

Polymer-tech Solutions™

PLASTIC BEARINGS TECHNOLOGY

塑料轴承技术



CSB®



- 成立于1995年，总注册资本2.23亿人民币；
- 2020年销售额超过6.5亿元人民币，员工800名；
- 拥有两个生产基地，占地130000m²；
- 国家级高新技术企业，80项专利；
- IATF16949:2016、ISO9001:2015、ISO14001:2015、ISO45001:2018认证。
- CSB was established in 1995 and its legal registered capital is 34.4 million US Dollars.
- CSB turnover in 2020 was more than USD 100 million. Currently there are 800 employees working at CSB.
- There are 2 facilities covering over 130000m² with extendable area for future enlargement.
- China National Hi-Tech Enterprise has been granted, 80 patents obtained till now.
- IATF16949:2016、ISO9001: 2015、ISO14001: 2015 and ISO45001: 2018 management system were certificated.

新型自润滑材料适应环境保护要求 Concern for Environment Requirement

CSB积极应对环境保护的要求，通过多年的努力在各个应用领域都已成功开发了满足RoHS要求的不同材料。

Concern for environmental requirement, CSB has developed various kinds of self-lubricating materials to conform to environment requirement.

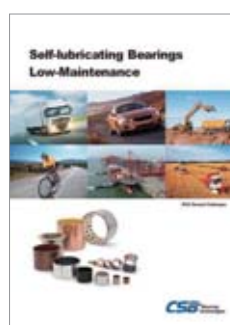
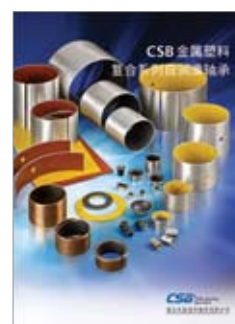
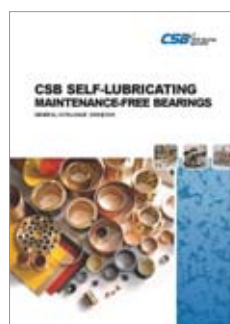
RoHS指令限制的十种有害物质 EC Directive 2011/65/EU (the RoHS Directive)

汞Hg、六价铬Cr⁶⁺、铅Pb、镉Cd、多溴联苯醚PBDE、多溴联苯PBB、邻苯二甲酸二正丁酯DBP、邻苯二甲酸正丁基苄酯BBP、邻苯二甲酸(2-己基)己酯DEHP、六溴环十二烷HBCDD。

This directive restricts the use of hazardous substances. Listed below are CSB products which are all RoHS compliant.



"CSB", "CSB-EPB", "CSB-LIN", "CSB-FWB", "CSB-LMS", "CSB-BAL", "CSB-RPM", "CSB-PEC", "CSB-PCC", "CSB-PEW", "CSB-PPR", "CSB-FLB", "CSB-CPB", "CSB-PCB", "CSB-PYB", "CSB-SRB", "CSB-PRB", "TEFPLAS", "DURARUB" and "DURAFILM" are legally protected trademarks in China and in case also in foreign countries. 中国保护商标。



Your Partner for Self-lubricating Bearing Application

为所有工业提供各种自润滑轴承解决方案



CSB-EPB® 工程塑料轴承 Plastic Plain Bearings

自润滑免维护、耐腐蚀、长服务寿命、轻量化；可选：极低摩擦系数、高载荷、抗静电、高温250℃、FDA食品安全等级。

Maintenance-free dry operation, Absolute corrosion resistance, Long service time and light; Multiple choices: Lowest friction coefficient, High load, Anti-static, High temperature 250℃, FDA food safety grade.

P12



CSB-BAL® 塑料关节轴承 Plastic Spherical Bearings

自润滑免维护、耐腐蚀、抗污垢、轻量化；可选：多种结构设计满足不同安装需求。

Self-lubricating and maintenance-free, Corrosion-resistant, Anti-fouling, lightweight; Multiple structural design to meet different installation requirements.

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CSB-LIN® 塑料直线轴承 Plastic Linear Bearings

干运行无需供油、抗粉尘、无噪音、耐腐蚀、长服务寿命、轻量化；可选：高温250℃、多种安装方式。

Dry operation without oil, Anti-dust, No noise, Corrosion resistance, Longer service time and light; Multiple Assemble types, Highest operation temperature 250℃.

P175



CSB-LMS® 直线驱动系统 Linear Motion Systems

自润滑免维护直线驱动系统，直线滑动原件及丝杆螺母均采用高耐磨EPB13材料制成，实现长期干摩擦，低噪音，长服务寿命，适合在粉尘或污水下运行。

Self-lubricating and maintenance-free linear motion system, Linear slider and screw nuts are made of high wear-resistant material EPB13, Dry operation for longer time, lower noise, longer service time and suitable for operation in dust or dirty water.

P225



CSB-SFP® 耐磨半成品 Semi-finished Products

采用CSB-EPB®高耐磨材料制成，可实现非标轴承的快速加工、小批量制作降低成本；可选：棒材、板材、片材。

The semi-finished products are made of anti-wear and high performance materials CSB-EPB®, It can be machined non-standard bearings in short time, saving cost for small quantity; Multiple choices: Bar, sheet and tribo-tape.

P286



CSB-PRB® 塑料滚动轴承 Plastic Ball Bearings

自润滑免维护、耐腐蚀、轻量化；可选：内外圈、保持架、滚珠多种材料可选。

Maintenance-free, corrosion-resistant, lightweight; Multiple choices: inner and outer ring, cage and ball can be designed different materials freely.

P295



CSB-SRB® 回转支承轴承 Slewing Ring Bearings

免维护干运行、低噪音、轻量化；滑动原件可选耐磨材料EPB13、高载荷金属与特氟龙复合材料CSB-11。

Maintenance-free and dry operation, lower noise, lightweight; The slider can be made of wearresistant material EPB13 or metal and teflon composite material CSB-11 for higher load.

P283



CSB-FWB® 纤维缠绕轴承 Filament-wound Bearings

连续长纤维复合材料、干摩擦性能最优越、极高的承载能力、最高静载荷240MPa，特别适合用于高载低速下的摆动。

Long fiber composite material, The best performance for dry operation, High load capacity and max. static load 240MPa, Especially suitable for swing with high load and low speed.

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CSB Product Family

CSB产品

Polymer-tech Solutions™

Products

CSB-EPB®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

CSB-EPB® 工程塑料轴承 Plastic Plain Bearings

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CSB-LIN® 塑料直线轴承 Plastic Linear Bearings

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CSB-PRB® 塑料滚动轴承 Plastic Ball Bearings

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CSB-BAL® 塑料关节轴承 Plastic Spherical Bearings

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CSB-LMS® 直线驱动系统 Linear Motion Systems

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CSB-SRB® 回转支撑轴承 Slewing Ring Bearings

CSB-RPM® 转向器轴承 Steering Rack Bearings



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TEFPLAS® 高速滑动轴承 High Speed Sliding Bearings

KER 转角轴承 Knife Edge Rollers



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CSB-PEC® 扶梯回转链 Escalator Rotary Chains

工程塑料电缆拖链 Plastic Cable Chains



PEC03

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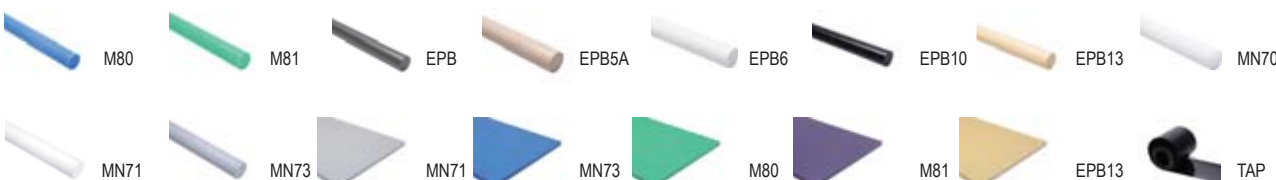


CSB-PCC®

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CSB-SFP® 耐磨半成品 Semi-finished Products

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CSB-FWB® 纤维缠绕轴承 Filament-wound Bearings

P 303-313



金属自润滑轴承 Metal Sliding Bearings

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Home / CSB standard products / Plastic plan bearings tool V2.0

Bearing Forms

☐ Sleeve bearings
☒ Flange bearings
☐ Thrust washers
☐ Tin wall bearings
☐ Pinhead bearings
☐ Clip bearings
☐ Flange bearings
☐ Piston rings

Operating data

Max. static load at 23°C: 18 MPa
 Max. dynamic load at 23°C: 8 MPa
 Max. long-term operating temp.: 80 °C
 Min. long-term operating temp.: -10 °C

Other requirements

☐ Anti-static
☐ FDA certification
☐ Flammability class V0
☐ Lowest friction coefficient
☐ Cost-effective

CSB suitable products

☒ CSB-EPB	☒ CSB-EPB1	☒ CSB-EPB2	☒ CSB-EPB3	☒ CSB-EPB4
☒ CSB-EPB5	☒ CSB-EPB6	☒ CSB-EPB7	☒ CSB-EPB8	☒ CSB-EPB9
☒ CSB-EPB10	☒ CSB-EPB11	☒ CSB-EPB12	☒ CSB-EPB13	☒ CSB-EPB14
☒ CSB-EPB15	☒ CSB-EPB16	☒ CSB-EPB17	☒ CSB-EPB18	☒ CSB-EPB19
☒ CSB-EPB20	☒ CSB-EPB21	☒ CSB-EPB22	☒ CSB-EPB23	☒ CSB-EPB24
☒ CSB-EPB25	☒ CSB-EPB26	☒ CSB-EPB27	☒ CSB-EPB28	☒ CSB-EPB29
☒ CSB-EPB30	☒ CSB-EPB31	☒ CSB-EPB32	☒ CSB-EPB33	☒ CSB-EPB34
☒ CSB-EPB35	☒ CSB-EPB36	☒ CSB-EPB37	☒ CSB-EPB38	☒ CSB-EPB39
☒ CSB-EPB40	☒ CSB-EPB41	☒ CSB-EPB42	☒ CSB-EPB43	☒ CSB-EPB44
☒ CSB-EPB45	☒ CSB-EPB46	☒ CSB-EPB47	☒ CSB-EPB48	☒ CSB-EPB49
☒ CSB-EPB50	☒ CSB-EPB51	☒ CSB-EPB52	☒ CSB-EPB53	☒ CSB-EPB54

☒ Stock
☒ Lead time 2-4wks

首页 / CSB 标准产品 / 塑料直线轴承查找器 V1.0

产品选择

LMS 滑轨直线轴承
 基础轴承
 20mm
 全部规格
 标准设计
 EPB13 滑轨轴承-60mm

产品目录

CSB-LMS 塑料直线轴承

运行参数

系统总负载 W: 2000 N
 平均线速度 Vavg: 0.3 m/s
 轴数量 Cx: 2
 轴间距 Lx: 90 mm
 单轴轴承数量 Cy: 2
 轴承间距 Ly: 120 mm
 安装方式: H 水平
 负载中心距中心: vx 10 mm, vy 15 mm, vz 100 mm
 驱动点距中心: ry 18 mm, rz 900 mm

设计分析

安装结构: 运动副: 建议优化驱动点中心距
 负载结构: 安全负载
 速度结构: 安全速度
 最小驱动力: 500 N
 最低温度 Tmin: -50°C
 最高温度 Tmax: +90°C

轴适配

CSB-LMS® 精密轴

在线工具 Online Tools ▶▶▶▶▶▶▶▶

Home / CSB standard products / Flange-wound bearings tool V3.0

Bearing Forms

☒ Sleeve bearings
☐ Thrust washers
☐ Flange washers

Operating data

Max. static load at 23°C: 120 MPa
 Max. dynamic load at 23°C: 50 MPa
 Max. long-term operating temp.: 80 °C
 Min. long-term operating temp.: -40 °C

Operating conditions

☒ Dry friction
☐ Oil or grease lubrication
☐ Long-term underwater

Other requirements

☐ Cost-effective
☐ Flammability class V0

CSB suitable products

☒ CSB-EPB	☒ CSB-EPB1	☒ CSB-EPB2	☒ CSB-EPB3	☒ CSB-EPB4
☒ CSB-EPB5	☒ CSB-EPB6	☒ CSB-EPB7	☒ CSB-EPB8	☒ CSB-EPB9
☒ CSB-EPB10	☒ CSB-EPB11	☒ CSB-EPB12	☒ CSB-EPB13	☒ CSB-EPB14
☒ CSB-EPB15	☒ CSB-EPB16	☒ CSB-EPB17	☒ CSB-EPB18	☒ CSB-EPB19
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☒ CSB-EPB50	☒ CSB-EPB51	☒ CSB-EPB52	☒ CSB-EPB53	☒ CSB-EPB54

☒ Stock
☒ Lead time 2-4wks

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CSB R&D resources

CSB研发资源

R&D

CSB-EPB®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

CSB始终坚持以自润滑材料科学为核心，充分利用先进的研发检测设备，并与科研院所和国外科技联合创新。CSB拥有先进的材料性能检测设备和最全面的自润滑轴承摩擦磨损性能专业检测设备，CSB新产品开发工程师每年通过各种检测设备进行材料性能检测和研发试验近万次。CSB每年自主研发以及为特殊客户研发的新产品近百种，并通过新材料新技术的不断探索提升现有产品性能，满足了各种行业对自润滑轴承性能提出的新要求。

CSB insists on the theory of going on creation and pursuing excellence and established the system concentrating on the self-lubricating material technology, making full use of the advanced research and testing equipment, joint innovation with research institutes and foreign technology. CSB has advanced performance testing equipments for materials and the most comprehensive tribological properties professional testing equipments for lubricating bearings. There are thousands of tests on the materials and equipments that CSB engineers will execute each year. Hundreds of new materials and products are developed by CSB to meet the continuously changing requests from the market.



Wa Zau 材料摩擦磨损试验机(德国)
Wa Zau material friction&wear tester (Germany)



MMU-12材料摩擦磨损试验机
MMU-12 material friction&wear tester



材料分析中心
Material analysis center



UV老化环境试验机
UV accelerated weathering tester



高低温交变试验箱
High and low temperature
alternating test chamber



能谱仪 (EDS)
Energy dispersive spectrometry (EDS)



热机械分析仪 (德国)
Thermo-mechanical analysis (Germany)



端面摩擦磨损试验机
Washer test machine



电子万能材料试验机
Electronic universal material test machine



PV摩擦磨损试验机
High load PV tester

CSB-EPB[®] Typical Applications

CSB-EPB[®] 工程塑料轴承应用

■ 汽机车上的应用 For auto industries



CSB-RPM[®]/EPB19 应用于汽车转向系统
CSB-RPM[®]/EPB19 for steering system



CSB-CPB[®] 应用于汽车踏板
CSB-CPB[®] for foot pedals



CSB-PCB[®] 应用于汽车座椅调节结构
CSB-PCB[®] for seating adjustment system



CSB-EPB24 应用于汽车变速机构
CSB-EPB24 for gear box



CSB-EPB4 应用于汽车盘式制动器
CSB-EPB4 for auto disk brake caliper



CSB-EPB24 应用于汽车节气阀
CSB-EPB24 for auto throttle vaves

■ 自行车上的应用 For bicycle industries



CSB-EPB 应用于自行车手刹
CSB-EPB for brake handles

CSB-EPB7/EPB13 应用于自行车脚踏
CSB-EPB7/EPB13 for bike pedals



CSB-EPB18 应用于自行车后悬挂臂
CSB-EPB18 for rear suspension arm



CSB-EPB13 应用于前叉避震系统
CSB-EPB13 for front shock absorbers



CSB-EPB3 应用于自行车变速器
CSB-EPB3 for rear derailleurs

CSB-EPB[®] Typical Applications

CSB-EPB[®] 工程塑料轴承应用

■ 纺织工业上的应用 For textile industries



CSB-LIN 应用于细纱机集体落纱装置
CSB-LIN for spinning machinery



CSB-EPB2 应用于假捻机皮圈架与筒管架
CSB-EPB2 for false twisting machine



CSB-EPB7 应用于自动缝纫机
CSB-EPB7 for automatic sewing machine



CSB-EPB 应用于自动络筒机
CSB-EPB for automatic winder

■ 饮料和药品包装工业上的应用 Beverage and medicinal liquid packing industries



CSB-EPB5/LIN应用于饮料灌装机械
CSB-EPB5/LIN for beverage machinery



CSB-EPB应用于包装组合秤
CSB-EPB for packing multihead weigher



CSB-EPB4/LIN应用于洗烘灌联动机
CSB-EPB4/LIN for medicinal liquid packing machinery



CSB-LIN应用于包装机械
CSB-LIN for packing machinery

CSB-EPB[®] Typical Applications

CSB-EPB[®] 工程塑料轴承应用

■ 医疗工业上的应用 For medical industries



CSB-EPB11 应用诊断系统调节机构
CSB-EPB11 for adjustment system



CSB-EPB 应用于注射泵
CSB-EPB for syringe pump



CSB-EPB1 应用于医疗轮椅
CSB-EPB1 for medical wheelchair



CSB-EPB3M 应用于牙科座椅系统
CSB-EPB3M for dental seat system



CSB-EPB6 应用于电动医疗床
CSB-EPB6 for electric medical bed

■ 其它工业上的应用 For other industries



CSB-EPB13/EPB16 应用于太阳能追踪系统
CSB-EPB13/EPB16 for solar system



CSB-EPB3 应用于高压隔离开关
CSB-EPB3 for high-voltage isolation switch



CSB-EPB15 应用于飞行器调节机构
CSB-EPB15 for aircraft adjustment system



CSB-EPB3 应用于碎纸机
CSB-EPB3 for shredder



CSB-CRM 应用于升降平台
CSB-CRM for scissor lifts



CSB-CRB/EPB12 应用于物流机械
CSB-CRB/EPB12 for handling equipment

CSB-EPB[®] Technical Information

CSB-EPB[®] 工程塑料轴承技术信息

CSB-EPB[®] 材料结构特点 Material features

CSB-EPB[®] 材料之所以具有优秀的自润滑性和耐磨性主要是CSB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。

CSB engineers are dedicated on the performance improvement on the self-lubricating materials derives the result that CSB-EPB[®] Materials are

with excellent self-lubricating features and wear resistance Features. High-strength fibers used in the engineering plastics fantastically improve the material load (Graph 1). Special grease immersion in the plastic can decrease the friction coefficient of the material therefore to prolong the bearing service life.

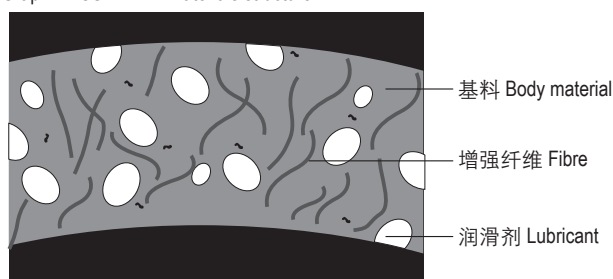
High-performance engineering plastics body material mainly service as wear-resistant vector.

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1 CSB-EPB[®] 材料内部结构示意图

Graph 1 CSB-EPB[®] materials structure

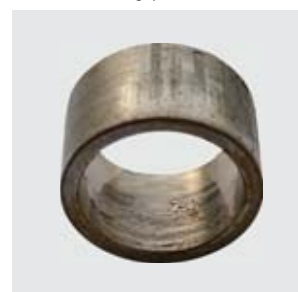


图表2 塑料轴承与传统含油轴承的磨损

Graph 2 Surface wear (Plastic bearings and metal bearings)



CSB-EPB[®] 塑料轴承整体润滑材料使用寿命长
CSB-EPB[®] plastic plain bearings has longer service life.



传统含油轴承内部润滑油极易耗尽而失效
Lubricating oil in metal bearings easily depleted and fail.

CSB-EPB[®] 塑料轴承与传统含油轴承 Plastic bearings and metal bearings

由于CSB-EPB[®]塑料轴承润滑脂包含在整体材料中，所以无论轴承工作时间多长润滑脂都会不断的从摩擦面渗出起到长期润滑作用，而传统粉末冶金含油轴承在使用过程中利用微孔隙中的润滑油起自润滑作用，当这些润滑油耗尽或挥发完后轴承磨损将急速加剧，此时就宣告轴承的有效使用寿命结束（图表2）。

Because the grease immersed in the solid plastic material, the lubricating will be valid continuously no matter how long the bearings are working. Therefore, the traditional sintered oilless bearings provide the lubricating function by utilizing the impregnated oil in the tiny porosities of the material. When the impregnated oil would have been run out of dried, the bearing wear will be increased sharply and the bearing life will be terminated at the same time. (Graph 2).

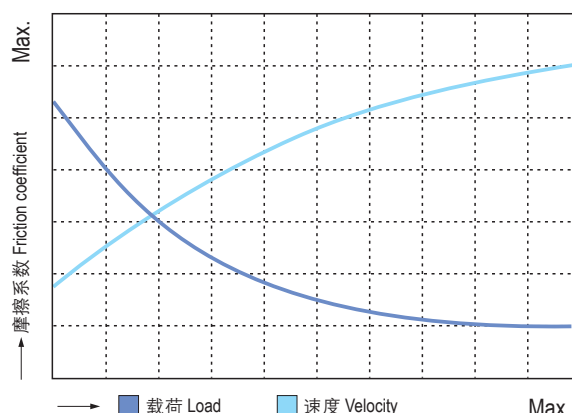
CSB-EPB® 塑料轴承摩擦系数 Bearing friction coefficient

CSB-EPB®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 CSB-EPB® plastic 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 Graph3). 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



EPB

CSB-EPB®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

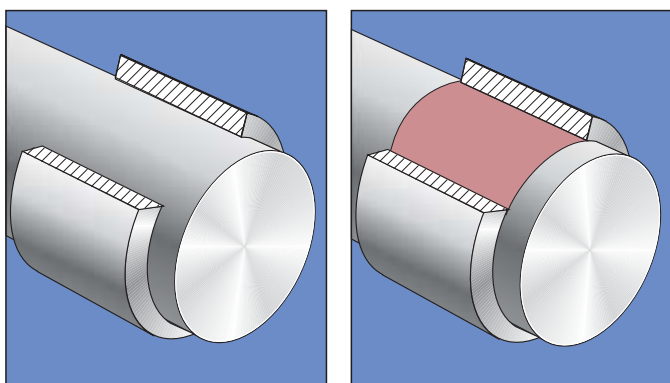
CSB-EPB® 塑料轴承磨损 Plastic bearing wear

任何自润滑轴承在载荷下工作初始阶段，轴承就会产生细微磨损。CSB-EPB®塑料轴承同样如此，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并转移到对磨轴表面（图表4），当对磨轴工作区域被润滑脂布满后便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，在后长期时间的工作中轴承的磨损速率大大降低且较稳定（图表5）。

Slightly wear off will occur as soon as the self-lubricating bearing is applied with a certain load. It is the same to the CSB-EPB® plastic 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 maintains the further operation stable (Graph 5).

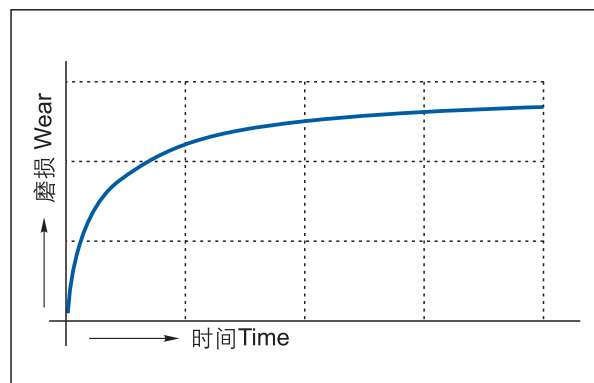
图表4 运行后，润滑膜形成

Graph 4 After operation, lubricating oil film formed



图表5 轴承磨损随工作时间变化曲线图

Graph 5 Wear against operation time



CSB-EPB[®] Technical Information

CSB-EPB[®] 工程塑料轴承技术信息

轴承的载荷 Bearing load

■ 载荷计算方法 Load capacity calculation

◇ 直套、翻边产品 Cylindrical bushes, flange bushes

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

F=轴承承载值 Load (N)
d=轴径 Shaft (mm)
L=轴承长度 Bearing Length (mm)

◇ 止推垫片 Thrust washer

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

F=垫片承载值 Load (N)
D=垫片外径 Washer OD (mm)
d=垫片内径 Washer ID (mm)

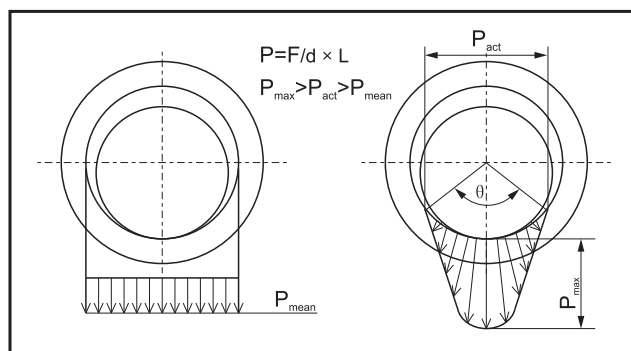
由于受配合间隙、材料强度、内部油槽等原因的影响，轴承的真正承载面压 (P_{act}) 会大于理论计算值 (P_{mean})。

■ 最大载荷 Maximum load

塑料轴承实际工作最大动载荷往往小于数据表中推荐最大静载荷 (图表6)，由于轴与轴承属于间隙配合，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尺寸公差所决定。最大静载荷适用于轴静止不动 (参照CSB测试标准ITS027)，最大动载荷适用于低速运行工况 (参照CSB测试标准ITS028)，比轴承最大动载荷更高的动载荷允许在短时间内运行 (短时间指连续允许3分钟以内)。

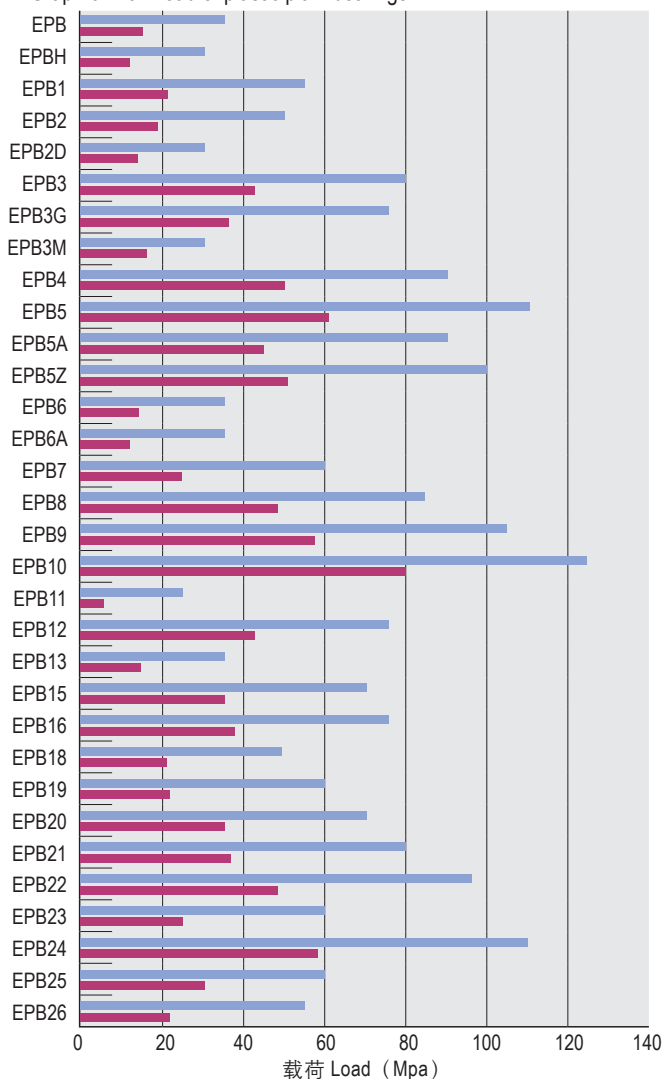
The actual dynamic load is usually less than the maximum static load recommended in the data sheet (Graph 6). Due to the clearance exists between the shaft and inner diameter of the plastic plain bearings, the actual working surface area are less than the projected area of the plastic plain bearings. The working area is depended on the clearance between the shaft and the bearings. The maximum static load under the shaft is static (according CSB test standard ITS027), The maximum dynamic load is suitable for low speed (according CSB test standard ITS028). Higher dynamic load than the maximum dynamic load could also be applicable for a short-term operation condition (shorter than 3 minutes).

■ 最大静载荷 Maximum static load
■ 最大动载荷 Maximum dynamic load



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

图表6: CSB-EPB[®] 塑料轴承最大载荷分布图
Graph 6: Max. load of plastic plain bearings



■ 载荷与温度、速度的关系 Load, temperature and speed

轴承的载荷会随着轴承工作温度的升高而逐步降低，当运行温度超过最大使用温度后轴承的承载能力会急剧下降（图表7）。

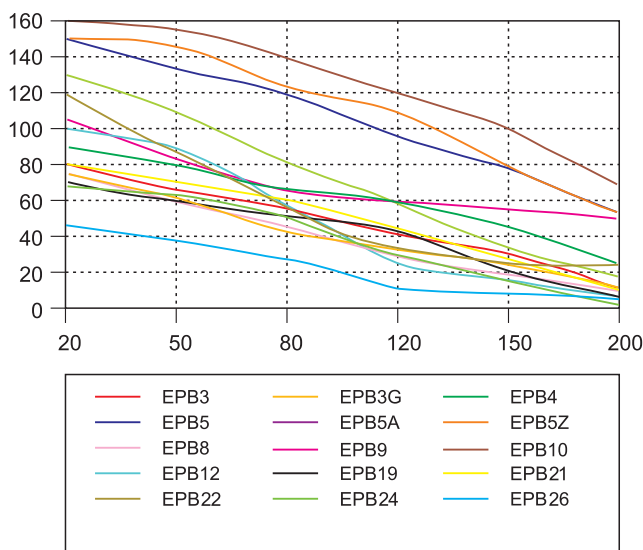
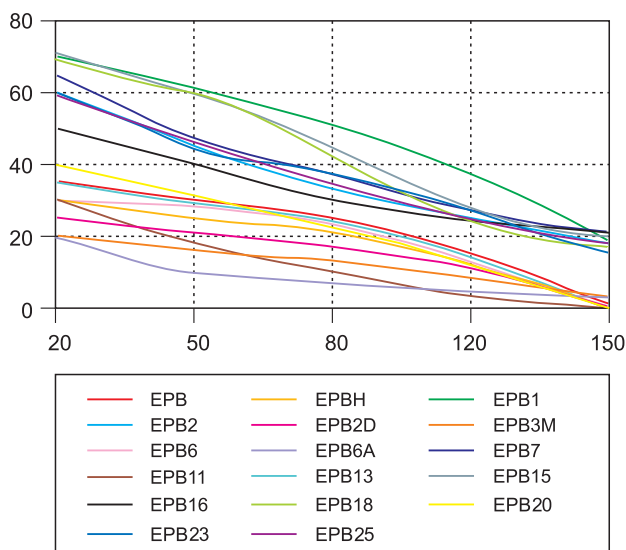
轴承的载荷会随着轴承运行速度的加快而逐步降低，当运行速度加快后会导致轴承的摩擦温度逐步上升，而载荷会随着轴承温度的不断上升而逐渐降低。

The load capacity will be decreased along with the temperature increase. Load capacity may sharply decrease when the operating temperature is higher than the recommended maximum temperature (Graph 7).

The load capacity will be decreased along with the speed increase. Speed increase will result into a temperature increase that decreases the load capacity.

图表7：载荷随温度变化曲线图

Graph 7: Load and Temperature



对于滑动轴承来说，运行速度是个关键性参数，由于滑动轴承工作时与轴之间发生的是相对滑动摩擦而不是滚动摩擦，所以最大运行速度滑动轴承要远低于滚动轴承。这里所说的速度是指轴与轴承之间运行的相对线速度而不是转速。

The operating speed is one of the key parameters for the sliding bearings. The friction between the sliding bearing and the shaft is a linear friction. So the operating speed of sliding bearing is much less than that of a rolling bearing where the friction is a rotation method. The speed here is the relative linear speed between the bearing and the shaft but not a rotation speed.

■ 线速度计算公式 Speed calculation

◇ 旋转运动 Rotating motion

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

d=轴径 Shaft (mm)
n=转速/分 Rpm

◇ 摇摆运动 Oscillating motion

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

d=轴径 Shaft (mm)
C=摇摆频率 (次数/分) frequency
θ=摇摆角度 Oscillating angle

◇ 往复运动 Linear motion

$$V = \frac{2s \times c}{60} \text{ (m/s)}$$

s=行程长度 Stoke distance (m)
c=往复频率 (次数/分) frequency

CSB-EPB[®] Technical Information

CSB-EPB[®] 工程塑料轴承技术信息

轴承的速度 Bearing speed

CSB-EPB[®] 塑料轴承所允许的最大速度见图表8。这些数值是在轴承载荷极小时取得的极限速度，实际运用中这些速度是很难达到的，因为轴承在工作中不可避免的要承受工作载荷，当轴承载荷加大时所允许的运行速度就会减小。由于轴承的速度与轴承的运行温度成反比关系，所以轴承不同的运行方式所允许的最大速度也不同。

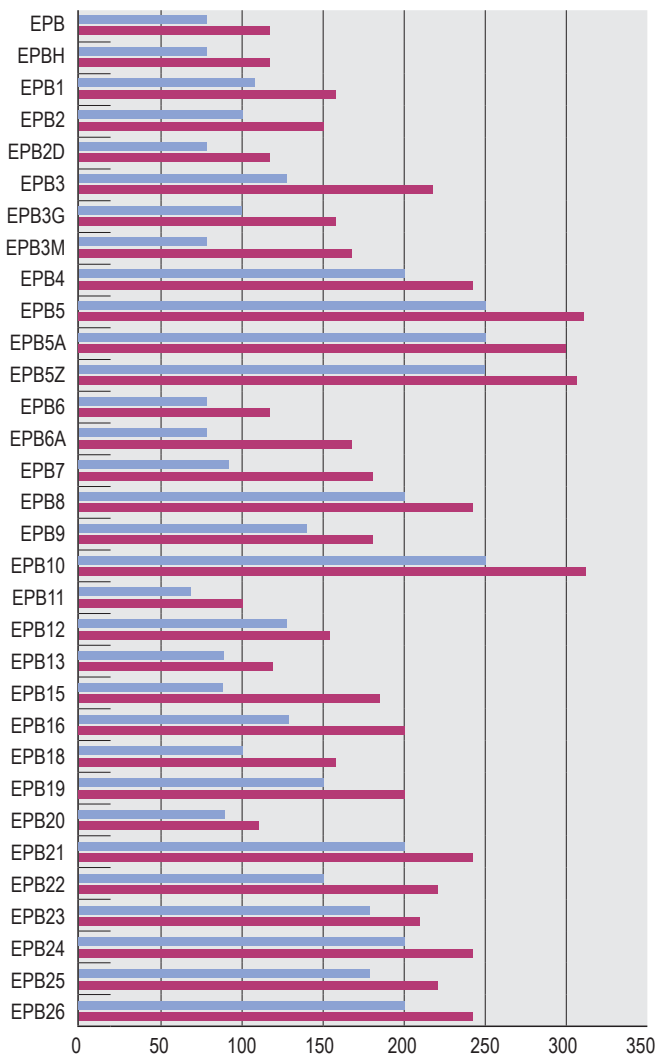
图表8: CSB-EPB[®] 塑料轴承最大运行速度
Graph 8: Max. operation speed

材料 Material	旋转 Rotation	摆动 Oscillating	直线 Linear
EPB	1.0	0.7	3.0
EPBH	0.8	0.6	2.5
EPB1	1.0	0.7	3.0
EPB2	1.0	0.7	3.0
EPB2D	1.2	0.8	3.0
EPB3	1.0	0.7	4.0
EPB3G	0.8	0.6	3.5
EPB3M	0.8	0.6	2.5
EPB4	1.0	0.7	3.0
EPB5	1.5	1.1	5.0
EPB5A	0.6	0.4	1.0
EPB5Z	1.5	1.1	5.0
EPB6	1.0	0.7	3.0
EPB6A	0.6	0.4	1.0
EPB7	1.0	0.7	4.0
EPB8	1.2	0.8	4.0
EPB9	0.8	0.6	3.0
EPB10	1.5	1.1	5.0
EPB11	0.5	0.4	1.0
EPB12	1.0	0.7	5.0
EPB13	1.5	1.1	8.0
EPB15	1.0	0.7	4.0
EPB16	1.0	0.7	3.0
EPB18	1.0	0.7	3.0
EPB19	1.2	0.8	4.0
EPB20	0.5	0.4	2.0
EPB21	1.5	1.1	5.0
EPB22	1.0	0.7	4.0
EPB23	1.0	0.8	2.5
EPB24	1.0	0.7	1.0
EPB25	1.3	1.0	4.0
EPB26	0.9	0.6	2.0

The maximum operating speed: Rotation, Oscillating, Linear indicates the maximum allowable speed (Graph 8).

The value in the datasheet is calculated under the condition of a very low load. So the actual allowable speed will be limited against different load and other conditions. The higher the load, the lower the speed will be. The speed and the temperature is in a inverse proportion relation, the maximum speed allowable will be different depending on different operation method of the bearings.

图表9: CSB-EPB[®] 塑料轴承最高运行温度
Graph 9: Max. operation temperature



轴承的温度 Bearing temperature

CSB-EPB[®] 塑料轴承都限定了最低和最高使用温度。最低使用温度是指轴承材料会变脆的临界温度（图表10），最高使用温度是指轴承耐磨性能不会改变的临界温度，短期运

行最高温度是指轴承材料会变软的临界温度(图表9)。如轴承经常在高温和低温下交替使用，轴承有可能发生脱落现象，所以此时必须借助于辅助装置确保轴承正常运行。

There is a limited temperature range that CSB-EPB® plastic bearings could be used. The lowest temperature is the one the material will become brittle under that value (Graph 10) and the highest temperature is the one the bearing material wear resistance feature will start to

change (Graph 9). If the bearings are used under the conditions of alternatively changing high and low temperature, the bearing feature will be considerably affected and thus shorten the bearing service life.

图表10: CSB-EPB® 塑料轴承最低运行温度 Graph 10: Min. operation temperatures

材料 Materials	最低温度 Min. Temperature
EPB	-40
EPBH	-40
EPB1	-40
EPB2	-40
EPB2D	-40
EPB3	-40
EPB3G	-40
EPB3M	-40
EPB4	-40
EPB5	-100
EPB5A	-100

材料 Materials	最低温度 Min. Temperature
EPB5Z	-100
EPB6	-40
EPB6A	-40
EPB7	-40
EPB8	-40
EPB9	-40
EPB10	-100
EPB11	-100
EPB12	-40
EPB13	-50
EPB15	-40

材料 Materials	最低温度 Min. Temperature
EPB16	-40
EPB18	-40
EPB19	-40
EPB20	-50
EPB21	-40
EPB22	-40
EPB23	-100
EPB24	-40
EPB25	-100
EPB26	-40

图表11: CSB-EPB® 塑料轴承提供定位机构的起始温度表 Graph11: Temperature at which additional securing of the bearing is required

材料 Materials	起始温度 Min. Temperature
EPB	50
EPBH	50
EPB1	60
EPB2	55
EPB2D	50
EPB3	100
EPB3G	90
EPB3M	60
EPB4	120
EPB5	135
EPB5A	130

材料 Materials	起始温度 Min. Temperature
EPB5Z	145
EPB6	50
EPB6A	50
EPB7	60
EPB8	100
EPB9	105
EPB10	145
EPB11	50
EPB12	50
EPB13	60
EPB15	65

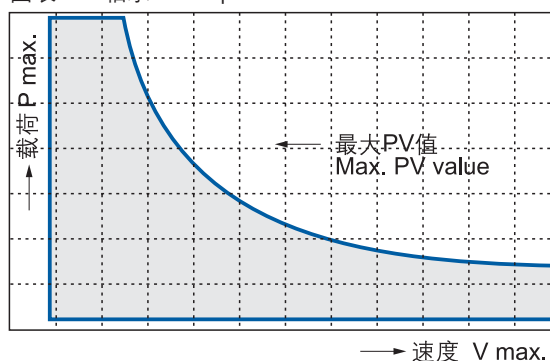
材料 Materials	起始温度 Min. Temperature
EPB16	90
EPB18	90
EPB19	65
EPB20	80
EPB21	80
EPB22	100
EPB23	140
EPB24	110
EPB25	140
EPB26	100

轴承PV值 PV value

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 selection.

图表12: 轴承PV Graph 12: PV Value



CSB-EPB[®] Technical Information

CSB-EPB[®] 工程塑料轴承技术信息

轴承PV值 PV value

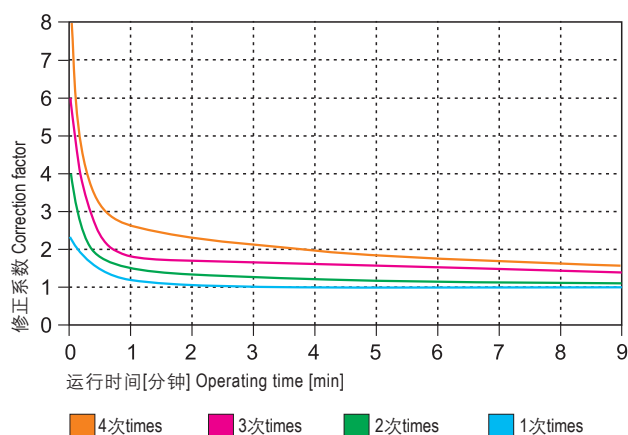
$$PV_{\text{Perm.}} = \left(\frac{(K1 \times \pi \times \lambda \times k \times \Delta T)}{\mu \times s} + \frac{(K2 \times \pi \times \lambda \times s \times \Delta T)}{\mu \times b1 \times 2} \right) \times y_1 \times y_2 \times 10^{-3}$$

这里 There:

- K1, K2 = 散热系数
constant for heat dissipation
(K1=0.5, K2=0.042)
- s = 轴承的壁厚 (单位: 毫米)
bearing wall thickness [mm]
- b1 = 轴承的长度 (单位: 毫米)
bearing length [mm]
- μ = 摩擦系数
coefficient of friction
- λ s = 轴的热传导性
thermal conductivity of the shaft
- λ k = 轴承的热传导性
thermal conductivity of the bearing
- ΔT = (Ta - Tu)
(Ta - Tu)
- Tu = 环境温度
ambient temperature [°C]
- Ta = 最高运行温度
max. application temperature [°C]
- y_1 = 间歇操作的校正因子
Intermittent operation correction factor
- y_2 = 润滑操作校正因子
Lubricating operation correction factor

图表13: PV值在间断运行下的修正系数 y_1

Graph 13: Correction factor of PV value by Intermittent Operation



图表14: PV值在不同润滑方式时的修正系数 y_2

Graph 14: Correction factor of PV value by means of lubrication

润滑 Lubrication	修正系数 Correction factor
干运行 Dry	1
脂润滑 Grease	2
水润滑 Water	3
油润滑 Oil	4

图表15: 轴或基座材料的导热性

Graph 15: Heat conductivity values of shaft or housing materials

材料 Material	导热性 Thermal conductivity [W/m x k]
碳钢 Carbon steels	46
硬化钢 Hardened steel	46
硬铬轴 Hard chrome shaft	46
不锈钢 Stainless steel	16
铝合金 Hardened aluminum	204
塑料 Plastic	0.24

间断运行修正系数 y_1 Correction factor y_1 for intermittent operation

在很多场合轴承运行并不是连续工作，由于轴承短期工作（运行时间10分钟以内）而永远达不到最高允许温度，那么轴承允许的PV值就会增加，因为在停止运行时间内轴承因摩擦产生的摩擦热得到了充分的散发。图表13说明了轴承停止时间与运行时间不同比例下的轴承PV值修正系数 y_1 。

Commonly the bearings are not continuously running during most of the applications. The short time operation period (less than 10 minutes) does not allow the bearing reach the highest limited operation temperature so that the limited PV value will increase because during the stop period, the heat generated by the friction will be reduced. Graph 13 shows the intermittent operation correction factor y_1 for different stop and operate period.

润滑运行修正系数 y_2 Correction factor y_2 for lubricating operation

虽然CSB-EPB®塑料轴承是专为干摩擦应用所设计，但是其对通用油脂等大部分润滑介质均具有良好的兼容性；在轴承启动阶段加入润滑介质可以提高轴承的启动性能，从而缩短轴承的磨合期。而且轴承在有润滑介质存在时其承载能力会大幅度提高，因为有外界润滑干预的情况下轴承摩擦生热值大幅度降低，轴承温度降低后承载能力也就随之提高。图表14说明在各种润滑介质下PV值修正系数 y_2 。

Although CSB-EPB® plastic bearings are normally designed for the dry operation, it has good the general lubricant such as oil or grease. The initial oil or grease lubricating will improve the starting performance of the bearings and therefore achieves a shorter run-in time. At the same time, the using of lubricants considerably improves the loading capability of the bearings because the lubricants will reduce the temperature increasing during the operation so that the loading capability of the bearings is improved. Graph 14 shows the PV correction factor y_2 for different lubricants are used.

轴承的磨损 Bearing wear

由于轴承的耐磨性能受到很多因素的影响，所以很难准确描述轴承的磨损或寿命。通过无数次的试验表明影响轴承耐磨性或寿命的因素有：载荷、速度、运动方式、轴材料与粗糙度、环境温度与灰尘、外界润滑介质类别等等。

轴承的耐磨性一般随着载荷、速度、温度的增加而逐渐降低，当有外界润滑介质存在时轴承的耐磨性会成倍提高。CSB推荐使用轴的粗糙度为Ra0.2 ~ Ra0.8，轴过于粗糙或太光滑都会导致磨损加剧，轴过于粗糙就像刮刀一样刮伤轴承的摩擦面，轴太光滑会在摩擦面与轴承表面发生胶合导致磨损增大。

对于轴的材料CSB-EPB塑料轴承没有特别限定，但由于各种轴材料对轴承的磨损影响程度不同，故CSB推荐使用较为通用的表面镀铬轴材料，对轴的硬度同样没有限定，但CSB推荐使用HRC35以上的轴材料，以避免轴承起始工作阶段轴的磨损。

As the bearings wear resistance affected by many factors, it is difficult to accurately describe bearing wear and life span. Through numerous experiments we can conclude that the main factors affect the anti-wear property are the load, moving method, speed, roughness of mating surfaces, ambient temperature and dust and type of the outside lubricating medium, etc.

When the load, speed and temperature increase, the wear resistance of bearings gradually reduced; when there is outside lubrication medium, the wear resistance could be doubled; CSB recommend the roughness of axis to be Ra0.2 ~ Ra0.8. If the shaft is too rough or too smooth, it might increase the wear. Although there is no special restriction on the using of shaft material for the CSB-EPB plastic bearings, CSB recommend the use of hard chrome plated shaft material. The recommended shaft hardness is over HRC35 in order to avoid the initial wear off on the shaft.

轴承抗UV性能 Bearing UV- resistance performance

滑动轴承用于户外设备时就会经常暴露在各种恶劣的环境中。抗UV性能是各种轴承材料抵抗UV射线破坏能力的一个重要指标。CSB-EPB®塑料轴承抗UV性能对照表见图16。

Bearings used for outdoor equipments are constantly exposed to different critical environment. Anti-UV property is one of the most important indexes of a variety of bearing materials to resist UV-ray damage.

CSB-EPB® plastic bearings UV-resistance reference (Graph 16).

CSB-EPB[®] Technical Information

CSB-EPB[®] 工程塑料轴承技术信息

轴承化学抗性 Chemical resistibility

CSB-EPB[®] 塑料轴承常常被用于有化学介质接触的场所，此时轴承的抗化学腐蚀性能就显得尤为重要。由于化学介质可能会导致轴承材料在结构成份上发生变化，这种变化主要取决于化学介质的种类、温度、暴露时间以及轴承的载荷与运动方式，有时化学介质充当了有效的润滑剂从而会延长轴承的使用寿命。在所有的塑料轴承产品中，EPB5、EPB5A和EPB10的化学抗性最突出，几乎能抵抗所有化学介质。详见图表16。

CSB-EPB[®] plastic bearings are usually used under the conditions where chemical media exist. Therefore the chemical resistance feature is very important for such a critical application. The existing chemical media may cause deep changes to the performance of the bearing material depending on the different conditions such as the chemical kinds, temperature, and the contacting period to the bearing materials as well as the load and operation speed. Sometimes chemical medium act as an effective lubricant and thus will extend the service life of bearings. Plastic bearings in all products, CSB-EPB5, EPB5A and EPB10 of the most striking Features of chemical-resistant, resistant to virtually all chemical media (Graph 16).

图表16: CSB-EPB[®] 塑料轴承抗UV性能和化学抗性 Graph 16: CSB-EPB[®] Plastic bearings UV- resistance and Chemical resistance

型号 Type	油、油脂 Oil&Grease	弱酸 Diluted Acid	强酸 Strong Acid	弱碱 Diluted Alkal	强碱 Strong Alkali	抗UV性能 UV Resistibility	抗辐射 Radiation resistance
EPB	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPBH	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB1	●	●	●	●	●	●●●●●	5 × 10 ² Gy
EPB2	●	●	●	●	●	●●●●●	5 × 10 ² Gy
EPB2D	●	●	●	●	●	●●●	3 × 10 ² Gy
EPB3	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB3G	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB3M	●	●	●	●	●	●●●●	1 × 10 ⁴ Gy
EPB4	●	●	●	●	●	●●	2 × 10 ² Gy
EPB5	●	●	●	●	●	●●●●●	1 × 10 ⁵ Gy
EPB5A	●	●	●	●	●	●●●●●	1 × 10 ⁵ Gy
EPB5Z	●	●	●	●	●	●●●	1 × 10 ⁵ Gy
EPB6	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB6A	●	●	●	●	●	●●●	1 × 10 ⁴ Gy
EPB7	●	●	●	●	●	●●●	3 × 10 ² Gy
EPB8	●	●	●	●	●	●●●●●	2 × 10 ² Gy
EPB9	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB10	●	●	●	●	●	●●●●●	1 × 10 ⁵ Gy
EPB11	●	●	●	●	●	●●	2 × 10 ⁴ Gy
EPB12	●	●	●	●	●	●●	3 × 10 ² Gy
EPB13	●	●	●	●	●	●●●	3 × 10 ² Gy
EPB15	●	●	●	●	●	●●●	3 × 10 ² Gy
EPB16	●	●	●	●	●	●●●●●	5 × 10 ² Gy
EPB18	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB19	●	●	●	●	●	●●●●	3 × 10 ² Gy
EPB20	●	●	●	●	●	●●●	3 × 10 ² Gy
EPB21	●	●	●	●	●	●●	2 × 10 ² Gy
EPB22	●	●	●	●	●	●●●●●	3 × 10 ² Gy
EPB23	●	●	●	●	●	●●●●	2 × 10 ² Gy
EPB24	●	●	●	●	●	●	2 × 10 ² Gy
EPB25	●	●	●	●	●	●●	2 × 10 ² Gy
EPB26	●	●	●	●	●	●●●	2 × 10 ⁴ Gy

● 完全抵抗 Resistant

●●●●● 非常好 Very Good

● 部分抵抗 Conditionally Resistant

● 一般 Generality

● 无抵抗 Not Resistant

轴承安装 Bearing installation

■ 座孔: CSB-EPB® 塑料轴承配合座孔的材料无特别限定, 但座孔一端必须倒角 25° 以避免轴承压入时刮伤外径, 压装时应该采用阶梯芯轴缓慢压入, 禁止直接击打端面, 以免变形影响轴承尺寸, CSB-EPB® 塑料轴承产品内径公差均是压入H7标准孔后所得。

■ 轴: CSB-EPB® 塑料轴承配合轴的材料无特别限定, 但CSB推荐使用镀铬硬轴。为了使轴在装配过程中更简单且不损伤轴承内摩擦面, 轴的端面必须有倒角圆滑过渡。另外轴表面粗糙度对轴承的摩擦系数有较大影响, 轴太光滑摩擦面会产生爬行现象或产生尖叫声, 轴表面太粗糙会加快轴承磨损。CSB推荐使用轴表面粗糙度为Ra0.2~Ra0.8, 轴承摩擦系数与表面粗糙度关系见图表19。

CSB-EPB® 塑料轴承配合公差按照ISO 3547-1标准设计制造见图表18。虽然CSB-EPB® 塑料轴承产品设计为自润滑产品, 但在装配时在摩擦面上涂上适量的外部润滑剂 (比如油脂) 会缩短轴承的磨合期从而延长轴承的使用寿命。

■ 粘接剂: CSB-EPB® 塑料轴承装配时一般不需要使用粘接剂, 但是如果需要使用粘接剂轴承在高温下工作, 要选用同等耐高温的胶粘剂, CSB建议对这种情况进行必要的测试。

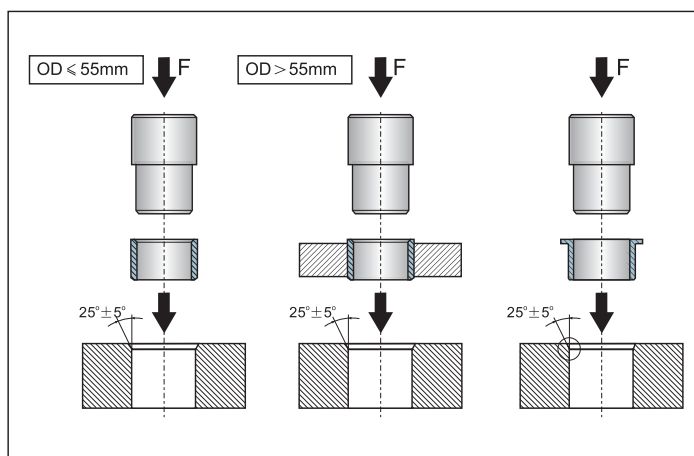
■ Housing: The bearing housing and the fitting tools must be kept clean during the assembling. A chamfer of 25° on the housing should be ensured for an easy assembling. A stepped press pin is recommended to be used for the assembling. The inner diameter of the CSB-EPB® plastic bearings is measured after the bushing is fitted into the H7 housing.

■ Shaft: There is no critical requirement for the shaft material but chrome plated shaft is recommended for better operation. Rounded chamfer is required on the shaft for easy assembling. CSB recommend the shaft roughness to be in the range of Ra0.2~Ra0.8. Please refer to Graph 15 for the relation between the surface roughness and bearing friction coefficient (Graph:19).

CSB-EPB® plastic bearings are designed according to ISO 3547 Standard (Graph 18). Although the CSB-EPB® plastic bearings are designed for self-lubricating purpose, but the initial lubricating helps the assembling and the future operation of the bearings.

■ Adhesive agent: CSB-EPB® plastic bearings assembly generally needn't use glue, in case the glue is necessary, please consider the used glue can also work properly at the required temperature. Relative testing is recommended in this case.

图表17: 压装图 Graph 17: Assembly example



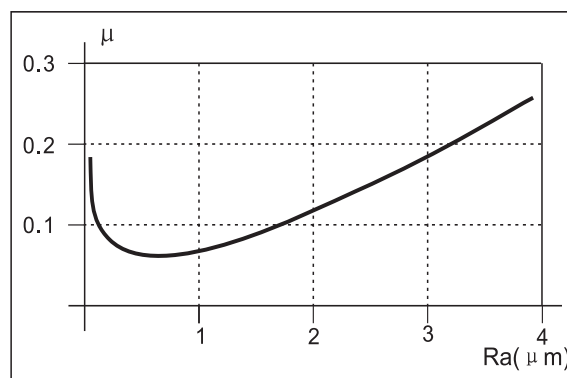
图表18: CSB-EPB® 塑料轴承配合公差[mm]

Graph 18: Plastic plain bearings tolerance

直径 Diameter d	压装后公差 Tolerance after being assembled			孔径 Housing H7	轴径 Shaft h9
	E10	F10	D11		
>0 ~ 3	+0.014 +0.054	+0.006 +0.046	+0.020 +0.080	0 +0.010	0 -0.025
>3 ~ 6	+0.020 +0.068	+0.010 +0.058	+0.030 +0.105	0 +0.012	0 -0.030
>6 ~ 10	+0.025 +0.083	+0.013 +0.071	+0.040 +0.130	0 +0.015	0 -0.036
>10 ~ 18	+0.032 +0.102	+0.016 +0.086	+0.050 +0.160	0 +0.018	0 -0.043
>18 ~ 30	+0.040 +0.124	+0.020 +0.104	+0.065 +0.195	0 +0.021	0 -0.052
>30 ~ 50	+0.050 +0.150	+0.025 +0.125	+0.080 +0.240	0 +0.025	0 -0.062
>50 ~ 80	+0.060 +0.180	+0.030 +0.150	+0.100 +0.290	0 +0.030	0 -0.074
>80 ~ 120	+0.072 +0.212	+0.036 +0.176	+0.120 +0.340	0 +0.035	0 -0.087
>120 ~ 180	+0.085 +0.245	+0.043 +0.203	+0.145 +0.395	0 +0.040	0 -0.100

图表19: 摩擦系数 μ 与轴表面粗糙度Ra的关系

Graph 19: Friction coefficient μ & surface roughness Ra



CSB-EPB[®] Plastic Plain Bearings

CSB-EPB[®] 工程塑料轴承

基本功能 Basic function

通用型 General	 CSB-EPB 通用性更强 The most common material P 28-30	 CSB-EPB1 特别适合用于卡车尾箱铰链 Especially suitable for truck hinges P 34-36	 CSB-EPB3 增强型 高承载 Enhanced type P 43-45
高载型 High load	 CSB-EPB12 特别适合高载下摇摆运动 Especially suitable for oscillation P 85-87	 CSB-EPB22 极高载荷耐磨材料 Good wear resistance under extremely high load P 109-111	 CSB-EPB5 耐高温 抗化学性极佳 High temperature Excellent chemical resistance P 55-57
耐高温 High temperature	 CSB-EPB4 耐温200℃ Work consecutively at 200℃ P 52-54	 CSB-EPB24 耐温200℃ 适用于燃油系统 Temperature up to 200℃ For use in fuel oil P 115-117	 CSB-EPB5 耐温250℃ 高化学抗性 Work consecutively at 250℃, Good chemical resistance P 55-57
低摩擦系数 Low friction coefficient	 CSB-EPB13 快慢速下保持较低的摩擦系数 Maintain low friction coefficient either at high or low speed P 88-90	 CSB-EPB7 适合高速运动 高耐磨性 Suitable for high speed High wear resistance P 70-72	 CSB-EPB11 不含PTFE和硅，轻载 耐磨性极好，高抗冲击性，适合软轴 Not PTFE and Silicon. Good wear resistance for low load. Suitable for soft shaft P 82-84
耐腐蚀 Anti-corrosion	 CSB-EPB4 耐温200℃ Work consecutively at 200℃ P 52-54	 CSB-EPB5 耐温250℃ 耐腐蚀更强 Work consecutively at 250℃ Highest corrosion resistance P 55-57	 CSB-EPB8 耐温200℃ 水下运行专用 Work consecutively at 200℃, Specialized underwater operation P 73-75
潮湿环境 Humid environment	 CSB-EPB2 适合潮湿环境 Good for Humidity condition P 37-39	 CSB-EPB4 高强度，耐化学腐蚀 High strength Good chemical resistance P 52-54	 CSB-EPB8 适合水下运行 Underwater operation P 73-75
食品安全等级FDA grade	 CSB-EPB5A 耐温250℃ FDA食品等级认可 High temperature 250℃ FDA grade P 58-60	 CSB-EPB6 适合软轴 允许接触食品 Soft shaft available Food-classic P 64-66	 CSB-EPB6A 用于食品或烟草行业，适合低速运动 For the food and tobacco industry, Low speed P 67-69
经济型 Economic	 CSB-EPBH 经济通用 General Type P 31-33	 CSB-EPB2D 低摩擦系数，最经济 Low Friction coefficient Low cost P 40-42	 CSB-EPB3G 高强度 High strength P 46-48

EPB

CSB-EPB[®]

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

 CSB-EPB7 高耐磨性，电梯行业应用，适合软轴 High wear resistance, Used in lift industry, Suitable for soft shaft P 70-72	 CSB-EPB13 适合快慢速，适合软轴 Suitable for high and low speed with soft shaft P 88-90	 CSB-EPB15 高耐磨 长寿命 High wear resistance Long service life P 91-93	 CSB-EPB18 低吸水率，高耐磨 Low water absorption, Good wear resistance P 97-99
 CSB-EPB5Z 特别适合摇摆运动 Especially suitable for oscillation P 61-63	 CSB-EPB10 耐高温，高强度 抗化学性极好 High temperature Excellent chemical resistance P 79-81		
 CSB-EPB10 耐温250℃，高强度 Work consecutively at 250℃ High strength P 79-81	 CSB-EPB21 高温耐磨材料 Good wear resistance for high temperature P 106-108	 CSB-EPB26 适合高温和软轴应用 For soft shafts and high temperatures P 121-123	 CSB-EPB8 耐温200℃ 水下运行专用 Work consecutively at 200℃, Specialized underwater operation P 73-75
 CSB-EPB18 低吸水率，高耐磨 Low water absorption, Good wear resistance P 97-99	 CSB-EPB15 高耐磨 长寿命 High wear resistance Long service life P 91-93	 CSB-EPB5Z 特别适合摇摆运动 Especially suitable for oscillation P 61-63	 CSB-EPB 通用性更强 The most common material P 28-30
 CSB-EPB10 耐温250℃ 高抗压强度 Work consecutively at 250℃, High compressive strength P 79-81	 CSB-EPB26 适合高温和软轴应用 For soft shafts and high temperatures P 121-123	 CSB-EPB5Z 特别适合摇摆运动 Especially suitable for oscillation P 61-63	
 CSB-EPB16 适合高载荷 Suitable for high load P 94-96	 CSB-EPB20 水下的自润滑材料 A self-lubricating material for applications in water P 103-105	 CSB-EPB21 高温耐磨材料 Good wear resistance for high temperature P 106-108	 CSB-EPB1 特别适用于卡车尾箱铰链 Especially suitable for truck hinges P 34-36
 CSB-EPB11 不含PTFE和硅，轻载 耐磨性极好，高抗冲击性，适合软轴 Not PTFE and Silicon. Good wear resistance for low load. Suitable for soft shaft P 82-84	 CSB-EPB23 高温180℃食品行业应用 For use with temperatures up to 180℃ P 112-114		
 CSB-EPB3M 边缘载荷，耐冲压， 适合低速运动 Marginal Load, Impact resistance, Low speed P 49-51			

CSB-EPB[®] Material Properties Data Table

CSB-EPB[®] 材料数据表

材料性能 Material properties	测试标准 Standard	单位 Unit	EPB	EPB1	EPB2	EPB2D	EPB3	EPB3G
一般性能 General properties								
颜色 Color	-	-	深灰 Dark grey	棕色 Brown	橄榄绿 Olive	绿色 Green	深灰 Dark grey	黑色 Black
密度 Density	ISO1183	g/cm ³	1.46	1.53	1.39	1.40	1.46	1.37
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3	0.2	0.2	0.3	0.7	1.3
最大吸水率 Max. water absorption	ISO62	%	1.2	0.5	0.4	1.2	4.0	5.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15	0.08-0.20	0.07-0.20	0.05-0.25	0.08-0.18	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40	0.50	0.45	0.25	0.45	0.30
机械性能 Mechanical properties								
弯曲模量 Flexural modulus	ISO178	MPa	2300	2600	2400	2000	8500	7700
弯曲强度 Flexural strength	ISO178	MPa	60	65	60	65	210	190
最大静载荷 Max. static load	ITS027	MPa	35	55	50	30	80	75
最大动载荷 Max. dynamic load	ITS028	MPa	15	21	19	13	43	36
邵氏硬度 Shore hardness	ISO868	D	75	72	72	75	81	78
物理和热性能 Physical and thermal properties								
连续运行温度 Long-term application temperature	ITS029	℃	+80	+110	+100	+80	+130	+100
短时运行温度 Short-term application temperature	ITS029	℃	+120	+160	+150	+120	+220	+160
最低运行温度 Lowest application temperature	ITS029	℃	-40	-40	-40	-40	-40	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.20	0.26	0.25	0.25	0.24	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10	8	10	11	9	11
阻燃等级 Flammability	UL94	Class	HB	HB	HB	HB	HB	HB
导电性能 Electrical properties								
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³	>10 ¹¹	>10 ¹²	>10 ¹³	>10 ¹³	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ¹⁰	>10 ¹¹	>10 ¹²	>10 ¹¹	>10 ¹¹
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*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

	EPB3M	EPB4	EPB5	EPB5A	EPB5Z	EPB6	EPB6A	EPB7	EPB8	EPB9	EPB10	EPB11
	深灰 Dark grey	黑色 Black	黑色 Black	米色 Beige	棕色 Brown	白色 White	白色 White	米黄 Cream	深灰 Dark grey	黑色 Black	黑色 Black	白色 White
	1.14	1.70	1.44	1.28	1.40	1.45	1.10	1.25	1.55	1.28	1.42	0.96
	1.4	0.1	0.1	0.3	0.3	0.3	1.5	1.3	0.1	1.3	0.1	0.1
	7.6	0.3	0.5	0.5	1.1	1.2	7.6	6.5	0.1	6.5	0.5	0.1
	0.09-0.30	0.07-0.20	0.09-0.25	0.25-0.40	0.05-0.15	0.05-0.18	0.10-0.40	0.09-0.20	0.07-0.18	0.10-0.40	0.10-0.25	0.05-0.15
	0.15	1.35	1.40	0.25	1.00	0.30	0.10	0.50	0.80	0.35	1.35	0.20
	2700	12000	4800	3600	4200	2300	1300	3200	8000	10000	10000	1200
	100	165	165	140	150	60	55	75	150	250	210	25
	30	90	110	90	100	35	35	60	85	105	125	25
	15	50	61	46	51	14	12	25	47	58	80	6
	79	82	82	80	80	74	70	75	82	82	86	62
	+80	+200	+250	+250	+250	+80	+80	+90	+200	+140	+250	+70
	+170	+240	+315	+300	+310	+120	+170	+180	+240	+180	+315	+100
	-40	-40	-100	-100	-100	-40	-40	-40	-40	-40	-100	-100
	0.24	0.60	0.55	0.24	0.55	0.20	0.23	0.24	0.50	0.60	0.60	0.20
	10	4	6	9	5	10	11	9	5	11	5	19
	HB	V0	V0	V0	V0	HB	HB	HB	V0	HB	V0	HB
	$>10^{12}$	$>10^5$	$>10^8$	$>10^{14}$	$>10^{11}$	$>10^{13}$	$>10^{13}$	$>10^{13}$	$>10^5$	$<10^3$	$>10^5$	$>10^{13}$
	$>10^{11}$	$>10^5$	$>10^7$	$>10^{13}$	$>10^{11}$	$>10^{12}$	$>10^{12}$	$>10^{12}$	$>10^5$	$<10^3$	$>10^5$	$>10^{12}$
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CSB-EPB[®] Material Properties Data Table

CSB-EPB[®] 材料数据表

材料性能 Material properties	测试标准 Standard	单位 Unit	EPB12	EPB13	EPB15	EPB16	EPB18	EPB19
一般性能 General properties								
颜色 Color	-	-	黑色 Black	黄色 Yellow	黄色 Yellow	黑色 Black	黄色 Yellow	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.32	1.48	1.30	1.60	1.40	1.27
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.9	0.3	1.3	0.2	0.3	1.3
最大吸水率 Max. water absorption	ISO62	%	4.9	1.3	6.5	0.4	0.5	4.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.20	0.05-0.15	0.05-0.15	0.06-0.20	0.05-0.18	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.55	0.40	0.90	0.40	0.40	0.60
机械性能 Mechanical properties								
弯曲模量 Flexural modulus	ISO178	MPa	2200	2600	4000	4900	2700	2800
弯曲强度 Flexural strength	ISO178	MPa	100	60	130	140	65	80
最大静载荷 Max. static load	ITS027	MPa	75	35	70	75	50	60
最大动载荷 Max. dynamic load	ITS028	MPa	43	14	35	38	21	22
邵氏硬度 Shore hardness	ISO868	D	83	74	79	80	75	72
物理和热性能 Physical and thermal properties								
连续运行温度 Long-term application temperature	ITS029	℃	+135	+90	+90	+130	+100	+150
短时运行温度 Short-term application temperature	ITS029	℃	+155	+120	+180	+200	+160	+200
最低运行温度 Lowest application temperature	ITS029	℃	-40	-50	-40	-40	-40	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24	0.25	0.24	0.25	0.25	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	5	10	8	4	8	10
阻燃等级 Flammability	UL94	Class	HB	HB	HB	HB	HB	HB
导电性能 Electrical properties								
体电阻率 Volume resistivity	IEC60093	Ω · cm	>10 ¹¹	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹²	>10 ¹³
面电阻率 Surface resistivity	IEC60093	Ω	>10 ¹¹	>10 ¹²	>10 ¹²	>10 ¹²	>10 ¹¹	>10 ¹¹
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*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

	EPB20	EPB21	EPB22	EPB23	EPB24	EPB25	EPB26	EPBH	MN2	MN3	MN9	MR4
	黑色 Black	米色 Beige	浅棕色 Light brown	蓝色 Blue	棕色 Brown	黄色 Yellow	米色 Beige	黑色 Black	深灰 Dark grey	浅黄色 Light yellow	黑色 Black	灰色 Grey
	1.53	1.53	1.49	1.42	1.72	1.44	1.51	1.43	1.65	1.42	1.45	1.48
	0.2	0.1	1.1	0.6	0.1	0.3	0.1	0.3	0.2	0.3	0.2	0.3
	0.8	0.3	4.6	1.9	0.2	1.6	0.2	1.2	0.7	1.3	0.4	1.3
	0.15-0.35	0.05-0.20	0.15-0.35	0.10-0.20	0.08-0.25	0.08-0.20	0.15-0.20	0.05-0.20	0.10-0.18	0.05-0.20	0.15-0.25	0.05-0.20
	0.15	0.80	0.70	0.40	0.60	0.45	0.50	0.30	0.30	0.50	0.40	0.30
	7200	2800	9000	2000	10000	4500	4500	2000	2400	2700	2000	2350
	120	55	240	110	210	100	95	60	53	70	70	60
	70	80	95	60	110	60	55	30	30	45	65	35
	35	37	49	26	58	30	22	12	12	24	29	19
	79	77	80	76	81	79	74	74	73	73	76	74
	+90	+200	+150	+180	+200	+180	+200	+80	+90	+90	+120	+90
	+110	+240	+220	+210	+240	+220	+240	+120	+120	+120	+165	+120
	-50	-40	-40	-100	-40	-100	-40	-40	-50	-50	-40	-50
	0.60	0.24	0.24	0.24	0.24	0.24	0.24	0.20	0.24	0.25	0.60	0.25
	6	6	8	8	5	7	3	10	8	13	5	10
	HB	V0	HB	V0	V0	V0	V0	HB	HB	HB	HB	HB
	<10 ⁵	>10 ¹²	>10 ¹³	>10 ¹¹	>10 ¹³	>10 ¹³	>10 ¹²	>10 ¹³	>10 ⁹	>10 ¹²	<10 ⁹	>10 ¹³
	<10 ⁵	>10 ¹¹	>10 ¹¹	>10 ¹¹	>10 ¹²	>10 ¹⁰	>10 ¹²	>10 ¹²	>10 ⁹	>10 ¹²	<10 ⁹	>10 ¹²
	P 103-105	P 106-108	P 109-111	P 112-114	P 115-117	P 118-120	P 121-123	P 31-33	n.d	n.d	n.d	n.d



标准产品规格表 Standard specifications: P124

产品特性 Product features

- 通用性更强的CSB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优选材料。
- 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 CSB plastic bearing material. It is suitable for the applications 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

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB
颜色 Color	-	-	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.46
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40
弯曲模量 Flexural modulus	ISO178	MPa	2300
弯曲强度 Flexural strength	ISO178	MPa	60
最大静载荷 Max. static load	ITS027	MPa	35
最大动载荷 Max. dynamic load	ITS028	MPa	15
邵氏硬度 Shore hardness	ISO868	D	75
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.20
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

*ITS: CSB内部测试标准 CSB company's internal test standards.

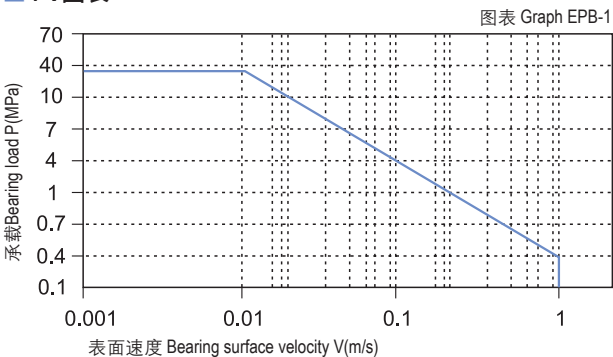
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB塑料轴承最大运行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，详细查阅图表EPB-1。

The max PV value of the CSB-EPB plastic bearings 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 EPB-1).

PV图表 Permissible PV value for CSB-EPB



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB塑料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EPB-2, 轴承实际工作载荷略小于35Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (V_{max} : 1.0m/s) 会导致摩擦温度上升, 而温度上升 (T_{max} : 80℃) 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EPB-3。

CSB-EPB allows the Max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPB-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_{max} : 1.0m/s) results into higher temperature (T_{max} : 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

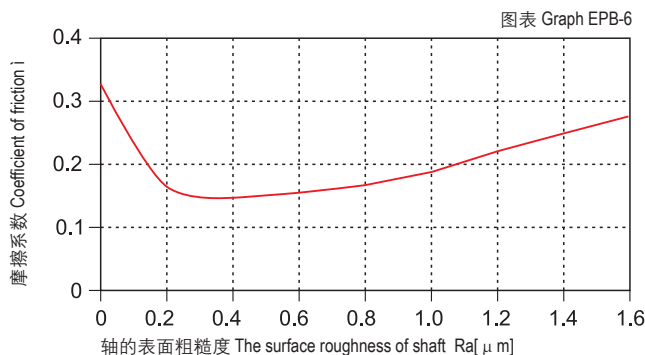
摩擦系数 Friction factor

CSB-EPB塑料轴承摩擦系数受运行速度以及轴承载荷变化影响相对较小 (见图表EPB-4与图表EPB-5), 这也是CSB-EPB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EPB-6显示CSB-EPB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 ~ 0.5 μ m。

CSB-EPB friction factor is not sensitive to the operation speed and bearing loading (see Graph EPB-4 and Graph EPB-5). The above features are the most common considerations for the bearing material selection. The friction of CSB-EPB could be maintained at a relatively lower level so that the good wearing features are guaranteed. From the Graph EPB-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.

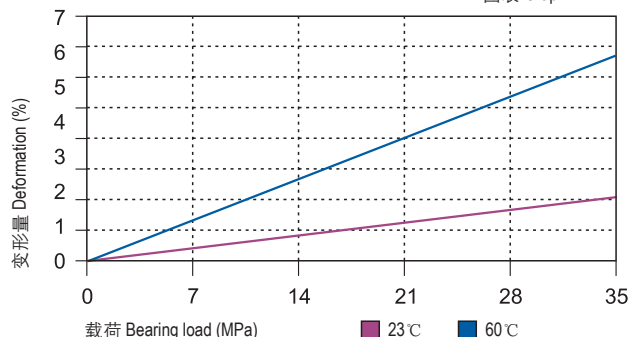
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



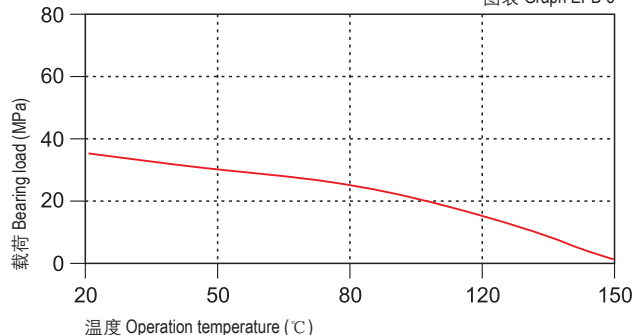
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB-2



载荷-温度图表 Load-Temperature diagrams

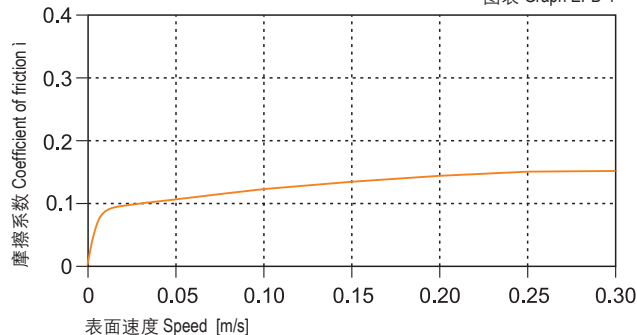
图表 Graph EPB-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, $p = 2$ MPa

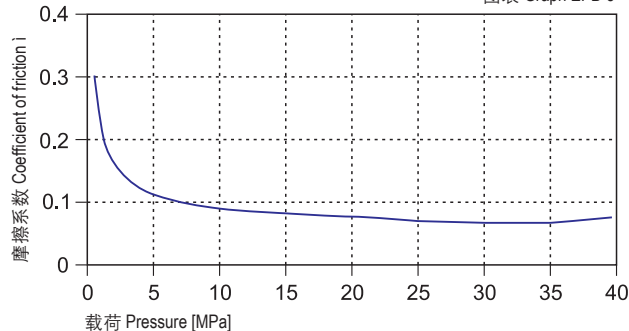
图表 Graph EPB-4



摩擦系数与载荷变化关系图表 $v=0.2$ m/s

Coefficient of friction & the pressure of bearing, $v = 0.2$ m/s

图表 Graph EPB-5



CSB-EPB	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CSB-EPB塑料轴承适合几乎所有的轴材料；通过图表EPB-7与图表EPB-8可以看出当使用硬铬钢轴或硬化钢轴以及硬化铝轴时CSB-EPB塑料轴承的磨损特性都非常出色。

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

化学抗性 Chemical resistance

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

吸水性 Water absorption

CSB-EPB塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.2%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.2% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB塑料轴承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。

CSB-EPB 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.

安装公差 Installation tolerances

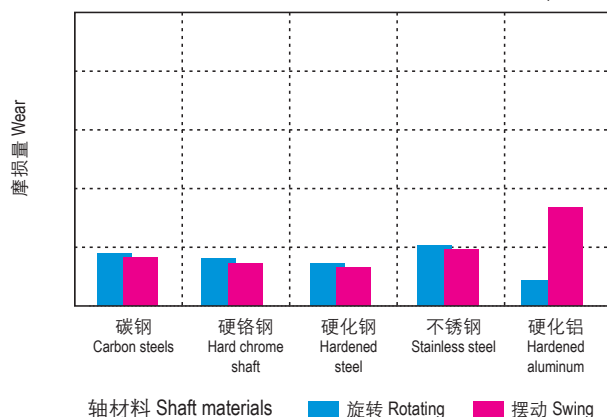
CSB-EPB塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}, v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

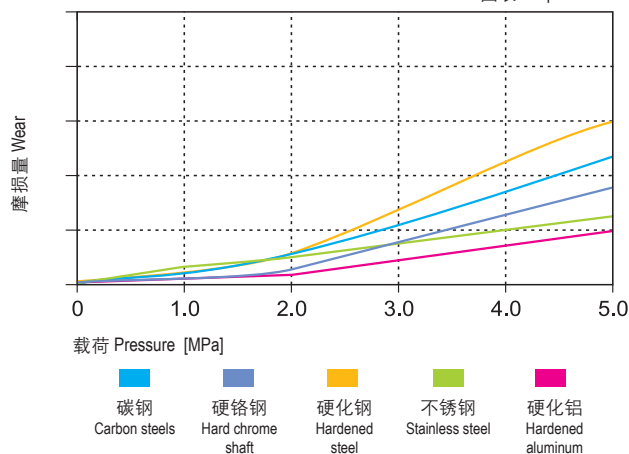
图表 Graph EPB-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

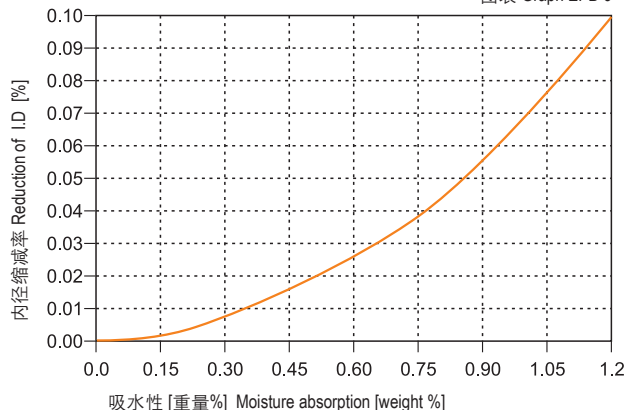
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB-8



吸水性的影响 Effect of moisture absorption on EPB bearings

图表 Graph EPB-9





标准产品规格表 Standard specifications: P124

产品特性 Product features

- 作为兼顾耐磨性能和低廉的价格被开发的材料。适用于大批量低成本需求
- 连续使用温度: -40℃/+80℃
- 适合多数中低载荷场合
- 适合干运行、免维护
- 大批量、低成本要求
- This material is developed against the requirement of wear resistance and economic cost for cost effective and big quantity consuming applications
- Continuous working temperature: -40℃/+80℃
- Suitable for most of average and low load
- Maintenance-free dry operation
- Low cost for high quantities

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPBH
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.43
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.30
弯曲模量 Flexural modulus	ISO178	MPa	2000
弯曲强度 Flexural strength	ISO178	MPa	60
最大静载荷 Max. static load	ITS027	MPa	30
最大动载荷 Max. dynamic load	ITS028	MPa	12
邵氏硬度 Shore hardness	ISO868	D	74
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.20
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

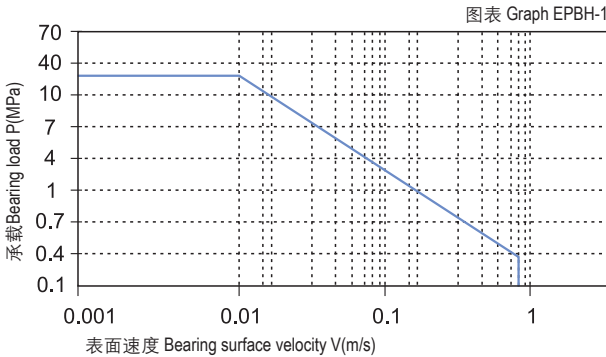
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPBH塑料轴承最大运行PV值为0.3N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPBH-1。

The max PV value of the CSB-EPBH plastic bearings is 0.3N/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 EPBH-1).

PV图表 Permissible PV value for CSB-EPBH



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPBH塑料轴承可承受最大静载荷为30Mpa, 在此载荷下轴承的最大压缩变形量参考图表EPBH-2, 轴承实际工作载荷略小于30Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (V_{max} : 0.8m/s) 会导致摩擦温度上升, 而温度上升 (T_{max} : 80℃) 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EPBH-3。

CSB-EPBH allows the Max static load of 30Mpa, The max compressive deformation rate under the max load is listed in Graph EPBH-2, The actual load capacity of bearing is slightly less than 30Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 0.8m/s) results into higher temperature (T_{max} : 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPBH-3 for such variation.

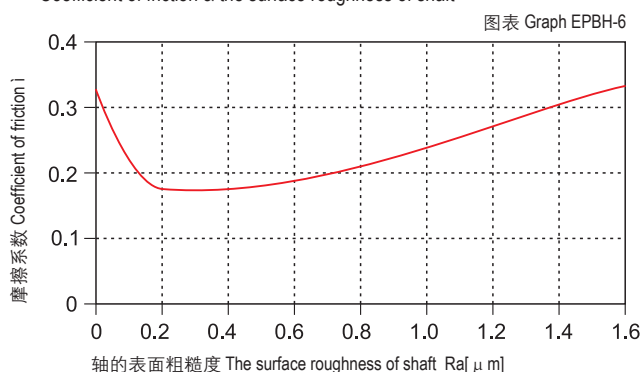
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

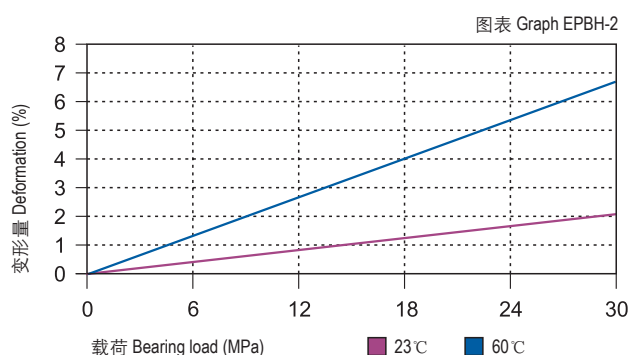
CSB-EPBH塑料轴承摩擦系数受运行速度以及轴承载荷变化影响相对较小 (见图表EPBH-4与图表EPBH-5), 这也是CSB-EPBH作为塑料轴承通用型号选择的因素; 此轴承可以一直保持比较低的摩擦系数从而确保了整个摩擦磨损性能的优越性。根据图表EPBH-6显示CSB-EPBH塑料轴承的摩擦系数还会受到对磨轴表面粗糙度的影响而发生变化, 我们推荐此轴承使用轴表面粗糙度值为Ra0.3 ~ 0.5 μ m。

CSB-EPBH friction factor is not sensitive to the operation speed and bearing loading (see Graph EPBH-4 and Graph EPBH-5). The above features are the most common considerations for the bearing material selection. The friction of CSB-EPBH could be maintained at a relatively lower level so that the good wearing features are guaranteed. From the Graph EPBH-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.

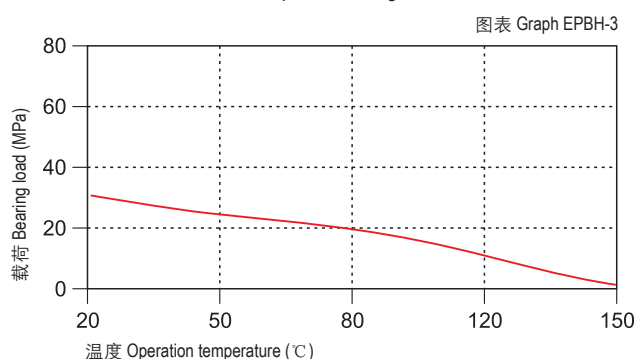
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



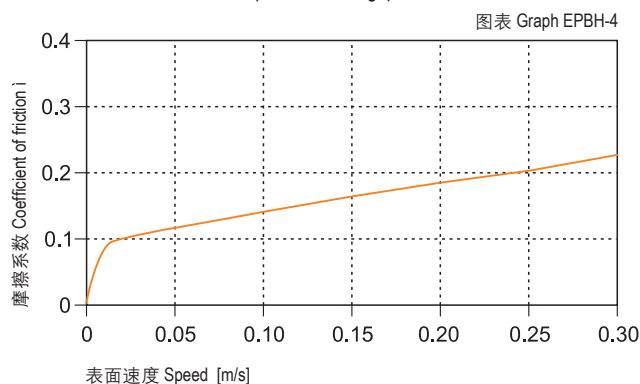
载荷-温度-变形量图表 Load-Temperature deformation



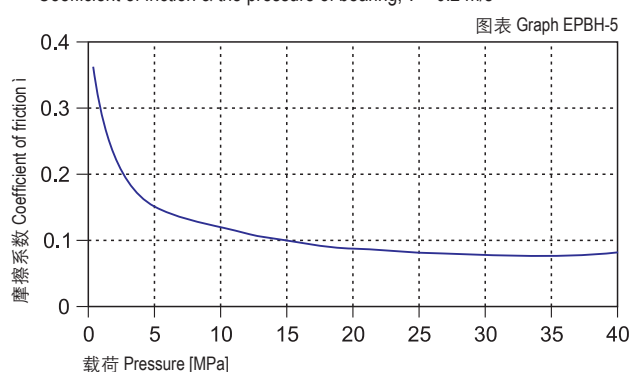
载荷-温度图表 Load-Temperature diagrams



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



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



CSB-EPBH	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.20	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CSB-EPBH轴承适合几乎所有的轴材料；通过图表EPBH-7与图表EPBH-8可以看出当使用硬铬钢轴或硬化钢轴时CSB-EPBH轴承的磨损特性都非常出色。

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

化学抗性 Chemical resistance

CSB-EPBH塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

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

吸水性 Water absorption

CSB-EPBH塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.2%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPBH plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.2% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPBH塑料轴承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。

CSB-EPBH 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.

安装公差 Installation tolerances

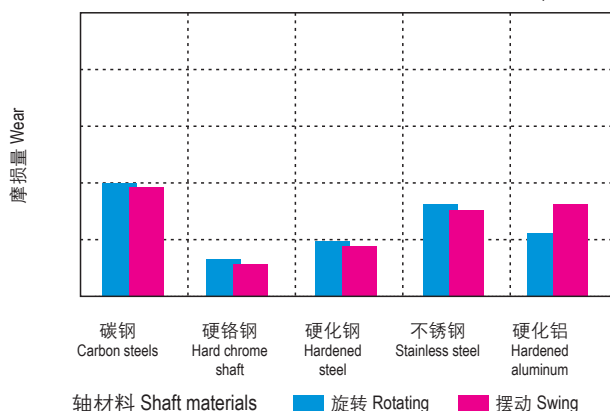
CSB-EPBH塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPBH E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}, v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

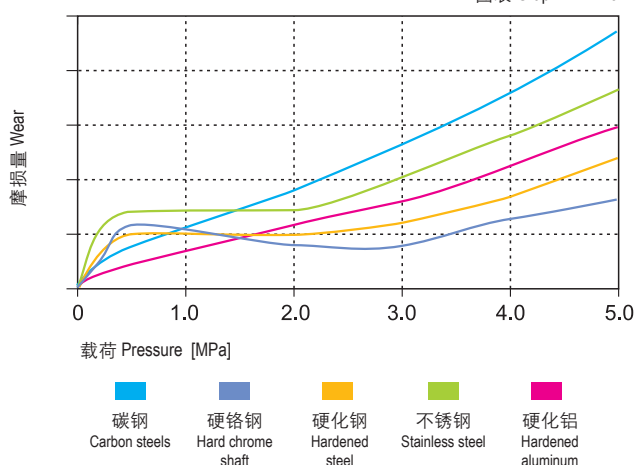
图表 Graph EPBH-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

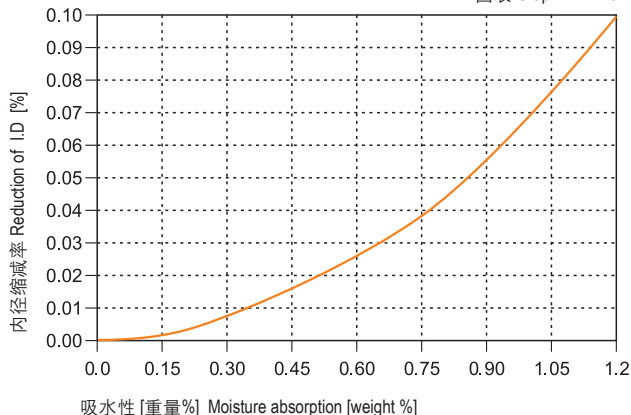
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPBH-8



吸水性的影响 Effect of moisture absorption on EPBH bearings

图表 Graph EPBH-9





标准产品规格表 Standard specifications: P124

产品特性 Product features

- 低吸水性率和中高承载性能。可被用于潮湿环境而耐磨性能同样出色的材料，特种金属粉末的植入使得此轴承成为可被探测的材料
- 连续使用温度：-40℃/+110℃
- 适合多数中高载荷场合
- 适合干运行、免维护
- 特殊材料优异的热传导性
- 适合低速运动
- This material is with low water absorb characteristic and high load capacity. It is widely used for the humidity condition and wear resistance requirement. The embedded special metal powder enables this material to be a detective one
- Continuous working temperature: -40℃/+110℃
- Suitable for medium and high load operation
- Maintenance-free dry operation
- Excellent thermal conductivity
- Good for low speed operation

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB1
颜色 Color	-	-	棕色 Brown
密度 Density	ISO1183	g/cm ³	1.53
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.2
最大吸水率 Max. water absorption	ISO62	%	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.08-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.50
弯曲模量 Flexural modulus	ISO178	MPa	2600
弯曲强度 Flexural strength	ISO178	MPa	65
最大静载荷 Max. static load	ITS027	MPa	55
最大动载荷 Max. dynamic load	ITS028	MPa	21
邵氏硬度 Shore hardness	ISO868	D	72
连续运行温度 Long-term application temperature	ITS029	℃	+110
短时运行温度 Short-term application temperature	ITS029	℃	+160
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.26
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	8
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹¹
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹⁰

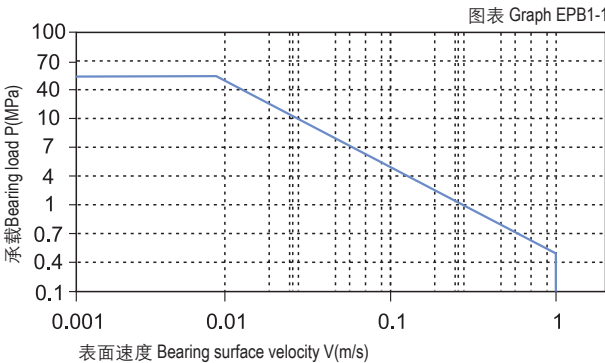
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB1塑料轴承最大运行PV值为0.5N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB1-1。

The max PV value of the CSB-EPB1 plastic bearings is 0.5N/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 EPB1-1).

