外径 D_o 的定位芯轴进行标定。指示装置放置于测量带尺的自由端,并调至标定尺寸。在轴承检验完成后,周长指示装置读数 ΔZD 应为轴承测量值与定位芯轴标定值的差。由此,可计算轴承的外径 D_o 。

The checking is carried out by two ring gauges,a "GO" ring gauge and a "NO GO" ring gauge. It must be possible to press the bushing in "GO" ring gauge with hand pressure(max 250N). With the same force it must not be possible to press the bushing in "NO GO" ring gauge.

Note: In some cases, such as the bushing with roundness problem,or the butt joints not close tightly, the accuracy of the checking may be affected.



A) 用定位芯轴校定
Verified by locating spindle

b) 轴承的检验
Measuring of bush

- 1- 精密的测量线;
Precise measuring line
- 2- 千分表;
Dial indicator
- 3- 拉力扳手;
Pulling spanner
- 4- 定位芯轴;
Locating spindle
- 5- 卷制轴承
Wrapped bushing



卷制轴承的检验方法 Checking methods for wrapped bushes

卷制轴承内径的检验方法 Inside diameter checking methods for wrapped bushing

1) 塞规检测法 (根据 DIN 1494-2 检验方法 C) Plug gauge checking

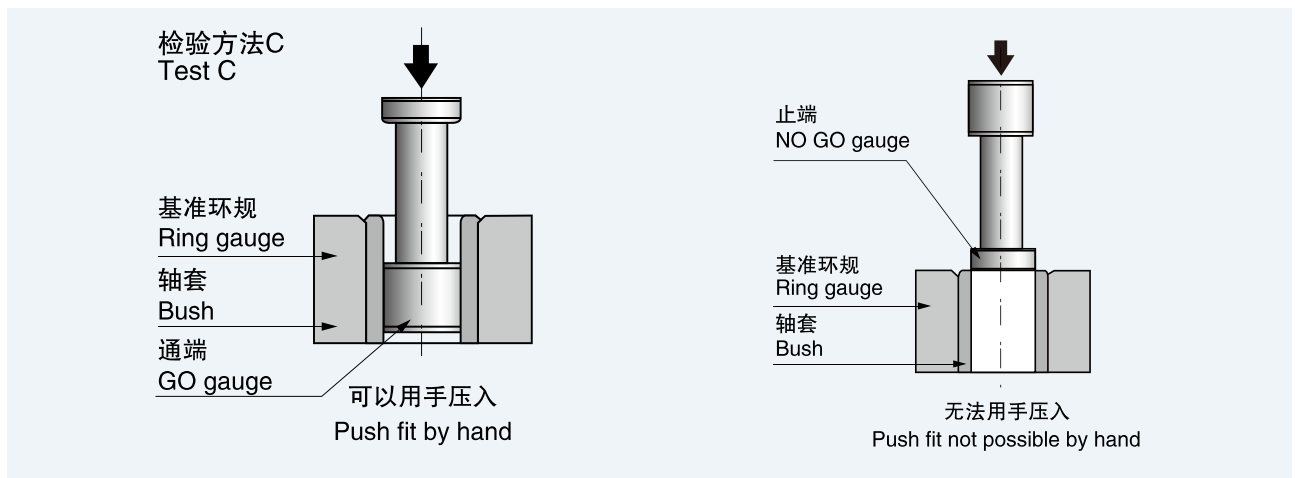
将卷制轴承压入 H7 中值环规, 用塞规检测轴承内径。

Press the bush into the ring gauge, the tolerance class of which is H7, and check the inside diameter of the bushing with plug gauges.