PV图表 Permissible PV value for CSB-EPB1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB1塑料轴承可承受最大静载荷为55Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB1-2，轴承实际工作载荷略小于55Mpa，载荷还受到运行速度以及温度的影响，速度越快（Vmax: 1.0m/s）会导致摩擦温度上升，而温度上升（Tmax: 110℃）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EPB1-3。

CSB-EPB1 allows the Max static load of 55Mpa, The max compressive deformation rate under the max load is listed in Graph EPB1-2, The actual load capacity of bearing is slightly less than 55Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 110℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB1-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

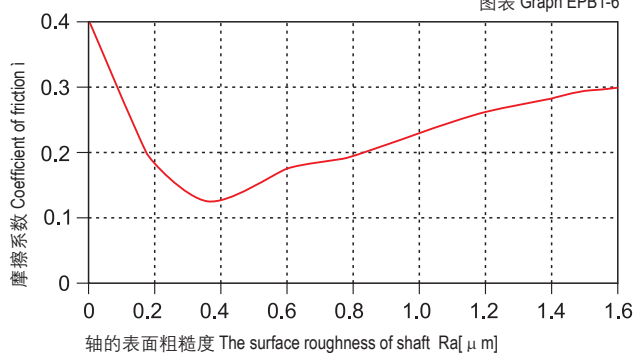
图EPB1-4表明CSB-EPB1塑料轴承和大多数滑动轴承一样在载荷保持不变的情况下摩擦系数会随着转速的增加略有升高；图EPB1-5表明CSB-EPB1塑料轴承摩擦系数在速度保持不变的情况下随着载荷的增加而逐步降低；图EPB1-6表明CSB-EPB1塑料轴承最适合的轴表面粗糙度为Ra0.2 ~ 0.6μm，轴过于光滑或者过于粗糙都会导致摩擦系数升高。

Graph EPB1-4 shows that as the same as most of the slide bearing materials, the friction factor of CSB-EPB1 is increasing along with the rotation speed under a certain loading while as shown in figure EPB1-5, it is decreased along with the increasing of loading when the operation speed is stable. From figure EPB1-6, it is found that the most suitable shaft roughness is Ra0.2 to Ra0.6. Smoother shaft or rougher shaft may result into friction factor increasing.

摩擦系数与轴表面粗糙度关系图表

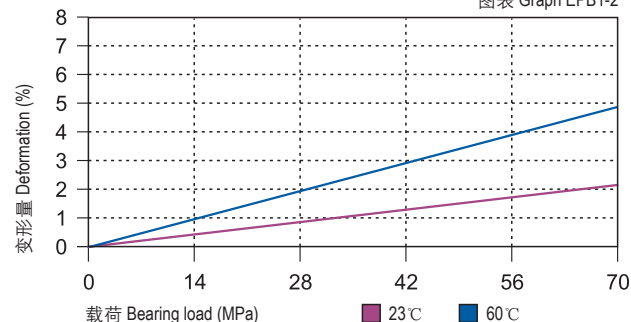
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB1-6



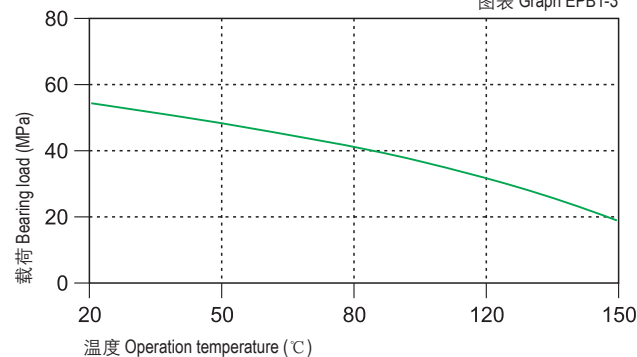
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB1-2



载荷-温度图表 Load-Temperature diagrams

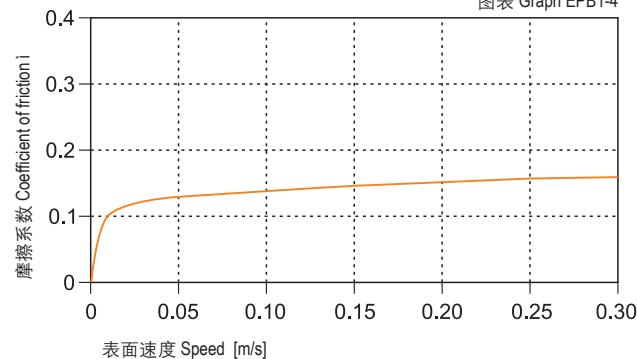
图表 Graph EPB1-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

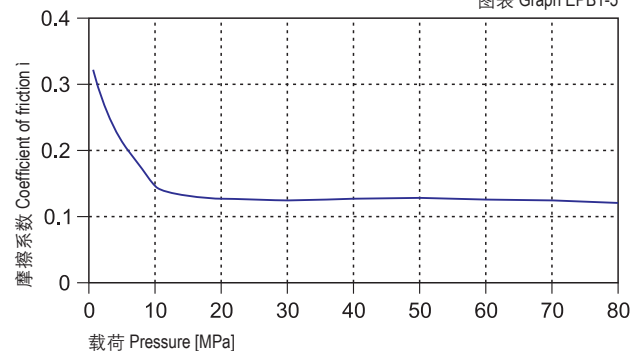
图表 Graph EPB1-4



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 = 0.2 m/s

图表 Graph EPB1-5



CSB-EPB1	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.08~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图EPB1-8都表明CSB-EPB1塑料轴承的磨损受轴材料影响比较大，硬化钢轴和碳钢轴比较适合此轴承。CSB-EPB1塑料轴承在摆动运动时选择硬铬钢轴和硬化钢轴比较适合，在旋转运动中也是选择硬铬钢轴和硬化钢轴比较理想。

Graph EPB1-8 shows the wearing is considerably affected by the shaft materials. Heat-treated steel shaft and carbon steel shaft is good for this bearing material. CSB-EPB1 is suitable for hardened chrome steel and hardened steel shaft in oscillation operation and is suitable for hardened chrome steel and hardened steel shaft in rotation operation.

化学抗性 Chemical resistance

CSB-EPB1塑料轴承能抵抗部分弱酸以及各类润滑油的腐蚀。

CSB-EPB1 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB1塑料轴承在标准大气中的吸湿率为0.2%。浸泡在水中的最高吸水率为0.5%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB1 plastic plain bearings is 0.2% in standard atmosphere. The max. water absorption is 0.5% in water. These values are very low, CSB-EPB1 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB1塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能会有所下降。

Disintegration could be possible for the material CSB-EPB1 after long period of exposing under the UV ray and therefore the performance of the material will be reduced.

安装公差 Installation tolerances

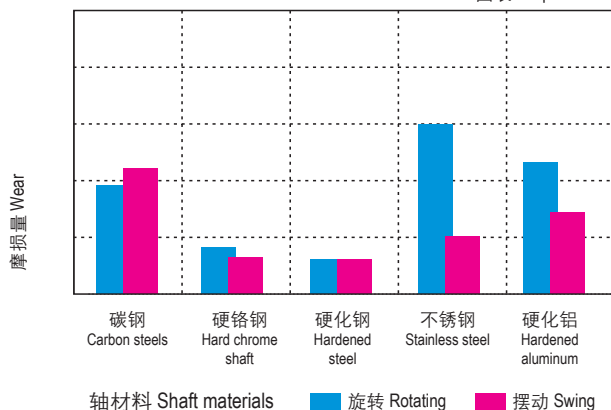
CSB-EPB1塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB1 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

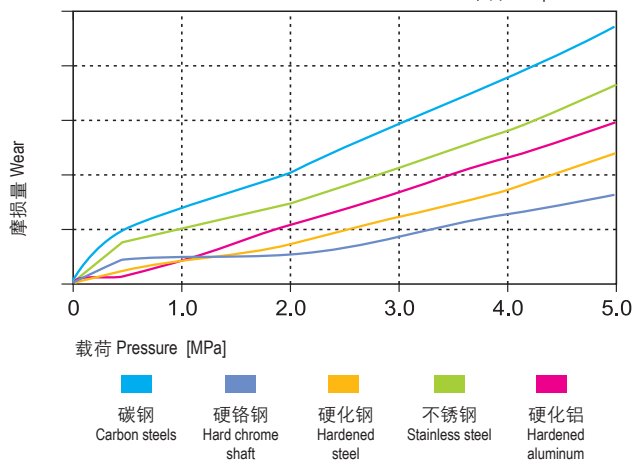
图表 Graph EPB1-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

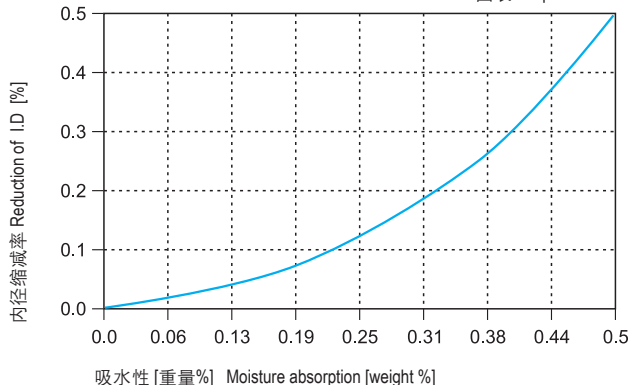
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB1-8



吸水性的影响 Effect of moisture absorption on EPB1 bearings

图表 Graph EPB1-9





● 标准产品规格表 Standard specifications: P124

产品特性 Product features

- 中低载荷应用的低成本解决方案，同时此材料具有低吸水率的特性
- 连续使用温度：-40℃/+100℃
- 适用于中低载荷
- 适合干运行免维护
- 潮湿环境应用
- 大批量、低成本
- The solution of middle to low load application and economic effective requirement. It is also one of the low water absorbing materials
- Continuous working temperature: -40℃/+100℃
- Suitable for medium load operation
- Maintenance-free dry operation
- For wet conditions
- Low cost material for high quantities

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB2
颜色 Color	-	-	橄榄绿 Olive
密度 Density	ISO1183	g/cm ³	1.39
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.2
最大吸水率 Max. water absorption	ISO62	%	0.4
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.07-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.45
弯曲模量 Flexural modulus	ISO178	MPa	2400
弯曲强度 Flexural strength	ISO178	MPa	60
最大静载荷 Max. static load	ITS027	MPa	50
最大动载荷 Max. dynamic load	ITS028	MPa	19
邵氏硬度 Shore hardness	ISO868	D	72
连续运行温度 Long-term application temperature	ITS029	℃	+100
短时运行温度 Short-term application temperature	ITS029	℃	+150
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.

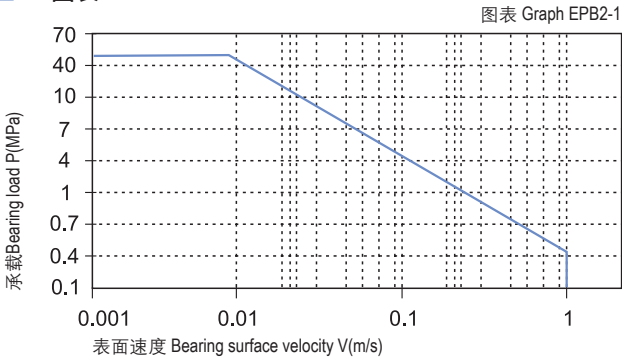
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB2塑料轴承最大运行PV值为0.45N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB2-1。

The max PV value of the CSB-EPB2 plastic bearings is 0.45N/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 EPB2-1).

■ PV图表 Permissible PV value for CSB-EPB2



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB2塑料轴承可承受最大静载荷为50Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB2-2，轴承实际工作载荷略小于50Mpa，载荷还受到运行速度以及温度的影响，速度越快（Vmax: 1.0m/s）会导致摩擦温度上升，而温度上升（Tmax: 100℃）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EPB2-3。

CSB-EPB2 allows the Max static load of 50Mpa, The max compressive deformation rate under the max load is listed in Graph EPB2-2, The actual load capacity of bearing is slightly less than 50Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 100℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB2-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

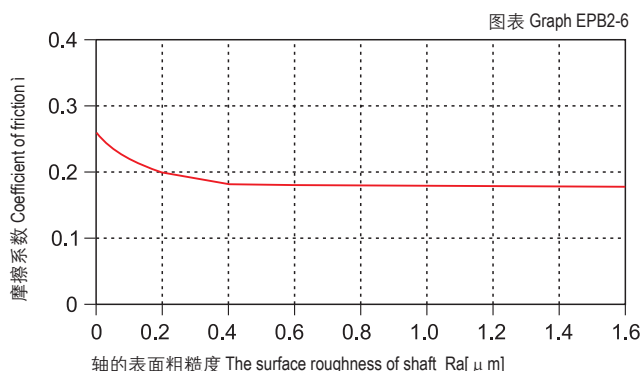
摩擦系数 Friction factor

与其它塑料轴承基本一样，图EPB2-4表明CSB-EPB2塑料轴承在载荷保持不变的情况下摩擦系数随着运行速度的增加而升高；图EPB2-5表明CSB-EPB2塑料轴承在保持速度不变时摩擦系数随着载荷的增加而逐步减低。根据图EPB2-6表明CSB-EPB2塑料轴承的摩擦系数会随着轴表面粗糙度的变化而不同，我们推荐使用轴粗糙度为Ra0.3~0.6μm；

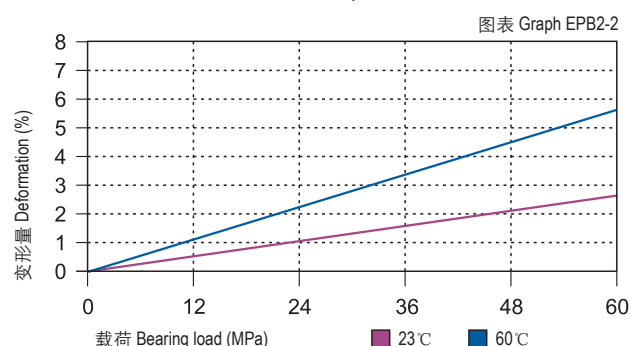
Similar with most of the plastic bearings, the friction factor of CSB-EPB2 is increased along with the operation speed when the loading is stable (see Graph EPB2-4) and is decreased along with the loading increasing when the operation speed is stable (see Graph EPB2-5). From Graph EPB2-6, it shows the friction factor of CSB-EPB2 is variable against different shaft surface roughness. The recommended shaft surface roughness is Ra0.3~0.6.

摩擦系数与轴表面粗糙度关系图表

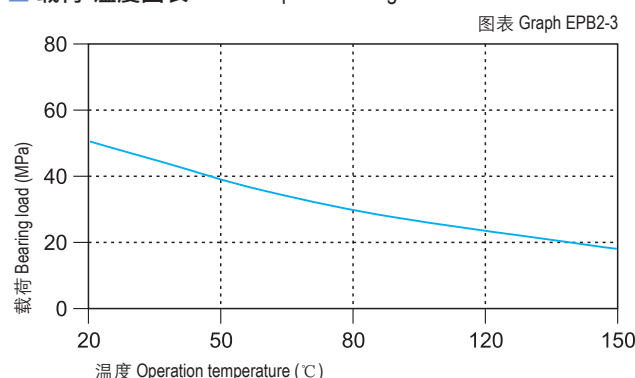
Coefficient of friction & the surface roughness of shaft



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

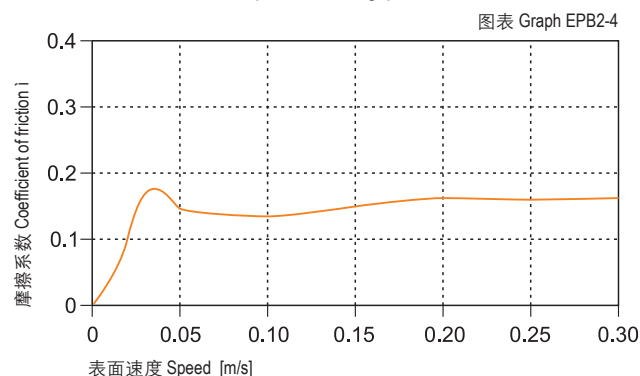


载荷-温度图表 Load-Temperature diagrams



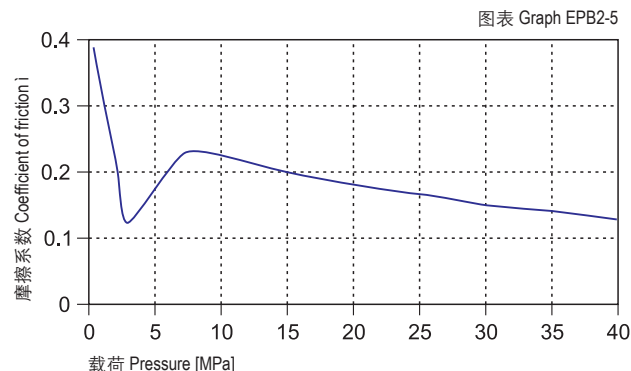
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa



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 = 0.2 m/s



CSB-EPB2	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EPB2-8表明低载时硬化钢轴与硬铬钢轴比较适合用于CSB-EPB2塑料轴承。CSB-EPB2塑料轴承在用于摆动运动时磨损值明显要优越于用于旋转运动。

Graph EPB2-8 shows that CSB-EPB2 is rather suitable for hardened steel shaft and hardened chrome steel shaft under lower loading and Graph EPB2-7 shows that CSB-EPB2 wearing feature is better for oscillation operation than of rotation operation.

化学抗性 Chemical resistance

CSB-EPB2塑料轴承能抵抗部分弱酸以及各类润滑油的腐蚀。

CSB-EPB2 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB2塑料轴承在标准大气中的吸湿率为0.2%。浸泡在水中的最高吸水率为0.4%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB2 plastic plain bearings is 0.2% in standard atmosphere. The max. water absorption is 0.4% in water. These values are very low, CSB-EPB2 plastic plain bearings are very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB2塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能会有所下降。

Disintegration could be possible for the material CSB-EPB2 after long period of exposing under the UV ray and therefore the performance of the material will be reduced.

安装公差 Installation tolerances

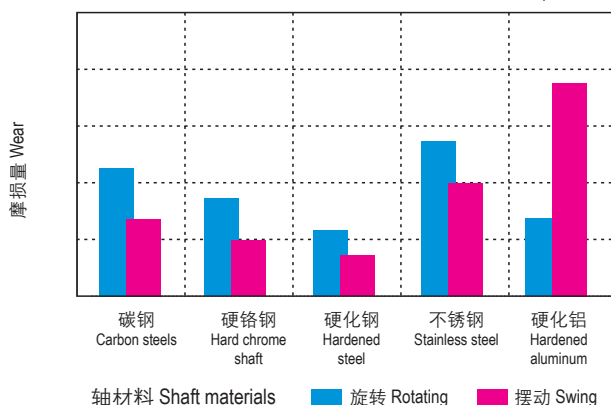
CSB-EPB2塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB2 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

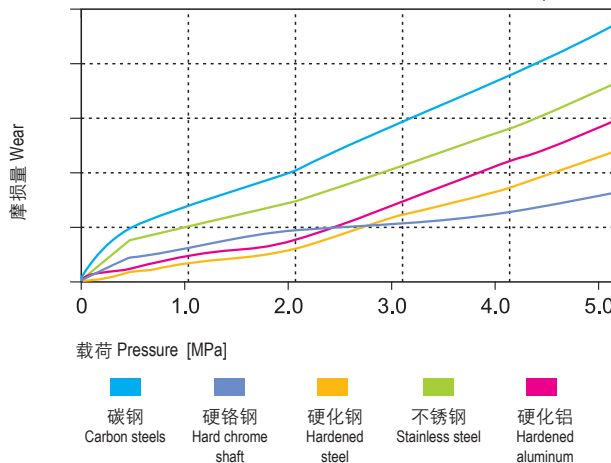
图表 Graph EPB2-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

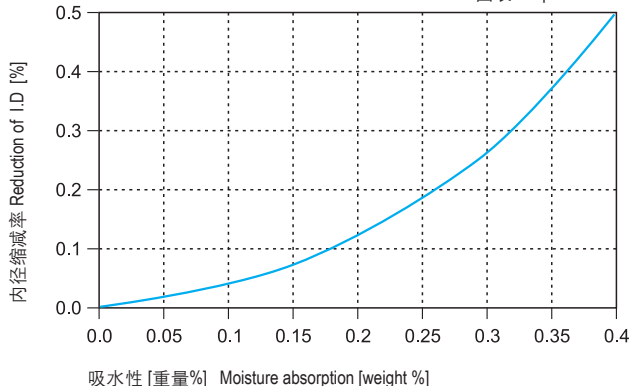
图表 Graph EPB2-8

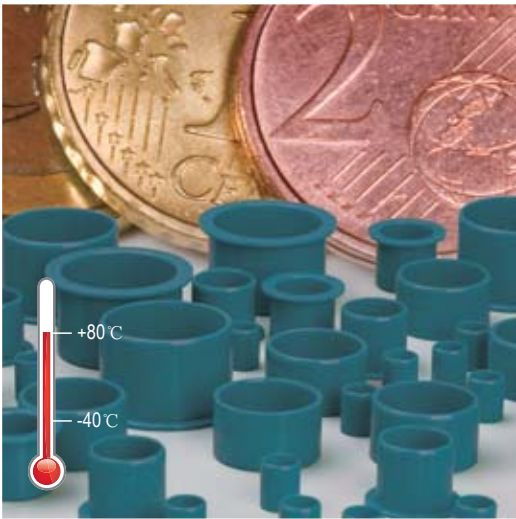


吸水性的影响

Effect of moisture absorption on EPB2 bearings

图表 Graph EPB2-9





标准产品规格表 Standard specifications: P124

产品特性 Product features

- 中低载荷和速度的优化组合，不含PTFE；大批量低成本需求
- 连续使用温度：-40℃/+80℃
- 适合多数低载荷场合
- 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 combination of middle to low load and low speed application requirement. It is a material without PTFE embedded for the low cost and big quantity demanding
- Continuous working temperature: -40℃/+80℃
- Very common; suitable for most average and low load
- Maintenance-free dry operation
- Light wear against different shaft materials
- Low friction

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB2D
颜色 Color	-	-	绿色 Green
密度 Density	ISO1183	g/cm ³	1.40
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.25
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.25
弯曲模量 Flexural modulus	ISO178	MPa	2000
弯曲强度 Flexural strength	ISO178	MPa	65
最大静载荷 Max. static load	ITS027	MPa	30
最大动载荷 Max. dynamic load	ITS028	MPa	13
邵氏硬度 Shore hardness	ISO868	D	75
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	11
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

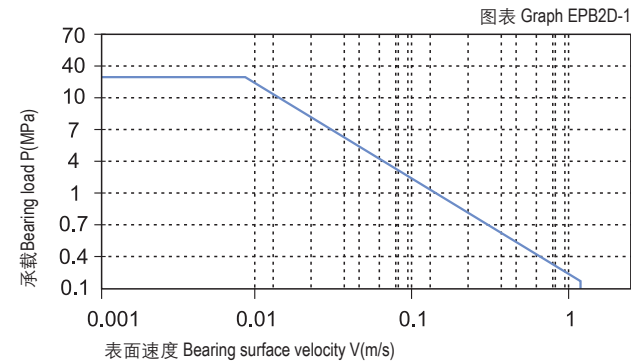
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB2D塑料轴承最大运行PV值为0.25N/mm² × m/s；由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB2D-1。

The max PV value of the CSB-EPB2D plastic bearings is 0.25N/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 EPB2D-1).

PV图表 Permissible PV value for CSB-EPB2D



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB2D塑料轴承可承受最大静载荷为30Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB2D-2，轴承实际工作载荷略小于30Mpa，载荷还受到运行速度以及温度的影响，速度越快（Vmax: 1.2m/s）会导致摩擦温度上升，而温度上升（Tmax: 80℃）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EPB2D-3。

CSB-EPB2D allows the Max static load of 30Mpa, The max compressive deformation rate under the max load is listed in Graph EPB2D-2, The actual load capacity of bearing is slightly less than 30Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.2m/s) results into higher temperature (Tmax: 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB2D-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

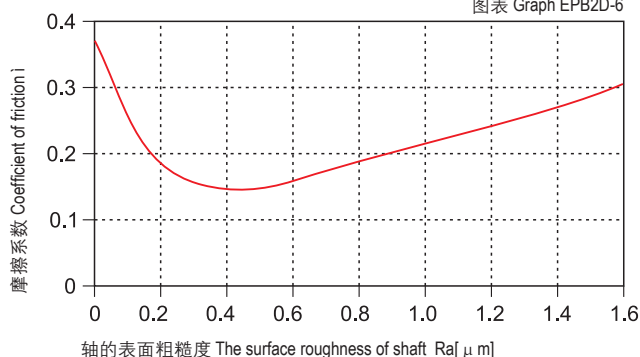
图表EPB2D-4表明CSB-EPB2D塑料轴承在载荷保持不变的情况下摩擦系数先是随着运行速度的增加而升高，当运行速度超过0.25m/s后摩擦系数反而会随着运动速度的增加而降低；图表EPB2D-5表明CSB-EPB2D塑料轴承在保持速度不变时摩擦系数随着载荷的增加而逐步减低。根据图表EPB2D-6表明CSB-EPB2D塑料轴承的摩擦系数会随着轴表面粗糙度的变化而不同，我们推荐使用轴粗糙度为Ra0.3 ~ 0.6μm；

Graph EPB2D-4 shows that the friction factor of CSB-EPB2D is initially increased along with the operation speed increasing when the loading is stable but when the speed reaches over 0.25m/s, it is decreased along with the operation speed increasing. Graph EPB2D-5 shows that the friction factor of CSB-EPB2D is decreasing along with the loading increasing when the operation speed is stable. Graph EPB2D-6 shows the friction factor of CSB-EPB2D is sensitive to the shaft roughness. The best shaft roughness for this material is Ra0.3~0.6.

摩擦系数与轴表面粗糙度关系图表

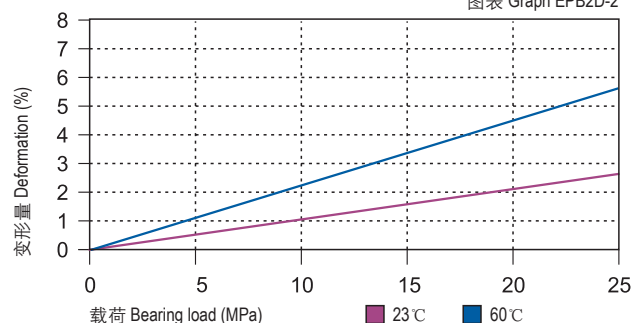
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB2D-6



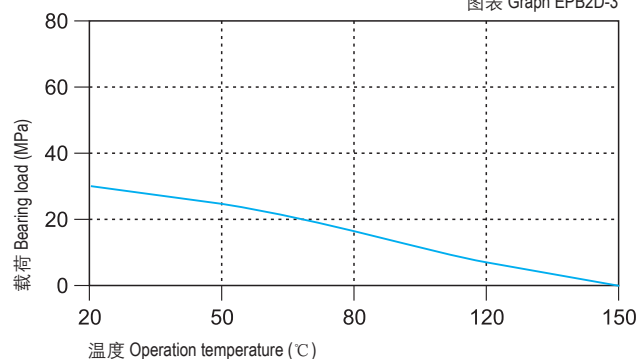
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB2D-2



载荷-温度图表 Load-Temperature diagrams

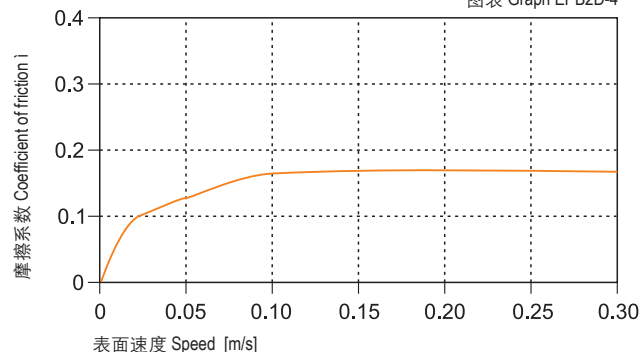
图表 Graph EPB2D-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

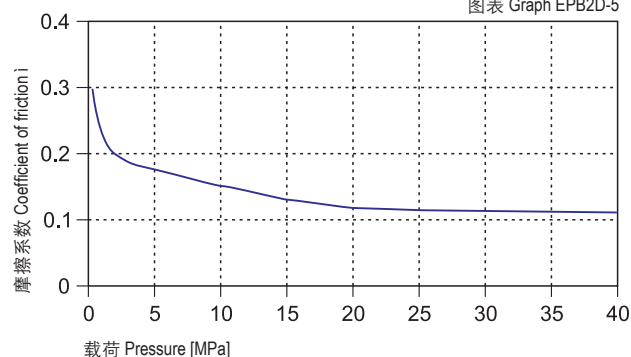
图表 Graph EPB2D-4



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 = 0.2 m/s

图表 Graph EPB2D-5



CSB-EPB2D	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.25	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB2D-7与图表EPB2D-8表明低载时硬铬钢轴比较适合用于CSB-EPB2D塑料轴承，当载荷逐渐增大到1.0Mpa以上时不锈钢轴相对比较合适。CSB-EPB2D塑料轴承在用于旋转运动时采用硬化钢轴比较理想，而在用于摆动运动中采用硬铬钢轴相对比较合适。

Graph EPB2D-7 and Graph EPB2D-8 shows that the hardened chrome steel shaft is good for CSB-EPB2D bearings under lower loading and stainless steel shaft is better when the loading is over 1.0Mpa. Hardened steel shaft is recommended in rotation operation but hardened chrome steel shaft is recommended in oscillation operation.

化学抗性 Chemical resistance

CSB-EPB2D塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

CSB-EPB2D is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB2D塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.2%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB2D plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.2% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB2D塑料轴承长久暴露在紫外线下颜色会变浅。材料的硬度，抗压强度和耐磨性都不会改变。

The color of CSB-EPB2D will become lighter when it is exposed into the UV ray. The hardness, Compressive strength and wear resistance of the material is also stable under such condition.

安装公差 Installation tolerances

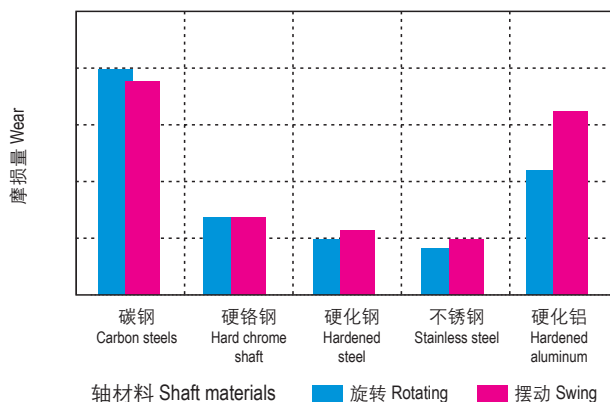
CSB-EPB2D塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB2D E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

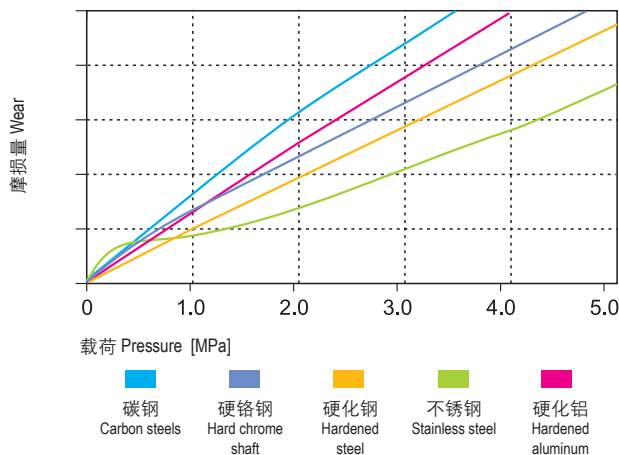
图表 Graph EPB2D-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

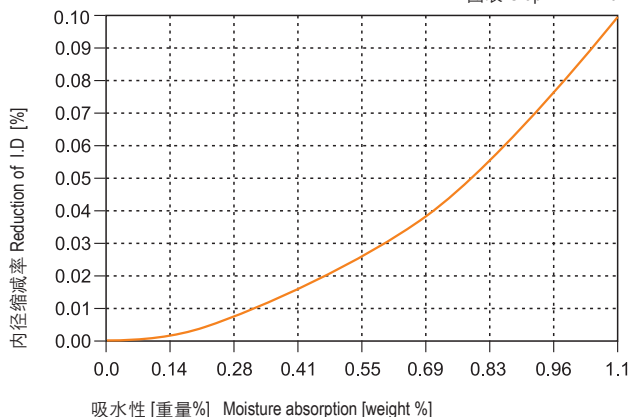
图表 Graph EPB2D-8



吸水性的影响

Effect of moisture absorption on EPB2D bearings

图表 Graph EPB2D-9





● 标准产品规格表 Standard specifications: P128

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℃
- 适合中高载荷，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

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB3
颜色 Color	-	-	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.46
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.7
最大吸水率 Max. water absorption	ISO62	%	4.0
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.08-0.18
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.45
弯曲模量 Flexural modulus	ISO178	MPa	8500
弯曲强度 Flexural strength	ISO178	MPa	210
最大静载荷 Max. static load	ITS027	MPa	80
最大动载荷 Max. dynamic load	ITS028	MPa	43
邵氏硬度 Shore hardness	ISO868	D	81
连续运行温度 Long-term application temperature	ITS029	℃	+130
短时运行温度 Short-term application temperature	ITS029	℃	+220
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	9
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.

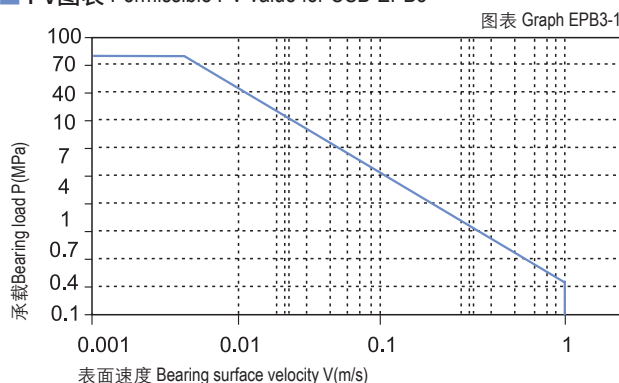
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB3塑料轴承最大运行PV值为0.45N/mm² × m/s；由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB3-1。

The max PV value of the CSB-EPB3 plastic bearings is 0.45N/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 EPB3-1).

■ PV图表 Permissible PV value for CSB-EPB3



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB3塑料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EPB3-2，轴承实际工作载荷略小于80Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 130℃) 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EPB3-3。

CSB-EPB3 allows the Max static load of 80Mpa, The max compressive deformation rate under the max load is listed in Graph EPB3-2, The actual load capacity of bearing is slightly less than 80Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 130℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB3-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

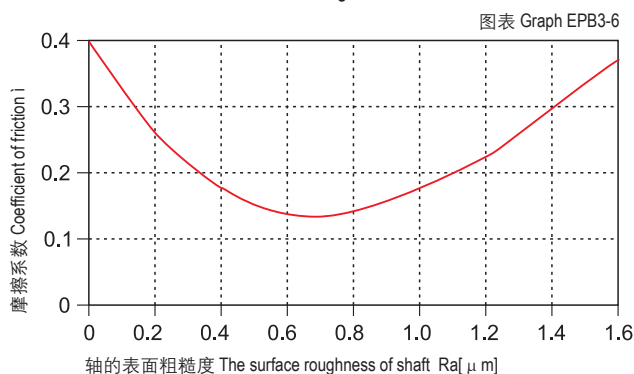
摩擦系数 Friction factor

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；CSB-EPB3塑料轴承的摩擦系数随着载荷的增加而降低（图表EPB3-5），随着运行速度的增加而升高（图表EPB3-4）；这就表明EPB3塑料轴承适合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，CSB-EPB3塑料轴承推荐的表面粗糙度是在Ra0.5 ~ Ra0.8（图表EPB3-6）。

The friction factor of the sliding bearings is relative to the bearing load, operation speed and the roughness of the shaft material. CSB-EPB3 Bearing Friction factor decreased along with the increasing of the loading (See Graph EPB3-5) and increased along with the increasing of the operation speed (See Graph EPB3-4). The above feature induces the CSB-EPB3 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 CSB-EPB3 is Ra0.5~Ra0.8 (See Graph EPB3-6).

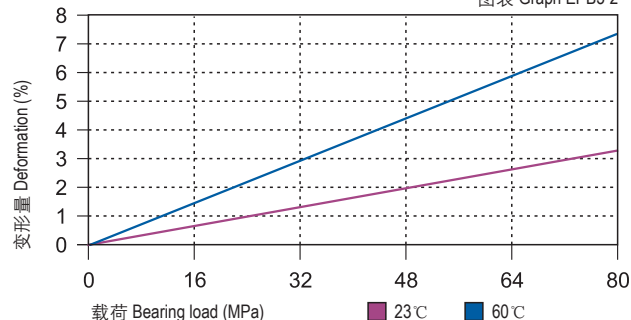
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



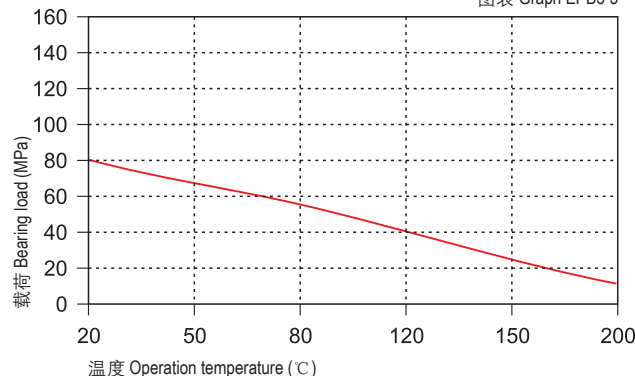
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB3-2



载荷-温度图表 Load-Temperature diagrams

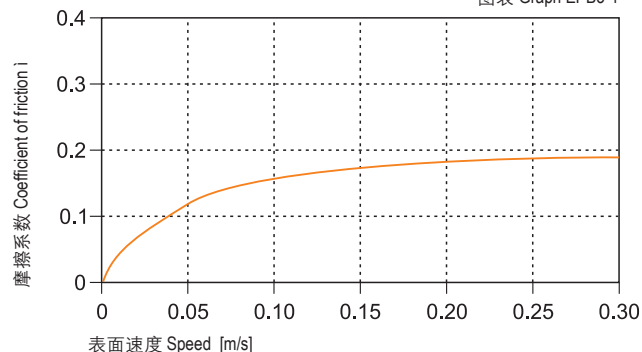
图表 Graph EPB3-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

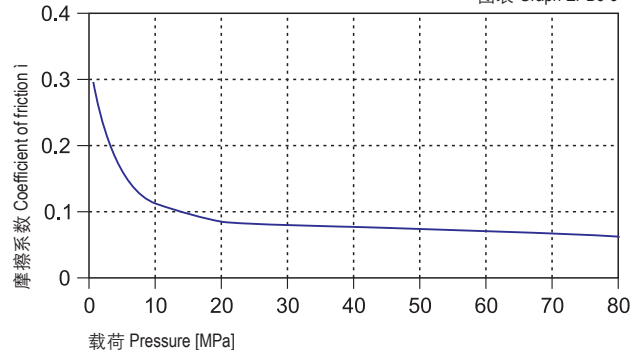
图表 Graph EPB3-4



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 = 0.2 m/s

图表 Graph EPB3-5



CSB-EPB3	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CSB-EPB3塑料轴承低载时在碳钢轴和硬铬轴运行性能更好（见图表EPB3-7和图表EPB3-8）；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EPB3-7表明CSB-EPB3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 CSB-EPB3 features the best performance where the shaft material is carbon steel and hard chrome steel under low loading. (See Graph EPB3-7 and Graph EPB3-8). Therefore, the higher the load is, the more critical the hardness of the shaft will have to be. The softer shaft 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 EPB3-7 It shows that the material CSB-EPB3 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 the rotation operation. This feature is sharply improved under higher loading.

化学抗性 Chemical resistance

CSB-EPB3塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB3 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB3塑料轴承在标准大气中的吸湿率为0.7%。浸泡在水中最高吸水率为4.0%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB3 plastic plain bearings is 0.7% in standard atmosphere. The max. water absorption is 4.0% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB3塑料轴承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。

CSB-EPB3 can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

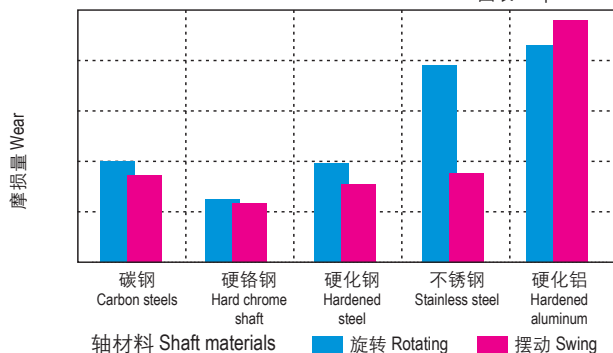
安装公差 Installation tolerances

CSB-EPB3塑料轴承压装后公差 Tolerances after pressfit

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

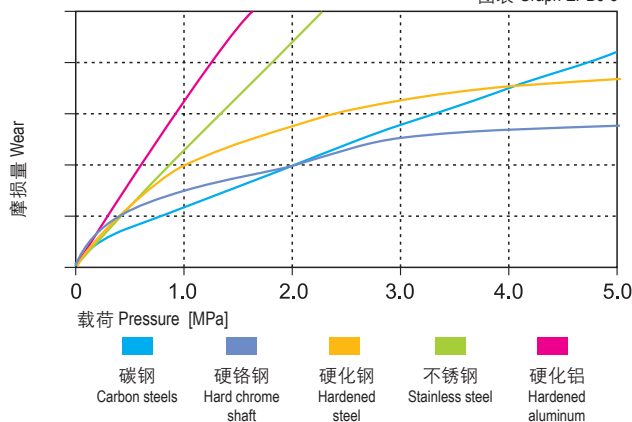
图表 Graph EPB3-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

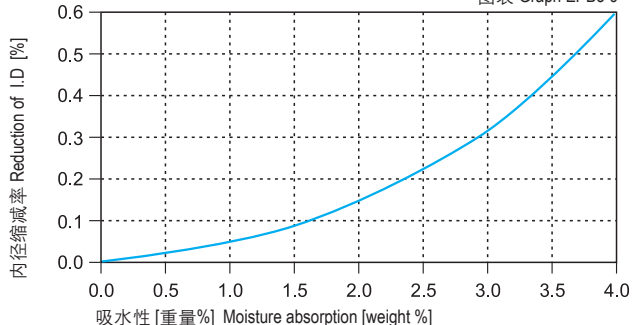
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB3-8



吸水性的影响 Effect of moisture absorption on EPB3 bearings

图表 Graph EPB3-9



直径 Di. [mm]	CSB-EPB3 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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



产品特性 Product features

- 中等载荷的优化材料。适用于运动频率较低和低成本需求
- 连续使用温度: -40℃/+100℃
- 承受较高的载荷
- 经济性强
- 干运行、免维护
- 适用于不同轴材料
- Optimized for middle load applications. It is suitable for low frequency motion and low cost requirement
- Continuous working temperature: -40℃/+100℃
- High load capacity
- Good economic ratio
- Dry operation and maintenance free
- Applicable for various shaft materials

标准产品规格表 Standard specifications: P128

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB3G
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.37
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.3
最大吸水率 Max. water absorption	ISO62	%	5.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.30
弯曲模量 Flexural modulus	ISO178	MPa	7700
弯曲强度 Flexural strength	ISO178	MPa	190
最大静载荷 Max. static load	ITS027	MPa	75
最大动载荷 Max. dynamic load	ITS028	MPa	36
邵氏硬度 Shore hardness	ISO868	D	78
连续运行温度 Long-term application temperature	ITS029	℃	+100
短时运行温度 Short-term application temperature	ITS029	℃	+160
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	11
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

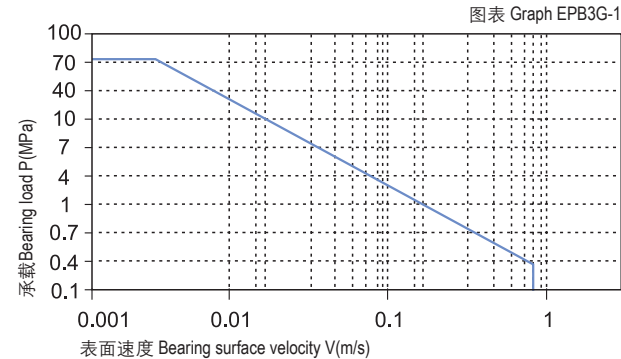
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB3G塑料轴承最大运行PV值为0.3N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB3G-1。

The max PV value of the CSB-EPB3G plastic bearings is 0.3N/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 EPB3G-1).

PV图表 Permissible PV value for CSB-EPB3G



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB3G塑料轴承可承受最大静载荷为75Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB3G-2，轴承实际工作载荷略小于75Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 0.8m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 100℃) 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EPB3G-3。

CSB-EPB3G allows the Max static load of 75Mpa, The max compressive deformation rate under the max load is listed in Graph EPB3G-2, The actual load capacity of bearing is slightly less than 75Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 0.8m/s) results into higher temperature (Tmax: 100℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB3G-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

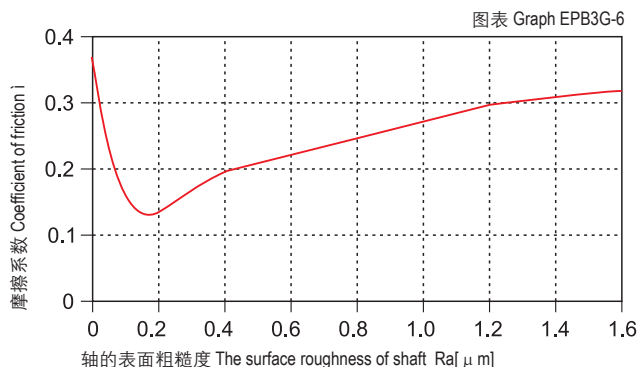
摩擦系数 Friction factor

图表EPB3G-4与图表EPB3G-5表明CSB-EPB3G塑料轴承的摩擦系数会受到运行速度以及轴承载荷影响而发生变化，当轴承载荷在20Mpa以内时，这种表现特别明显。同时图表EPB3G-6显示CSB-EPB3G塑料轴承的摩擦系数还会受到对磨轴表面粗糙度的影响，轴表面太光滑或者太粗糙都会导致轴承的摩擦系数和磨损值增大，我们推荐轴表面粗糙度为Ra0.1~0.3mm最为合适。

Graph EPB3G-4 and Graph EPB3G-5 show that the friction factor of CSB-EPB3G is variable along with the changing of the operation speed and bearing loading especially when the bearing loading is within 20Mpa. In the mean while the Graph EPB3G-6 shows that the friction factor of CSB-EPB3G is also affected by the shaft surface roughness. Too rough shaft surface or too fine shaft surface will increase the wearing and friction factor. The recommended shaft surface roughness is Ra0.1~0.3.

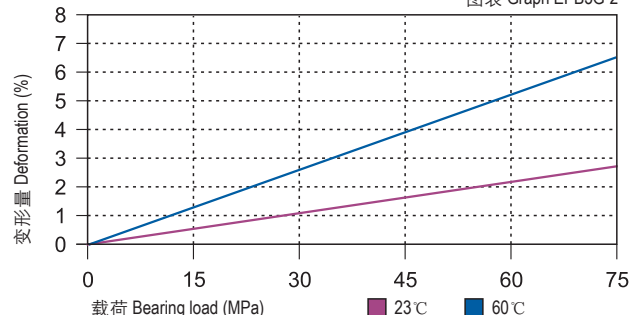
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



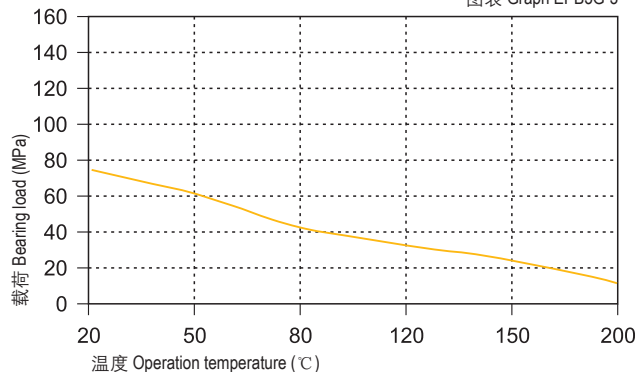
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB3G-2



载荷-温度图表 Load-Temperature diagrams

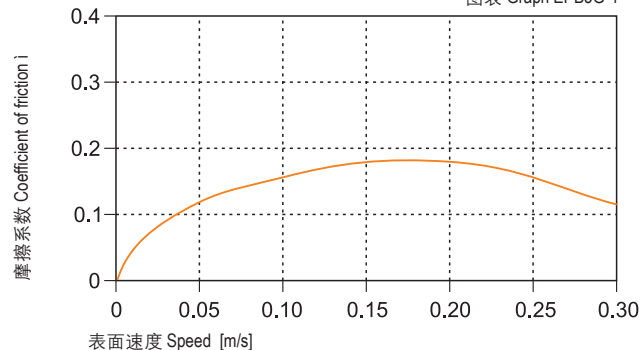
图表 Graph EPB3G-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

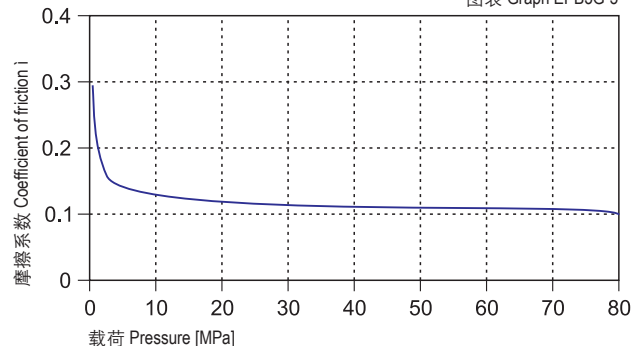
图表 Graph EPB3G-4



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 = 0.2 m/s

图表 Graph EPB3G-5



CSB-EPB3G	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EPB3G-7与图表EPB3G-8表明CSB-EPB3G塑料轴承无论是在普通轴上运行还是在硬质轴上运行磨损值基本相当，根据图表显示CSB-EPB3G塑料轴承最适合的轴材料为硬化轴和硬铬钢轴；根据图表EPB3G-7显示CSB-EPB3G塑料轴承在摆动运动下的磨损值会略优越于旋转运动下的磨损值。

Graph EPB3G-7 and Graph EPB3G-8 show that the wearing of CSB-EPB3G is similar either against the normal shaft or hardened shaft. The most suitable shaft materials for CSB-EPB3G are hardened steel and hardened chrome steel. Graph EPB3G-7 shows that the wearing feature is better in oscillation operation than in rotation operation.

化学抗性 Chemical resistance

CSB-EPB3G塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB3G is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB3G塑料轴承在标准大气中的吸湿率为1.3%。浸泡在水中最高吸水率为5.5%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB3G plastic plain bearings is 1.3% in standard atmosphere. The max. water absorption is 5.5% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB3G塑料轴承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。

CSB-EPB3G can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

安装公差 Installation tolerances

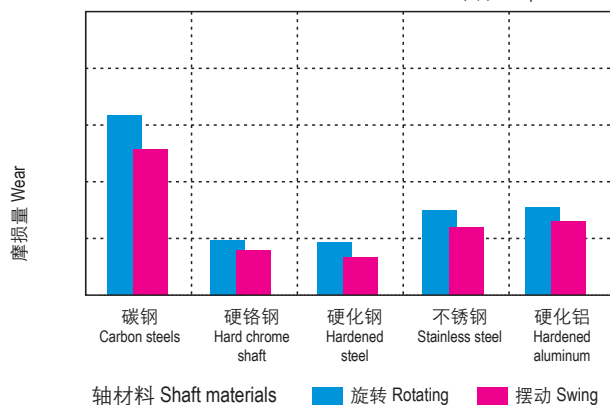
CSB-EPB3G塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB3G E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

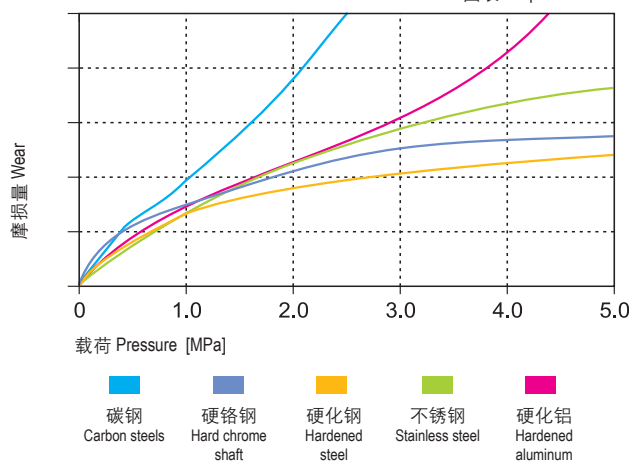
图表 Graph EPB3G-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

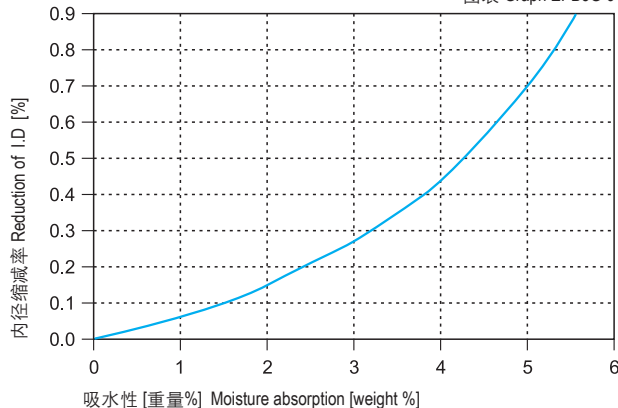
图表 Graph EPB3G-8



吸水性的影响

Effect of moisture absorption on EPB3G bearings

图表 Graph EPB3G-9





● 标准产品规格表 Standard specifications: P138

产品特性 Product features

- 抗冲击性能出色的自润滑材料。作为一种耐冲击的材料被用于需要吸震和耐磨的场合
- 连续使用温度: -40℃/+80℃
- 承受较高的载荷, 耐冲压
- 经济性强
- 干运行、免维护
- 承受边缘载荷
- 适合低速运动
- An excellent self-lubricated material suitable for impact resistance applications which is widely used under the environment of impact absorbing and wear resistance requirement
- Continuous working temperature: -40℃/+80℃
- High load capacity, Impact resistance
- Low cost
- Dry operation and maintenance free
- Good for Marginal Load
- Suitable for low speed operation

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB3M
颜色 Color	-	-	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.14
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.4
最大吸水率 Max. water absorption	ISO62	%	7.6
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.09-0.30
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.15
弯曲模量 Flexural modulus	ISO178	MPa	2700
弯曲强度 Flexural strength	ISO178	MPa	100
最大静载荷 Max. static load	ITS027	MPa	30
最大动载荷 Max. dynamic load	ITS028	MPa	15
邵氏硬度 Shore hardness	ISO868	D	79
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+170
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

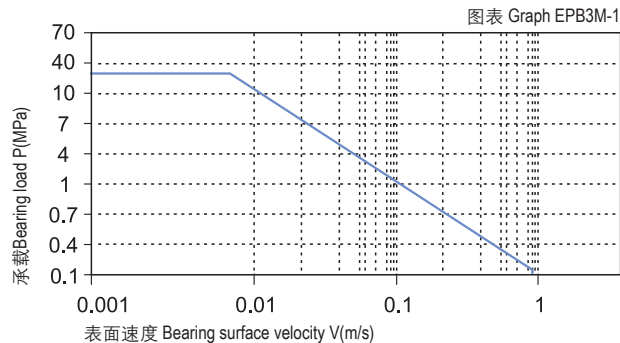
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB3M塑料轴承最大运行PV值为0.15N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB3M-1。

The max PV value of the CSB-EPB3M plastic bearings is 0.15N/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 EPB3M-1).

■ PV图表 Permissible PV value for CSB-EPB3M



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB3M塑料轴承可承受最大静载荷为30Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB3M-2，轴承实际工作载荷略小于30Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 0.8m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 80℃) 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EPB3M-3。

CSB-EPB3M allows the Max static load of 30Mpa, The max compressive deformation rate under the max load is listed in Graph EPB3M-2, The actual load capacity of bearing is slightly less than 30Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 0.8m/s) results into higher temperature (Tmax: 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB3M-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

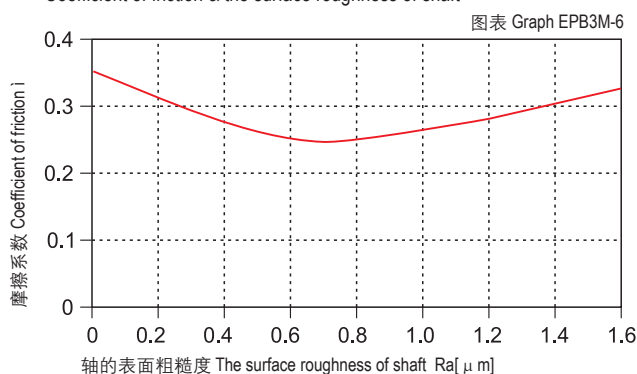
摩擦系数 Friction factor

图表EPB3M-4表明CSB-EPB3M塑料轴承的摩擦系数在载荷一定的情况下随着速度的增加而快速升高，这就说明此轴承比较适合用于低速场合；图表EPB3M-5表明CSB-EPB3M塑料轴承在速度一定的情况下摩擦系数随着载荷的增加而逐渐降低。滑动轴承的摩擦系数和磨损受对磨轴表面粗糙度影响比较大，图表EPB3M-6表明CSB-EPB3M塑料轴承在表面粗糙度为Ra=0.6μm轴上运行时可以获得更佳运行效果。

CSB-EPB3M Bearing Friction factor is increased along with the increasing of the operation speed (See Graph EPB3M-4) therefore it is suitable for the application under low speed operation. The friction factor of CSB-EP3M is decreased along with the loading increasing (see Graph EPB3M-5). The friction factor and wearing of the bearing is considerably affected by the counter shaft roughness. The Graph EPB3M-6 shows that the bearing could achieve its best performance when the counter shaft surface roughness is around Ra0.6.

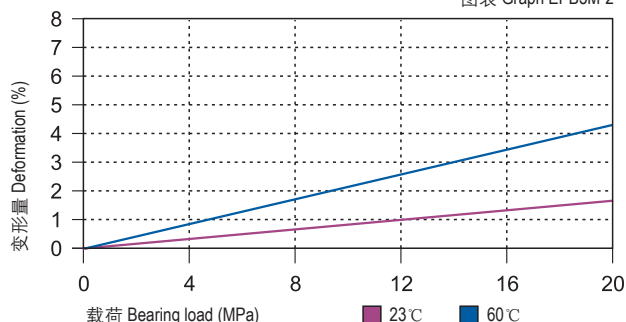
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



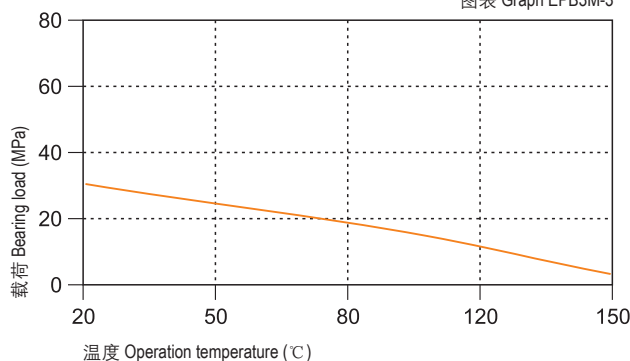
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB3M-2



载荷-温度图表 Load-Temperature diagrams

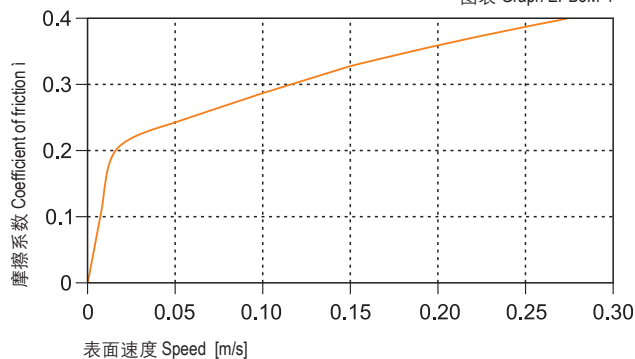
图表 Graph EPB3M-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

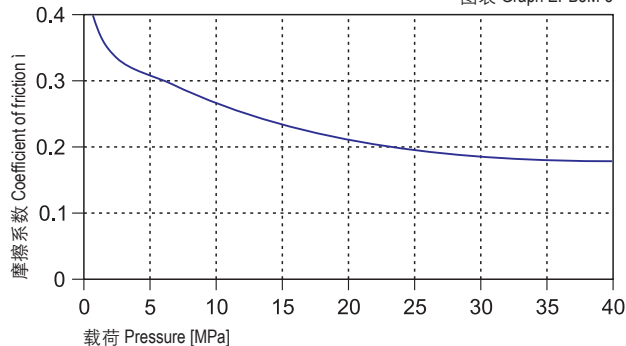
图表 Graph EPB3M-4



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 = 0.2 m/s

图表 Graph EPB3M-5



CSB-EPB3M	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.09~0.30	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB3M-7表明CSB-EPB3M塑料轴承在不同轴材料上的运行效果表明此轴承在载荷超过2Mpa且做旋转运动时与轴材料的关系相对较小，由此图可以看出在低载荷时CSB-EPB3M塑料轴承运行效果较好。当轴承的载荷增加时，轴承的磨损会快速上升；由图表EPB3M-8可以看出在高载荷时CSB-EPB3M塑料轴承比较适合用于硬铬轴上运行。图表EPB3M-7表明CSB-EPB3M塑料轴承在用于旋转运动时的性能要明显优越于摆动运动。

Test of the bearing against various shaft materials shows that the material CSB-EPB3M features the wearing performance of the material is not sensitive with different materials where the loading is over 2Mpa. (See Graph EPB3M-7). The bearing performance remains the best when the loading is in the lower range. When the loading is increased, the wearing will be sharply increased. From the Graph EPB3M-8, the CSB-EPB3M material is better for the application with the counter shaft material of hard chrome steel. Graph EPB3M-7 shows that the material is better for rotation operation than oscillation operation.

化学抗性 Chemical resistance

CSB-EPB3M塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB3M is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB3M塑料轴承在标准大气中的吸湿率为1.4%。浸泡在水中最高吸水率为7.6%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB3M plastic plain bearings is 1.4% in standard atmosphere. The max. water absorption is 7.6% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB3M塑料轴承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。

CSB-EPB3M can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

安装公差 Installation tolerances

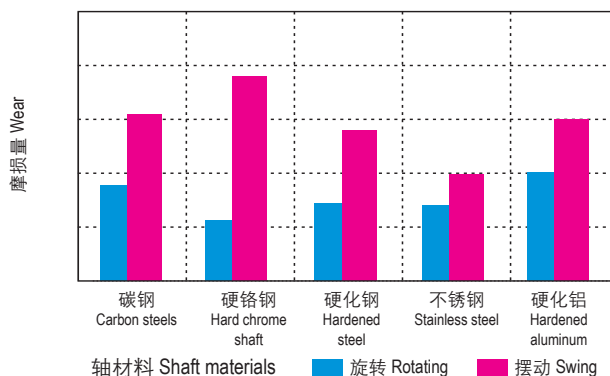
CSB-EPB3M塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB3M D11 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.020 ~ +0.080	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.030 ~ +0.105	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.040 ~ +0.130	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.050 ~ +0.160	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.065 ~ +0.195	0 ~ +0.021	0 ~ -0.052

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

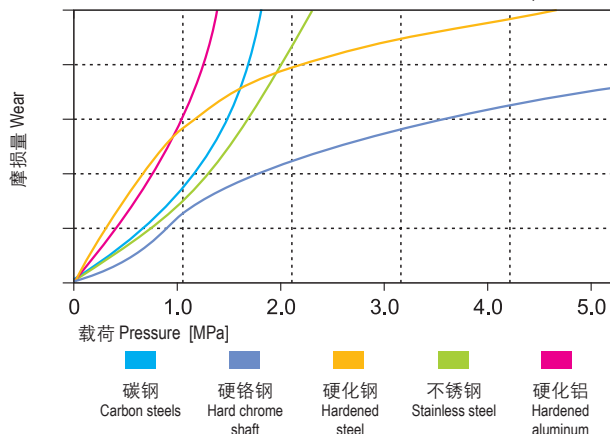
图表 Graph EPB3M-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

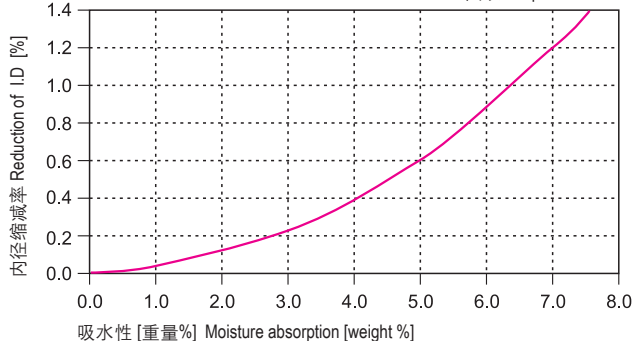
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB3M-8



吸水性的影响 Effect of moisture absorption on EPB3M bearings

图表 Graph EPB3M-9



直径 Di. [mm]	CSB-EPB3M D11 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>30 ~ 50	+0.080 ~ +0.240	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.100 ~ +0.290	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.120 ~ +0.340	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.145 ~ +0.395	0 ~ +0.040	0 ~ -0.100



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。硬质轴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 °C, 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 °C/+200 °C
- Suitable for medium and high load operation
- Maintenance-free dry operation
- Good chemical resistance
- Suitable for humid environment

标准产品规格表 Standard specifications: P132

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB4
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm³	1.70
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.3
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.07-0.20
极限PV值 Max. PV value	ITS026	N/mm² × m/s	1.35
弯曲模量 Flexural modulus	ISO178	MPa	12000
弯曲强度 Flexural strength	ISO178	MPa	165
最大静载荷 Max. static load	ITS027	MPa	90
最大动载荷 Max. dynamic load	ITS028	MPa	50
邵氏硬度 Shore hardness	ISO868	D	82
连续运行温度 Long-term application temperature	ITS029	℃	+200
短时运行温度 Short-term application temperature	ITS029	℃	+240
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.60
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	4
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ⁵
面电阻率 Surface resistance	IEC60093	Ω	>10 ⁵

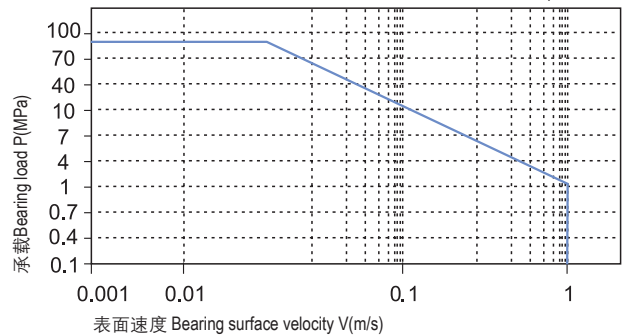
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23 °C unless otherwise stated.

轴承PV值 PV value

CSB-EPB4塑料轴承最大运行PV值1.35N/mm² × m/s；由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB4-1。
The max PV value of the CSB-EPB4 plastic bearings is 1.35N/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 EPB4-1).

PV图表 Permissible PV value for CSB-EPB4

图表 Graph EPB4-1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB4塑料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EPB4-2，轴承实际工作载荷略小于90Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 200℃) 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EPB4-3。

CSB-EPB4 allows the Max static load of 90Mpa, The max compressive deformation rate under the max load is listed in Graph EPB4-2, The actual load capacity of bearing is slightly less than 90Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 200℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB4-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

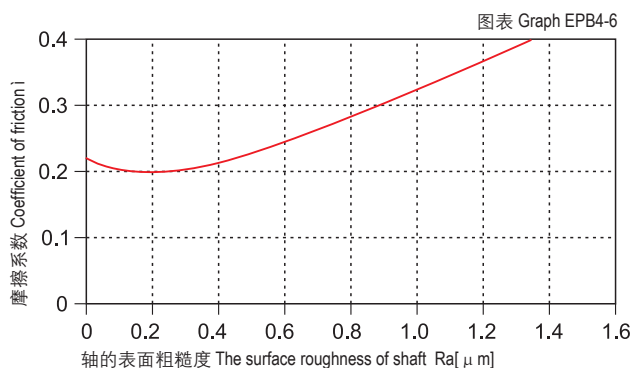
摩擦系数 Friction factor

图表EPB4-4表明CSB-EPB4塑料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EPB4-5表明CSB-EPB4塑料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EPB4-6表明CSB-EPB4塑料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 EPB4-4) 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 EPB4-5 tells that the friction of the CSB-EPB4 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.

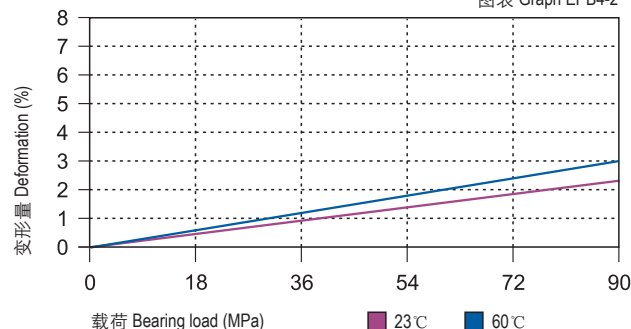
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



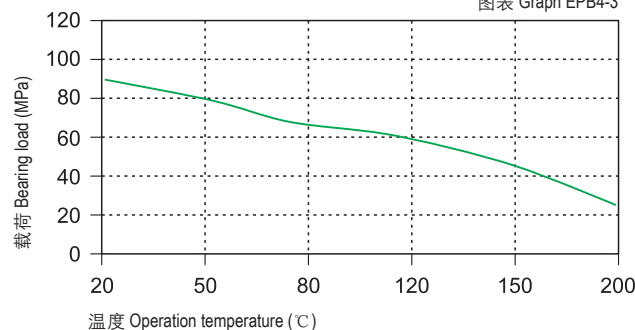
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB4-2



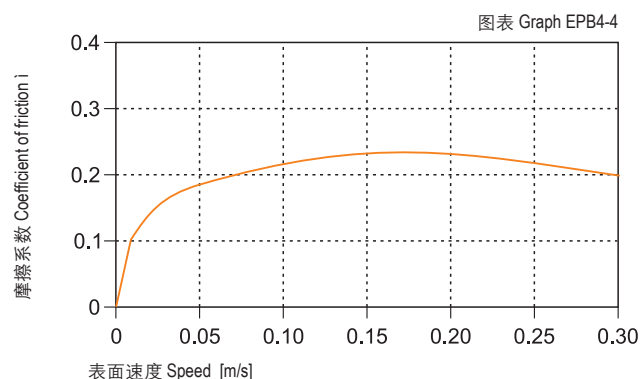
载荷-温度图表 Load-Temperature diagrams

图表 Graph EPB4-3



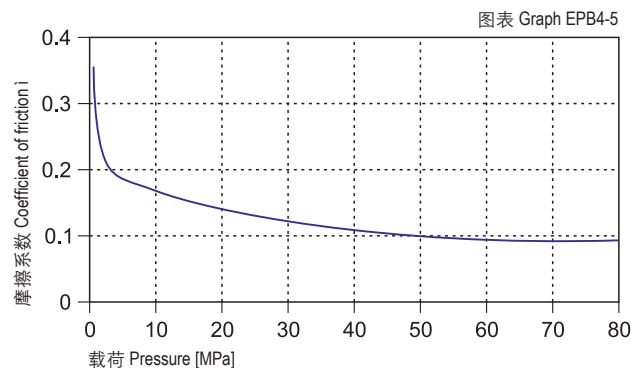
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, $p = 2 \text{ MPa}$



摩擦系数与载荷变化关系图表 v=0.2m/s

Coefficient of friction & the pressure of bearing, $v = 0.2 \text{ m/s}$



CSB-EPB4	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EPB4-7表明CSB-EPB4塑料轴承在低载荷旋转运动时适合大都数轴材料，而在高载旋转下硬化钢轴表现尤为特出（见图表EPB4-8）；CSB-EPB4塑料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 EPB4-7 shows that CSB-EPB4 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 EPB4-8). CSB-EPB4 is suitable for stainless steel shaft under oscillation operation and good for hot rolled carbon steel and hardened carbon steel shaft under rotation operation.

化学抗性 Chemical resistance

CSB-EPB4塑料轴承具有很好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of CSB-EPB4 is fairly good against most of Acid and Alkalis.

吸水性 Water absorption

CSB-EPB4塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.3%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB4 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.3% in water. These values are very low, CSB-EPB4 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB4塑料轴承长久暴露在紫外线下材料表面会发生蜕变，抗压强度会下降。

Disintegration could be possible for the material CSB-EPB4 after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

安装公差 Installation tolerances

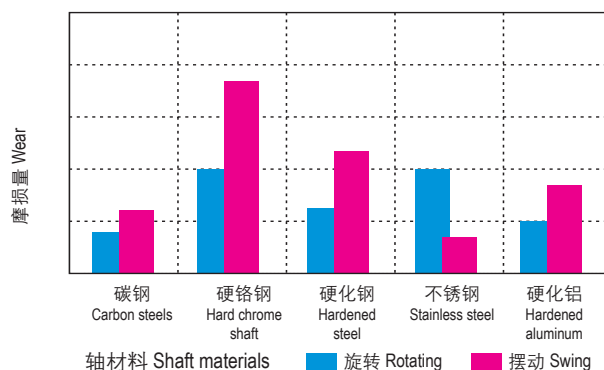
CSB-EPB4塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB4 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

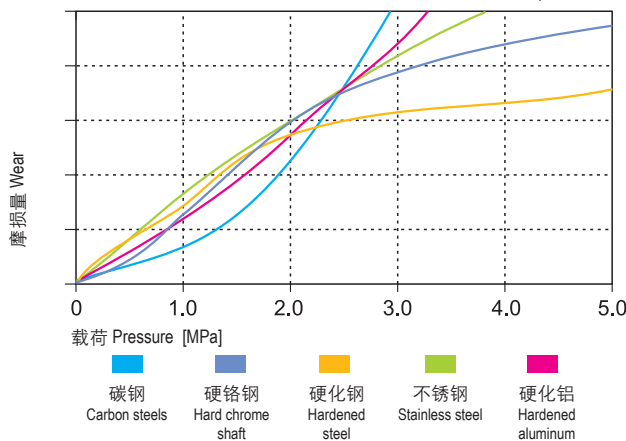
图表 Graph EPB4-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

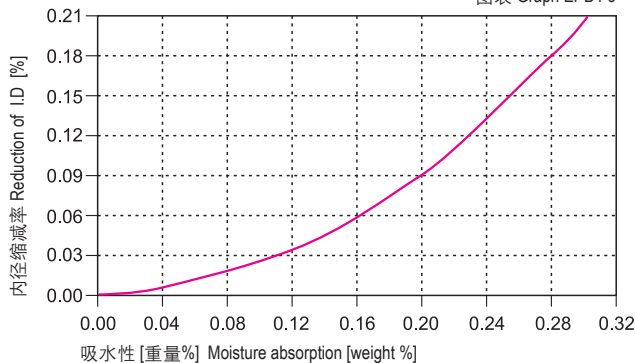
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB4-8



吸水性的影响 Effect of moisture absorption on EPB4 bearings

图表 Graph EPB4-9



直径 Di. [mm]	CSB-EPB4 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.043 ~ +0.203	0 ~ +0.040	0 ~ -0.100



标准产品规格表 Standard specifications: P135

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: -100 °C/+250 °C
- Suitable for high load operation
- High load capacity at higher temperature
- Good chemical resistance
- Low water absorption
- High pressure resistance

材料数据表 Material properties data table

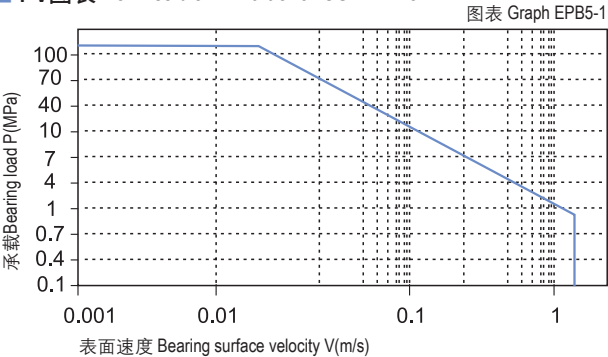
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB5
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.44
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.09-0.25
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	1.40
弯曲模量 Flexural modulus	ISO178	MPa	4800
弯曲强度 Flexural strength	ISO178	MPa	165
最大静载荷 Max. static load	ITS027	MPa	110
最大动载荷 Max. dynamic load	ITS028	MPa	61
邵氏硬度 Shore hardness	ISO868	D	82
连续运行温度 Long-term application temperature	ITS029	°C	+250
短时运行温度 Short-term application temperature	ITS029	°C	+315
最低运行温度 Lowest application temperature	ITS029	°C	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.55
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	6
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ⁸
面电阻率 Surface resistance	IEC60093	Ω	>10 ⁷

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23 °C unless otherwise stated.

轴承PV值 PV value

CSB-EPB5塑料轴承最大运行PV值为1.4N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB5-1。
The max PV value of the CSB-EPB5 plastic bearings is 1.4N/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 EPB5-1).

PV图表 Permissible PV value for CSB-EPB5



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB5塑料轴承可承受最大静载荷为110Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB5-2，轴承实际工作载荷略小于110Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 250℃) 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EPB5-3。

CSB-EPB5 allows the Max static load of 110Mpa, The max compressive deformation rate under the max load is listed in Graph EPB5-2, The actual load capacity of bearing is slightly less than 110Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.5m/s) results into higher temperature (Tmax: 250℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB5-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

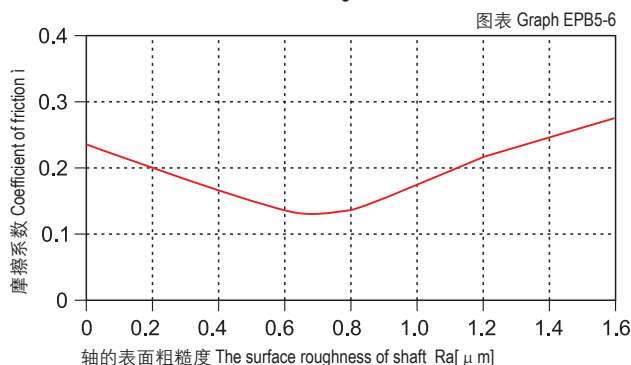
摩擦系数 Friction factor

图表EPB5-4表明CSB-EPB5塑料轴承的摩擦系数数在载荷一定时随着运行速度的增加而逐渐升高；图表EPB5-5表明CSB-EPB5塑料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EPB5-6表明CSB-EPB5塑料轴承比较适合轴的轴表面粗糙度为Ra0.6 ~ 0.8μm。

CSB-EPB5 Bearing Friction factor is increased along with the increasing of the operation speed under certain loading (See Graph EPB5-4). The friction factor of CSB-EP5 is decreased along with the loading increasing not over 20Mpa (see Graph EPB5-5). The friction factor will not change much along with the speed when the loading is over 20Mpa. The Graph EPB5-6 shows that the bearing could achieve its best performance when the counter shaft surface roughness is around Ra0.6 to Ra0.8.

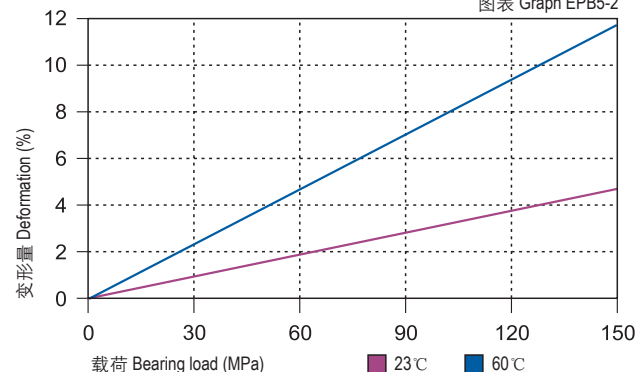
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



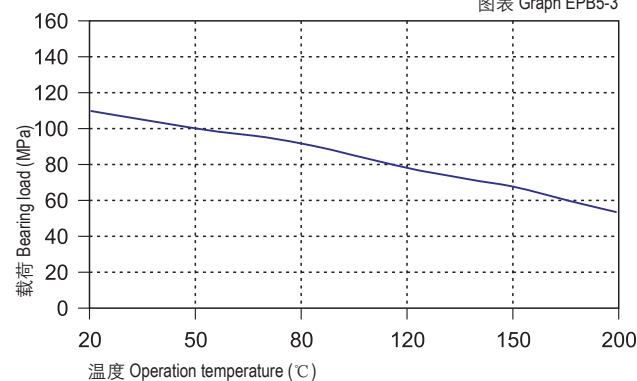
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB5-2



载荷-温度图表 Load-Temperature diagrams

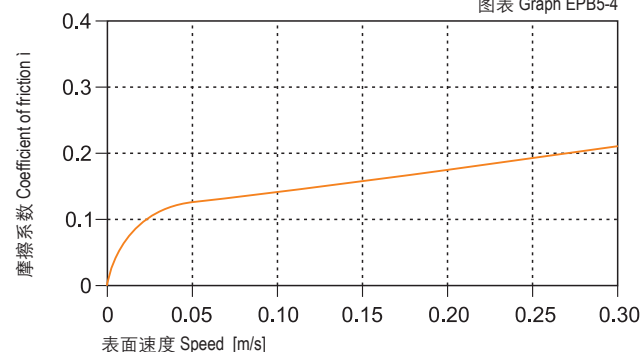
图表 Graph EPB5-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

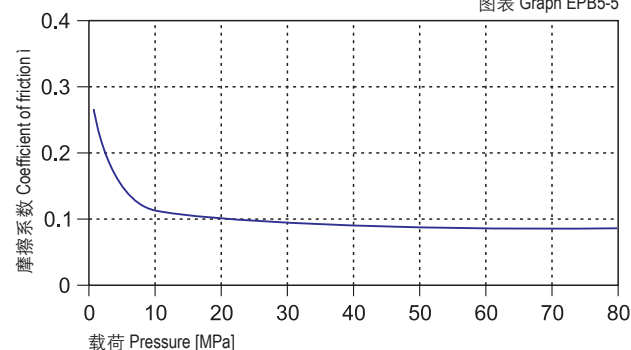
图表 Graph EPB5-4



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 = 0.2 m/s

图表 Graph EPB5-5



CSB-EPB10	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.09~0.25	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB5-7和图表EPB5-8测试表明了CSB-EPB5塑料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时在硬化钢轴和碳轴上的运行效果较好。图表EPB5-7表明CSB-EPB5塑料轴承比较适合用于旋转运动；特别值得注意的是图表EPB5-9表明CSB-EPB5塑料轴承在常温23℃下的摩擦磨损性能并没有在高温150℃下优秀。

Graph EPB5-7 and Graph EPB5-8 show the test results of the material CSB-EPB5 running against different shaft materials. 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 EPB5-7 shows CSB-EPB5 is good for rotation operation. Specially, from the Graph EPB5-9, it is read that CSB-EPB5 is with better performance under high temperature around 150℃ comparing with under the ambient temperature of 23℃.

化学抗性 Chemical resistance

CSB-EPB5塑料轴承具有极好的化学抗性，能抵抗浓度65%的强酸。

Chemical Resistance of CSB-EPB5 is very good. It can work well in the heavy acid of 65%.

吸水性 Water absorption

CSB-EPB5塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.5%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB5 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.5% in water. These values are very low, CSB-EPB5 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB5塑料轴承长久暴露在紫外线下材料性能不会发生变化。

CSB-EPB5 can maintain its performance to be stable even exposed in the UV ray for long period.

安装公差 Installation tolerances

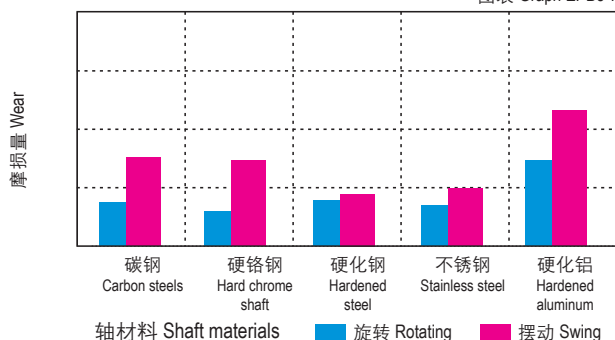
CSB-EPB5 塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB5 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

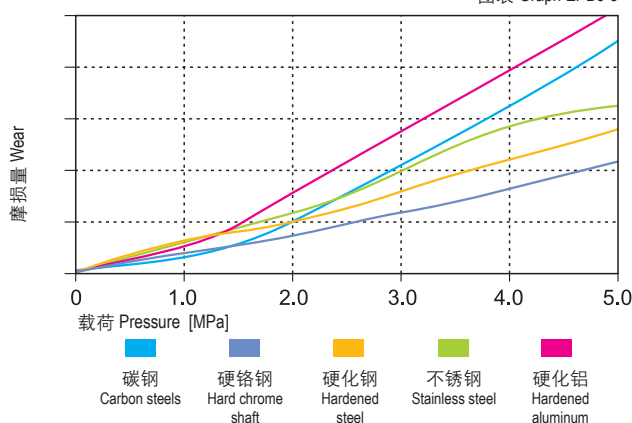
图表 Graph EPB5-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

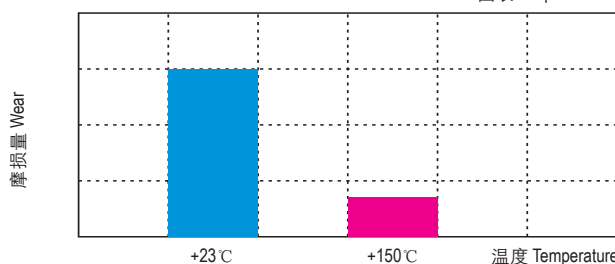
图表 Graph EPB5-8



在不同温度下的磨损量 $p=2\text{MPa}$ $v=0.2\text{m/s}$

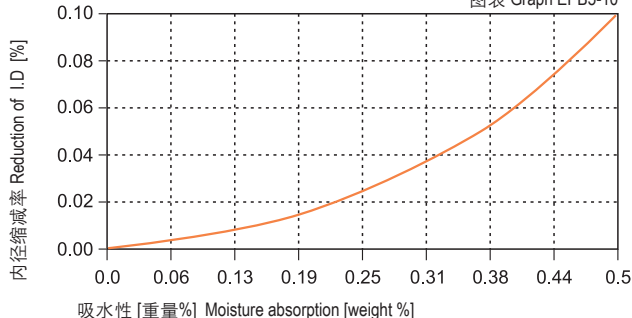
The bearing wear under rotating with different temperature $p = 2\text{ MPa}$ $v = 0.2\text{ m/s}$

图表 Graph EPB5-9



吸水性的影响 Effect of moisture absorption on EPB5 bearings

图表 Graph EPB5-10





产品特性 Product features

- 连续使用温度: -100℃/+250℃
- 适合高载荷低速运用
- 高温下保持较高的承载能力
- 较广泛的化学抗性
- 符合FDA标准
- Continuous working temperature: -100℃/+250℃
- Suitable for high load and lovo speed operation
- High load capacity at higher temperature
- Good chemical resistance
- FDA grade

● 标准产品规格表 Standard specifications: P135

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB5A
颜色 Color	-	-	米色 Beige
密度 Density	ISO1183	g/cm ³	1.28
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.25-0.40
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.25
弯曲模量 Flexural modulus	ISO178	MPa	3600
弯曲强度 Flexural strength	ISO178	MPa	140
最大静载荷 Max. static load	ITS027	MPa	90
最大动载荷 Max. dynamic load	ITS028	MPa	46
邵氏硬度 Shore hardness	ISO868	D	80
连续运行温度 Long-term application temperature	ITS029	℃	+250
短时运行温度 Short-term application temperature	ITS029	℃	+300
最低运行温度 Lowest application temperature	ITS029	℃	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	9
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹⁴
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹³

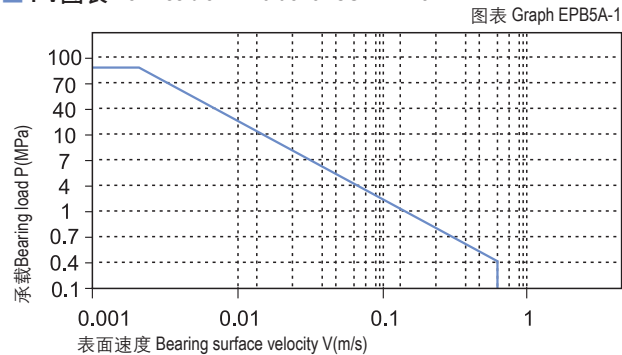
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB5A塑料轴承最大运行PV值为0.25N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB5A-1。

The max PV value of the CSB-EPB5A plastic bearings is 0.25N/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 EPB5A-1).

■ PV图表 Permissible PV value for CSB-EPB5A



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB5A塑料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EPB5A-2，轴承实际工作载荷略小于90Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 0.6m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 250℃) 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EPB5A-3。

CSB-EPB5A allows the Max static load of 90Mpa, The max compressive deformation rate under the max load is listed in Graph EPB5A-2, The actual load capacity of bearing is slightly less than 90Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 0.6m/s) results into higher temperature (Tmax: 250℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB5A-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

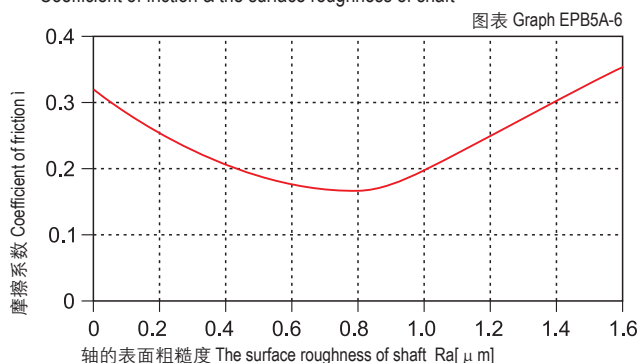
摩擦系数 Friction factor

图表EPB5A-4表明CSB-EPB5A塑料轴承在载荷一定时摩擦系数随着运动速度的增加而逐渐升高；图表EPB5A-5表明CSB-EPB5A塑料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EPB5A-6表明CSB-EPB5A塑料轴承比较适合轴表面粗糙度为Ra0.4 ~ 0.9μm。

CSB-EPB5A Bearing Friction factor is increased along with the increasing of the operation speed under certain loading (See Graph EPB5A-4). The friction factor of CSB-EP5A is decreased along with the loading increasing not over 20Mpa (see Graph EPB5A-5). The friction factor will not change much along with the speed when the loading is over 20Mpa. The Graph EPB5A-6 shows that the bearing could achieve its best performance when the counter shaft surface roughness is around Ra0.4 to Ra0.9.

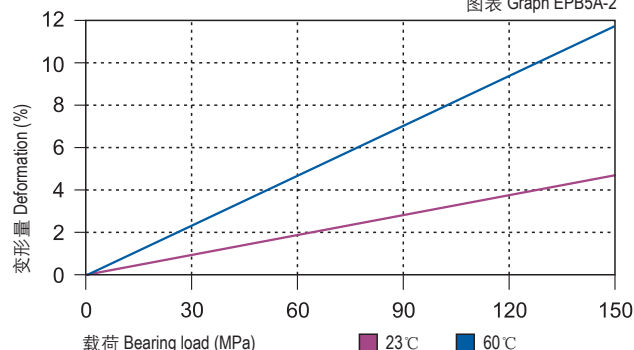
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



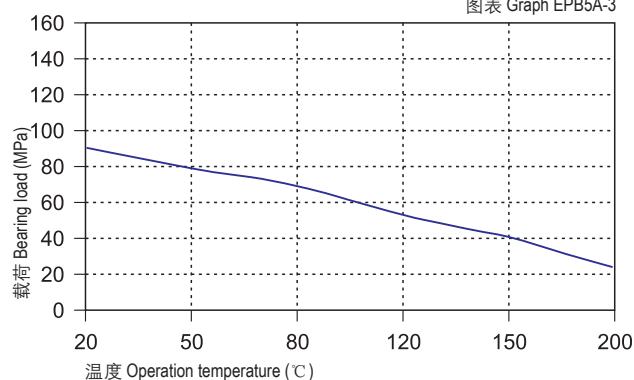
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB5A-2



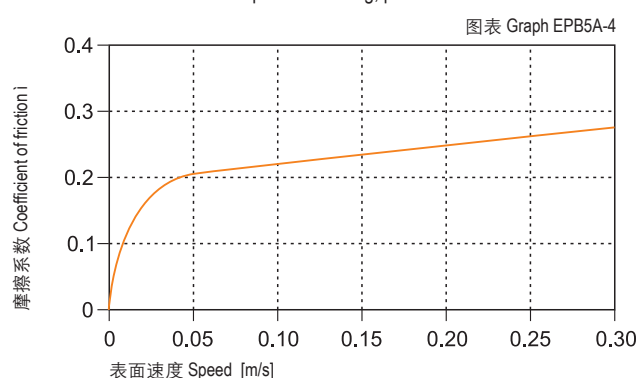
载荷-温度图表 Load-Temperature diagrams

图表 Graph EPB5A-3



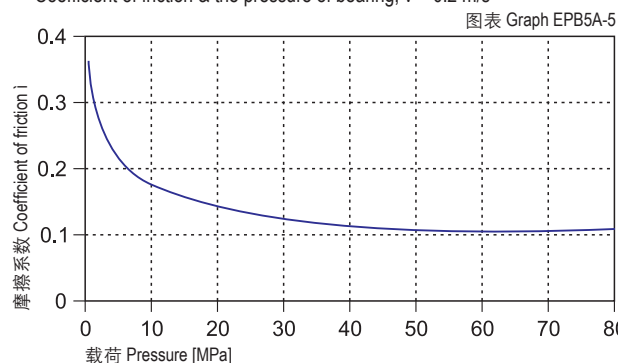
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa



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 = 0.2 m/s



CSB-EPB5A	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.25-0.40	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB5A-7和图表EPB5A-8测试表明了CSB-EPB5A塑料轴承在不同轴材料上的运行磨损情况，这表明此轴承在轻载下使用硬化铝轴和硬铬轴比较适合，而随着载荷的增加硬铬轴的优势尤为突出。图表EPB5A-7表明CSB-EPB5A塑料轴承比较适合用于摆动运动。

Graph EPB5A-7 and Graph EPB5A-8 show the test results of the material CSB-EPB5A running against different shaft materials. It is suitable for hard Aluminum and hard chrome steel shaft. The hard chrome steel shaft will be better when the loading is getting heavier. Graph EPB5A-7 shows CSB-EPB5A is good for oscillation operation.

化学抗性 Chemical resistance

CSB-EPB5A塑料轴承具有极好的化学抗性，能抵抗浓度65%的强酸。

Chemical Resistance of CSB-EPB5A is very good. It can work well in the heavy acid of 65%.

吸水性 Water absorption

CSB-EPB5A塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中的最高吸水率为0.5%。极低吸水率不会导致轴承发生性能变化和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB5A plastic plain bearings is 0.3% in standard atmosphere. The max. water absorption is 0.5% in water. These values are very low, CSB-EPB5A plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB5A塑料轴承长久暴露在紫外线下材料性能不会发生变化。

CSB-EPB5A can maintain its performance to be stable even exposed in the UV ray for long period.

安装公差 Installation tolerances

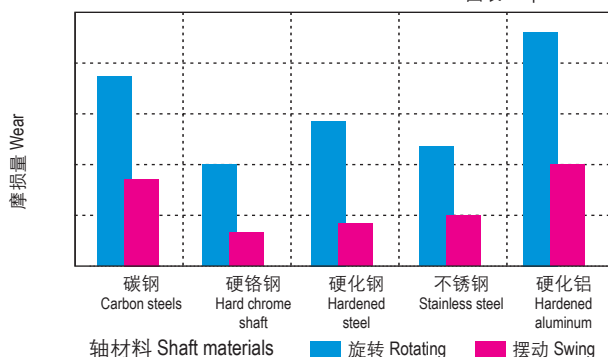
CSB-EPB5A塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB5A F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

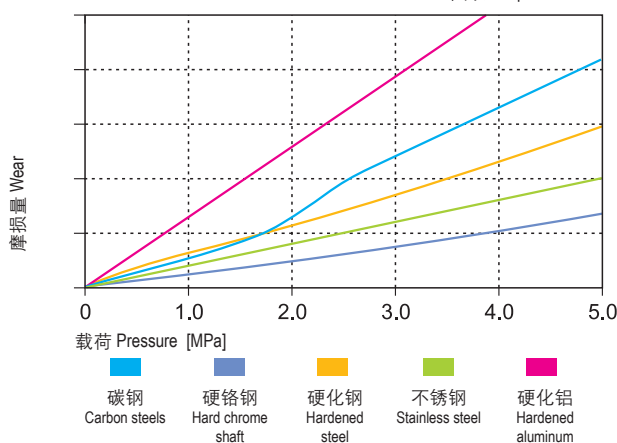
图表 Graph EPB5A-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

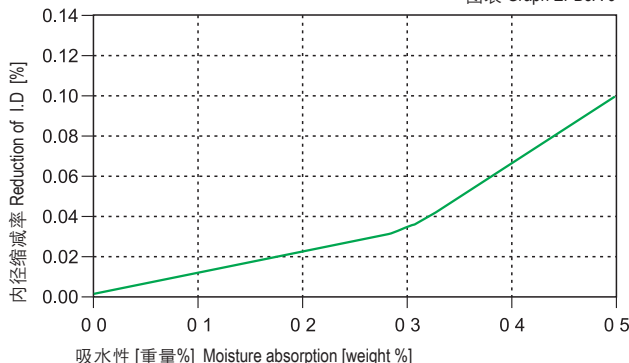
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB5A-8

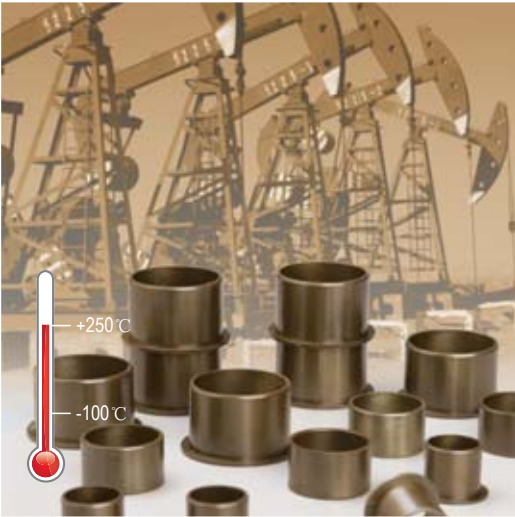


吸水性的影响 Effect of moisture absorption on EPB5A bearings

图表 Graph EPB5A-9



直径 Di [mm]	CSB-EPB5A F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.043 ~ +0.203	0 ~ +0.040	0 ~ -0.100



● 标准产品规格表 Standard specifications: P135

产品特性 Product features

- 高载荷和低摩擦系数出色的材料。可承受边缘载荷。软轴或硬轴配合使用同样耐磨
- 连续使用温度: -100℃/+250℃
- 适合高载荷运动
- 允许较高的运行速度
- 允许边界压力
- 摆动运行性能尤为出色
- It is a high load material with excellent low friction factor. Marginal load application is acceptable and it is with good wear resistance both for hard and soft shafts
- Continuous working temperature: -100℃/+250℃
- High load capacity
- Higher speed is permissible
- Marginal pressure is permissible
- Best performance for oscillating movement

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB5Z
颜色 Color	-	-	棕色 Brown
密度 Density	ISO1183	g/cm ³	1.40
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.1
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	1.00
弯曲模量 Flexural modulus	ISO178	MPa	4200
弯曲强度 Flexural strength	ISO178	MPa	150
最大静载荷 Max. static load	ITS027	MPa	100
最大动载荷 Max. dynamic load	ITS028	MPa	51
邵氏硬度 Shore hardness	ISO868	D	80
连续运行温度 Long-term application temperature	ITS029	℃	+250
短时运行温度 Short-term application temperature	ITS029	℃	+310
最低运行温度 Lowest application temperature	ITS029	℃	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.55
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	5
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹¹
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

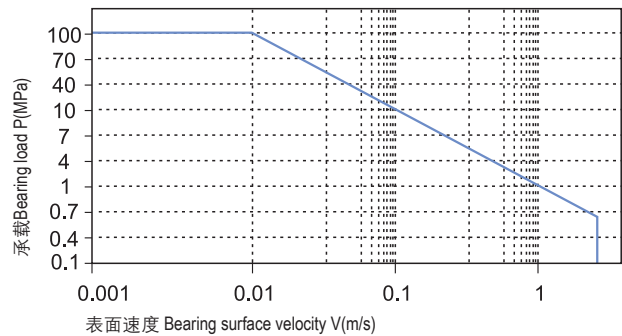
轴承PV值 PV value

CSB-EPB5Z塑料轴承最大运行PV值为1.0N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB5Z-1。

The max PV value of the CSB-EPB5Z plastic bearings is 1.0N/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 EPB5Z-1).

■ PV图表 Permissible PV value for CSB-EPB5Z

图表 Graph EPB5Z-1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB5Z塑料轴承可承受最大静载荷为100MPa，在此载荷下轴承的最大压缩变形量参考图表EPB5Z-2，轴承实际工作载荷略小于100MPa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 250℃) 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EPB5Z-3。

CSB-EPB5Z allows the Max static load of 100MPa, The max compressive deformation rate under the max load is listed in Graph EPB5Z-2, The actual load capacity of bearing is slightly less than 100MPa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.5m/s) results into higher temperature (Tmax: 250℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB5Z-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

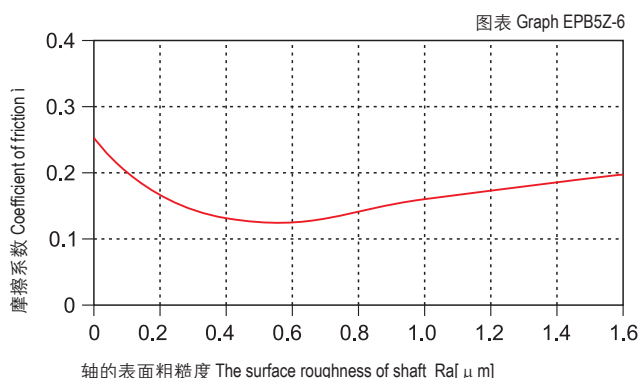
摩擦系数 Friction factor

图表EPB5Z-4表明CSB-EPB5Z塑料轴承在载荷保持不变的情况下轴承的摩擦系数随着旋转速度的增加而先随之升高，当速度值达到0.2m/s后又随着速度的增加而降低；图表EPB5Z-5表明CSB-EPB5Z塑料轴承的摩擦系数在旋转速度保持不变的情况下随着载荷的不断上升而逐渐降低。图表EPB5Z-6表明CSB-EPB5Z塑料轴承对磨轴的粗糙度在Ra0.4 ~ 0.7μm时最适合的。

Graph EPB5Z-4 shows that the friction factor of CSB-EPB5Z is initially increased along with the operation speed increasing when the loading is stable but when the speed reaches over 0.2m/s, it is decreased along with the operation speed increasing. Graph EPB5Z-5 shows that the friction factor of CSB-EPB5Z is decreasing along with the loading increasing when the operation speed is stable. The best shaft roughness for this material is Ra0.4~0.7.

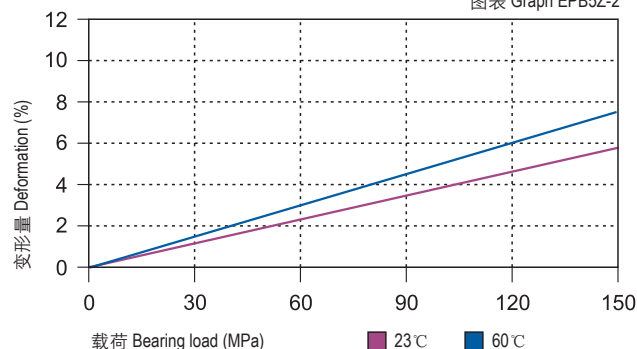
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



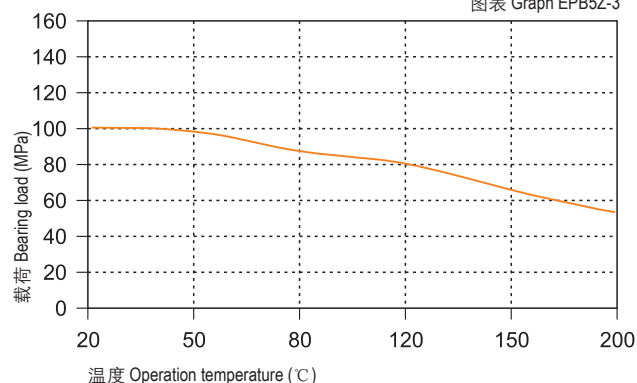
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB5Z-2



载荷-温度图表 Load-Temperature diagrams

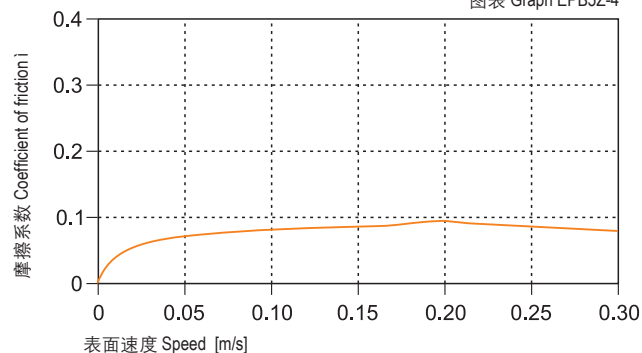
图表 Graph EPB5Z-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

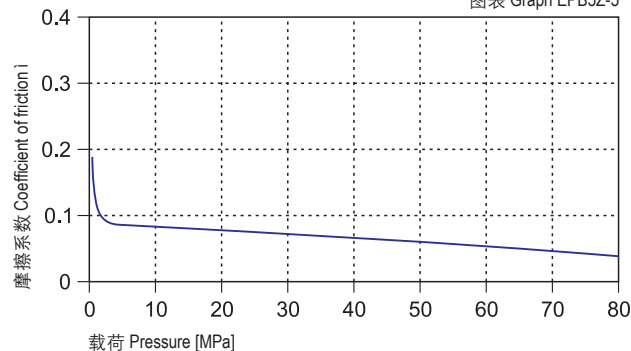
图表 Graph EPB5Z-4



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 = 0.2 m/s

图表 Graph EPB5Z-5



CSB-EPB5Z	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EPB5Z-7与图表EPB5Z-8表明CSB-EPB5Z塑料轴承在低载下的磨损速率和其它轴承类似，而在中高载荷时此轴承的耐磨性要比其它轴承都要好；同时我们可以看出硬化轴比较适合用于CSB-EPB5Z塑料轴承。图表EPB5Z-7表明CSB-EPB5Z塑料轴承在摆动下的磨损要比旋转下的要小，当载荷超过20Mpa时这种现象尤为明显。在旋转运动下我们推荐使用硬化钢轴比较适合，而在摆动运动下我们建议采用不锈钢轴或硬铬钢轴比较理想。

Graph EPB5Z-7 and Graph EPB5Z-8 shows that the wearing speed of CSB-EPB5Z is similar with most of the other materials under lower loading but it will be much better when the loading is higher. It also tells that the hardened steel shaft is good for CSB-EPB5Z bearings. Graph EPB5Z-7 shows the wearing rate is less in oscillation operation than in rotation operation especially when the loading is over 20Mpa. Heat-treated steel shaft is recommended in rotation operation and stainless steel and hardened chrome steel shaft is recommended in oscillation operation.

化学抗性 Chemical resistance

CSB-EPB5Z塑料轴承可以抵抗弱酸、弱碱以及各类润滑油的腐蚀。

CSB-EPB5Z is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB5Z塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.1%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB5Z plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.1% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB5Z塑料轴承长久暴露在紫外线下材料性能会逐渐下降。

The material performance of CSB-EP5Z will be lowered if it is exposed in the UV ray for long period.

安装公差 Installation tolerances

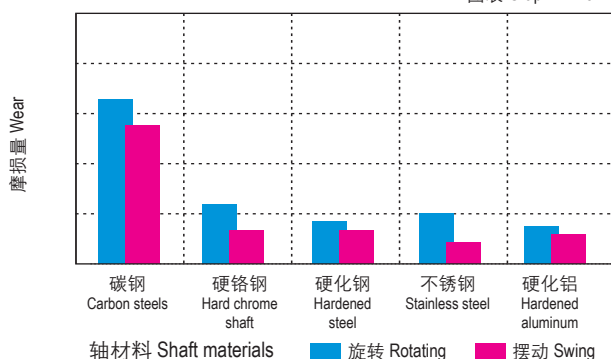
CSB-EPB5Z塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB5Z F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

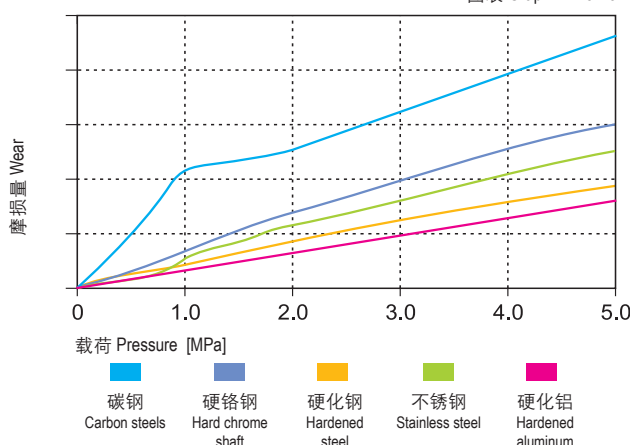
图表 Graph EPB5Z-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

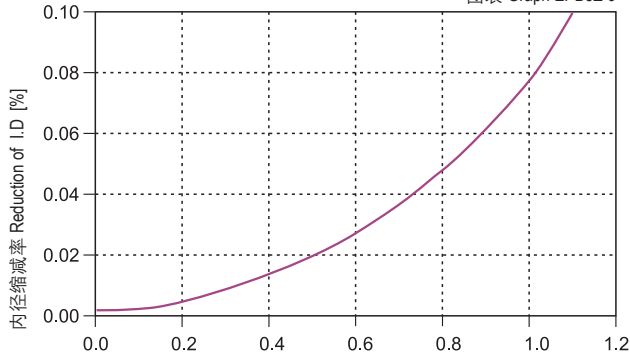
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB5Z-8



吸水性的影响 Effect of moisture absorption on EPB5Z bearings

图表 Graph EPB5Z-9



直径 Di. [mm]	CSB-EPB5Z F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.043 ~ +0.203	0 ~ +0.040	0 ~ -0.100



产品特性 Product features

- 80度下较好的耐磨材料。被应用于对轴硬度要求不高的场合。白色也是较多清洁设备和包装机械的考虑因素
- 连续使用温度: -40℃/+80℃
- 对轴表面粗糙度要求低
- 较低的摩擦系数
- 适用于软轴
- It is a wear resistance material for working temperature lower than 80℃. The application is for the condition where the shaft hardness is not critical. The white color of the material is also commonly used for most of the clearing and packing machineries
- Continuous working temperature: -40℃/+80℃
- No special requirement on the surface roughness
- Low friction coefficient
- Applicable for soft shaft

标准产品规格表 Standard specifications: P124

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB6
颜色 Color	-	-	白色 White
密度 Density	ISO1183	g/cm³	1.45
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.18
极限PV值 Max. PV value	ITS026	N/mm² × m/s	0.30
弯曲模量 Flexural modulus	ISO178	MPa	2300
弯曲强度 Flexural strength	ISO178	MPa	60
最大静载荷 Max. static load	ITS027	MPa	35
最大动载荷 Max. dynamic load	ITS028	MPa	14
邵氏硬度 Shore hardness	ISO868	D	74
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.20
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

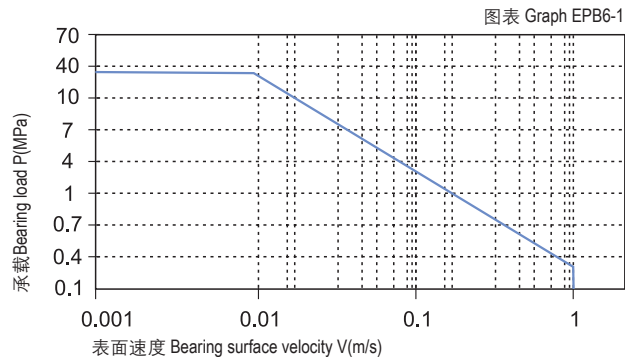
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB6塑料轴承最大运行PV值为0.3N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB6-1。

The max PV value of the CSB-EPB6 plastic bearings is 0.3N/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 EPB6-1).

PV图表 Permissible PV value for CSB-EPB6



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB6塑料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EPB6-2，轴承实际工作载荷略小于35Mpa，载荷还受到运行速度以及温度的影响，速度越快 (V_{max} : 1.0m/s) 会导致摩擦温度上升，而温度上升 (T_{max} : 80℃) 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EPB6-3。

CSB-EPB6 allows the Max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPB6-2, The actual load capacity of bearing is slightly less than 35Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 1.0m/s) results into higher temperature (T_{max} : 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB6-3 for such variation.

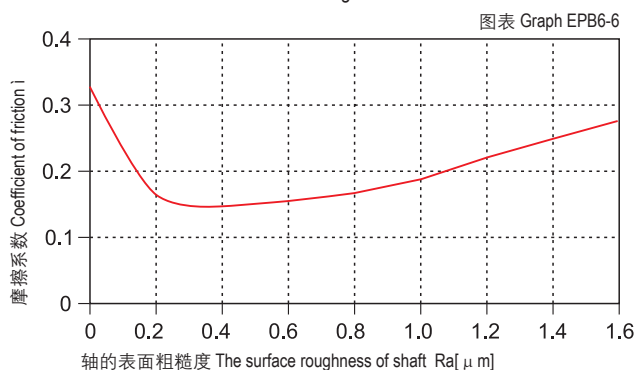
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

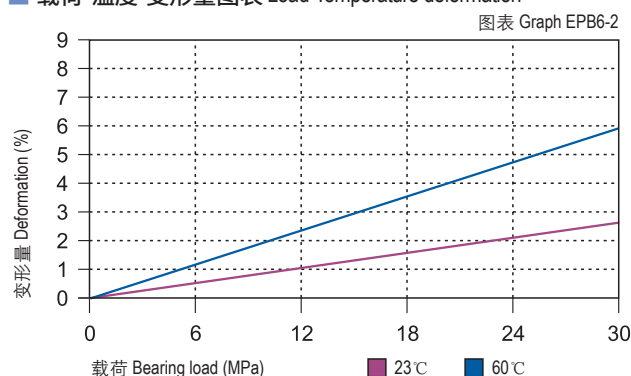
图表EPB6-4表明CSB-EPB6塑料轴承在载荷保持不变的情况下摩擦系数随着运行速度的增加而略有小幅度的升高；图表EPB6-5表明CSB-EPB6塑料轴承在保持速度不变时摩擦系数随着载荷的增加而逐步减低。根据图表EPB6-6表明CSB-EPB6塑料轴承的摩擦系数会随着轴表面粗糙度的变化而不同，我们推荐使用轴粗糙度为Ra0.3 ~ 0.6 μ m；

Graph EPB6-4 shows the CSB-EPB6 friction factor is slightly increased as long as the operation speed increasing when the loading is relatively stable. Graph EPB6-5 shows the friction factor of CSB-EPB6 is continuing decreasing along with the loading increasing when the operation speed is relatively stable. From Graph EPB6-6, it is found that the friction factor is also variable against the shaft surface roughness. The recommended shaft surface roughness is Ra0.3~0.6.

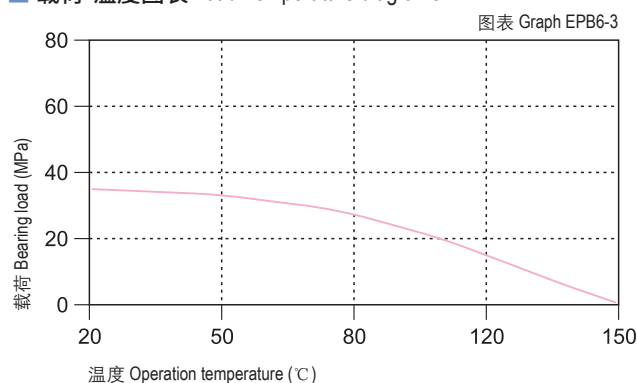
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



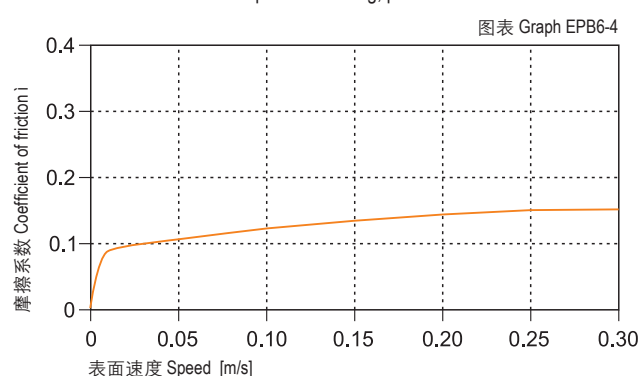
载荷-温度-变形量图表 Load-Temperature deformation



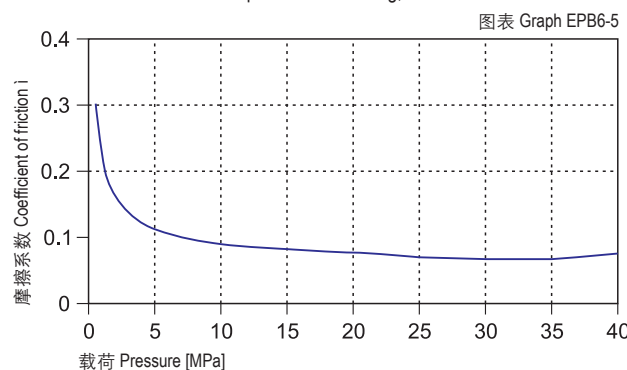
载荷-温度图表 Load-Temperature diagrams



摩擦系数与速度变化关系图表 $P=2\text{MPa}$ Coefficient of friction & the speed of bearing, $p = 2\text{MPa}$



摩擦系数与载荷变化关系图表 $v=0.2\text{m/s}$ Coefficient of friction & the pressure of bearing, $v = 0.2\text{m/s}$



CSB-EPB6	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.18	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB6-7与图表EPB6-8表明硬化钢轴或硬铬钢轴比较适合用于CSB-EPB6塑料轴承。CSB-EPB6塑料轴承在用于旋转运动或摆动运动时的磨损性能基本相同，这就决定了此轴承可以用于多种场合。

Graph EPB6-7 and Graph EPB6-8 describes CSB-EPB6 bearing is suitable for hardened steel and hardened chrome steel shaft. CSB-EPB6 is very similar during its rotation operation and oscillation operation so that this material is suitable for most of the applications.

化学抗性 Chemical resistance

CSB-EPB6塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

CSB-EPB6 is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB6塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.2%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB6 plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.2% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB6塑料轴承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。

CSB-EPB6 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.

安装公差 Installation tolerances

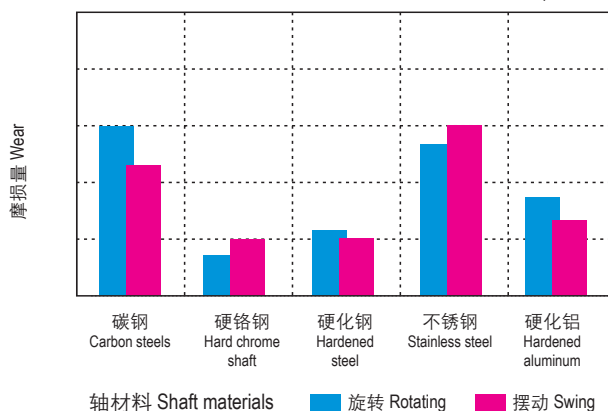
CSB-EPB6塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB6 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

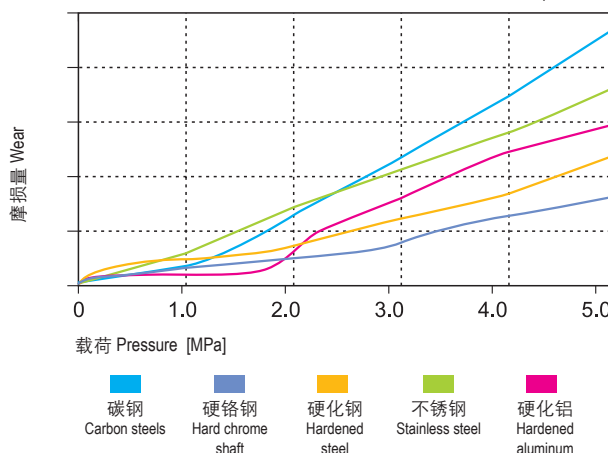
图表 Graph EPB6-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

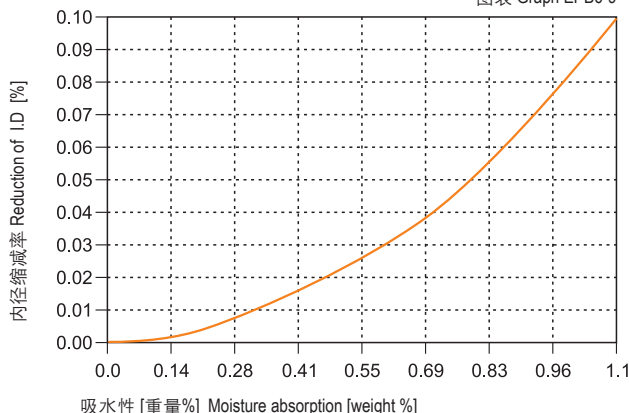
图表 Graph EPB6-8

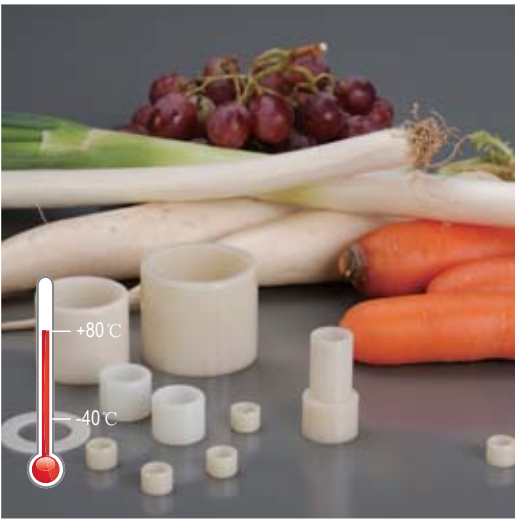


吸水性的影响

Effect of moisture absorption on EPB6 bearings

图表 Graph EPB6-9





标准产品规格表 Standard specifications: P124

产品特性 Product features

- 不含PTFE和Silicon材料。应用于食品加工和包装工业
- 连续使用温度: -40℃/+80℃
- 对轴表面粗糙度要求低
- 较低的摩擦系数
- 适用于软轴
- FDA等级食品安全认证
- It is a PTFE and Silicon free material widely used in the food and packing machineries.
- Continuous working temperature: -40℃/+80℃
- No special requirement on the surface roughness
- Low friction coefficient
- Applicable for flexible shaft
- FDA grade

材料数据表 Material properties data table

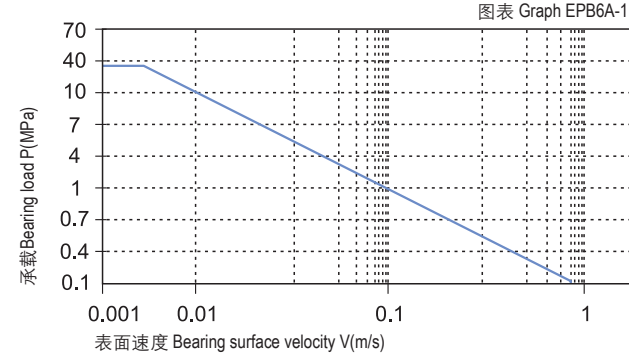
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB6A
颜色 Color	-	-	白色 White
密度 Density	ISO1183	g/cm ³	1.10
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.5
最大吸水率 Max. water absorption	ISO62	%	7.6
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.40
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.10
弯曲模量 Flexural modulus	ISO178	MPa	1300
弯曲强度 Flexural strength	ISO178	MPa	55
最大静载荷 Max. static load	ITS027	MPa	35
最大动载荷 Max. dynamic load	ITS028	MPa	12
邵氏硬度 Shore hardness	ISO868	D	70
连续运行温度 Long-term application temperature	ITS029	℃	+80
短时运行温度 Short-term application temperature	ITS029	℃	+170
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.23
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	11
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB6A塑料轴承最大运行PV值为0.1N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB6A-1。
The max PV value of the CSB-EPB6A plastic bearings is 0.1N/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 EPB6A-1).

PV图表 Permissible PV value for CSB-EPB6A



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EP6A塑料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EPB6A-2，轴承实际工作载荷略小于35Mpa，载荷还受到运行速度以及温度的影响，速度越快 ($V_{\max}$: 0.6m/s) 会导致摩擦温度上升，而温度上升 ($T_{\max}$: 80℃) 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EPB6A-3。

CSB-EP6A allows the Max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPB6A-2, The actual load capacity of bearing is slightly less than 35Mpa, The bearing load is variable against the speed and temperature, Fast speed ($V_{\max}$: 0.6m/s) results into higher temperature ($T_{\max}$: 80℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB6A-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

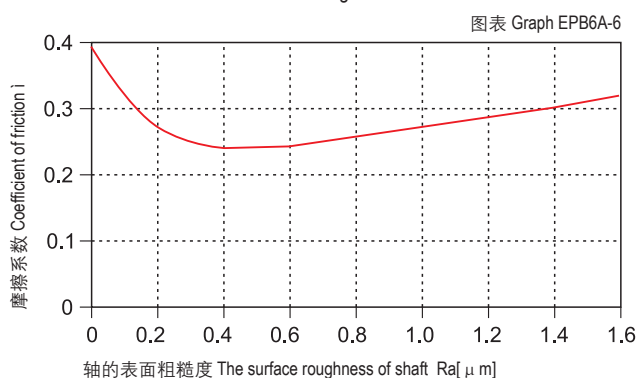
摩擦系数 Friction factor

图表EPB6A-4表明CSB-EP6A塑料轴承的摩擦系数在载荷一定的情况下随着运行速度的增加而快速升高；图表EPB6A-5表明CSB-EP6A塑料轴承在速度一定的情况下载荷低于10Mpa时摩擦系数随着载荷的增加而逐步降低，而当载荷高于10Mpa时摩擦系数的变化相对比较平缓。图表EPB6A-6表明CSB-EP6A塑料轴承的摩擦系数受轴表面粗糙度影响比较大，我们推荐使用轴表面粗糙度为Ra0.3 ~ 0.6 μ m。

CSB-EP6A Bearing Friction factor is increased along with the increasing of the operation speed under certain loading (See Graph EPB6A-4). The friction factor of CSB-EP3M is decreased along with the loading increasing not over 10Mpa (see Graph EPB6A-5). The friction factor will not change much along with the speed when the loading is over 10Mpa. The Graph EPB6A-6 shows that the bearing could achieve its best performance when the counter shaft surface roughness is around Ra0.3 to Ra0.6.

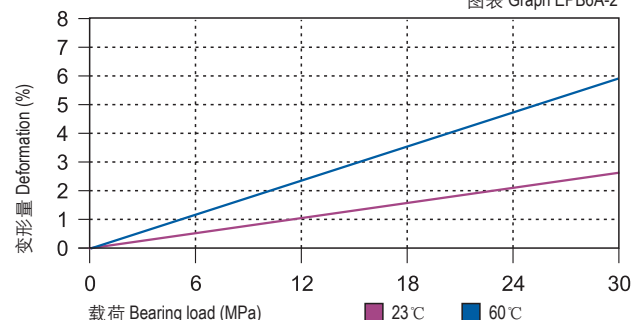
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



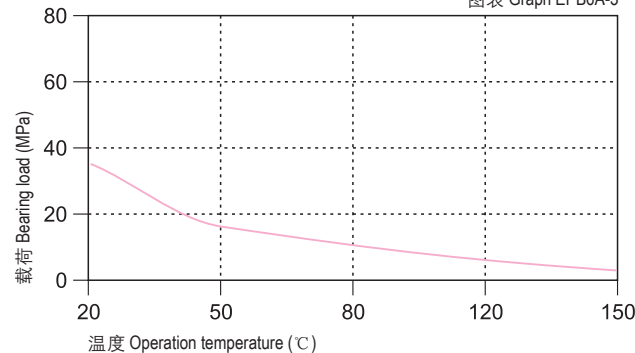
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB6A-2



载荷-温度图表 Load-Temperature diagrams

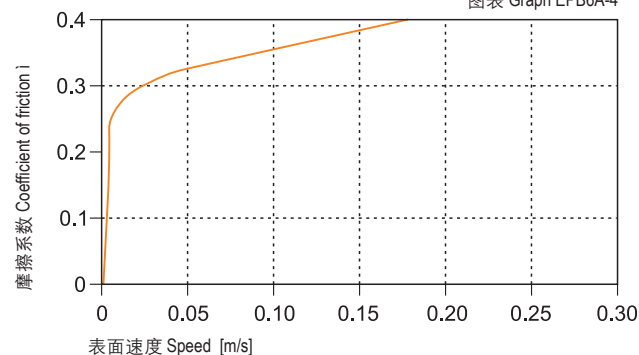
图表 Graph EPB6A-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, $p = 2$ MPa

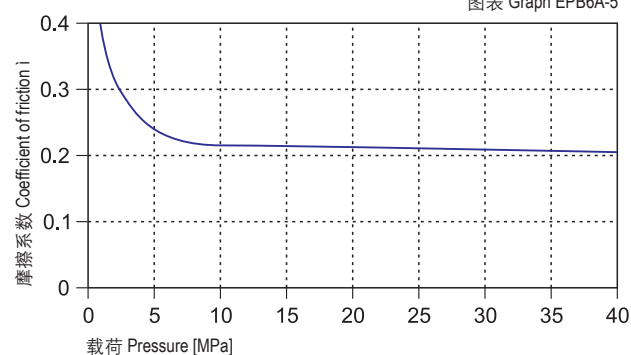
图表 Graph EPB6A-4



摩擦系数与载荷变化关系图表 v=0.2m/s

Coefficient of friction & the pressure of bearing, $v = 0.2$ m/s

图表 Graph EPB6A-5



CSB-EPB6A	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.10~0.40	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB6A-7与图表EPB6A-8为CSB-EPB6A塑料轴承在不同轴材料下旋转运动的结果，由此表明CSB-EPB6A塑料轴承磨损受轴材料影响比较大，通过试验结果我们推荐使用硬铬轴。图表EPB6A-7表明CSB-EPB6A塑料轴承在大多数情况下比较适合用于摆动，但当轴材料为硬铬钢时旋转运动效果是最佳的，而在做摆动运动时硬铬碳钢轴效果是更好的。

Graph EPB6A-7 and Graph EPB6A-8 show the test results of the material CSB-EPB6A running against different shaft materials. The test result induces that the wearing is considerably affected by the different shaft materials. It is recommended to use hard chrome steel shaft for this material. Graph EPB6A-7 shows CSB-EPB6A is commonly suitable for oscillation operation but it features well for the rotation operation when the shaft material is hard chrome and it is good for oscillation operation when the shaft material is carbon steel steel.

化学抗性 Chemical resistance

CSB-EPB6A塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB6A is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB6A塑料轴承在标准大气中的吸湿率为1.5%。浸泡在水中最高吸水率为7.6%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB6A plastic plain bearings is 1.5% in standard atmosphere. The max. water absorption is 7.6% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB6A塑料轴承长久暴露在紫外线下材料性能基本都不会发生改变。

When CSB-EPB6A is exposed into the UV ray, the material performance stays stable.

安装公差 Installation tolerances

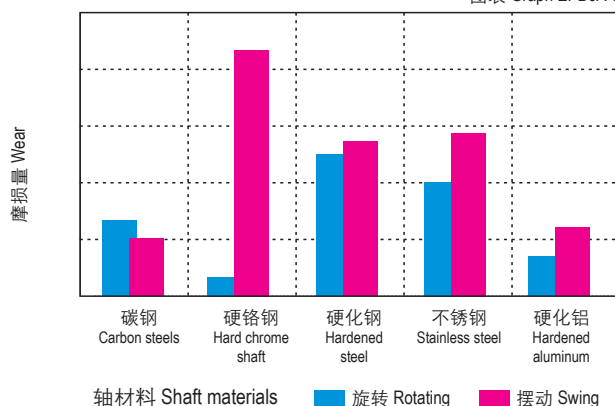
CSB-EPB6A塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB6A E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

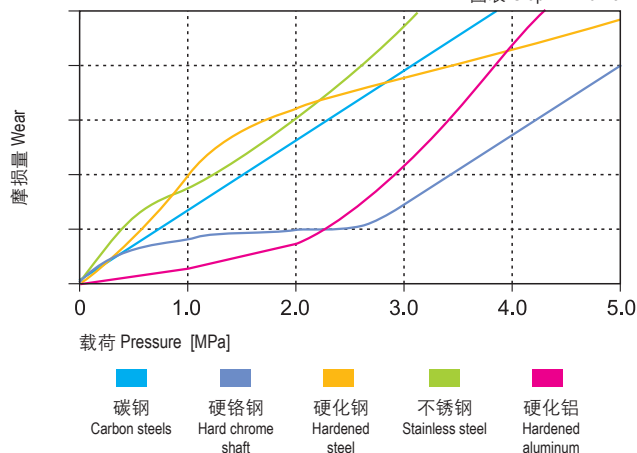
图表 Graph EPB6A-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

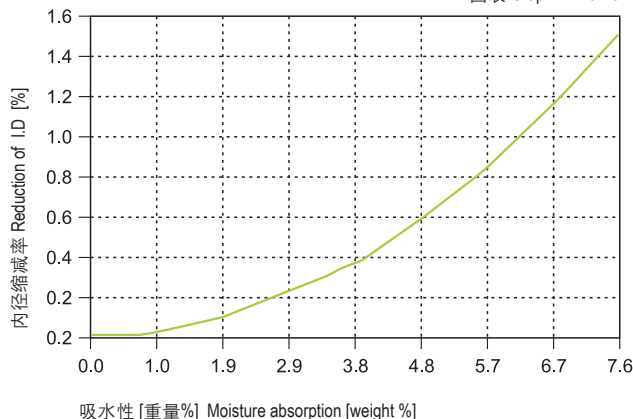
图表 Graph EPB6A-8



吸水性的影响

Effect of moisture absorption on EPB6A bearings

图表 Graph EPB6A-9





标准产品规格表 Standard specifications: P138

产品特性 Product features

- 低摩擦系数和高耐磨性的材料。出色的耐磨性能被应用于CSB其它塑料轴承不能胜任的场合。适合软轴和硬轴材料配合使用
- 连续使用温度: -40℃/+90℃
- 非常耐磨长寿命
- 适合在灰尘中运行
- 对轴表面粗糙度要求低
- 较低的摩擦系数
- 适用于软轴
- A material with low friction factor and good wear resistance. The outstanding wear resistance feature of it ensures the applications where the other plastic bearings are not suitable. It is good for both hard and soft shaft
- Continuous working temperature: -40℃/+90℃
- Good wear resistance with long service life
- Suitable for operation in dusty environment
- No special requirement on the surface roughness
- Low friction coefficient
- Applicable for flexible shaft

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB7
颜色 Color	-	-	米黄 Cream
密度 Density	ISO1183	g/cm ³	1.25
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.3
最大吸水率 Max. water absorption	ISO62	%	6.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.09-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.50
弯曲模量 Flexural modulus	ISO178	MPa	3200
弯曲强度 Flexural strength	ISO178	MPa	75
最大静载荷 Max. static load	ITS027	MPa	60
最大动载荷 Max. dynamic load	ITS028	MPa	25
邵氏硬度 Shore hardness	ISO868	D	75
连续运行温度 Long-term application temperature	ITS029	℃	+90
短时运行温度 Short-term application temperature	ITS029	℃	+180
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	9
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

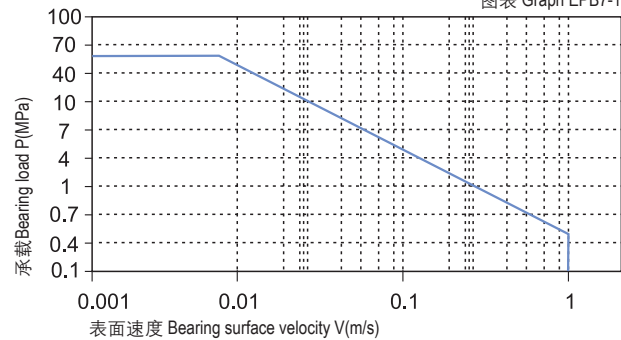
轴承PV值 PV value

CSB-EPB7塑料轴承最大运行PV值为0.5N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB7-1。

The max PV value of the CSB-EPB7 plastic bearings is 0.5N/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 EPB7-1).

PV图表 Permissible PV value for CSB-EPB7

图表 Graph EPB7-1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB7塑料轴承可承受最大静载荷为60Mpa, 在此载荷下轴承的最大压缩变形量参考图表EPB7-2, 轴承实际工作载荷略小于60Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (V_{max} : 1.0m/s) 会导致摩擦温度上升, 而温度上升 (T_{max} : 90℃) 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EPB7-3。

CSB-EPB7 allows the Max static load of 60Mpa, The max compressive deformation rate under the max load is listed in Graph EPB7-2, The actual load capacity of bearing is slightly less than 60Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 1.0m/s) results into higher temperature (T_{max} : 90℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB7-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

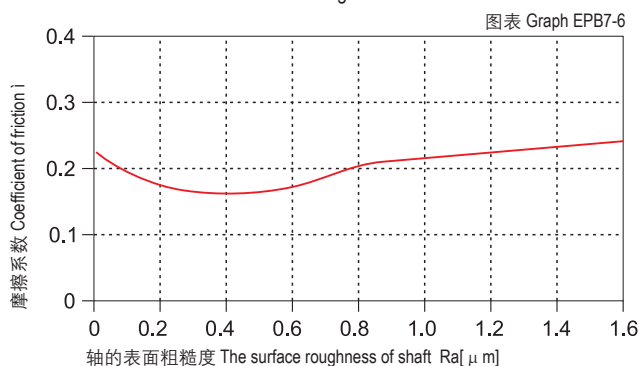
摩擦系数 Friction factor

图表EPB7-4表明CSB-EPB7塑料轴承的摩擦系数随着运动速度的变化影响较小, 而图表EPB7-5表明CSB-EPB7塑料轴承的摩擦系数随着载荷的增加明显减小, 在载荷超过20Mpa是逐渐趋于平稳; 图表EPB7-6表明CSB-EPB7塑料轴承的摩擦系数受轴粗糙度的影响也相对比较小; 虽然如此, 我们还是建议轴的表面不能太光滑, 也不能过于出差, 推荐使用轴的粗糙度为 $Ra0.3 \sim 0.6\mu m$;

CSB-EPB7 Bearing Friction factor is not so sensitive to the operation speed (see Graph EPB7-4). The friction factor is considerably decreased along with the loading increasing and it will be turned to be stable when the loading reaches 20Mpa. Graph EPB7-5 shows the friction factor of the bearing is also not sensitive to the shaft roughness but we still recommend that the roughness of the shaft should be neither too smooth nor too rough. It is recommended to keep the roughness of the shaft to be within the range of $Ra0.3$ to $Ra0.6$.

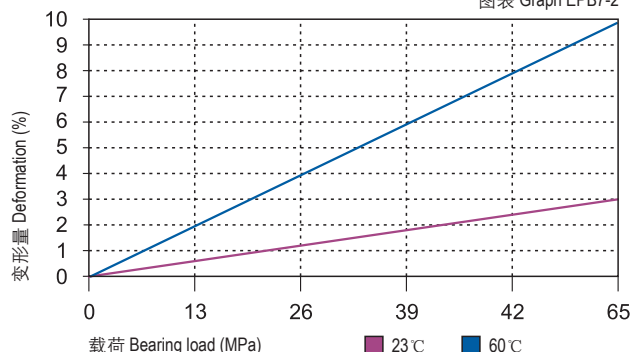
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



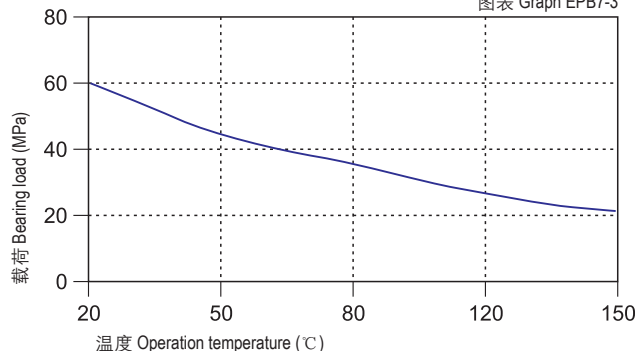
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB7-2



载荷-温度图表 Load-Temperature diagrams

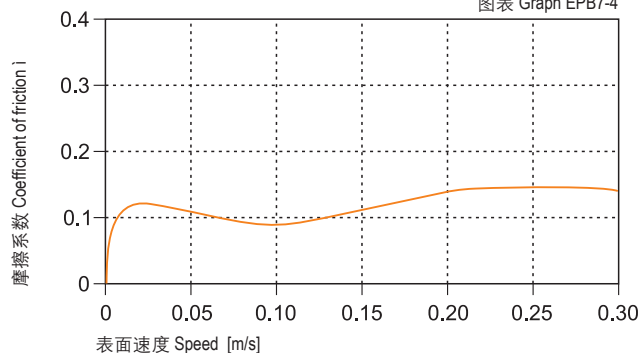
图表 Graph EPB7-3



摩擦系数与速度变化关系图表 $P=2\text{MPa}$

Coefficient of friction & the speed of bearing, $p = 2\text{ MPa}$

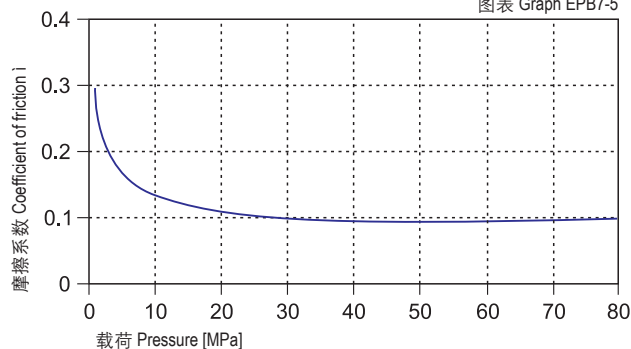
图表 Graph EPB7-4



摩擦系数与载荷变化关系图表 $v=0.2\text{m/s}$

Coefficient of friction & the pressure of bearing, $v = 0.2\text{ m/s}$

图表 Graph EPB7-5



CSB-EPB7	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.09~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB7-7表明CSB-EPB7塑料轴承在2Mpa下做旋转运动时，磨损随着轴材料的变化较大；通过实验表明CSB-EPB7塑料轴承在做旋转运动时比较适合用于硬铬轴，硬化钢轴和硬铬轴上用于CSB-EPB7塑料轴承能获得良好的运行效果。图表EPB7-8表明硬铬轴更适合用于高载荷下的CSB-EPB7塑料轴承，随着载荷的不断增加，轴承的磨损速率却变化较小，图表EPB7-8表明CSB-EPB7塑料轴承在不同载荷下的差异。

Graph EPB7-7 shows that the CSB-EPB7 material is not sensitive with different materials under the rotating operation. It is suitable for hard shaft and high speed steel shaft as well as hard chrome steel shaft. Graph EPB7-8 shows that the hard chrome steel shaft is most suitable for using CSB-EPB7 bearing because the wearing speed is not sensitive when the loading is increased. From the Graph EPB7-8, it shows that CSB-EP7 features different performance.

化学抗性 Chemical resistance

CSB-EPB7塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。
CSB-EPB7 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB7塑料轴承在标准大气中的吸湿率为1.3%。浸泡在水中最高吸水率为6.5%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB7 plastic plain bearings is 1.3% in standard atmosphere. The max. water absorption is 6.5% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB7塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能基本都不会发生改变。

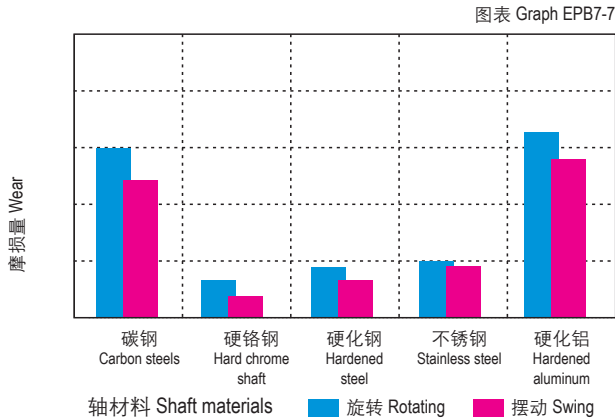
The color of CSB-EPB7 could be dimmed when it is exposed into the UV ray. The material performance stays stable.

安装公差 Installation tolerances

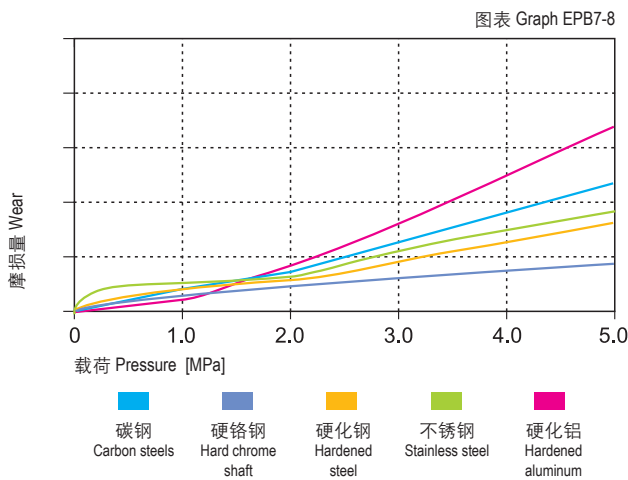
CSB-EPB7塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB7 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

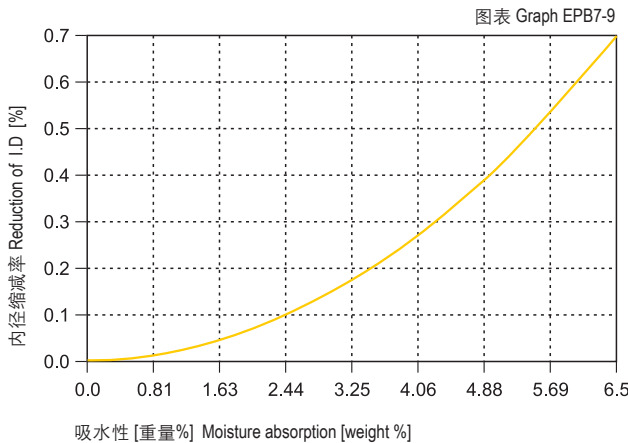
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$
Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$



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



吸水性的影响
Effect of moisture absorption on EPB7 bearings





标准产品规格表 Standard specifications: P132

产品特性 Product features

- 一种专门为水下应用而开发的材料。在水下耐磨性尤为出色，可在200度的化学液体中连续运动
- 连续使用温度：-40℃/+200℃
- 重载下耐磨性较好
- 适合水下运行、免维护
- 化学抗性好
- A special material for the application in water. The wear resistance could even be improved in water. It is able to be continuously operated in a chemical liquid with temperature of 200 °C
- Continuous working temperature: -40℃/+200℃
- Good wear resistance under high load
- Suitable for underwater operation
- Good chemical resistance

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB8
颜色 Color	-	-	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.55
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.1
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.07-0.18
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.80
弯曲模量 Flexural modulus	ISO178	MPa	8000
弯曲强度 Flexural strength	ISO178	MPa	150
最大静载荷 Max. static load	ITS027	MPa	85
最大动载荷 Max. dynamic load	ITS028	MPa	47
邵氏硬度 Shore hardness	ISO868	D	82
连续运行温度 Long-term application temperature	ITS029	℃	+200
短时运行温度 Short-term application temperature	ITS029	℃	+240
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.50
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	5
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ⁵
面电阻率 Surface resistance	IEC60093	Ω	>10 ⁵

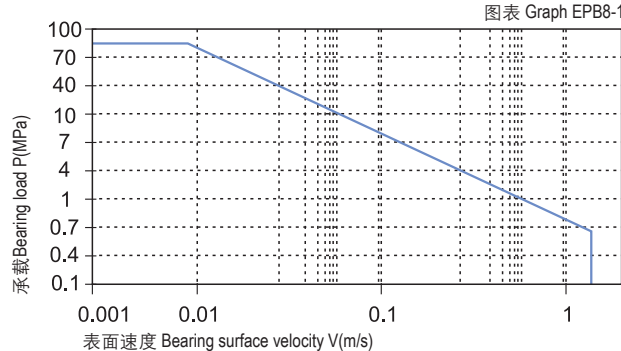
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB8塑料轴承最大运行PV值为0.8N/mm² × m/s；由此决定轴承所承受的载荷与速度成反比，详细查阅图表EPB8-1。

The max PV value of the CSB-EPB8 plastic bearings is 0.8N/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 EPB8-1).

PV图表 Permissible PV value for CSB-EPB8



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB8塑料轴承可承受最大静载荷为85Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB8-2，轴承实际工作载荷略小于85Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.2m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 200℃) 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EPB8-3。

CSB-EPB8 allows the Max static load of 85Mpa, The max compressive deformation rate under the max load is listed in Graph EPB8-2, The actual load capacity of bearing is slightly less than 85Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.2m/s) results into higher temperature (Tmax: 200℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB8-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

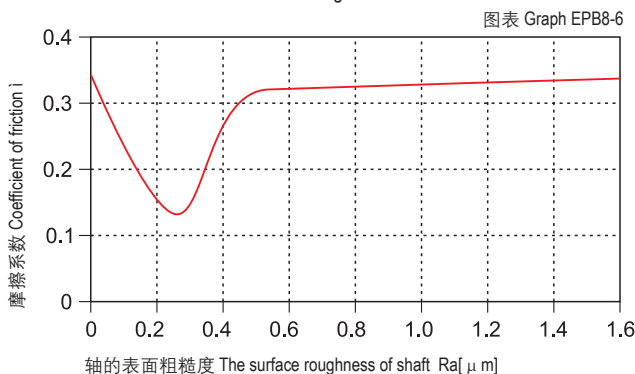
摩擦系数 Friction factor

图表EPB8-4表明CSB-EPB8塑料轴承的摩擦系数在载荷保持不变时随着运行速度的增加影响较小；专用润滑剂的植入使得此轴承更适合用于水下。图表EPB8-5表明CSB-EPB8塑料轴承在速度保持不变的情况下载荷超过20Mpa摩擦系数随着载荷的变化相对较小。图表EPB8-6表明轴表面粗糙度对CSB-EPB8塑料轴承的摩擦系数影响较大，在轴表面粗糙度超过Ra0.7时趋于平稳。我们推荐使用轴的表面粗糙度为Ra0.2 ~ 0.3μm。

Graph EPB8-4 shows that the friction factor of CSB-EPB8 is not considerably affected by the operation speed when the loading is stable. The special embedded lubricant helps the material to be suitable for the underwater operation. When the operation speed keeps stable and the loading is over 20Mpa, the friction factor of CSB-EPB8 is not variable along with the loading change (See Graph EPB8-5). The shaft roughness highly affects the friction factor but this affecting will be stable when the shaft roughness is better than Ra0.7 (See Graph EPB8-6). The recommended shaft roughness is Ra0.2 to Ra0.3.

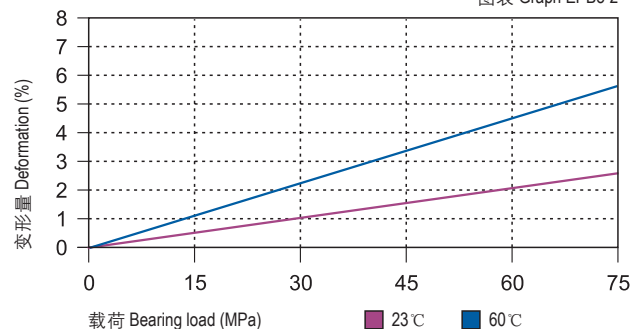
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



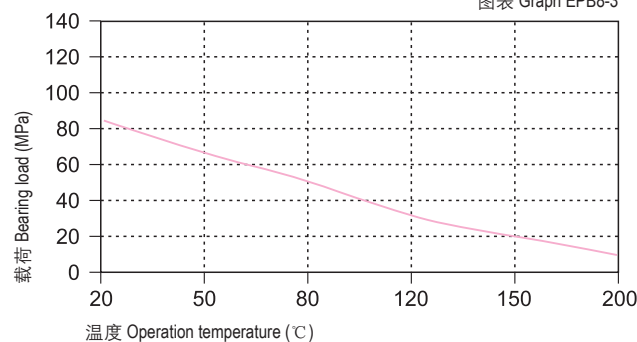
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB8-2



载荷-温度图表 Load-Temperature diagrams

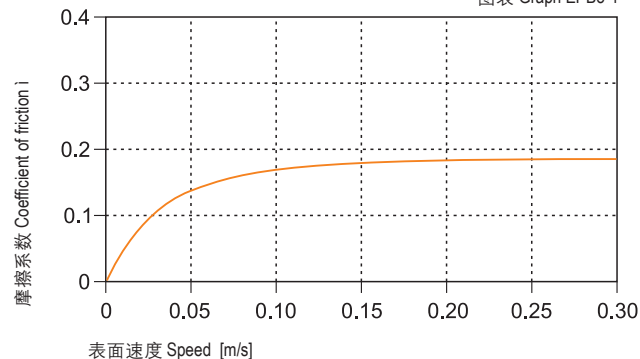
图表 Graph EPB8-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

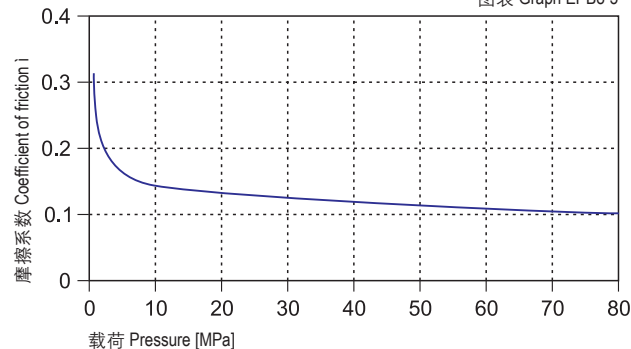
图表 Graph EPB8-4



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 = 0.2 m/s

图表 Graph EPB8-5



CSB-EPB8	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.07~0.18	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB8-7与图表EPB8-8对CSB-EPB8塑料轴承在不同轴材料旋转运动下的测试结果表明，CSB-EPB8塑料轴承最理想的轴材料是硬铬钢轴，而不锈钢轴不适合用于此轴承。CSB-EPB8塑料轴承在摆动运动中采用不锈钢轴或硬铬钢轴比较适合，而在旋转运动中硬铬钢轴依然是更佳的选择。

The rotation test against different shaft material showing in Graph EPB8-7 and Graph EPB8-8 induces that the best mating shaft material for the material CSB-EPB8 is hardened chrome steel shaft but not stainless steel shaft. CSB-EPB8 is best for stainless steel and hardened chrome steel shaft in oscillation operation and especially the hardened chrome steel shaft is the best choice in rotation operation.

化学抗性 Chemical resistance

CSB-EPB8塑料轴承具有很好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of CSB-EPB8 is fairly good against most of Acid and Alkalies.

吸水性 Water absorption

CSB-EPB8塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.1%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于水下。

The moisture absorption of CSB-EPB8 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.1% in water. These values are very low, CSB-EPB8 plastic plain bearings is very well suited for used in water.

抗UV性能 UV resistance

CSB-EPB8塑料轴承长久暴露在紫外线下材料表面会发生蜕变，抗压强度会下降。

Disintegration could be possible for the material CSB-EPB8 after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

安装公差 Installation tolerances

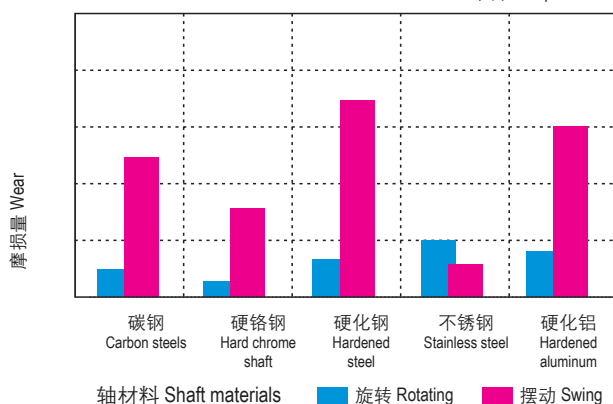
CSB-EPB8塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB8 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.043 ~ +0.203	0 ~ +0.040	0 ~ -0.100

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

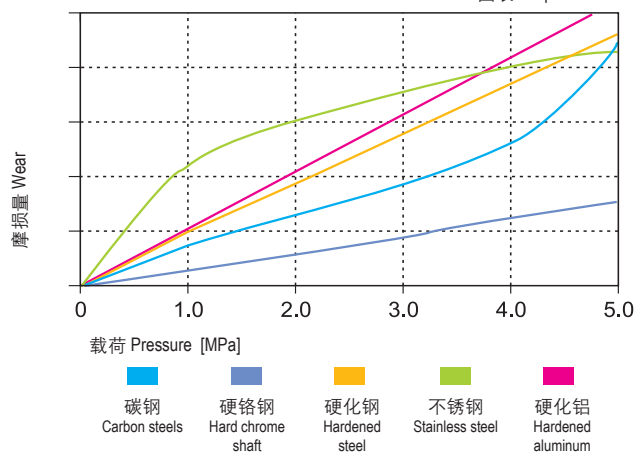
图表 Graph EPB8-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

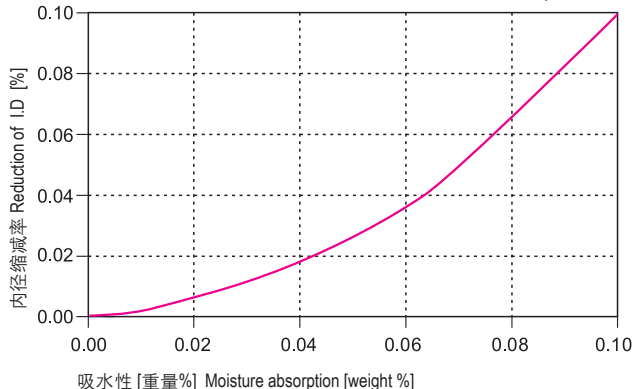
图表 Graph EPB8-8



吸水性的影响

Effect of moisture absorption on EPB8 bearings

图表 Graph EPB8-9





● 标准产品规格表 Standard specifications: P128

产品特性 Product features

- 导电性优良的自润滑材料。主要因用于高载荷下导电性需求
- 连续使用温度: -40℃/+140℃
- 专用于要求抗静电场合
- 适合低速运动
- 较高的承载能力
- Self-lubricated material with good elctricity conductivity. Mainly used with the high load and electricity conductive environment
- Continuous working temperature: -40℃/+140℃
- Specially use for static electricity existing environment
- Suitable for low speed operation
- Higher load capacity

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB9
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.28
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.3
最大吸水率 Max. water absorption	ISO62	%	6.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.40
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.35
弯曲模量 Flexural modulus	ISO178	MPa	10000
弯曲强度 Flexural strength	ISO178	MPa	250
最大静载荷 Max. static load	ITS027	MPa	105
最大动载荷 Max. dynamic load	ITS028	MPa	58
邵氏硬度 Shore hardness	ISO868	D	82
连续运行温度 Long-term application temperature	ITS029	℃	+140
短时运行温度 Short-term application temperature	ITS029	℃	+180
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.60
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	11
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω·cm	<10 ³
面电阻率 Surface resistance	IEC60093	Ω	<10 ³

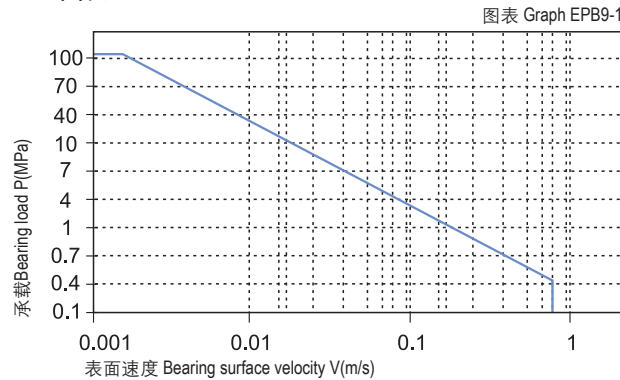
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB9塑料轴承最大运行PV值为0.35N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB9-1。

The max PV value of the CSB-EPB9 plastic bearings is 0.35N/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 EPB9-1).

■ PV图表 Permissible PV value for CSB-EPB9



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB9塑料轴承可承受最大静载荷为105Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB9-2，轴承实际工作载荷略小于105Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 0.8m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 140℃) 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EPB9-3。

CSB-EPB9 allows the Max static load of 105Mpa, The max compressive deformation rate under the max load is listed in Graph EPB9-2, The actual load against the speed and temperature, Fast speed (Vmax: 0.8m/s) results into higher temperature (Tmax: 140℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB9-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

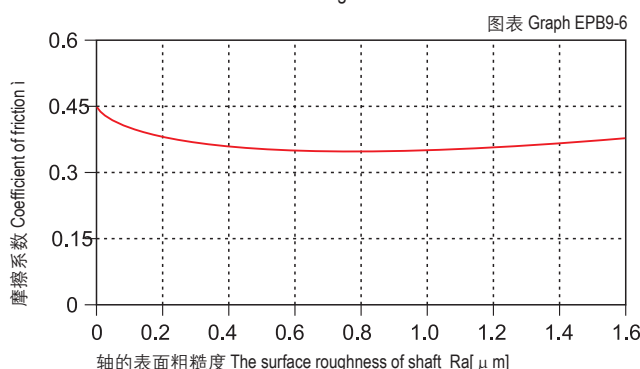
摩擦系数 Friction factor

图表EPB9-4表明CSB-EPB9塑料轴承的摩擦系数相对其它塑料轴承较高，这主要是由于此轴承材料内部植入了导电纤维的原因；这就决定了此轴承在有润滑的情况下摩擦系数更好。图表EPB9-5表明CSB-EPB9塑料轴承的摩擦系数同样会随着载荷的增加而逐步降低；图表EPB9-6表明CSB-EPB9塑料轴承的摩擦系数在轴粗糙度为Ra0.1~0.5之间时随着轴粗糙度的增大而逐步减低，而当轴表面粗糙度在Ra0.5~1.6之间时却影响较小。

Graph EPB9-4 shows that the friction factor of CSB-EPB9 is much higher than those of other materials because the electronic conductive fiber is embedded into the bearing material. It is induced that the friction performance will be better when the bearing is lubricated. Graph EPB9-5 shows that the friction factor is decreasing along with the loading increasing and Graph EPB9-6 shows that the friction factor is increasing along with the shaft roughness increasing when the shaft roughness is between Ra0.1 to Ra0.5. This effecting will be less when the shaft roughness is between Ra0.5 to Ra1.6.

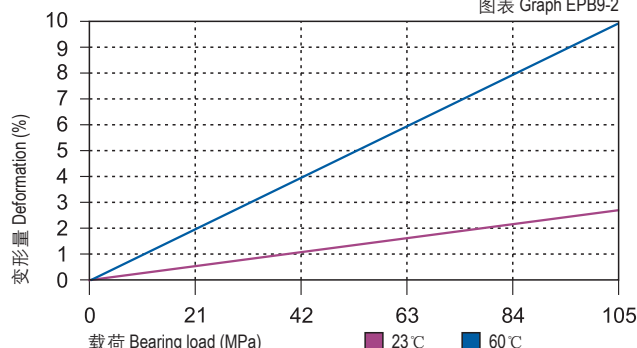
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



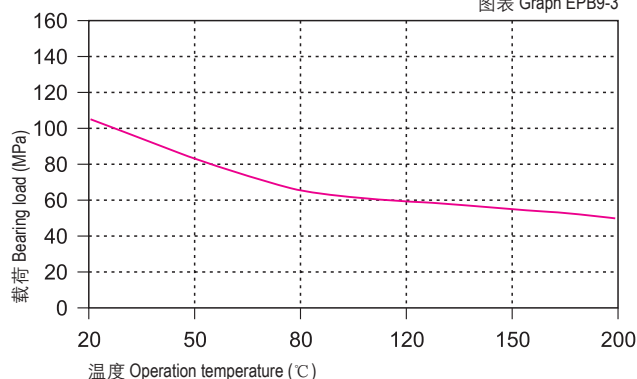
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB9-2



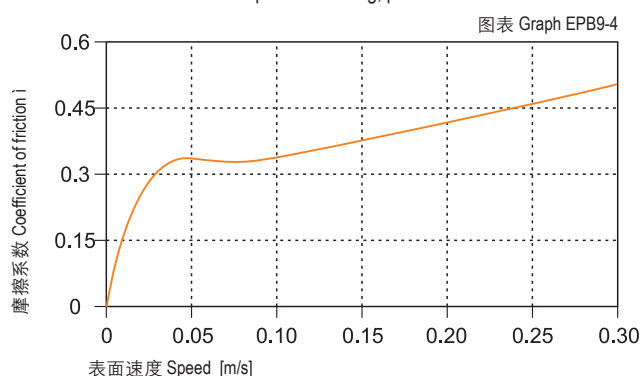
载荷-温度图表 Load-Temperature diagrams

图表 Graph EPB9-3



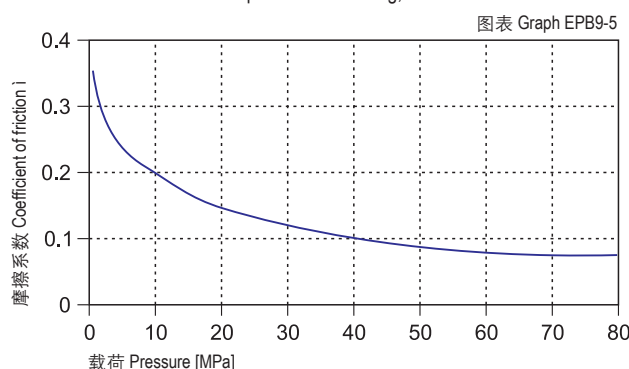
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa



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 = 0.2 m/s



CSB-EPB9	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.10~0.40	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB9-7与图表EPB9-8表明了CSB-EPB9塑料轴承在不同轴材料上旋转运动磨损情况。由此可以看出在低载荷旋转运动时，硬铬钢轴比较适合，而在高载旋转运动时，硬化钢轴比较适合。

Graph EPB9-7 and EPB9-8 shows the different results of the material against different shaft materials. It induces that the bearing material is good for hard chrome steel shaft under low loading operation condition and good for hardened carbon steel shaft under high loading rotation operation.

化学抗性 Chemical resistance

CSB-EPB9塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB9 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB9塑料轴承在标准大气中的吸湿率为1.3%。浸泡在水中最高吸水率为6.5%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB9 plastic plain bearings is 1.3% in standard atmosphere. The max. water absorption is 6.5% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB9塑料轴承长久暴露在紫外线下材料性能基本都不会发生改变。

When CSB-EPB9 is exposed into the UV ray, the material performance stays stable.

安装公差 Installation tolerances

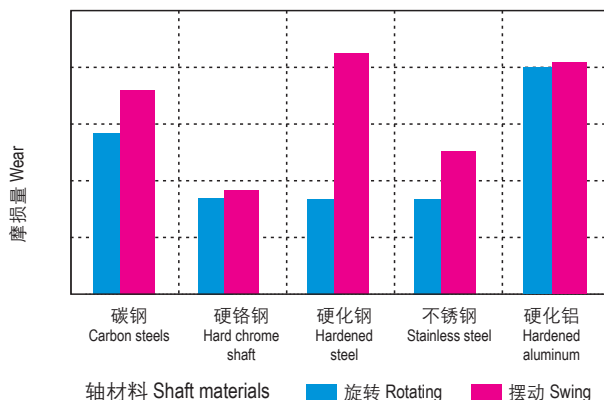
CSB-EPB9塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB9 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

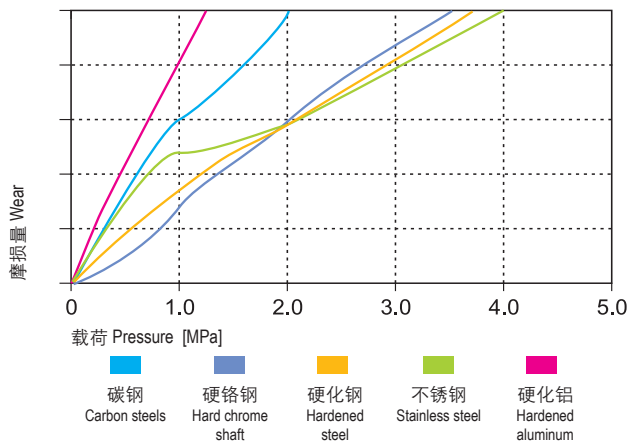
图表 Graph EPB9-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

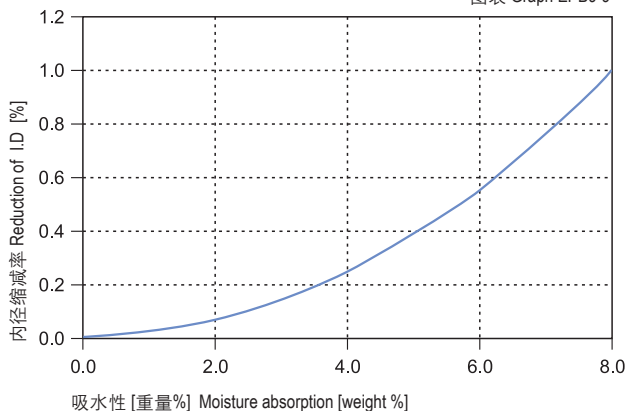
图表 Graph EPB9-8

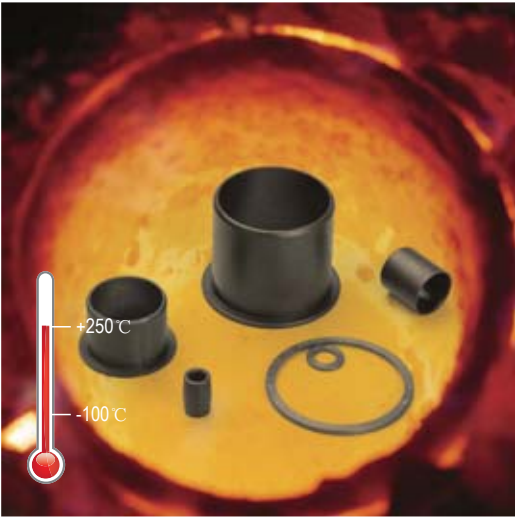


吸水性的影响

Effect of moisture absorption on EPB9 bearings

图表 Graph EPB9-9





标准产品规格表 Standard specifications: P132

产品特性 Product features

- 高温250度、高化学抗性和高载荷的良好结合。同样适用于水下或大部分化学液体下做高速运动
- 连续使用温度: -100 °C/+250 °C
- 非常耐磨长寿命
- 适合在灰尘中运行
- 对轴表面粗糙度要求低
- 较低的摩擦系数
- It is a material with good high temperature upto 250 °C, high chemical resistance and high load application. It is suitable for the applications in water or most of chemical liquids.
- Continuous working temperature: -100 °C/+250 °C
- Good wear resistance with long service life
- Suitable for operation in dusty environment
- No special requirement on the surface roughness
- Low friction coefficient

材料数据表 Material properties data table

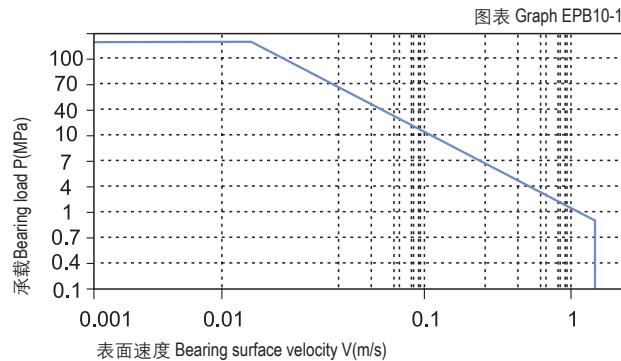
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB10
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.42
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.25
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	1.35
弯曲模量 Flexural modulus	ISO178	MPa	10000
弯曲强度 Flexural strength	ISO178	MPa	210
最大静载荷 Max. static load	ITS027	MPa	125
最大动载荷 Max. dynamic load	ITS028	MPa	80
邵氏硬度 Shore hardness	ISO868	D	86
连续运行温度 Long-term application temperature	ITS029	°C	+250
短时运行温度 Short-term application temperature	ITS029	°C	+315
最低运行温度 Lowest application temperature	ITS029	°C	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.60
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	5
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ⁵
面电阻率 Surface resistance	IEC60093	Ω	>10 ⁵

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23 °C Test temperatures are 23 °C unless otherwise stated.

轴承PV值 PV value

CSB-EPB10塑料轴承最大运行PV值为1.35N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB10-1。
The max PV value of the CSB-EPB10 plastic bearings is 1.35N/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 EPB10-1).

PV图表 Permissible PV value for CSB-EPB10



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB10塑料轴承可承受最大静载荷为125Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB10-2，轴承实际工作载荷略小于125Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 250℃) 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EPB10-3。

CSB-EPB10 allows the Max static load of 125Mpa, The max compressive deformation rate under the max load is listed in Graph EPB10-2, The actual load capacity of bearing is slightly less than 125Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.5m/s) results into higher temperature (Tmax: 250℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB10-3 for such variation.

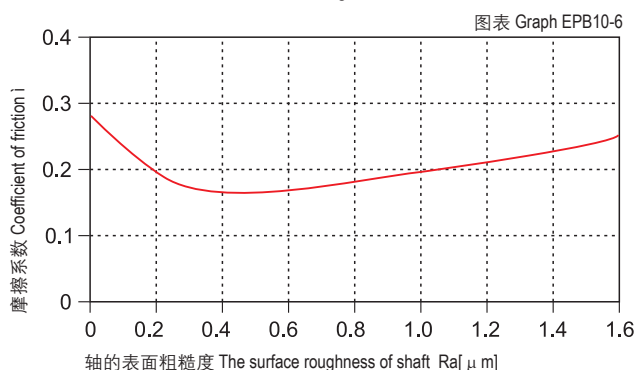
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

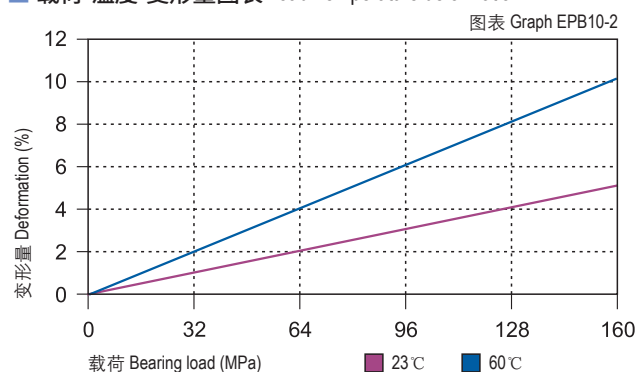
图表EPB10-4表明CSB-EPB10塑料轴承的摩擦系数数在载荷一定时随着运行速度的增加而逐渐升高；图表EPB10-5表明CSB-EPB10塑料轴承在速度一定载荷在30Mpa以内时摩擦系数会随着载荷的逐步增加而快速降低，而当载荷高于30Mpa时摩擦系数的变化却比较平缓。图表EPB10-6表明CSB-EPB10塑料轴承比较适合轴表面粗糙度为Ra0.6 ~ 0.8μm。

Graph EPB10-4 shows that the friction factor of CSB-EPB10 is increasing along with the operation speed when the loading is stable within 30 Mpa. When the loading is higher than 30Mpa, the friction factor variation will not be detectable. Graph EPB10-6 describes that CSB-EPB10 is featured best within the shaft surface roughness of Ra0.6~0.8.

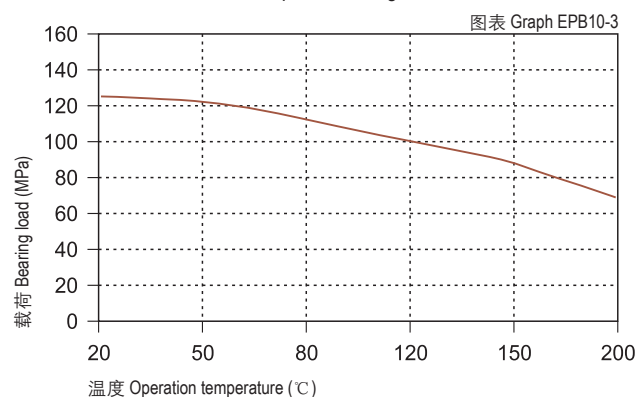
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



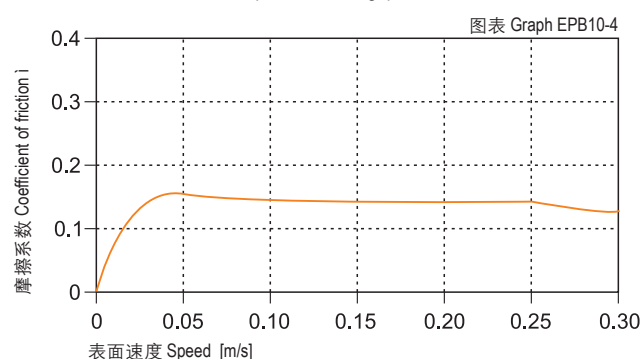
载荷-温度-变形量图表 Load-Temperature deformation



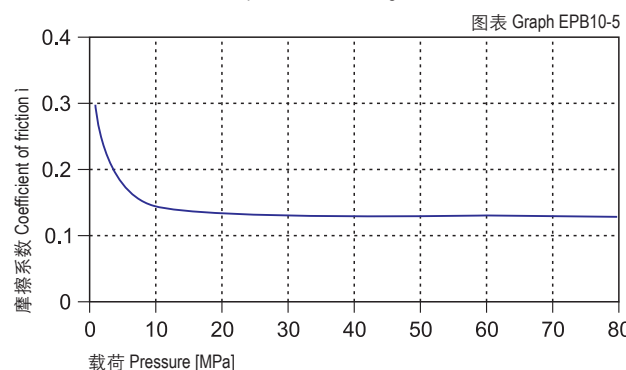
载荷-温度图表 Load-Temperature diagrams



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



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 = 0.2 m/s



CSB-EPB10	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.10~0.25	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB10-7和图表EPB10-8测试表明了CSB-EPB10塑料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时在硬化钢轴和硬铬轴上的运行效果较好。图表EPB10-7表明CSB-EPB10塑料轴承比较适合用于旋转运动; 特别值得注意的是图表EPB10-9表明CSB-EPB10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 EPB10-7 and Graph EPB10-8 is the comparing test for the CSB-EPB10 wearing against different shaft materials. Stainless steel and hot-rolled steel shaft is the best shaft material for CSB-EPB10 when the loading is lower than 2Mpa. Graph EPB10-7 shows that CSB-EPB10 is most suitable for rotation operation. Graph EPB10-9 shows a very special feature of CSB-EPB10 that the wearing Features of CSB-EPB10 is much better when the temperature is 150℃ than that of the temperature of 23℃.

化学抗性 Chemical Resistance

CSB-EPB10塑料轴承具有极好的化学抗性, 能抵抗浓度65%的强酸。

Chemical Resistance of CSB-EPB10 is very good. It can work well in the heavy acid of 65%.

吸水性 Water absorption

CSB-EPB10塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.5%。极低吸水率不会导致轴承发生性能和尺寸变化, 非常适合用于潮湿环境。

The moisture absorption of CSB-EPB10 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.5% in water. These values are very low, CSB-EPB10 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB10塑料轴承长久暴露在紫外线下材料性能不会发生变化。

CSB-EPB10 can maintain its performance to be stable even exposed in the UV ray for long period.

安装公差 Installation tolerances

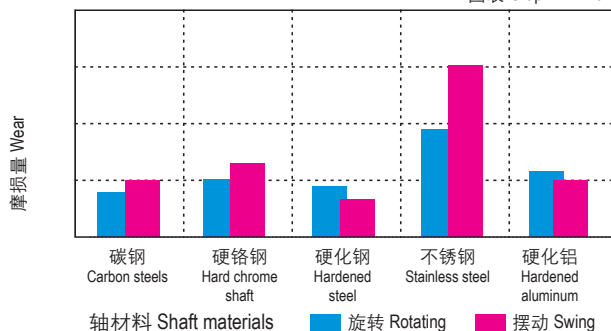
CSB-EPB10 塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB10 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

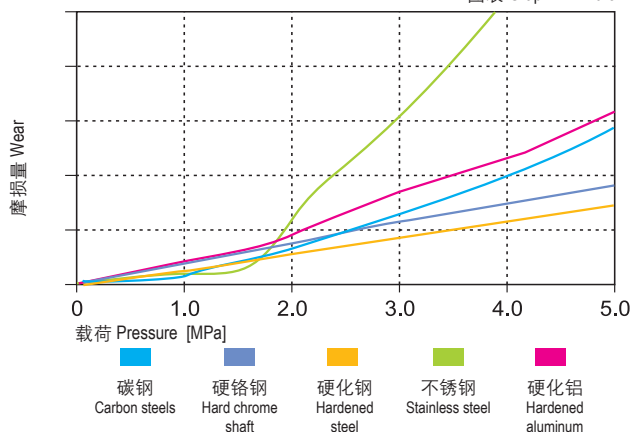
图表 Graph EPB10-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

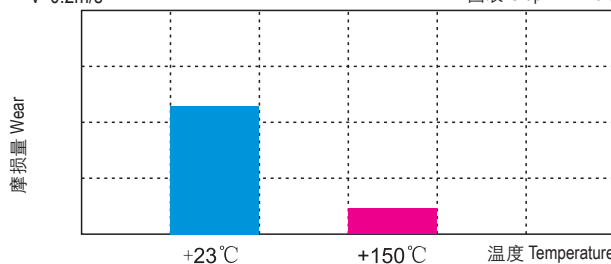
图表 Graph EPB10-8



在不同温度下的磨损量 $p=2\text{MPa}$ $v=0.2\text{m/s}$

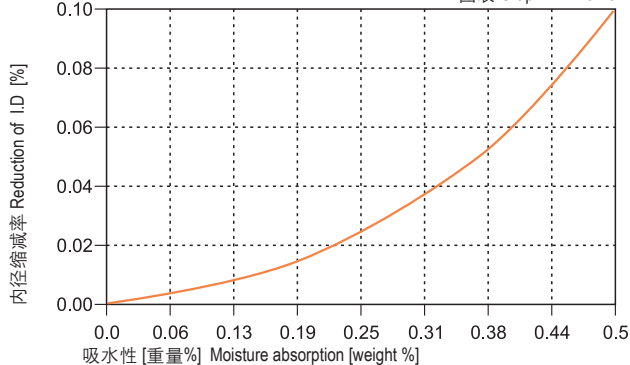
The bearing wear under rotating with different temperature $p=2\text{MPa}$ $v=0.2\text{m/s}$

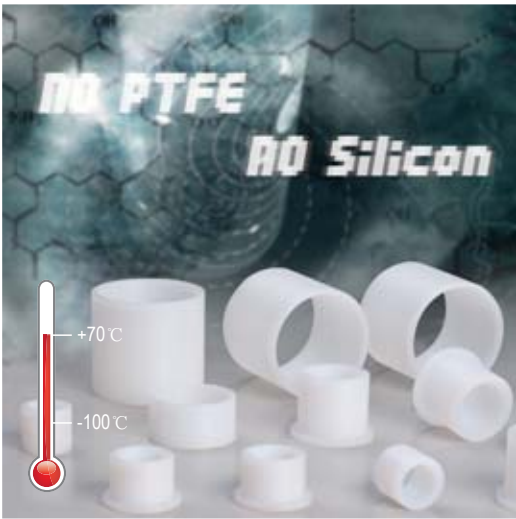
图表 Graph EPB10-9



吸水性的影响 Effect of moisture absorption on EPB10 bearings

图表 Graph EPB10-10





产品特性 Product features

- 低摩擦系数不含PTFE和Silicon的耐磨材料。符合FDA标准可直接与食品接触。可被用于水下或零下100度场合。环境温度高于50度时需要考虑额外限位装置
- 连续使用温度: -100℃/+70℃
- 适合多数低载荷场合
- 适合低速运行, 低噪音要求
- 不含氟和硅, 符合FDA
- Wear resistance material with low friction factor without PTFE and Silicon. It conforms to the FDA standard and could be contacted with food directly. It is suitable for the applications in water or with the temperature under -100℃. If the working temperature is higher than 50℃, additional locating ring is necessary
- Continuous working temperature: -100℃/+70℃
- Suitable for low load
- Low operation speed and low noise
- No PTFE and silicon, FDA grade

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB11
颜色 Color	-	-	白色 White
密度 Density	ISO1183	g/cm ³	0.96
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.1
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.20
弯曲模量 Flexural modulus	ISO178	MPa	1200
弯曲强度 Flexural strength	ISO178	MPa	25
最大静载荷 Max. static load	ITS027	MPa	25
最大动载荷 Max. dynamic load	ITS028	MPa	6
邵氏硬度 Shore hardness	ISO868	D	62
连续运行温度 Long-term application temperature	ITS029	℃	+70
短时运行温度 Short-term application temperature	ITS029	℃	+100
最低运行温度 Lowest application temperature	ITS029	℃	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.20
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	19
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

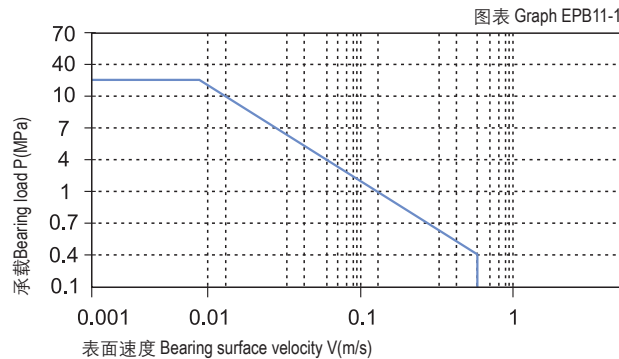
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB11塑料轴承最大运行PV值为0.2N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB11-1。

The max PV value of the CSB-EPB11 plastic bearings is 0.2N/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 EPB11-1).