2) 壁厚千分尺检测法 Wall thickness micrometer checking methods

用壁厚千分尺检测轴承壁厚, 来间接计算轴承内径。注意: 根据 DIN1494-2, 切记在图纸上不能同时标注检测轴承壁厚和内径。

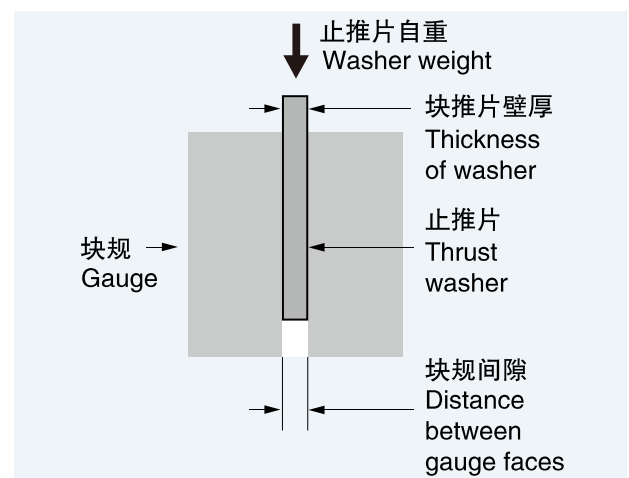
Check the wall thickness of the bushing a wall thickness micrometer and then calculate out the value of the inside diameter. According to ISO3547-2 make sure not to mark both the wall thickness and inside diameter on the drawing.



止推片检验方法 Thrust washer test method

除了厚度公差以外, 垫片的平行度对于垫片和对磨件的使用寿命同样重要。我们使用比较有效的检验方法来检测垫片的平行度, 让垫片依靠自重来通过两个平行块; 当然平行块必须大于垫片本身的规格。

Beside the thickness, the flatness of washer is also important for service life of washer and grinding parts'. We use very helpful test in which the washer falls through the gap between two plain parallel plates of a gauge with its own weight. The plates must be big enough to cover the whole washer.





常用硬度值对照表

Common used Hardness comparison form

洛氏 HRC	肖氏 HS	维氏 HV	布氏		洛氏 HRC	肖氏 HS	维氏 HV	布氏	
			HBS (30D ²)	d/mm ² (10/3000)				HBS (30D ²)	d/mm ² (10/3000)
70		1037	-	-	40	53.5	377	370	3.17
69		997	-	-	39	52.3	367	360	3.21
68	96.6	959	-	-	38	51.1	357	350	3.26
67	94.6	923	-	-	37	50	347	341	3.30
66	92.6	889	-	-	36	48.8	338	332	3.34
65	90.5	856	-	-	35	47.8	329	323	3.39
64	88.4	825	-	-	34	46.6	320	314	3.43
63	86.5	795	-	-	33	45.6	312	306	3.48
62	84.5	766	-	-	32	44.5	304	298	3.52
61	83.1	739	-	-	31	43.5	296	291	3.56
60	81.4	713	-	-	30	42.5	289	283	3.61
59	79.7	688	-	-	29	41.6	281	276	3.65
58	78.1	664	-	-	28	40.6	274	269	3.70
57	76.5	642	-	-	27	39.7	268	263	3.74
56	74.9	620	-	-	26	38.8	261	257	3.78
55	73.5	599	-	-	25	37.9	255	251	3.83
54	71.9	579	-	-	24	37	249	245	3.87
53	69.1	561	-	-	23	36.3	243	240	3.91
52	67.7	543	-	-	22	35.5	237	234	3.95
51	66.3	525	501	2.73	21	34.7	231	229	4.00
50	65.5	509	488	2.77	20	34	226	225	4.03
49	63.7	493	474	2.81	19	33.2	221	220	4.07
48	62.6	478	461	2.85	18	32.6	216	216	4.11
47	61059.7	463	449	2.89	17	31.9	211	211	4.15
46	57.1	449	436	2.93	16	-	-	-	-
45	55.9	436	424	2.97	15	-	-	-	-
44	58.4	413	413	3.01	14	-	-	-	-
43	57.1	401	401	3.05	13	-	-	-	-
42	55.9	391	391	3.09	12	-	-	-	-
41	54.7	388	380	3.13	11	-	-	-	-





SAVI 萨维
Self-lubricating Bearing

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