PV图表 Permissible PV value for CSB-EPB11



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB11塑料轴承可承受最大静载荷为25Mpa, 在此载荷下轴承的最大压缩变形量参考图表EPB11-2, 轴承实际工作载荷略小于25Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (V_{max} : 0.5m/s) 会导致摩擦温度上升, 而温度上升 (T_{max} : 70℃) 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EPB11-3。

CSB-EPB11 allows the Max static load of 25Mpa, The max compressive deformation rate under the max load is listed in Graph EPB11-2, The actual load capacity of bearing is slightly less than 25Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 0.5m/s) results into higher temperature (T_{max} : 70℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB11-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

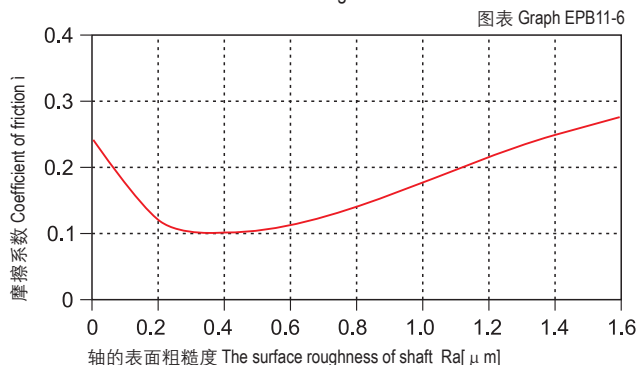
摩擦系数 Friction factor

EPB11-4和EPB11-5表明CSB-EPB11塑料轴承的摩擦系数受运动载荷以及速度的变化非常小, 这主要是由于此轴承材料中不含有氟和硅, 其低摩擦润滑完全依赖于自身材料特性。EPB11-6表明CSB-EPB11塑料轴承的摩擦系数与轴表面粗糙度有着密切的关联性, 我们推荐使用粗糙度为Ra0.2 ~ 0.6 μ m轴与CSB-EPB11塑料轴承配合使用。

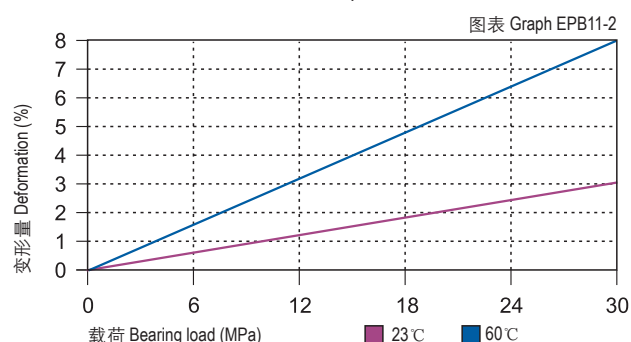
Graph EPB11-4 and Graph EPB11-5 shows that the friction factor of CSB-EPB11 is not considerably variable against the changing of the loading and operation speed because there is no Fluorine and Silicon in this material and therefore its low friction feature is completely depended on the material Features. Graph EPB11-6 shows that the friction factor of CSB-EPB11 is sensitive to the shaft roughness. The shaft roughness of Ra0.2~0.6 is recommended for the best performance of CSB-EPB11 bearings.

摩擦系数与轴表面粗糙度关系图表

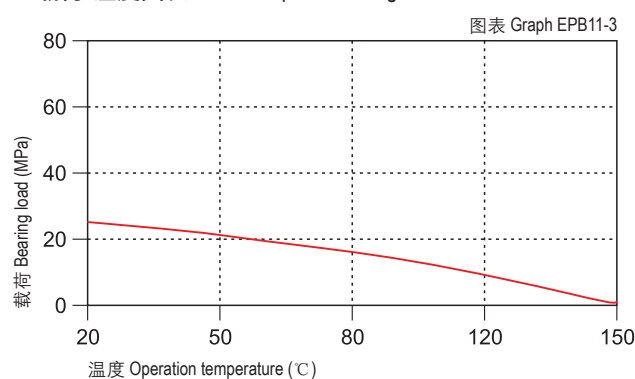
Coefficient of friction & the surface roughness of shaft



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

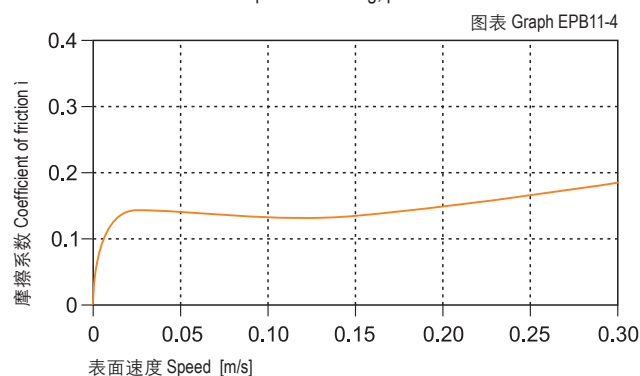


载荷-温度图表 Load-Temperature diagrams



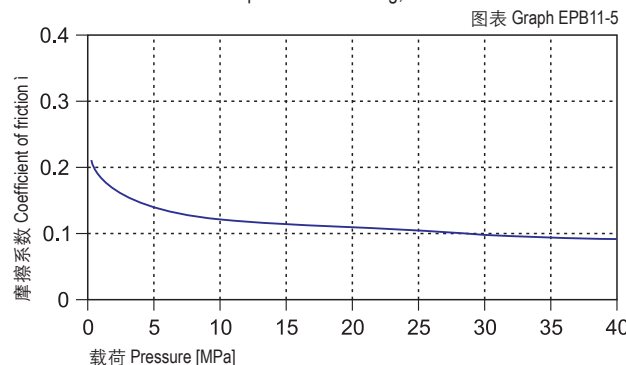
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, $p = 2$ MPa



摩擦系数与载荷变化关系图表 $v=0.2$ m/s

Coefficient of friction & the pressure of bearing, $v = 0.2$ m/s



CSB-EPB11	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EPB11-7和图表EPB11-8表明了CSB-EPB11塑料轴承在不同轴材料上的运行结果；由此可以看出，硬铬钢轴最适合与CSB-EPB11塑料轴承配合使用。图表EPB11-7表明CSB-EPB11塑料轴承在载荷低于6Mpa时旋转运动比摆动运动更适合，而一旦载荷超过6Mpa则轴承的磨损性能摆动要略优越于旋转运动。

From the testing result to different materials shows in Graph EPB11-7 and Graph EPB11-8, it is found CSB-EPB11 is the best choice for hardened chrome steel shaft. Graph EPB11-7 tells that CSB-EPB11 is with better feature in rotation operation than in oscillation operation when the loading is lower than 6Mpa and the wearing feature of oscillation operation is better than of rotation operation when loading is higher than 6Mpa.

化学抗性 Chemical resistance

CSB-EPB11塑料轴承能抵抗弱酸、弱碱以及各类润滑油的腐蚀。

CSB-EPB11 is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB11塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.1%。极低吸水率不会导致轴承发生性能和尺寸变化，CSB-EPB11塑料轴承非常适合用于水下。

The moisture absorption of CSB-EPB11 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.1% in water. These values are very low, CSB-EPB11 plastic plain bearings is very well suited for used in water.

抗UV性能 UV resistance

CSB-EPB11塑料轴承长久暴露在紫外线下材料性能逐渐下降。

The material performance of CSB-EPB11 will be lowered if it is exposed in the UV ray for long period.

安装公差 Installation tolerances

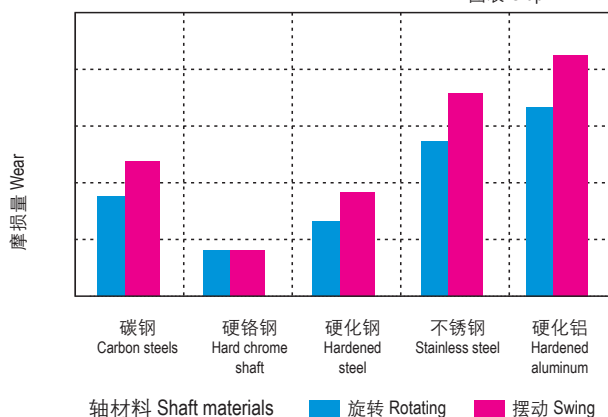
CSB-EPB11塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB11 D11 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.020 ~ +0.080	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.030 ~ +0.105	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.040 ~ +0.130	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.050 ~ +0.160	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.065 ~ +0.195	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.080 ~ +0.240	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.100 ~ +0.290	0 ~ +0.030	0 ~ -0.074

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

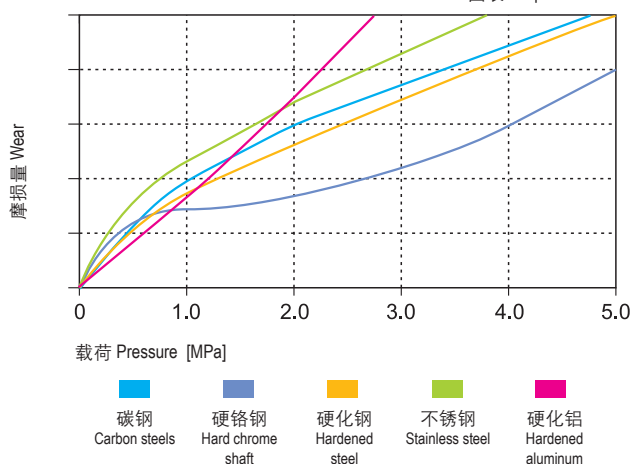
图表 Graph EPB11-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

图表 Graph EPB11-8





● 标准产品规格表 Standard specifications: P128

产品特性 Product features

- 高载荷下摇摆运动出色的耐磨材料。高负荷下的低成本解决方案
- 连续使用温度: -40℃/+135℃
- 承受较高载荷
- 适用于摆动场合
- 抗冲击性能较好
- 抗污垢能力强
- Good wear resistance material suitable for high load and oscilation motions. It is an economic solution for high load applications
- Continuous working temperature: -40℃/+135℃
- Suitable for high load operation
- Good for oscillating operation
- Good impact resistance
- Containment prevention ability

材料数据表 Material properties data table

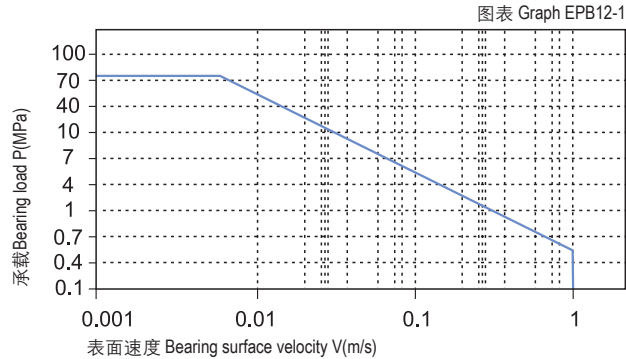
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB12
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.32
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.9
最大吸水率 Max. water absorption	ISO62	%	4.9
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.55
弯曲模量 Flexural modulus	ISO178	MPa	2200
弯曲强度 Flexural strength	ISO178	MPa	100
最大静载荷 Max. static load	ITS027	MPa	75
最大动载荷 Max. dynamic load	ITS028	MPa	43
邵氏硬度 Shore hardness	ISO868	D	83
连续运行温度 Long-term application temperature	ITS029	℃	+135
短时运行温度 Short-term application temperature	ITS029	℃	+155
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	5
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹¹
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB12塑料轴承最大运行PV值为0.55N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB12-1。
The max PV value of the CSB-EPB12 plastic bearings is 0.55N/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 EPB12-1).

■ PV图表 Permissible PV value for CSB-EPB12



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB12塑料轴承可承受最大静载荷为75Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB12-2，轴承实际工作载荷略小于75Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 135℃) 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EPB12-3。

CSB-EPB12 allows the Max static load of 75Mpa, The max compressive deformation rate under the max load is listed in Graph EPB12-2, The actual load capacity of bearing is slightly less than 75Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 135℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB12-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

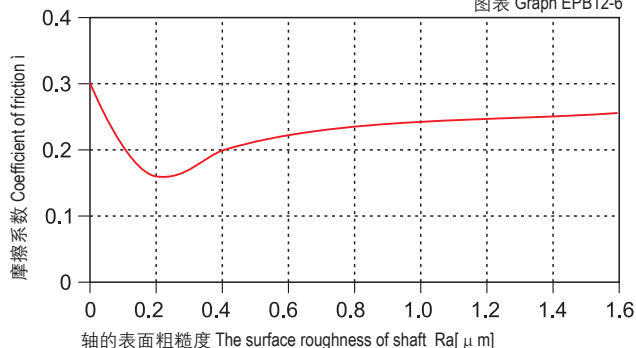
图表EPB12-4表明CSB-EPB12塑料轴承的摩擦系数在载荷保持不变的情况下受速度变化影响比较小；同样在图表EPB12-5表明CSB-EPB12塑料轴承在速度保持不变的情况下受载荷变化的影响相对也比较小；此轴承为所有滑动轴承中摩擦系数不受运行速度以及载荷影响较大的典型轴承。根据图表EPB12-6显示CSB-EPB12塑料轴承的摩擦系数在超过Ra0.4后轴表面粗糙度几乎对轴承的摩擦系数没有任何影响，我们推荐使用轴表面粗糙度为Ra0.1~0.4μm。

Graph EPB12-4 shows that the friction factor of CSB-EPB12 is not considerably affected by the operation speed when the loading is stable. At the meantime, Graph EPB12-5 shows that the friction factor of CSB-EPB12 is not considerably affected by the loading when the operation speed is stable. This bearing is the only typical material whose friction factor is not sensitive to the operation speed and loading. Graph EPB12-6 tells that the friction factor of CSB-EPB12 will not be affected by the shaft roughness when the shaft roughness is better than Ra0.4. The recommended Shaft roughness is Ra0.1~0.4.

摩擦系数与轴表面粗糙度关系图表

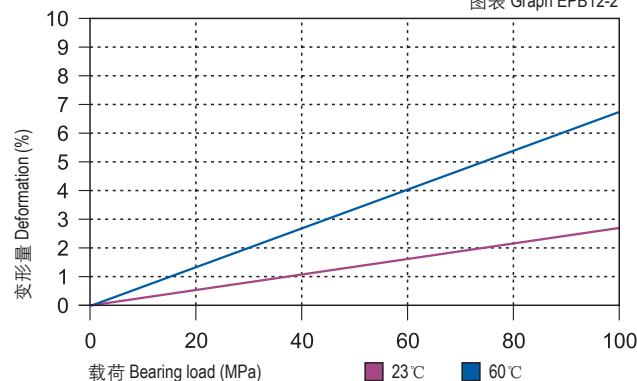
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB12-6



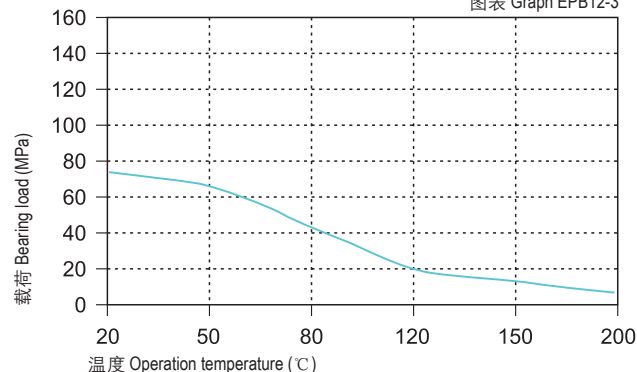
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB12-2



载荷-温度图表 Load-Temperature diagrams

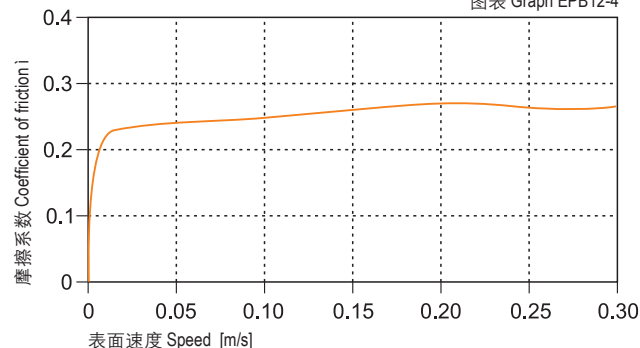
图表 Graph EPB12-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

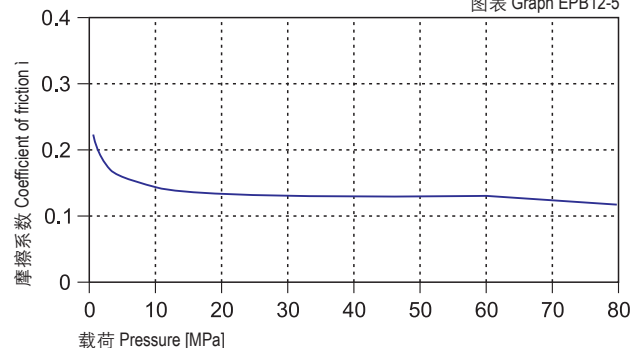
图表 Graph EPB12-4



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 = 0.2 m/s

图表 Graph EPB12-5



CSB-EPB12	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB12-7与图表EPB12-8表明CSB-EPB12塑料轴承比较适合采用硬铬钢轴或硬化钢轴；图表EPB12-7表明CSB-EPB12塑料轴承在做摆动运动下的磨损性能要优越于在旋转运动下的磨损性能。图表EPB12-8表明CSB-EPB12塑料轴承在摆动运动时选择硬铬钢轴和硬化钢轴比较适合，在旋转运动中也是选择硬铬钢轴和硬化钢轴比较理想。

Graph EPB12-7 and Graph EPB12-8 tells that CSB-EPB12 is suitable for both hard chrome steel shaft and hardened steel shaft. Graph EPB12-8 shows that the wearing feature of CSB-EPB12 is better in oscillation operation than in rotation operation. Hardened chrome steel shaft and hardened steel shaft is the better choice under oscillation operation and hardened steel shaft and hardened chrome steel shaft is the better choice under rotation operation.

化学抗性 Chemical resistance

CSB-EPB12塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB12 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB12塑料轴承在标准大气中的吸湿率为0.9%。浸泡在水中最高吸水率为4.9%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB12 plastic plain bearings is 0.9% in standard atmosphere. The max. water absorption is 4.9% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB12塑料轴承长久暴露在紫外线下长久后材料可能会变脆，不能承受冲击力。

CSB-EPB12 can become brittle and lost its impact resistance when it is exposed into UV ray for a certain period of time.

安装公差 Installation tolerances

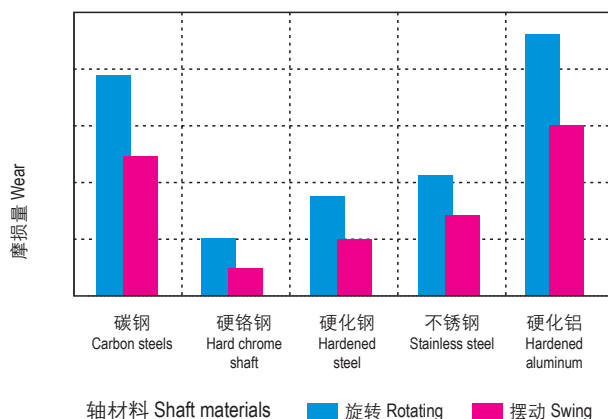
CSB-EPB12塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB12 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

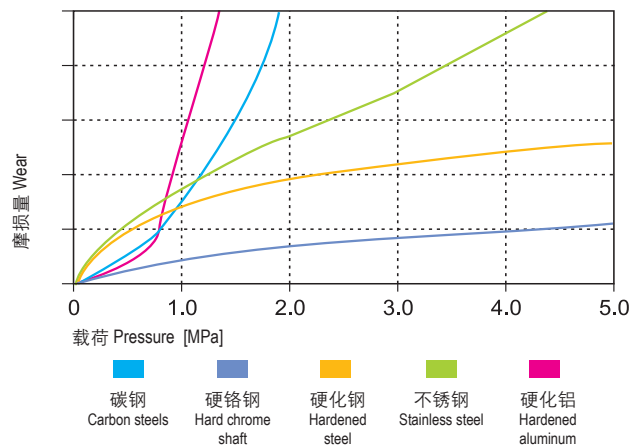
图表 Graph EPB12-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

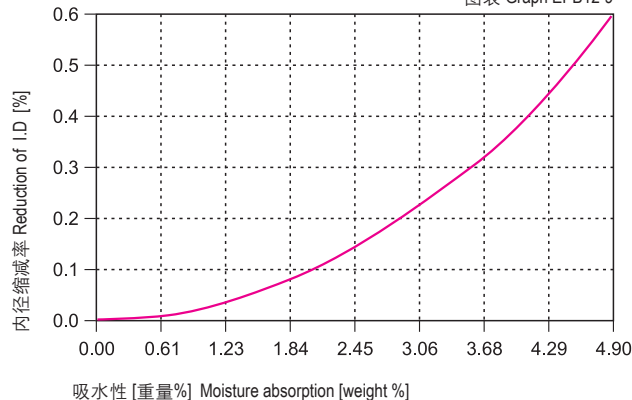
图表 Graph EPB12-8



吸水性的影响

Effect of moisture absorption on EPB12 bearings

图表 Graph EPB12-9





标准产品规格表 Standard specifications: P124

产品特性 Product features

- 低摩擦系数和高耐磨性结合。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℃
- 适合于运行、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

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB13
颜色 Color	-	-	黄色 Yellow
密度 Density	ISO1183	g/cm ³	1.48
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.3
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40
弯曲模量 Flexural modulus	ISO178	MPa	2600
弯曲强度 Flexural strength	ISO178	MPa	60
最大静载荷 Max. static load	ITS027	MPa	35
最大动载荷 Max. dynamic load	ITS028	MPa	14
邵氏硬度 Shore hardness	ISO868	D	74
连续运行温度 Long-term application temperature	ITS029	℃	+90
短时运行温度 Short-term application temperature	ITS029	℃	+120
最低运行温度 Lowest application temperature	ITS029	℃	-50
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

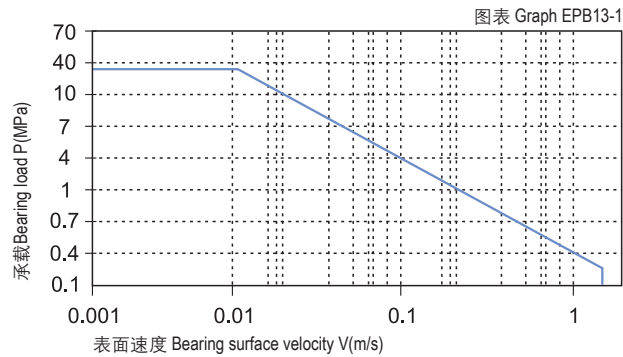
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB13塑料轴承最大运行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, 详细查阅图表EPB13-1。

The max PV value of the CSB-EPB13 plastic bearings 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 EPB13-1).

PV图表 Permissible PV value for CSB-EPB13



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB13塑料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EPB13-2，轴承实际工作载荷略小于35Mpa，载荷还受到运行速度以及温度的影响，速度越快 (V_{max} : 1.5m/s) 会导致摩擦温度上升，而温度上升 (T_{max} : 90℃) 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EPB13-3。

CSB-EPB13 allows the Max static load of 35Mpa, The max compressive deformation rate under the max load is listed in Graph EPB13-2, The actual load capacity of bearing is slightly less than 35Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 1.5m/s) results into higher temperature (T_{max} : 90℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB13-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

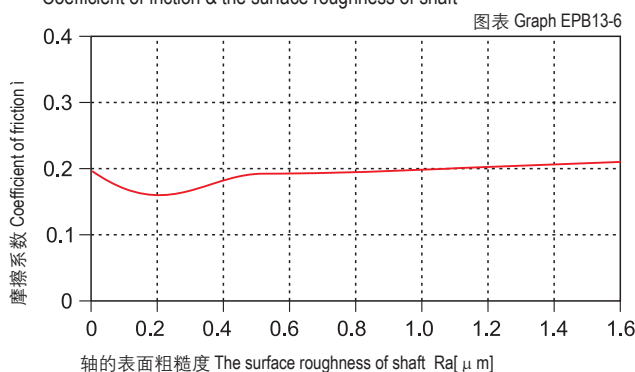
摩擦系数 Friction factor

图表EPB13-4表明CSB-EPB13塑料轴承摩擦系数在载荷一定随着运动速度的变化率比较小；图表EPB13-5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EPB13-6表明CSB-EPB13塑料轴承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；此轴承适合用于轴粗糙度为Ra=0.1~0.4 μ m；

CSB-EPB13 Bearing friction factor varies only little amount along with the operation speed changing (See Graph EPB13-4). When the operation speed is relatively stable, the friction factor varies a lot while the load is less than 10Mpa (see Graph EPB13-5). At the same time, it does not vary much when the loading is greater than 10Mpa. Rough surface may result into the increasing of friction factor of the CSB-EPB13 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 CSB-EPB13 material.

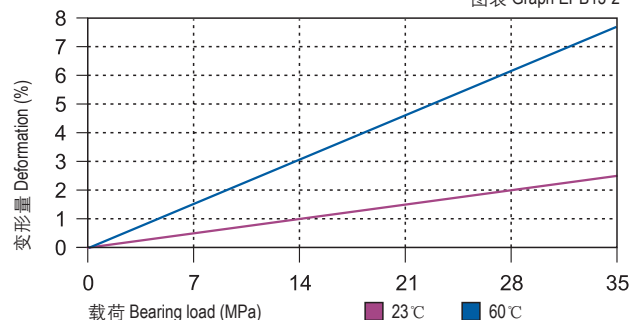
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



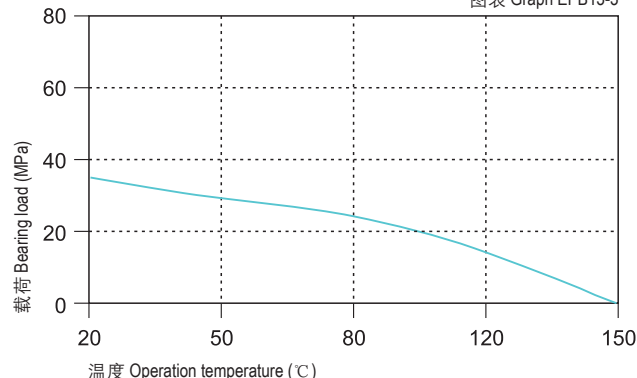
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB13-2



载荷-温度图表 Load-Temperature diagrams

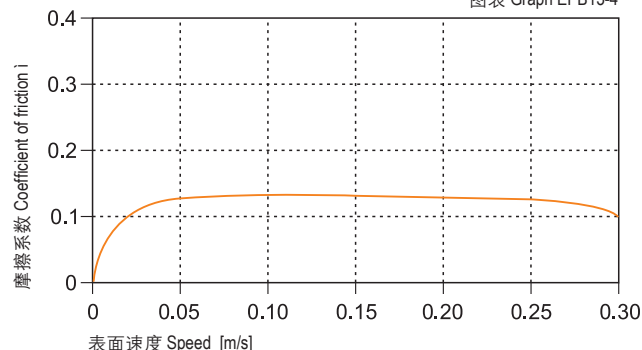
图表 Graph EPB13-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, $p = 2$ MPa

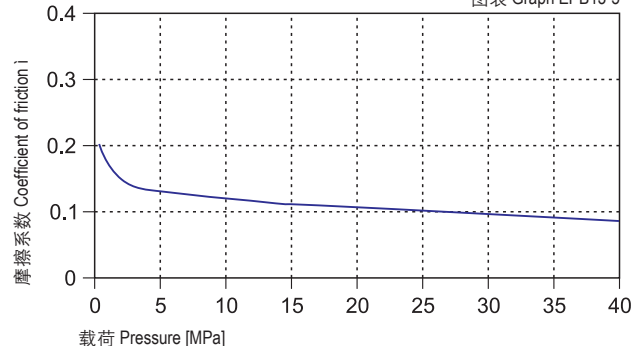
图表 Graph EPB13-4



摩擦系数与载荷变化关系图表 $v=0.2$ m/s

Coefficient of friction & the pressure of bearing, $v = 0.2$ m/s

图表 Graph EPB13-5



CSB-EPB13	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EPB13-7是CSB-EPB13塑料轴承在不同轴上运行磨损测试结果；图表EPB13-8表明当CSB-EPB13塑料轴承在载荷低于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特出。图表EPB13-7表明CSB-EPB13塑料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更好的。

Test of the bearing against various shaft materials shows that the material CSB-EPB13 features the best performance where the shaft material is hard chrome steel with loading less than 2Mpa. (See Graph EPB13-7). Therefore, the higher the load is increased, the wear-resistance of the bearing will be better against the stainless steel shaft. Refer to Graph EPB13-7, the material CSB-EPB13 is suitable for rotation operation. Either to be used under rotation operation or the oscillation operation, it is the best suitable material for the application against hard chrome steel shaft.

化学抗性 Chemical resistance

CSB-EPB13塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。CSB-EPB13 is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB13塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.3%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB13 plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.3% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

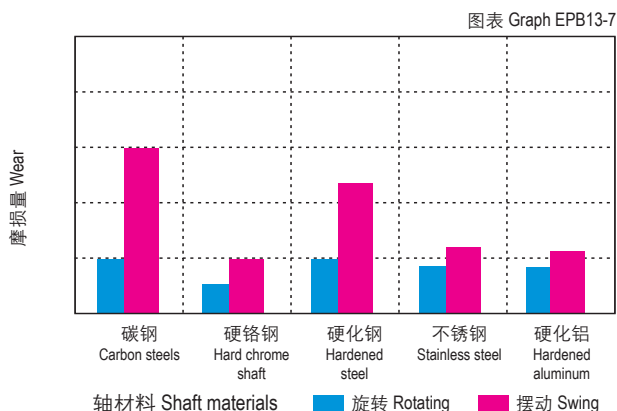
CSB-EPB13塑料轴承长久暴露在紫外线下颜色基本不会改变。材料的硬度、抗压强度和耐磨性都不会改变。CSB-EPB13 can maintain its color unchanged when it is exposed into the UV ray. The hardness, Compressive strength and wear resistance of the material is also stable under such condition.

安装公差 Installation tolerances

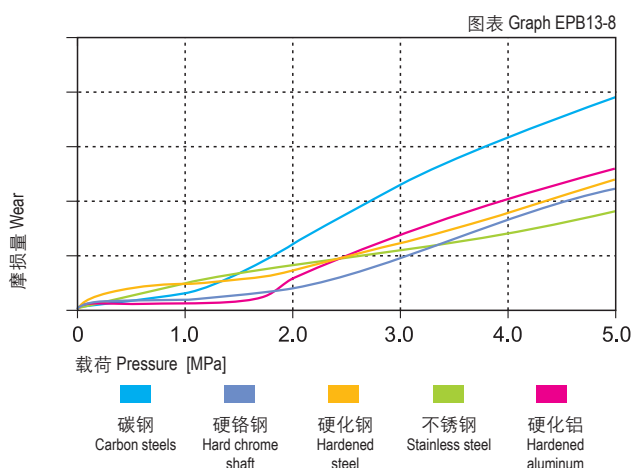
CSB-EPB13塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB13 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

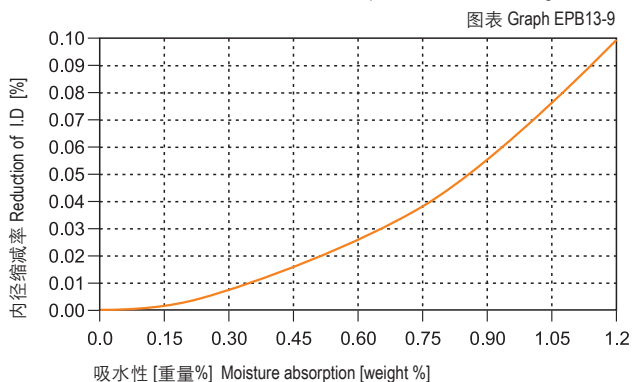
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$ Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$



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



吸水性的影响 Effect of moisture absorption on EPB13 bearings



直径 Di. [mm]	CSB-EPB13 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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



● 标准产品规格表 Standard specifications: P138

产品特性 Product features

- 极好的耐磨性材料。对轴材料和粗糙度要求较低。在粉尘恶劣环境中同样保持良好的耐磨性能
- 连续使用温度: -40℃/+90℃
- 适合于运行、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
- Good wear resistance and with low hardness and roughness requirement for the shaft material. The wear resistance of the material will not be weekend even under the dust environment
- Continuous working temperature: -40℃/+90℃
- Maintenance-free dry operation
- Small wear off amount against various shaft materials
- Lower friction
- Low water absorption

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB15
颜色 Color	-	-	黄色 Yellow
密度 Density	ISO1183	g/cm ³	1.30
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.3
最大吸水率 Max. water absorption	ISO62	%	6.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.90
弯曲模量 Flexural modulus	ISO178	MPa	4000
弯曲强度 Flexural strength	ISO178	MPa	130
最大静载荷 Max. static load	ITS027	MPa	70
最大动载荷 Max. dynamic load	ITS028	MPa	35
邵氏硬度 Shore hardness	ISO868	D	79
连续运行温度 Long-term application temperature	ITS029	℃	+90
短时运行温度 Short-term application temperature	ITS029	℃	+180
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	8
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

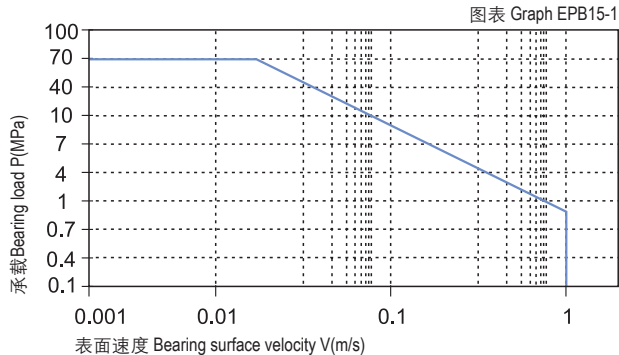
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB15塑料轴承最大运行PV值为0.9N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB15-1。

The max PV value of the CSB-EPB15 plastic bearings is 0.9N/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 EPB15-1).

PV图表 Permissible PV value for CSB-EPB15



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB15塑料轴承可承受最大静载荷为70MPa，在此载荷下轴承的最大压缩变形量参考图表EPB15-2，轴承实际工作载荷略小于70MPa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 90℃) 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EPB15-3。

CSB-EPB15 allows the Max static load of 70MPa, The max compressive deformation rate under the max load is listed in Graph EPB15-2, The actual load capacity of bearing is slightly less than 70MPa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 90℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB15-3 for such variation.

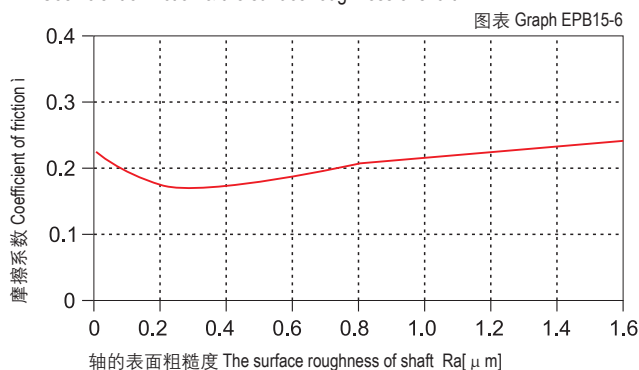
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

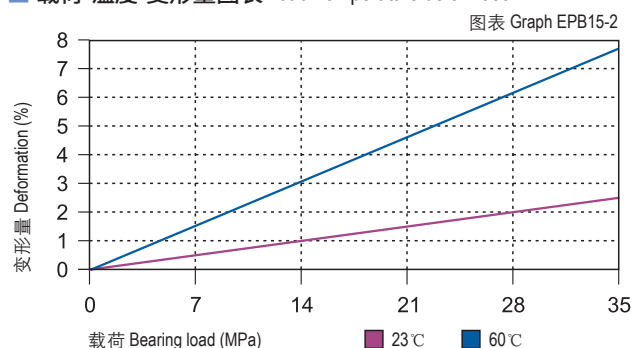
图表EPB15-4表明CSB-EPB15塑料轴承的摩擦系数随着运动速度的变化影响较小，而图表EPB15-5表明CSB-EPB15塑料轴承的摩擦系数随着载荷的增加明显减小，在载荷超过20MPa是逐渐趋于平稳；图表EPB15-6表明CSB-EPB15塑料轴承的摩擦系数受轴粗糙度的影响也相对比较小；虽然如此，我们还是建议轴的表面不能太光滑，也不能过于出差，推荐使用轴的粗糙度为Ra0.3 ~ 0.6μm。

Graph EPB15-4 shows that the friction factor of CSB-EPB15 is not sensitive to the operation speed and Graph EPB15-5 shows that the friction factor is CSB-EPB15 is decreased along with the loading increasing and become stable when the loading is over 20MPa. Graph EPB15-6 tells that the friction factor of CSB-EPB15 is also not sensitive to the shaft roughness but we still recommend the shaft roughness to be Ra0.3~0.6.

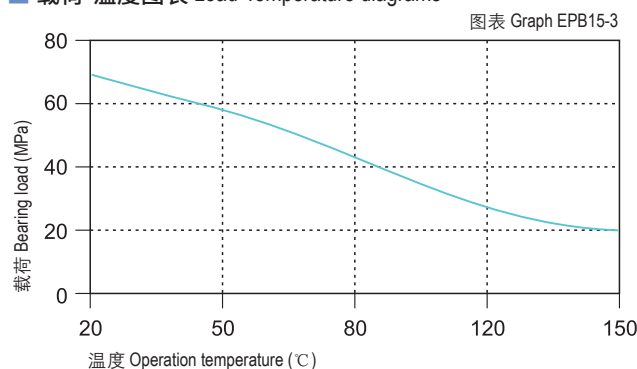
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



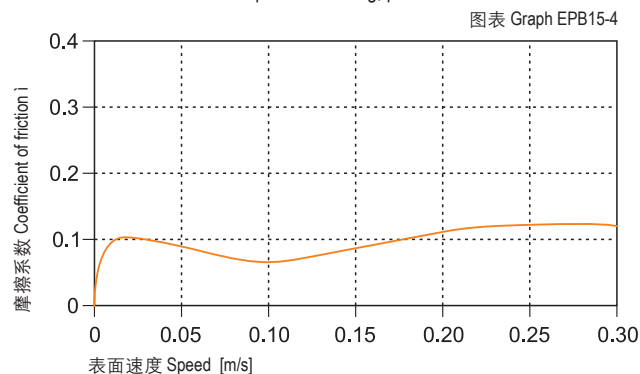
载荷-温度-变形量图表 Load-Temperature deformation



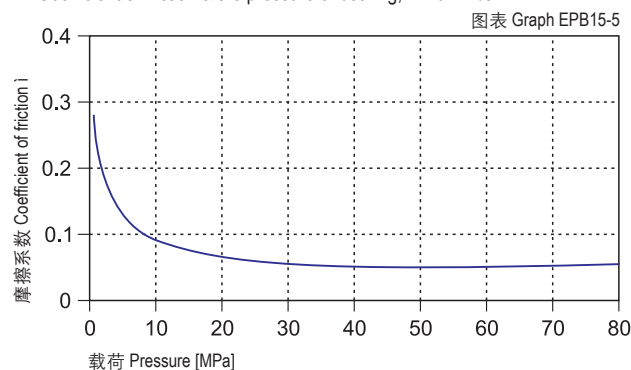
载荷-温度图表 Load-Temperature diagrams



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



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 = 0.2 m/s



CSB-EPB15	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EPB15-7表明CSB-EPB15塑料轴承在2Mpa下做旋转运动时，磨损随着轴材料的变化较大；通过实验表明CSB-EPB15塑料轴承在做旋转运动时比较适合用于硬轴，高速钢轴和硬铬轴上用于CSB-EPB15塑料轴承能获得良好的运行效果。图表EPB15-8表明硬铬轴更适合用于高载荷下的CSB-EPB15塑料轴承，随着载荷的不断增大，轴承的磨损速率却变化较小。

Graph EPB15-7 shows that the wearing of CSB-EPB15 is sensitive to different materials under rotation operation with the loading of 2Mpa. It is suitable for hardened shaft, high speed steel shaft and hardened chrome steel shaft in the rotation operation. Hardened chrome steel shaft is the best choice for CSB-EPB15 (Graph EPB15-8). The wearing will be decreased as long as the loading increasing.

化学抗性 Chemical resistance

CSB-EPB15塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB15 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB15塑料轴承在标准大气中的吸湿率为1.3%。浸泡在水中最高吸水率为6.5%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB15 plastic plain bearings is 1.3% in standard atmosphere. The max. water absorption is 6.5% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB15塑料轴承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。

CSB-EPB15 can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

安装公差 Installation tolerances

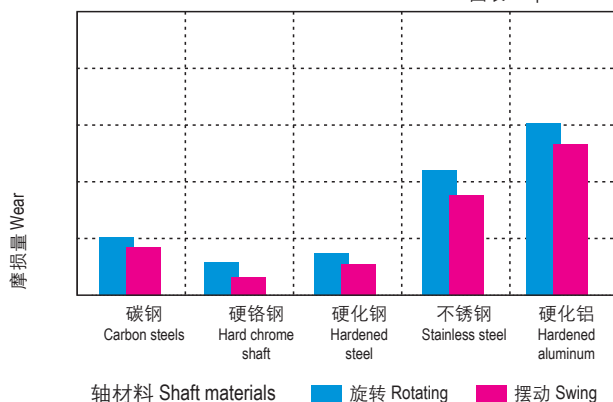
CSB-EPB15塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB15 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

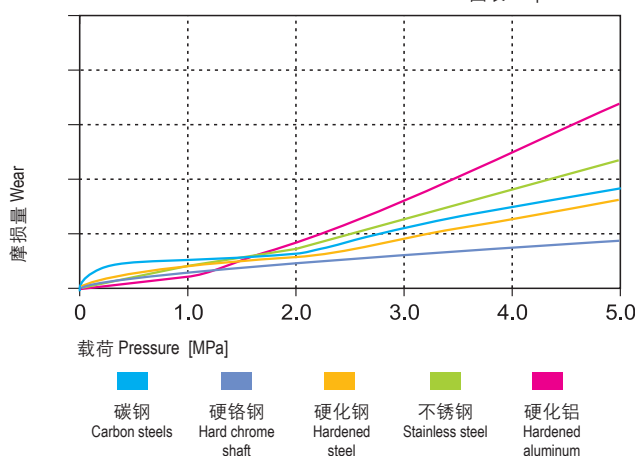
图表 Graph EPB15-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

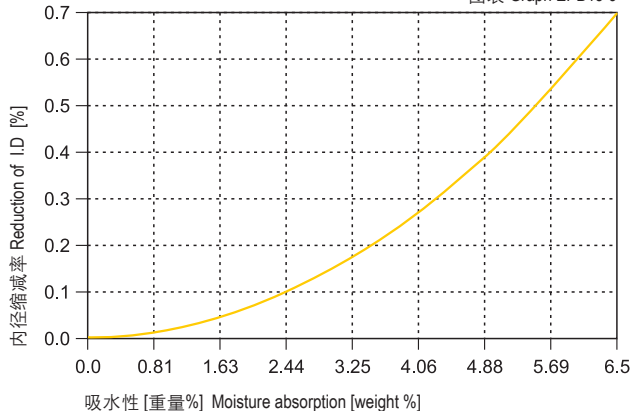
图表 Graph EPB15-8



吸水性的影响

Effect of moisture absorption on EPB15 bearings

图表 Graph EPB15-9





产品特性 Product features

- 高强度和低吸水率的耐磨材料。在潮湿环境中仍能保持良好的尺寸稳定性
- 连续使用温度: -40℃/+130℃
- 较高的载荷
- 适合干运行、免维护
- 吸水率较低
- 高载下性价比好
- Wear resistance material with high strength and low water absorption feature. The dimensions will be remain stable even in humidity environment
- Continuous working temperature: -40℃/+130℃
- Higher load capacity
- Maintenance-free dry operation
- Low water absorption
- Good performance cost ratio under high load

标准产品规格表 Standard specifications: P128

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB16
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm³	1.60
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.2
最大吸水率 Max. water absorption	ISO62	%	0.4
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.06-0.20
极限PV值 Max. PV value	ITS026	N/mm² × m/s	0.40
弯曲模量 Flexural modulus	ISO178	MPa	4900
弯曲强度 Flexural strength	ISO178	MPa	140
最大静载荷 Max. static load	ITS027	MPa	75
最大动载荷 Max. dynamic load	ITS028	MPa	38
邵氏硬度 Shore hardness	ISO868	D	80
连续运行温度 Long-term application temperature	ITS029	℃	+130
短时运行温度 Short-term application temperature	ITS029	℃	+200
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	4
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω ·cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

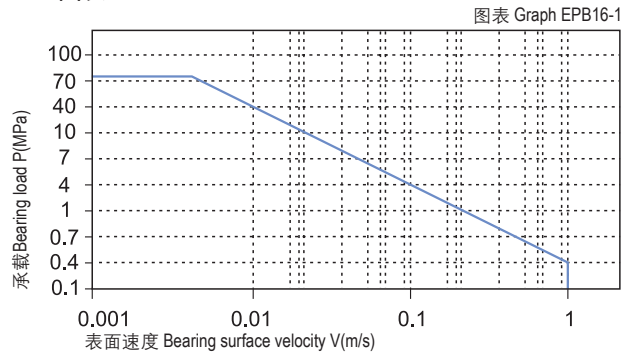
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB16塑料轴承最大运行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, 详细查阅图表EPB16-1。

The max PV value of the CSB-EPB16 plastic bearings 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 EPB16-1).

PV图表 Permissible PV value for CSB-EPB16



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB16塑料轴承可承受最大静载荷为75Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB16-2，轴承实际工作载荷略小于75Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 130℃) 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EPB16-3。

CSB-EPB16 allows the Max static load of 75Mpa, The max compressive deformation rate under the max load is listed in Graph EPB16-2, The actual load capacity of bearing is slightly less than 75Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 130℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB16-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

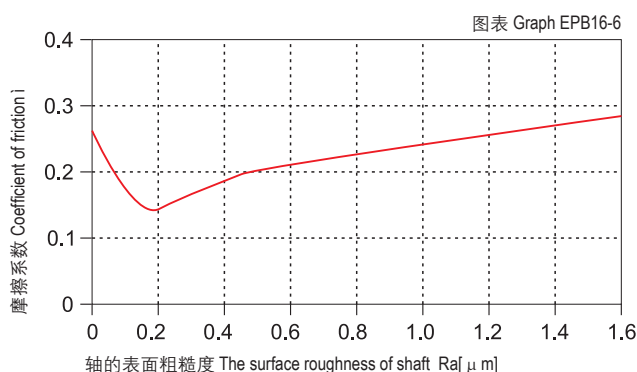
摩擦系数 Friction factor

图表EPB16-4表明CSB-EPB16塑料轴承和大多数滑动轴承一样在载荷保持不变的情况下摩擦系数会随着旋转速度的增加略有升高；图表EPB16-5表明CSB-EPB16塑料轴承摩擦系数在速度保持不变的情况下随着载荷的增加而逐步降低；图表EPB16-6表明CSB-EPB16塑料轴承最适合的轴表面粗糙度为Ra0.1 ~ 0.2um，轴过于光滑或者过于粗糙都会导致摩擦系数升高。

Graph EPB16-4 shows that as the same as most of the slide bearing materials, the friction factor of CSB-EPB16 is increasing along with the rotation speed under a certain loading while as shown in Graph EPB16-5, it is decreased along with the increasing of loading when the operation speed is stable. From Graph EPB16-6, it is found that the most suitable shaft roughness is Ra0.1 to Ra0.2. Smoother shaft or rougher shaft may result into friction factor increasing.

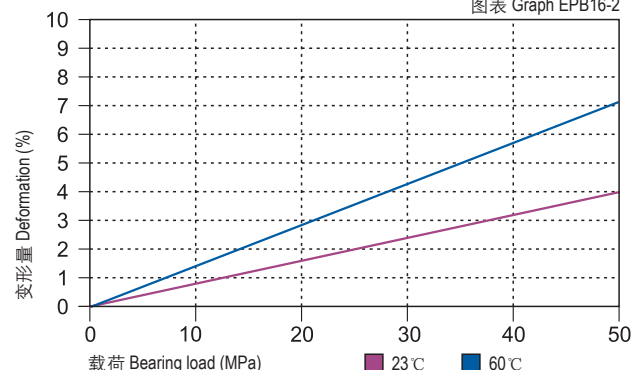
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



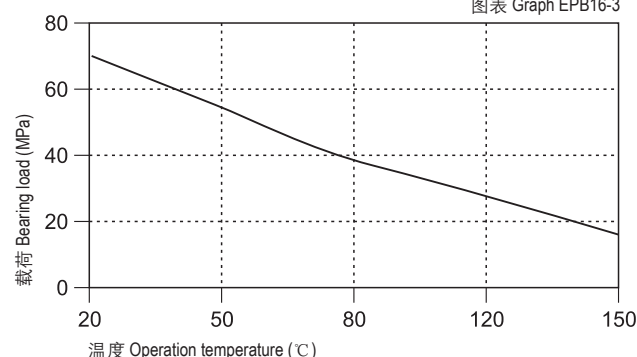
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB16-2



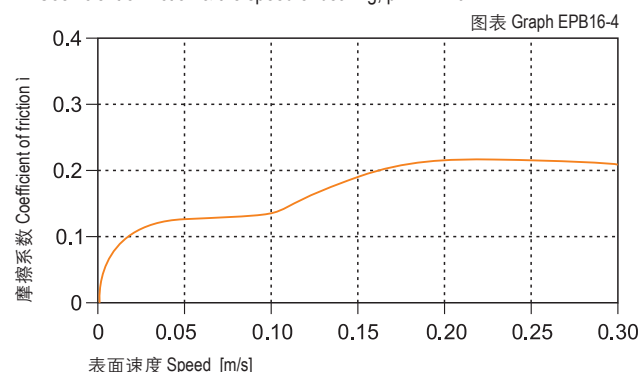
载荷-温度图表 Load-Temperature diagrams

图表 Graph EPB16-3



摩擦系数与速度变化关系图表 P=2MPa

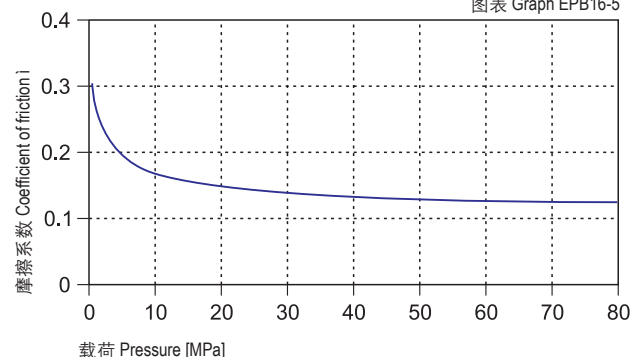
Coefficient of friction & the speed of bearing, p = 2 MPa



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 = 0.2 m/s

图表 Graph EPB16-5



CSB-EPB16	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.06~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB16-7与图表EPB16-8都表明CSB-EPB16塑料轴承的磨损受轴材料影响比较大，硬化钢轴和碳钢轴比较适合此轴承。CSB-EPB16塑料轴承在摆动运动时选择硬铬钢轴和硬化钢轴比较适合，而在旋转运动中则选择碳钢轴和硬化钢轴表交理想。

Graph EPB16-7 and Graph EPB16-8 shows the wearing is considerably affected by the shaft materials. Heat-treated steel shaft and carbon steel shaft is good for this bearing material. CSB-EPB16 is suitable for hardened chrome steel and hardened steel shaft in oscillation operation and is suitable for carbon steel and hardened steel shaft in rotation operation.

化学抗性 Chemical resistance

CSB-EPB16塑料轴承能抵抗部分弱酸以及各类润滑油的腐蚀。

CSB-EPB16 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB16塑料轴承在标准大气中的吸湿率为0.2%。浸泡在水中的最高吸水率为0.4%。极低吸水率不会导致轴承发生性能和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB16 plastic plain bearings is 0.2% in standard atmosphere. The max. water absorption is 0.4% in water. These values are very low, CSB-EPB16 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB16塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能会有所下降。

Disintegration could be possible for the material CSB-EPB16 after long period of exposing under the UV ray and therefore the performance of the material will be reduced.

安装公差 Installation tolerances

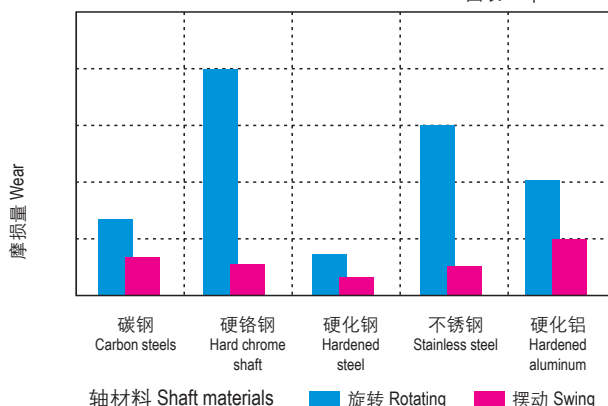
CSB-EPB16塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB16 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

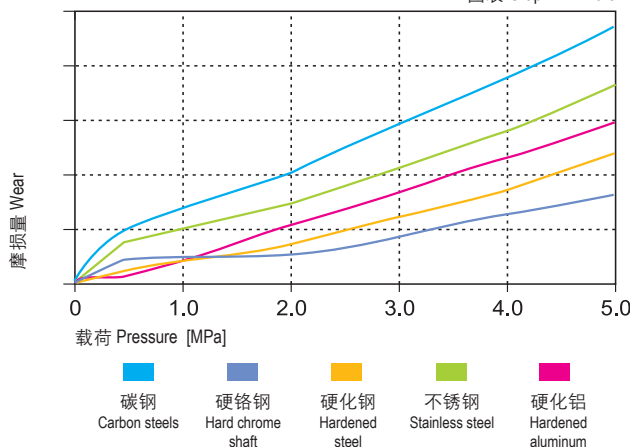
图表 Graph EPB16-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

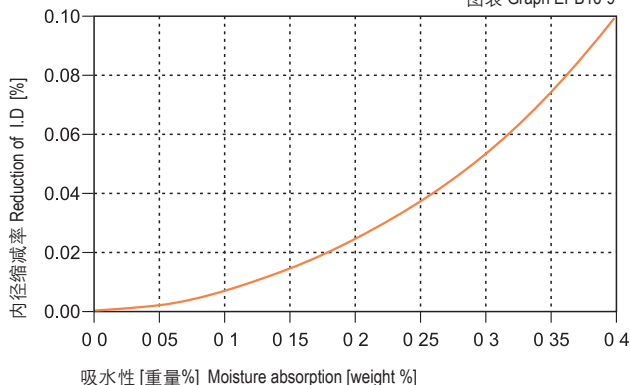
图表 Graph EPB16-8

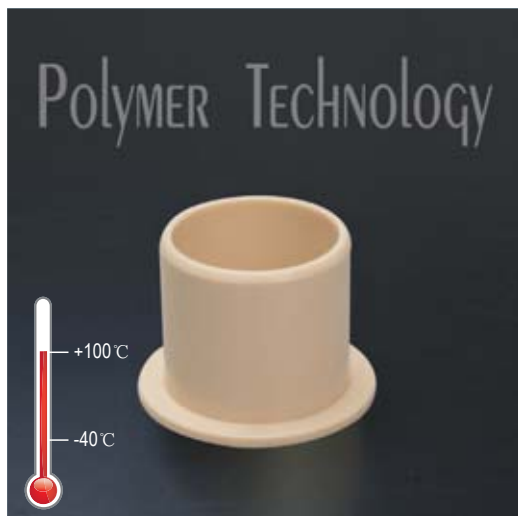


吸水性的影响

Effect of moisture absorption on EPB16 bearings

图表 Graph EPB16-9





● 标准产品规格表 Standard specifications: P124

产品特性 Product features

- 低吸水率下的自润滑材料。在软轴和硬轴配合下耐磨性能同样出色
- 连续使用温度: -40℃/+100℃
- 适合干运行、免维护
- 适合高载荷运动
- 适合在潮湿环境中运行
- A self-lubricating material with low water absorption. Good wear resistance will be maintained when used with soft shaft and hard shaft combined
- Continuous working temperature: -40℃/+100℃
- Maintenance-free dry operation
- High load requirement
- Suitable for working in humid environment

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB18
颜色 Color	-	-	黄色 Yellow
密度 Density	ISO1183	g/cm ³	1.40
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.18
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40
弯曲模量 Flexural modulus	ISO178	MPa	2700
弯曲强度 Flexural strength	ISO178	MPa	65
最大静载荷 Max. static load	ITS027	MPa	50
最大动载荷 Max. dynamic load	ITS028	MPa	21
邵氏硬度 Shore hardness	ISO868	D	75
连续运行温度 Long-term application temperature	ITS029	℃	+100
短时运行温度 Short-term application temperature	ITS029	℃	+160
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	8
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

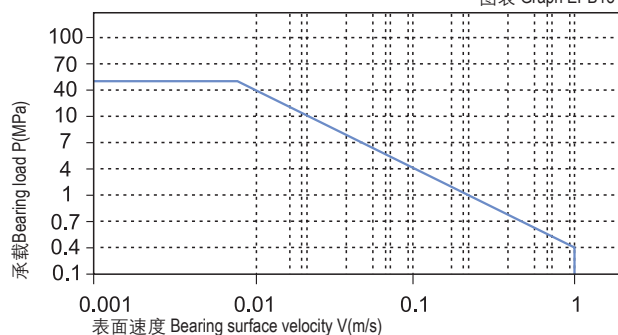
轴承PV值 PV value

CSB-EPB18塑料轴承最大运行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, 详细查阅图表EPB18-1。

The max PV value of the CSB-EPB18 plastic bearings 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 EPB18-1).

PV图表 Permissible PV value for CSB-EPB18

图表 Graph EPB18-1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB18塑料轴承可承受最大静载荷为50MPa，在此载荷下轴承的最大压缩变形量参考图表EPB18-2，轴承实际工作载荷略小于50MPa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 100℃) 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EPB18-3。

CSB-EPB18 allows the Max static load of 50MPa, The max compressive deformation rate under the max load is listed in Graph EPB18-2, The actual load capacity of bearing is slightly less than 50MPa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 100℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB18-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

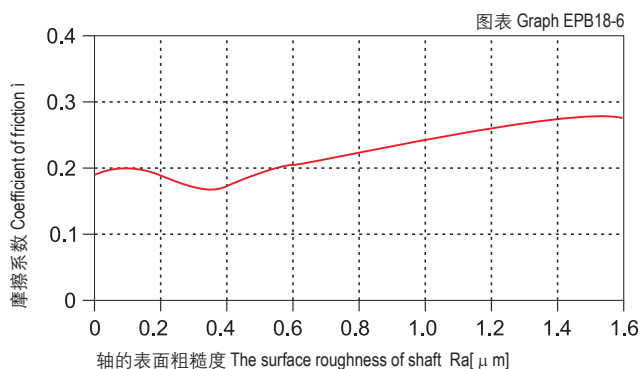
摩擦系数 Friction factor

图EPB18-4表明CSB-EPB18塑料轴承和大多数滑动轴承一样在载荷保持不变的情况下摩擦系数会随着旋转速度的增加略有升高；图EPB18-5表明CSB-EPB18塑料轴承摩擦系数在速度保持不变的情况下随着载荷的增加而逐步降低；图EPB18-6表明CSB-EPB18塑料轴承最适合的轴表面粗糙度为Ra0.2 ~ 0.6μm，轴过于光滑或者过于粗糙都会导致摩擦系数升高。

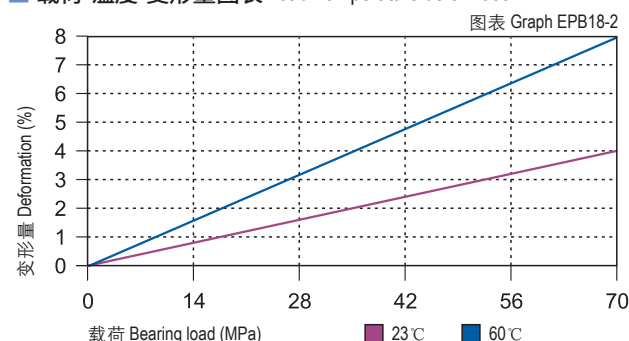
Graph EPB18-4 shows that as the same as most of the slide bearing materials, the friction factor of CSB-EPB18 is increasing along with the rotation speed under a certain loading while as shown in figure EPB18-5, it is decreased along with the increasing of loading when the operation speed is stable. From figure EPB18-6, it is found that the most suitable shaft roughness is Ra0.2 to Ra0.6. Smoother shaft or rougher shaft may result into friction factor increasing.

摩擦系数与轴表面粗糙度关系图表

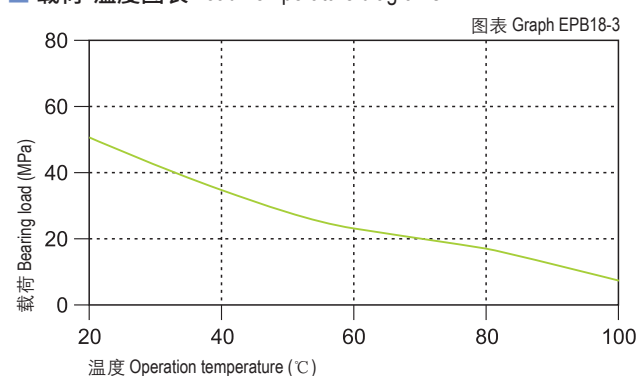
Coefficient of friction & the surface roughness of shaft



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

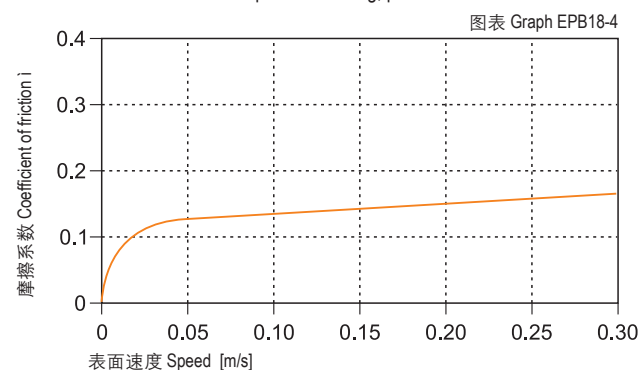


载荷-温度图表 Load-Temperature diagrams



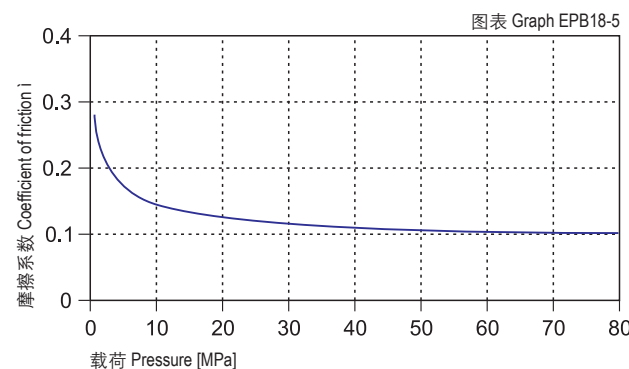
摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa



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 = 0.2 m/s



CSB-EPB18	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05-0.18	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图EPB18-7与图EPB18-8都表明CSB-EPB18塑料轴承的磨损受轴材料影响比较大，硬化钢轴和硬铬钢轴比较适合此轴承。图EPB18-7表明CSB-EPB18塑料轴承在旋转和摆动运动时选择硬铬钢轴和硬化钢轴比较适合。

Graph EPB18-7 and EPB18-8 shows the wearing is considerably affected by the shaft materials. Heat-treated steel shaft and carbon steel shaft is good for this bearing material. Graph EPB18-7 tells that CSB-EPB18 is suitable for hardened chrome steel and hardened steel shaft in rotation operation or oscillation operation.

化学抗性 Chemical resistance

CSB-EPB18塑料轴承能抵抗部分弱酸以及各类润滑油的腐蚀。

CSB-EPB18 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB18塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中的最高吸水率为0.5%。极低吸水率不会导致轴承发生性能变化和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB18 plastic plain bearings is 0.3% in standard atmosphere. The max. water absorption is 0.5% in water. These values are very low, CSB-EPB18 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB18塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能会有所下降。

Disintegration could be possible for the material CSB-EPB18 after long period of exposing under the UV ray and therefore the performance of the material will be reduced.

安装公差 Installation tolerances

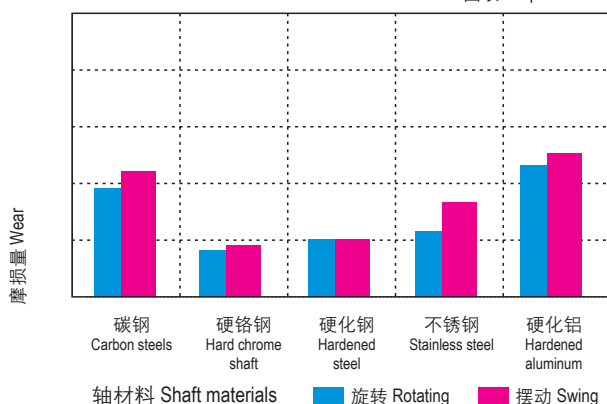
CSB-EPB18塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB18 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

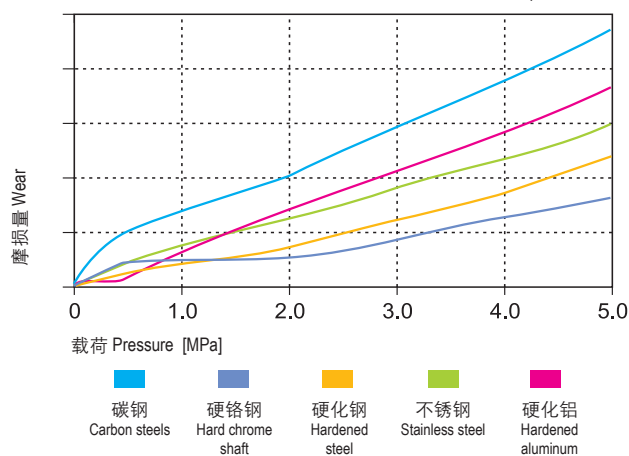
图表 Graph EPB18-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

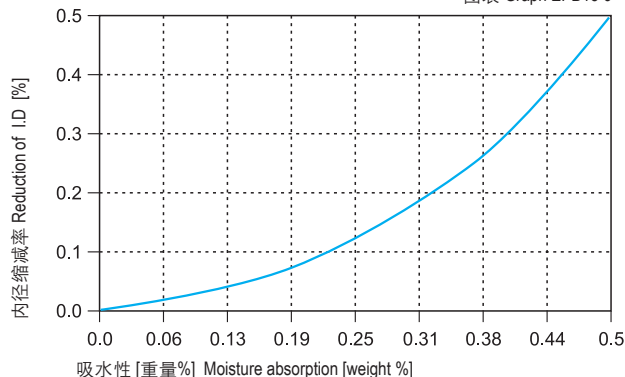
图表 Graph EPB18-8

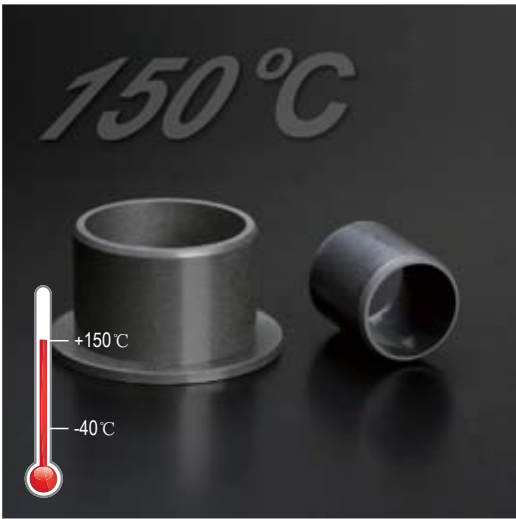


吸水性的影响

Effect of moisture absorption on EPB18 bearings

图表 Graph EPB18-9





产品特性 Product features

- 高温150度下的耐磨材料。高低温下保持一致的自润滑材料
- 连续使用温度: -40℃/+150℃
- 适合高载下的摆动
- 适合干运行、免维护
- 较高的抗压强度
- Wear resistance material for temperature up to 150 °C. The Features of the material is kept stable either at high or low temperature
- Continuous working temperature: -40℃/+150℃
- Applicable for oscillating under high load
- Maintenance-free dry operation
- High pressure resistance

标准产品规格表 Standard specifications: P138

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB19
颜色 Color	-	-	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.27
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.3
最大吸水率 Max. water absorption	ISO62	%	4.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.60
弯曲模量 Flexural modulus	ISO178	MPa	2800
弯曲强度 Flexural strength	ISO178	MPa	80
最大静载荷 Max. static load	ITS027	MPa	60
最大动载荷 Max. dynamic load	ITS028	MPa	22
邵氏硬度 Shore hardness	ISO868	D	72
连续运行温度 Long-term application temperature	ITS029	℃	+150
短时运行温度 Short-term application temperature	ITS029	℃	+200
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

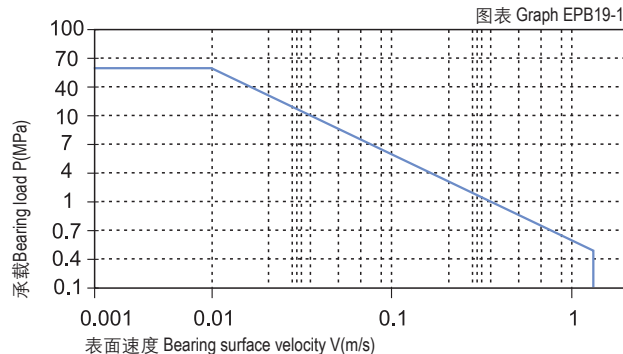
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23 °C unless otherwise stated.

轴承PV值 PV value

CSB-EPB19塑料轴承最大运行PV值为0.6N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅EPB19-1。

The max PV value of the CSB-EPB19 plastic bearings is 0.6N/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 EPB19-1).

PV图表 Permissible PV value for CSB-EPB19



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB19塑料轴承可承受最大静载荷为60Mpa，在此载荷下轴承的最大压缩变形量参考EPB19-2，轴承实际工作载荷略小于60Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 150℃) 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EPB19-3。

CSB-EPB19 allows the Max static load of 60Mpa, The max compressive deformation rate under the max load is listed in Graph EPB19-2, The actual load capacity of bearing is slightly less than 60Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.5m/s) results into higher temperature (Tmax: 150℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB19-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

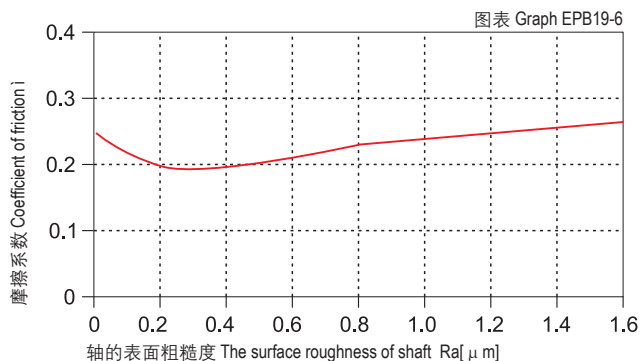
摩擦系数 Friction factor

图表EPB19-4表明CSB-EPB19塑料轴承的摩擦系数随着运动速度的变化影响较小，而图表EPB19-5表明CSB-EPB19塑料轴承的摩擦系数随着载荷的增加明显减小，在载荷超过20Mpa是逐渐趋于平稳；图表EPB19-6表明CSB-EPB19塑料轴承的摩擦系数受轴粗糙度的影响也相对比较小；虽然如此，我们还是建议轴的表面不能太光滑，也不能过于出差，推荐使用轴的粗糙度为Ra0.3 ~ 0.6μm；

Graph EPB19-4 shows that the friction factor of CSB-EPB19 is not sensitive to the operation speed. Graph EPB19-5 tells that the friction factor of CSB-EPB19 is decreased along with the loading increasing and will be relatively stable when the loading reaches 20 Mpa upwards. Graph EPB19-6 shows that the friction factor of CSB-EPB19 is not sensitive to the shaft surface roughness. Therefore, it is recommended a proper shaft surface roughness in the range of Ra0.3~0.6.

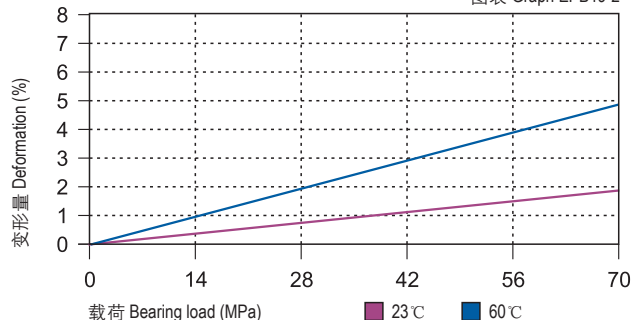
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



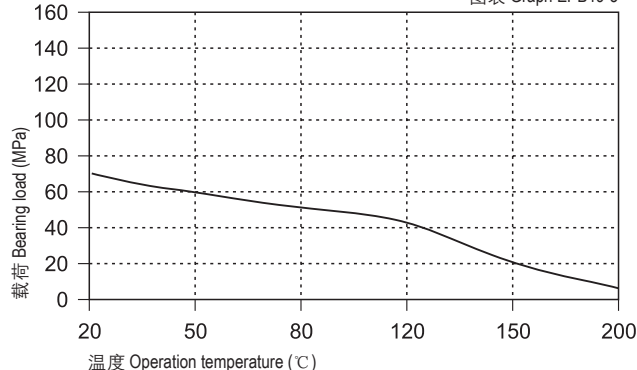
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB19-2



载荷-温度图表 Load-Temperature diagrams

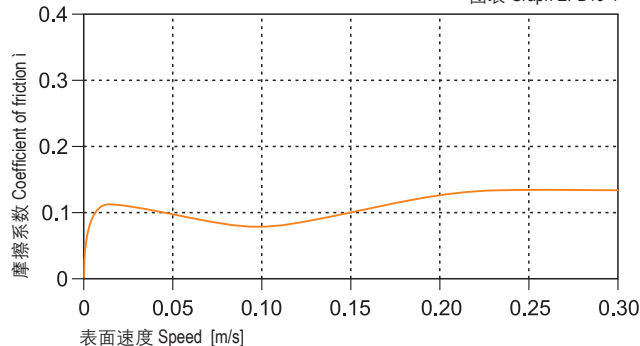
图表 Graph EPB19-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

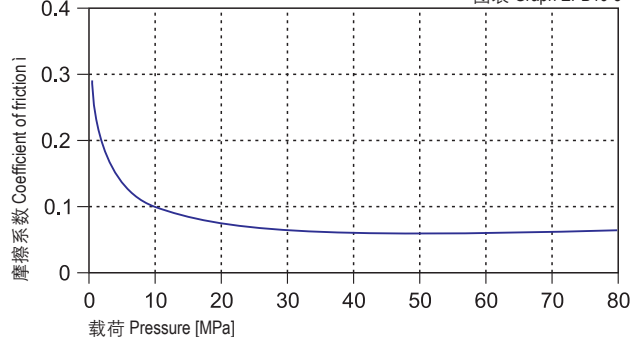
图表 Graph EPB19-4



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 = 0.2 m/s

图表 Graph EPB19-5



CSB-EPB19	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB19-7表明CSB-EPB19塑料轴承在2Mpa下做旋转运动时，磨损随着轴材料的变化较大；通过实验表明CSB-EPB19塑料轴承在做旋转运动时比较适合用于硬轴，高速钢轴和硬铬轴上用于CSB-EPB19塑料轴承能获得良好的运行效果。图表EPB19-8表明硬铬轴更适合用于高载荷下的CSB-EPB19塑料轴承，随着载荷的不断增大，轴承的磨损速率却变化较小。

Graph EPB19-7 shows CSB-EPB19 friction factor is variable against different shaft materials in rotation operation under loading of 2Mpa. Testing indicates that hardened shaft is best for rotation operation of CSB-EPB19. The operation condition is better when CSB-EPB19 is used against hardened steel shafts, high speed steel shaft and hardened chrome steel shaft under rotation operation. Graph EPB19-8x describes that hardened chrome steel is better for this material under high loading operation where as long as the increasing of the loading, the wearing of the bearing is relatively stable.

化学抗性 Chemical resistance

CSB-EPB19塑料轴承能抵抗弱碱、弱酸以及各类润滑油的腐蚀。

CSB-EPB19 is good at chemical resistance against mild base, weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB19塑料轴承在标准大气中的吸湿率为1.3%。浸泡在水中最高吸水率为4.5%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB19 plastic plain bearings is 1.3% in standard atmosphere. The max. water absorption is 4.5% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB19塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能基本都不会发生改变。

The color of CSB-EPB19 could be dimmed when it is exposed into the UV ray. The material performance stays stable.

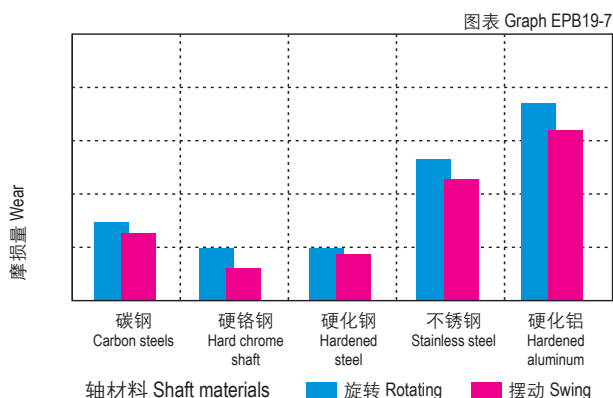
安装公差 Installation tolerances

CSB-EPB19塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB19 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

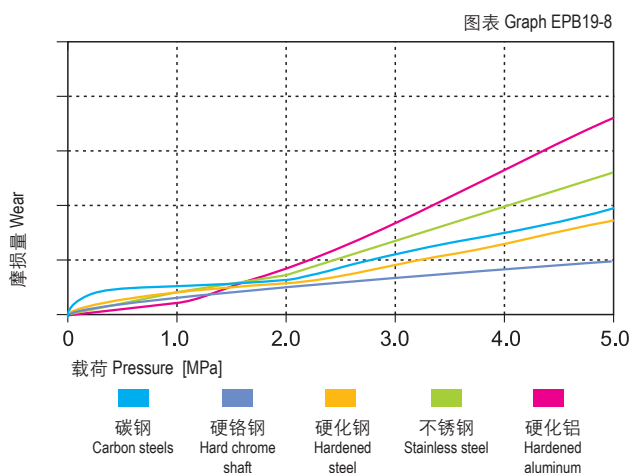
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

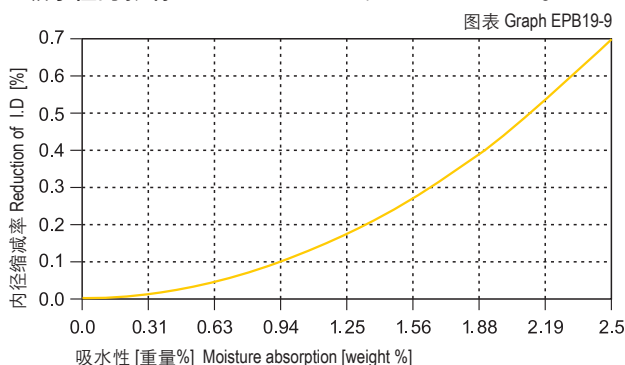


旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

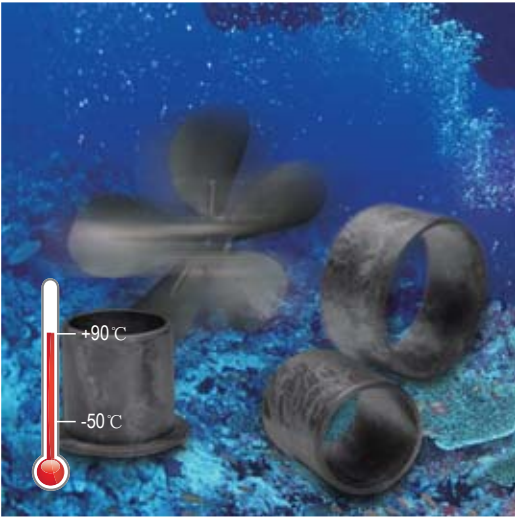
Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$



吸水性的影响 Effect of moisture absorption on EPB19 bearings



直径 Di. [mm]	CSB-EPB19 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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



标准产品规格表 Standard specifications: P128

产品特性 Product features

- 用于水下的自润滑材料。适合在水中做低载荷下的快速旋转运动
- 连续使用温度: -50℃/+90℃
- 适用于中低载荷
- 适用于水下
- 高速场合应用
- A self-lubricating material for applications in water. It is suitable for high speed motion under low load
- Continuous working temperature: -50℃/+90℃
- Suitable for medium load operation
- For underwater operation
- For high speed movement

材料数据表 Material properties data table

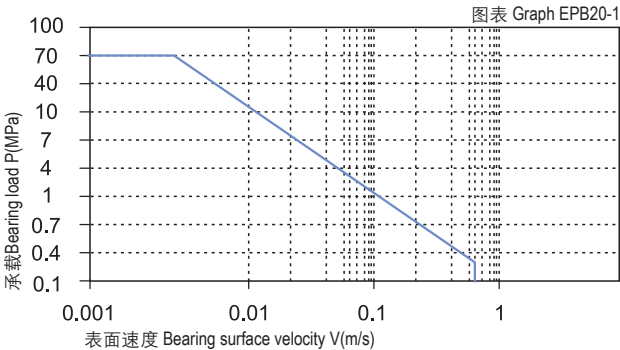
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB20
颜色 Color	-	-	黑色 Black
密度 Density	ISO1183	g/cm ³	1.53
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.2
最大吸水率 Max. water absorption	ISO62	%	0.8
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.15-0.35
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.15
弯曲模量 Flexural modulus	ISO178	MPa	7200
弯曲强度 Flexural strength	ISO178	MPa	120
最大静载荷 Max. static load	ITS027	MPa	70
最大动载荷 Max. dynamic load	ITS028	MPa	35
邵氏硬度 Shore hardness	ISO868	D	79
连续运行温度 Long-term application temperature	ITS029	℃	+90
短时运行温度 Short-term application temperature	ITS029	℃	+110
最低运行温度 Lowest application temperature	ITS029	℃	-50
导热性 Thermal conductivity	ISO22007	W/m/K	0.60
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	6
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	<10 ⁵
面电阻率 Surface resistance	IEC60093	Ω	<10 ⁵

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB20塑料轴承最大运行PV值为0.15N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB20-1。
The max PV value of the CSB-EPB20 plastic bearings is 0.15N/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 EPB20-1).

PV图表 Permissible PV value for CSB-EPB20



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB20塑料轴承可承受最大静载荷为70MPa，在此载荷下轴承的最大压缩变形量参考图表EPB20-2，轴承实际工作载荷略小于70MPa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 0.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 90℃) 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EPB20-3。

CSB-EPB20 allows the Max static load of 70MPa, The max compressive deformation rate under the max load is listed in Graph EPB20-2, The actual load capacity of bearing is slightly less than 70MPa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 0.5m/s) results into higher temperature (Tmax: 90℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB20-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

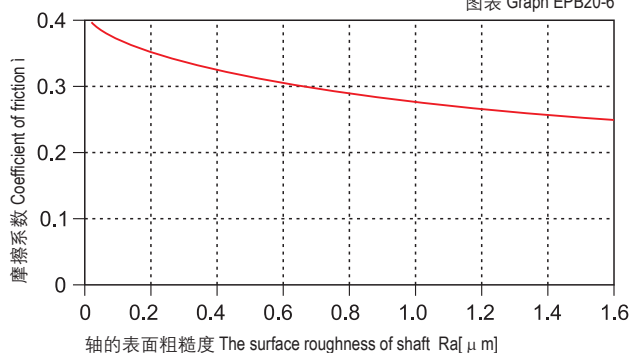
与其它塑料轴承基本一样，图EPB20-4表明CSB-EPB20塑料轴承在载荷保持不变的情况下摩擦系数随着运行速度的增加而升高；图EPB20-5表明CSB-EPB20塑料轴承在保持速度不变时摩擦系数随着载荷的增加而逐步减低。根据图EPB20-6表明CSB-EPB20塑料轴承的摩擦系数会随着轴表面粗糙度的变化而不同，我们推荐使用轴粗糙度为Ra0.3~0.6μm；

Similar with most of the plastic bearings, the friction factor of CSB-EPB20 is increased along with the operation speed when the loading is stable (see Graph EPB20-4) and is decreased along with the loading increasing when the operation speed is stable (see Graph EPB20-5). From Graph EPB20-6, it shows the friction factor of CSB-EPB20 is variable against different shaft surface roughness. The recommended shaft surface roughness is Ra0.3~0.6.

摩擦系数与轴表面粗糙度关系图表

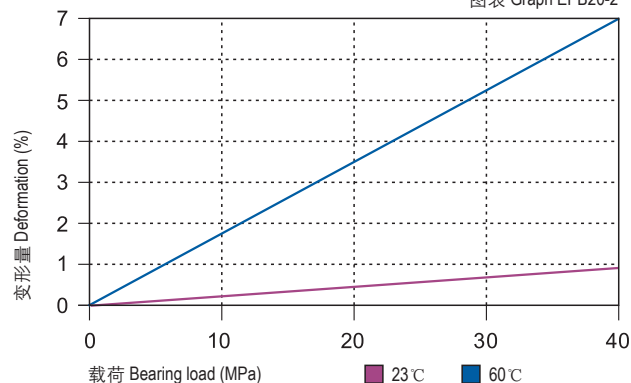
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB20-6



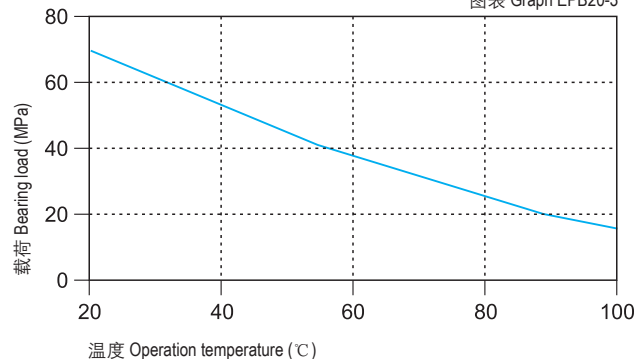
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB20-2



载荷-温度图表 Load-Temperature diagrams

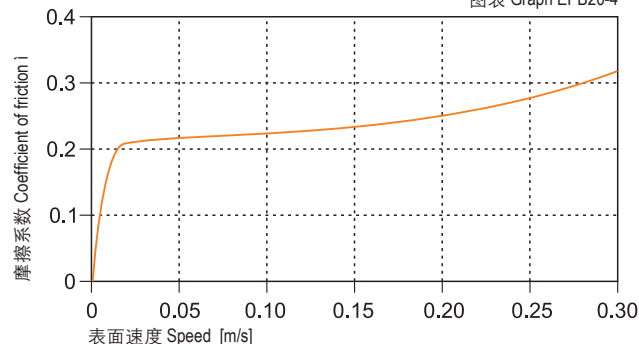
图表 Graph EPB20-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

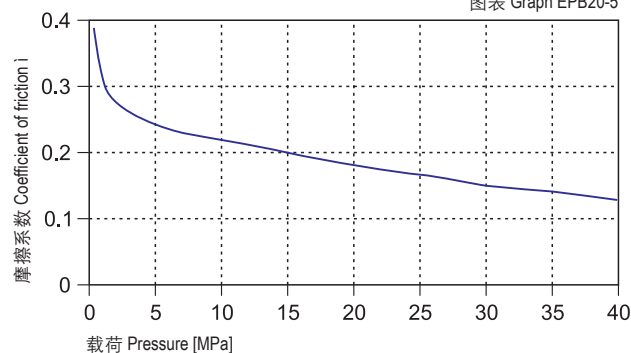
图表 Graph EPB20-4



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 = 0.2 m/s

图表 Graph EPB20-5



CSB-EPB2	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.15~0.35	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图EPB20-7与图EPB20-8表明低载时硬化钢轴与硬铬钢轴比较适合用于CSB-EPB20塑料轴承。图EPB20-7表明CSB-EPB20塑料轴承在用于摆动运动时磨损值明显要优越于用于旋转运动。

Graph EPB20-7 and EPB20-8 shows that CSB-EPB20 is rather suitable for hardened steel shaft and hardened chrome steel shaft under lower loading and Graph EPB20-7 shows that CSB-EPB20 wearing feature is better for oscillation operation than of rotation operation.

化学抗性 Chemical resistance

CSB-EPB20塑料轴承能抵抗部分弱酸以及各类润滑油的腐蚀。

CSB-EPB20 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB20塑料轴承在标准大气中的吸湿率为0.2%。浸泡在水中的最高吸水率为0.8%。低吸水性不会导致轴承发生性能和尺寸变化，非常适合用于水下。

The moisture absorption of CSB-EPB20 plastic plain bearings is 0.2% in standard atmosphere. The max. water absorption is 0.8% in water. These values are very low, CSB-EPB20 plastic plain bearings is very well suited for used in water.

抗UV性能 UV resistance

CSB-EPB20塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能会有所下降。

Disintegration could be possible for the material CSB-EPB20 after long period of exposing under the UV ray and therefore the performance of the material will be reduced.

安装公差 Installation tolerances

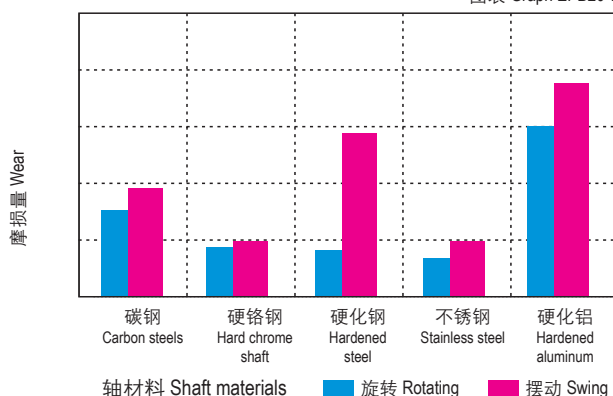
CSB-EPB20塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB20 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

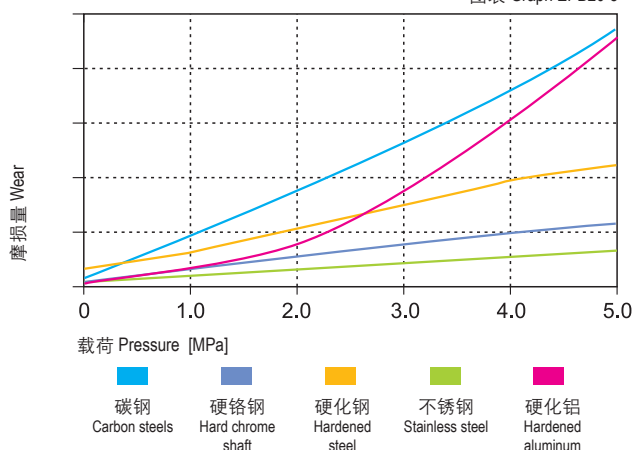
图表 Graph EPB20-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

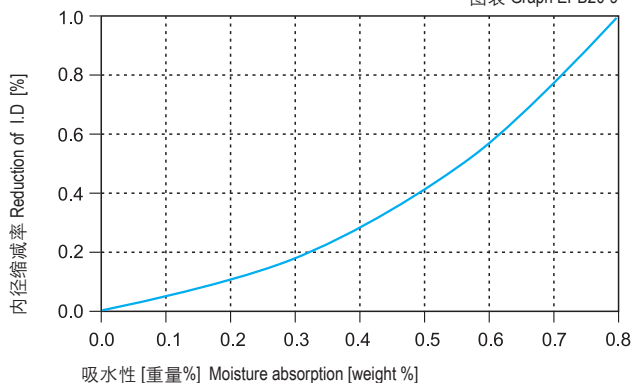
图表 Graph EPB20-8

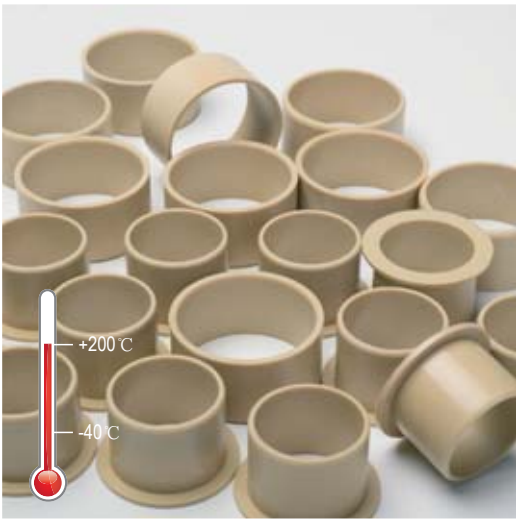


吸水性的影响

Effect of moisture absorption on EPB20 bearings

图表 Graph EPB20-9





● 标准产品规格表 Standard specifications: P128

产品特性 Product features

- 高温下的低摩擦系数和耐磨性同样出色材料。抗化学腐蚀优良。被用于高温、高化学抗性要求下耐磨轴承的优选材料
- 连续使用温度: -40℃/+200℃
- 非常低的摩擦系数
- 适合干运行、免维护
- 高温和良好的化学抗性
- 适合潮湿环境中使用
- Low friction and good wear resistance for high temperature applications. The excellent chemical resistance of the material ensures at the applications for high temperature and high chemical erosion applications
- Continuous working temperature: -40℃/+200℃
- Very low coefficient of friction
- Maintenance-free dry operation
- High temperature and good chemical resistance
- Suitable for humid environment

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB21
颜色 Color	-	-	米色 Beige
密度 Density	ISO1183	g/cm ³	1.53
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.3
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.80
弯曲模量 Flexural modulus	ISO178	MPa	2800
弯曲强度 Flexural strength	ISO178	MPa	55
最大静载荷 Max. static load	ITS027	MPa	80
最大动载荷 Max. dynamic load	ITS028	MPa	37
邵氏硬度 Shore hardness	ISO868	D	77
连续运行温度 Long-term application temperature	ITS029	℃	+200
短时运行温度 Short-term application temperature	ITS029	℃	+240
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	6
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

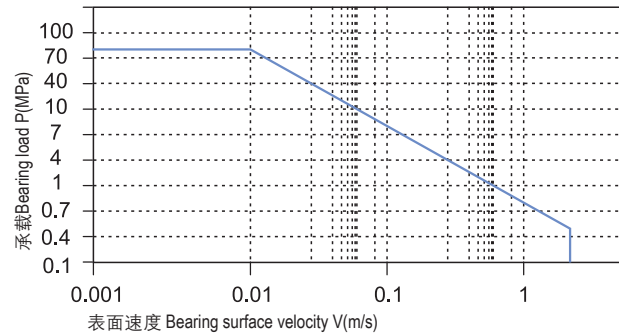
轴承PV值 PV value

CSB-EPB21塑料轴承最大运行PV值0.8N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB21-1。

The max PV value of the CSB-EPB21 plastic bearings is 0.8N/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 EPB21-1).

■ PV图表 Permissible PV value for CSB-EPB21

图表 Graph EPB21-1



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB21塑料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EPB21-2，轴承实际工作载荷略小于80Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.5m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 200℃) 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EPB21-3。

CSB-EPB21 allows the Max static load of 80Mpa, The max compressive deformation rate under the max load is listed in Graph EPB21-2, The actual load capacity of bearing is slightly less than 80Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.5m/s) results into higher temperature (Tmax: 200℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB21-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

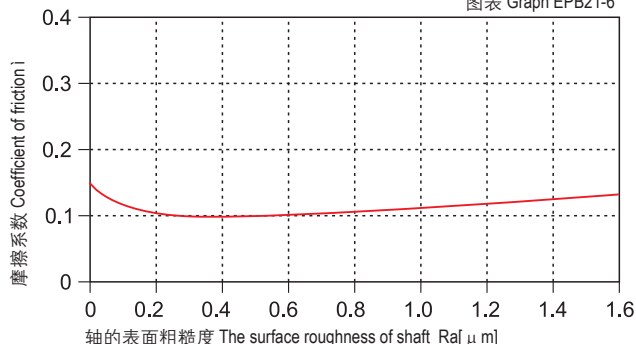
图表EPB21-4表明CSB-EPB21塑料轴承在载荷保持不变时旋转下的摩擦系数会随着速度的增加而略有减低；图表EPB21-5表明CSB-EPB21塑料轴承在速度保持不变时旋转下的摩擦系数会随着载荷的增加而逐步降低，特别是在载荷小于30Mpa的情况下。图表EPB21-6表明CSB-EPB21塑料轴承的对磨轴粗糙度在Ra0.3 ~ 0.4um时摩擦系数几乎没有变化，但当轴表面粗糙度大于Ra0.4时摩擦系数会快速上升；我们推荐使用轴的粗糙度为Ra0.3 ~ 0.4um。

Friction factor will be slightly decreased along with the speed increasing under certain loading of the rotation operation (see Graph EPB21-4) 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 EPB21-5 tells that the friction of the CSB-EPB21 is not changed at all when the shaft roughness is between Ra0.3 to Ra0.4 and will be considerably increased when the shaft roughness is over Ra0.4. So the recommended shaft roughness is Ra0.3-Ra0.4.

摩擦系数与轴表面粗糙度关系图表

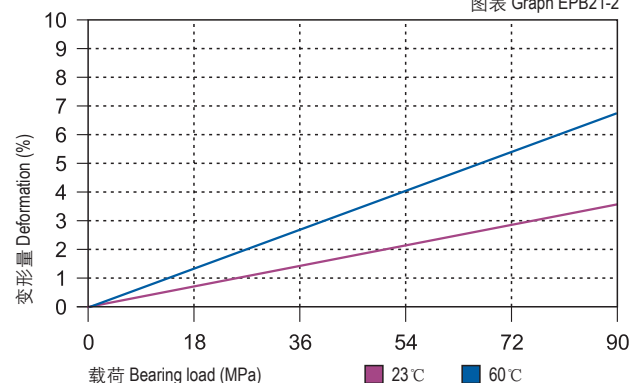
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB21-6



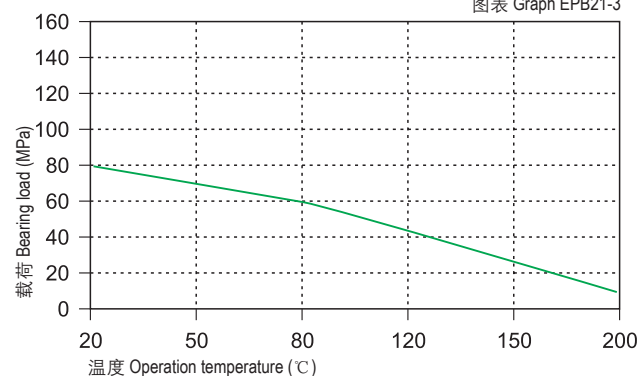
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB21-2



载荷-温度图表 Load-Temperature diagrams

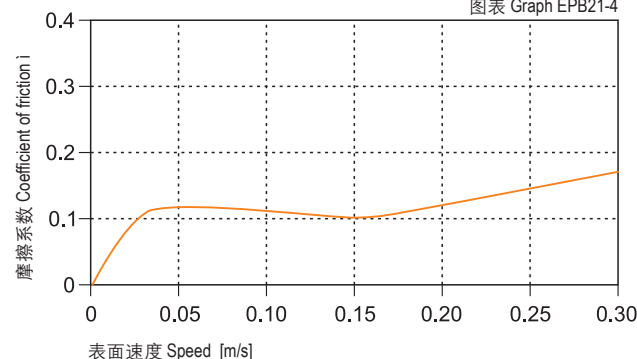
图表 Graph EPB21-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

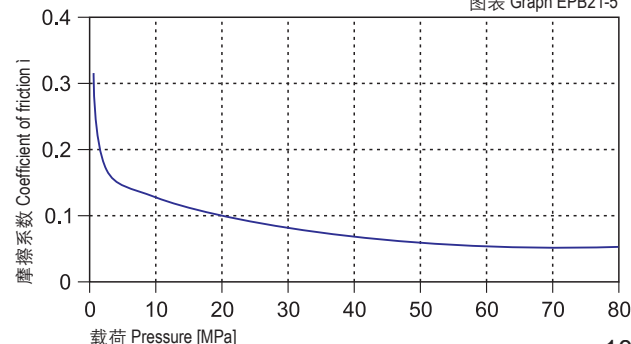
图表 Graph EPB21-4



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 = 0.2 m/s

图表 Graph EPB21-5



CSB-EPB21	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.05~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB21-7与EPB21-8表明CSB-EPB21塑料轴承在旋转运动时适合大都数轴材料，而在高载旋转下不锈钢轴表现尤为特出（见图表EPB21-8）；CSB-EPB21塑料轴承比较适合用于摆动运动，在旋转运动中不锈钢和硬化铝轴效果比较好。

Graph EPB21-7 and EPB21-8 shows that CSB-EPB21 is suitable for most of the shaft materials under rotation operation and it is good for stainless steel shaft under high loading rotation operation (see Graph EPB21-8). CSB-EPB21 is suitable for oscillation operation, Stainless steel shaft and hardened aluminum shaft is suitable for the bearing under rotation operation.

化学抗性 Chemical resistance

CSB-EPB21塑料轴承具有很好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of CSB-EPB21 is fairly good against most of Acid and Alkalies.

吸水性 Water absorption

CSB-EPB21塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.3%。极低吸水率不会导致轴承发生性能变化和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB21 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.3% in water. These values are very low, CSB-EPB21 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB21塑料轴承长久暴露在紫外线下材料表面会发生蜕变，抗压强度会下降。

Disintegration could be possible for the material CSB-EPB21 after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

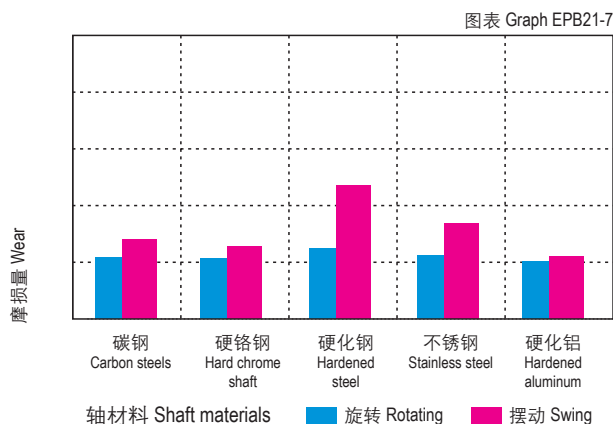
安装公差 Installation tolerances

CSB-EPB21塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB21 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

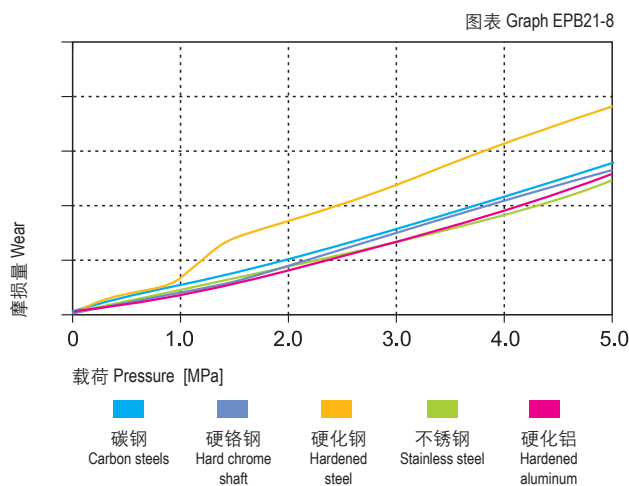
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$



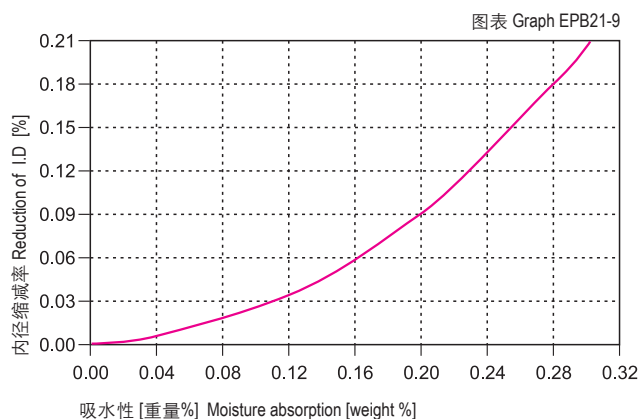
旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$



吸水性的影响

Effect of moisture absorption on EPB21 bearings





标准产品规格表 Standard specifications: P128

产品特性 Product features

- 极高载荷下耐磨性较好的材料。适用于其它CSB塑料轴承在极高载荷下摆动运动无法满足的场合
- 连续使用温度: -40℃/+150℃
- 承受较高载荷
- 适用于摆动场合
- 抗污垢能力强
- Good wear resistance under extremely high load condition. It is suitable for the applications that the other CSB plastic bearing materials are not working properly with the extremely high load and oscillation motion conditions
- Continuous working temperature: -40℃/+150℃
- Suitable for high load operation
- Good for oscillating operation
- Containment prevention ability

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB22
颜色 Color	-	-	浅棕色 Light brown
密度 Density	ISO1183	g/cm ³	1.49
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	1.1
最大吸水率 Max. water absorption	ISO62	%	4.6
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.15-0.35
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.70
弯曲模量 Flexural modulus	ISO178	MPa	9000
弯曲强度 Flexural strength	ISO178	MPa	240
最大静载荷 Max. static load	ITS027	MPa	95
最大动载荷 Max. dynamic load	ITS028	MPa	49
邵氏硬度 Shore hardness	ISO868	D	80
连续运行温度 Long-term application temperature	ITS029	℃	+150
短时运行温度 Short-term application temperature	ITS029	℃	+220
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	8
阻燃等级 Flammability	UL94	Class	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

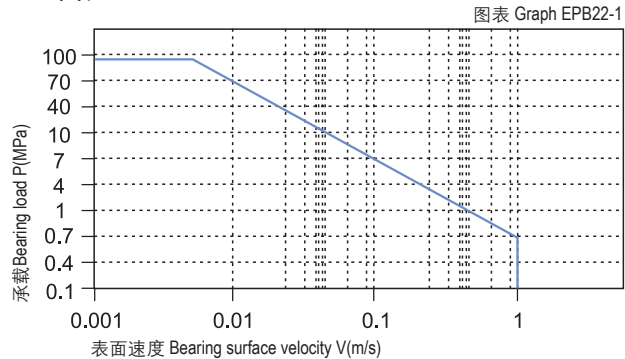
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB22塑料轴承最大运行PV值为0.7N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB22-1。

The max PV value of the CSB-EPB12 plastic bearings is 0.7N/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 EPB12-1).

PV图表 Permissible PV value for CSB-EPB22



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB22塑料轴承可承受最大静载荷为95MPa，在此载荷下轴承的最大压缩变形量参考图表EPB22-2，轴承实际工作载荷略小于95MPa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 150℃) 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EPB22-3。

CSB-EPB22 allows the Max static load of 95MPa, The max compressive deformation rate under the max load is listed in Graph EPB22-2, The actual load capacity of bearing is slightly less than 95MPa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 150℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB22-3 for such variation.

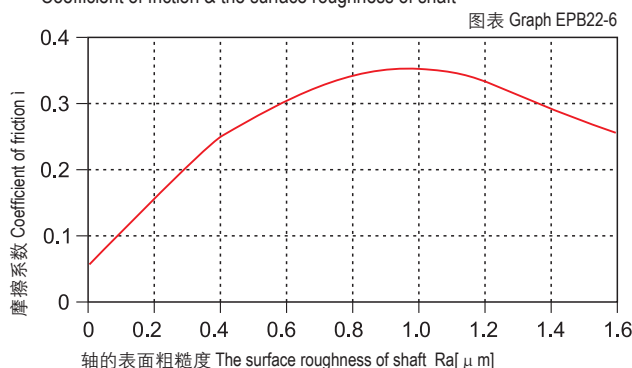
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

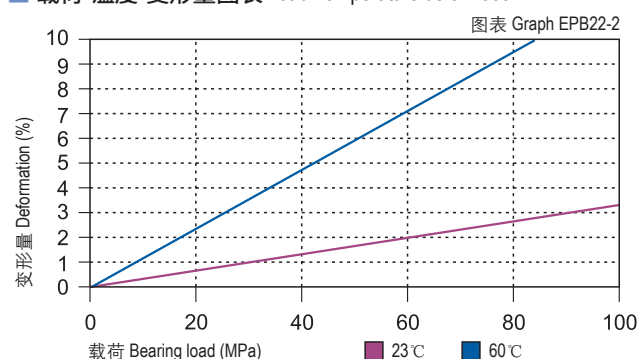
图表EPB22-4表明CSB-EPB22塑料轴承的摩擦系数在载荷保持不变的情况下受速度变化影响比较小；同样在图表EPB22-5表明CSB-EPB22塑料轴承在速度保持不变的情况下受载荷变化的影响相对也比较小；此轴承为所有滑动轴承中摩擦系数不受运行速度以及载荷影响较大的典型轴承。根据图表EPB22-6显示CSB-EPB22塑料轴承的摩擦系数在超过Ra0.4后轴表面粗糙度几乎对轴承的摩擦系数没有任何影响，我们推荐使用轴表面粗糙度为Ra0.1~0.4μm。

Graph EPB22-4 shows that the friction factor of CSB-EPB22 is not considerably affected by the operation speed when the loading is stable. At the meantime, Graph EPB22-5 shows that the friction factor of CSB-EPB22 is not considerably affected by the loading when the operation speed is stable. This bearing is the only typical material whose friction factor is not sensitive to the operation speed and loading. Graph EPB22-6 tells that the friction factor of CSB-EPB22 will not be affected by the shaft roughness when the shaft roughness is better than Ra0.4. The recommended Shaft roughness is Ra0.1~0.4.

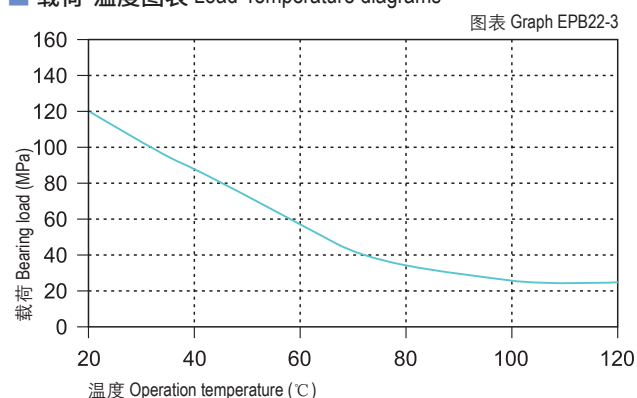
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



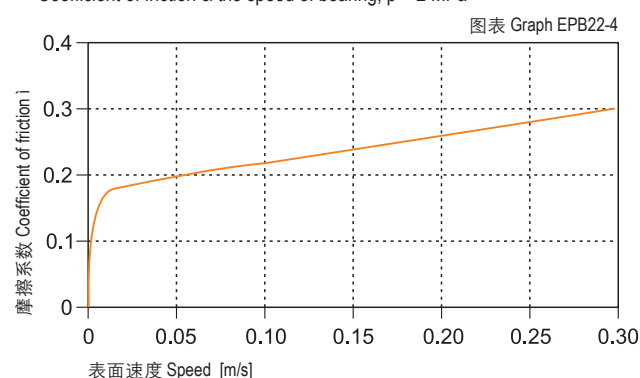
载荷-温度-变形量图表 Load-Temperature deformation



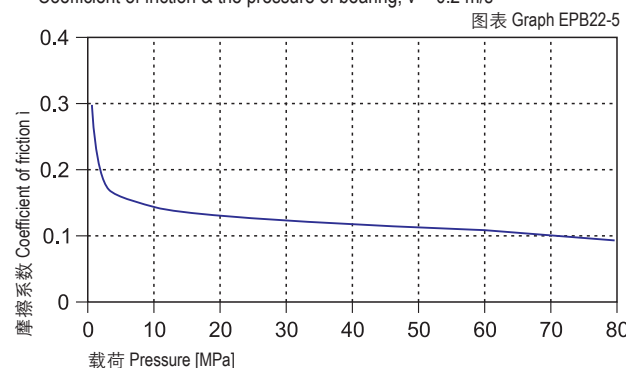
载荷-温度图表 Load-Temperature diagrams



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



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 = 0.2 m/s



CSB-EPB22	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.15~0.35	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB22-7与图表EPB22-8表明CSB-EPB22塑料轴承比较适合采用硬铬钢轴或硬化钢轴；图表EPB22-7表明CSB-EPB22塑料轴承在做摆动运动下的磨损性能要优越于在旋转运动下的磨损性能。CSB-EPB22塑料轴承在摆动运动时选择硬铬钢轴和硬化钢轴比较适合，在旋转运动中也是选择硬铬钢轴和硬化钢轴比较理想。

Graph EPB22-7 and Graph EPB22-8 tells that CSB-EPB22 is suitable for both hard chrome steel shaft and hardened steel shaft. The wearing feature of CSB-EPB22 is better in oscillation operation than in rotation operation. Hardened steel shaft and hardened aluminum shaft is the better choice under oscillation operation and hardened steel shaft and hardened chrome steel shaft is the better choice under rotation operation.

化学抗性 Chemical resistance

CSB-EPB22塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB22 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB22塑料轴承在标准大气中的吸湿率为1.1%。浸泡在水中最高吸水率为4.6%。由于高吸水率的特性，我们必须考虑此轴承的应用环境。

The moisture absorption of CSB-EPB22 plastic plain bearings is 1.1% in standard atmosphere. The max. water absorption is 4.6% in water. The application environment has to be considered due to the high water absorption properties.

抗UV性能 UV resistance

CSB-EPB22塑料轴承长久暴露在紫外线下长久后材料可能会变脆，不能承受冲击力。

CSB-EPB22 can become brittle and lost its impact resistance when it is exposed into UV ray for a certain period of time.

安装公差 Installation tolerances

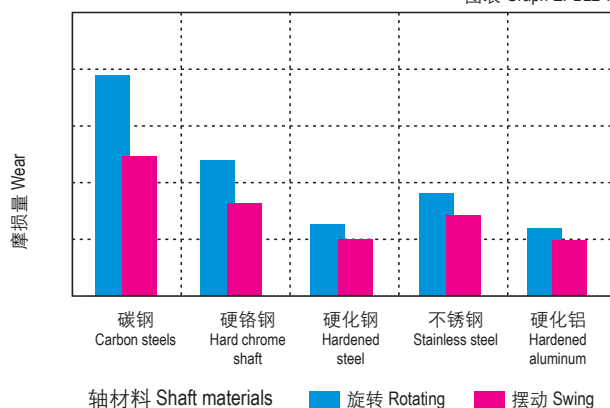
CSB-EPB22塑料轴承压装后公差 Tolerances after pressfit

直径 Di [mm]	CSB-EPB22 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2\text{ MPa}$, $v = 0.2\text{ m/s}$

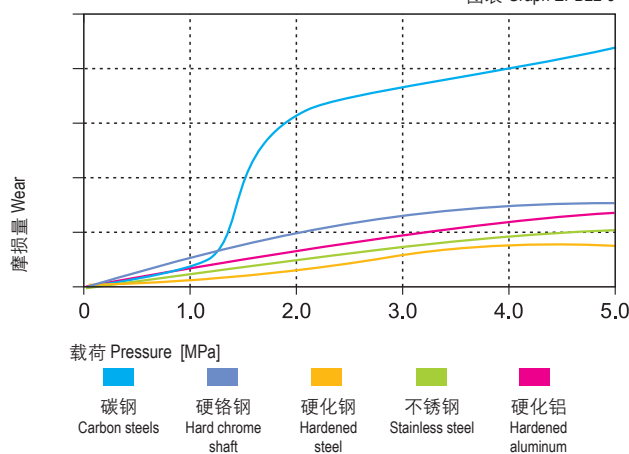
图表 Graph EPB22-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2\text{ m/s}$

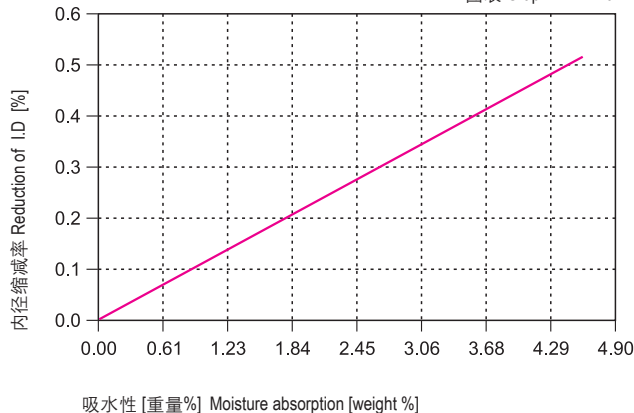
图表 Graph EPB22-8

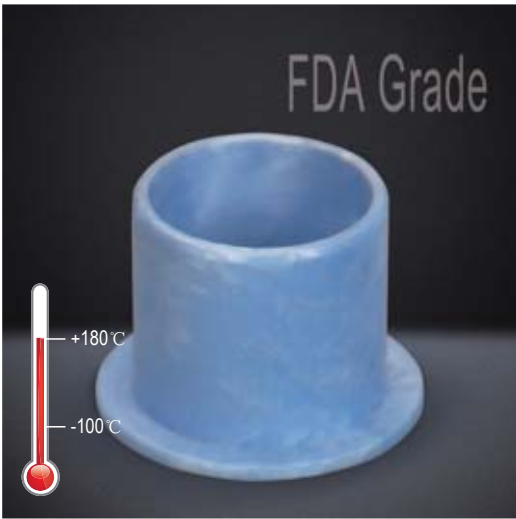


吸水性的影响

Effect of moisture absorption on EPB22 bearings

图表 Graph EPB22-9





产品特性 Product features

- 符合FDA标准的高温耐磨材料。因用于食品机械或与食品接触的场所。可在180度下保持良好的耐磨性能
- 连续使用温度: -100℃/+180℃
- 高载荷下耐磨
- 高温下食品行业应用
- 符合FDA标准
- High temperature and wear resistance material conforms to FDA regulation. It is suitable for the food machinery where the food is directly contacted with the material under the high temperature of 180℃
- Continuous working temperature: -100℃/+180℃
- Good wear resistance under high load
- For food industry under high temperature
- No special requirement on the surface roughness
- FDA standard

标准产品规格表 Standard specifications: P138

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB23
颜色 Color	-	-	蓝色 Blue
密度 Density	ISO1183	g/cm ³	1.42
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.6
最大吸水率 Max. water absorption	ISO62	%	1.9
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40
弯曲模量 Flexural modulus	ISO178	MPa	2000
弯曲强度 Flexural strength	ISO178	MPa	110
最大静载荷 Max. static load	ITS027	MPa	60
最大动载荷 Max. dynamic load	ITS028	MPa	26
邵氏硬度 Shore hardness	ISO868	D	76
连续运行温度 Long-term application temperature	ITS029	℃	+180
短时运行温度 Short-term application temperature	ITS029	℃	+210
最低运行温度 Lowest application temperature	ITS029	℃	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	8
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹¹
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹¹

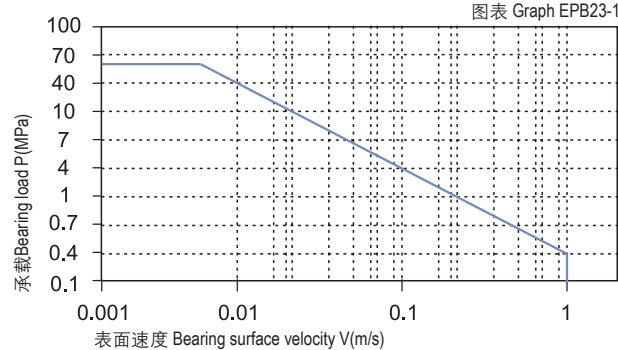
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB23塑料轴承最大运行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, 详细查阅图表EPB23-1。

The max PV value of the CSB-EPB23 plastic bearings 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 EPB23-1).

PV图表 Permissible PV value for CSB-EPB23



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB23塑料轴承可承受最大静载荷为60Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB23-2，轴承实际工作载荷略小于60Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 180℃) 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EPB23-3。

CSB-EPB23 allows the Max static load of 60Mpa, The max compressive deformation rate under the max load is listed in Graph EPB23-2, The actual load capacity of bearing is slightly less than 60Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 180℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB23-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

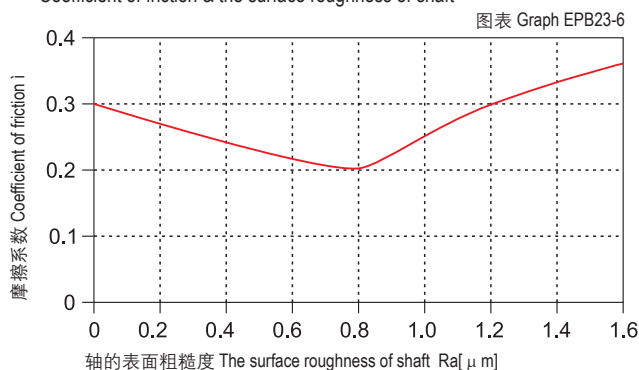
摩擦系数 Friction factor

图表EPB23-4表明CSB-EPB23塑料轴承的摩擦系数随着运动速度的变化影响较小，而图表EPB23-5表明CSB-EPB23塑料轴承的摩擦系数随着载荷的增加明显减小，在载荷超过20Mpa是逐渐趋于平稳；图表EPB23-6表明CSB-EPB23塑料轴承的摩擦系数受轴粗糙度的影响也相对比较小；虽然如此，我们还是建议轴的表面不能太光滑，也不能过于出差，推荐使用轴的粗糙度为Ra0.6 ~ 0.9μm；

CSB-EPB23 Bearing Friction factor is not so sensitive to the operation speed (see Graph EPB23-4). The friction factor is considerably decreased along with the loading increasing and it will be turned to be stable when the loading reaches 20Mpa. Graph EPB23-5 shows the friction factor of the bearing is also not sensitive to the shaft roughness but we still recommend that the roughness of the shaft should be neither too smooth nor too rough. It is recommended to keep the roughness of the shaft to be within the range of Ra0.6 to Ra0.9.

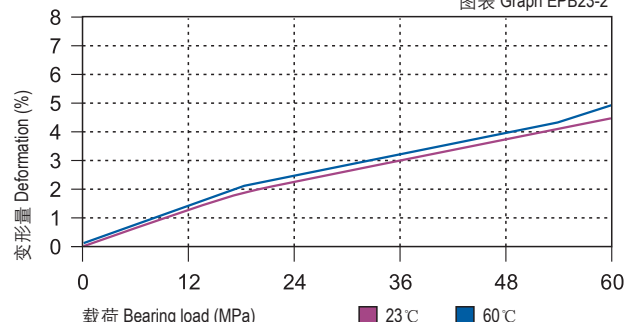
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



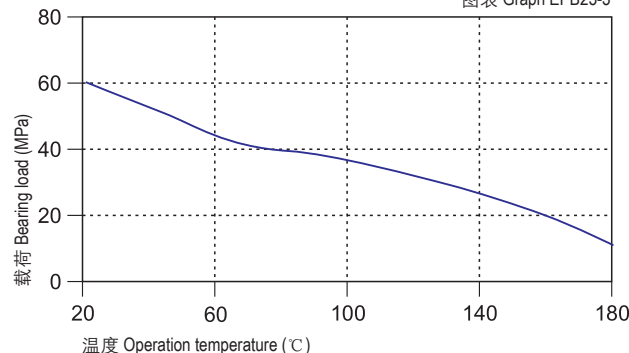
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB23-2



载荷-温度图表 Load-Temperature diagrams

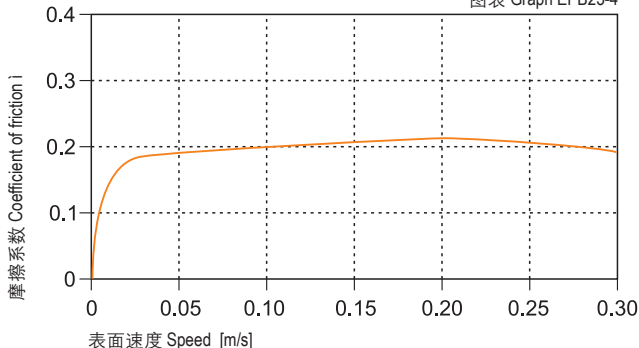
图表 Graph EPB23-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

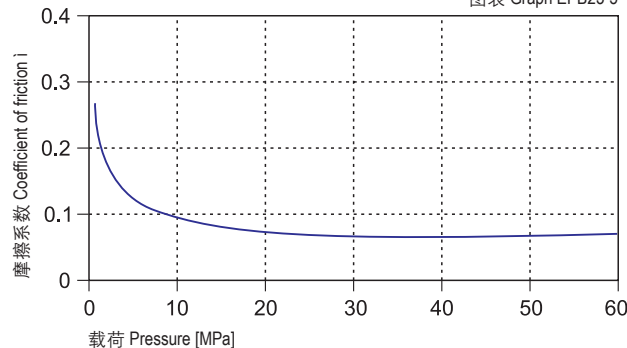
图表 Graph EPB23-4



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 = 0.2 m/s

图表 Graph EPB23-5



CSB-EPB23	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.10~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB23-7表明CSB-EPB23塑料轴承在2Mpa下做旋转运动时，磨损随着轴材料的变化较大；通过实验表明CSB-EPB23塑料轴承在做旋转运动时比较适合用于硬铬轴，不锈钢轴和硬铬轴上用于CSB-EPB23塑料轴承能获得良好的运行效果。图表EPB23-8表明硬铬轴更适合用于高载荷下的CSB-EPB23塑料轴承，随着载荷的不断增加，轴承的磨损速率却变化较小，图表EPB23-8表明CSB-EPB23塑料轴承在不同载荷下的差异。

Graph EPB23-7 shows that the CSB-EPB23 material is not sensitive with different materials under the rotating operation. It is suitable for hard shaft and high speed steel shaft as well as hard chrome steel shaft. Graph EPB23-8 shows that the hard chrome steel shaft is most suitable for using CSB-EPB23 bearing because the wearing speed is not sensitive when the loading is increased. From the Graph EPB23-8, it shows that CSB-EP23 features different performance.

化学抗性 Chemical resistance

CSB-EPB23塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB23 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB23塑料轴承在标准大气中的吸湿率为0.6%。浸泡在水中最高吸水率为1.9%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB23 plastic bearings is 0.6% in standard atmosphere. The max. water absorption is 1.9% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB23塑料轴承长久暴露在紫外线下颜色会发生褪变。材料性能基本都不会发生改变。

The color of CSB-EPB23 could be dimmed when it is exposed into the UV ray. The material performance stays stable.

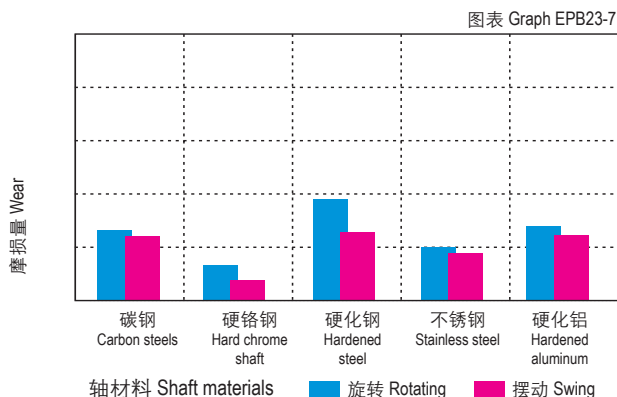
安装公差 Installation tolerances

CSB-EPB23塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB23 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

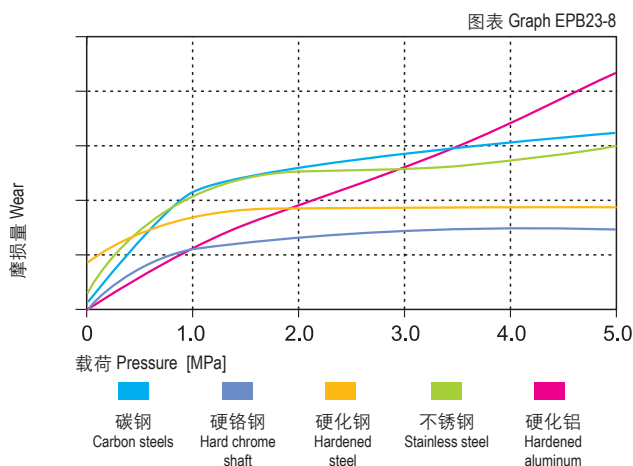
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$



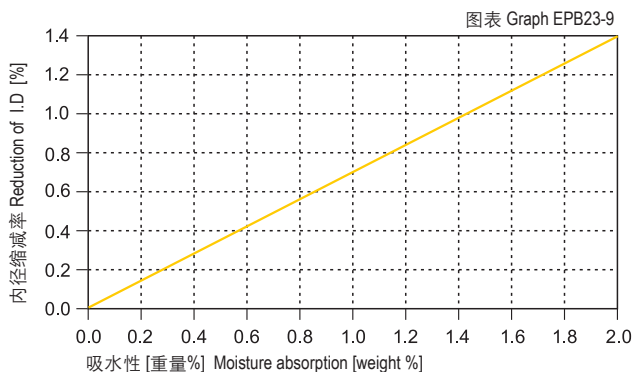
旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$



吸水性的影响

Effect of moisture absorption on EPB23 bearings



直径 Di. [mm]	CSB-EPB23 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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



● 标准产品规格表 Standard specifications: P132

产品特性 Product features

- 汽车行业标准材料。高温应用良好的性价比。在燃油中能保持极好的耐磨性能
- 连续使用温度: $-40^{\circ}\text{C}/+200^{\circ}\text{C}$
- 高温低成本解决方案
- 应用燃油中
- 良好的化学抗性
- 适合潮湿环境中使用
- Standard material for automotive industrial. Best and economic material for high temperature application. Excellent wear resistance is available in the vehicle fuels.
- Continuous working temperature: $-40^{\circ}\text{C}/+200^{\circ}\text{C}$
- High temperature and lower cost
- High wear resistance under fuel oil
- Good chemical resistance
- Suitable for humid environment

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB24
颜色 Color	-	-	棕色 Brown
密度 Density	ISO1183	g/cm^3	1.72
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.08-0.25
极限PV值 Max. PV value	ITS026	$\text{N}/\text{mm}^2 \times \text{m}/\text{s}$	0.60
弯曲模量 Flexural modulus	ISO178	MPa	10000
弯曲强度 Flexural strength	ISO178	MPa	210
最大静载荷 Max. static load	ITS027	MPa	110
最大动载荷 Max. dynamic load	ITS028	MPa	58
邵氏硬度 Shore hardness	ISO868	D	81
连续运行温度 Long-term application temperature	ITS029	$^{\circ}\text{C}$	+200
短时运行温度 Short-term application temperature	ITS029	$^{\circ}\text{C}$	+240
最低运行温度 Lowest application temperature	ITS029	$^{\circ}\text{C}$	-40
导热性 Thermal conductivity	ISO22007	$\text{W}/\text{m}/\text{K}$	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	$\text{K}^{-1} \times 10^{-5}$	5
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	$\Omega \cdot \text{cm}$	$>10^{13}$
面电阻率 Surface resistance	IEC60093	Ω	$>10^{12}$

*ITS: CSB内部测试标准 CSB company's internal test standards.

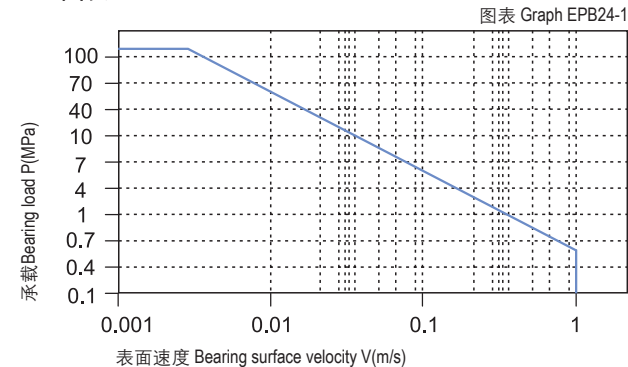
**除非特殊说明测试温度为 23°C Test temperatures are 23°C unless otherwise stated.

轴承PV值 PV value

CSB-EPB24塑料轴承最大运行PV值 $0.6\text{N}/\text{mm}^2 \times \text{m}/\text{s}$; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB24-1。

The max PV value of the CSB-EPB24 plastic bearings is $0.6\text{N}/\text{mm}^2 \times \text{m}/\text{s}$ which determines the load capacity of bearing is inversely proportional to the speed. Please refer to the chart for more detailed information (Graph EPB24-1).

■ PV图表 Permissible PV value for CSB-EPB24



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB24塑料轴承可承受最大静载荷为110Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB24-2，轴承实际工作载荷略小于110Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 200℃) 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EPB24-3。

CSB-EPB24 allows the Max static load of 110Mpa, The max compressive deformation rate under the max load is listed in Graph EPB24-1, The actual load capacity of bearing is slightly less than 110Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.0m/s) results into higher temperature (Tmax: 200℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB24-3 for such variation.

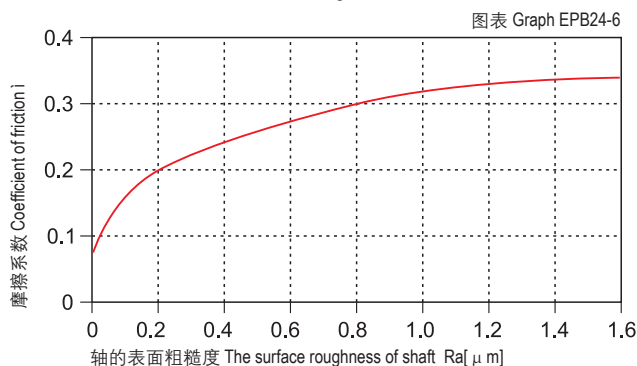
轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

摩擦系数 Friction factor

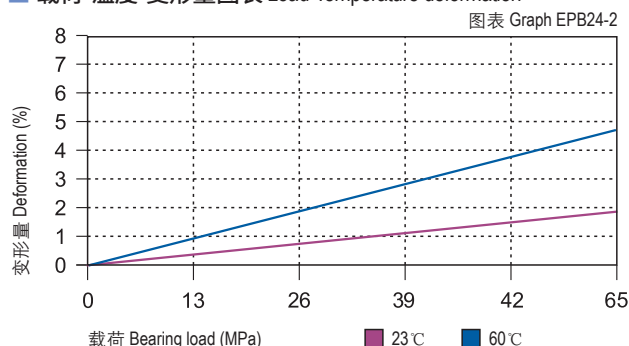
图表EPB24-4表明CSB-EPB24塑料轴承的摩擦系数在载荷保持不变的情况下受运行速度的增加影响相对较小；图表EPB24-5表明CSB-EPB24塑料轴承在保持速度不变的情况下，载荷从0增加到20Mpa过程中摩擦系数会逐步降低，而当载荷高于20Mpa时摩擦系数随着载荷的增加影响较小。图表EPB24-6表明CSB-EPB24塑料轴承的摩擦系数会随着轴表面粗糙度的增大而逐渐升高，我们推荐合适的轴粗糙度为Ra0.1 ~ 0.6μm。

Graph EPB24-4 shows the friction factor of CSB-EPB24 is not obviously effected by the operation speed when the loading is stable and Graph EPB24-5 shows it will be decreasing along with the loading is increased from 0 to 20 Mpa when the operation speed is unchanged, furthermore the friction factor will not be changed when the loading reaches 20Mpa upward. The friction factor of CSB-EPB24 is increased along with the increasing of the shaft roughness. The recommended shaft roughness is Ra0.1 to Ra0.6.

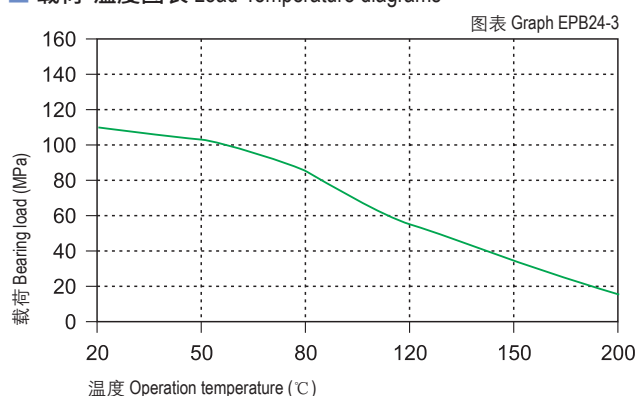
摩擦系数与轴表面粗糙度关系图表 Coefficient of friction & the surface roughness of shaft



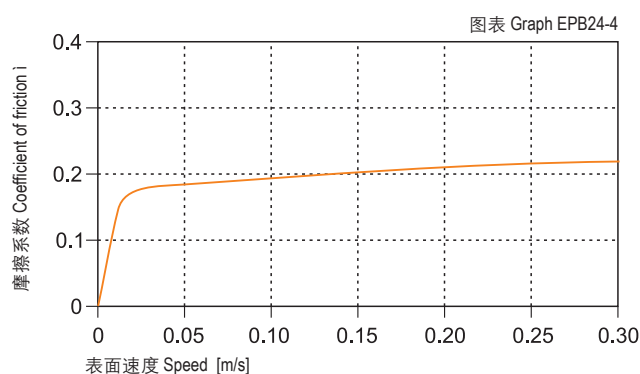
载荷-温度-变形量图表 Load-Temperature deformation



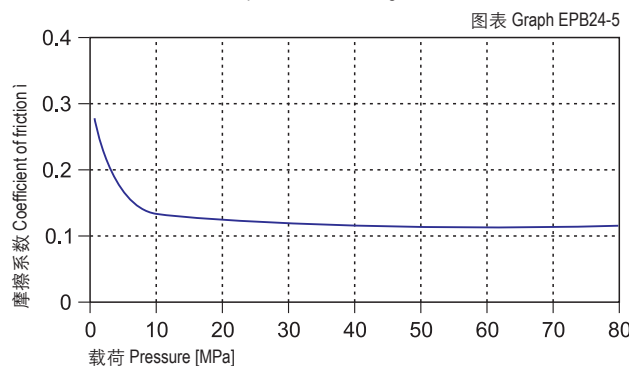
载荷-温度图表 Load-Temperature diagrams



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



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 = 0.2 m/s



CSB-EPB24	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.08~0.25	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB24-7与图表EPB24-8表明CSB-EPB24塑料轴承适合用于硬质轴，在硬化钢轴和碳钢轴上运行同样出色；但是硬铬钢轴不适合用于CSB-EPB24塑料轴承。CSB-EPB24塑料轴承在做摆动运动下的磨损要略好于旋转运动下的磨损，且当载荷超过10Mpa时轴承的磨损会很快增加。

Graph EPB24-7 and Graph EPB24-8 tells that the CSB-EPB24 is very good for Hardened shaft and soft shaft and it features excellent both on hardened steel shaft and carbon steel shaft but the hardened chrome steel shaft is not good for CSB-EPB24 bearings. The wearing of CSB-EPB24 is better on oscillation operation than on rotation operation. The wearing will be increased when the loading is over 10Mpa.

化学抗性 Chemical resistance

CSB-EPB24塑料轴承具有很好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of CSB-EPB24 is fairly good against most of Acid and Alkalis.

吸水性 Water absorption

CSB-EPB24塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.2%。极低吸水率不会导致轴承发生性能变化和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB24 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.2% in water. These values are very low, CSB-EPB24 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB24塑料轴承长久暴露在紫外线下材料表面会发生蜕变，抗压强度会下降。

Disintegration could be possible for the material CSB-EPB24 after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

安装公差 Installation tolerances

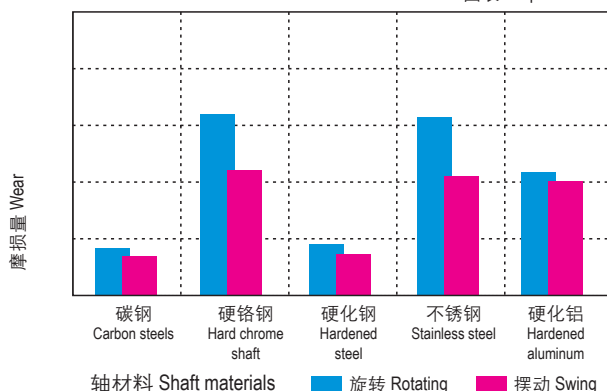
CSB-EPB24塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB24 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.006 ~ +0.046	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.010 ~ +0.058	0 ~ +0.012	0 ~ -0.030
>6 ~ 10	+0.013 ~ +0.071	0 ~ +0.015	0 ~ -0.036
>10 ~ 18	+0.016 ~ +0.086	0 ~ +0.018	0 ~ -0.043
>18 ~ 30	+0.020 ~ +0.104	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.025 ~ +0.125	0 ~ +0.025	0 ~ -0.062

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

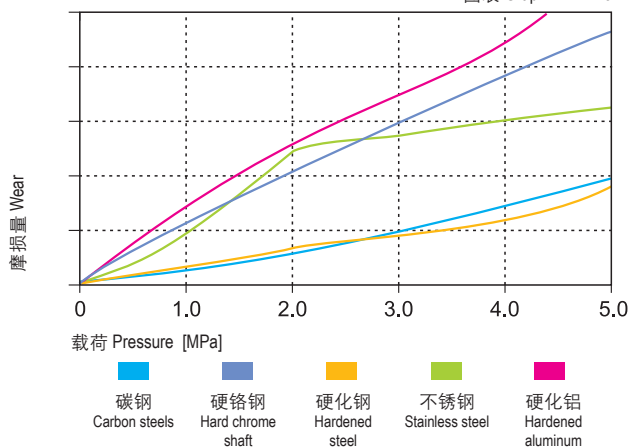
图表 Graph EPB24-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

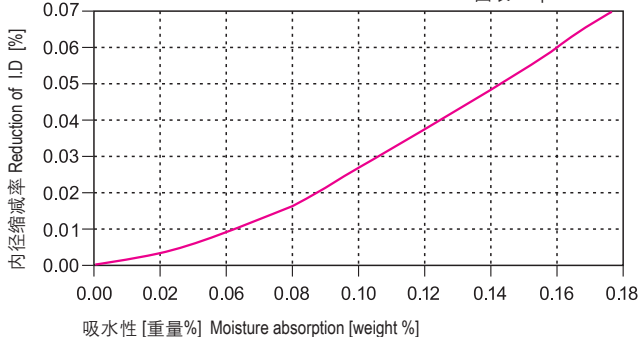
图表 Graph EPB24-8



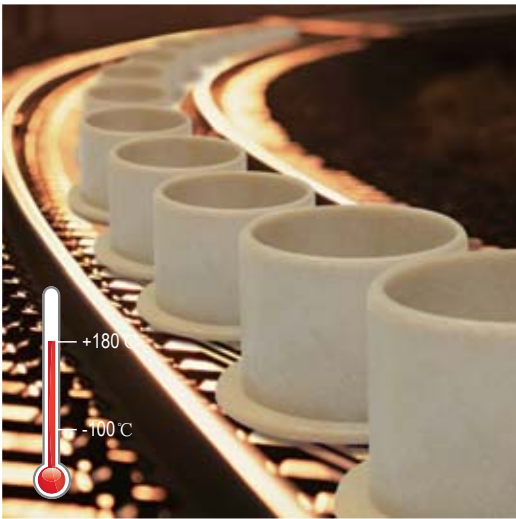
吸水性的影响

Effect of moisture absorption on EPB24 bearings

图表 Graph EPB24-9



直径 Di. [mm]	CSB-EPB24 F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>50 ~ 80	+0.030 ~ +0.150	0 ~ +0.030	0 ~ -0.074
>80 ~ 120	+0.036 ~ +0.176	0 ~ +0.035	0 ~ -0.087
>120 ~ 180	+0.043 ~ +0.203	0 ~ +0.040	0 ~ -0.100



标准产品规格表 Standard specifications: P138

产品特性 Product features

- 高温180度下高耐磨材料。在旋转运动中耐磨性更为出色。对轴材料硬度要求较低
- 连续使用温度: -100℃/+180℃
- 适合于运行、免维护
- 应用于中高载荷
- 较低的摩擦系数
- Good wear resistance material under high temperature of 180℃. Better wear resistance for the rotation application and it has no critical requirement about the shaft hardness
- Continuous working temperature: -100℃/+180℃
- Maintenance-free dry operation
- Suitable in high load
- Lower friction

材料数据表 Material properties data table

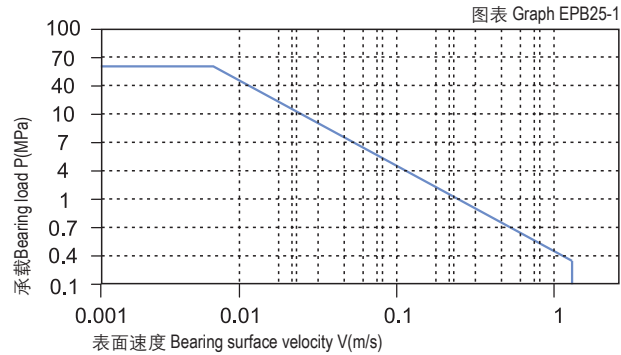
材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB25
颜色 Color	-	-	黄色 Yellow
密度 Density	ISO1183	g/cm ³	1.44
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3
最大吸水率 Max. water absorption	ISO62	%	1.6
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.08-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.45
弯曲模量 Flexural modulus	ISO178	MPa	4500
弯曲强度 Flexural strength	ISO178	MPa	100
最大静载荷 Max. static load	ITS027	MPa	60
最大动载荷 Max. dynamic load	ITS028	MPa	30
邵氏硬度 Shore hardness	ISO868	D	79
连续运行温度 Long-term application temperature	ITS029	℃	+180
短时运行温度 Short-term application temperature	ITS029	℃	+220
最低运行温度 Lowest application temperature	ITS029	℃	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	7
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω·cm	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹⁰

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB25塑料轴承最大运行PV值为0.45N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB25-1。
The max PV value of the CSB-EPB25 plastic bearings is 0.45N/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 EPB25-1).

PV图表 Permissible PV value for CSB-EPB25



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB25塑料轴承可承受最大静载荷为60Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB25-2，轴承实际工作载荷略小于60Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 1.3m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 180℃) 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EPB25-3。

CSB-EPB25 allows the Max static load of 60Mpa, The max compressive deformation rate under the max load is listed in Graph EPB25-2, The actual load capacity of bearing is slightly less than 60Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 1.3m/s) results into higher temperature (Tmax: 180℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB25-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

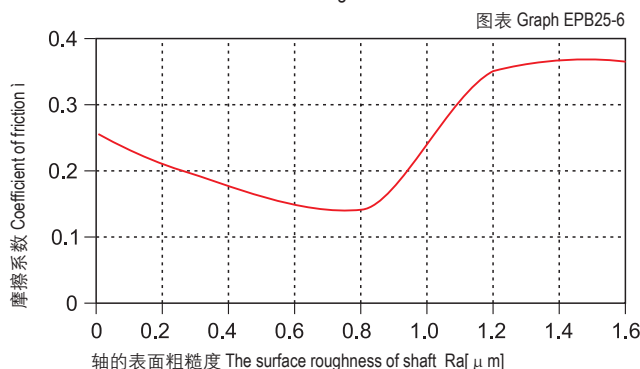
摩擦系数 Friction factor

图表EPB25-4表明CSB-EPB25塑料轴承的摩擦系数随着运动速度的变化影响较小，而图表EPB25-5表明CSB-EPB25塑料轴承的摩擦系数随着载荷的增加明显减小，在载荷超过20Mpa是逐渐趋于平稳；图表EPB25-6表明CSB-EPB25塑料轴承的摩擦系数受轴粗糙度的影响也相对比较小；虽然如此，我们还是建议轴的表面不能太光滑，也不能过于出差，推荐使用轴的粗糙度为Ra0.7 ~ 0.9μm；

Graph EPB25-4 shows that the friction factor of CSB-EPB25 is not sensitive to the operation speed and Graph EPB25-5 shows that the friction factor is CSB-EPB25 is decreased along with the loading increasing and become stable when the loading is over 20Mpa. Graph EPB25-6 tells that the friction factor of CSB-EPB25 is also not sensitive to the shaft roughness but we still recommend the shaft roughness to be Ra0.7~0.9.

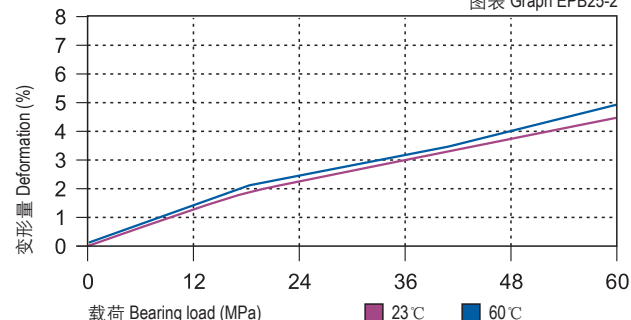
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



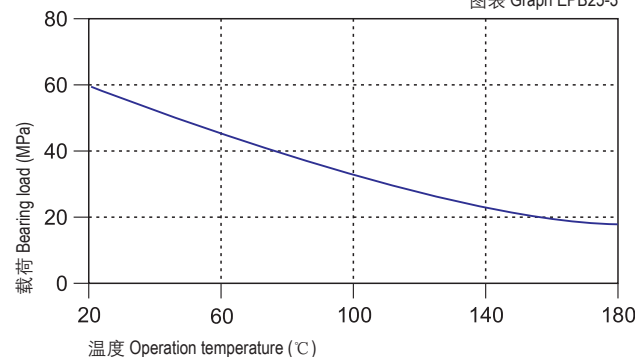
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB25-2



载荷-温度图表 Load-Temperature diagrams

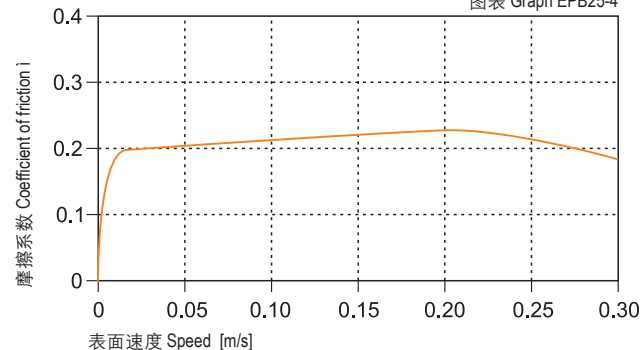
图表 Graph EPB25-3



摩擦系数与速度变化关系图表 P=2MPa

Coefficient of friction & the speed of bearing, p = 2 MPa

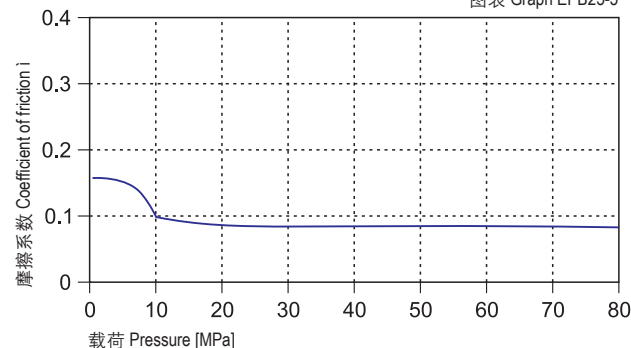
图表 Graph EPB25-4



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 = 0.2 m/s

图表 Graph EPB25-5



CSB-EPB25	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.08~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB25-7与图表EPB25-8表明CSB-EPB25塑料轴承在2Mpa下做旋转运动时，磨损随着轴材料的变化较大；通过实验表明CSB-EPB25塑料轴承在做旋转运动时比较适合用于硬轴，硬化钢轴和不锈钢轴上用于CSB-EPB25塑料轴承能获得良好的运行效果。硬铬轴更适合用于高载荷下的CSB-EPB25塑料轴承，随着载荷的不断增加，轴承的磨损速率却变化较小。

Graph EPB25-7 and EPB25-8 shows that the wearing of CSB-EPB25 is sensitive to different materials under rotation operation with the loading of 2Mpa. It is suitable for hardened shaft, hardened steel shaft and stainless steel shaft in the rotation operation. Hardened chrome steel shaft is the best choice for CSB-EPB25. The wearing will be decreased as long as the loading increasing.

化学抗性 Chemical resistance

CSB-EPB25塑料轴承能抵抗弱碱以及各类润滑油的腐蚀。

CSB-EPB25 is good at chemical resistance against weak acidic medium and various kinds of lubricants.

吸水性 Water absorption

CSB-EPB25塑料轴承在标准大气中的吸湿率为0.3%。浸泡在水中最高吸水率为1.6%。较低的吸水率只有在极端应用中才需要更改轴承设计。

The moisture absorption of CSB-EPB25 plastic bearings is 0.3% in standard atmosphere. The max. water absorption is 1.6% in water. These values are so low that design changes due to absorption are only necessary in extreme applications.

抗UV性能 UV resistance

CSB-EPB25塑料轴承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。

CSB-EPB25 can maintain its color unchanged when it is exposed into the UV ray. The material performance stays stable.

安装公差 Installation tolerances

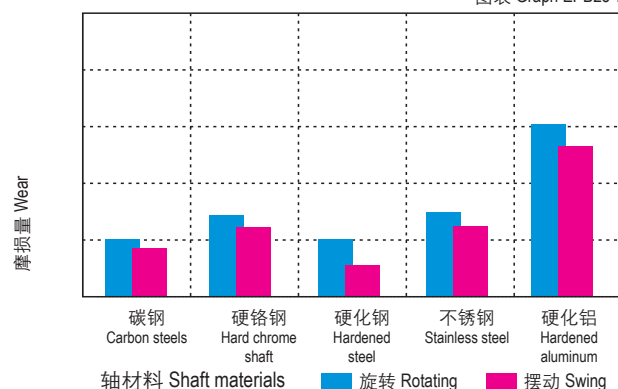
CSB-EPB25塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB25 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

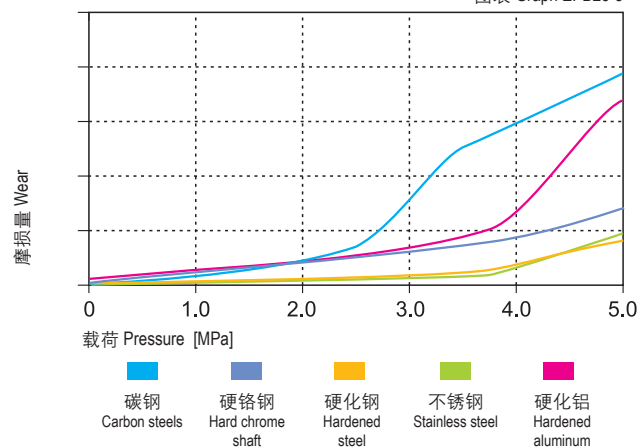
图表 Graph EPB25-7



旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$

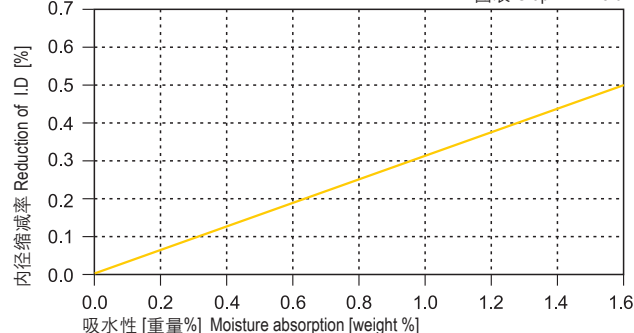
图表 Graph EPB25-8



吸水性的影响

Effect of moisture absorption on EPB25 bearings

图表 Graph EPB25-9



直径 Di. [mm]	CSB-EPB25 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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



产品特性 Product features

- 适用于软轴
- 耐磨性高
- 最高使用温度+200℃
- 高化学抗性
- 高弹性
- For soft shafts
- Excellent wear resistance
- Operation temperatures up to +200 °C
- Good resistance to chemicals
- High elasticity

● 标准产品规格表 Standard specifications: P128

材料数据表 Material properties data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB26
颜色 Color	-	-	米色 Beige
密度 Density	ISO1183	g/cm ³	1.51
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.1
最大吸水率 Max. water absorption	ISO62	%	0.2
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.15-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.50
弯曲模量 Flexural modulus	ISO178	MPa	4500
弯曲强度 Flexural strength	ISO178	MPa	95
最大静载荷 Max. static load	ITS027	MPa	55
最大动载荷 Max. dynamic load	ITS028	MPa	22
邵氏硬度 Shore hardness	ISO868	D	74
连续运行温度 Long-term application temperature	ITS029	℃	+200
短时运行温度 Short-term application temperature	ITS029	℃	+240
最低运行温度 Lowest application temperature	ITS029	℃	-40
导热性 Thermal conductivity	ISO22007	W/m/K	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	3
阻燃等级 Flammability	UL94	Class	V0
体电阻率 Volume resistance	IEC60093	Ω ·cm	>10 ¹²
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²

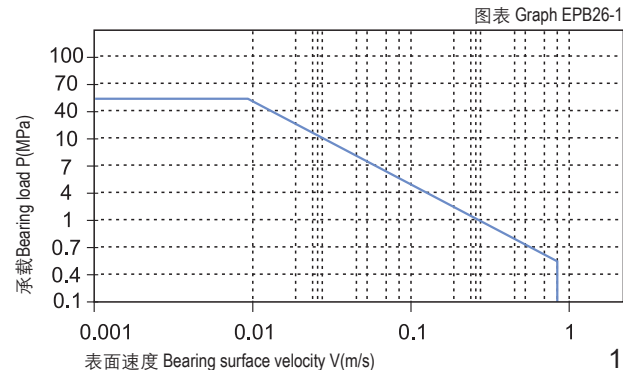
*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承PV值 PV value

CSB-EPB26塑料轴承最大运行PV值0.5N/mm² × m/s; 由此决定轴承所承受的载荷与速度成反比, 详细查阅图表EPB26-1。

The max PV value of the CSB-EPB26 plastic bearings is 0.5N/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 EPB26-1).

■ PV图表 Permissible PV value for CSB-EPB26



轴承的载荷、速度、温度 Load, speed and temperature

CSB-EPB26塑料轴承可承受最大静载荷为55Mpa, 在此载荷下轴承的最大压缩变形量参考图表EPB26-2, 轴承实际工作载荷略小于55Mpa, 载荷还受到运行速度以及温度的影响, 速度越快 (V_{max} : 0.9m/s) 会导致摩擦温度上升, 而温度上升 (T_{max} : 200℃) 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EPB26-3。

CSB-EPB26 allows the Max static load of 55Mpa, The max compressive deformation rate under the max load is listed in Graph EPB26-1, The actual load capacity of bearing is slightly less than 55Mpa, The bearing load is variable against the speed and temperature, Fast speed (V_{max} : 0.9m/s) results into higher temperature (T_{max} : 200℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB26-3 for such variation.

轴承的摩擦系数、磨损、轴材料 Friction factor, wear and shaft material

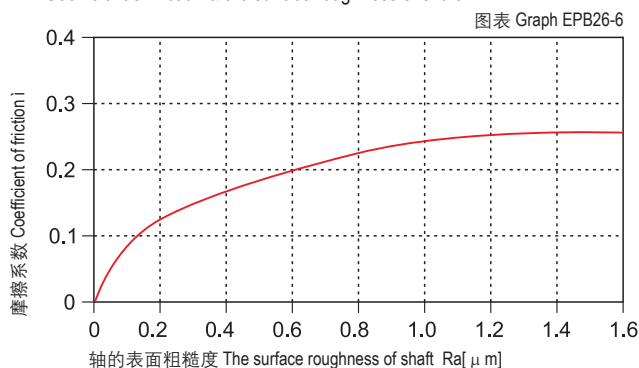
摩擦系数 Friction factor

图表EPB26-4表明CSB-EPB26塑料轴承的摩擦系数在载荷保持不变的情况下受运行速度的增加影响相对较小; 图表EPB26-5表明CSB-EPB26塑料轴承在保持速度不变的情况下, 载荷从0增加到45Mpa过程中摩擦系数会逐步降低。图表EPB26-6表明CSB-EPB26塑料轴承的摩擦系数会随着轴表面粗糙度的增大而逐渐升高, 我们推荐合适的轴粗糙度为Ra0.1 ~ 0.6 μ m。

Graph EPB26-4 shows the friction factor of CSB-EPB26 is not obviously effected by the operation speed when the loading is stable and Graph EPB26-5 shows it will be decreasing along with the loading is increased from 0 to 45 Mpa when the operation speed is unchanged. The friction factor of CSB-EPB26 is increased along with the increasing of the shaft roughness. The recommended shaft roughness is Ra0.1 to Ra0.6.

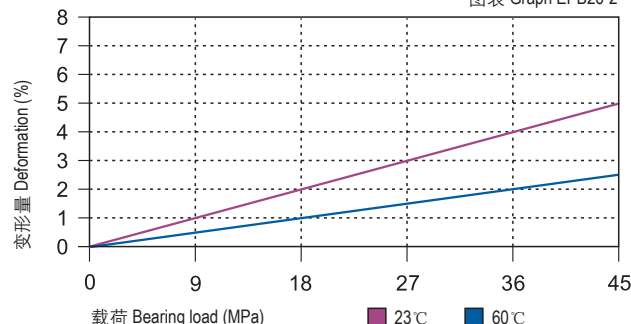
摩擦系数与轴表面粗糙度关系图表

Coefficient of friction & the surface roughness of shaft



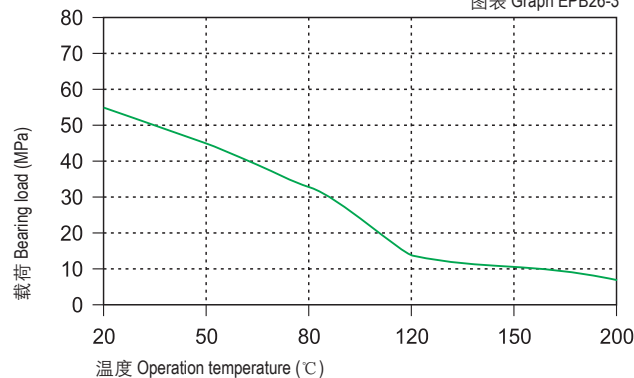
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB26-2



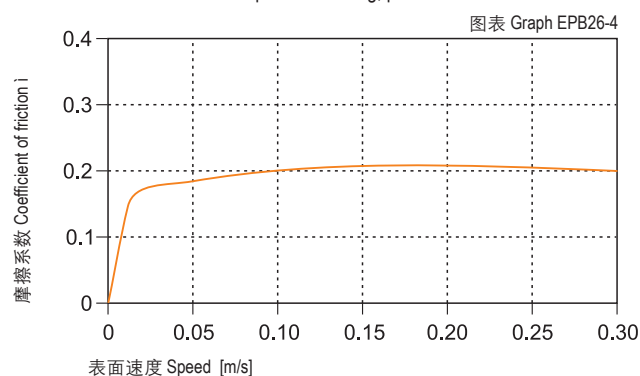
载荷-温度图表 Load-Temperature diagrams

图表 Graph EPB26-3



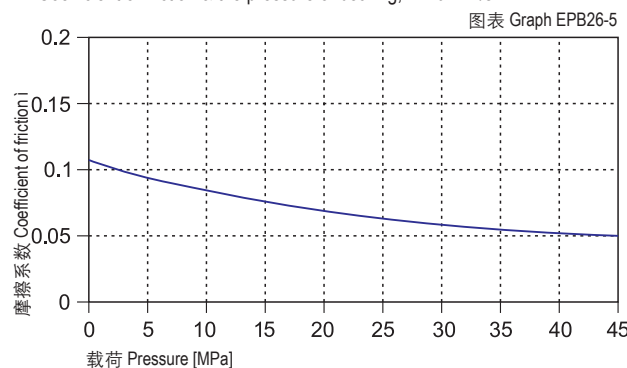
摩擦系数与速度变化关系图表 $P=2\text{MPa}$

Coefficient of friction & the speed of bearing, $p = 2\text{ MPa}$



摩擦系数与载荷变化关系图表 $v=0.2\text{m/s}$

Coefficient of friction & the pressure of bearing, $v = 0.2\text{ m/s}$



CSB-EPB26	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.15~0.20	0.09	0.04	0.04

磨损与轴材料 Wearing and shaft material

图表EPB26-7与图表EPB26-8表明CSB-EPB26塑料轴承同时适用于硬质轴或软轴，在硬化钢轴和不锈钢轴上运行同样出色；但是硬化铝轴不适合用于CSB-EPB26塑料轴承。CSB-EPB26塑料轴承在做旋转运动下的磨损要略好于摆动运动下的磨损。

Graph EPB26-7 and Graph EPB26-8 tells that the CSB-EPB26 is very good for Hardened shaft and soft shaft and it features excellent both on hardened steel shaft and stainless steel shaft but the hardened aluminum shaft is not good for CSB-EPB26 bearings. The wear of CSB-EPB26 is better on rotation operation than on oscillation operation.

化学抗性 Chemical resistance

CSB-EPB26塑料轴承具有很好的化学抗性，能抵抗绝大多数酸碱。

The Chemical Resistance of CSB-EPB26 is fairly good against most of Acid and Alkalis.

吸水性 Water absorption

CSB-EPB26塑料轴承在标准大气中的吸湿率为0.1%。浸泡在水中的最高吸水率为0.2%。极低吸水率不会导致轴承发生性能变化和尺寸变化，非常适合用于潮湿环境。

The moisture absorption of CSB-EPB26 plastic plain bearings is 0.1% in standard atmosphere. The max. water absorption is 0.2% in water. These values are very low, CSB-EPB26 plastic plain bearings is very well suited for used in wet applications.

抗UV性能 UV resistance

CSB-EPB26塑料轴承长久暴露在紫外线下材料表面会发生蜕变，抗压强度会下降。

Disintegration could be possible for the material CSB-EPB26 after long period of exposing under the UV ray and therefore the compressive strength will be reduced.

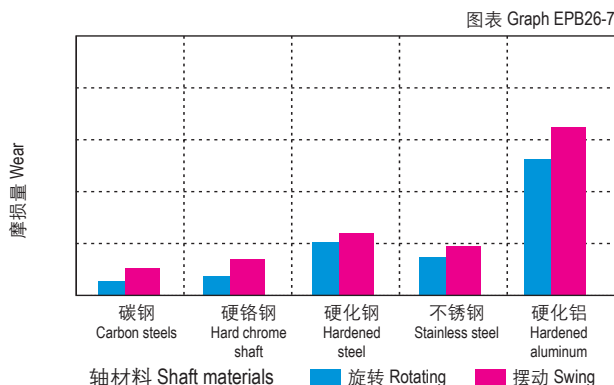
安装公差 Installation tolerances

CSB-EPB26塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB26 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>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

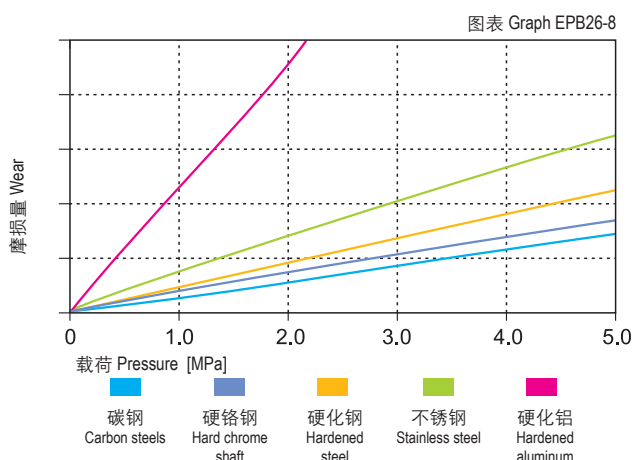
在不同轴材料上旋转时的磨损量 $p=2\text{MPa}$, $v=0.2\text{m/s}$

Wear under rotating with different shaft materials, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$

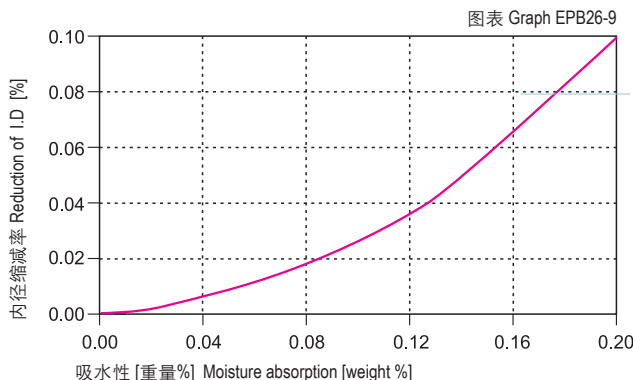


旋转磨损随轴材料与压力变化关系 $v=0.2\text{m/s}$

Wear & pressure under rotating with different shaft materials, $v = 0.2 \text{ m/s}$



吸水性的影响 Effect of moisture absorption on EPB26 bearings

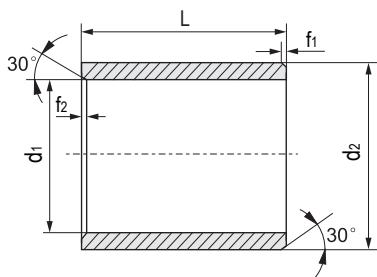


直径 Di. [mm]	CSB-EPB26 E10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>18 ~ 30	+0.040 ~ +0.124	0 ~ +0.021	0 ~ -0.052
>30 ~ 50	+0.050 ~ +0.150	0 ~ +0.025	0 ~ -0.062
>50 ~ 80	+0.060 ~ +0.180	0 ~ +0.030	0 ~ -0.074

CSB-EPB® Standard Specifications

EPB\EPBH\EPB1\EPB2\EPB2D\EPB6\EPB6A\EPB13\EPB18 标准规格

直套 Metric cylindrical bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB -0608-06

d₁ d₂ L

材料 Material

d ₁	f ₁	f ₂
1-6	0.3	0.5
6-12	0.5	
12-30	0.8	
>30	1.2	

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB-0203-03	2	+0.014/+0.054	3.5	3
EPB-0304-03	3	+0.014/+0.054	4.5	3
EPB-0304-036	3	+0.014/+0.054	4.5	3.6
EPB-0304-05	3	+0.014/+0.054	4.5	5
EPB-0304-055	3	+0.014/+0.054	4.5	5.5
EPB-0304-06	3	+0.014/+0.054	4.5	6
EPB-0405-04	4	+0.020/+0.068	5.5	4
EPB-0405-05	4	+0.020/+0.068	5.5	5
EPB-0405-06	4	+0.020/+0.068	5.5	6
EPB-0405-08	4	+0.020/+0.068	5.5	8
EPB-0405-10	4	+0.020/+0.068	5.5	10
EPB-0506-05	5	+0.010/+0.040	6	5
EPB-0506-07	5	+0.010/+0.040	6	7
EPB-0507-05	5	+0.020/+0.068	7	5
EPB-0507-08	5	+0.020/+0.068	7	8
EPB-0507-10	5	+0.020/+0.068	7	10
EPB-0608-04	6	+0.020/+0.068	8	4
EPB-0608-05	6	+0.020/+0.068	8	5
EPB-0608-06	6	+0.020/+0.068	8	6
EPB-0608-08	6	+0.020/+0.068	8	8
EPB-0608-10	6	+0.020/+0.068	8	10
EPB-0608-11	6	+0.020/+0.068	8	11
EPB-0810-05	8	+0.025/+0.083	10	5
EPB-0810-06	8	+0.025/+0.083	10	6
EPB-0810-08	8	+0.025/+0.083	10	8
EPB-0810-10	8	+0.025/+0.083	10	10
EPB-0810-11	8	+0.025/+0.083	10	11
EPB-0810-12	8	+0.025/+0.083	10	12
EPB-0810-15	8	+0.025/+0.083	10	15
EPB-0811-10	8	+0.025/+0.083	11	10
EPB-0812-10	8	+0.025/+0.083	12	10
EPB-0911-06	9	+0.025/+0.083	11	6
EPB-1012-04	10	+0.025/+0.083	12	4
EPB-1012-05	10	+0.025/+0.083	12	5
EPB-1012-06	10	+0.025/+0.083	12	6

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB-1012-08	10	+0.025/+0.083	12	8
EPB-1012-10	10	+0.025/+0.083	12	10
EPB-1012-12	10	+0.025/+0.083	12	12
EPB-1012-15	10	+0.025/+0.083	12	15
EPB-1014-10	10	+0.025/+0.083	14	10
EPB-1014-16	10	+0.025/+0.083	14	16
EPB-1012-18	10	+0.025/+0.083	12	18
EPB-1012-20	10	+0.025/+0.083	12	20
EPB-1214-06	12	+0.032/+0.102	14	6
EPB-1214-08	12	+0.032/+0.102	14	8
EPB-1214-10	12	+0.032/+0.102	14	10
EPB-1214-12	12	+0.032/+0.102	14	12
EPB-1214-15	12	+0.032/+0.102	14	15
EPB-1214-20	12	+0.032/+0.102	14	20
EPB-1214-25	12	+0.032/+0.102	14	25
EPB-1214-30	12	+0.032/+0.102	14	30
EPB-1215-20	12	+0.032/+0.102	15	20
EPB-1216-12	12	+0.032/+0.102	16	12
EPB-1315-07	13	+0.032/+0.102	15	7
EPB-1315-10	13	+0.032/+0.102	15	10
EPB-1416-08	14	+0.032/+0.102	16	8
EPB-1416-10	14	+0.032/+0.102	16	10
EPB-1416-12	14	+0.032/+0.102	16	12
EPB-1416-15	14	+0.032/+0.102	16	15
EPB-1416-20	14	+0.032/+0.102	16	20
EPB-1416-25	14	+0.032/+0.102	16	25
EPB-1517-10	15	+0.032/+0.102	17	10
EPB-1517-12	15	+0.032/+0.102	17	12
EPB-1517-15	15	+0.032/+0.102	17	15
EPB-1517-17	15	+0.032/+0.102	17	17
EPB-1517-20	15	+0.032/+0.102	17	20
EPB-1517-25	15	+0.032/+0.102	17	25
EPB-1618-10	16	+0.032/+0.102	18	10
EPB-1618-12	16	+0.032/+0.102	18	12
EPB-1618-15	16	+0.032/+0.102	18	15

EPB

CSB-EPB®

www.csb-ep.com
sales@csb-ep.com

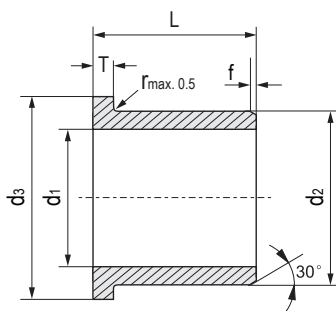
Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB-1618-20	16	+0.032/+0.102	18	20
EPB-1618-25	16	+0.032/+0.102	18	25
EPB-1619-5.5S	16	+0.015/+0.055	19	5.5
EPB-1620-16	16	+0.032/+0.102	20	16
EPB-1820-15	18	+0.032/+0.102	20	15
EPB-1820-20	18	+0.032/+0.102	20	20
EPB-1820-25	18	+0.032/+0.102	20	25
EPB-2022-12	20	+0.040/+0.124	22	12
EPB-2022-15	20	+0.040/+0.124	22	15
EPB-2022-28	20	+0.040/+0.124	22	28
EPB-2023-10	20	+0.040/+0.124	23	10
EPB-2023-15	20	+0.040/+0.124	23	15
EPB-2023-20	20	+0.040/+0.124	23	20
EPB-2023-23	20	+0.040/+0.124	23	23
EPB-2023-25	20	+0.040/+0.124	23	25
EPB-2023-30	20	+0.040/+0.124	23	30
EPB-2025-15	20	+0.040/+0.124	25	15
EPB-2225-15	22	+0.040/+0.124	25	15
EPB-2225-20	22	+0.040/+0.124	25	20
EPB-2225-25	22	+0.040/+0.124	25	25
EPB-2225-30	22	+0.040/+0.124	25	30
EPB-2528-10	25	+0.040/+0.124	28	10
EPB-2528-12	25	+0.040/+0.124	28	12
EPB-2528-15	25	+0.040/+0.124	28	15
EPB-2528-20	25	+0.040/+0.124	28	20
EPB-2528-25	25	+0.040/+0.124	28	25
EPB-2528-30	25	+0.040/+0.124	28	30
EPB-2529-25	25	+0.040/+0.124	29	25
EPB-2530-25	25	+0.020/+0.104	30	25
EPB-2832-20	28	+0.040/+0.124	32	20
EPB-2832-25	28	+0.040/+0.124	32	25
EPB-2832-30	28	+0.040/+0.124	32	30
EPB-3034-20	30	+0.040/+0.124	34	20
EPB-3034-25	30	+0.040/+0.124	34	25

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB-3034-30	30	+0.040/+0.124	34	30
EPB-3034-40	30	+0.040/+0.124	34	40
EPB-3236-20	32	+0.050/+0.150	36	20
EPB-3236-23	32	+0.050/+0.150	36	23
EPB-3236-25	32	+0.050/+0.150	36	25
EPB-3236-30	32	+0.050/+0.150	36	30
EPB-3236-40	32	+0.050/+0.150	36	40
EPB-3539-15	35	+0.050/+0.150	39	15
EPB-3539-20	35	+0.050/+0.150	39	20
EPB-3539-25	35	+0.050/+0.150	39	25
EPB-3539-30	35	+0.050/+0.150	39	30
EPB-3539-40	35	+0.050/+0.150	39	40
EPB-3539-50	35	+0.050/+0.150	39	50
EPB-4044-20	40	+0.050/+0.150	44	20
EPB-4044-30	40	+0.050/+0.150	44	30
EPB-4044-40	40	+0.050/+0.150	44	40
EPB-4044-50	40	+0.050/+0.150	44	50
EPB-4550-30	45	+0.050/+0.150	50	30
EPB-4550-40	45	+0.050/+0.150	50	40
EPB-4550-50	45	+0.050/+0.150	50	50
EPB-5055-10	50	+0.050/+0.150	55	10
EPB-5055-20	50	+0.050/+0.150	55	20
EPB-5055-30	50	+0.050/+0.150	55	30
EPB-5055-40	50	+0.050/+0.150	55	40
EPB-5055-50	50	+0.050/+0.150	55	50
EPB-5456-30	54	+0.060/+0.180	56	30
EPB-6065-50	60	+0.060/+0.180	65	50
EPB-7075-50	70	+0.060/+0.180	75	50
EPB-8085-40	80	+0.060/+0.180	85	40
EPB-8590-40	85	+0.072/+0.212	90	40
EPB-125130-60	125	+0.043/+0.143	130	60
EPB-150155-60	150	+0.043/+0.143	155	60

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差
*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

法兰轴承 Metric flange bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB F-0608-06

法兰轴承 Flange bushes
材料 Material

d ₁	f
1-6	0.3
6-12	0.5
12-30	0.8
>30	1.2

CSB-EPB[®] Standard Specifications

EPB\EPBH\EPB1\EPB2\EPB2D\EPB6\EPB6A\EPB13\EPB18 标准规格

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPBF-0304-03	3	+0.014/+0.054	4.5	7.5	3	0.75
EPBF-0304-05	3	+0.014/+0.054	4.5	7.5	5	0.75
EPBF-0405-03	4	+0.020/+0.068	5.5	9.5	3	0.75
EPBF-0405-04	4	+0.020/+0.068	5.5	9.5	4	0.75
EPBF-0405-06	4	+0.020/+0.068	5.5	9.5	6	0.75
EPBF-0506-035	5	+0.010/+0.040	6	10	3.5	0.5
EPBF-0506-05	5	+0.010/+0.040	6	10	5	0.5
EPBF-0506-06	5	+0.010/+0.040	6	10	6	0.5
EPBF-0507-04	5	+0.020/+0.068	7	11	4	1
EPBF-0507-05	5	+0.020/+0.068	7	11	5	1
EPBF-0507-10	5	+0.020/+0.068	7	11	10	1
EPBF-0608-04	6	+0.020/+0.068	8	12	4	1
EPBF-0608-05	6	+0.020/+0.068	8	12	5	1
EPBF-0608-06	6	+0.020/+0.068	8	12	6	1
EPBF-0608-08	6	+0.020/+0.068	8	12	8	1
EPBF-0608-10	6	+0.020/+0.068	8	12	10	1
EPBF-0810-055	8	+0.025/+0.083	10	15	5.5	1
EPBF-0810-06	8	+0.025/+0.083	10	15	6	1
EPBF-0810-075	8	+0.025/+0.083	10	15	7.5	1
EPBF-0810-095	8	+0.025/+0.083	10	15	9.5	1
EPBF-0810-10	8	+0.025/+0.083	10	15	10	1
EPBF-081014-12	8	+0.025/+0.083	10	14	12	1
EPBF-081014-12F2	8	+0.025/+0.083	10	14	12	2
EPBF-0810-12	8	+0.025/+0.083	10	15	12	1
EPBF-081018-13	8	+0.025/+0.083	10	18	13	1
EPBF-081017-15	8	+0.025/+0.083	10	17	15	1
EPBF-081216-10	8	+0.013/+0.071	12	16	10	2
EPBF-0912-10	9	+0.025/+0.083	12	18	10	2
EPBF-1012-05	10	+0.025/+0.083	12	18	5	1
EPBF-1012-06	10	+0.025/+0.083	12	18	6	1
EPBF-1012-07	10	+0.025/+0.083	12	18	7	1
EPBF-1012-08	10	+0.025/+0.083	12	18	8	1
EPBF-1012-09	10	+0.025/+0.083	12	18	9	1
EPBF-1012-10	10	+0.025/+0.083	12	18	10	1
EPBF-1012-12	10	+0.025/+0.083	12	18	12	1
EPBF-1012-15	10	+0.025/+0.083	12	18	15	1
EPBF-1012-17	10	+0.025/+0.083	12	18	17	1
EPBF-101216-12	10	+0.013/+0.071	12	16	12	2
EPBF-101418-10	10	+0.013/+0.071	14	18	10	2
EPBF-1214-04	12	+0.032/+0.102	14	20	4	1
EPBF-1214-05	12	+0.032/+0.102	14	20	5	1
EPBF-1214-06	12	+0.032/+0.102	14	20	6	1
EPBF-1214-07	12	+0.032/+0.102	14	20	7	1
EPBF-1214-09	12	+0.032/+0.102	14	20	9	1
EPBF-1214-10	12	+0.032/+0.102	14	20	10	1
EPBF-1214-12	12	+0.032/+0.102	14	20	12	1
EPBF-1214-13	12	+0.032/+0.102	14	20	13	1
EPBF-1214-15	12	+0.032/+0.102	14	20	15	1
EPBF-1214-17	12	+0.032/+0.102	14	20	17	1
EPBF-1214-18	12	+0.032/+0.102	14	20	18	1
EPBF-1214-20	12	+0.032/+0.102	14	20	20	1
EPBF-121417-04	12	+0.032/+0.102	14	17	4	1
EPBF-121417-05	12	+0.032/+0.102	14	17	5	1
EPBF-121418-12F2	12	+0.016/+0.086	14	18	12	2

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPBF-121418-25	12	+0.032/+0.102	14	18	25	1
EPBF-121418-40F2	12	+0.016/+0.086	14	18	40	2
EPBF-121620-10	12	+0.016/+0.086	16	20	10	2
EPBF-121620-12	12	+0.016/+0.086	16	20	12	2
EPBF-131519-12	13	+0.032/+0.102	15	19	12	1
EPBF-131520-05	13	+0.032/+0.102	15	20	5	1
EPBF-1416-052	14	+0.032/+0.102	16	22	5.2	1
EPBF-1416-08	14	+0.032/+0.102	16	22	8	1
EPBF-1416-10	14	+0.032/+0.102	16	22	10	1
EPBF-1416-12	14	+0.032/+0.102	16	22	12	1
EPBF-1416-17	14	+0.032/+0.102	16	22	17	1
EPBF-141620-06	14	+0.016/+0.086	16	20	6	2
EPBF-141620-15	14	+0.016/+0.086	16	20	15	2
EPBF-141822-20	14	+0.032/+0.102	18	22	20	2
EPBF-151720-05	15	+0.032/+0.102	17	20	5	1
EPBF-1517-09	15	+0.032/+0.102	17	23	9	1
EPBF-1517-12	15	+0.032/+0.102	17	23	12	1
EPBF-151720-12	15	+0.032/+0.102	17	20	12	1
EPBF-1517-15	15	+0.032/+0.102	17	23	15	1
EPBF-1517-17	15	+0.032/+0.102	17	23	17	1
EPBF-1517-20	15	+0.032/+0.102	17	23	20	1
EPBF-1517-25	15	+0.032/+0.102	17	23	25	1
EPBF-1518-12	15	+0.032/+0.102	18	23	12	1
EPBF-1618-09	16	+0.032/+0.102	18	24	9	1
EPBF-1618-12	16	+0.032/+0.102	18	24	12	1
EPBF-1618-17	16	+0.032/+0.102	18	24	17	1
EPBF-161822-22	16	+0.016/+0.086	18	22	22	2
EPBF-162024-16	16	+0.016/+0.086	20	24	16	2
EPBF-162024-22	16	+0.016/+0.086	20	24	22	2
EPBF-1820-12	18	+0.032/+0.102	20	26	12	1
EPBF-1820-17	18	+0.032/+0.102	20	26	17	1
EPBF-1820-20	18	+0.032/+0.102	20	26	20	1
EPBF-182024-22	18	+0.016/+0.086	20	24	22	2
EPBF-1922-23	19	+0.040/+0.124	22	26	23	1
EPBF-2022-15	20	+0.040/+0.124	22	25	15	1.5
EPBF-2023-11.5	20	+0.040/+0.124	23	30	11.5	1.5
EPBF-2023-16.5	20	+0.040/+0.124	23	30	16.5	1.5
EPBF-2023-21.5	20	+0.040/+0.124	23	30	21.5	1.5
EPBF-2023-25	20	+0.040/+0.124	23	30	25	1.5
EPBF-202330-15	20	+0.020/+0.104	23	30	15	2
EPBF-202330-22	20	+0.020/+0.104	23	30	22	2
EPBF-202430-20	20	+0.020/+0.104	24	30	20	2
EPBF-202530-15	20	+0.020/+0.104	25	30	15	2
EPBF-202732-20	20	+0.020/+0.104	27	32	20	2
EPBF-2225-11.5	22	+0.040/+0.124	25	33	11.5	1.5
EPBF-2528-11.5	25	+0.040/+0.124	28	35	11.5	1.5
EPBF-2528-16.5	25	+0.040/+0.124	28	35	16.5	1.5
EPBF-2528-21.5	25	+0.040/+0.124	28	35	21.5	1.5
EPBF-252835-22	25	+0.020/+0.104	28	35	22	2
EPBF-252835-32	25	+0.020/+0.104	28	35	32	2
EPBF-253035-20	25	+0.020/+0.104	30	35	20	2.5
EPBF-253035-25	25	+0.020/+0.104	30	35	25	2.5
EPBF-303335-04	30	+0.020/+0.104	33	35	4	1
EPBF-3034-09	30	+0.040/+0.124	34	42	9	2

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sales@csb-ep.com

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Fax: 0086 573 84185517

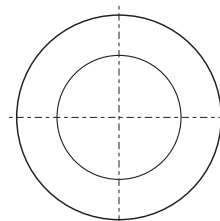
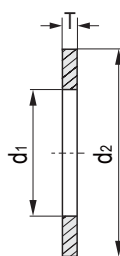
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPBF-3034-16	30	+0.040/+0.124	34	42	16	2
EPBF-3034-26	30	+0.040/+0.124	34	42	26	2
EPBF-3034-32	30	+0.040/+0.124	34	42	32	2
EPBF-3034-37	30	+0.040/+0.124	34	42	37	2
EPBF-303445-18	30	+0.020/+0.104	34	45	18	2
EPBF-303445-22	30	+0.020/+0.104	34	45	22	2
EPBF-303445-32	30	+0.040/+0.124	34	45	32	2
EPBF-3236-16	32	+0.050/+0.150	36	40	16	2
EPBF-3236-26	32	+0.050/+0.150	36	40	26	2
EPBF-3539-16	35	+0.050/+0.150	39	47	16	2
EPBF-3539-26	35	+0.050/+0.150	39	47	26	2
EPBF-353950-22	35	+0.025/+0.125	39	50	22	2
EPBF-4044-30	40	+0.050/+0.150	44	52	30	2
EPBF-4044-40	40	+0.050/+0.150	44	52	40	2
EPBF-404455-17	40	+0.025/+0.125	44	55	17	2
EPBF-4550-25	45	+0.050/+0.150	50	58	25	2
EPBF-4550-45	45	+0.050/+0.150	50	58	45	2
EPBF-4550-50	45	+0.050/+0.150	50	58	50	2

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPBF-455060-45	45	+0.025/+0.125	50	60	45	2.5
EPBF-5055-20	50	+0.050/+0.150	55	63	20	2
EPBF-5055-30	50	+0.050/+0.150	55	63	30	2
EPBF-5055-40	50	+0.050/+0.150	55	63	40	2
EPBF-5055-50	50	+0.050/+0.150	55	63	50	2
EPBF-505563-50	50	+0.025/+0.125	55	63	50	2
EPBF-505565-20.5	50	+0.025/+0.125	55	65	20.5	2.5
EPBF-6065-50	60	+0.060/+0.180	65	73	50	2
EPBF-6065-60	60	+0.030/+0.150	65	73	60	2
EPBF-657080-60	65	+0.030/+0.150	70	80	60	2.5
EPBF-7075-50	70	+0.060/+0.180	75	83	50	2
EPBF-758090-25	75	+0.030/+0.150	80	90	25	2.5
EPBF-758090-40	75	+0.030/+0.150	80	90	40	2.5
EPBF-9095110-50	90	+0.036/+0.176	95	110	50	2.5
EPBF-120125140-50	120	+0.072/+0.212	125	140	50	2.5

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

垫片 Metric thrust washers



产品编码 Part No.:

EPBW-0818-015

d₁ d₂ T

垫片 Washer

材料 Material

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{-0.25} [mm]	T _{0.05} [mm]
EPBW-0509-006	5	9	0.6
EPBW-0615-015	6	15	1.5
EPBW-0620-015	6	20	1.5
EPBW-0815-005	8	15	0.5
EPBW-0815-015	8	15	1.5
EPBW-0818-010	8	18	1.0
EPBW-0818-015	8	18	1.5
EPBW-1018-010	10	18	1.0
EPBW-1018-015	10	18	1.5
EPBW-1018-020	10	18	2.0
EPBW-1024-015	10	24	1.5
EPBW-1224-015	12	24	1.5
EPBW-1226-015	12	26	1.5
EPBW-1426-015	14	26	1.5
EPBW-1430-015	14	30	1.5
EPBW-1524-015	15	24	1.5
EPBW-1630-015	16	30	1.5
EPBW-1632-015	16	32	1.5
EPBW-1832-015	18	32	1.5
EPBW-1836-015	18	36	1.5

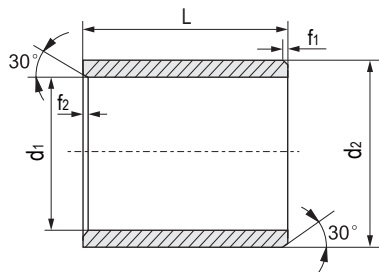
产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{-0.25} [mm]	T _{0.05} [mm]
EPBW-2028-030	20	28	3.0
EPBW-2030-015	20	30	1.5
EPBW-2036-015	20	36	1.5
EPBW-2038-015	20	38	1.5
EPBW-2238-015	22	38	1.5
EPBW-2242-015	22	42	1.5
EPBW-2442-015	24	42	1.5
EPBW-2444-015	24	44	1.5
EPBW-2644-015	26	44	1.5
EPBW-2848-015	28	48	1.5
EPBW-3054-015	30	54	1.5
EPBW-3254-015	32	54	1.5
EPBW-3662-015	36	62	1.5
EPBW-3862-015	38	62	1.5
EPBW-4266-015	42	66	1.5
EPBW-4674-020	46	74	2.0
EPBW-4874-020	48	74	2.0
EPBW-5178-020	51	78	2.0
EPBW-5278-020	52	78	2.0
EPBW-6290-020	62	90	2.0

*根据要求提供定位孔设计 The fixing bore design upon request.

CSB-EPB[®] Standard Specifications

EPB3\EPB3G\EPB9\EPB12\EPB16\EPB20\EPB21\EPB22\EPB26 标准规格

直套 Metric cylindrical bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB3 -0608-06

d₁ d₂ L

材料 Material

d ₁	f ₁	f ₂
1-6	0.3	0.5
6-12	0.5	
12-30	0.8	
>30	1.2	

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB3-0203-03	2	+0.014/+0.054	3.5	3
EPB3-0304-03	3	+0.014/+0.054	4.5	3
EPB3-0304-036	3	+0.014/+0.054	4.5	3.6
EPB3-0304-05	3	+0.014/+0.054	4.5	5
EPB3-0304-055	3	+0.014/+0.054	4.5	5.5
EPB3-0304-06	3	+0.014/+0.054	4.5	6
EPB3-0405-04	4	+0.020/+0.068	5.5	4
EPB3-0405-05	4	+0.020/+0.068	5.5	5
EPB3-0405-06	4	+0.020/+0.068	5.5	6
EPB3-0405-08	4	+0.020/+0.068	5.5	8
EPB3-0405-10	4	+0.020/+0.068	5.5	10
EPB3-0506-05	5	+0.010/+0.040	6	5
EPB3-0506-07	5	+0.010/+0.040	6	7
EPB3-0507-05	5	+0.020/+0.068	7	5
EPB3-0507-08	5	+0.020/+0.068	7	8
EPB3-0507-10	5	+0.020/+0.068	7	10
EPB3-0608-04	6	+0.020/+0.068	8	4
EPB3-0608-05	6	+0.020/+0.068	8	5
EPB3-0608-06	6	+0.020/+0.068	8	6
EPB3-0608-08	6	+0.020/+0.068	8	8
EPB3-0608-09	6	+0.020/+0.068	8	9
EPB3-0608-10	6	+0.020/+0.068	8	10
EPB3-0608-11	6	+0.020/+0.068	8	11
EPB3-0810-05	8	+0.025/+0.083	10	5
EPB3-0810-06	8	+0.025/+0.083	10	6
EPB3-0810-07	8	+0.025/+0.083	10	7
EPB3-0810-08	8	+0.025/+0.083	10	8
EPB3-0810-10	8	+0.025/+0.083	10	10
EPB3-0810-12	8	+0.025/+0.083	10	12
EPB3-0810-13	8	+0.025/+0.083	10	13
EPB3-0810-15	8	+0.025/+0.083	10	15
EPB3-0810-21	8	+0.025/+0.083	10	21
EPB3-1011-06	10	+0.025/+0.083	11	6
EPB3-1012-04	10	+0.025/+0.083	12	4
EPB3-1012-05	10	+0.025/+0.083	12	5
EPB3-1012-06	10	+0.025/+0.083	12	6
EPB3-1012-07	10	+0.025/+0.083	12	7
EPB3-1012-08	10	+0.025/+0.083	12	8

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB3-1012-09	10	+0.025/+0.083	12	9
EPB3-1012-10	10	+0.025/+0.083	12	10
EPB3-1012-12	10	+0.025/+0.083	12	12
EPB3-1012-14	10	+0.025/+0.083	12	14
EPB3-1012-15	10	+0.025/+0.083	12	15
EPB3-1012-17	10	+0.025/+0.083	12	17
EPB3-1012-20	10	+0.025/+0.083	12	20
EPB3-1213-12	12	+0.016/+0.059	13	12
EPB3-1214-04	12	+0.032/+0.102	14	4
EPB3-1214-06	12	+0.032/+0.102	14	6
EPB3-1214-08	12	+0.032/+0.102	14	8
EPB3-1214-10	12	+0.032/+0.102	14	10
EPB3-1214-12	12	+0.032/+0.102	14	12
EPB3-1214-14	12	+0.032/+0.102	14	14
EPB3-1214-15	12	+0.032/+0.102	14	15
EPB3-1214-20	12	+0.032/+0.102	14	20
EPB3-1214-25	12	+0.032/+0.102	14	25
EPB3-1315-15	13	+0.032/+0.102	15	15
EPB3-1315-25	13	+0.032/+0.102	15	25
EPB3-1416-03	14	+0.032/+0.102	16	3
EPB3-1416-08	14	+0.032/+0.102	16	8
EPB3-1416-10	14	+0.032/+0.102	16	10
EPB3-1416-15	14	+0.032/+0.102	16	15
EPB3-1416-20	14	+0.032/+0.102	16	20
EPB3-1416-25	14	+0.032/+0.102	16	25
EPB3-1517-10	15	+0.032/+0.102	17	10
EPB3-1517-12	15	+0.032/+0.102	17	12
EPB3-1517-15	15	+0.032/+0.102	17	15
EPB3-1517-20	15	+0.032/+0.102	17	20
EPB3-1517-25	15	+0.032/+0.102	17	25
EPB3-1618-10	16	+0.032/+0.102	18	10
EPB3-1618-12	16	+0.032/+0.102	18	12
EPB3-1618-15	16	+0.032/+0.102	18	15
EPB3-1618-20	16	+0.032/+0.102	18	20
EPB3-1618-25	16	+0.032/+0.102	18	25
EPB3-1618-30	16	+0.032/+0.102	18	30
EPB3-1820-10	18	+0.032/+0.102	20	10
EPB3-1820-12	18	+0.032/+0.102	20	12

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Tel: 0086 573 84186133/84185527
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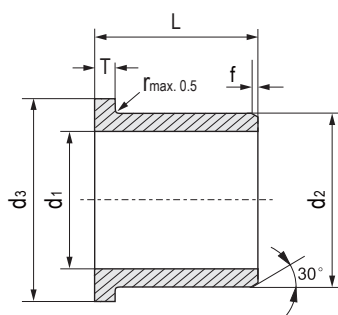
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB3-1820-15	18	+0.032/+0.102	20	15
EPB3-1820-20	18	+0.032/+0.102	20	20
EPB3-1820-25	18	+0.032/+0.102	20	25
EPB3-2022-20	20	+0.040/+0.124	22	20
EPB3-2022-30	20	+0.040/+0.124	22	30
EPB3-2023-10	20	+0.040/+0.124	23	10
EPB3-2023-15	20	+0.040/+0.124	23	15
EPB3-2023-20	20	+0.040/+0.124	23	20
EPB3-2023-25	20	+0.040/+0.124	23	25
EPB3-2023-30	20	+0.040/+0.124	23	30
EPB3-2224-10	22	+0.040/+0.124	24	10
EPB3-2225-15	22	+0.040/+0.124	25	15
EPB3-2225-20	22	+0.040/+0.124	25	20
EPB3-2225-25	22	+0.040/+0.124	25	25
EPB3-2225-30	22	+0.040/+0.124	25	30
EPB3-2528-12	25	+0.040/+0.124	28	12
EPB3-2528-15	25	+0.040/+0.124	28	15
EPB3-2528-20	25	+0.040/+0.124	28	20
EPB3-2528-21	25	+0.040/+0.124	28	21
EPB3-2528-24	25	+0.040/+0.124	28	24
EPB3-2528-25	25	+0.040/+0.124	28	25
EPB3-2528-30	25	+0.040/+0.124	28	30
EPB3-2528-35	25	+0.040/+0.124	28	35
EPB3-2832-30	28	+0.040/+0.124	32	30
EPB3-3034-15	30	+0.040/+0.124	34	15
EPB3-3034-20	30	+0.040/+0.124	34	20
EPB3-3034-24	30	+0.040/+0.124	34	24
EPB3-3034-25	30	+0.040/+0.124	34	25
EPB3-3034-30	30	+0.040/+0.124	34	30
EPB3-3034-35	30	+0.040/+0.124	34	35
EPB3-3034-40	30	+0.040/+0.124	34	40
EPB3-3236-20	32	+0.050/+0.150	36	20
EPB3-3236-30	32	+0.050/+0.150	36	30
EPB3-3236-40	32	+0.050/+0.150	36	40
EPB3-3539-14	35	+0.050/+0.150	39	14
EPB3-3539-20	35	+0.050/+0.150	39	20

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB3-3539-25	35	+0.050/+0.150	39	25
EPB3-3539-30	35	+0.050/+0.150	39	30
EPB3-3539-40	35	+0.050/+0.150	39	40
EPB3-3539-50	35	+0.050/+0.150	39	50
EPB3-3640-20	36	+0.050/+0.150	40	20
EPB3-4044-10	40	+0.050/+0.150	44	10
EPB3-4044-16	40	+0.050/+0.150	44	16
EPB3-4044-20	40	+0.050/+0.150	44	20
EPB3-4044-30	40	+0.050/+0.150	44	30
EPB3-4044-40	40	+0.050/+0.150	44	40
EPB3-4044-50	40	+0.050/+0.150	44	50
EPB3-4246-40	42	+0.050/+0.150	46	40
EPB3-4246-50	42	+0.050/+0.150	46	50
EPB3-4550-40	45	+0.050/+0.150	50	40
EPB3-4550-50	45	+0.050/+0.150	50	50
EPB3-5055-20	50	+0.050/+0.150	55	20
EPB3-5055-25	50	+0.050/+0.150	55	25
EPB3-5055-30	50	+0.050/+0.150	55	30
EPB3-5055-40	50	+0.050/+0.150	55	40
EPB3-5055-50	50	+0.050/+0.150	55	50
EPB3-5560-20	55	+0.060/+0.180	60	20
EPB3-5560-26	55	+0.060/+0.180	60	26
EPB3-5560-40	55	+0.060/+0.180	60	40
EPB3-5560-50	55	+0.060/+0.180	60	50
EPB3-6065-30	60	+0.060/+0.180	65	30
EPB3-6065-40	60	+0.060/+0.180	65	40
EPB3-6065-50	60	+0.060/+0.180	65	50
EPB3-6065-60	60	+0.060/+0.180	65	60
EPB3-6570-50	65	+0.060/+0.180	70	50
EPB3-7075-60	70	+0.060/+0.180	75	60
EPB3-7580-40	75	+0.060/+0.180	80	40
EPB3-115121-90	115	+0.072/+0.212	121	90
EPB3-120125-100	120	+0.072/+0.212	125	100

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

法兰轴承 Metric flange bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB3F-0608-06

法兰轴承 Flange bushes
材料 Material

d ₁	f
1-6	0.3
6-12	0.5
12-30	0.8
>30	1.2

CSB-EPB[®] Standard Specifications

EPB3\EPB3G\EPB9\EPB12\EPB16\EPB20\EPB21\EPB22\EPB26 标准规格

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www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB3F-0304-03	3	+0.014/+0.054	4.5	7.5	3	0.75
EPB3F-0304-05	3	+0.014/+0.054	4.5	7.5	5	0.75
EPB3F-0405-03	4	+0.020/+0.068	5.5	9.5	3	0.75
EPB3F-0405-04	4	+0.020/+0.068	5.5	9.5	4	0.75
EPB3F-0405-06	4	+0.020/+0.068	5.5	9.5	6	0.75
EPB3F-0506-035	5	+0.010/+0.040	6	10	3.5	0.5
EPB3F-0506-05	5	+0.010/+0.040	6	10	5	0.5
EPB3F-0506-06	5	+0.010/+0.040	6	10	6	0.5
EPB3F-0507-04	5	+0.020/+0.068	7	11	4	1
EPB3F-0507-05	5	+0.020/+0.068	7	11	5	1
EPB3F-0507-10	5	+0.020/+0.068	7	11	10	1
EPB3F-0607-045	6	+0.010/+0.040	7	11	4.5	0.5
EPB3F-0607-10	6	+0.010/+0.040	7	11	10	0.5
EPB3F-0608-04	6	+0.020/+0.068	8	12	4	1
EPB3F-0608-05	6	+0.020/+0.068	8	12	5	1
EPB3F-0608-06	6	+0.020/+0.068	8	12	6	1
EPB3F-0608-07	6	+0.020/+0.068	8	12	7	1
EPB3F-0608-08	6	+0.020/+0.068	8	12	8	1
EPB3F-0608-10	6	+0.020/+0.068	8	12	10	1
EPB3F-0708-08	7	+0.013/+0.049	8	12	8	0.5
EPB3F-0809-12	8	+0.013/+0.049	9	13	12	0.5
EPB3F-0810-03	8	+0.025/+0.083	10	15	3	1
EPB3F-0810-04	8	+0.025/+0.083	10	15	4	1
EPB3F-0810-055	8	+0.025/+0.083	10	15	5.5	1
EPB3F-0810-075	8	+0.025/+0.083	10	15	7.5	1
EPB3F-0810-095	8	+0.025/+0.083	10	15	9.5	1
EPB3F-0810-10	8	+0.025/+0.083	10	15	10	1
EPB3F-0810-15	8	+0.025/+0.083	10	15	15	1
EPB3F-0810-30	8	+0.025/+0.083	10	15	30	1
EPB3F-1012-04	10	+0.025/+0.083	12	18	4	1
EPB3F-1012-05	10	+0.025/+0.083	12	18	5	1
EPB3F-1012-06	10	+0.025/+0.083	12	18	6	1
EPB3F-1012-07	10	+0.025/+0.083	12	18	7	1
EPB3F-1012-09	10	+0.025/+0.083	12	18	9	1
EPB3F-1012-10	10	+0.025/+0.083	12	18	10	1
EPB3F-1012-12	10	+0.025/+0.083	12	18	12	1
EPB3F-1012-15	10	+0.025/+0.083	12	18	15	1
EPB3F-1012-17	10	+0.025/+0.083	12	18	17	1
EPB3F-101214-14	10	+0.025/+0.083	12	14	14	1
EPB3F-101216-06	10	+0.025/+0.083	12	16	6	1
EPB3F-101216-09	10	+0.025/+0.083	12	16	9	1
EPB3F-1213-12	12	+0.016/+0.059	13	17	12	0.5
EPB3F-1214-05	12	+0.032/+0.102	14	20	5	1
EPB3F-1214-06	12	+0.032/+0.102	14	20	6	1
EPB3F-1214-07	12	+0.032/+0.102	14	20	7	1
EPB3F-1214-09	12	+0.032/+0.102	14	20	9	1
EPB3F-1214-10	12	+0.032/+0.102	14	20	10	1
EPB3F-1214-11	12	+0.032/+0.102	14	20	11	1

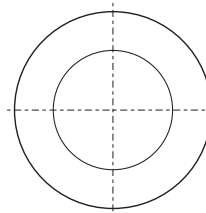
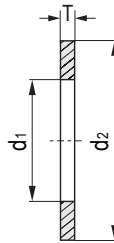
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB3F-1214-12	12	+0.032/+0.102	14	20	12	1
EPB3F-1214-15	12	+0.032/+0.102	14	20	15	1
EPB3F-1214-17	12	+0.032/+0.102	14	20	17	1
EPB3F-1214-20	12	+0.032/+0.102	14	20	20	1
EPB3F-1214-24	12	+0.032/+0.102	14	20	24	1
EPB3F-121415-10	12	+0.032/+0.102	14	15	10	1
EPB3F-1416-03	14	+0.032/+0.102	16	22	3	1
EPB3F-1416-04	14	+0.032/+0.102	16	22	4	1
EPB3F-1416-06	14	+0.032/+0.102	16	22	6	1
EPB3F-1416-08	14	+0.032/+0.102	16	22	8	1
EPB3F-1416-10	14	+0.032/+0.102	16	22	10	1
EPB3F-1416-12	14	+0.032/+0.102	16	22	12	1
EPB3F-1416-15	14	+0.032/+0.102	16	22	15	1
EPB3F-1416-17	14	+0.032/+0.102	16	22	17	1
EPB3F-1416-21	14	+0.032/+0.102	16	22	21	1
EPB3F-141617-15	14	+0.032/+0.102	16	17	15	1
EPB3F-1517-05	15	+0.032/+0.102	17	23	5	1
EPB3F-1517-09	15	+0.032/+0.102	17	23	9	1
EPB3F-1517-12	15	+0.032/+0.102	17	23	12	1
EPB3F-1517-17	15	+0.032/+0.102	17	23	17	1
EPB3F-1517-20	15	+0.032/+0.102	17	23	20	1
EPB3F-151718-12	15	+0.032/+0.102	17	18	12	1
EPB3F-1618-06	16	+0.032/+0.102	18	24	6	1
EPB3F-1618-09	16	+0.032/+0.102	18	24	9	1
EPB3F-1618-12	16	+0.032/+0.102	18	24	12	1
EPB3F-1618-17	16	+0.032/+0.102	18	24	17	1
EPB3F-1618-21	16	+0.032/+0.102	18	24	21	1
EPB3F-1719-09	17	+0.032/+0.102	19	25	9	1
EPB3F-1719-25	17	+0.032/+0.102	19	25	25	1
EPB3F-1820-04	18	+0.032/+0.102	20	26	4	1
EPB3F-1820-06	18	+0.032/+0.102	20	26	6	1
EPB3F-1820-09	18	+0.032/+0.102	20	26	9	1
EPB3F-1820-11	18	+0.032/+0.102	20	26	11	1
EPB3F-1820-12	18	+0.032/+0.102	20	26	12	1
EPB3F-1820-17	18	+0.032/+0.102	20	26	17	1
EPB3F-1820-22	18	+0.032/+0.102	20	26	22	1
EPB3F-1820-30	18	+0.032/+0.102	20	26	30	1
EPB3F-202223-21	20	+0.040/+0.124	22	23	21	1.5
EPB3F-2023-3.2	20	+0.040/+0.124	23	30	3.2	1.5
EPB3F-2023-07	20	+0.040/+0.124	23	30	7	1.5
EPB3F-2023-11.5	20	+0.040/+0.124	23	30	11.5	1.5
EPB3F-2023-16.5	20	+0.040/+0.124	23	30	16.5	1.5
EPB3F-2023-21.5	20	+0.040/+0.124	23	30	21.5	1.5
EPB3F-222535-09	22	+0.040/+0.124	25	35	9	1.5
EPB3F-2427-10	24	+0.040/+0.124	27	32	10	1.5
EPB3F-2528-11.5	25	+0.040/+0.124	28	35	11.5	1.5
EPB3F-2528-16.5	25	+0.040/+0.124	28	35	16.5	1.5
EPB3F-2528-21.5	25	+0.040/+0.124	28	35	21.5	1.5

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB3F-2528-30	25	+0.040/+0.124	28	35	30	1.5
EPB3F-2830-36	28	+0.040/+0.124	30	35	36	2
EPB3F-3032-12	30	+0.040/+0.124	32	37	12	1
EPB3F-3034-16	30	+0.040/+0.124	34	42	16	2
EPB3F-3034-20	30	+0.040/+0.124	34	42	20	2
EPB3F-3034-26	30	+0.040/+0.124	34	42	26	2
EPB3F-3034-37	30	+0.040/+0.124	34	42	37	2
EPB3F-3034-45	30	+0.040/+0.124	34	42	45	2
EPB3F-3236-16	32	+0.050/+0.150	36	40	16	2
EPB3F-3236-26	32	+0.050/+0.150	36	40	26	2
EPB3F-3539-07	35	+0.050/+0.150	39	47	7	2
EPB3F-3539-12	35	+0.050/+0.150	39	47	12	2
EPB3F-3539-16	35	+0.050/+0.150	39	47	16	2
EPB3F-3539-26	35	+0.050/+0.150	39	47	26	2
EPB3F-3539-36	35	+0.050/+0.150	39	47	36	2
EPB3F-4044-14	40	+0.050/+0.150	44	52	14	2
EPB3F-4044-20	40	+0.050/+0.150	44	52	20	2
EPB3F-4044-30	40	+0.050/+0.150	44	52	30	2
EPB3F-4044-40	40	+0.050/+0.150	44	52	40	2
EPB3F-4044-50	40	+0.050/+0.150	44	52	50	2
EPB3F-4246-50	42	+0.050/+0.150	46	53	50	2

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB3F-4550-15	45	+0.050/+0.150	50	58	15	2
EPB3F-4550-30	45	+0.050/+0.150	50	58	30	2
EPB3F-4550-50	45	+0.050/+0.150	50	58	50	2
EPB3F-5055-10	50	+0.050/+0.150	55	63	10	2
EPB3F-5055-40	50	+0.050/+0.150	55	63	40	2
EPB3F-5055-50	50	+0.050/+0.150	55	63	50	2
EPB3F-6065-07	60	+0.060/+0.180	65	73	7	2
EPB3F-6065-22	60	+0.060/+0.180	65	73	22	2
EPB3F-6065-30	60	+0.060/+0.180	65	73	30	2
EPB3F-6065-50	60	+0.060/+0.180	65	73	50	2
EPB3F-606580-62	60	+0.060/+0.180	65	80	62	2
EPB3F-6570-50	65	+0.060/+0.180	70	78	50	2
EPB3F-7075-50	70	+0.060/+0.180	75	83	50	2
EPB3F-9095-11	90	+0.072/+0.212	95	103	11	2.5
EPB3F-95100-22.5	95	+0.072/+0.212	100	108	22.5	2.5
EPB3F-100105-11.5	100	+0.072/+0.212	105	113	11.5	2.5
EPB3F-100105-100	100	+0.072/+0.212	105	113	100	2.5
EPB3F-120125-100	120	+0.072/+0.212	125	133	100	2.5

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差
*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

垫片 Metric thrust washers



产品编码 Part No.:
EPB3W-0818-015
d₁ d₂ T
垫片 Washer
材料 Material

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{+0.25} [mm]	T _{0.05} [mm]
EPB3W-0509-006	5	9	0.6
EPB3W-0615-015	6	15	1.5
EPB3W-0620-015	6	20	1.5
EPB3W-0815-005	8	15	0.5
EPB3W-0815-015	8	15	1.5
EPB3W-0818-010	8	18	1.0
EPB3W-0818-015	8	18	1.5
EPB3W-1018-010	10	18	1.0
EPB3W-1018-015	10	18	1.5
EPB3W-1018-020	10	18	2.0
EPB3W-1224-015	12	24	1.5
EPB3W-1426-015	14	26	1.5
EPB3W-1524-015	15	24	1.5
EPB3W-1630-015	16	30	1.5

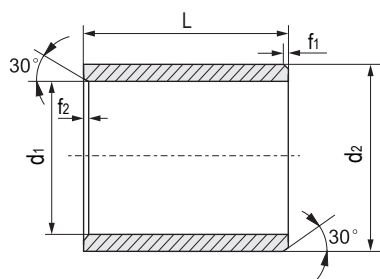
产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{+0.25} [mm]	T _{0.05} [mm]
EPB3W-1832-015	18	32	1.5
EPB3W-2036-015	20	36	1.5
EPB3W-2238-015	22	38	1.5
EPB3W-2442-015	24	42	1.5
EPB3W-2640-0075	26	40	0.75
EPB3W-2644-015	26	44	1.5
EPB3W-2848-015	28	48	1.5
EPB3W-3254-015	32	54	1.5
EPB3W-3862-015	38	62	1.5
EPB3W-4266-015	42	66	1.5
EPB3W-4874-020	48	74	2.0
EPB3W-5278-020	52	78	2.0
EPB3W-6290-020	62	90	2.0

*根据要求提供定位孔设计 The fixing bore design upon request

CSB-EPB® Standard Specifications

EPB4/EPB8/EPB10/EPB24 标准规格

直套 Metric cylindrical bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB4 -0203-03

d₁ d₂ L

材料 Material

d ₁	f ₁	f ₂
1-6	0.3	0.5
6-12	0.5	
12-30	0.8	
>30	1.2	

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB4-0203-03	2	+0.006/+0.046	3.5	3
EPB4-0304-03	3	+0.006/+0.046	4.5	3
EPB4-0304-036	3	+0.006/+0.046	4.5	3.6
EPB4-0304-05	3	+0.006/+0.046	4.5	5
EPB4-0304-055	3	+0.006/+0.046	4.5	5.5
EPB4-0304-06	3	+0.006/+0.046	4.5	6
EPB4-0405-04	4	+0.010/+0.058	5.5	4
EPB4-0405-05	4	+0.010/+0.058	5.5	5
EPB4-0405-06	4	+0.010/+0.058	5.5	6
EPB4-0405-08	4	+0.010/+0.058	5.5	8
EPB4-0405-10	4	+0.010/+0.058	5.5	10
EPB4-0506-05	5	+0.010/+0.040	6	5
EPB4-0506-07	5	+0.010/+0.040	6	7
EPB4-0507-05	5	+0.010/+0.058	7	5
EPB4-0507-08	5	+0.010/+0.058	7	8
EPB4-0507-10	5	+0.010/+0.058	7	10
EPB4-0608-04	6	+0.010/+0.058	8	4
EPB4-0608-06	6	+0.010/+0.058	8	6
EPB4-0608-10	6	+0.010/+0.058	8	10
EPB4-0810-05	8	+0.013/+0.071	10	5
EPB4-0810-08	8	+0.013/+0.071	10	8
EPB4-0810-10	8	+0.013/+0.071	10	10
EPB4-0810-15	8	+0.013/+0.071	10	15
EPB4-1012-06	10	+0.013/+0.071	12	6
EPB4-1012-10	10	+0.013/+0.071	12	10
EPB4-1012-12	10	+0.013/+0.071	12	12
EPB4-1012-15	10	+0.013/+0.071	12	15
EPB4-1214-10	12	+0.016/+0.086	14	10
EPB4-1214-12	12	+0.016/+0.086	14	12
EPB4-1214-15	12	+0.016/+0.086	14	15

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB4-1214-20	12	+0.016/+0.086	14	20
EPB4-1416-20	14	+0.016/+0.086	16	20
EPB4-1517-15	15	+0.016/+0.086	17	15
EPB4-1618-15	16	+0.016/+0.086	18	15
EPB4-1618-20	16	+0.016/+0.086	18	20
EPB4-1618-25	16	+0.016/+0.086	18	25
EPB4-1820-15	18	+0.016/+0.086	20	15
EPB4-1820-20	18	+0.016/+0.086	20	20
EPB4-1820-25	18	+0.016/+0.086	20	25
EPB4-2023-20	20	+0.020/+0.104	23	20
EPB4-2023-30	20	+0.020/+0.104	23	30
EPB4-2225-20	22	+0.020/+0.104	25	20
EPB4-2528-15	25	+0.020/+0.104	28	15
EPB4-2528-20	25	+0.020/+0.104	28	20
EPB4-3034-20	30	+0.020/+0.104	34	20
EPB4-3034-25	30	+0.020/+0.104	34	25
EPB4-3034-30	30	+0.020/+0.104	34	30
EPB4-3034-40	30	+0.020/+0.104	34	40
EPB4-3236-30	32	+0.025/+0.125	36	30
EPB4-3539-20	35	+0.025/+0.125	39	20
EPB4-3539-40	35	+0.025/+0.125	39	40
EPB4-4044-20	40	+0.025/+0.125	44	20
EPB4-4044-30	40	+0.025/+0.125	44	30
EPB4-4044-50	40	+0.025/+0.125	44	50
EPB4-4550-50	45	+0.025/+0.125	50	50
EPB4-5055-40	50	+0.025/+0.125	55	40
EPB4-5560-26	55	+0.030/+0.150	60	26
EPB4-6065-60	60	+0.030/+0.150	65	60

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

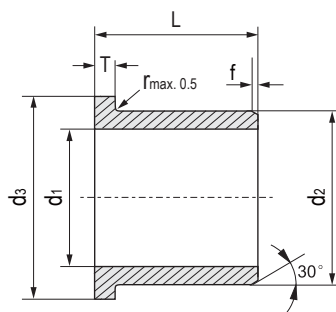
*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

EPB

CSB-EPB®

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517
www.csb-ep.com
sales@csb-ep.com

法兰轴承 Metric flange bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB4F-0304-03

d₁ d₂ L

法兰轴承 Flange bushes

材料 Material

d ₁	f
1-6	0.3
6-12	0.5
12-30	0.8
>30	1.2

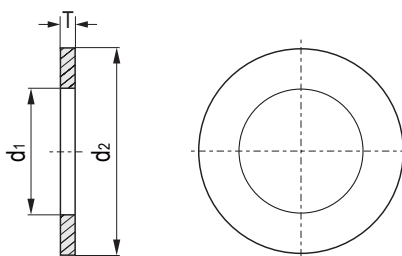
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [D11] [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L (h13) [mm]	T (h13) [mm]
EPB4F-0304-03	3	+0.006/+0.046	4.5	7.5	3	0.75
EPB4F-0304-05	3	+0.006/+0.046	4.5	7.5	5	0.75
EPB4F-0405-03	4	+0.010/+0.058	5.5	9.5	3	0.75
EPB4F-0405-04	4	+0.010/+0.058	5.5	9.5	4	0.75
EPB4F-0405-06	4	+0.010/+0.058	5.5	9.5	6	0.75
EPB4F-0507-04	5	+0.010/+0.058	7	11	4	1
EPB4F-0507-05	5	+0.010/+0.058	7	11	5	1
EPB4F-0507-10	5	+0.010/+0.058	7	11	10	1
EPB4F-0608-04	6	+0.010/+0.058	8	12	4	1
EPB4F-0608-06	6	+0.010/+0.058	8	12	6	1
EPB4F-0608-10	6	+0.010/+0.058	8	12	10	1
EPB4F-0810-055	8	+0.013/+0.071	10	15	5.5	1
EPB4F-0810-075	8	+0.013/+0.071	10	15	7.5	1
EPB4F-0810-095	8	+0.013/+0.071	10	15	9.5	1
EPB4F-0810-10	8	+0.013/+0.071	10	15	10	1
EPB4F-0810-15	8	+0.013/+0.071	10	15	15	1
EPB4F-1012-04	10	+0.013/+0.071	12	18	4	1
EPB4F-1012-05	10	+0.013/+0.071	12	18	5	1
EPB4F-1012-09	10	+0.013/+0.071	12	18	9	1
EPB4F-1012-10	10	+0.013/+0.071	12	18	10	1
EPB4F-1012-12	10	+0.013/+0.071	12	18	12	1
EPB4F-1012-15	10	+0.013/+0.071	12	18	15	1
EPB4F-1012-17	10	+0.013/+0.071	12	18	17	1
EPB4F-1214-07	12	+0.016/+0.086	14	20	7	1
EPB4F-1214-10	12	+0.016/+0.086	14	20	10	1

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [D11] [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L (h13) [mm]	T (h13) [mm]
EPB4F-1214-12	12	+0.016/+0.086	14	20	12	1
EPB4F-1214-15	12	+0.016/+0.086	14	20	15	1
EPB4F-1214-20	12	+0.016/+0.086	14	20	20	1
EPB4F-1416-12	14	+0.016/+0.086	16	22	12	1
EPB4F-1517-17	15	+0.016/+0.086	17	23	17	1
EPB4F-1618-17	16	+0.016/+0.086	18	24	17	1
EPB4F-1820-12	18	+0.016/+0.086	20	26	12	1
EPB4F-1820-17	18	+0.016/+0.086	20	26	17	1
EPB4F-2023-07	20	+0.020/+0.104	23	30	7	1.5
EPB4F-2023-11.5	20	+0.020/+0.104	23	30	11.5	1.5
EPB4F-2023-16.5	20	+0.020/+0.104	23	30	16.5	1.5
EPB4F-2023-21.5	20	+0.020/+0.104	23	30	21.5	1.5
EPB4F-2023-30	20	+0.020/+0.104	23	30	30	1.5
EPB4F-2528-30	25	+0.020/+0.104	28	35	30	1.5
EPB4F-3034-40	30	+0.020/+0.104	34	42	40	2
EPB4F-3539-26	35	+0.025/+0.125	39	47	26	2
EPB4F-4044-40	40	+0.025/+0.125	44	52	40	2
EPB4F-4550-50	45	+0.025/+0.125	50	58	50	2
EPB4F-5055-50	50	+0.025/+0.125	55	63	50	2
EPB4F-6065-50	60	+0.030/+0.150	65	75	50	2
EPB4F-7075-50	70	+0.030/+0.150	75	83	50	2

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

EPB4/EPB8/EPB10/EPB24 标准规格



垫片 Washer

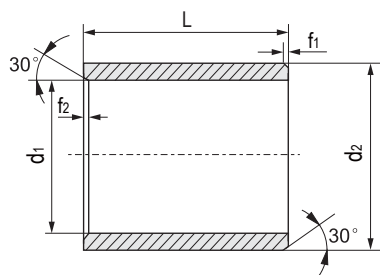
材料Material

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ -0.25 [mm]	T _{-0.05} [mm]
EPB4W-0509-006	5	9	0.6
EPB4W-0615-015	6	15	1.5
EPB4W-0620-015	6	20	1.5
EPB4W-0815-005	8	15	0.5
EPB4W-0815-015	8	15	1.5
EPB4W-0818-010	8	18	1.0
EPB4W-0818-015	8	18	1.5
EPB4W-1018-010	10	18	1.0
EPB4W-1018-015	10	18	1.5
EPB4W-1018-020	10	18	2.0
EPB4W-1224-015	12	24	1.5
EPB4W-1426-015	14	26	1.5
EPB4W-1524-015	15	24	1.5
EPB4W-1630-015	16	30	1.5
EPB4W-1832-015	18	32	1.5

产品编码 Part No.	$d_1^{+0.25}$ [mm]	$d_{2-0.25}$ [mm]	$T_{-0.05}$ [mm]
EPB4W-2036-015	20	36	1.5
EPB4W-2238-015	22	38	1.5
EPB4W-2442-015	24	42	1.5
EPB4W-2640-0075	26	40	0.75
EPB4W-2644-015	26	44	1.5
EPB4W-2848-015	28	48	1.5
EPB4W-3254-015	32	54	1.5
EPB4W-3862-015	38	62	1.5
EPB4W-4266-015	42	66	1.5
EPB4W-4874-020	48	74	2.0
EPB4W-5278-020	52	78	2.0
EPB4W-6290-020	62	90	2.0

*根据要求提供定位孔设计 The fixing bore design upon request

直套 Metric cylindrical bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB5 -0608-06

材料 Material
 d_1 d_2 L

d_1	f_1	f_2
1-6	0.3	0.5
6-12	0.5	
12-30	0.8	
>30	1.2	

产品编码 Part No.	d_1 [mm]	d_1 -公差 After fitting [mm]	d_2 [mm]	L(h13) [mm]
EPB5-0203-03	2	+0.006/+0.046	3.5	3
EPB5-0304-03	3	+0.006/+0.046	4.5	3
EPB5-0304-05	3	+0.006/+0.046	4.5	5
EPB5-0304-06	3	+0.006/+0.046	4.5	6
EPB5-0405-04	4	+0.010/+0.058	5.5	4
EPB5-0405-05	4	+0.010/+0.058	5.5	5
EPB5-0405-06	4	+0.010/+0.058	5.5	6
EPB5-0405-08	4	+0.010/+0.058	5.5	8
EPB5-0405-10	4	+0.010/+0.058	5.5	10
EPB5-0507-05	5	+0.010/+0.058	7	5
EPB5-0507-08	5	+0.010/+0.058	7	8
EPB5-0507-10	5	+0.010/+0.058	7	10
EPB5-0608-04	6	+0.010/+0.058	8	4
EPB5-0608-06	6	+0.010/+0.058	8	6
EPB5-0608-08	6	+0.010/+0.058	8	8
EPB5-0608-09	6	+0.010/+0.058	8	9
EPB5-0608-10	6	+0.010/+0.058	8	10
EPB5-0608-15	6	+0.010/+0.058	8	15
EPB5-0810-05	8	+0.013/+0.071	10	5
EPB5-0810-06	8	+0.013/+0.071	10	6
EPB5-0810-08	8	+0.013/+0.071	10	8
EPB5-0810-10	8	+0.013/+0.071	10	10
EPB5-0810-12	8	+0.013/+0.071	10	12
EPB5-0810-13	8	+0.013/+0.071	10	13
EPB5-0810-15	8	+0.013/+0.071	10	15
EPB5-0810-21	8	+0.013/+0.071	10	21
EPB5-1012-04	10	+0.013/+0.071	12	4
EPB5-1012-06	10	+0.013/+0.071	12	6
EPB5-1012-08	10	+0.013/+0.071	12	8
EPB5-1012-10	10	+0.013/+0.071	12	10
EPB5-1012-12	10	+0.013/+0.071	12	12
EPB5-1012-15	10	+0.013/+0.071	12	15
EPB5-1012-20	10	+0.013/+0.071	12	20
EPB5-1214-05	12	+0.016/+0.086	14	5
EPB5-1214-06	12	+0.016/+0.086	14	6
EPB5-1214-08	12	+0.016/+0.086	14	8
EPB5-1214-10	12	+0.016/+0.086	14	10
EPB5-1214-12	12	+0.016/+0.086	14	12
EPB5-1214-15	12	+0.016/+0.086	14	15
EPB5-1214-20	12	+0.016/+0.086	14	20

产品编码 Part No.	d_1 [mm]	d_1 -公差 After fitting [mm]	d_2 [mm]	L(h13) [mm]
EPB5-1214-25	12	+0.016/+0.086	14	25
EPB5-1315-15	13	+0.016/+0.086	15	15
EPB5-1315-20	13	+0.016/+0.086	15	20
EPB5-1416-08	14	+0.016/+0.086	16	8
EPB5-1416-10	14	+0.016/+0.086	16	10
EPB5-1416-12	14	+0.016/+0.086	16	12
EPB5-1416-15	14	+0.016/+0.086	16	15
EPB5-1416-20	14	+0.016/+0.086	16	20
EPB5-1416-25	14	+0.016/+0.086	16	25
EPB5-1517-10	15	+0.016/+0.086	17	10
EPB5-1517-15	15	+0.016/+0.086	17	15
EPB5-1517-20	15	+0.016/+0.086	17	20
EPB5-1517-25	15	+0.016/+0.086	17	25
EPB5-1618-08	16	+0.016/+0.086	18	8
EPB5-1618-10	16	+0.016/+0.086	18	10
EPB5-1618-12	16	+0.016/+0.086	18	12
EPB5-1618-15	16	+0.016/+0.086	18	15
EPB5-1618-20	16	+0.016/+0.086	18	20
EPB5-1618-25	16	+0.016/+0.086	18	25
EPB5-1719-20	17	+0.016/+0.086	19	20
EPB5-1820-15	18	+0.016/+0.086	20	15
EPB5-1820-20	18	+0.016/+0.086	20	20
EPB5-2022-15	20	+0.020/+0.104	22	15
EPB5-2023-10	20	+0.020/+0.104	23	10
EPB5-2023-15	20	+0.020/+0.104	23	15
EPB5-2023-20	20	+0.020/+0.104	23	20
EPB5-2023-23	20	+0.020/+0.104	23	23
EPB5-2023-25	20	+0.020/+0.104	23	25
EPB5-2023-30	20	+0.020/+0.104	23	30
EPB5-2225-15	22	+0.020/+0.104	25	15
EPB5-2225-20	22	+0.020/+0.104	25	20
EPB5-2225-25	22	+0.020/+0.104	25	25
EPB5-2225-30	22	+0.020/+0.104	25	30
EPB5-2528-12	25	+0.020/+0.104	28	12
EPB5-2528-15	25	+0.020/+0.104	28	15
EPB5-2528-20	25	+0.020/+0.104	28	20
EPB5-2528-25	25	+0.020/+0.104	28	25
EPB5-2528-30	25	+0.020/+0.104	28	30
EPB5-2832-20	28	+0.020/+0.104	32	20
EPB5-2832-25	28	+0.020/+0.104	32	25

CSB-EPB[®] Standard Specifications

EPB5/EPB5A/EPB5Z 标准规格

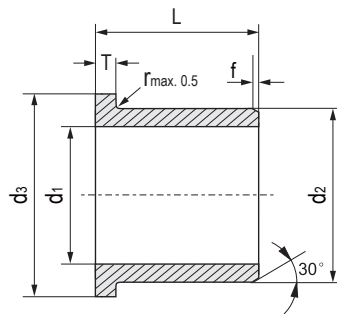
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB5-2832-30	28	+0.020/+0.104	32	30
EPB5-3034-20	30	+0.020/+0.104	34	20
EPB5-3034-25	30	+0.020/+0.104	34	25
EPB5-3034-30	30	+0.020/+0.104	34	30
EPB5-3034-40	30	+0.020/+0.104	34	40
EPB5-3236-20	32	+0.025/+0.125	36	20
EPB5-3236-30	32	+0.025/+0.125	36	30
EPB5-3236-40	32	+0.025/+0.125	36	40
EPB5-3539-20	35	+0.025/+0.125	39	20
EPB5-3539-25	35	+0.025/+0.125	39	25
EPB5-3539-30	35	+0.025/+0.125	39	30
EPB5-3539-40	35	+0.025/+0.125	39	40
EPB5-3539-50	35	+0.025/+0.125	39	50
EPB5-4044-15	40	+0.025/+0.125	44	15

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L(h13) [mm]
EPB5-4044-20	40	+0.025/+0.125	44	20
EPB5-4044-30	40	+0.025/+0.125	44	30
EPB5-4044-40	40	+0.025/+0.125	44	40
EPB5-4044-50	40	+0.025/+0.125	44	50
EPB5-4550-30	45	+0.025/+0.125	50	30
EPB5-5055-40	50	+0.025/+0.125	55	40
EPB5-5055-50	50	+0.025/+0.125	55	50
EPB5-5560-20	55	+0.030/+0.150	60	20
EPB5-5560-40	55	+0.030/+0.150	60	40
EPB5-6065-45	60	+0.030/+0.150	65	45
EPB5-6065-50	60	+0.030/+0.150	65	50

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

法兰轴承 Metric Flange Bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB5F-0608-06

法兰轴承 Flange bushes

材料 Material

d ₁	f
1-6	0.3
6-12	0.5
12-30	0.8
>30	1.2

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L(h13) [mm]	T _{0.14} [mm]
EPB5F-0304-03	3	+0.006/+0.046	4.5	7.5	3	0.75
EPB5F-0304-05	3	+0.006/+0.046	4.5	7.5	5	0.75
EPB5F-0405-03	4	+0.010/+0.058	5.5	9.5	3	0.75
EPB5F-0405-04	4	+0.010/+0.058	5.5	9.5	4	0.75
EPB5F-0405-06	4	+0.010/+0.058	5.5	9.5	6	0.75
EPB5F-0507-04	5	+0.010/+0.058	7	11	4	1
EPB5F-0507-05	5	+0.010/+0.058	7	11	5	1
EPB5F-0507-10	5	+0.010/+0.058	7	11	10	1
EPB5F-0608-04	6	+0.010/+0.058	8	12	4	1
EPB5F-0608-06	6	+0.010/+0.058	8	12	6	1
EPB5F-0608-07	6	+0.010/+0.058	8	12	7	1
EPB5F-0608-08	6	+0.010/+0.058	8	12	8	1
EPB5F-0608-10	6	+0.010/+0.058	8	12	10	1
EPB5F-0810-04	8	+0.013/+0.071	10	15	4	1
EPB5F-0810-055	8	+0.013/+0.071	10	15	5.5	1
EPB5F-0810-075	8	+0.013/+0.071	10	15	7.5	1
EPB5F-0810-095	8	+0.013/+0.071	10	15	9.5	1
EPB5F-0810-10	8	+0.013/+0.071	10	15	10	1
EPB5F-0810-15	8	+0.013/+0.071	10	15	15	1
EPB5F-1012-05	10	+0.013/+0.071	12	18	5	1
EPB5F-1012-06	10	+0.013/+0.071	12	18	6	1

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L(h13) [mm]	T _{0.14} [mm]
EPB5F-1012-07	10	+0.013/+0.071	12	18	7	1
EPB5F-1012-08	10	+0.013/+0.071	12	18	8	1
EPB5F-1012-09	10	+0.013/+0.071	12	18	9	1
EPB5F-1012-10	10	+0.013/+0.071	12	18	10	1
EPB5F-1012-12	10	+0.013/+0.071	12	18	12	1
EPB5F-1012-15	10	+0.013/+0.071	12	18	15	1
EPB5F-1012-17	10	+0.013/+0.071	12	18	17	1
EPB5F-1214-05	12	+0.016/+0.086	14	20	5	1
EPB5F-1214-06	12	+0.016/+0.086	14	20	6	1
EPB5F-1214-07	12	+0.016/+0.086	14	20	7	1
EPB5F-1214-09	12	+0.016/+0.086	14	20	9	1
EPB5F-1214-10	12	+0.016/+0.086	14	20	10	1
EPB5F-1214-12	12	+0.016/+0.086	14	20	12	1
EPB5F-1214-15	12	+0.016/+0.086	14	20	15	1
EPB5F-1214-17	12	+0.016/+0.086	14	20	17	1
EPB5F-1214-20	12	+0.016/+0.086	14	20	20	1
EPB5F-1416-10	14	+0.016/+0.086	16	22	10	1
EPB5F-1416-12	14	+0.016/+0.086	16	22	12	1
EPB5F-1416-17	14	+0.016/+0.086	16	22	17	1
EPB5F-1517-04	15	+0.016/+0.086	17	23	4	1
EPB5F-1517-05	15	+0.016/+0.086	17	23	5	1

EPB

CSB-EPB[®]

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

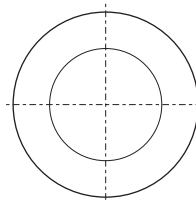
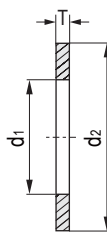
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L(h13) [mm]	T _{0.14} [mm]
EPB5F-1517-09	15	+0.016/+0.086	17	23	9	1
EPB5F-1517-12	15	+0.016/+0.086	17	23	12	1
EPB5F-1517-17	15	+0.016/+0.086	17	23	17	1
EPB5F-1517-20	15	+0.016/+0.086	17	23	20	1
EPB5F-1618-04	16	+0.016/+0.086	18	24	4	1
EPB5F-1618-06	16	+0.016/+0.086	18	24	6	1
EPB5F-1618-09	16	+0.016/+0.086	18	24	9	1
EPB5F-1618-12	16	+0.016/+0.086	18	24	12	1
EPB5F-1618-17	16	+0.016/+0.086	18	24	17	1
EPB5F-1618-20	16	+0.016/+0.086	18	24	20	1
EPB5F-1618-25	16	+0.016/+0.086	18	24	25	1
EPB5F-1820-09	18	+0.016/+0.086	20	26	9	1
EPB5F-1820-12	18	+0.016/+0.086	20	26	12	1
EPB5F-1820-17	18	+0.016/+0.086	20	26	17	1
EPB5F-1820-20	18	+0.016/+0.086	20	26	20	1
EPB5F-1820-22	18	+0.016/+0.086	20	26	22	1
EPB5F-1820-32	18	+0.016/+0.086	20	26	32	1
EPB5F-2022-20	20	+0.020/+0.104	22	29	20	1.5
EPB5F-2023-07	20	+0.020/+0.104	23	30	7	1.5
EPB5F-2023-11.5	20	+0.020/+0.104	23	30	11.5	1.5
EPB5F-2023-16.5	20	+0.020/+0.104	23	30	16.5	1.5
EPB5F-2023-21.5	20	+0.020/+0.104	23	30	21.5	1.5
EPB5F-2224-16	22	+0.020/+0.104	24	30	16	1
EPB5F-2224-20	22	+0.020/+0.104	24	30	20	1

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ (d13) [mm]	L(h13) [mm]	T _{0.14} [mm]
EPB5F-2528-11.5	25	+0.020/+0.104	28	35	11.5	1.5
EPB5F-2528-16.5	25	+0.020/+0.104	28	35	16.5	1.5
EPB5F-2528-21.5	25	+0.020/+0.104	28	35	21.5	1.5
EPB5F-3034-16	30	+0.020/+0.104	34	42	16	2
EPB5F-3034-26	30	+0.020/+0.104	34	42	26	2
EPB5F-3034-37	30	+0.020/+0.104	34	42	37	2
EPB5F-3236-16	32	+0.025/+0.125	36	45	16	2
EPB5F-3236-26	32	+0.025/+0.125	36	45	26	2
EPB5F-3539-09	35	+0.025/+0.125	39	47	9	2
EPB5F-3539-16	35	+0.025/+0.125	39	47	16	2
EPB5F-3539-26	35	+0.025/+0.125	39	47	26	2
EPB5F-3539-40	35	+0.025/+0.125	39	47	40	2
EPB5F-4044-14	40	+0.025/+0.125	44	52	14	2
EPB5F-4044-30	40	+0.025/+0.125	44	52	30	2
EPB5F-4044-40	40	+0.025/+0.125	44	52	40	2
EPB5F-4044-50	40	+0.025/+0.125	44	52	50	2
EPB5F-4550-50	45	+0.025/+0.125	50	58	50	2
EPB5F-5055-40	50	+0.025/+0.125	55	63	40	2
EPB5F-5055-50	50	+0.025/+0.125	55	63	50	2
EPB5F-6065-30	60	+0.030/+0.150	65	75	30	2
EPB5F-6065-60	60	+0.030/+0.150	65	75	60	2

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

垫片 Metric Thrust Washers



产品编码 Part No.:

EPB5W-0509-006

d₁ d₂ T
垫片 Washer

材料 Material

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{+0.25} [mm]	T _{0.05} [mm]
EPB5W-0509-006	5	9	0.6
EPB5W-0615-015	6	15	1.5
EPB5W-0620-015	6	20	1.5
EPB5W-0815-005	8	15	0.5
EPB5W-0815-015	8	15	1.5
EPB5W-0818-010	8	18	1.0
EPB5W-0818-015	8	18	1.5
EPB5W-1018-010	10	18	1.0
EPB5W-1018-015	10	18	1.5
EPB5W-1018-020	10	18	2.0
EPB5W-1224-015	12	24	1.5
EPB5W-1426-015	14	26	1.5
EPB5W-1524-015	15	24	1.5
EPB5W-1630-015	16	30	1.5

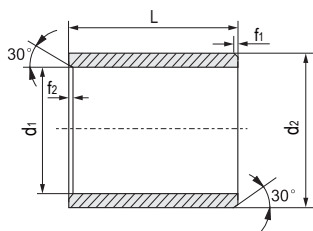
产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{+0.25} [mm]	T _{0.05} [mm]
EPB5W-1832-015	18	32	1.5
EPB5W-2036-015	20	36	1.5
EPB5W-2238-015	22	38	1.5
EPB5W-2442-015	24	42	1.5
EPB5W-2640-0075	26	40	0.75
EPB5W-2644-015	26	44	1.5
EPB5W-2848-015	28	48	1.5
EPB5W-3254-015	32	54	1.5
EPB5W-3862-015	38	62	1.5
EPB5W-4266-015	42	66	1.5
EPB5W-4874-020	48	74	2.0
EPB5W-5278-020	52	78	2.0
EPB5W-6290-020	62	90	2.0

*根据要求提供定位孔设计 The fixing bore design upon request

CSB-EPB[®] Standard Specifications

EPB7\EPB3M\EPB15\EPB19\EPB23\EPB25 标准规格

直套 Metric cylindrical bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB7-0608-06

材料 Material

d ₁	f ₁	f ₂
1-6	0.3	0.5
6-12	0.5	
12-30	0.8	
>30	1.2	

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L[h13] [mm]
EPB7-0203-03	2	+0.014/+0.054	3.5	3
EPB7-0304-03	3	+0.014/+0.054	4.5	3
EPB7-0304-036	3	+0.014/+0.054	4.5	3.6
EPB7-0304-05	3	+0.014/+0.054	4.5	5
EPB7-0304-055	3	+0.014/+0.054	4.5	5.5
EPB7-0304-06	3	+0.014/+0.054	4.5	6
EPB7-0405-04	4	+0.020/+0.068	5.5	4
EPB7-0405-05	4	+0.020/+0.068	5.5	5
EPB7-0405-06	4	+0.020/+0.068	5.5	6
EPB7-0405-08	4	+0.020/+0.068	5.5	8
EPB7-0405-10	4	+0.020/+0.068	5.5	10
EPB7-0506-05	5	+0.010/+0.040	6	5
EPB7-0506-07	5	+0.010/+0.040	6	7
EPB7-0507-05	5	+0.020/+0.068	7	5
EPB7-0507-08	5	+0.020/+0.068	7	8
EPB7-0507-10	5	+0.020/+0.068	7	10
EPB7-0509-05	5	+0.030/+0.105	9	5
EPB7-0509-08	5	+0.030/+0.105	9	8
EPB7-0608-04	6	+0.020/+0.068	8	4
EPB7-0608-06	6	+0.020/+0.068	8	6
EPB7-0608-08	6	+0.020/+0.068	8	8
EPB7-0608-09	6	+0.020/+0.068	8	9
EPB7-0608-10	6	+0.020/+0.068	8	10
EPB7-0608-15	6	+0.020/+0.068	8	15
EPB7-0610-04	6	+0.030/+0.105	10	4
EPB7-0610-06	6	+0.030/+0.105	10	6
EPB7-0610-08	6	+0.030/+0.105	10	8
EPB7-0610-10	6	+0.030/+0.105	10	10
EPB7-0612-06	6	+0.030/+0.105	12	6
EPB7-0612-10	6	+0.030/+0.105	12	10
EPB7-0810-05	8	+0.025/+0.083	10	5
EPB7-0810-06	8	+0.025/+0.083	10	6
EPB7-0810-08	8	+0.025/+0.083	10	8
EPB7-0810-10	8	+0.025/+0.083	10	10
EPB7-0810-12	8	+0.025/+0.083	10	12
EPB7-0810-15	8	+0.025/+0.083	10	15
EPB7-0810-21	8	+0.025/+0.083	10	21
EPB7-0812-06	8	+0.040/+0.130	12	6
EPB7-0812-08	8	+0.040/+0.130	12	8
EPB7-0814-06	8	+0.040/+0.130	14	6
EPB7-1012-04	10	+0.025/+0.083	12	4
EPB7-1012-06	10	+0.025/+0.083	12	6
EPB7-1012-08	10	+0.025/+0.083	12	8
EPB7-1012-10	10	+0.025/+0.083	12	10
EPB7-1012-12	10	+0.025/+0.083	12	12
EPB7-1012-15	10	+0.025/+0.083	12	15
EPB7-1012-20	10	+0.025/+0.083	12	20
EPB7-1014-10	10	+0.040/+0.130	14	10

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L[h13] [mm]
EPB7-1214-05	12	+0.032/+0.102	14	5
EPB7-1214-06	12	+0.032/+0.102	14	6
EPB7-1214-08	12	+0.032/+0.102	14	8
EPB7-1214-10	12	+0.032/+0.102	14	10
EPB7-1214-12	12	+0.032/+0.102	14	12
EPB7-1214-15	12	+0.032/+0.102	14	15
EPB7-1214-20	12	+0.032/+0.102	14	20
EPB7-1214-25	12	+0.032/+0.102	14	25
EPB7-1216-10	12	+0.050/+0.160	16	10
EPB7-1216-20	12	+0.050/+0.160	16	20
EPB7-1315-15	13	+0.032/+0.102	15	15
EPB7-1315-20	13	+0.032/+0.102	15	20
EPB7-1416-08	14	+0.032/+0.102	16	8
EPB7-1416-10	14	+0.032/+0.102	16	10
EPB7-1416-12	14	+0.032/+0.102	16	12
EPB7-1416-15	14	+0.032/+0.102	16	15
EPB7-1416-20	14	+0.032/+0.102	16	20
EPB7-1416-25	14	+0.032/+0.102	16	25
EPB7-1517-10	15	+0.032/+0.102	17	10
EPB7-1517-15	15	+0.032/+0.102	17	15
EPB7-1517-20	15	+0.032/+0.102	17	20
EPB7-1517-25	15	+0.032/+0.102	17	25
EPB7-1618-08	16	+0.032/+0.102	18	8
EPB7-1618-10	16	+0.016/+0.086	18	10
EPB7-1618-12	16	+0.032/+0.102	18	12
EPB7-1618-15	16	+0.032/+0.102	18	15
EPB7-1618-20	16	+0.032/+0.102	18	20
EPB7-1618-25	16	+0.032/+0.102	18	25
EPB7-1820-15	18	+0.032/+0.102	20	15
EPB7-1820-20	18	+0.032/+0.102	20	20
EPB7-2022-15	20	+0.040/+0.124	22	15
EPB7-2023-10	20	+0.040/+0.124	23	10
EPB7-2023-15	20	+0.040/+0.124	23	15
EPB7-2023-20	20	+0.040/+0.124	23	20
EPB7-2023-23	20	+0.040/+0.124	23	23
EPB7-2023-25	20	+0.040/+0.124	23	25
EPB7-2023-30	20	+0.040/+0.124	23	30
EPB7-2224-20	22	+0.040/+0.124	24	20
EPB7-2224-35	22	+0.040/+0.124	24	35
EPB7-2225-15	22	+0.040/+0.124	25	15
EPB7-2225-20	22	+0.040/+0.124	25	20
EPB7-2225-25	22	+0.040/+0.124	25	25
EPB7-2225-30	22	+0.040/+0.124	25	30
EPB7-2427-20	24	+0.040/+0.124	27	20
EPB7-2427-25	24	+0.040/+0.124	27	25
EPB7-2528-12	25	+0.040/+0.124	28	12
EPB7-2528-15	25	+0.040/+0.124	28	15
EPB7-2528-20	25	+0.040/+0.124	28	20

EPB

CSB-EPB[®]

www.csb-ep.com
sales@csb-ep.com

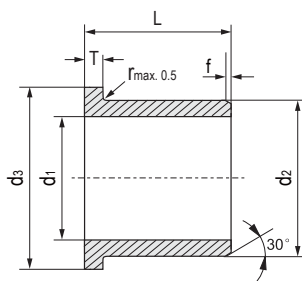
Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L[h13] [mm]
EPB7-2528-25	25	+0.040/+0.124	28	25
EPB7-2528-30	25	+0.040/+0.124	28	30
EPB7-2532-30	25	+0.065/+0.195	32	30
EPB7-2832-20	28	+0.040/+0.124	32	20
EPB7-2832-25	28	+0.040/+0.124	32	25
EPB7-2832-30	28	+0.040/+0.124	32	30
EPB7-3034-20	30	+0.040/+0.124	34	20
EPB7-3034-25	30	+0.040/+0.124	34	25
EPB7-3034-30	30	+0.040/+0.124	34	30
EPB7-3034-40	30	+0.040/+0.124	34	40
EPB7-3038-20	30	+0.065/+0.195	38	20
EPB7-3236-20	32	+0.050/+0.150	36	20
EPB7-3236-30	32	+0.050/+0.150	36	30
EPB7-3236-40	32	+0.050/+0.150	36	40
EPB7-3539-20	35	+0.050/+0.150	39	20
EPB7-3539-25	35	+0.050/+0.150	39	25
EPB7-3539-30	35	+0.050/+0.150	39	30

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	L[h13] [mm]
EPB7-3539-40	35	+0.050/+0.150	39	40
EPB7-3539-50	35	+0.050/+0.150	39	50
EPB7-4044-15	40	+0.050/+0.150	44	15
EPB7-4044-20	40	+0.050/+0.150	44	20
EPB7-4044-30	40	+0.050/+0.150	44	30
EPB7-4044-40	40	+0.050/+0.150	44	40
EPB7-4044-50	40	+0.050/+0.150	44	50
EPB7-4550-30	45	+0.050/+0.150	50	30
EPB7-5055-40	50	+0.050/+0.150	55	40
EPB7-5055-50	50	+0.050/+0.150	55	50
EPB7-5560-20	55	+0.030/+0.150	60	20
EPB7-5560-40	55	+0.030/+0.150	60	40
EPB7-6065-45	60	+0.030/+0.150	65	45
EPB7-6065-50	60	+0.030/+0.150	65	50

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差
*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

法兰轴承 Metric flange bushings



推荐安装公差 Recommend fitting tolerance:

座孔 Housing: H7

轴 Shaft: h9

产品编码 Part No.:

EPB7F-0608-06

材料 Material
法兰轴承 Flange bushes

d ₁	f
1-6	0.3
6-12	0.5
12-30	0.8
>30	1.2

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB7F-0304-03	3	+0.014/+0.054	4.5	7.5	3	0.75
EPB7F-0304-05	3	+0.014/+0.054	4.5	7.5	5	0.75
EPB7F-0405-03	4	+0.020/+0.068	5.5	9.5	3	0.75
EPB7F-0405-04	4	+0.020/+0.068	5.5	9.5	4	0.75
EPB7F-0405-06	4	+0.020/+0.068	5.5	9.5	6	0.75
EPB7F-0506-035	5	+0.010/+0.040	6	10	3.5	0.5
EPB7F-0506-05	5	+0.010/+0.040	6	10	5	0.5
EPB7F-0506-06	5	+0.010/+0.040	6	10	6	0.5
EPB7F-0507-04	5	+0.020/+0.068	7	11	4	1
EPB7F-0507-05	5	+0.020/+0.068	7	11	5	1
EPB7F-0507-10	5	+0.020/+0.068	7	11	10	1
EPB7F-0509-05	5	+0.030/+0.105	9	13	5	2
EPB7F-0509-08	5	+0.030/+0.105	9	13	8	2
EPB7F-0608-04	6	+0.020/+0.068	8	12	4	1
EPB7F-0608-06	6	+0.020/+0.068	8	12	6	1
EPB7F-0608-07	6	+0.020/+0.068	8	12	7	1
EPB7F-0608-08	6	+0.020/+0.068	8	12	8	1
EPB7F-0608-10	6	+0.020/+0.068	8	12	10	1
EPB7F-0610-05	6	+0.030/+0.105	10	14	5	2
EPB7F-0610-06	6	+0.030/+0.105	10	14	6	2
EPB7F-0610-08	6	+0.030/+0.105	10	14	8	2
EPB7F-0610-10	6	+0.030/+0.105	10	14	10	2
EPB7F-0612-06	6	+0.030/+0.105	12	14	6	3
EPB7F-0612-10	6	+0.030/+0.105	12	14	10	3
EPB7F-0810-04	8	+0.025/+0.083	10	15	4	1
EPB7F-0810-055	8	+0.025/+0.083	10	15	5.5	1

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB7F-0810-075	8	+0.025/+0.083	10	15	7.5	1
EPB7F-0810-08F2.5	8	+0.025/+0.083	10	15	8	2.5
EPB7F-0810-095	8	+0.025/+0.083	10	15	9.5	1
EPB7F-0810-10	8	+0.025/+0.083	10	15	10	1
EPB7F-0810-12	8	+0.025/+0.083	10	15	12	1
EPB7F-0810-15	8	+0.025/+0.083	10	15	15	1
EPB7F-0810-30	8	+0.025/+0.083	10	15	30	1
EPB7F-0812-06	8	+0.040/+0.130	12	16	6	2
EPB7F-0812-08	8	+0.040/+0.130	12	16	8	2
EPB7F-0814-06	8	+0.040/+0.130	14	18	6	3
EPB7F-1012-05	10	+0.013/+0.071	12	18	5	1
EPB7F-1012-06	10	+0.025/+0.083	12	18	6	1
EPB7F-1012-07	10	+0.025/+0.083	12	18	7	1
EPB7F-1012-08	10	+0.013/+0.071	12	18	8	1
EPB7F-1012-09	10	+0.013/+0.071	12	18	9	1
EPB7F-1012-10	10	+0.025/+0.083	12	18	10	1
EPB7F-1012-12	10	+0.025/+0.083	12	18	12	1
EPB7F-1012-15	10	+0.025/+0.083	12	18	15	1
EPB7F-1012-17	10	+0.025/+0.083	12	18	17	1
EPB7F-1014-10	10	+0.040/+0.130	14	19	10	2
EPB7F-121418-04	12	+0.032/+0.102	14	18	4	1
EPB7F-121418-08	12	+0.032/+0.102	14	18	8	1
EPB7F-1214-05	12	+0.032/+0.102	14	20	5	1
EPB7F-1214-06	12	+0.032/+0.102	14	20	6	1
EPB7F-1214-07	12	+0.032/+0.102	14	20	7	1
EPB7F-1214-09	12	+0.032/+0.102	14	20	9	1

CSB-EPB[®] Standard Specifications

EPB7\EPB3M\EPB15\EPB19\EPB23\EPB25 标准规格

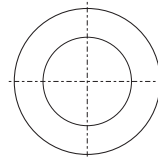
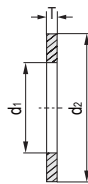
产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB7F-1214-10	12	+0.032/+0.102	14	20	10	1
EPB7F-1214-12	12	+0.033/+0.102	14	20	12	1
EPB7F-1214-15	12	+0.032/+0.102	14	20	15	1
EPB7F-1214-17	12	+0.032/+0.102	14	20	17	1
EPB7F-1214-20	12	+0.032/+0.102	14	20	20	1
EPB7F-1216-10	12	+0.050/+0.160	16	22	10	2
EPB7F-1216-20	12	+0.050/+0.160	16	22	20	2
EPB7F-1416-10	14	+0.016/+0.086	16	22	10	1
EPB7F-1416-12	14	+0.032/+0.102	16	22	12	1
EPB7F-1416-17	14	+0.032/+0.102	16	22	17	1
EPB7F-1420-10	14	+0.050/+0.160	20	25	10	3
EPB7F-1517-04	15	+0.032/+0.102	17	23	4	1
EPB7F-1517-05	15	+0.032/+0.102	17	23	5	1
EPB7F-1517-09	15	+0.032/+0.102	17	23	9	1
EPB7F-1517-12	15	+0.032/+0.102	17	23	12	1
EPB7F-1517-17	15	+0.032/+0.102	17	23	17	1
EPB7F-1517-20	15	+0.032/+0.102	17	23	20	1
EPB7F-1618-04	16	+0.032/+0.102	18	24	4	1
EPB7F-1618-06	16	+0.032/+0.102	18	24	6	1
EPB7F-1618-09	16	+0.032/+0.102	18	24	9	1
EPB7F-1618-12	16	+0.032/+0.102	18	24	12	1
EPB7F-1618-17	16	+0.032/+0.102	18	24	17	1
EPB7F-1618-20	16	+0.032/+0.102	18	24	20	1
EPB7F-1618-25	16	+0.032/+0.102	18	24	25	1
EPB7F-1820-09	18	+0.016/+0.086	20	26	9	1
EPB7F-1820-12	18	+0.016/+0.086	20	26	12	1
EPB7F-1820-17	18	+0.032/+0.102	20	26	17	1
EPB7F-1820-20	18	+0.032/+0.102	20	26	20	1
EPB7F-1820-22	18	+0.032/+0.102	20	26	22	1
EPB7F-1820-32	18	+0.032/+0.102	20	26	32	1
EPB7F-2022-20	20	+0.040/+0.124	22	29	20	1.5
EPB7F-2023-07	20	+0.040/+0.124	23	30	7	1.5

产品编码 Part No.	d ₁ [mm]	d ₁ -公差 After fitting [mm]	d ₂ [mm]	d ₃ [d13] [mm]	L[h13] [mm]	T _{0.14} [mm]
EPB7F-2023-11.5	20	+0.040/+0.124	23	30	11.5	1.5
EPB7F-2023-16.5	20	+0.040/+0.124	23	30	16.5	1.5
EPB7F-2023-21.5	20	+0.040/+0.124	23	30	21.5	1.5
EPB7F-2224-16	22	+0.040/+0.124	24	30	16	1
EPB7F-2224-20	22	+0.040/+0.124	24	30	20	1
EPB7F-2528-11.5	25	+0.040/+0.124	28	35	11.5	1.5
EPB7F-2528-16.5	25	+0.040/+0.124	28	35	16.5	1.5
EPB7F-2528-21.5	25	+0.040/+0.124	28	35	21.5	1.5
EPB7F-2532-20	25	+0.065/+0.195	32	38	20	4
EPB7F-2532-30	25	+0.065/+0.195	32	38	30	4
EPB7F-3034-16	30	+0.040/+0.124	34	42	16	2
EPB7F-3034-26	30	+0.040/+0.124	34	42	26	2
EPB7F-3034-37	30	+0.040/+0.124	34	42	37	2
EPB7F-3038-20	30	+0.065/+0.195	38	44	20	4
EPB7F-3236-16	32	+0.050/+0.150	36	40	16	2
EPB7F-3236-26	32	+0.050/+0.150	36	40	26	2
EPB7F-3539-09	35	+0.050/+0.150	39	47	9	2
EPB7F-3539-16	35	+0.050/+0.150	39	47	16	2
EPB7F-3539-26	35	+0.050/+0.150	39	47	26	2
EPB7F-3539-40	35	+0.050/+0.150	39	47	40	2
EPB7F-4044-14	40	+0.025/+0.125	44	52	14	2
EPB7F-4044-30	40	+0.050/+0.150	44	52	30	2
EPB7F-4044-40	40	+0.025/+0.125	44	52	40	2
EPB7F-4044-50	40	+0.025/+0.125	44	52	50	2
EPB7F-4550-50	45	+0.050/+0.150	50	58	50	2
EPB7F-5055-40	50	+0.050/+0.150	55	63	40	2
EPB7F-5055-50	50	+0.050/+0.150	55	63	50	2
EPB7F-6065-30	60	+0.030/+0.150	65	75	30	2
EPB7F-6065-60	60	+0.060/+0.180	65	73	60	2
EPB7F-7075-40	70	+0.030/+0.150	75	83	40	2

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差

*Tolerance d₁ after fitting into housing H7 (ISO3547-1)

垫片 Metric thrust washers



产品编码 Part No.:
EPB7W-0818-015

材料 Material
垫片 Washer
d₁ d₂ T

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{-0.25} [mm]	T _{0.05} [mm]
EPB7W-0509-006	5	9	0.6
EPB7W-0615-015	6	15	1.5
EPB7W-0620-015	6	20	1.5
EPB7W-0815-005	8	15	0.5
EPB7W-0815-015	8	15	1.5
EPB7W-0818-010	8	18	1.0
EPB7W-0818-015	8	18	1.5
EPB7W-1018-010	10	18	1.0
EPB7W-1018-015	10	18	1.5
EPB7W-1018-020	10	18	2.0
EPB7W-1224-015	12	24	1.5
EPB7W-1426-015	14	26	1.5
EPB7W-1524-015	15	24	1.5
EPB7W-1630-015	16	30	1.5

产品编码 Part No.	d ₁ ^{+0.25} [mm]	d ₂ ^{-0.25} [mm]	T _{0.05} [mm]
EPB7W-1832-015	18	32	1.5
EPB7W-2036-015	20	36	1.5
EPB7W-2238-015	22	38	1.5
EPB7W-2442-015	24	42	1.5
EPB7W-2640-0075	26	40	0.75
EPB7W-2644-015	26	44	1.5
EPB7W-2848-015	28	48	1.5
EPB7W-3254-015	32	54	1.5
EPB7W-3862-015	38	62	1.5
EPB7W-4266-015	42	66	1.5
EPB7W-4874-020	48	74	2.0
EPB7W-5278-020	52	78	2.0
EPB7W-6290-020	62	90	2.0

*根据要求提供定位孔设计 The fixing bore design upon request

LCB塑料卡箍直线轴承 Plastic clip linear bearings

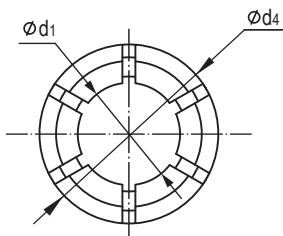
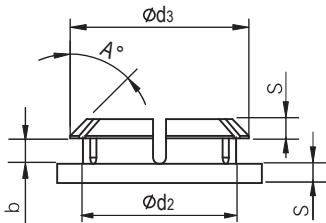


产品特性 Product features

- 高耐磨材料EPB13制成
- 自润滑、免维护
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 易安装

- Made of high anti-wear material EPB13
- Maintenance-free, self lubricating
- Chemical resistant
- Dust resistant and quit running
- Installation by force fitting

标准规格 Standard specifications



产品编码 Part No.:

LCB-06-02

安装厚度 Fitting thickness

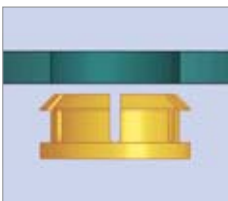
内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

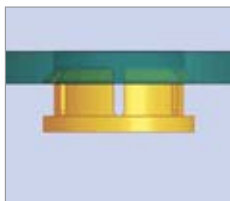
产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	b [mm]	s [mm]	A
	E10	+0.05	d13	d13	+0.20/+0.05	-0.14	
LCB-06-02	6	8	9	10	2	1.5	45°
LCB-06-03	6	8	9	10	3	1.5	45°
LCB-08-02	8	10	11	12	2	1.5	45°
LCB-08-03	8	10	11	12	3	1.5	45°
LCB-10-02	10	12	13	14	2	2	35°
LCB-10-03	10	12	13	14	3	2	35°

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d₁ after fitting into housing H7 (ISO3547-1)

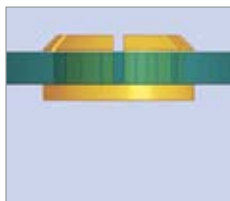
LCB塑料卡箍直线轴承装配 Plastic clip linear bearings installation method



Step:1



Step:2



Step:3

● 易用手装配 Easy assembly by hands



产品特性 Product features

- 专门为金属薄板配合开发的自润滑塑料轴承。安装简易。使用避震和耐磨性能相结合的CSB-EPB3M材料制成。可提供耐高温和耐腐蚀材料CSB-EPB5制成的轴承
- 免维护，自润滑
- 侧面开槽设计，易于安装
- 开槽设计可补偿材料膨胀
- 双法兰设计更安全
- 适用于旋转和直线运动
- 对安装孔精度要求较低
- The self-lubricated bearing is developed specially for the metal plate fitting. It is made with the CSB-EPB3M material which is good at shock absorption and wear resistance. Alternative material CSB-EPB5 is also available for high temperature application and corrosion resistance requirement
- Maintenance free, self-lubricated
- Side groove designation for easy assembly
- Groove design reserves the material expansion allowance
- Safety double flanges designation
- Suitable for rotation and sliding motions
- Lower tolerance requirement for the mounting holes

结构设计 Structure design

CSB-PCB® 塑料卡箍轴承采用了双法兰结构设计，专门为用于保护穿过金属板的轴。双法兰设计和斜开口缝的设计使得轴承装配变得简单；双法兰确保轴承即使在直线使用过程中也不会从座孔中脱落。

CSB-PCB® Plastic clip bearing is designed with double flange to protect the shaft mounted through metal housings. The double flange and slipped gap ensures easy assembly of the bearings. The double flange design can also protect the bearing from moving out of the housing.

材料设计 Material design

CSB-PCB® 塑料卡箍轴承是采用耐磨性较好的CSB-EPB3M材料制成，轴承具有良好的自润滑性能，可以完全干运行；当然，由于CSB-EPB3M对各种润滑剂具有良好的抗性，所以使用过程中额外的润滑剂也是被允许的。

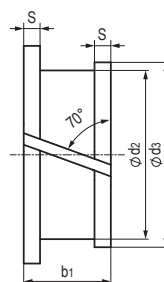
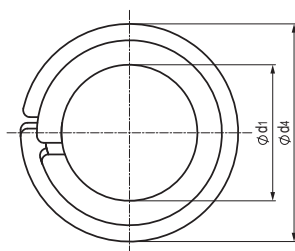
CSB-PCB® Plastic Clip Bearing is made from CSB-EPB3M material which is a good wear resistance polymer. The bearing self-lubricating performance is excellent for dry operation conditions. At the same time, continuous lubricating is allowed during the operation because this material is also with good isolation feature against the most common lubricants.

安装设计 Assembly design

轴承被安装时，从轴承法兰边较小的一侧压入到法兰边较大侧为止。螺旋形的斜槽可以保证它被很容易地压入到金属薄板中。这个斜槽也能够补偿圆周方向的膨胀。因此，轴承仍有可能保持较小的间隙。卡箍轴承的推荐使用座孔公差为H7，可用于最大为H13公差场合；卡箍轴承允许在座孔中旋转。

During the assembly, the bearing is pressed into the housing from the smaller flange end until the bigger flange end is pressed into the position. The spiral shape slip gap could not only make the bearing easy to be pressed into the metal housing, but also help to compensate any possible material expansion caused by the squeeze derived from the pressing. The recommended housing tolerance is H7 while the bearing could fit with the housing tolerance range up to H13. The bearing is allowed to be rotating in the housing after assembling.

PCB标准塑料卡箍轴承 Standard plastic clip bearings



产品编码 Part No.:

PCB-05-02

高度 High

内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	s _{0.10} [mm]	b ₁ ^{+0.20} [mm]
PCB-03-02	3	+0.020/+0.080	4.2	4.8	6	0.6	3.2
PCB-04-02	4	+0.030/+0.105	5.2	5.9	7	0.6	3.2
PCB-05-02	5	+0.030/+0.105	6.2	6.8	8	0.6	3.2
PCB-05-03	5	+0.030/+0.105	6.2	6.8	8	0.6	4.2
PCB-06-02	6	+0.030/+0.105	7.2	7.8	11	0.6	3.2
PCB-06-03	6	+0.030/+0.105	7.2	7.8	11	0.6	4.2
PCB-08-02	8	+0.040/+0.130	9.6	10.4	13	0.8	3.6
PCB-08-03	8	+0.040/+0.130	9.6	10.4	13	0.8	4.6
PCB-10-02	10	+0.040/+0.130	11.6	12.4	15	0.8	3.6
PCB-10-025	10	+0.040/+0.130	11.6	12.4	15	0.8	4.1
PCB-10-03	10	+0.040/+0.130	11.6	12.4	15	0.8	4.6
PCB-12-02	12	+0.050/+0.160	13.6	14.4	17	0.8	3.6
PCB-12-025	12	+0.050/+0.160	13.6	14.4	17	0.8	4.1
PCB-12-03	12	+0.050/+0.160	13.6	14.4	17	0.8	4.6
PCB-14-03	14	+0.050/+0.160	15.6	16.4	19	0.8	4.6
PCB-16-02	16	+0.050/+0.160	17.6	18.4	21	0.8	3.6
PCB-16-03	16	+0.050/+0.160	17.6	18.4	21	0.8	4.6
PCB-18-03	18	+0.050/+0.160	20	21	23	1	5
PCB-20-03	20	+0.065/+0.195	22	23	25	1	5
PCB-25-03	25	+0.065/+0.195	27	28	30	1	5

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d₁ after fitting into housing H7 (ISO3547-1)

PCB塑料卡箍轴承安装方式 Plastic clip bearings installation method



Step:1



Step:2



Step:3

● 易用手装配 Easy assembly by hands

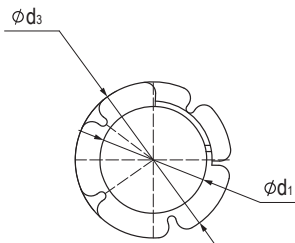
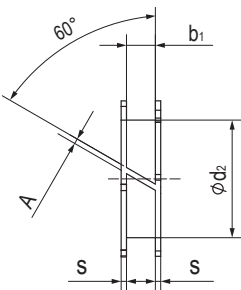
PCB开口法兰塑料卡箍轴承 Opening flange plastic clip bearings



产品特性 Product features

- 标准材料EPB3M
 - 法兰开口设计，易装配
 - 自润滑，免维护
 - 专为汽车座椅设计
- Standard material EPB3M
 - Opening flange design, easy installation by hand
 - Maintenance free, self-lubricated
 - Designed for car seats

标准规格 Standard specifications



产品编码 Part No.:

PCB-1011-020

高度 High
外径 Outer diameter
内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d_1 [mm]	公差 Tolerance [mm]	d_2 [mm]	d_3 [mm]	$s_{\pm 0.05}$ [mm]	$b_1^{+0.15}$ [mm]	A [mm]
PCB-1011-020	10	+0.050/+0.120	11	14.6	0.5	2.1	0.5
PCB-1214-020	12	0/+0.080	14	17.5	1	2	1.5
PCB-1214-025	12	0/+0.080	14	17.5	1	2.5	1.5
PCB-1213-025	12	+0.050/+0.160	13	16.5	0.5	2.6	1.5
PCB-1214-030	12	0/+0.080	14	17.5	1	3	1.5
PCB-1314-040	13	+0.050/+0.160	14	18.5	0.5	4.1	1.5
PCB-1415-032	14	-0.050/+0.020	15	18.5	0.5	3.2	0.8
PCB-1416-020	14	0/+0.080	16	20.5	1	2	1.5

* d_1 公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d_1 after fitting into housing H7 (ISO3547-1)

PCB塑料卡箍轴承安装方式 Plastic clip bearings installation method



Step:1



Step:2



Step:3

● 易用手装配 Easy assembly by hands

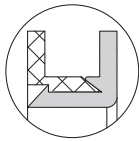
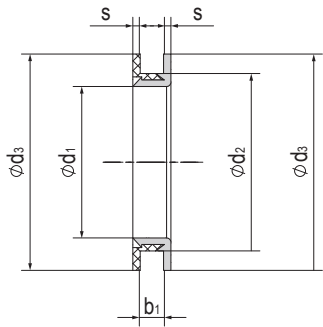
PCB双法兰塑料卡箍轴承 Double flange plastic clip bearings



产品特性 Product features

- 标准材料EPB3M
 - 双法兰轴套与卡扣设计，更易安装
 - 自润滑，免维护
 - 专为汽车座椅设计
- Standard material EPB3M
 - Double flange plastic bushing, very easy installation
 - Maintenance free, self-lubricated
 - Designed for car seats

标准规格 Standard specifications



产品编码 Part No.:

PCB2-17.5-030

高度 High

内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d_1 [mm]	公差 Tolerance [mm]	d_2 [mm]	d_3 [mm]	$s_{-0.10}$ [mm]	b_1 $\begin{smallmatrix} +0.20 \\ -0.10 \end{smallmatrix}$ [mm]
PCB2-17.5-030	17.5	+0.016/+0.086	20.5	25	0.75	3

* d_1 公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d_1 after fitting into housing H7 (ISO3547-1)

PCB塑料卡箍轴承安装方式 Plastic clip bearings installation method



Step:1



Step:2



Step:3

● 易用手装配 Easy assembly by hands



产品特性 Product features

- 快速安装的薄壁塑料轴承。采用尺寸适应性较好的CSB-EPB3M材料制成。同样可提供耐磨性能更为出色的CSB-EPB7材料
- 免维护，自润滑
- 侧面开槽设计，易于安装
- 开槽设计可补偿材料膨胀
- 适用于旋转、摇摆运动
- 对安装孔精度要求较低
- Thin-wall plastic bearing for quick installation. It is made with CSB-EPB3M material which is flexible for dimension variation. Alternative material CSB-EPB7 is also available for special wear resistance requirement
- Maintenance free, self-lubricated
- Side groove designation for easy assembly
- Groove design reserves the material expansion allowance
- Suitable for rotation and sliding motions
- Lower tolerance requirement for the mounting holes

结构设计 Structure design

CSB-PYB® 薄壁塑料轴承采用了比标准型塑料轴承更薄的壁厚设计，狭小的安装空间变得可能。斜开口缝的设计使得轴承装配变得简单。

CSB-PYB® thin wall plastic bearing is designed with thinner wall comparing with the standard plastic bearing for those applications with small assembly spaces. Slipped gap ensures easy assembly of the bearings.

材料设计 Material design

CSB-PYB® 薄壁塑料轴承同样采用耐磨性较好的CSB-EPB3M材料制成，轴承具有良好的自润滑性能，可以完全干运行；当然，由于CSB-EPB3M对各种润滑剂具有良好的抗性，所以使用过程中额外的润滑剂也是被允许的。

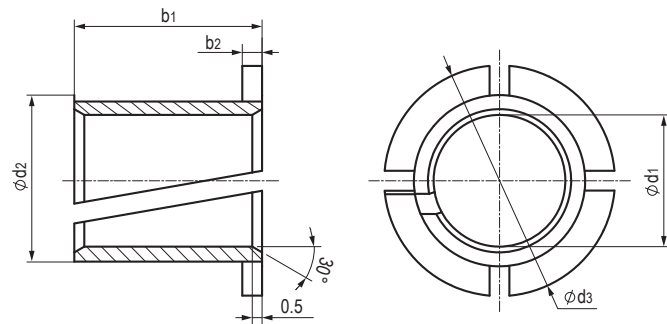
CSB-PYB® is also made from CSB-EPB3M material which is a good wear resistance polymer. The bearing self-lubricating performance is excellent for dry operation conditions. At the same time, continuous lubricating is allowed during the operation because this material is also with good isolation feature against the most common lubricants.

安装设计 Assembly design

薄壁塑料轴承螺旋形的斜槽可以保证它能被很容易地用手直接压入到配合座孔中。这个斜槽也能够补偿圆周方向的膨胀。因此，轴承仍有可能保持较小的间隙。薄壁塑料轴承的推荐使用座孔公差为H7，可用于最大为H13公差场合；薄壁塑料轴承允许在座孔中旋转。

The spiral shape slip gap could not only make the bearing easy to be pressed into the metal housing, but also help to compensate any possible material expansion caused by the squeeze derived from the pressing. The recommended housing tolerance is H7 while the bearing could fit with the housing tolerance range up to H13. The bearing is allowed to be rotating in the housing after assembling.

标准规格 Standard specifications



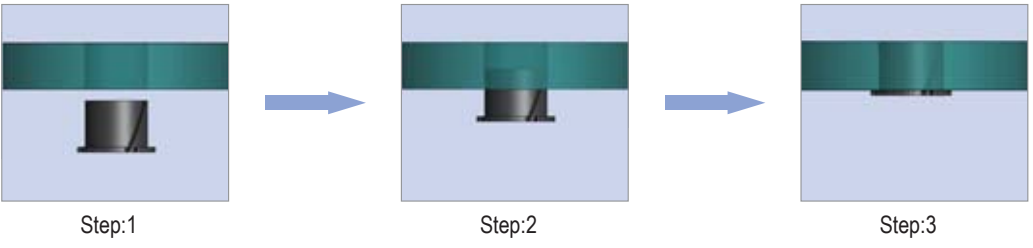
产品编码 Part No.:
 PYB-04-04
 — 高度 High
 — 内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	d ₃ ± 0.40 [mm]	b ₁ [0.40] [mm]	b ₂ [0.13] [mm]
PYB-04-04	4	+0.025/+0.075	5.2	7.0	4	0.6
PYB-05-05	5	+0.025/+0.075	6.2	8.0	5	0.6
PYB-06-06	6	+0.025/+0.075	7.2	9.5	6	0.6
PYB-08-08	8	+0.025/+0.075	9.6	12.0	8	0.8
PYB-10-10	10	+0.025/+0.075	11.6	15.0	10	0.8
PYB-12-12	12	+0.025/+0.075	13.6	18.0	12	0.8
PYB-14-14	14	+0.025/+0.075	15.6	21.0	14	0.8
PYB-16-16	16	+0.025/+0.075	17.6	24.0	16	0.8
PYB-20-20	20	+0.025/+0.075	21.6	30.0	20	0.8
PYB-25-25	25	+0.025/+0.075	27.4	37.5	25	1.2

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d₁ after fitting into housing H7 (ISO3547-1)

PYB薄壁塑料轴承安装方式 Thin-wall plastic bearings installation method



● 易用手装配 Easy assembly by hands

PYB
 CSB-PYB®
 www.csb-ep.com
 sales@csb-ep.com
 Tel: 0086 573 84186133/84185527
 Fax: 0086 573 84185517



产品特性 Product features

- 无间隙预紧设计
- 自动调节装配间隙
- 自润滑免维护
- 消除振动和噪音
- Clearance-free and preload design
- Adjustable fitting gap
- Maintenance-free
- Shock absorbing and no noise

结构设计 Structure design

CSB-CPB® 无间隙预紧塑料轴承特殊设计装配后轴承径向和轴向可产生预紧力实现零间隙配合，自动调节轴与轴承间隙；降低机构的振动和运行噪音。

CSB-CPB® clearance-free and reloaded plastic bearings can be preloaded in radius and axial directions after fitted in housing, Auto-adjustable the fitting gap with the preload design; The special design bearings can absorbed shock and noise.

材料设计 Material design

CSB-CPB® 无间隙预紧塑料轴承采用了耐磨专家材料CSB-EPB13，使得塑料轴承在确保预紧力的同时具有极好的耐磨性能。当然，CSB也可提供CSB-EPB18材料制成塑料轴承。

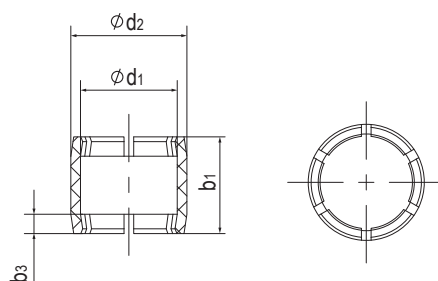
CSB-CPB® clearance-free and reloaded plastic bearings is made from the professional wear resistance material CSB-EPB13 which provides good wear resistance and excellent elastic feature. CSB-EPB18 material is available for the preload plastic bearings.

安装设计 Assembly design

CSB-CPB® 无间隙预紧塑料轴承采用较小的压入力即可装配到座孔中。标准座孔推荐H7公差，标准轴推荐h9公差。

CSB-CPB® clearance-free and reloaded plastic bearings easy to be pressed into the housing by low pressure. The recommended housing tolerance is H7 and axial tolerance is h9.

CPB预紧力直筒轴承 Preload plain bearings



产品编码 Part No.:

CPB-0608-06

高度 Length

外径 Outside diameter

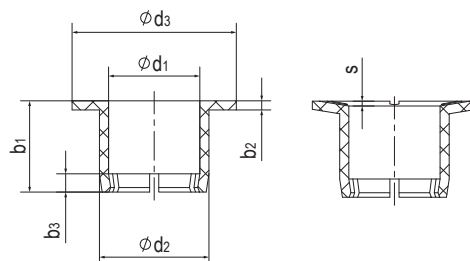
内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d_1 [mm]	d_1 公差 After Fitting [mm]	d_2 [mm]	b_1 [h13] [mm]	b_3 [mm]
CPB-0608-06	6	+0.020/+0.068	8	6	2
CPB-0810-08	8	+0.025/+0.083	10	8	2

* d_1 公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d_1 after fitting into housing H7 (ISO3547-1)

CPBF预紧力法兰轴承 Preload flange bearings



产品编码 Part No.:

CPBF-1012-10

高度 Length

外径 Outside diameter

内径 Inner diameter

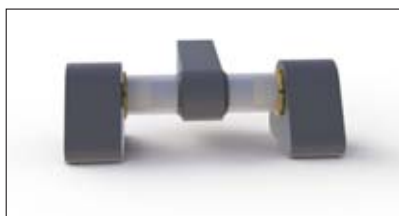
法兰设计 Flange design

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d_1 [mm]	d_1 公差 After Fitting [mm]	d_2 [mm]	d_3 [mm]	b_1 [h13] [mm]	b_2 [h13] [mm]	b_2 [mm]	s [± 0.1] [mm]
CPBF-1012-10	10	+0.025/+0.083	12	18	10	1	2	0.53
CPBF-1214-12	12	+0.032/+0.102	14	20	12	1	2	0.53
CPBF-1416-12	14	+0.032/+0.102	16	22	12	1	2	0.53

* d_1 公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d_1 after fitting into housing H7 (ISO3547-1)

CPB预紧力塑料轴承安装方式 Preload plastic bearings installation method





产品特性 Product features

- 应用于PCB塑料卡箍轴承无法被定位的场合。对配合孔的精度要求较低。螺栓固定无滑落风险
- 免维护，自润滑
- 螺丝固定安全可靠
- 适用于旋转、摇摆、直线运动
- 对安装孔精度无要求
- Suitable for the application where the PCB plastic clip bearing is hard to be located. The requirement of the fitting hole is not critical and the set screw could be secured without any risk of moving
- Maintenance free, self-lubricated
- Bolt fixture ensures safe and reliability
- Suitable for rotation, oscillation and sliding motions
- Low tolerance requirement for the mounting holes

结构设计 Structure design

CSB-FLB[®]法兰轴承内外设计为无需外径压配合既符合轴承配合使用尺寸，故对配合座孔精度无特殊要求；采用螺丝固定轴承，使得轴承在座孔无法确保加工精度时更安全可靠地长久运行。

CSB-FLB[®] flange bearing is designed without housing fixture, no tolerance requirement for housing. With the bolt fixture structure, the bearings are reliably operated when housing is not possible to be designed.

材料设计 Material design

CSB-FLB[®] 法兰轴承采用坚固耐用的CSB-EPB3作为标准材料，轴承具较好的自润滑性能和长期的耐磨性能；可以完全干运行；同时CSB可提供低摩擦系数材料CSB-EPB13、耐高温达250℃的材料CSB-EPB5以及符合FDA食品安全等级材料CSB-EPB5A制成法兰轴承。

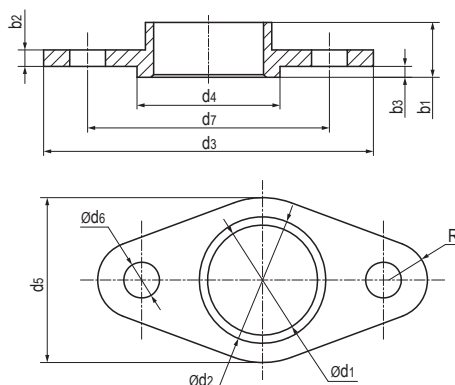
CSB-FLB[®] is made from CSB-EPB3 material which is a solid material with good self-lubricating performance and anti-wear feature suitable for dry operation conditions. At the same time, CSB also provides flange bearings with different materials such as low friction CSB-EPB13, high temperature material CSB-EPB5 and FDA approved CSB-M70 etc.

安装设计 Assembly design

法兰轴承设计采用螺丝固定使得轴承在长期运动中更为安全可靠。虽然我们设计对轴承配合座孔精度无要求，但如需要获得更佳的使用性能CSB[®]推荐配合座孔为H7公差。

The bolt fixture designation of the flanged bearing ensures a long term reliable operation of the bearings. Although there is no matching housing tolerance requirement, a better operation condition could be achieved if a recommended housing tolerance of H7 is available.

标准规格 Standard specifications



产品编码 Part No.:

FLB3-10

内径 Inner diameter

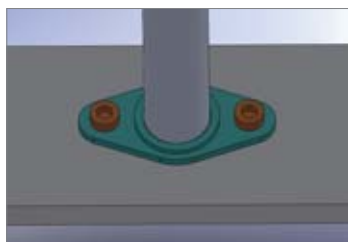
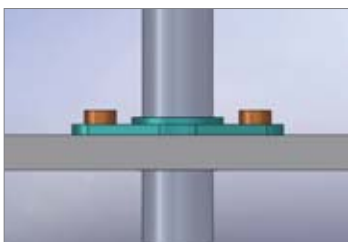
材料 Material: EPB3
EPB5
EPB13

座孔 Housing: H7 轴 Shaft: h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	d ₅ [mm]	d ₆ [mm]	d ₇ ± 0.2 [mm]	b ₁ [mm]	b ₂ [mm]	b ₃ [mm]	R [mm]
FLB3-10	10	+0.025/+0.083	12	30	14	15	4.5	22	6	2	1	4
FLB3-12	12	+0.025/+0.083	14	36	16	18	4.5	26	6	2	1	4.5
FLB3-14	14	+0.025/+0.083	16	42	18	21	5.5	30	6	2	1	5
FLB3-16	16	+0.025/+0.083	18	48	20	24	5.5	34	6	2	1	5.5
FLB3-18	18	+0.025/+0.083	20	54	22	27	6.5	39	6	2	1	7
FLB3-20	20	+0.040/+0.124	23	60	26	30	6.5	44	10	3	2	7
FLB3-25	25	+0.040/+0.124	28	75	30	35	6.5	55	10	3	2	8.5
FLB3-30	30	+0.040/+0.124	34	90	36	40	8.5	66	10	3	2	10
FLB13-10	10	+0.025/+0.083	12	30	14	15	4.5	22	6	2	1	4
FLB13-12	12	+0.025/+0.083	14	36	16	18	4.5	26	6	2	1	4.5
FLB13-14	14	+0.025/+0.083	16	42	18	21	5.5	30	6	2	1	5
FLB13-16	16	+0.025/+0.083	18	48	20	24	5.5	34	6	2	1	5.5
FLB13-18	18	+0.025/+0.083	20	54	22	27	6.5	39	6	2	1	7
FLB13-20	20	+0.040/+0.124	23	60	26	30	6.5	44	10	3	2	7
FLB13-25	25	+0.040/+0.124	28	75	30	35	6.5	55	10	3	2	8.5
FLB13-30	30	+0.040/+0.124	34	90	36	40	8.5	66	10	3	2	10

*d₁公差为压入标准H7座孔（符合ISO3547-1）后公差 *Tolerance d₁ after fitting into housing H7 (ISO3547-1)

FLB法兰轴承安装方式 Flange bearings installation method





产品特性 Product features

- 工程塑料耐磨调整垫片。应用于轴向配合存在不可控间隙的调整。降低运动过程中的振动和噪音
- 补偿轴向间隙和加工公差
- 吸震和降低噪音
- 免维护，自润滑
- 耐腐蚀、质量轻
- Engineering plastic wear resistance washer. Suitable for a fitting to the uncontrollable axial space in order to reduce the vibration and noise during the operation
- Compensate the axial clearance and machining tolerance
- Shock absorbing and noise optimization
- Maintenance free and self-lubricated
- Corrosion resistance and light weight

结构设计 Structure design

CSB-PEW[®] 塑料板簧轴向平面被设计成了凹凸面，从而使得原先的平面垫片变成了既有垫片功能又能调整轴向配合间隙和加工误差，使得设备运行过程中更加平稳和安静。

CSB-PEW[®] plastic flat spring is designed with a bump axial surface for the purpose of compensates the axial fitting and machining tolerance in addition to function as a normal washer. Therefore the operation mechanism could be more stable and with less noise.

材料设计 Material design

CSB-PEW[®] 塑料板簧标准设计采用了耐磨专家材料CSB-EPB13，使得塑料板簧在确保弹力的同时具有极好的耐磨性能。当然，CSB也可提供耐温高达250℃度的CSB-EPB5以及符合FDA食品安全等级的CSB-EPB5A材料制成。

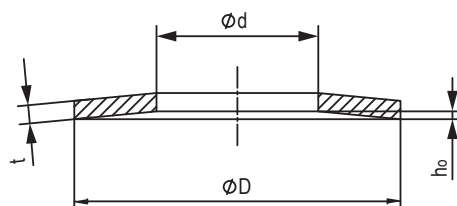
CSB-PEW[®] plastic flat spring is made from the professional wear resistance material CSB-EPB13 which provides good wear resistance and excellent spring feature. At the same time, CSB could also provide the spring washer with high temperature (up to 250℃) material CSB-EPB5 and FDA approved material CSB-EPB5A.

安装设计 Assembly design

一般为了调整配合间隙直接采用一片塑料板簧即可达到效果；当需要调整的间隙较大时，可将塑料板簧成组安装，即面对面或背靠背安装，此时整体板簧的弹力和一个板簧的弹力相同，但挠度和塑料成正比增加；如需要增加弹簧的弹力，可将塑料板簧平行叠装成弹簧组。

In order to adjust the fitting clearance, a single flat spring is usually inserted. For bigger clearance adjustment, a group of flat springs combined with back to back or face to face is also a good solution. If a higher elastic characteristic is needed, piling the flat springs parallel and assembles into the required position.

标准规格 Standard specifications



产品编码 Part No.:

PEW13-05

内径 Inner diameter

材料 Material EPB13
EPB5
EPB5A

PEW

CSB-PEW®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

产品编码 Part No.	板簧挠度和弹力 Spring deflections and spring forces											重量 Weight [g]
	D [mm]	d [mm]	t [mm]	h_0 [mm]	$h_{0.25}$ [mm]	$F_{0.25}$ [N]	$h_{0.5}$ [mm]	$F_{0.5}$ [N]	$h_{0.75}$ [mm]	$F_{0.75}$ [N]	F_{max} [N]	
PEW13-05	10	5.2	0.5	0.25	0.06	1	0.13	2.4	0.19	3.6	5	0.04
PEW13-06	12.5	6.2	0.7	0.3	0.08	3	0.15	5.1	0.23	8	12	0.11
PEW13-08	16	8.2	0.9	0.35	0.09	4	0.18	8	0.28	11	15	0.2
PEW13-10	20	10.2	1.1	0.45	0.11	5	0.22	10	0.33	15	18	0.33
PEW13-12	25	12.2	1.5	0.55	0.14	9	0.28	18	0.42	27	40	0.85
PEW13-16	31.5	16.3	1.75	0.7	0.18	15	0.35	32	0.53	51	70	1.44
PEW13-20	40	20.4	2.25	0.9	0.23	35	0.45	70	0.68	110	130	3.1

D: 外径 Outer diameter

d: 内径 Inner diameter

t: 厚度 Thickness

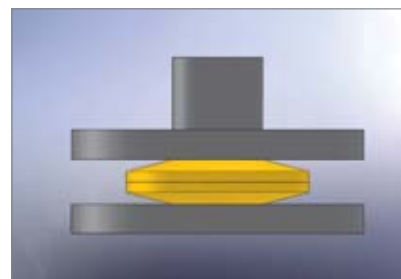
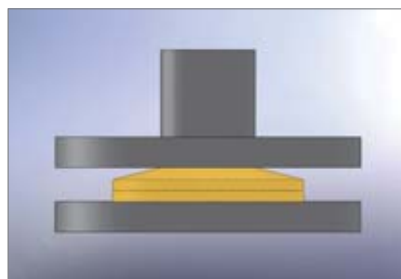
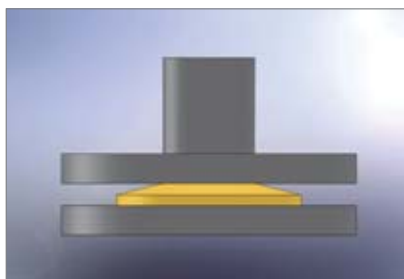
h_0 : 板簧自由状态下可变形量 Maximum downward deflection of spring

$h_{0.25}$, $h_{0.5}$, $h_{0.75}$: 分别是板簧变形25%, 50%, 75% The maximum downward deflection: 25%, 50%, 75%

$F_{0.25}$, $F_{0.5}$, $F_{0.75}$: 分别是板簧变形25%, 50%, 75%时平均弹力 Spring force with 25% 50% 75% downward deflection

F_{max} : 板簧最大弹力平均值 The maximum spring force

PEW塑料板簧安装方式 Plastic flat springs installation method





产品特性 Product features

- 专门为气缸行业开发的耐磨活塞环。比PTFE制成的活塞环安装更简易。可提供CSB®标准材料EPB13、EPB19等制成的高耐磨活塞环
- 耐磨性能极好
- 装配简易
- 免维护，自润滑
- 耐腐蚀、质量轻
- Wear resistance piston ring specially developed for the pneumatic pump industrial application. It is easier to be installed comparing with the PTFE piston ring. Standard materials available are EPB13, EPB19 and so on
- Good wear resistance
- Easy assembly
- Maintenance free and self-lubricated
- Corrosion resistance and light weight

结构设计 Structure design

CSB-PPR 塑料活塞环标准产品均采用斜开口设计，使得安装简易和长期安全平稳运行。

CSB-PPR plastic piston ring is designed with slipped gap that ensures easy assembly of the bearings and long term stable operation.

材料设计 Material design

CSB-PPR 塑料活塞环标准材料采用耐磨性极好的CSB-EPB13制成，使得活塞环在高速运动下保持出色的耐磨性能。当然，也可以选择采用耐温高达250℃的CSB-EPB5材料制成。

CSB-PPR plastic piston ring is made from CSB-EPB13 material which is a good wear resistance polymer ensures outstanding wear resistance feature of the bearings under high speed operation condition. At the same time, an optional high temperature material CSB-EPB5 is available for the operation temperature up to 250℃.

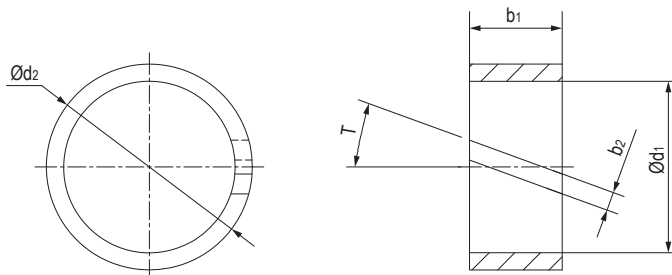
安装设计 Assembly design

CSB-PPR 由于斜开口设计使得安装特别简易，直接用手从开口处将轴承拉大套入活塞上推入到安装槽内即可。

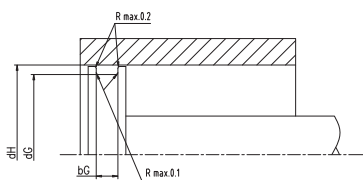
CSB-PPR slipped gap design allows an easy assembly, simply open the bearing by hand from the gap and position the bearings to the required location until it is pushed into the mounting groove.



标准规格 Standard specifications

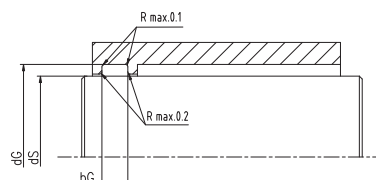


产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	b ₁ [mm]	b ₂ ± 0.5 [mm]	T [°]
PPR13-1012-054	10	12	5.4	2.5	20
PPR13-1214-054	12	14	5.4	2.5	20
PPR13-1416-054	14	16	5.4	2.5	20
PPR13-1618-054	16	18	5.4	2.5	20
PPR13-1722-054	17	22	5.4	1	25
PPR13-2023-054	20	23	5.4	2.5	20
PPR13-2528-054	25	28	5.4	2.5	20
PPR13-2832-054	28	32	5.4	1	25
PPR13-3034-054	30	34	5.4	2.5	20
PPR13-3539-054	35	39	5.4	2.5	20
PPR13-3540-054	35	40	5.4	1	25
PPR13-4044-054	40	44	5.4	2.5	20
PPR13-4550-054	45	50	5.4	2.5	20
PPR13-5055-054	50	55	5.4	2.5	20
PPR13-6065-054	60	65	5.4	2.5	20
PPR13-7075-054	70	75	5.4	2.5	20



推荐活塞安装方法 Installation recommendations for pistons

尺寸 Size [mm]	dG h-公差 Tolerance	dH h-公差 Tolerance	bG
公称尺寸 Nominal size	dG=d1	dH=d2	bG=b1+0.2

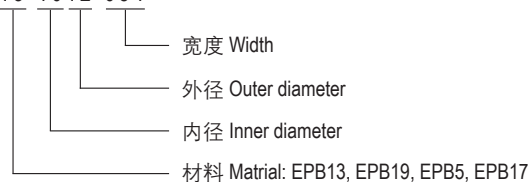


推荐基座安装方法 Installation recommendations for housings

尺寸 Size [mm]	dS h-公差 Tolerance	dG h-公差 Tolerance	bG
公称尺寸 Nominal size	dS=d1	dG=d2	bG=b1+0.2

产品编码 Part No.:

PPR13-1012-054



高性能塑料关节轴承 High polymer-tech for plastic spherical bearings



产品特性 Product features

- 自润滑、免维护
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和污垢
- 无噪音运行
- 承受边缘载荷
- 重量轻、节约空间
- 易安装、成本低
- Maintenance-free dry operation
- Absolute corrosion resistance, media resistant
- Dirt-resistant and no noise
- Compensation of misalignment errors
- Compensation of edge loads
- Light weight and space saving
- Easy installation and low cost

CSB-BAL® 球体 Spherical balls

标准球体采用高耐磨EPB15材料制成，它在干运行时具有较高的承载和极低的摩擦系数，特别适用于高载低速运动场合。CSB还可以采取其它标准耐磨材料制成球体，从而提高关节轴承的特殊使用性能。

In standard spherical ball is made from EPB15 material, which is known for its high strength and low coefficient of friction while running dry. This is especially important for low loads and very slow movements. Further to the standard material EPB15, spherical balls are now available in other materials presenting particular advantages.

CSB-BAL® 基座 Housings

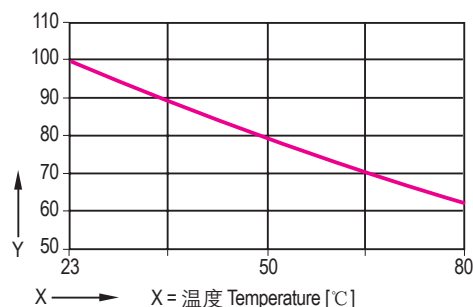
标准基座采用高强度M163材料制成，它是纤维增强聚合物材料，具有较好的抗冲击性能，使用温度-30℃至+80℃。CSB还可以采取其它材料制成基座，比如镁铝合金和不锈钢材料等，请联系我们。

Standard housings made from M163, a long-fiber reinforced and extremely shock resistant polymer. Operation temperatures from -30℃ to +80℃, It is available other materials for the housing such as aluminum alloy and stainless steel, please ask us for other materials.

载荷和温度 Loads and temperatures

在正常外界温度使用的情况下，塑料关节轴承具有较高的承载能力，尽管其重量只有金属关节轴承的1/5；塑料关节轴承由于球体和基座均采用特种塑料制成具有一定的减震性能。塑料关节轴承长期用于高载或极端温度下时我们建议通过实际实验检测。

The load capacity of the maintenance-free spherical bearing is very high at normal ambient temperatures. The weight only one fifth of metal bearing. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel. The load capacity of the rod end should therefore be checked in a practical test, particularly if it will be used under continuous high loads and at elevated temperatures.



Y = 抗拉强度百分比 Percentage tensile strength [%]

温度对塑料关节轴承的最大抗拉强度的影响
Trends indicate the effect of temperature on the max. load capacity of CSB-BAL® bearings

摩擦系数和速度 Coefficient of sliding friction and speed

CSB-BAL[®]塑料关节轴承在正常使用时是轴在球体内滑动，球体与基座之间调整角度时存在一定的滑动；球体材料采用EPB15制成具有极低的摩擦系数，在载荷较低时轴与球体之间可达到较高的运动速度。

The shaft sliding in the spherical ball of the spherical bearing in normal operation, There is slightly sliding between the ball and the housing; The spherical ball made from EPB15, Lower friction and permits high speeds, even when running dry.

化学抗性与吸水性 Chemical resistance and water absorption

CSB-BAL[®]标准塑料关节轴承完全由聚合物制成，可以抵抗弱酸和弱碱，以及燃油和各类润滑剂。吸水性与材料相关，标准材料在标准大气压下，塑料关节轴承的吸水率为1.3%，浸泡水中饱和吸水率为6.5%。如需要更低吸水率塑料关节轴承，请联系我们。

CSB-BAL[®] spherical bearings made from polymer are resistant to weak alkalines, weak acids and fuels, as well as all types of lubricants. The moisture absorption of CSB-BAL is approximately 1.3% weight in standard atmosphere. The saturation limit in water is 6.5%. This must be taken into evaluation for applications. Please ask us if you need a special material for lower moisture absorption.

抗辐射与UV性能 Radiation and UV resistance

CSB-BAL[®]标准塑料关节可以在户外使用，并具有良好的耐腐蚀性能。标准塑料关节轴承对紫外线具有长期抗性。在紫外线的辐射下，球体的颜色会稍有变化但不会影响它的机械性能、导电性能和热性能。

The corrosion resistance of CSB-BAL[®] bearings gives them special value for outside applications. CSB-BAL bearings are permanently resistant to UV radiation. A small change in color of the spherical ball due to UV radiation does not affect the mechanical, electrical or thermal properties.

公差与检测 Tolerance

CSB-BAL[®]标准塑料关节球体内径公差采用E10标准，轴公差为h6至h9之间。内径检测采用塞规检测而不可以采用游标卡尺检测。如您需要更高精度或其它公差的轴承请联系我们。

The bore of CSB-BAL[®] spherical ball is produced to a standard tolerance range E10. Shafts should also meet recommended tolerances h6 and h9. The inner diameter with plug gauge to check but not caliper. Please contact us in case you require lower or other bearing tolerances.



正确：采用塞规检测
Tolerance test with plug gauge



错误：采用卡尺检测
Wrong test equipment; caliper

介质 Medium	抗性 Resistance
酒精 Alcohol	+ to 0
烃 Hydrocarbons	+
脂肪、油、无添加剂 Greases, oils without additives	+
辛烷 Fuels	+
弱酸 Diluted acids	0 to -
强酸 Strong acids	-
弱碱 Diluted alkalines	+
强碱 Strong alkalines	0

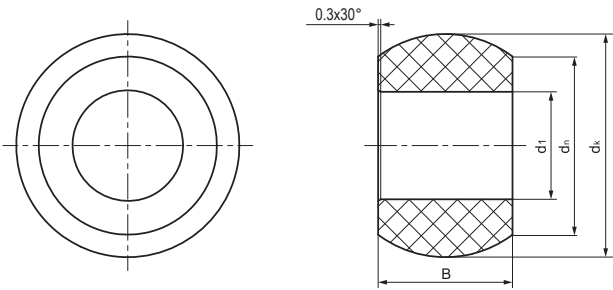
BAL标准塑料球体 BAL standard plastic balls



产品特性 Product features

- 关节调心场合解决方案。极好的耐磨材料EPB15、EPB13等让BAL系列关节轴承球体性能得以充分展现。同样可提供EPB5耐高温和抗腐蚀材料的球体和EPB20水下应用的球体
- 免维护、自润滑
- 耐腐蚀
- 耐冲击、无噪音
- 重量轻
- The spherical self-aligning solution. The material EPB15 and EPB13 ensure the outstanding advantages of the BAL series plastic balls to be perfect. The high temperature and erosion resistance material EPB5 and in water application material EPB20 are also available
- Self lubricated and maintenance free
- Corrosion resistance
- Impact resistance, low noise
- Light Weight

标准规格 Standard specifications



产品编码 Part No.:
BAL-04-05
宽度 Width
内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d _n [mm]	d _k [mm]	B [mm]	重量 Weight [g]
BAL-04-05	4	6.25	8.3	5	0.2
BAL-05-06	5	8	10.3	6	0.3
BAL-06-06	6	8	10.3	6	0.4
BAL-08-08	8	10	13.3	8	0.7
BAL-10-09	10	13	16.1	9	1.2
BAL-12-10	12	15	18.1	10	1.5
BAL-15-12	15	18	22	12	2.4
BAL-16-13	16	19.5	24.1	13	3.3
BAL-20-16	20	24	29.1	16	5.3
BAL-25-20	25	29	35.6	20	9.5
BAL-30-22	30	34	40.9	22	12.1

*根据要求提供特殊材料球体 Special material balls upon request

GLB塑料角支轴承 Plastic spherical bearings



产品特性 Product features

- 外壳采用高强度工程塑料M163制成，内部安装BAL标准自润滑球体
 - 免维护、自润滑
 - 自动补偿安装偏差
 - 耐冲击、无噪音
 - 耐灰尘、重量轻
- The housing is made of high strength plastic M163, with standard BAL self-lubricated balls
 - Maintenance free and self-lubricated
 - Self-compensation for the installation deviation
 - Impact resistance and silent operation
 - Dust resistance with light weight

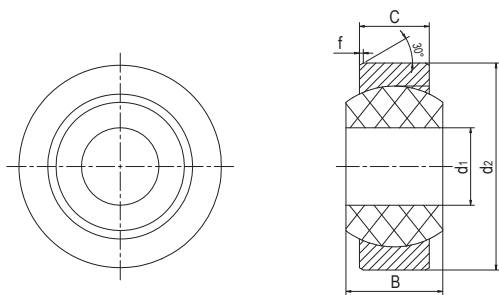
GLB

CSB-BAL®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

标准规格 Standard specifications



产品编码 Part No.:

GLB-04

内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d ₂ [mm]	B [mm]	C [mm]	f [mm]	最大调整角度 Max. adjust angle	最大静载荷 [N] Max. static load		重量 Weight [g] Plastic
							径向Radial	轴向Axle	
GLB-04	4	12	5	3	0.3	37°	600	50	0.4
GLB-05	5	14	6	4	0.3	33°	1000	130	0.8
GLB-06	6	14	6	4	0.3	27°	1200	150	0.9
GLB-08	8	16	8	5	0.3	24°	1800	175	1.2
GLB-10	10	19	9	6	0.5	24°	2500	400	1.9
GLB-12	12	22	10	7	0.5	21°	3800	650	2.8
GLB-15	15	26	12	9	0.5	21°	5500	1000	6.9
GLB-16	16	28	13	9.5	0.5	21°	6000	1150	9.0
GLB-20	20	35	16	12	0.8	18°	9000	1400	16.3
GLB-25	25	42	20	16	0.8	16°	14000	2900	29
GLB-30	30	47	22	18	0.8	13°	17000	4000	37.4

*Al: 铝制外壳根据要求 Aluminum housing upon request

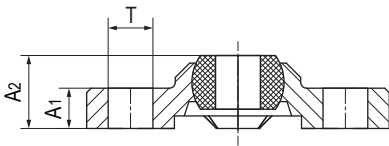
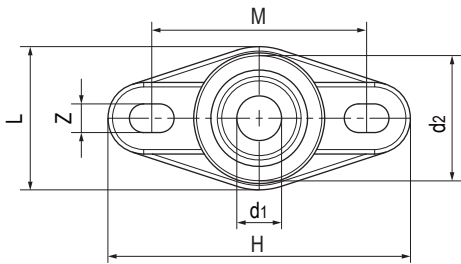
GFB法兰关节轴承 Flange spherical bearings



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
 - 保持器采用抗压和尺寸稳定性材料M163制成
 - 干运行、免维护
 - 抵抗灰尘和污垢
 - 补偿中心误差
 - 耐腐蚀，可用于液体介质环境
 - 重量轻、易安装
- Spherical ball made of highly wear-resistant EPB15
 - Housing made of high strength and shape-stable M163
 - Maintenance-free dry operation
 - Resistant to dust and dirt
 - Compensation of misalignment errors
 - Absolute corrosion resistance
 - Very light, easy installation

标准规格 Standard specifications



产品编码 Part No.:
GFB-04
内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d ₂ [mm]	A ₁ [mm]	A ₂ [mm]	T [mm]	L [mm]	H [mm]	Z [mm]	M [mm]	最大轴向静载荷 Max. axial static load		最大径向静负荷 Max. radial static load		最大静态转 矩-孔 Max. tigh-tening torque -Holes [Nm]	最大调节 角度 Max. adjust angle	重量 Weight [g]
										短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]			
GFB-04	4	14	4.5	8	5	16	33.8	3.2	24	400	200	750	375	0.6	28°	1.9
GFB-05	5	14	4.5	8.5	5	16	33.8	3.2	24	400	200	750	375	0.6	29°	2.3
GFB-06	6	14	4.5	8.5	5	16	33.8	3.2	24	500	250	800	400	0.6	25°	1.8
GFB-08	8	18	5.5	10.5	6.5	22	44.2	4.3	31	700	350	1100	550	1.3	25°	4.1
GFB-10	10	22	6.5	12	8	26	52	5.3	36	850	425	2000	1000	2.5	25°	6.8
GFB-12	12	25	7	13	8	31	56.7	5.3	41	1100	550	2200	1100	2.5	21°	8.9
GFB-15	15	29.8	8.5	15.5	10	36	68.6	6.4	50	1300	650	2400	1200	4.5	20°	15
GFB-16	16	32	10	17.5	10.1	38	72.6	6.4	53	1400	700	2800	1400	4.5	27°	17.7
GFB-20	20	40	11	20	12.5	47	89	8.4	65	1800	900	5500	2750	10.5	19°	32.8
GFB-25	25	48.5	14	25	12.6	58.5	101	8.4	75	3000	1500	6000	3000	10.5	15°	58.5
GFB-30	30	55	15	26	16	65	118	10.5	87.5	3500	1750	6500	3250	21.5	14°	78.9

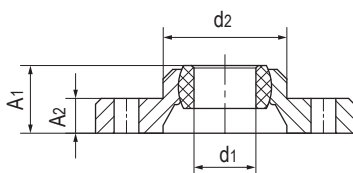
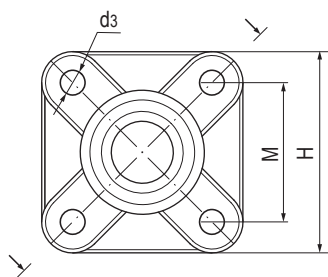
GSB法兰关节轴承 Flange spherical bearings



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
 - 保持器采用抗压和尺寸稳定性材料M163制成
 - 干运行、免维护
 - 抵抗灰尘和污垢
 - 补偿中心误差
 - 耐腐蚀，可用于液体介质环境
 - 重量轻、易安装
- Spherical ball made of highly wear-resistant EPB15
 - Housing made of high strength and shape-stable M163
 - Maintenance-free dry operation
 - Resistant to dust and dirt
 - Compensation of misalignment errors
 - Absolute corrosion resistance
 - Very light, easy installation

标准规格 Standard specifications



产品编码 Part No.:

GSB-04

内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d ₂ [mm]	d ₃ [mm]	A ₁ [mm]	A ₂ [mm]	M [mm]	H [mm]	最大静载荷 Max. axial static load		最大径向静态负荷 Max. radial static load		最大静态转 矩孔 Max. tight-tening torque -Holes [Nm]	最大调节角度 Max. adjust angle	重量 Weight [g]
								短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]			
GSB-04	4	14	3.2	8.5	4.5	17	25	200	100	1000	500	0.6	28°	2.6
GSB-05	5	14	3.2	8.5	4.5	17	25	300	150	1000	500	0.6	29°	2.7
GSB-06	6	14	3.2	8.5	4.5	17	25	300	150	1000	500	0.6	25°	2.8
GSB-08	8	18	4.3	10.5	5.5	22	33	450	225	1400	700	1.3	25°	5.9
GSB-10	10	22	5.3	12	6.5	26	38	700	350	2000	1000	2.5	25°	9.1
GSB-12	12	25	5.3	13	7	28	40	850	425	2500	1250	2.5	21°	11
GSB-15	15	30	6.4	15.5	8.5	34	49	1100	550	3000	1500	4.5	20°	20.2
GSB-16	16	32	6.4	16.5	9	36	52	1350	675	3200	1600	4.5	27°	23.3
GSB-20	20	40	8.4	20	11	45	65	2000	1000	4000	2000	10.5	19°	45
GSB-25	25	48.5	8.4	25	14	52	74	2400	1200	5600	2800	10.5	15°	76
GSB-30	30	55	10.5	26	15	60	85	2800	1400	6000	3000	21.5	14°	100.7

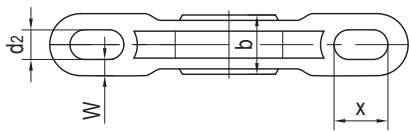
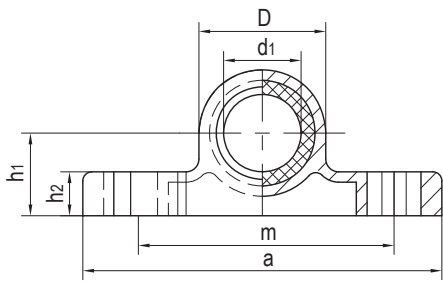
GBB基座关节轴承 Pillow block spherical bearings



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
 - 保持器采用抗压和尺寸稳定性材料M163制成
 - 干运行、免维护
 - 补偿中心误差
 - 高径向载荷并能承受边缘载荷
 - 耐化学液体腐蚀
 - 重量轻、节约空间、易安装
- Spherical ball made of highly wear-resistant EPB15
 - Housing made of high strength and shape-stable M163
 - Maintenance-free, self lubricating
 - Compensation for alignment errors
 - High radial loads and compensation of edge loads
 - Chemical resistant
 - Very low weight and space saving
 - Easy installation

标准规格 Standard specifications



产品编码 Part No.:

GBB-16

内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d ₂ [mm]	h ₁ [mm]	h ₂ [mm]	D [mm]	b [mm]	a [mm]	m [mm]	x [mm]	w [mm]	最大静态抗拉强度 Max. axial static tensile strength		最大静态抗压 强度 Max. static compressive strength [N]	纵向孔最大 扭矩 Max. tightening torque for longitudinal holes [Nm]	重量 Weight [g]
											短期 Short-term [N]	长期 Long-term [N]			
GBB-16	16	6.6	18	10.5	SD31.7	13	86	60	12	4.2	3000	1500	1800	4.5	40
GBB-20	20	9	22	13	SD38	16	98	68	14	4.5	4700	2350	1300	10.5	54
GBB-25	25	9	27	16	SD46.7	20	124	86	17	6.5	6600	3300	1600	10.5	75.3
GBB-30	30	11	32	17	SD53.7	22	139	96	20	7	8100	4050	2100	21.5	116.8

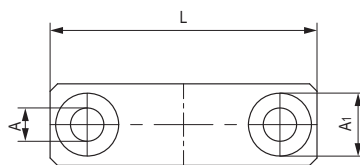
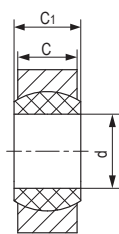
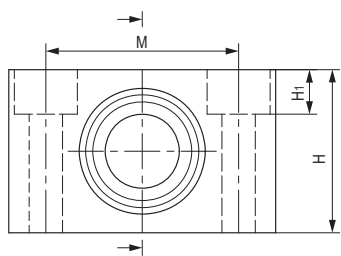
GNB基座关节轴承，紧凑型 Pillow block spherical bearings, compact design



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
 - 保持器采用硬质氧化镁铝合金制成
 - 干运行、免维护
 - 补偿中心误差
 - 高径向载荷并能承受边缘载荷
 - 重量轻、节约空间、易安装
- Spherical ball made of highly wear-resistant EPB15
 - Housing made of aluminum alloy with hard anodized surface
 - Maintenance-free, self lubricating
 - Compensation for alignment errors
 - High radial loads and compensation of edge loads
 - Very low weight and space saving
 - Easy installation

标准规格 Standard specifications



产品编码 Part No.:

GNB-08

内径 Inner diameter

产品编码 Part No.	d E10 [mm]	H [mm]	H ₁ [mm]	A [mm]	M [mm]	A ₁ [mm]	L [mm]	C [mm]	C ₁ [mm]	最大静态抗拉强度 Max. axial static tensile strength		最大径向抗压强度 Max. radial compressive strength		最大轴向抗压 Max. axial strength		最大 扭力 Max. torque [Nm]	重量 Weight [g]
										短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]		
GNB-08	8	19	/	4.5	22	/	31	9	8	2500	1250	4300	2150	600	300	1.3	9
GNB-10	10	22	/	5.5	26	/	36	10	9	3400	1700	5300	2650	700	350	2.5	17
GNB-12	12	26	/	5.5	28	/	38	10	12	4600	2250	6500	3250	750	375	2.5	19
GNB-16	16	34	6.4	6.6	37	10.6	50	13	13	6700	3350	8500	4250	1100	550	4.5	30
GNB-20	20	40	8.6	9	46	14	62	16	16	8500	4250	11000	5750	1400	700	4.5	52
GNB-25	25	48	8.6	9	54	14	72	20	20	13500	6750	18500	9250	2300	1150	10.5	85
GNB-30	30	56	10.6	11	64	17	86	22	22	10000	5000	16500	8250	2500	1250	10.5	140

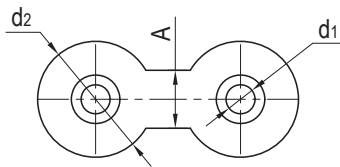
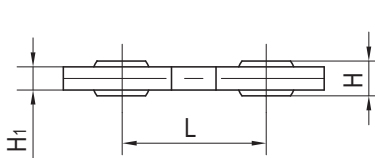
GDB双杆端关节轴承 Double spherical bearings



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
- 连接器采用高强度和尺寸稳定性材料M163制成
- 自润滑、免维护
- 耐腐蚀，可用于液体介质环境
- 无噪音运行和不导电
- 可连接两个单元组件并消除中心误差
- 多种连接长度选择
- Spherical ball made of highly wear-resistant EPB15
- Connection rod made of high strength and shape-stable M163
- Maintenance-free dry operation
- Corrosion-resistant
- No noise and nonconductive
- Mechanical connector between two components
- Compensation of misalignment errors
- Multichoice distance between two components

标准规格 Standard specifications



产品编码 Part No.:
GDB-04-25
中心距 Center distance
内径 Inner diameter

产品编码 Part No.	d ₁ E10 [mm]	d ₂ [mm]	L [mm]	A [mm]	H [mm]	H ₁ [mm]	最大静态抗拉强度（短期） Max. static tensile strength (Short-term)		最大静态抗拉强度（长期） Max. static tensile strength (Long-term)		最大调节 角度 Max. pivot angle	重量 Weight [g]
							径向 Radial [N]	轴向 Axial [N]	径向 Radial [N]	轴向 Axial [N]		
GDB-04-25	4	20	25	10	5	4	1100	1300	550	650	32°	3.5
GDB-04-50	4	20	50	10	5	4	1100	750	550	375	32°	4.8
GDB-04-75	4	20	75	10	5	4	1100	500	550	250	32°	6.1
GDB-05-25	5	20	25	10	6	4	1100	1300	550	650	37°	2.2
GDB-05-50	5	20	50	10	6	4	1100	750	550	375	37°	4.9
GDB-05-75	5	20	75	10	6	4	1100	500	550	250	37°	6.3
GDB-06-25	6	20	25	10	6	4	1100	1300	550	650	30°	3.4
GDB-06-50	6	20	50	10	6	4	1100	750	550	375	30°	4.8
GDB-06-75	6	20	75	10	6	4	1100	500	550	250	30°	3.4
GDB-08-60	8	30	60	15	8	7	3000	3500	1500	1750	20°	15.2
GDB-08-100	8	30	100	15	8	7	3000	1900	1500	950	20°	19.5
GDB-10-60	10	30	60	15	9	7	2500	3500	1250	1750	25°	15.3
GDB-10-100	10	30	100	15	9	7	2500	1900	1250	950	25°	19.4
GDB-12-60	12	30	60	15	10	7	2000	3500	1000	1750	25°	14.7
GDB-12-100	12	30	100	15	10	7	2500	1900	1000	950	25°	18.8

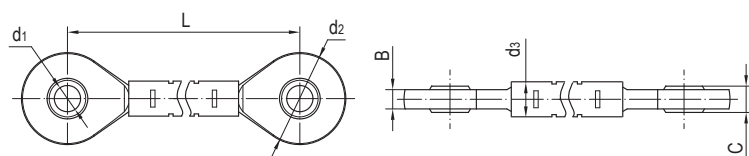
GDB-F/GDB-R双杆端关节轴承 Double spherical bearings



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
- 保持器采用高强度和尺寸稳定性材料M163制成
- 连接器采用高强度表面镀锌钢管
- 自润滑、免维护
- 无噪音和易安装
- 多种角度调节
- 多种长度选择
- Spherical ball made of highly wear-resistant EPB15
- Housing made of high strength and shape-stable M163
- Connection rod made of high strength steel with zinc coating surface
- Maintenance-free dry operation
- No noise and easy installation
- Variable angle between two components
- Variable distance between two components

标准规格 Standard specifications



产品编码 Part No.:

GDB-06F-L

中心距 Center distance

F: 球头角度 Ball stud direction 180°

R: 球头角度 Ball stud direction 90°

内径 Inner diameter

产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	L (Min) (最小值)	C [mm]	B [mm]	最大调节角度 Max. pivot angle
GDB-06F-L	6	21	8	72	6	4.4	40°
GDB-08F-L	8	24	10	84	8	6	35°
GDB-10F-L	10	29	12	96	9	7	35°
GDB-06R-L	6	21	8	72	6	4.4	40°
GDB-08R-L	8	24	10	84	8	6	35°
GDB-10R-L	10	29	12	96	9	7	35°

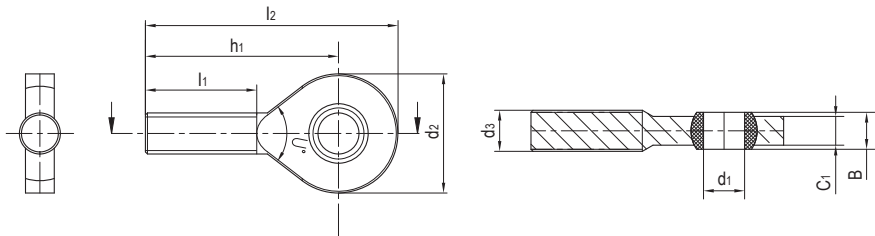
GOB杆端关节轴承，外螺纹 Rod end bearings, male thread



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
 - 连接器采用高强度和尺寸稳定性材料M163制成
 - 自润滑、免维护
 - 光面设计耐灰尘
 - 很好的耐腐蚀性能
 - 补偿心中误差
 - 无噪音、重量轻
- Spherical ball made of highly wear-resistant EPB15
 - Connection rod made of high strength and shape-stable M163
 - Maintenance-free dry operation
 - Smooth design has no dirt traps
 - Absolute corrosion resistance
 - Compensation of misalignment errors
 - No noise and light weight

标准规格 Standard specifications



产品编码 Part No.:
GOBR-06
内径 Inner diameter
R: 右旋 Right
L: 左旋 Left

产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	B [mm]	l ₁ [mm]	l ₂ [mm]	h ₁ [mm]	C ₁ [mm]	最大静态抗拉强度 Max. static tensile strength		最大径向静态负荷 Max. radial static load		最小螺纹 深度 Min. thread depth	球体最大扭矩 Max. tightening torque through ball [Nm]	重量 Weight [g]
									短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]			
GOBR-06	6	21	M6	6	20	46.5	36	4.4	850	425	80	40	14	0.5	2.7
GOBR-08	8	24	M8	8	24	53	41	6	1600	800	160	80	17	2	5.1
GOBR-10	10	29	M10	9	27	62	47.5	7	2600	1300	250	125	19	5	8.4
GOBL-06	6	21	M6	6	20	46.5	36	4.4	850	425	80	40	14	0.5	2.7
GOBL-08	8	24	M8	8	24	53	41	6	1600	800	160	80	17	2	5.1
GOBL-10	10	29	M10	9	27	62	47.5	7	2600	1300	250	125	19	5	8.4

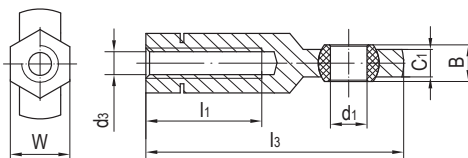
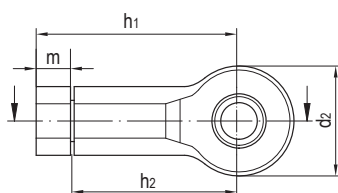
GIB杆端关节轴承，内螺纹 Rod end bearings, female thread



产品特性 Product features

- 球体采用高耐磨材料EPB15制成
- 连接器采用高强度和尺寸稳定性材料M163制成
- 自润滑、免维护
- 光面设计耐灰尘
- 很好的耐腐蚀性能
- 补偿心中误差
- 无噪音、重量轻
- 带锁定螺母易安装
- Spherical ball made of highly wear-resistant EPB15
- Connection rod made of high strength and shape-stable M163
- Maintenance-free dry operation
- Smooth design has no dirt traps
- Absolute corrosion resistance
- Compensation of misalignment errors
- No noise and light weight
- Simple assembly due to the integrated lock nut

标准规格 Standard specifications



产品编码 Part No.:

GIBR-06

内径 Inner diameter
R: 右旋 Right
L: 左旋 Left

产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	W [mm]	B [mm]	l ₁ [mm]	l ₃ [mm]	h ₁ [mm]	h ₂ [mm]	C ₁ [mm]	m [mm]	最大静态抗拉强度 Max. static tensile strength		最大径向静态负荷 Max. radial static load		最小 球体最大 螺纹深度 Min. tightening torque through ball	重量 Weight [g]
												短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]		
GIBR-06	6	21	M6	SW10	6	20	46.5	36.5	30	4.4	5.7	1500	750	200	100	8	4.5
GIBR-08	8	24	M8	SW13	8	25	56.3	44.3	36	6	7.5	2000	1000	450	225	11	8.6
GIBR-10	10	29	M10	SW15	9	30	67.2	52.2	43	7	8.4	2300	1150	500	250	13	14.1
GIBR-10F	10	29	M10*1.25	SW15	9	30	67.2	52.2	43	7	8.4	2300	1150	500	250	13	14.1
GIBR-12	12	34	M12	SW17	10	35	77.1	60.1	50	8	10	3300	1650	550	275	15	17.1
GIBR-12F	12	34	M12*1.25	SW17	10	35	77.1	60.1	50	8	10	3300	1650	550	275	15	17.1
GIBL-06	6	21	M6	SW10	6	20	46.5	36.5	30	4.4	5.7	1500	750	200	100	8	4.5
GIBL-08	8	24	M8	SW13	8	25	56.3	44.3	36	6	7.5	2000	1000	450	225	11	8.6
GIBL-10	10	29	M10	SW15	9	30	67.2	52.2	43	7	8.4	2300	1150	500	250	14	14.1
GIBL-10F	10	29	M10*1.25	SW15	9	30	67.2	52.2	43	7	8.4	2300	1150	500	250	13	14.1
GIBL-12	12	34	M12	SW17	10	35	77.1	60.1	50	8	10	3300	1650	550	275	15	17.1
GIBL-12F	12	34	M12*1.25	SW17	10	35	77.1	60.1	50	8	10	3300	1650	550	275	15	17.1

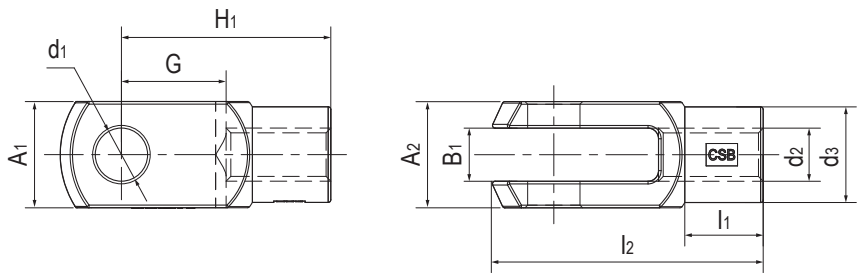
标准U型夹 Standard Clevis Joints



产品特性 Product features

- 材料CSB®M163
 - 高强度
 - 耐腐蚀抗灰尘
 - 降低噪音
 - 轻量化设计
 - 可与塑料关节轴承组合使用
-
- Material CSB®M163
 - High tensile force
 - Absolute corrosion-resistant
 - Noise free
 - Very lightweight
 - Can be used in combination with plastic rod ends

标准规格 Standard specifications



产品编码 Part No.:
GCR-10F
细牙螺纹 Fine thread
内径 Inner diameter
R: 右旋 Right
L: 左旋 Left

产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	G [mm]	A ₁ [mm]	A ₂ [mm]	B ₁ [mm]	l ₁ [mm]	l ₂ [mm]	H ₁ [mm]	最大静态抗拉强度 Max. static tensile strength		最大径向静态负荷 Max. radial static load		最大扭矩 Max. tightening torque [Nm]	重量 Weight [g]
											短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]		
GCR-06	6	M6	Φ10	12	12	12	6	9	31	24	1400	700	300	150	1.5	2.5
GCR-08	8	M8	Φ14	16	16	16	8	12	42	32	2700	1350	650	325	5	6.3
GCR-10	10	M10	Φ18	20	20	20	10	15	52	40	4700	2350	800	400	15	13.2
GCR-12	12	M12	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	20	20.3
GCR-10F	10	M10*1.25	Φ18	20	20	20	10	15	51.3	40	4700	2350	800	400	6	13.2
GCR-12F	12	M12*1.25	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	15	20.3
GCL-06	6	M6	Φ10	12	12	12	6	9	31	24	1400	700	300	150	1.5	2.5
GCL-08	8	M8	Φ14	16	16	16	8	12	42	32	2700	1350	650	325	5	6.3
GCL-10	10	M10	Φ18	20	20	20	10	15	52	40	4700	2350	800	400	15	13.2
GCL-12	12	M12	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	20	20.3
GCL-10F	10	M10*1.25	Φ18	20	20	20	10	15	51.3	40	4700	2350	800	400	6	13.2
GCL-12F	12	M12*1.25	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	15	20.3

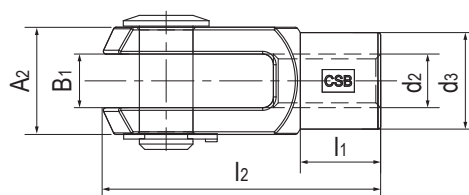
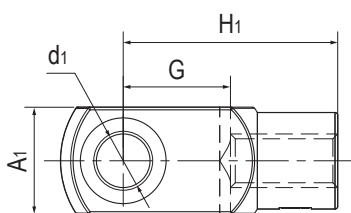
组合U型夹 Clevis Joints with pin and circlip



产品特性 Product features

- 材料CSB®M163
 - 高强度
 - 耐腐蚀抗灰尘
 - 降低噪音
 - 轻量化设计
 - 带有不锈钢插销与卡簧
 - 可与塑料关节轴承组合使用
- Material CSB®M163
 - High tensile force
 - Absolute corrosion-resistant
 - Noise free
 - Very lightweight
 - With pin and circlip
 - Can be used in combination with plastic rod ends

标准规格 Standard specifications



产品编码 Part No.:

GCRE-10F

- 细牙螺纹 Fine thread
- 内径 Inner diameter
- 不锈钢 Stainless steel
- R: 右旋 Right
- L: 左旋 Left

产品编码 Part No.	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	G [mm]	A ₁ [mm]	A ₂ [mm]	B ₁ [mm]	l ₁ [mm]	l ₂ [mm]	h ₁ [mm]	最大静态抗拉强度 Max. static tensile strength		最大径向静态负荷 Max. radial static load		最大扭矩 Max. tightening torque [Nm]	重量 Weight [g]
											短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]		
GCRE-06	6	M6	Φ10	12	12	12	6	9	31	24	1400	700	300	150	1.5	7.2
GCRE-08	8	M8	Φ14	16	16	16	8	12	42	32	2700	1350	650	325	5	16.7
GCRE-10	10	M10	Φ18	20	20	20	10	15	52	40	4700	2350	800	400	15	33.1
GCRE-12	12	M12	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	20	52.4
GCRE-10F	10	M10*1.25	Φ18	20	20	20	10	15	51.3	40	4700	2350	800	400	6	33.1
GCRE-12F	12	M12*1.25	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	15	52.4
GCLE-06	6	M6	Φ10	12	12	12	6	9	31	24	1400	700	300	150	1.5	7.2
GCLE-08	8	M8	Φ14	16	16	16	8	12	42	32	2700	1350	650	325	5	16.7
GCLE-10	10	M10	Φ18	20	20	20	10	15	52	40	4700	2350	800	400	15	33.1
GCLE-12	12	M12	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	20	52.4
GCLE-10F	10	M10*1.25	Φ18	20	20	20	10	15	51.3	40	4700	2350	800	400	6	33.1
GCLE-12F	12	M12*1.25	Φ20	24	24	24	12	18	61.3	48	5700	2850	900	450	15	52.4

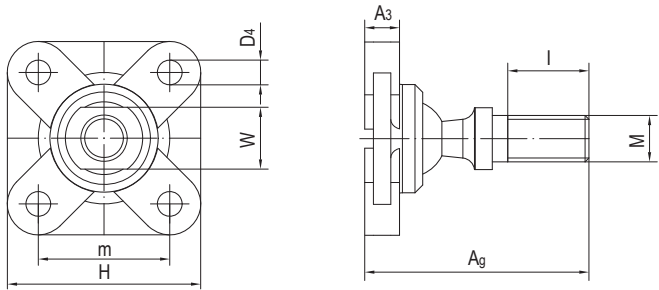
GSB-OP法兰关节轴承，连接销 Flange spherical bearings with pins



产品特性 Product features

- 基座采用高强度和尺寸稳定性材料M163制成
- 连接销采用镀锌钢， 可选304不锈钢
- 免维护和耐腐蚀
- 易连接和安装
- 直接装配并节约安装空间
- Housing made of high strength and shape-stable M163
- Ball studs made of zinc coating steel, 304 stainless steel is available
- Maintenance-free and corrosion-resistant
- Easy connection - easy assembly
- Fits directly and space-saving

标准规格 Standard specifications



产品编码 Part No.:
GSB-OP-06
内径 Inner diameter
OP 外螺纹 Outer thread

产品编码 Part No.	M [mm]	m [mm]	H [mm]	Ag [mm]	A3 [mm]	I [mm]	D4 [mm]	W [mm]	最大静态径向负载 Max. axial static load		最大静态轴向负载 Max. radial static load		重量 Weight [g]
									短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]	
GSB-OP-06	M6	17	25	29	4.5	10.5	3.2	8	150	75	350	175	10.6
GSB-OP-08	M8	22	33	36	5.5	13.5	4.3	11	250	125	750	375	23.1
GSB-OP-10	M10	26	38	43.5	6.5	16	5.3	13	140	70	1200	600	41.2

*ES-不锈钢球头销根据要求提供 Stainless steel ball stud upon request

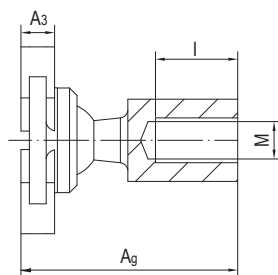
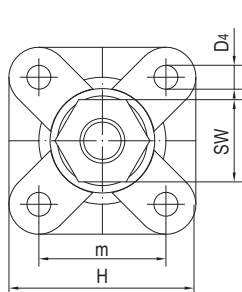
GSB-IP法兰关节轴承，连接销 Flange spherical bearings with pins



产品特性 Product features

- 基座采用高强度和尺寸稳定性材料M163制成
- 连接销采用镀锌钢，可选304不锈钢
- 免维护和耐腐蚀
- 易连接和安装
- 直接装配并节约安装空间
- Housing made of high strength and shape-stable M163
- Ball studs made of zinc coating steel, 304 stainless steel is available
- Maintenance-free and corrosion-resistant
- Easy connection - easy assembly
- Fits directly and space-saving

标准规格 Standard specifications



产品编码 Part No.:

GSB-IP-06

内径 Inner diameter

IP 内螺纹 Inner thread

产品编码 Part No.	M [mm]	m [mm]	H [mm]	A ₉ [mm]	A ₃ [mm]	I [mm]	D ₄ [mm]	SW [mm]	最大静态径向负载 Max. radial static load		最大静态轴向负载 Max. axial static load		重量 Weight [g]
									短期 Short-term [N]	长期 Long-term [N]	短期 Short-term [N]	长期 Long-term [N]	
GSB-IP-06	M6	17	25	29	4.5	11	3.2	SW11	150	75	350	175	16.4
GSB-IP-08	M8	22	33	36	5.5	12	4.3	SW14	250	125	750	375	34
GSB-IP-10	M10	26	38	43.5	6.5	16	5.3	SW17	140	70	1200	600	61.1

*ES-不锈钢球头销根据要求提供 Stainless steel ball stud upon request

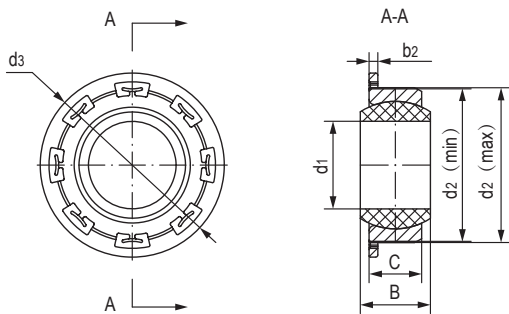
GLBF法兰角支轴承 Flange spherical bearing



产品特性 Product features

- 免维护和耐腐蚀
 - 耐灰尘和污垢
 - 最大可调节安装公差 $\pm 0.2\text{mm}$
 - 易安装
- Maintenance-free and corrosion-resistant
 - Resistant to dust and dirt
 - Max tolerance compensation $\pm 0.2\text{mm}$
 - Easy installation

标准规格 Standard specifications



产品编码 Part No.:
GLBF-20
内径 Inner diameter
法兰设计 Flange design

产品编码 Part No.	d ₁ [mm]	d _{2(min)} [mm]	d _{2(max)} [mm]	d ₃ [mm]	C [mm]	B [mm]	b ₂ [mm]	基座 _(min) [mm]	基座 _(max) [mm]	最大摆动 角度	重量Weight [g]
GLBF-20	20	34.8	35.6	42	12	16	2	34.8	35.2	18°	10

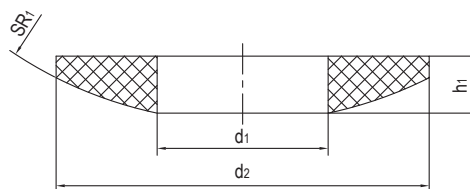
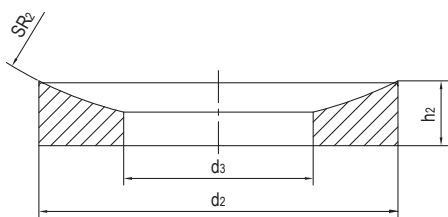
GTB塑料关节轴承 Plastic spherical bearings



产品特性 Product features

- 多种耐磨球体材料选择: M80, M81, EPB, EPB7, EPB13
 - 基座材料硬质镁铝合金
 - 自润滑、免维护
 - 易安装
 - 补偿中心误差
 - 消除边缘载荷
 - 小安装空间实现较好的耐磨性能
- Multiple spherical ball materials available: M80, M81, EPB, EPB7, EPB13
 - Housing made of aluminum alloy with hard anodized surface
 - Maintenance-free, dry-running
 - Easy assembly
 - Compensation of misalignment errors
 - Compensation of edge loads
 - Very good friction and wear properties in a small installation space

标准规格 Standard specifications



产品编码 Part No.	最大静态轴向抗拉强度 Max. static tensile strength		重量 Weight [g]
	短期 Short-term [N]	长期 Long-term [N]	
GTB-05-M80	4000	2000	0.9
GTB-06-M80	5000	2500	1.1
GTB-08-M80	8000	4000	2.2
GTB-10-M80	10000	5000	3.4
GTB-12-M80	12000	6000	5.9
GTB-16-M80	17000	8500	8.5
GTB-20-M80	22000	11000	12.8

产品编码 Part No.:

GTB-05-M80

球体材料 Ball material
内径 Inner diameter

产品编码 Part No.	d ₁ 球面垫片 Ball washer	d ₂ [mm]	d ₃ [mm]	总高 Total height [mm]	h ₁ [mm]	h ₂ [mm]	SR ₁ /SR ₂ [mm]	补偿角度 Compensation angle
GTB-05-M80	5.2	15	7	4.7	3	3.5	15	3°
GTB-06-M80	6.2	16	7.5	5.3	3	4	16	3°
GTB-08-M80	8.2	20	10	6.8	4	5	20	2°
GTB-10-M80	10.2	24	12	7.5	4.5	5.5	24	2°
GTB-12-M80	12.5	30	14.5	8	5	6.2	32	2°
GTB-16-M80	16.5	36	19	8.7	5.5	6.5	40	2°
GTB-20-M80	20.2	44	23	8.6	6	7	45	2°

CSB-BAL[®] 不锈钢基座关节轴承

STAINLESS STEEL SPHERICAL BEARINGS

EPB10高温耐磨球体 EPB10 High temperature spherical balls

极高载荷应用
适用于硬轴
适用温度-100/+250℃
High load applications
Suitable for hard shafts
Operation temperature -50/+90℃

EPB13高耐磨球体 EPB13 High wear-resistant spherical balls

极低摩擦系数 Lower friction coefficient
适用于软轴与硬轴 Suitable for soft and hard shafts
适用温度-50/+90℃ Operation temperature -50/+90℃

不锈钢基座 Stainless steel housings

高强度高承载 High strength and load
耐腐蚀 Anti-corrosion
耐高温 High temperature

不锈钢基座关节轴承 Stainless Steel Spherical Bearings

球体材料 Ball materials

EPB13

- 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



- Continuous working temperature: -50/+90°
- Maintenance-free dry operation
- Small wear off amount against various shaft materials
- Lower friction
- Suitable for soft shaft

EPB10

- 长期使用温度-100/+250℃
- 自润滑、免维护
- 非常耐磨长寿命
- 极好的耐腐蚀性



- Continuous working temperature: -100/+250°
- Maintenance-free, self-lubricated
- Good wear resistance with long service life
- Good chemical resistance

材料性能参数

Materials Performance Parameter

材料性能 Material properties	标准 Standard	单位 Unit	EPB13	EPB10
颜色 Color	-	-	黄色 Yellow	黑色 Black
密度 Density	ISO1183	g/cm ³	1.48	1.42
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3	0.1
最大吸水率 Max. water absorption	ISO62	%	1.3	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15	0.10-0.25
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40	1.35
弯曲模量 Flexural modulus	ISO178	MPa	2600	10000
弯曲强度 Flexural strength	ISO178	MPa	60	210
最大静载荷 Max. static load	ITS027	MPa	35	125
最大动载荷 Max. dynamic load	ITS028	MPa	14	80
邵氏硬度 Shore hardness	ISO868	D	74	86
连续运行温度 Long-term application temperature	ITS029	℃	+90	+250
短时运行温度 Short-term application temperature	ITS029	℃	+120	+315
最低运行温度 Lowest application temperature	ITS029	℃	-50	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.25	0.60
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10	5
阻燃等级 Flammability	UL94	Class	HB	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³	>10 ⁵
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ⁵

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

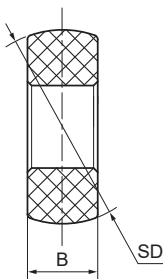
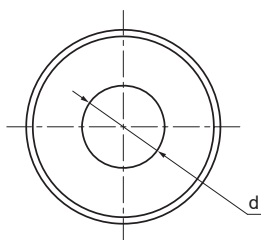
BAL金属关节轴承座球体 Spherical balls for metal bearing housings



产品特性 Product features

- 高负载关节轴承解决方案
- 标准球体材料EPB13, 可选250℃高温球体EPB10
- 免维护、自润滑
- 适用于各种金属轴承座
- 抗冲击
- 耐腐蚀
- 无噪音、重量轻
- High load spherical ball solutions
- Standard ball material EPB13 available 250℃ material EPB10
- Self-lubricated and maintenance free
- For various metal bearing housings
- Vibration dampening
- Good chemical resistance
- No noise and light weight

标准规格 Standard specifications



产品编码 Part No.:

BAL-20-17-EPB13

材料 Material

宽度 Width

内径 Inner diameter

产品编码 Part No.	$d^{+0.124}_{+0.04}$ [mm]	$SD^0_{-0.05}$ [mm]	B [mm]	最大静态轴向抗拉强度 Max. axial static tensile strength [N]	最大静态径向抗压强度 Max. radial static compressive strength [N]	重量 Weight [g]
BAL-20-17-EPB13	20	47	17	7500	11500	34
BAL-25-17-EPB13	25	52	17	7500	14500	39
BAL-30-19-EPB13	30	62	19	9500	19500	62
BAL-20-17-EPB10	20	47	17	17000	26000	33
BAL-25-17-EPB10	25	52	17	17000	33000	38
BAL-30-19-EPB10	30	62	19	21000	44000	61

*根据要求提供特殊材料球体 Special material balls upon request

SFL法兰关节轴承 Flange spherical bearings



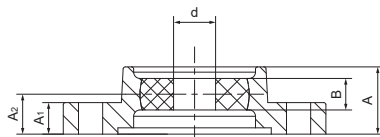
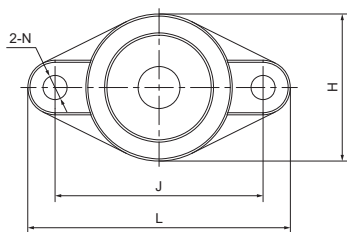
产品特性 Product features

- 从UC204到UC206
 - 标准耐磨材料EPB13球体
可选：高温250℃球体EPB10
 - 不锈钢基座带有2个固定孔
 - 自润滑免维护
 - 高负载
 - 耐脏污
- UC204 up to UC206
 - Standard anti-wear composite EPB13 balls
available materials: EPB10 for 250℃ application
 - Stainless steel housing with 2 mounting holes
 - Maintenance-free dry operation
 - High load
 - Resistant to dirt

SFL

CSB-BAL®

标准规格 Standard specifications



产品编码 Part No.:

SFL204-20-17-EPB13

材料 Material

宽度 Width

内径 Inner diameter

产品编码 Part No.	d +0.124 +0.04 [mm]	B ± 0.1 [mm]	A [mm]	A ₁ [mm]	A ₂ [mm]	H [mm]	N [mm]	J [mm]	L [mm]	最大静态轴向 抗拉强度 Max. axial static tensile strength [N]	最大静态径向抗 压强度 Max. radial static compressive strength [N]	最大调节 角度 Max. pivot angle	重量 Weight [g]
SFL204-20-17-EPB13	20	17	25	11	15	56	12	90	108	7500	11500	19°	204
SFL205-25-17-EPB13	25	17	26	13	16	63	16	99	121	7500	14500	15°	279
SFL206-30-19-EPB13	30	19	30	13	18	74	16	117	141	9500	19500	15°	402
SFL204-20-17-EPB10	20	17	25	11	15	56	12	90	108	17000	26000	19°	203
SFL205-25-17-EPB10	25	17	26	13	16	63	16	99	121	17000	33000	15°	278
SFL206-30-19-EPB10	30	19	30	13	18	74	16	117	141	21000	44000	15°	401

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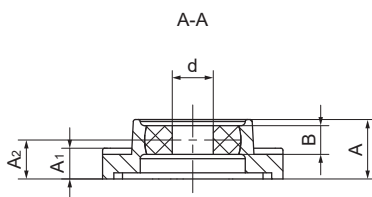
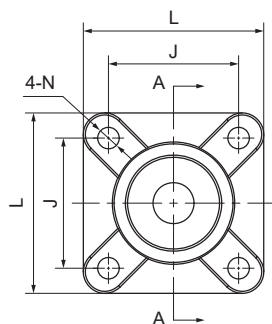
SF法兰关节轴承 Flange spherical bearings



产品特性 Product features

- 从UC204到UC206
 - 标准耐磨材料EPB13球体
可选：高温250℃球体EPB10
 - 不锈钢基座带有4个固定孔
 - 自润滑免维护
 - 高负载
 - 耐脏污
- UC204 up to UC206
 - Standard anti-wear composite EPB13 balls
available materials: EPB10 for 250 °C application
 - Stainless steel housing with 4 mounting holes
 - Maintenance-free dry operation
 - High load
 - Resistant to dirt

标准规格 Standard specifications



产品编码 Part No.:

SF204-20-17-EPB13

材料 Material

宽度 Width

内径 Inner diameter

产品编码 Part No.	d $+0.124$ $+0.04$ [mm]	B _{±0.1} [mm]	A [mm]	A ₁ [mm]	A ₂ [mm]	N [mm]	J [mm]	L [mm]	最大静态轴向抗 拉强度 Max. axial static tensile strength [N]	最大静态径向抗 压强度 Max. radial static compressive strength [N]	最大调节 角度 Max. pivot angle	重量 Weight [g]
SF204-20-17-EPB13	20	17	25	11	15	12	64	83	7500	11500	19°	294
SF205-25-17-EPB13	25	17	26	13	16	12	70	90	7500	14500	15°	379
SF206-30-19-EPB13	30	19	29	13	18	12	83	103	9500	19500	15°	502
SF204-20-17-EPB10	20	17	25	11	15	12	64	83	17000	26000	19°	293
SF205-25-17-EPB10	25	17	26	13	16	12	70	90	17000	33000	15°	378
SF206-30-19-EPB10	30	19	29	13	18	12	83	103	21000	44000	15°	501

SP关节轴承座 Spherical bearing housing



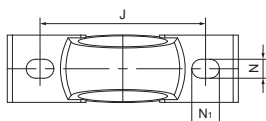
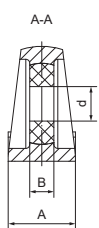
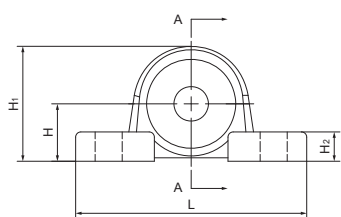
产品特性 Product features

- 从UC204到UC206
 - 标准耐磨材料EPB13球体
可选：高温250℃球体EPB10
 - 不锈钢基座带有2个固定孔
 - 自润滑免维护
 - 高负载
 - 耐脏污
- UC204 up to UC206
 - Standard anti-wear composite EPB13 balls
available materials: EPB10 for 250 °C application
 - Stainless steel housing with 2 mounting holes
 - Maintenance-free dry operation
 - High load
 - Resistant to dirt

SP

CSB-BAL®

标准规格 Standard specifications



产品编码 Part No.:

SP204-20-17-EPB13

材料 Material

宽度 Width

内径 Inner diameter

产品编码 Part No.	d +0.124 +0.04 [mm]	B _{±0.1} [mm]	A [mm]	H [mm]	H ₁ [mm]	H ₂ [mm]	N [mm]	N ₁ [mm]	J [mm]	L [mm]	最大静态轴向 抗拉强度 Max. axial static tensile strength [N]	最大静态径向抗 压强度 Max. radial static compressive strength [N]	最大调节 角度 Max. pivot angle	重量 Weight [g]
SP204-20-17-EPB13	20	17	33	33.3	63	11	13	19	95	125	7500	11500	19°	284
SP205-25-17-EPB13	25	17	36	36.5	68	13	13	19	105	133	7500	14500	15°	339
SP206-30-19-EPB13	30	19	42	42.9	80	15	17	23	121	155	9500	19500	15°	522
SP204-20-17-EPB10	20	17	33	33.3	63	11	13	19	95	125	17000	26000	19°	283
SP205-25-17-EPB10	25	17	36	36.5	68	13	13	19	105	133	17000	33000	15°	338
SP206-30-19-EPB10	30	19	42	42.9	80	15	17	23	121	155	21000	44000	15°	521

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SPA关节轴承座 Spherical bearing housings

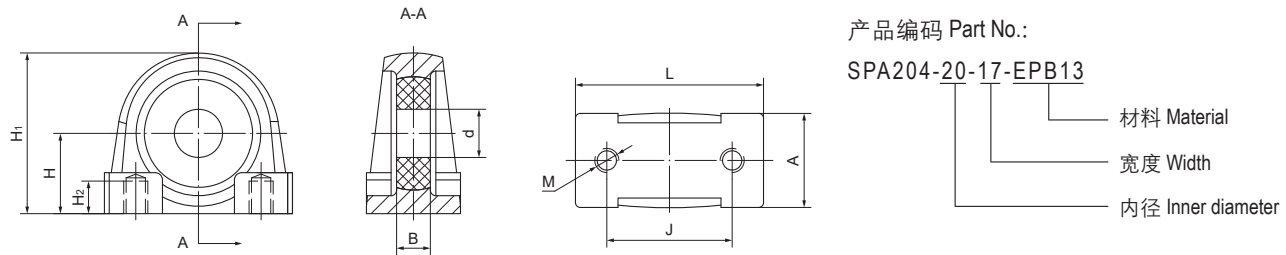


产品特性 Product features

- 从UC204到UC206
- 标准耐磨材料EPB13球体
 可选：高温250℃球体EPB10
- 不锈钢基座带有2个固定孔
- 自润滑免维护
- 高负载
- 耐脏污

- UC204 up to UC206
- Standard anti-wear composite EPB13 balls
 available materials: EPB10 for 250℃ application
- Stainless steel housing with 2 mounting holes
- Maintenance-free dry operation
- High load
- Resistant to dirt

标准规格 Standard specifications



产品编码 Part No.	d $+0.124$ $+0.04$ [mm]	B ± 0.1 [mm]	A [mm]	M [mm]	H [mm]	H ₁ [mm]	H ₂ [mm]	J [mm]	L [mm]	最大静态轴向 抗拉强度 Max. axial static tensile strength [N]	最大静态径向抗 压强度 Max. radial static compressive strength [N]	最大调节 角度 Max. pivot angle	重量 Weight [g]
SPA204-20-17-EPB13	20	17	35	M10x1.5	30.2	60	11	52	72	7500	11500	19°	134
SPA205-25-17-EPB13	25	17	37	M10x1.5	36.5	71	12	56	79	7500	14500	15°	529
SPA206-30-19-EPB13	30	19	44	M14x2	42.9	82	13	66	89	9500	19500	15°	642
SPA204-20-17-EPB10	20	17	35	M10x1.5	30.2	60	11	52	72	17000	26000	19°	133
SPA205-25-17-EPB10	25	17	37	M10x1.5	36.5	71	12	56	79	17000	33000	15°	528
SPA206-30-19-EPB10	30	19	44	M14x2	42.9	82	13	66	89	21000	44000	15°	641

LR锁紧环 Locking rings



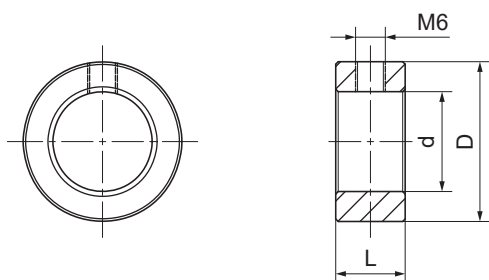
产品特性 Product features

- 尺寸范围: 20mm, 25mm, 30mm
 - 标准材料: 镀锌钢, 可选不锈钢与铝合金
 - 配合关节轴承座
 - 带锁紧螺钉
- Dimension range: 20mm, 25mm, 30mm
 - Standard material: Galvanized steel
available material: stainless steel and aluminum alloy
 - Used with spherical bearings
 - With locking screw

LR

CSB-BAL®

标准规格 Standard specifications



产品编码 Part No.:

LR-20-32-14-C

C: 镀锌钢 Galvanized steel

A: 铝合金 Aluminum alloy

E: 不锈钢 Stainless steel

宽度 Width

外径 Outside diameter

内径 Inner diameter

产品编码 Part No.	d H7 [mm]	D [mm]	L [mm]	重量 Weight [g]
LR-20-32-14-C	20	32	14	54
LR-25-40-16-C	25	40	16	96
LR-30-45-16-C	30	45	16	110
LR-20-32-14-E	20	32	14	54
LR-25-40-16-E	25	40	16	96
LR-30-45-16-E	30	45	16	110
LR-20-32-14-A	20	32	14	54
LR-25-40-16-A	25	40	16	96
LR-30-45-16-A	30	45	16	110

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产品特性 Product features

- 滑动层标准材料TEFPLAS[®]B
可选材料TEFPLAS[®]G、TEFPLAS[®]E
- 外壳材料铝合金，可选不锈钢
- 自润滑，免维护
- 运行平稳，无噪音
- 高速运行，长寿命
- 工作温度 $\pm 200^{\circ}\text{C}$
- Standard material of sliding layer: TEFPLAS[®]B
Available materials: TEFPLAS[®]G、TEFPLAS[®]E
- Shell made of aluminum, available stainless steel
- Self-lubricating, maintenance-free
- Smooth operation, no noise
- High-speed operation and long life
- Operation temperature $\pm 200^{\circ}\text{C}$

TEFPLAS[™] 滑动层材料 Sliding layer materials

TEFPLAS[®]B 是标准滑动层材料，综合高承载与耐磨特性，适用于硬度HRC35以上硬轴。

TEFPLAS[®]G 极好的耐磨性能，适用于硬轴、不锈钢轴或铝轴。

TEFPLAS[®]E 符合FDA食品接触安全材料，适用于不锈钢轴或铝轴。

TEFPLAS[®]B is a standard sliding layer material. It combines high load bearing and wear resistance performance, suitable for hard shaft HRC35 or higher.

TEFPLAS[®]G has excellent wear resistance, suitable for hard shaft, stainless steel shaft or aluminum shaft.

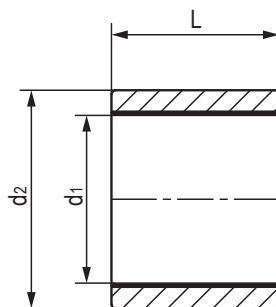
TEFPLAS[®]E FDA food contact safety materials, suitable for stainless steel shaft or aluminum shaft.

材料 Material	摩擦系数 Dry friction coefficient	最大静载荷 Max. static load MPa	最大动载荷 Max. dynamic load MPa	极限PV值 Max. PV N/mm ² x m/s	最高干运行速度 (m/s) Max. Speed, Dry running		运行温度* Operation temperature °C
					连续运行 Continuous	间断运行 Intermittent	
TEFPLAS [®] B	0.10-0.25	20	10	0.7	1.5	4.0	± 200
TEFPLAS [®] G	0.10-0.20	16	8	0.6	1.0	3.0	± 200
TEFPLAS [®] E	0.05-0.18	12	6	0.4	1.0	2.0	± 200

*极端高温下运行需要考虑加大配合间隙消除轴与轴承高温膨胀引起的卡滞现象，请与CSB销售工程师联系

*For operation under extreme high temperature, it is necessary to consider increasing the fitting clearance to avoid stagnation caused by the high temperature expansion of the shaft and bearing. Please contact CSB sales engineers

直套 Metric cylindrical bushings



产品编码 Part No.:

ALBB-0812-08

高度 Length

外径 Outside diameter

内径 Inner diameter

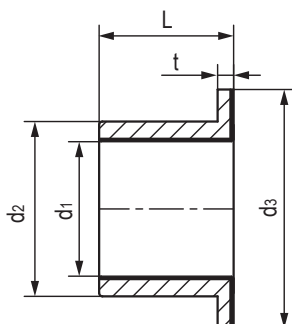
材料 Material: TEFPLAS® B/G/E

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2 (s7)} [mm]	L _(h13) [mm]
ALBB-0812-08	8	+0.033/+0.066	12	8
ALBB-0812-10	8	+0.033/+0.066	12	10
ALBB-0812-12	8	+0.033/+0.066	12	12
ALBB-0814-08	8	+0.033/+0.066	14	8
ALBB-0814-10	8	+0.033/+0.066	14	10
ALBB-1014-08	10	+0.033/+0.066	14	8
ALBB-1014-10	10	+0.033/+0.066	14	10
ALBB-1014-12	10	+0.033/+0.066	14	12
ALBB-1016-08	10	+0.033/+0.066	16	8
ALBB-1016-10	10	+0.033/+0.066	16	10
ALBB-1216-10	12	+0.034/+0.070	16	10
ALBB-1216-15	12	+0.034/+0.070	16	15
ALBB-1216-20	12	+0.034/+0.070	16	20
ALBB-1218-08	12	+0.034/+0.070	18	8
ALBB-1218-10	12	+0.034/+0.070	18	10
ALBB-1218-12	12	+0.034/+0.070	18	12
ALBB-1218-15	12	+0.034/+0.070	18	15
ALBB-1218-20	12	+0.034/+0.070	18	20
ALBB-1620-12	16	+0.041/+0.080	20	12
ALBB-1620-15	16	+0.041/+0.080	20	15
ALBB-1620-20	16	+0.041/+0.080	20	20

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2 (s7)} [mm]	L _(h13) [mm]
ALBB-1620-25	16	+0.041/+0.080	20	25
ALBB-1622-12	16	+0.041/+0.080	22	12
ALBB-1622-15	16	+0.041/+0.080	22	15
ALBB-1622-20	16	+0.041/+0.080	22	20
ALBB-1622-25	16	+0.041/+0.080	22	25
ALBB-2025-15	20	+0.042/+0.084	25	15
ALBB-2025-20	20	+0.042/+0.084	25	20
ALBB-2025-25	20	+0.042/+0.084	25	25
ALBB-2026-15	20	+0.042/+0.084	26	15
ALBB-2026-20	20	+0.042/+0.084	26	20
ALBB-2026-25	20	+0.042/+0.084	26	25
ALBB-2026-30	20	+0.042/+0.084	26	30
ALBB-2530-20	25	+0.050/+0.096	30	20
ALBB-2530-25	25	+0.050/+0.096	30	25
ALBB-2530-30	25	+0.050/+0.096	30	30
ALBB-2532-20	25	+0.050/+0.096	32	20
ALBB-2532-25	25	+0.050/+0.096	32	25
ALBB-2532-30	25	+0.050/+0.096	32	30
ALBB-3038-20	30	+0.050/+0.096	38	20
ALBB-3038-30	30	+0.050/+0.096	38	30
ALBB-3038-40	30	+0.050/+0.096	38	40

法兰轴承 Metric flange bushings



产品编码 Part No.:

ALBBF-0812-08

高度 Length

外径 Outside diameter

内径 Inner diameter

法兰设计 Flange design

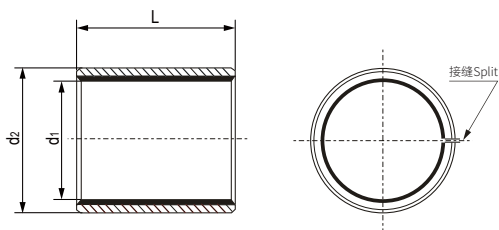
材料 Material: TEFLAS® B/G/E

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2(s7)} [mm]	d _{3(h13)} [mm]	L _(h13) [mm]	t _(h13) [mm]
ALBBF-0812-08	8	+0.033/+0.066	12	16	8	2
ALBBF-0812-10	8	+0.033/+0.066	12	16	10	2
ALBBF-0812-12	8	+0.033/+0.066	12	16	12	2
ALBBF-0814-08	8	+0.033/+0.066	14	18	8	3
ALBBF-0814-10	8	+0.033/+0.066	14	18	10	3
ALBBF-1014-08	10	+0.033/+0.066	14	19	8	2
ALBBF-1014-10	10	+0.033/+0.066	14	19	10	2
ALBBF-1014-12	10	+0.033/+0.066	14	19	12	2
ALBBF-1016-08	10	+0.033/+0.066	16	22	8	3
ALBBF-1016-10	10	+0.033/+0.066	16	22	10	3
ALBBF-1216-10	12	+0.034/+0.070	16	22	10	2
ALBBF-1216-15	12	+0.034/+0.070	16	22	15	2
ALBBF-1216-20	12	+0.034/+0.070	16	22	20	2
ALBBF-1218-08	12	+0.034/+0.070	18	24	8	3
ALBBF-1218-10	12	+0.034/+0.070	18	22	10	3
ALBBF-1218-12	12	+0.034/+0.070	18	24	12	3
ALBBF-1218-15	12	+0.034/+0.070	18	22	15	3
ALBBF-1218-20	12	+0.034/+0.070	18	22	20	3

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2(s7)} [mm]	d _{3(h13)} [mm]	L _(h13) [mm]	t _(h13) [mm]
ALBBF-1620-12	16	+0.041/+0.080	20	27	12	3
ALBBF-1620-15	16	+0.041/+0.080	20	27	15	3
ALBBF-1620-20	16	+0.041/+0.080	20	27	20	3
ALBBF-1620-25	16	+0.041/+0.080	20	27	25	3
ALBBF-1622-12	16	+0.041/+0.080	22	28	12	3
ALBBF-1622-15	16	+0.041/+0.080	22	28	15	3
ALBBF-1622-20	16	+0.041/+0.080	22	28	20	3
ALBBF-1622-25	16	+0.041/+0.080	22	28	25	3
ALBBF-2026-15	20	+0.042/+0.084	26	32	15	3
ALBBF-2026-20	20	+0.042/+0.084	26	32	20	3
ALBBF-2026-25	20	+0.042/+0.084	26	32	25	3
ALBBF-2026-30	20	+0.042/+0.084	26	32	30	3
ALBBF-2532-20	25	+0.050/+0.096	32	38	20	3
ALBBF-2532-25	25	+0.050/+0.096	32	38	25	3
ALBBF-2532-30	25	+0.050/+0.096	32	38	30	3
ALBBF-3038-20	30	+0.050/+0.096	38	44	20	3
ALBBF-3038-30	30	+0.050/+0.096	38	44	30	3
ALBBF-3038-40	30	+0.050/+0.096	38	44	40	3

直套 [接缝] Metric cylindrical bushings(Split)



产品编码 Part No.:

ALB-0812-08

高度 Length

外径 Outside diameter

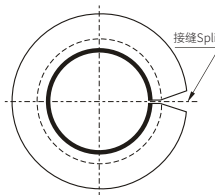
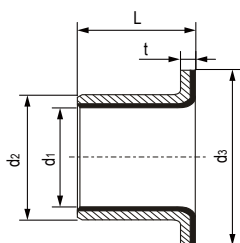
内径 Inner diameter

材料 Material: TEFPLAS® B/G

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ (s7) [mm]	L _(h13) [mm]	产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ (s7) [mm]	L _(h13) [mm]	产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ (s7) [mm]	L _(h13) [mm]
ALB-0507-05	5	-0.01/+0.055	7	5	ALB-1517-25	15	-0.01/+0.058	17	25	ALB-2528-25	25	-0.01/+0.071	28	25
ALB-0507-08	5	-0.01/+0.055	7	8	ALB-1618-10	16	-0.01/+0.058	18	10	ALB-2528-30	25	-0.01/+0.071	28	30
ALB-0507-10	5	-0.01/+0.055	7	10	ALB-1618-12	16	-0.01/+0.058	18	12	ALB-2832-15	28	-0.01/+0.085	32	15
ALB-0608-05	6	-0.01/+0.055	8	5	ALB-1618-15	16	-0.01/+0.058	18	15	ALB-2832-20	28	-0.01/+0.085	32	20
ALB-0608-08	6	-0.01/+0.055	8	8	ALB-1618-20	16	-0.01/+0.058	18	20	ALB-2832-25	28	-0.01/+0.085	32	25
ALB-0608-10	6	-0.01/+0.055	8	10	ALB-1618-25	16	-0.01/+0.058	18	25	ALB-2832-30	28	-0.01/+0.085	32	30
ALB-0810-08	8	-0.01/+0.055	10	8	ALB-1618-30	16	-0.01/+0.058	18	30	ALB-2832-40	28	-0.01/+0.085	32	40
ALB-0810-10	8	-0.01/+0.055	10	10	ALB-1719-10	17	-0.01/+0.061	19	10	ALB-3034-20	30	-0.01/+0.085	34	20
ALB-0810-12	8	-0.01/+0.055	10	12	ALB-1719-12	17	-0.01/+0.061	19	12	ALB-3034-25	30	-0.01/+0.085	34	25
ALB-0810-15	8	-0.01/+0.055	10	15	ALB-1719-15	17	-0.01/+0.061	19	15	ALB-3034-30	30	-0.01/+0.085	34	30
ALB-1012-08	10	-0.01/+0.058	12	8	ALB-1719-20	17	-0.01/+0.061	19	20	ALB-3034-40	30	-0.01/+0.085	34	40
ALB-1012-10	10	-0.01/+0.058	12	10	ALB-1719-25	17	-0.01/+0.061	19	25	ALB-3236-20	32	-0.01/+0.085	36	20
ALB-1012-12	10	-0.01/+0.058	12	12	ALB-1719-30	17	-0.01/+0.061	19	30	ALB-3236-25	32	-0.01/+0.085	36	25
ALB-1012-15	10	-0.01/+0.058	12	15	ALB-1820-10	18	-0.01/+0.061	20	10	ALB-3236-30	32	-0.01/+0.085	36	30
ALB-1012-20	10	-0.01/+0.058	12	20	ALB-1820-12	18	-0.01/+0.061	20	12	ALB-3236-40	32	-0.01/+0.085	36	40
ALB-1214-08	12	-0.01/+0.058	14	8	ALB-1820-15	18	-0.01/+0.061	20	15	ALB-3539-12	35	-0.01/+0.085	39	12
ALB-1214-10	12	-0.01/+0.058	14	10	ALB-1820-20	18	-0.01/+0.061	20	20	ALB-3539-15	35	-0.01/+0.085	39	15
ALB-1214-12	12	-0.01/+0.058	14	12	ALB-1820-25	18	-0.01/+0.061	20	25	ALB-3539-20	35	-0.01/+0.085	39	20
ALB-1214-15	12	-0.01/+0.058	14	15	ALB-1820-30	18	-0.01/+0.061	20	30	ALB-3539-25	35	-0.01/+0.085	39	25
ALB-1214-20	12	-0.01/+0.058	14	20	ALB-2023-10	20	-0.01/+0.062	23	10	ALB-3539-30	35	-0.01/+0.085	39	30
ALB-1214-25	12	-0.01/+0.058	14	25	ALB-2023-12	20	-0.01/+0.062	23	12	ALB-3539-40	35	-0.01/+0.085	39	40
ALB-1315-10	13	-0.01/+0.058	15	10	ALB-2023-15	20	-0.01/+0.062	23	15	ALB-3539-50	35	-0.01/+0.085	39	50
ALB-1315-12	13	-0.01/+0.058	15	12	ALB-2023-20	20	-0.01/+0.062	23	20	ALB-3842-15	38	-0.01/+0.085	42	15
ALB-1315-15	13	-0.01/+0.058	15	15	ALB-2023-25	20	-0.01/+0.062	23	25	ALB-3842-20	38	-0.01/+0.085	42	20
ALB-1315-20	13	-0.01/+0.058	15	20	ALB-2023-30	20	-0.01/+0.062	23	30	ALB-3842-25	38	-0.01/+0.085	42	25
ALB-1315-25	13	-0.01/+0.058	15	25	ALB-2225-10	22	-0.01/+0.071	25	10	ALB-3842-30	38	-0.01/+0.085	42	30
ALB-1416-10	14	-0.01/+0.058	16	10	ALB-2225-12	22	-0.01/+0.071	25	12	ALB-3842-40	38	-0.01/+0.085	42	40
ALB-1416-12	14	-0.01/+0.058	16	12	ALB-2225-15	22	-0.01/+0.071	25	15	ALB-3842-50	38	-0.01/+0.085	42	50
ALB-1416-15	14	-0.01/+0.058	16	15	ALB-2225-20	22	-0.01/+0.071	25	20	ALB-4044-20	40	-0.01/+0.085	44	20
ALB-1416-20	14	-0.01/+0.058	16	20	ALB-2225-25	22	-0.01/+0.071	25	25	ALB-4044-25	40	-0.01/+0.085	44	25
ALB-1416-25	14	-0.01/+0.058	16	25	ALB-2225-30	22	-0.01/+0.071	25	30	ALB-4044-30	40	-0.01/+0.085	44	30
ALB-1517-10	15	-0.01/+0.058	17	10	ALB-2528-10	25	-0.01/+0.071	28	10	ALB-4044-40	40	-0.01/+0.085	44	40
ALB-1517-12	15	-0.01/+0.058	17	12	ALB-2528-12	25	-0.01/+0.071	28	12	ALB-4044-50	40	-0.01/+0.085	44	50
ALB-1517-15	15	-0.01/+0.058	17	15	ALB-2528-15	25	-0.01/+0.071	28	15					
ALB-1517-20	15	-0.01/+0.058	17	20	ALB-2528-20	25	-0.01/+0.071	28	20					

法兰轴承 [接缝] Metric flange bushings (Split)



产品编码 Part No.:

ALBF-0812-08

高度 Length

外径 Outside diameter

内径 Inner diameter

法兰设计 Flange design

材料 Material: TEFPLAS® B/G

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2(g7)} [mm]	d _{3(h13)} [mm]	L _(h13) [mm]	t _(h13) [mm]
ALBF-0507-05	5	-0.01/+0.055	7	11	5	1
ALBF-0507-10	5	-0.01/+0.055	7	11	10	1
ALBF-0608-04	6	-0.01/+0.055	8	12	4	1
ALBF-0608-05	6	-0.01/+0.055	8	12	5	1
ALBF-0608-06	6	-0.01/+0.055	8	12	6	1
ALBF-0608-07	6	-0.01/+0.055	8	12	7	1
ALBF-0608-08	6	-0.01/+0.055	8	12	8	1
ALBF-0608-10	6	-0.01/+0.055	8	12	10	1
ALBF-0810-055	8	-0.01/+0.055	10	15	5.5	1
ALBF-0810-075	8	-0.01/+0.055	10	15	7.5	1
ALBF-0810-095	8	-0.01/+0.055	10	15	9.5	1
ALBF-0810-10	8	-0.01/+0.055	10	15	10	1
ALBF-0810-15	8	-0.01/+0.055	10	15	15	1
ALBF-1012-05	10	-0.01/+0.058	12	18	5	1
ALBF-1012-06	10	-0.01/+0.058	12	18	6	1
ALBF-1012-07	10	-0.01/+0.058	12	18	7	1
ALBF-1012-09	10	-0.01/+0.058	12	18	9	1
ALBF-1012-10	10	-0.01/+0.058	12	18	10	1
ALBF-1012-12	10	-0.01/+0.058	12	18	12	1
ALBF-1012-15	10	-0.01/+0.058	12	18	15	1
ALBF-1214-06	12	-0.01/+0.058	14	20	6	1
ALBF-1214-07	12	-0.01/+0.058	14	20	7	1
ALBF-1214-09	12	-0.01/+0.058	14	20	9	1
ALBF-1214-10	12	-0.01/+0.058	14	20	10	1
ALBF-1214-12	12	-0.01/+0.058	14	20	12	1
ALBF-1214-15	12	-0.01/+0.058	14	20	15	1
ALBF-1214-17	12	-0.01/+0.058	14	20	17	1
ALBF-1214-20	12	-0.01/+0.058	14	20	20	1
ALBF-1416-04	14	-0.01/+0.058	16	22	4	1
ALBF-1416-06	14	-0.01/+0.058	16	22	6	1
ALBF-1416-08	14	-0.01/+0.058	16	22	8	1
ALBF-1416-10	14	-0.01/+0.058	16	22	10	1
ALBF-1416-12	14	-0.01/+0.058	16	22	12	1
ALBF-1416-15	14	-0.01/+0.058	16	22	15	1

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d _{2(g7)} [mm]	d _{3(h13)} [mm]	L _(h13) [mm]	t _(h13) [mm]
ALBF-1416-17	14	-0.01/+0.058	16	22	17	1
ALBF-1517-09	15	-0.01/+0.058	17	23	9	1
ALBF-1517-12	15	-0.01/+0.058	17	23	12	1
ALBF-1517-17	15	-0.01/+0.058	17	23	17	1
ALBF-1517-20	15	-0.01/+0.058	17	23	20	1
ALBF-1618-06	16	-0.01/+0.058	18	24	6	1
ALBF-1618-09	16	-0.01/+0.058	18	24	9	1
ALBF-1618-12	16	-0.01/+0.058	18	24	12	1
ALBF-1618-17	16	-0.01/+0.058	18	24	17	1
ALBF-1618-21	16	-0.01/+0.058	18	24	21	1
ALBF-1820-04	18	-0.01/+0.061	20	26	4	1
ALBF-1820-06	18	-0.01/+0.061	20	26	6	1
ALBF-1820-09	18	-0.01/+0.061	20	26	9	1
ALBF-1820-12	18	-0.01/+0.061	20	26	12	1
ALBF-1820-17	18	-0.01/+0.061	20	26	17	1
ALBF-1820-30	18	-0.01/+0.061	20	26	30	1
ALBF-2023-11.5	20	-0.01/+0.062	23	30	11.5	1.5
ALBF-2023-16.5	20	-0.01/+0.062	23	30	16.5	1.5
ALBF-2023-21.5	20	-0.01/+0.062	23	30	21.5	1.5
ALBF-2528-11.5	25	-0.01/+0.071	28	35	11.5	1.5
ALBF-2528-16.5	25	-0.01/+0.071	28	35	16.5	1.5
ALBF-2528-21.5	25	-0.01/+0.071	28	35	21.5	1.5
ALBF-3034-16	30	-0.01/+0.085	34	42	16	2
ALBF-3034-20	30	-0.01/+0.085	34	42	20	2
ALBF-3034-26	30	-0.01/+0.085	34	42	26	2
ALBF-3034-37	30	-0.01/+0.085	34	42	37	2
ALBF-3539-12	35	-0.01/+0.085	39	47	12	2
ALBF-3539-16	35	-0.01/+0.085	39	47	16	2
ALBF-3539-26	35	-0.01/+0.085	39	47	26	2
ALBF-3539-36	35	-0.01/+0.085	39	47	36	2
ALBF-4044-20	40	-0.01/+0.085	44	52	20	2
ALBF-4044-30	40	-0.01/+0.085	44	52	30	2
ALBF-4044-40	40	-0.01/+0.085	44	52	40	2
ALBF-4044-50	40	-0.01/+0.085	44	52	50	2



产品特性 Product features

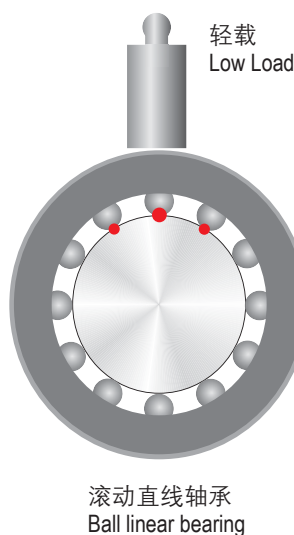
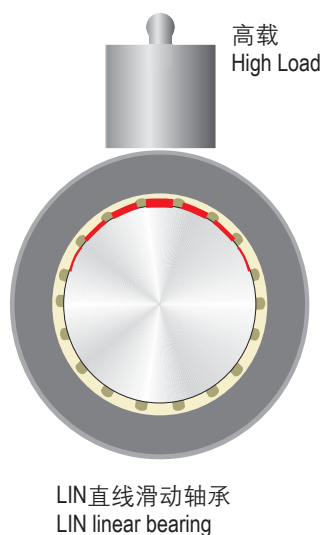
- 自润滑免维护塑料直线轴承。无噪音运行。适合在极其恶劣的粉尘环境中连续使用。允许被食品药品包装机械清洗液清洗。对轴材料硬度以及安装孔的精度要求较低
 - 免维护、长期干运行、无噪音
 - 适合灰尘中长期运行
 - 耐腐蚀，适合用消毒液清洗
 - 直槽设计易将灰尘排出摩擦面
 - 安装和替换简易
 - 适合轻量化设计
- Maintenance free plastic linear bearing. Low noise operation is suitable for continuously application under the extremely dusty environment. 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, dry operation, low noise
 - Suitable for long-time running in dusty environments
 - Corrosion resistance; Cleaning with disinfectant
 - Straight grooves design removes dust from the friction surface
 - Easy installation and replacement
 - Suitable for lightweight design

CSB-LIN[®]直线轴承高承载能力

CSB-LIN[®] linear bearings with high loading capability

CSB-LIN[®]塑料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，而传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塑料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 CSB-LIN[®] plastic linear bearings are with better loading capability than the sliding ball bearings.



CSB-LIN®直线轴承在污垢、灰尘中干运行

CSB-LIN® linear bearings used in extremely conditions of sands and dusts



CSB-LIN®直线轴承滑动膜是由高耐磨标准材料EPB13制成；特殊的直槽结构设计允许轴承在污垢、灰尘或沙粒中平稳运行，直槽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。

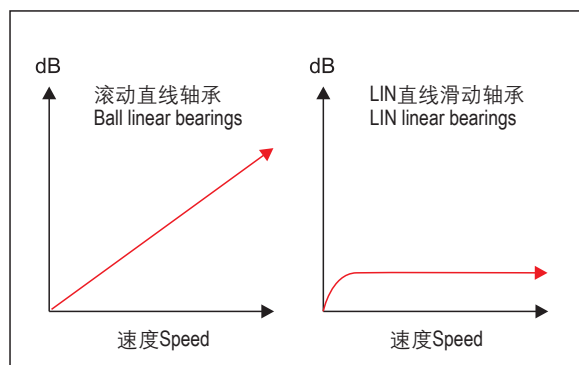
CSB-LIN® liners is made from high anti-wear material EPB13. The straight grooves design allows the bearing to be used in the extremely conditions such as in sands and dusts. The straight grooves design allows the sands or dusts entering the grooves and be brought out of the bearing system finally ,but the traditional ball bearings will be blocked by the entered sands or dusts, then the ball bearings moving system and the shaft surface will be damaged.

CSB-LIN®直线轴承低噪音运行

CSB-LIN® linear bearings 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CSB-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 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 CSB-LIN® plastic linear 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

CSB-LIN®直线轴承允许经常接触清洗液

CSB-LIN® linear bearings allows the access of cleaning solution

CSB-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CSB-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。

The CSB-LIN® plastic linear bearings are used in the food packing machine guiding system so it is easily access to the cleaning solutions. Years of application experience proves that the CSB-LIN® plastic linear bearings are corrosion resistant to most kinds of Alkaline cleaning solutions or could be even immersed into the solutions.

滑动膜技术数据表 Liners technical data table

材料性能 Material properties	测试标准 Standard	单位 Unit	CSB-EPB13	CSB-EPB5	CSB-MN2
颜色 Color	-	-	黄色 Yellow	黑色 Black	深灰 Dark grey
密度 Density	ISO1183	g/cm ³	1.48	1.44	1.65
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3	0.1	0.2
最大吸水率 Max. water absorption	ISO62	%	1.3	0.5	0.7
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.15	0.09-0.25	0.10-0.18
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.40	1.40	0.30
弯曲模量 Flexural modulus	ISO178	MPa	2600	4800	2400
弯曲强度 Flexural strength	ISO178	MPa	60	165	53
最大静载荷 Max. static load	ITS027	MPa	35	110	30
最大动载荷 Max. dynamic load	ITS028	MPa	14	61	12
邵氏硬度 Shore hardness	ISO868	D	74	82	73
连续运行温度 Long-term application temperature	ITS029	°C	+90	+250	+90
短时运行温度 Short-term application temperature	ITS029	°C	+120	+315	+120
最低运行温度 Lowest application temperature	ITS029	°C	-50	-100	-50
导热性 Thermal conductivity	ISO22007	W/m/K	0.25	0.55	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10	6	8
阻燃等级 Flammability	UL94	Class	HB	V0	HB
体电阻率 Volume resistance	IEC60093	Ω·cm	>10 ¹³	>10 ⁸	>10 ⁸
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ⁷	>10 ⁸

*ITS: CSB内部测试标准 CSB company's internal test standards.

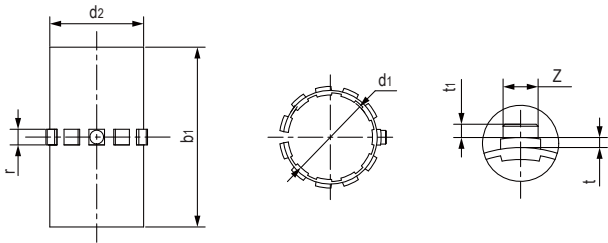
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

CSB-LIN®直线轴承承载能力 Load capacity

■ 滑动膜材料: CSB-EPB13
Liner material: CSB-EPB13

内径 Inner diameter [mm]	最大许可动载荷 [N] Max. Dynamic Load P=5MPa		最大许可静载荷 [N] Max. Static Load P=35MPa	
	LIN-11 滑动膜 LIN-11 Liners	LIN-12 滑动膜 LIN-12 Liners	LIN-11 滑动膜 LIN-11 Liners	LIN-12 滑动膜 LIN-12 Liners
10	870	780	6090	5460
12	1152	1008	8064	7056
16	1728	1440	12096	10080
20	2700	1800	18900	12600
25	4350	3000	30650	21000
30	6120	4500	42840	31500
40	9600	7200	67200	50400
50	15000	10500	105000	73500

LIN-11 滑动膜 Liners

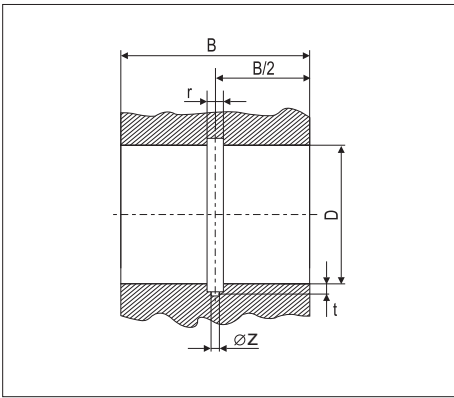


座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	b ₁ [mm]	t [mm]	t ₁ [mm]	Z [mm]	r[-0.1/-0.2] [mm]	重量 Weight [g]
LIN-11-10	10	+0.030/+0.070	12	28	0.8	0.8	2.5	3.0	1.3
LIN-11-12	12	+0.030/+0.070	14	31	0.8	1.0	3.0	3.0	1.6
LIN-11-16	16	+0.030/+0.070	18	35	0.8	1.2	3.5	3.5	2.2
LIN-11-20	20	+0.030/+0.070	23	44	0.8	1.2	3.5	5.0	5.0
LIN-11-25	25	+0.030/+0.070	28	57	0.8	1.5	4.0	5.0	8.0
LIN-11-30	30	+0.040/+0.085	34	67	0.8	1.5	4.0	5.0	15.1
LIN-11-40	40	+0.040/+0.085	44	79	1.3	2.0	5.0	6.0	25.6
LIN-11-50	50	+0.050/+0.100	55	99	1.3	2.0	6.0	7.0	50.6

装配尺寸 Installation size

产品编码 Part No.	轴径 Shaft [mm]	D H7 [mm]	B h10 [mm]	r ^{+0.5} [mm]	t ^{+0.05} [mm]	Z ^{+0.2} [mm]
LIN-11-10	10	12	29	3.0	0.8	2.6
LIN-11-12	12	14	32	3.0	1.0	3.1
LIN-11-16	16	18	36	3.5	1.2	3.6
LIN-11-20	20	23	45	5.0	1.2	3.6
LIN-11-25	25	28	58	5.0	1.5	4.1
LIN-11-30	30	34	68	5.0	1.5	4.1
LIN-11-40	40	44	80	6.0	2.0	5.1
LIN-11-50	50	55	100	7.0	2.0	6.1

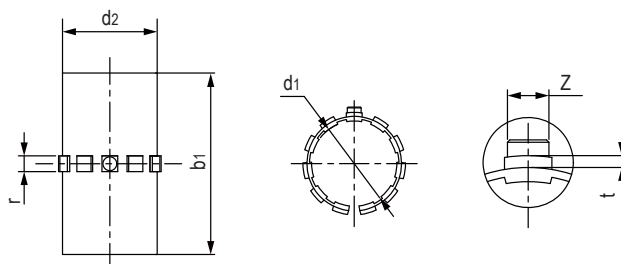


配合LIN-11滑动膜产品：
LIN-11 Liners are used in:



产品编码 Part No.:
LIN-11-10
内径 Inner diameter
标准系列11 Standard series 11

LIN-12 滑动膜 Liners

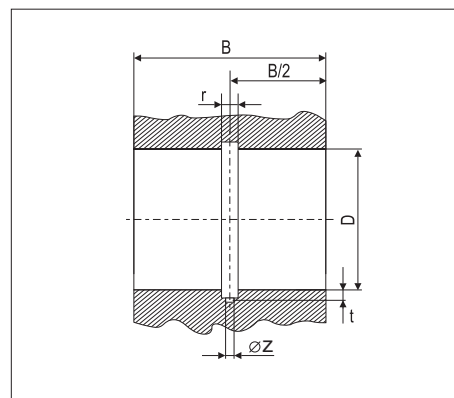


座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	b ₁ [mm]	t [mm]	Z [mm]	r[-0.1/-0.2] [mm]	重量 Weight [g]
LIN-12-10	10	+0.030/+0.070	12	25	0.8	2.5	3.0	1.1
LIN-12-12	12	+0.030/+0.070	14	27	0.8	3.0	3.0	1.4
LIN-12-16	16	+0.030/+0.070	18	29	0.8	3.5	3.5	1.9
LIN-12-20	20	+0.030/+0.070	23	29	0.8	3.5	5.0	3.3
LIN-12-25	25	+0.030/+0.070	28	39	0.8	4.0	5.0	5.5
LIN-12-30	30	+0.040/+0.085	34	49	0.8	4.0	5.0	11.1
LIN-12-40	40	+0.040/+0.085	44	59	1.3	5.0	6.0	19.0
LIN-12-50	50	+0.050/+0.100	55	69	1.3	6.0	7.0	35.3

装配尺寸 Installation size

产品编码 Part No.	轴径 Shaft [mm]	D H7 [mm]	B h10 [mm]	r ^{+0.5} [mm]	t ^{+0.05} [mm]	Z ^{+0.2} [mm]
LIN-12-10	10	12	26	3.0	0.8	2.6
LIN-12-12	12	14	28	3.0	0.8	3.1
LIN-12-16	16	18	30	3.5	0.8	3.6
LIN-12-20	20	23	30	5.0	0.8	3.6
LIN-12-25	25	28	40	5.0	0.8	4.1
LIN-12-30	30	34	50	5.0	0.8	4.1
LIN-12-40	40	44	60	6.0	1.3	5.1
LIN-12-50	50	55	70	7.0	1.3	6.1



配合LIN-12滑动膜产品:

LIN-12 Liners are used in:



LIN-12R



LIN-12RTL



LIN-12RTM



LIN-12B

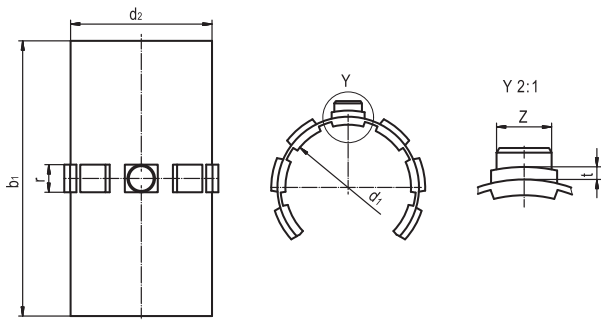
产品编码 Part No.:

LIN-12-10

内径 Inner diameter

标准系列12 Standard series 12

LIN-11K滑动膜 Liners

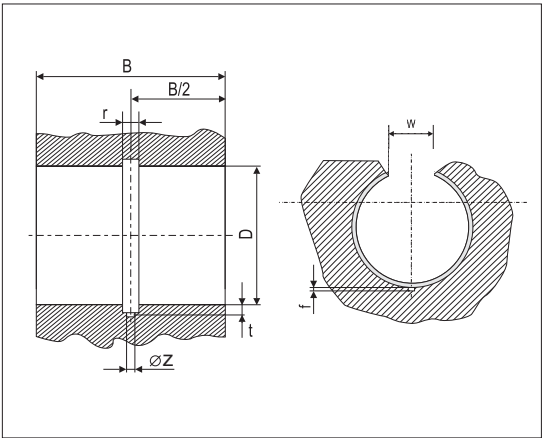


座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	b ₁ [mm]	t [mm]	Z [mm]	r[-0.1/-0.2] [mm]	重量 Weight [g]
LIN-11K-10	10	+0.030/+0.070	12	28	0.8	2.5	3.0	1.0
LIN-11K-12	12	+0.030/+0.070	14	31	0.8	3.0	3.0	1.3
LIN-11K-16	16	+0.030/+0.070	18	35	0.8	3.5	3.5	1.9
LIN-11K-20	20	+0.030/+0.070	23	44	0.8	3.5	5.0	4.5
LIN-11K-25	25	+0.030/+0.070	28	57	0.8	4.0	5.0	7.5
LIN-11K-30	30	+0.040/+0.085	34	67	0.8	4.0	5.0	14.5
LIN-11K-40	40	+0.040/+0.085	44	79	1.3	5.0	6.0	24.5
LIN-11K-50	50	+0.050/+0.100	55	99	1.3	6.0	7.0	49.0

装配尺寸 Installation size

产品编码 Part No.	轴径 Shaft [mm]	D H7 [mm]	B h10 [mm]	W [mm]	r ^{+0.5} [mm]	t ^{+0.05} [mm]	f ^{+0.1} [mm]	Z ^{+0.2} [mm]
LIN-11K-10	10	12	29	7.3	3.0	2.6	1.0	2.6
LIN-11K-12	12	14	32	9.0	3.0	3.1	1.5	3.1
LIN-11K-16	16	18	36	11.6	3.5	3.6	1.7	3.6
LIN-11K-20	20	23	45	12.0	5.0	3.6	2.0	3.6
LIN-11K-25	25	28	58	14.5	5.0	4.1	2.0	4.1
LIN-11K-30	30	34	68	16.6	5.0	4.1	2.0	4.1
LIN-11K-40	40	44	80	21.0	6.0	5.1	2.5	5.1
LIN-11K-50	50	55	100	25.5	7.0	6.1	2.5	6.1



配合LIN-11K滑动膜产品：

LIN-11K Liners are used in:



LIN-11RK



LIN-11RSK



LIN-11BK

产品编码 Part No.:

LIN-11K-10

内径 Inner diameter

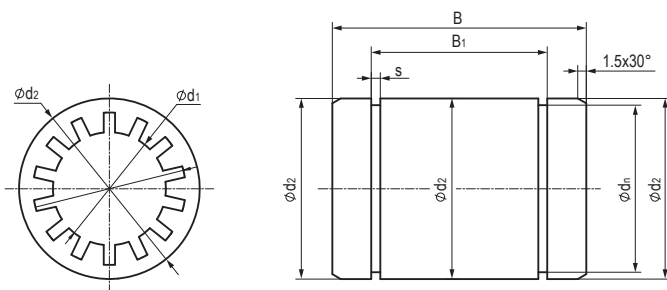
标准开口系列11K Standard split type 11K

LIN-00 全塑料直线轴承 Plastic linear bearings



- 高性能材料EPB13制成
- 过盈配合压装
- 卡簧轴向加固
- 标准配合公差E9
- 适用于污垢或灰尘环境
- 使用温度-20℃/+60℃
- Made from EPB13 high-performance polymers
- Assembly by press fitting
- Axial secured by circlips
- Standard tolerance E9
- Unaffected by dirt and dust
- Operation temperature -20℃/+60℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-00-06

轴承内径 Inner diameter

LIN-00 系列直线轴承
LIN-00 standard bearings

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	B [mm]	B ₁ [mm]	s [mm]	d _h [mm]
LIN-00-06	6	+0.020/+0.050	12	19	13.5	1.1	11.5
LIN-00-08	8	+0.025/+0.061	16	25	16.2	1.1	15.2
LIN-00-10	10	+0.032/+0.075	19	29	21.6	1.3	17.5
LIN-00-12	12	+0.032/+0.075	22	32	22.6	1.3	20.5
LIN-00-16	16	+0.032/+0.075	26	36	24.6	1.3	24.2
LIN-00-20	20	+0.040/+0.092	32	45	31.2	1.6	29.6
LIN-00-25	25	+0.040/+0.092	40	58	43.7	1.85	36.5
LIN-00-30	30	+0.040/+0.092	47	68	51.7	1.85	43.5

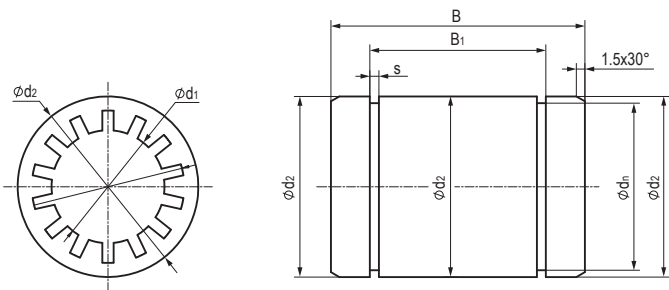
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=2.5MPa	F max. [N] 最大静载荷 Static Load P=17.5MPa	重量 Weight [g]
LIN-00-06	6	12	0/+0.018	200	1400	2
LIN-00-08	8	16	0/+0.018	250	1750	4
LIN-00-10	10	19	0/+0.021	363	2538	7
LIN-00-12	12	22	0/+0.021	480	3360	9
LIN-00-16	16	26	0/+0.021	720	5040	13
LIN-00-20	20	32	0/+0.025	1125	7875	24
LIN-00-25	25	40	0/+0.025	1813	12688	47
LIN-00-30	30	47	0/+0.025	2550	17850	72

LIN-01 全塑料直线轴承 Plasic linear bearings



- 高性能EPB13材料制成
- 易用手直接装配
- 卡簧轴向固定
- 较小的配合间隙
- 适用于污垢或灰尘环境
- 使用温度-20℃/+60℃
- Made from EPB13 high-performance polymers
- Easy assembly by hand
- Axial secured by circlips
- Reduced bearing clearance
- Unaffected by dirt and dust
- Operation temperature -20℃/+60℃

标准规格 Standard specifications



产品编码 Part No.:
LIN-01-06
轴承内径 Inner diameter
LIN-01 系列直线轴承
LIN-01 standard bearings

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	B [mm]	B ₁ [mm]	s [mm]	d ₃ [mm]
LIN-01-06	6	0/+0.03	12	19	13.5	1.1	11.5
LIN-01-08	8	0/+0.04	16	25	16.2	1.1	15.2
LIN-01-10	10	0/+0.04	19	29	21.6	1.3	17.5
LIN-01-12	12	0/+0.04	22	32	22.6	1.3	20.5
LIN-01-16	16	0/+0.04	26	36	24.6	1.3	24.2
LIN-01-20	20	0/+0.04	32	45	31.2	1.6	29.6
LIN-01-25	25	0/+0.05	40	58	43.7	1.85	36.5
LIN-01-30	30	0/+0.05	47	68	51.7	1.85	43.5

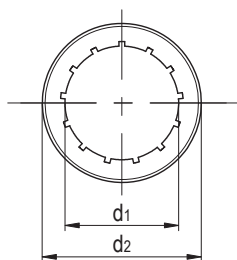
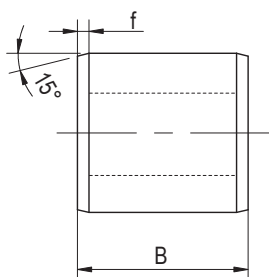
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=2.5MPa	F max. [N] 最大静载荷 Static Load P=17.5MPa	重量 Weight [g]
LIN-01-06	6	12	0/+0.018	200	1400	2
LIN-01-08	8	16	0/+0.018	250	1750	4
LIN-01-10	10	19	0/+0.021	363	2538	7
LIN-01-12	12	22	0/+0.021	480	3360	9
LIN-01-16	16	26	0/+0.021	720	5040	13
LIN-01-20	20	32	0/+0.025	1125	7875	24
LIN-01-25	25	40	0/+0.025	1813	12688	47
LIN-01-30	30	47	0/+0.025	2550	17850	72

LIN-02 压配合全塑料直线轴承 Compact plastic linear bearings



- 高性能EPB25材料制成
- 过盈配合压装
- 适用于污垢或灰尘环境
- 使用温度-60℃/+140℃
- Made from EPB25 high-performance polymers
- Assembly by press fitting
- Unaffected by dirt and dust
- Operation temperature -60℃/+140℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-02-06

轴承内径 Inner diameter

LIN-02 系列直线轴承
LIN-02 standard bearings

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	d公差 Tolerance [mm]	d ₂ [mm]	B [mm]	f [mm]
LIN-02-06	6	+0.032/+0.070	12	22	1
LIN-02-08	8	+0.032/+0.070	15	24	1
LIN-02-10	10	+0.030/+0.088	17	26	1.5
LIN-02-12	12	+0.030/+0.088	19	28	1.5
LIN-02-16	16	+0.030/+0.088	24	30	1.5
LIN-02-20	20	+0.030/+0.091	28	30	2
LIN-02-25	25	+0.030/+0.091	35	40	2
LIN-02-30	30	+0.040/+0.110	40	50	2.5

产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-02-06	6	12	0/+0.018	510	3570	1.5
LIN-02-08	8	15	0/+0.018	552	3867	2.8
LIN-02-10	10	17	0/+0.018	663	4641	5
LIN-02-12	12	19	0/+0.021	856	5997	6.5
LIN-02-16	16	24	0/+0.021	1224	8568	9.7
LIN-02-20	20	28	0/+0.021	1530	10710	11.7
LIN-02-25	25	35	0/+0.025	2550	17850	22.8
LIN-02-30	30	40	0/+0.025	3825	26775	34.9

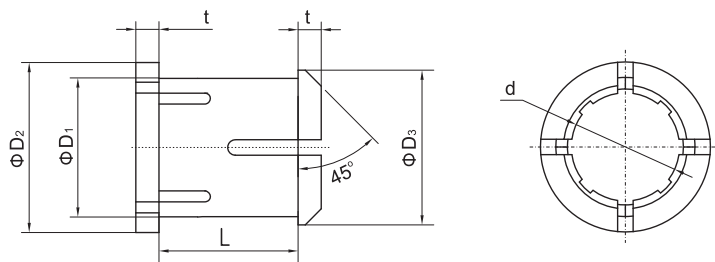
ELB弹性直线轴承 Elastic linear bearings



产品特性 Product features

- 特殊设计直线运动轴承。同样适用于粉尘或经常需要清洗的环境中。安装极为简易，直接通过轴承自身限位固定。轴承的弹性允许安装孔和配合轴尺寸偏差。
- 自润滑，高耐磨
- 高排屑能力，易清洗
- 低摩擦系数
- 低成本，易安装
- Special designed linear bearing. It is suitable for the dusty environment. The mounting of the bearing is simple and easy. No additional location ring is needed. The elastic feature of the bearing can adjust the deviated mounting holes or shaft tolerance.
- Maintenance-free, high wear resistance
- Very suitable for long-time working in dusty
- Low friction coefficient
- Low cost, easy to install

标准规格 Standard specifications

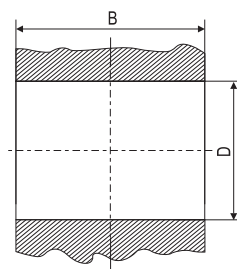


座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d [mm]	d公差 Tolerance [mm]	D ₁ [mm]	L [mm]	D ₂ [mm]	D ₃ [mm]	t [mm]	重量 Weight [g]
ELB-0610-10	6	+0.020/+0.068	10	10	12	11	1.5	0.9
ELB-0610-15	6	+0.020/+0.068	10	15	12	11	1.5	1.2
ELB-0812-10	8	+0.025/+0.083	12	10	14	13	1.5	1.2
ELB-0812-15	8	+0.025/+0.083	12	15	14	13	1.5	1.6
ELB-1014-10	10	+0.025/+0.083	14	10	18	16	2	1.7
ELB-1014-15	10	+0.025/+0.083	14	15	18	16	2	2.1
ELB-1216-15	12	+0.032/+0.102	16	15	20	18	2	2.5
ELB-1216-20	12	+0.032/+0.102	16	20	20	18	2	3.1
ELB-1418-15	14	+0.032/+0.102	18	15	22	20	2	2.8
ELB-1418-18	14	+0.032/+0.102	18	18	22	20	2	3.0

产品编码 Part No.	d [mm]	d公差 Tolerance [mm]	D ₁ [mm]	L [mm]	D ₂ [mm]	D ₃ [mm]	t [mm]	重量 Weight [g]
ELB-1418-20	14	+0.032/+0.102	18	20	22	20	2	3.4
ELB-1519-20	15	+0.032/+0.102	19	20	23	21	2	3.5
ELB-1519-25	15	+0.032/+0.102	19	25	23	21	2	4.1
ELB-1620-20	16	+0.032/+0.102	20	20	24	22	3	4.2
ELB-1620-25	16	+0.032/+0.102	20	25	24	22	3	4.9
ELB-1822-20	18	+0.032/+0.102	22	20	26	24	3	4.8
ELB-1822-25	18	+0.032/+0.102	22	25	26	24	3	5.5
ELB-2024-25	20	+0.040/+0.124	24	25	28	26	3	5.5
ELB-2025-20	20	+0.040/+0.124	25	20	29	27	3	6.5
ELB-2025-30	20	+0.040/+0.124	25	30	29	27	3	8.5
ELB-2529-30	25	+0.040/+0.124	29	30	33	31	3	8.0
ELB-2530-30	25	+0.040/+0.124	30	30	34	32	3	10.8
ELB-2530-40	25	+0.040/+0.124	30	40	34	32	3	13.5
ELB-3034-30	30	+0.040/+0.124	34	30	38	36	3	9.5
ELB-3035-30	30	+0.040/+0.124	35	30	39	37	3	12.8
ELB-3035-40	30	+0.040/+0.124	35	40	39	37	3	15.9

装配尺寸 Installation size



产品编码 Part No.:

ELB-1418-16

轴承长度 Length

轴承外径 Outer diameter

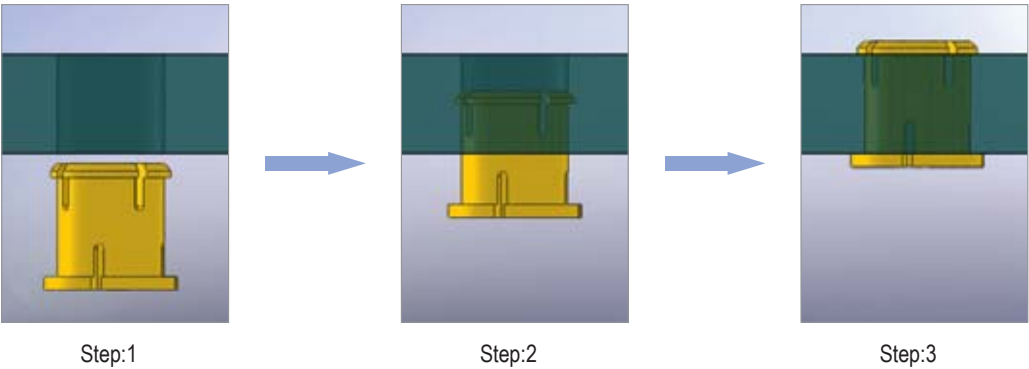
轴承内径 Inner diameter

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	轴径 Shaft h6-h9 [mm]	公差 Tolerance [mm]	D H7 [mm]	公差 Tolerance [mm]	B h10 [mm]	公差 Tolerance [mm]
ELB-0610-10	6	0/-0.030	10	0/+0.015	10	0/-0.058
ELB-0610-15	6	0/-0.030	10	0/+0.015	15	0/-0.058
ELB-0812-10	8	0/-0.036	12	0/+0.018	10	0/-0.070
ELB-0812-15	8	0/-0.036	12	0/+0.018	15	0/-0.070
ELB-1014-10	10	0/-0.036	14	0/+0.018	10	0/-0.070
ELB-1014-15	10	0/-0.036	14	0/+0.018	15	0/-0.070
ELB-1216-15	12	0/-0.043	16	0/+0.018	15	0/-0.070

产品编码 Part No.	轴径 Shaft h6-h9 [mm]	公差 Tolerance [mm]	D H7 [mm]	公差 Tolerance [mm]	B h10 [mm]	公差 Tolerance [mm]
ELB-1216-20	12	0/-0.043	16	0/+0.018	20	0/-0.084
ELB-1418-15	14	0/-0.043	18	0/+0.018	15	0/-0.070
ELB-1418-20	14	0/-0.043	18	0/+0.018	20	0/-0.084
ELB-1418-18	14	0/-0.043	18	0/+0.018	18	0/-0.070
ELB-1519-20	15	0/-0.043	19	0/+0.021	20	0/-0.084
ELB-1519-25	15	0/-0.043	19	0/+0.021	25	0/-0.084
ELB-1620-20	16	0/-0.043	20	0/+0.021	20	0/-0.084
ELB-1620-25	16	0/-0.043	20	0/+0.021	25	0/-0.084
ELB-1822-20	18	0/-0.043	22	0/+0.021	20	0/-0.084
ELB-1822-25	18	0/-0.043	22	0/+0.021	25	0/-0.084
ELB-2024-25	20	0/-0.052	24	0/+0.021	25	0/-0.084
ELB-2025-20	20	0/-0.052	25	0/+0.021	20	0/-0.084
ELB-2025-30	20	0/-0.052	25	0/+0.021	30	0/-0.084
ELB-2529-30	25	0/-0.052	29	0/+0.021	30	0/-0.084
ELB-2530-30	25	0/-0.052	30	0/+0.021	30	0/-0.084
ELB-2530-40	25	0/-0.052	30	0/+0.021	40	0/-0.100
ELB-3034-30	30	0/-0.052	34	0/+0.025	30	0/-0.084
ELB-3035-30	30	0/-0.052	35	0/+0.025	30	0/-0.084
ELB-3035-40	30	0/-0.052	35	0/+0.025	40	0/-0.100

ELB弹性直线轴承安装方式 Elastic linear bearings installation method

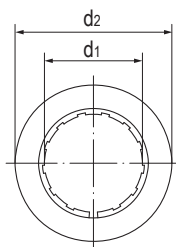
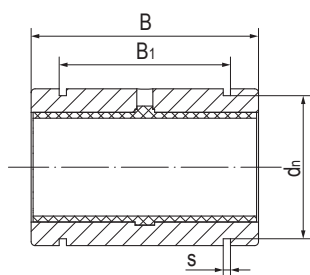


LIN-11R 封闭式直线轴承 Linear bearings, closed



- 封闭式标准长设计
- 装配LIN-11滑动膜
- 阳极氧化铝合金适配器
- 卡簧轴向固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed and long design
- Assembled LIN-11 liners
- Anodized aluminum adapter
- Axial secured by circlips
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11R-10

内径 Inner diameter

封闭式保持器 Closed housing

LIN-11标准滑动膜
Standard liners LIN-11

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	B h10 [mm]	B ₁ H10 [mm]	d ₁ h10 [mm]	s H10 [mm]
LIN-11R-06B	6	+0.020/+0.068	12	22	14.2	11.5	1.1
LIN-11R-08B	8	+0.025/+0.083	16	25	16.2	15.2	1.1
LIN-11R-10	10	+0.030/+0.088	19	29	21.6	17.5	1.3
LIN-11R-12	12	+0.030/+0.088	22	32	22.6	20.5	1.3
LIN-11R-16	16	+0.030/+0.088	26	36	24.6	24.2	1.3
LIN-11R-20	20	+0.030/+0.091	32	45	31.2	29.6	1.6
LIN-11R-25	25	+0.030/+0.091	40	58	43.7	36.5	1.85
LIN-11R-30	30	+0.040/+0.110	47	68	51.7	43.5	1.85
LIN-11R-40	40	+0.040/+0.115	62	80	60.3	57.8	2.15
LIN-11R-50	50	+0.050/+0.130	75	100	77.3	70.5	2.65

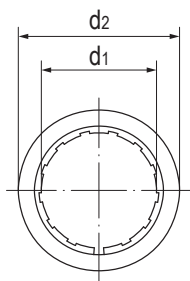
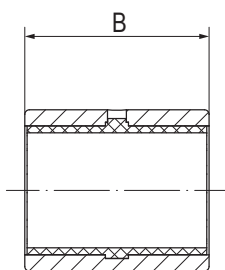
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11R-06B	6	12	0/+0.018	525	3675	5
LIN-11R-08B	8	16	0/+0.018	960	6720	9
LIN-11R-10	10	19	0/+0.021	725	5075	12
LIN-11R-12	12	22	0/+0.021	960	6720	20
LIN-11R-16	16	26	0/+0.021	1440	10080	28
LIN-11R-20	20	32	0/+0.025	2250	15750	50
LIN-11R-25	25	40	0/+0.025	3625	25375	104
LIN-11R-30	30	47	0/+0.025	5100	35700	163
LIN-11R-40	40	62	0/+0.030	8000	56000	341
LIN-11R-50	50	75	0/+0.030	9000	87500	589

LIN-12R 短型直线轴承 Linear bearings, closed, short design



- 封闭式短型设计
- 装配LIN-12滑动膜
- 阳极氧化铝合金适配器
- 过盈配合压装
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed and short design
- Assembled LIN-12 liners
- Anodized aluminum adapter
- Assembly by press fitting
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12R-10

内径 Inner diameter

封闭式保持器 Closed housing

LIN-12标准滑动膜
Standard liners LIN-12

座孔, Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	B h10 [mm]
LIN-12R-06B	6	+0.020/+0.068	12	22
LIN-12R-08B	8	+0.025/+0.083	15	24
LIN-12R-10	10	+0.030/+0.088	17	26
LIN-12R-12	12	+0.030/+0.088	19	28
LIN-12R-16	16	+0.030/+0.088	24	30
LIN-12R-20	20	+0.030/+0.091	28	30
LIN-12R-25	25	+0.030/+0.091	35	40
LIN-12R-30	30	+0.040/+0.110	40	50
LIN-12R-40	40	+0.040/+0.115	52	60
LIN-12R-50	50	+0.050/+0.130	62	70

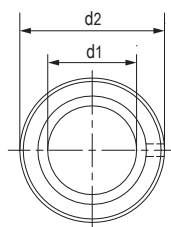
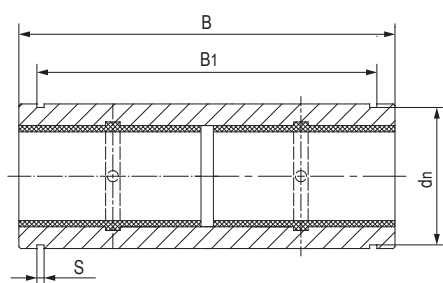
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12R-06B	6	12	0/+0.018	600	4200	4
LIN-12R-08B	8	15	0/+0.018	650	4550	6
LIN-12R-10	10	17	0/+0.018	650	4550	9
LIN-12R-12	12	19	0/+0.021	840	5880	11
LIN-12R-16	16	24	0/+0.021	1200	8400	17
LIN-12R-20	20	28	0/+0.021	1500	10500	18
LIN-12R-25	25	35	0/+0.025	2500	17500	41
LIN-12R-30	30	40	0/+0.025	3750	26250	56
LIN-12R-40	40	52	0/+0.030	6000	42000	113
LIN-12R-50	50	62	0/+0.030	8750	61250	152

LIN-12RL 加长型塑料直线轴承 Long design plastic linear bearings



- 封闭式加长设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 卡簧轴向固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design and increased the guide length
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Axial secured by circlips
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12RL-10

轴承内径 Inner diameter

加长型设计保持器 Long design housing

LIN-12标准滑动膜
Standard liners LIN-12

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ [mm]	d _n [mm]	B [mm]	B ₁ [mm]	S [mm]
LIN-12RL-10	10	+0.03/+0.088	19	17.5	55	44	1.3
LIN-12RL-12	12	+0.03/+0.088	22	20.5	57	46	1.3
LIN-12RL-16	16	+0.03/+0.088	26	24.2	70	53	1.6
LIN-12RL-20	20	+0.03/+0.091	32	29.6	80	61	1.6
LIN-12RL-25	25	+0.03/+0.091	40	36.5	112	82	1.85
LIN-12RL-30	30	+0.03/+0.110	47	43.5	123	89	1.85

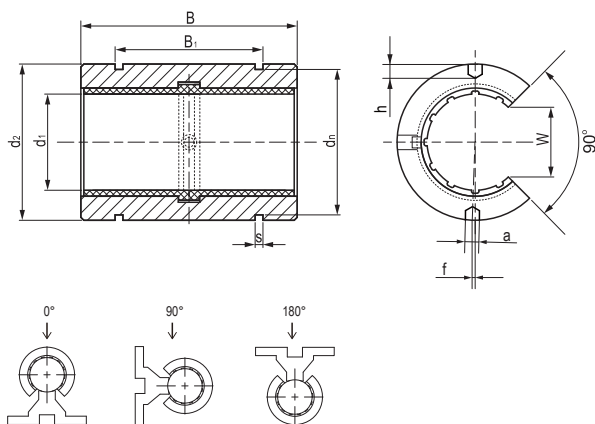
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12RL-10	10	19	0/+0.021	1300	9100	26
LIN-12RL-12	12	22	0/+0.021	1680	11600	33
LIN-12RL-16	16	26	0/+0.021	2400	16800	50
LIN-12RL-20	20	32	0/+0.025	3000	21000	80
LIN-12RL-25	25	40	0/+0.025	5000	35000	189
LIN-12RL-30	30	47	0/+0.025	7500	52500	269

LIN-11RK 开口式直线轴承 Linear bearings, open



- 开口设计，配合支持轴
- 装配LIN-11K滑动膜
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Open design for supported shafts
- Assembled LIN-11K liners
- Anodized aluminum adapter
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11RK-10

内径 Inner diameter

开口式保持器
Open, aluminum adapterLIN-11K标准滑动膜
Standard liners LIN-11K

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	B h10 [mm]	B ₁ H10 [mm]	W-1 [mm]	s H10 [mm]	d ₁ h10 [mm]	a+0.1 [mm]	h [mm]	f ± 0.2 [mm]
LIN-11RK-10	10	+0.030/+0.088	19	29	21.6	7.3	1.30	17.5	/	/	/
LIN-11RK-12	12	+0.030/+0.088	22	32	22.6	9.0	1.30	20.5	3.0	1.2	1.33(7°)
LIN-11RK-16	16	+0.030/+0.088	26	36	24.6	11.6	1.30	24.2	2.2	1.2	/
LIN-11RK-20	20	+0.030/+0.091	32	45	31.2	12.0	1.60	29.6	2.2	1.2	/
LIN-11RK-25	25	+0.030/+0.091	40	58	43.7	14.5	1.85	36.5	3.0	1.5	-1.50(-4.3°)
LIN-11RK-30	30	+0.040/+0.110	47	68	51.7	16.6	1.85	43.5	3.0	2.0	2.00(4.9°)
LIN-11RK-40	40	+0.040/+0.115	62	80	60.3	21.0	2.15	57.8	3.0	2.0	1.50(2.8°)
LIN-11RK-50	50	+0.050/+0.130	75	100	77.3	25.5	2.65	70.5	3.0	2.0	2.50(3.8°)

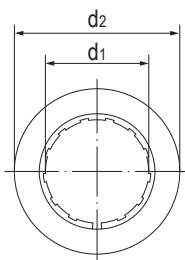
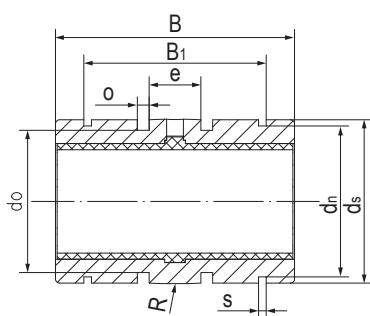
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa			F max. [N] 最大静载荷 Static Load P=35MPa			重量 Weight [g]
				0°	90°	180°	0°	90°	180°	
LIN-11RK-10	10	19	0/+0.021	725	500	196	5075	3500	1370	9
LIN-11RK-12	12	22	0/+0.021	960	635	240	6720	4445	1680	15
LIN-11RK-16	16	26	0/+0.021	1440	990	396	10080	6943	2772	21
LIN-11RK-20	20	32	0/+0.025	2250	1800	900	15750	12600	6300	37
LIN-11RK-25	25	40	0/+0.025	3625	2953	1523	25375	20670	10658	78
LIN-11RK-30	30	47	0/+0.025	5100	4250	2278	35700	29735	15948	122
LIN-11RK-40	40	62	0/+0.030	8000	6810	3800	56000	47660	26600	256
LIN-11RK-50	50	75	0/+0.030	12500	10750	6125	87500	75265	42875	442

LIN-11RS 调心直线轴承 Floating linear bearings, closed



- 封闭式自动调心设计
- 装配LIN-11滑动膜
- 阳极氧化铝合金适配器
- 卡簧轴向固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed and self-aligning design
- Assembled LIN-11 liners
- Anodized aluminum adapter
- Axial secured by circlips
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11RS-10

内径 Inner diameter

自调整保持器
Automatic alignment aluminum adapterLIN-11标准滑动膜
Standard liners LIN-11

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h8 [mm]	B h10 [mm]	B ₁ H10 [mm]	s H10 [mm]	d _n h10 [mm]	d _s h10 [mm]	d ₀ h10 [mm]	O _{+0.1} [mm]	e [mm]	R [mm]
LIN-11RS-10	10	+0.030/+0.088	18.8	28.9	21.8	1.30	17.5	18.5	15.4	1.86	5.0	13.0
LIN-11RS-12	12	+0.030/+0.088	21.8	31.9	22.8	1.30	20.5	21.5	18.4	1.86	6.0	18.0
LIN-11RS-16	16	+0.030/+0.088	25.8	35.9	24.9	1.30	24.2	25.5	20.7	2.86	8.0	32.0
LIN-11RS-20	20	+0.030/+0.091	31.8	44.8	31.5	1.60	29.6	31.5	26.7	2.86	10.0	50.0
LIN-11RS-25	25	+0.030/+0.091	39.8	57.8	44.1	1.85	36.5	39.5	34.7	2.86	12.5	39.0
LIN-11RS-30	30	+0.040/+0.110	46.7	67.8	52.1	1.85	43.5	46.0	41.7	2.86	15.0	57.0
LIN-11RS-40	40	+0.040/+0.115	61.7	79.8	60.9	2.15	57.8	61.0	56.7	2.86	20.0	100.0
LIN-11RS-50	50	+0.050/+0.130	74.7	99.8	78.0	2.65	70.5	74.0	69.7	2.86	25.0	157.0

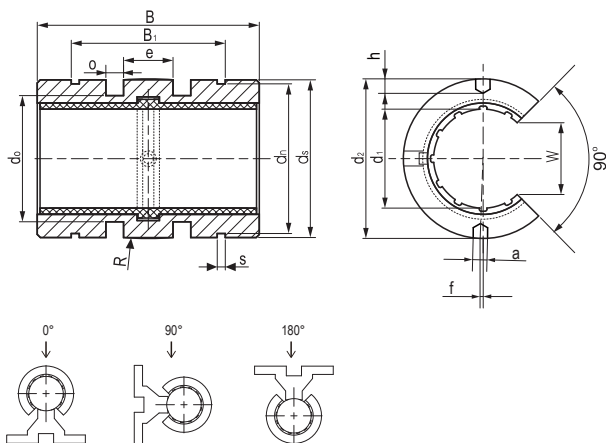
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11RS-10	10	19	0/+0.021	725	5075	12
LIN-11RS-12	12	22	0/+0.021	960	6720	18
LIN-11RS-16	16	26	0/+0.021	1440	10080	23
LIN-11RS-20	20	32	0/+0.025	2250	15750	43
LIN-11RS-25	25	40	0/+0.025	3625	25375	95
LIN-11RS-30	30	47	0/+0.025	5100	35700	145
LIN-11RS-40	40	62	0/+0.030	8000	56000	316
LIN-11RS-50	50	75	0/+0.030	9000	87500	550

LIN-11RSK 调心直线轴承 Floating linear bearings, open



- 开口式自动调心设计
- 装配LIN-11K滑动膜
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Open and self-aligning design
- Assembled LIN-11K liners
- Anodized aluminum adapter
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11RSK-10

内径 Inner diameter

开口式自调整保持器
Open, automatic alignment aluminum adapterLIN-11K标准滑动膜
Standard liners LIN-11K

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ h10 [mm]	e [mm]	o+0.1 [mm]	d ₉ h10 [mm]	B ₁ H10 [mm]	s H10 [mm]	B h10 [mm]	R [mm]	W-1 [mm]	a+0.1 [mm]	h [mm]	f ± 0.2 [mm]
LIN-11RSK-10	10	+0.030/+0.088	18.8	18.5	5.0	1.86	15.4	21.8	1.30	28.9	13.0	7.3	/	/	/
LIN-11RSK-12	12	+0.030/+0.088	21.8	21.8	6.0	1.86	18.4	22.8	1.30	31.9	18.0	9.0	3.0	1.2	1.33(7°)
LIN-11RSK-16	16	+0.030/+0.088	25.8	25.5	8.0	2.86	20.7	24.9	1.30	35.9	32.0	11.6	2.2	1.2	/
LIN-11RSK-20	20	+0.030/+0.091	31.8	31.5	10.0	2.86	26.7	31.5	1.60	44.8	50.0	12.0	2.2	1.2	/
LIN-11RSK-25	25	+0.030/+0.091	39.8	39.0	12.5	2.86	34.7	44.1	1.85	57.8	39.0	14.5	3.0	1.5	-1.50(-4.3°)
LIN-11RSK-30	30	+0.040/+0.110	46.7	46.0	15.0	2.86	41.7	52.1	1.85	67.8	57.0	16.6	3.0	2.0	2.00(4.9°)
LIN-11RSK-40	40	+0.040/+0.115	61.7	61.0	20.0	2.86	56.7	60.9	2.15	79.8	100.0	21.0	3.0	2.0	1.50(2.8°)
LIN-11RSK-50	50	+0.050/+0.130	74.7	74.0	25.0	2.86	69.7	78.0	2.65	99.8	157.0	25.5	3.0	2.0	2.50(3.8°)

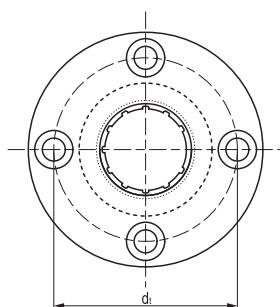
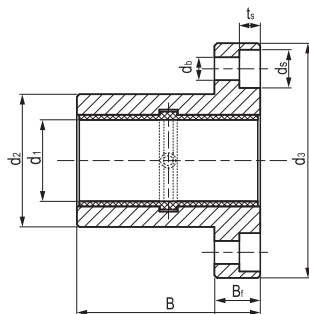
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	公差 Tolerance [mm]	F max. [N]			F max. [N]			重量 Weight [g]
				最大动载荷 Dynamic Load P=5MPa			最大静载荷 Static Load P=35MPa			
				0°	90°	180°	0°	90°	180°	
LIN-11RSK-10	10	19	0/+0.021	725	500	196	5075	3500	1370	9
LIN-11RSK-12	12	22	0/+0.021	960	635	240	6720	4445	1680	14
LIN-11RSK-16	16	26	0/+0.021	1440	990	396	10080	6943	2772	18
LIN-11RSK-20	20	32	0/+0.025	2250	1800	900	15750	12600	6300	32
LIN-11RSK-25	25	40	0/+0.025	3625	2953	1523	25375	20670	10658	71
LIN-11RSK-30	30	47	0/+0.025	5100	4250	2278	35700	29735	15948	109
LIN-11RSK-40	40	62	0/+0.030	8000	6810	3800	56000	47660	26600	237
LIN-11RSK-50	50	75	0/+0.030	12500	10750	6125	87500	75265	42875	386

LIN-11RF 圆法兰直线轴承 Round flange linear bearings



- 封闭式圆法兰设计
- 装配LIN-11滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with round flange
- Assembled LIN-11 liners
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11RF-10

- 内径 Inner diameter
- 圆法兰保持器
Round flange aluminum adapter
- LIN-11标准滑动膜
Standard liners LIN-11

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₁ [mm]	d ₃ [mm]	B [mm]	B ₁ [mm]	t ₁ [mm]	d ₄ [mm]	d ₅ [mm]
LIN-11RF-06B	6	+0.020/+0.068	12	21	29	22	8	3.1	3.5	6
LIN-11RF-08B	8	+0.025/+0.083	16	24	32	25	8	3.1	3.5	6
LIN-11RF-10	10	+0.030/+0.088	19	29	39	29	9	4.1	4.5	7.5
LIN-11RF-12	12	+0.030/+0.088	22	32	42	32	9	4.1	4.5	7.5
LIN-11RF-16	16	+0.030/+0.088	26	36	46	36	9	4.1	4.5	7.5
LIN-11RF-20	20	+0.030/+0.091	32	43	54	45	11	5.1	5.5	9.0
LIN-11RF-25	25	+0.030/+0.091	40	51	62	58	11	5.1	5.5	9.0
LIN-11RF-30	30	+0.040/+0.110	47	62	76	68	14	6.1	6.6	11.0
LIN-11RF-40	40	+0.040/+0.115	62	80	98	80	18	8.1	9.0	14.0
LIN-11RF-50	50	+0.050/+0.130	75	94	112	100	18	8.1	9.0	14.0

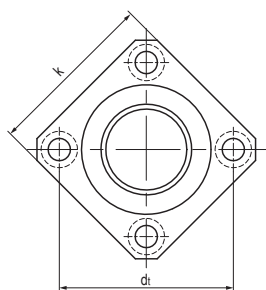
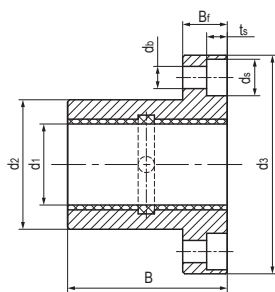
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11RF-06B	6	12	0/+0.018	525	3675	15
LIN-11RF-08B	8	16	0/+0.018	960	6720	20
LIN-11RF-10	10	19	0/+0.021	725	5075	34
LIN-11RF-12	12	22	0/+0.021	960	6720	43
LIN-11RF-16	16	26	0/+0.021	1440	10080	54
LIN-11RF-20	20	32	0/+0.025	2250	15750	91
LIN-11RF-25	25	40	0/+0.025	3625	25375	154
LIN-11RF-30	30	47	0/+0.025	5100	35700	266
LIN-11RF-40	40	62	0/+0.030	8000	56000	555
LIN-11RF-50	50	75	0/+0.030	9000	87500	852

LIN-11RT 方法兰塑料直线轴承 Angular flang linear bearings



- 封闭式方法兰设计
- 装配LIN-11滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with square flange
- Assembled LIN-11 liners
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11RT-10

内径 Inner diameter

方法兰保持器 Angular flang aluminum adapter

LIN-11标准滑动膜

Standard liners LIN-11

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ [mm]	d ₄ [mm]	k [mm]	B [mm]	B _r [mm]	t _s [mm]	d ₆ [mm]	d ₅ [mm]
LIN-11RT-06B	6	+0.020/+0.068	12	29	21	23	22	8	3.1	3.5	6
LIN-11RT-08B	8	+0.025/+0.083	16	32	24	25	25	8	3.1	3.5	6
LIN-11RT-10	10	+0.030/+0.088	19	39	29	30	29	9	4.1	4.5	7.5
LIN-11RT-12	12	+0.030/+0.088	22	42	32	32	32	9	4.1	4.5	7.5
LIN-11RT-16	16	+0.030/+0.088	26	46	36	35	36	9	4.1	4.5	7.5
LIN-11RT-20	20	+0.030/+0.091	32	54	43	42	45	11	5.1	5.5	9
LIN-11RT-25	25	+0.030/+0.091	40	62	51	50	58	11	5.1	5.5	9
LIN-11RT-30	30	+0.040/+0.110	47	76	62	60	68	14	6.1	6.6	11
LIN-11RT-40	40	+0.040/+0.115	62	98	80	75	80	18	8.1	9	14
LIN-11RT-50	50	+0.050/+0.130	75	112	94	88	100	18	8.1	9	14

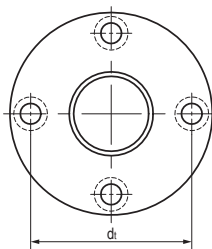
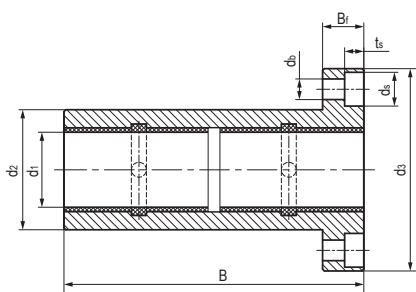
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11RT-06B	6	12	0/+0.018	525	3675	15
LIN-11RT-08B	8	16	0/+0.018	960	6720	20
LIN-11RT-10	10	19	0/+0.021	725	5075	34
LIN-11RT-12	12	22	0/+0.021	960	6720	43
LIN-11RT-16	16	26	0/+0.021	1440	10080	54
LIN-11RT-20	20	32	0/+0.025	2250	15750	91
LIN-11RT-25	25	40	0/+0.025	3625	25375	154
LIN-11RT-30	30	47	0/+0.025	5100	35700	266
LIN-11RT-40	40	62	0/+0.030	8000	56000	555
LIN-11RT-50	50	75	0/+0.030	9000	87500	852

LIN-12RFL 加长型圆法兰塑料直线轴承 Round flange linear bearings(long design)



- 封闭式圆法兰加长设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Closed design with round flange
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12RFL-10

内径 Inner diameter

圆法兰加长型保持器
Round flange aluminum adapter (long design)LIN-12标准滑动膜
Standard liners LIN-12

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ [mm]	d ₄ [mm]	B [mm]	B ₁ [mm]	t _s [mm]	d _b [mm]	d _s [mm]
LIN-12RFL-10	10	+0.030/+0.088	19	39	29	52	9	4.1	4.5	7.5
LIN-12RFL-12	12	+0.030/+0.088	22	42	32	57	9	4.1	4.5	7.5
LIN-12RFL-16	16	+0.030/+0.088	26	46	36	70	9	4.1	4.5	7.5
LIN-12RFL-20	20	+0.030/+0.091	32	54	43	80	11	5.1	5.5	9
LIN-12RFL-25	25	+0.030/+0.091	40	62	51	112	11	5.1	5.5	9
LIN-12RFL-30	30	+0.030/+0.110	47	76	62	123	14	6.1	6.6	11
LIN-12RFL-40	40	+0.030/+0.115	62	98	80	151	18	8.1	9	14
LIN-12RFL-50	50	+0.030/+0.130	75	112	94	192	18	8.1	9	14

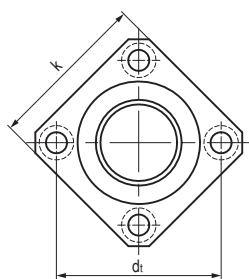
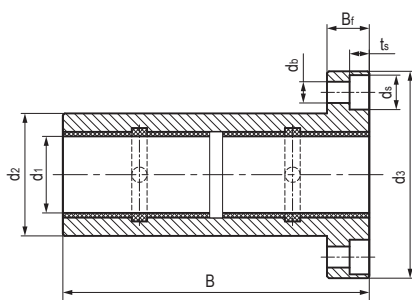
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing h7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12RFL-10	10	19	0/+0.021	1300	9100	44
LIN-12RFL-12	12	22	0/+0.021	1680	11760	57
LIN-12RFL-16	16	26	0/+0.021	2400	16800	79
LIN-12RFL-20	20	32	0/+0.025	3000	21000	126
LIN-12RFL-25	25	40	0/+0.025	5000	35000	249
LIN-12RFL-30	30	47	0/+0.025	7500	52500	388
LIN-12RFL-40	40	62	0/+0.030	12000	84000	835
LIN-12RFL-50	50	75	0/+0.030	17500	122500	1352

LIN-12RTL加长型方法兰塑料直线轴承 Angular flang linear bearings(long design)



- 封闭式方法兰加长设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Closed design with square flange
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12RTL-10

内径 Inner diameter

方法兰加长型保持器
Angular flang aluminum adapter (long design)LIN-12标准滑动膜
Standard liners LIN-12

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ [mm]	d ₄ [mm]	k [mm]	B [mm]	B _f [mm]	t _s [mm]	d ₅ [mm]	d ₆ [mm]
LIN-12RTL-10	10	+0.030/+0.088	19	39	29	30	52	9	4.1	4.5	7.5
LIN-12RTL-12	12	+0.030/+0.088	22	42	32	32	57	9	4.1	4.5	7.5
LIN-12RTL-16	16	+0.030/+0.088	26	46	36	35	70	9	4.1	4.5	7.5
LIN-12RTL-20	20	+0.030/+0.091	32	54	43	42	80	11	5.1	5.5	9
LIN-12RTL-25	25	+0.030/+0.091	40	62	51	50	112	11	5.1	5.5	9
LIN-12RTL-30	30	+0.030/+0.110	47	76	62	60	123	14	6.1	6.6	11
LIN-12RTL-40	40	+0.030/+0.115	62	98	80	75	151	18	8.1	9	14
LIN-12RTL-50	50	+0.030/+0.130	75	112	94	88	192	18	8.1	9	14

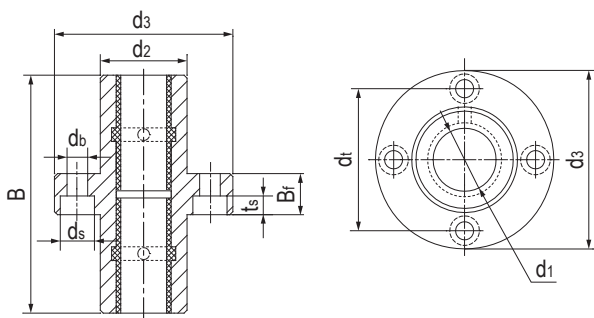
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing h7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12RTL-10	10	19	0/+0.021	1300	9100	44
LIN-12RTL-12	12	22	0/+0.021	1680	11760	57
LIN-12RTL-16	16	26	0/+0.021	2400	16800	79
LIN-12RTL-20	20	32	0/+0.025	3000	21000	126
LIN-12RTL-25	25	40	0/+0.025	5000	35000	249
LIN-12RTL-30	30	47	0/+0.025	7500	52500	388
LIN-12RTL-40	40	62	0/+0.030	12000	84000	835
LIN-12RTL-50	50	75	0/+0.030	17500	122500	1352

LIN-12RFM 加长型中圆法兰塑料直线轴承 Round middle flange linear bearings(long design)



- 封闭式、中间圆法兰加长设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with round flange in the middle
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12RFM-10

轴承内径 Inner Diameter

中圆法兰加长型保持器
Middle round flange aluminum adapter(long design)

LIN-12标准滑动膜
Standard liners LIN-12

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ [mm]	d ₄ [mm]	B [mm]	B _i [mm]	t _s [mm]	d _b [mm]	d _s [mm]
LIN-12RFM-10	10	+0.030/+0.088	19	39	29	52	9	4.1	4.5	7.5
LIN-12RFM-12	12	+0.030/+0.088	22	42	32	57	9	4.1	4.5	7.5
LIN-12RFM-16	16	+0.030/+0.088	26	46	36	70	9	4.1	4.5	7.5
LIN-12RFM-20	20	+0.030/+0.091	32	54	43	80	11	5.1	5.5	9
LIN-12RFM-25	25	+0.030/+0.091	40	62	51	112	11	5.1	5.5	9
LIN-12RFM-30	30	+0.030/+0.110	47	76	62	123	14	6.1	6.6	11
LIN-12RFM-40	40	+0.030/+0.115	62	98	80	151	18	8.1	9	14
LIN-12RFM-50	50	+0.030/+0.130	75	112	94	192	18	8.1	9	14

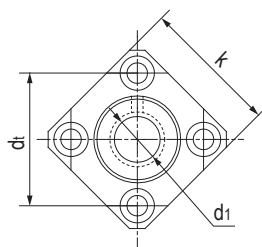
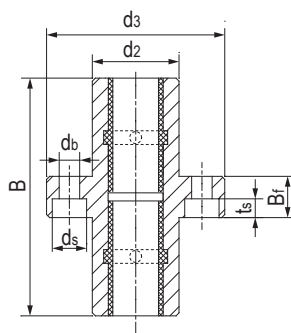
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12RFM-10	10	19	0/+0.021	1300	9100	44
LIN-12RFM-12	12	22	0/+0.021	1680	11760	57
LIN-12RFM-16	16	26	0/+0.021	2400	16800	79
LIN-12RFM-20	20	32	0/+0.025	3000	21000	126
LIN-12RFM-25	25	40	0/+0.025	5000	35000	249
LIN-12RFM-30	30	47	0/+0.025	7500	52500	388
LIN-12RFM-40	40	62	0/+0.030	12000	84000	835
LIN-12RFM-50	50	75	0/+0.030	17500	122500	1352

LIN-12RTM 加长型方圆法兰塑料直线轴承 Angular flange linear bearings(long design)



- 封闭式、中间方法兰加长设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with square flange in the middle
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12RTM-10

轴承内径 Inner Diameter

中方法兰加长型保持器

Middle angular flang aluminum adapter (long design)

LIN-12标准滑动膜

Standard liners LIN-12

座孔 Housing: H7 轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₃ [mm]	d ₄ [mm]	k [mm]	B [mm]	B ₁ [mm]	t _s [mm]	d ₆ [mm]	d ₅ [mm]
LIN-12RTM-10	10	+0.030/+0.088	19	39	29	30	52	9	4.1	4.5	7.5
LIN-12RTM-12	12	+0.030/+0.088	22	42	32	32	57	9	4.1	4.5	7.5
LIN-12RTM-16	16	+0.030/+0.088	26	46	36	35	70	9	4.1	4.5	7.5
LIN-12RTM-20	20	+0.030/+0.091	32	54	43	42	80	11	5.1	5.5	9
LIN-12RTM-25	25	+0.030/+0.091	40	62	51	50	112	11	5.1	5.5	9
LIN-12RTM-30	30	+0.030/+0.110	47	76	62	60	123	14	6.1	6.6	11
LIN-12RTM-40	40	+0.030/+0.115	62	98	80	75	151	18	8.1	9	14
LIN-12RTM-50	50	+0.030/+0.130	75	112	94	88	192	18	8.1	9	14

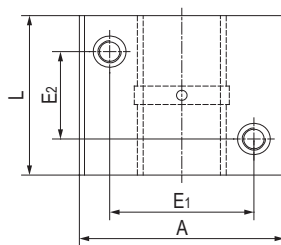
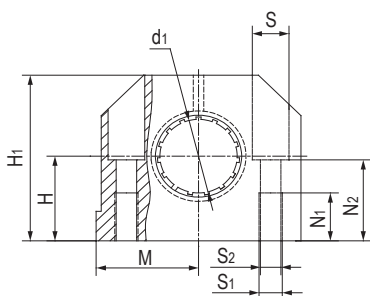
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing H7 [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12RTM-10	10	19	0/+0.021	1300	9100	44
LIN-12RTM-12	12	22	0/+0.021	1680	11760	57
LIN-12RTM-16	16	26	0/+0.021	2400	16800	79
LIN-12RTM-20	20	32	0/+0.025	3000	21000	126
LIN-12RTM-25	25	40	0/+0.025	5000	35000	249
LIN-12RTM-30	30	47	0/+0.025	7500	52500	388
LIN-12RTM-40	40	62	0/+0.030	12000	84000	835
LIN-12RTM-50	50	75	0/+0.030	17500	122500	1352

LIN-11B 长型直线滑块轴承 Long linear pillow blocks



- 封闭式枕块设计
 - 装配LIN-11滑动膜
 - 阳极氧化铝合金适配器
 - 螺栓固定
 - 免维护、低噪音
 - 适用于污垢或灰尘环境
 - 使用温度 -50℃/+90℃
- Closed block design
 - Assembled LIN-11 liners
 - Anodized aluminum adapter
 - Secured by bolts
 - Maintenance-free and low noise
 - Resistance to dirt and dust
 - Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11B-12

轴承内径 Inner diameter

长型设计滑块 Long design block

LIN-11标准滑动膜
Standard liners LIN-11

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H +0.01 -0.014 [mm]	H ₁ [mm]	A [mm]	M [mm]	E ₁ ± 0.15 [mm]	E ₂ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	N ₂ [mm]	N ₁ [mm]	L [mm]
LIN-11B-12	12	+0.030/+0.088	18	35	43	21.5	32	23	8	M5	4.3	16.5	11	39
LIN-11B-16	16	+0.030/+0.088	22	42	53	26.5	40	26	10	M6	5.3	21	13	43
LIN-11B-20	20	+0.030/+0.091	25	50	60	30	45	32	11	M8	6.6	24	18	54
LIN-11B-25	25	+0.030/+0.091	30	60	78	39	60	40	15	M10	8.4	29	22	67
LIN-11B-30	30	+0.040/+0.110	35	70	87	43.5	68	45	15	M10	8.4	34	22	79
LIN-11B-40	40	+0.040/+0.115	45	90	108	54	86	58	18	M12	10.5	44	26	91
LIN-11B-50	50	+0.050/+0.130	50	105	132	66	108	50	20	M16	13.5	49	34	113

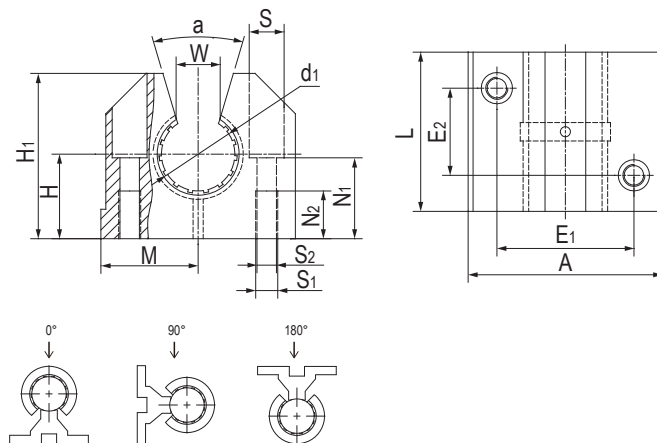
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11B-12	12	960	6720	121
LIN-11B-16	16	1440	10080	211
LIN-11B-20	20	2250	15750	323
LIN-11B-25	25	3625	25375	651
LIN-11B-30	30	5100	35700	1050
LIN-11B-40	40	8000	56000	1820
LIN-11B-50	50	12500	87500	3250

LIN-11BK 开口型直线滑块轴承 Open linear pillow blocks



- 开口式枕块设计
- 装配LIN-11滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Open block design
- Assembled LIN-11 liners
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11BK-12

轴承内径 Inner diameter

开口设计滑块 Open design block

LIN-11标准滑动膜
Standard liners LIN-11

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H _{+0.01 -0.014 [mm]}	H ₁ [mm]	A [mm]	M [mm]	E ₁ ± 0.15 [mm]	E ₂ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	W-1 [mm]	N ₁ [mm]	a [°]	N ₂ [mm]	L [mm]
LIN-11BK-12	12	+0.030/+0.088	18	28	43	21.5	32	23	8	M5	4.3	10.2	16.5	78	11	39
LIN-11BK-16	16	+0.030/+0.088	22	35	53	26.5	40	26	10	M6	5.3	11.6	21	78	13	43
LIN-11BK-20	20	+0.030/+0.091	25	42	60	30	45	32	11	M8	6.6	12	24	60	18	54
LIN-11BK-25	25	+0.030/+0.091	30	51	78	39	60	40	15	M10	8.4	14.5	29	60	22	67
LIN-11BK-30	30	+0.040/+0.110	35	60	87	43.5	68	45	15	M10	8.4	16.6	34	57	22	79
LIN-11BK-40	40	+0.040/+0.115	45	77	108	54	86	58	18	M12	10.5	21	44	56	26	91
LIN-11BK-50	50	+0.050/+0.130	50	88	132	66	106	50	20	M16	13.5	25.5	49	54	34	113

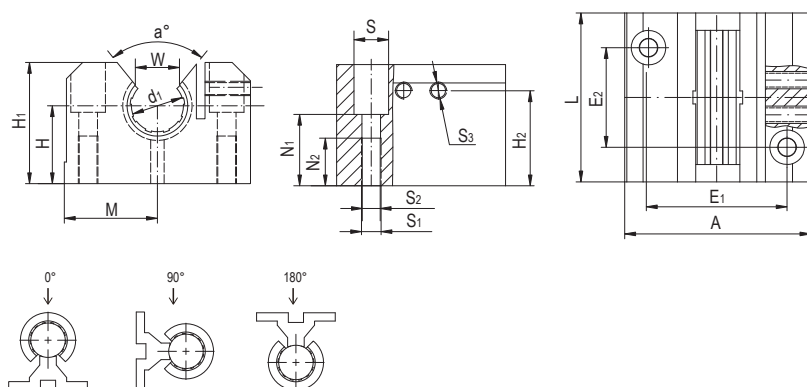
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa			F max. [N] 最大静载荷 Static Load P=35MPa			重量 Weight [g]
		0°	90°	180°	0°	90°	180°	
LIN-11BK-12	12	960	635	240	6720	4445	1680	95
LIN-11BK-16	16	1440	990	396	10080	6943	2772	158
LIN-11BK-20	20	2250	1800	900	15750	12600	6300	266
LIN-11BK-25	25	3625	2953	1523	25375	20670	10658	530
LIN-11BK-30	30	5100	4250	2278	35700	29735	15948	818
LIN-11BK-40	40	8000	6810	3800	56000	47660	26600	1485
LIN-11BK-50	50	12500	10750	6125	87500	75265	42875	2750

LIN-11BKE 开口可调节直线滑块轴承 Open and adjustable linear pillow blocks



- 开口式可调节枕块设计
- 装配LIN-11K滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Open and adjustable block design
- Assembled LIN-11K liners
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11BKE-12

轴承内径 Inner diameter

开口可调节滑块

Adjustable design block, open

LIN-11标准滑动膜
Standard liners LIN-11

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	d ₁ 公差 Tolerance	H ^{+0.01} _{-0.014} [mm]	H ₁ [mm]	A [mm]	M [mm]	E ₁ ± 0.15 [mm]	E ₂ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	W-1 [mm]	N ₁ [mm]	a [°]	N ₂ [mm]	L [mm]	S ₃ [mm]	H ₂ [mm]
LIN-11BKE-12	12	X	18	28	43	21.5	32	23	8	M5	4.3	10.2	16.5	78	11	39	M4	22
LIN-11BKE-16	16	X	22	35	53	26.5	40	26	10	M6	5.3	11.6	21	78	13	43	M4	29
LIN-11BKE-20	20	X	25	42	60	30	45	32	11	M8	6.6	12	24	60	18	54	M5	34
LIN-11BKE-25	25	X	30	51	78	39	60	40	15	M10	8.4	14.5	29	60	22	67	M6	43
LIN-11BKE-30	30	X	35	60	87	43.5	68	45	15	M10	8.4	16.6	34	57	22	79	M6	50
LIN-11BKE-40	40	X	45	77	108	54	86	58	18	M12	10.5	21	44	56	26	91	M8	67
LIN-11BKE-50	50	X	50	88	132	66	106	50	20	M16	13.5	25.5	49	54	34	113	M8	76

X=可调节adjustable

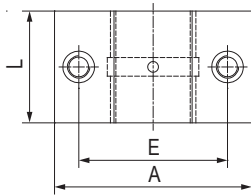
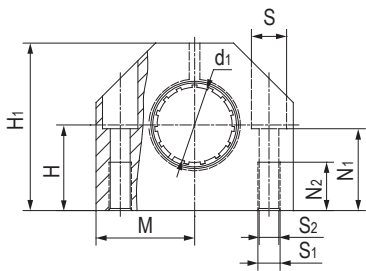
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa			F max. [N] 最大静载荷 Static Load P=35MPa			重量 Weight [g]
		0°	90°	180°	0°	90°	180°	
LIN-11BKE-12	12	960	635	240	6720	4445	1680	90
LIN-11BKE-16	16	1440	990	396	10080	6943	2772	150
LIN-11BKE-20	20	2250	1800	900	15750	12600	6300	260
LIN-11BKE-25	25	3625	2953	1523	25375	20670	10658	520
LIN-11BKE-30	30	5100	4250	2278	35700	29735	15948	810
LIN-11BKE-40	40	8000	6810	3800	56000	47660	26600	1480
LIN-11BKE-50	50	12500	10750	6125	87500	75265	42875	2740

LIN-12B 短型直线滑块轴承 Short linear pillow blocks



- 封闭式短型枕块设计
 - 装配LIN-12滑动膜
 - 阳极氧化铝合金适配器
 - 螺栓固定
 - 免维护、低噪音
 - 适用于污垢或灰尘环境
 - 使用温度-50℃/+90℃
- Closed and short block design
 - Assembled LIN-12 liners
 - Anodized aluminum adapter
 - Secured by bolts
 - Maintenance-free and low noise
 - Resistance to dirt and dust
 - Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:
LIN-12B-12
 轴承内径 Inner diameter
 短型设计滑块 Short design block
 LIN-12 标准滑动膜
 Standard liners LIN-12

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H ^{+0.01} _{-0.014} [mm]	H ₁ [mm]	A [mm]	M [mm]	E ± 0.15 [mm]	E ₁ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	N ₁ [mm]	N ₂ [mm]	L [mm]
LIN-12B-12	12	+0.030/+0.088	17	33	40	20	29	18	8	M5	4.3	16	11	28
LIN-12B-16	16	+0.030/+0.088	19	38	45	22.5	34	19	8	M5	4.3	18	11	30
LIN-12B-20	20	+0.030/+0.091	23	45	53	26.5	40	20	9.5	M6	5.3	22	13	30
LIN-12B-25	25	+0.030/+0.091	27	54	62	31	48	25.5	11	M8	6.6	26	18	40
LIN-12B-30	30	+0.030/+0.110	30	60	67	33.5	53	30.5	11	M8	6.6	29	18	50
LIN-12B-40	40	+0.030/+0.115	39	76	87	43.5	69	36	15	M10	8.4	38	22	60
LIN-12B-50	50	+0.030/+0.130	47	92	103	51.5	82	44	18	M12	10.5	46	26	70

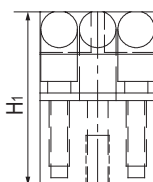
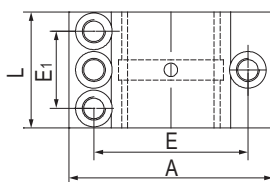
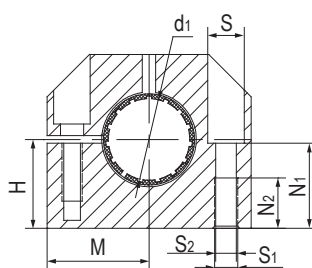
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12B-12	12	840	5880	78
LIN-12B-16	16	1200	8400	106
LIN-12B-20	20	1500	10500	132
LIN-12B-25	25	2500	17500	253
LIN-12B-30	30	3750	26250	374
LIN-12B-40	40	6000	42000	713
LIN-12B-50	50	8750	61250	1168

LIN-12BE 可调节直线滑块轴承 Adjustable linear pillow blocks



- 封闭式、短型可调节枕块设计
- 装配LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed and adjustable short block design
- Assembled LIN-12 liners
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12BE-12

轴承内径 Inner diameter

可调节设计滑块
Alignment design block

LIN-12 标准滑动膜
Standard liners LIN-12

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H +0.01 -0.014 [mm]	H ₁ [mm]	A [mm]	M [mm]	E ± 0.15 [mm]	E ₁ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	N ₁ [mm]	N ₂ [mm]	L [mm]
LIN-12BE-12	12	X	17	33	40	20	29	18	8	4.3	M5	16	11	28
LIN-12BE-16	16	X	19	38	45	22.5	34	19	8	4.3	M5	18	11	30
LIN-12BE-20	20	X	23	45	53	26.5	40	20	9.5	5.3	M6	22	13	30
LIN-12BE-25	25	X	27	54	62	31	48	25.5	11	6.6	M8	26	18	40
LIN-12BE-30	30	X	30	60	67	33.5	53	30.5	11	6.6	M8	29	18	50
LIN-12BE-40	40	X	39	76	87	43.5	69	36	15	8.4	M10	38	22	60
LIN-12BE-50	50	X	47	92	103	51.5	82	44	18	10.5	M12	46	26	70

X=可调节adjustable

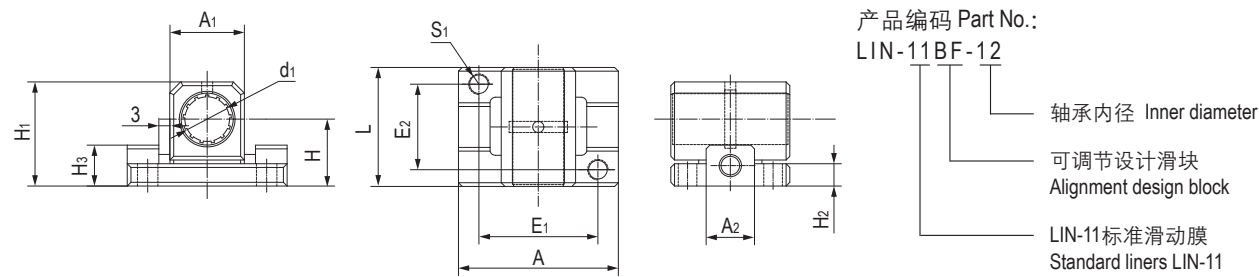
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12BE-12	12	840	5880	78
LIN-12BE-16	16	1200	8400	106
LIN-12BE-20	20	1500	10500	132
LIN-12BE-25	25	2500	17500	253
LIN-12BE-30	30	3750	26250	374
LIN-12BE-40	40	6000	42000	713
LIN-12BE-50	50	8750	61250	1168

LIN-11BF 封闭式浮动直线滑块轴承 Closed and floating pillow blocks



- 封闭式浮动设计
- 装配标准LIN-11滑动膜
- 补偿平行度误差 $\pm 3.0\text{mm}$
- 补偿对中误差 $\pm 3.5^\circ$
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 $-50^\circ\text{C}/+90^\circ\text{C}$
- Closed and floating design
- Assembled standard liner LIN-11
- Compensation of parallelism errors $\pm 3.0\text{mm}$
- Compensation of misalignment errors $\pm 3.5^\circ$
- Anodized aluminum adapter
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature $-50^\circ\text{C}/+90^\circ\text{C}$

标准规格 Standard specifications



产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H ± 0.01 [mm]	H ₁ [mm]	A [mm]	E ₁ ± 0.15 [mm]	E ₂ ± 0.15 [mm]	S ₁ [mm]	A ₁ [mm]	A ₂ [mm]	H ₂ [mm]	H ₃ [mm]	L [mm]
LIN-11BF-12	12	+0.030/+0.088	18	28	43	32	23	M5	20	13	6	11	32
LIN-11BF-16	16	+0.030/+0.088	22	35	53	40	26	M6	26	15	7	11	36
LIN-11BF-20	20	+0.030/+0.091	25	41	60	45	32	M8	32	19	7	12.5	45
LIN-11BF-25	25	+0.030/+0.091	30	50	78	60	40	M10	40	23	9	15	58
LIN-11BF-30	30	+0.040/+0.110	35	59	87	68	45	M10	48	28	10	58	68
LIN-11BF-40	40	+0.040/+0.115	45	76	108	86	58	M12	62	80	20	20	80
LIN-11BF-50	50	+0.050/+0.130	50	89	132	108	50	M16	78	100	24	24	100

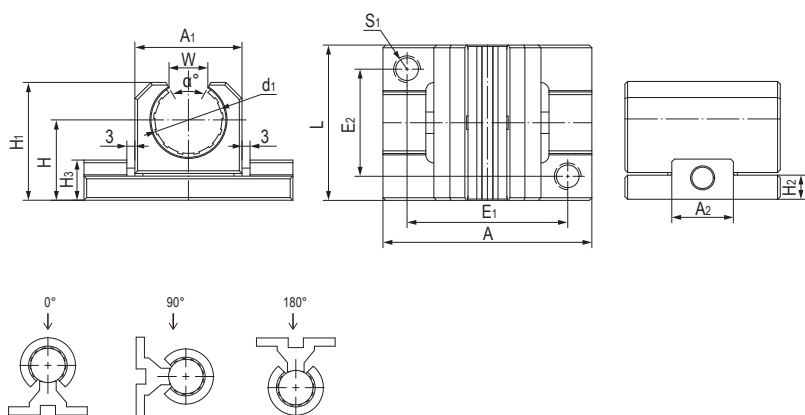
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load	F max. [N] 最大静载荷 Static Load	重量 Weight [g]
LIN-11BF-12	12	960	6000	50
LIN-11BF-16	16	1440	7500	80
LIN-11BF-20	20	2250	10800	130
LIN-11BF-25	25	3625	18000	280
LIN-11BF-30	30	5100	24000	430
LIN-11BF-40	40	8000	37500	850
LIN-11BF-50	50	12500	45000	1550

LIN-11BFK 开口式浮动直线滑块轴承 Opening and floating pillow blocks



- 开口式浮动设计
- 装配标准LIN-11K滑动膜
- 补偿平行度误差 $\pm 3.0\text{mm}$
- 补偿对中误差 $\pm 3.5^\circ$
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 $-50^\circ\text{C}/+90^\circ\text{C}$
- Opening and floating design
- Assembled standard liner LIN-11K
- Compensation of parallelism errors $\pm 3.0\text{mm}$
- Compensation of misalignment errors $\pm 3.5^\circ$
- Anodized aluminum adapter
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature $-50^\circ\text{C}/+90^\circ\text{C}$

标准规格 Standard specifications



产品编码 Part No.:
LIN-11BFK-12

轴承内径 Inner diameter
可调节设计滑块
Alignment design block
LIN-11K 标准滑动膜
Standard liners LIN-11K

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H ± 0.01 [mm]	H ₁ [mm]	A [mm]	W-1 [mm]	E ₁ ± 0.15 [mm]	E ₂ ± 0.15 [mm]	S ₁ [mm]	A ₁ [mm]	A ₂ [mm]	H ₂ [mm]	H ₃ [mm]	α [°]	L [mm]
LIN-11BFK-12	12	+0.030/+0.088	18	24.5	43	10.2	32	23	M5	20	13	6	11	90°	32
LIN-11BFK-16	16	+0.030/+0.088	22	30.5	53	11.6	40	26	M6	26	15	7	11	90°	36
LIN-11BFK-20	20	+0.030/+0.091	25	37	60	12	45	32	M8	32	19	7	12.5	90°	45
LIN-11BFK-25	25	+0.030/+0.091	30	44	78	14.5	60	40	M10	40	23	9	15	90°	58
LIN-11BFK-30	30	+0.040/+0.110	35	52.5	87	16.8	68	45	M10	48	28	10	15	90°	68
LIN-11BFK-40	40	+0.040/+0.115	45	69	108	21.0	86	58	M12	62	80	20	20	90°	80
LIN-11BFK-50	50	+0.050/+0.130	50	80	132	25.5	108	50	M16	78	100	24	24	90°	100

产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
		0°	90°	180°	0°	90°	180°	
LIN-11BFK-12	12	960	635	240	6000	4445	1680	40
LIN-11BFK-16	16	1440	990	396	7500	6943	2772	70
LIN-11BFK-20	20	2250	1800	900	10800	12600	6300	115
LIN-11BFK-25	25	3625	2953	1523	18000	20670	10658	240
LIN-11BFK-30	30	5100	4250	2278	24000	29735	15948	370
LIN-11BFK-40	40	8000	6810	3800	37500	47660	26600	750
LIN-11BFK-50	50	12500	10750	6125	45000	75265	42875	1400

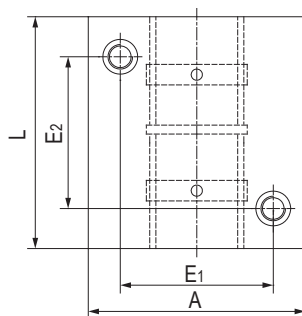
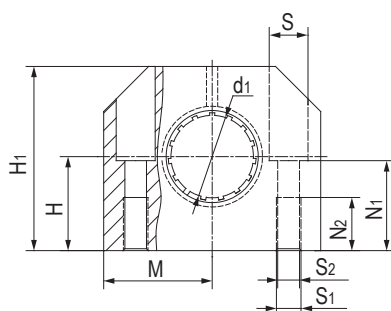
LIN-12BL 加长型直线滑块轴承 Long design pillow blocks



- 封闭式加长型枕块设计
- 装配2个LIN-12滑动膜
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃

- Closed block design and increased the guide length
- Assembled 2pcs liners LIN-12
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12BL-12

轴承内径 Inner diameter

加长型设计滑块 Long design block

LIN-12标准滑动膜
Standard liners LIN-12

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H +0.01 -0.014 [mm]	H ₁ [mm]	A [mm]	M [mm]	E ± 0.15 [mm]	E ₁ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	N ₁ [mm]	N ₂ [mm]	L [mm]
LIN-12BL-12	12	+0.030/+0.088	17	33	40	20	29	35	8	4.3	M5	16	11	60
LIN-12BL-16	16	+0.030/+0.088	19	38	45	22.5	34	40	8	4.3	M5	18	11	65
LIN-12BL-20	20	+0.030/+0.091	23	45	53	26.5	40	45	9.5	5.3	M6	22	13	65
LIN-12BL-25	25	+0.030/+0.091	27	54	62	31	48	55	11	6.6	M8	26	18	85
LIN-12BL-30	30	+0.040/+0.110	30	60	67	33.5	53	70	11	6.6	M8	29	18	105
LIN-12BL-40	40	+0.040/+0.115	39	76	87	43.5	69	85	15	8.4	M10	38	22	125
LIN-12BL-50	50	+0.040/+0.130	47	92	103	51.5	82	100	18	10.5	M12	46	26	145

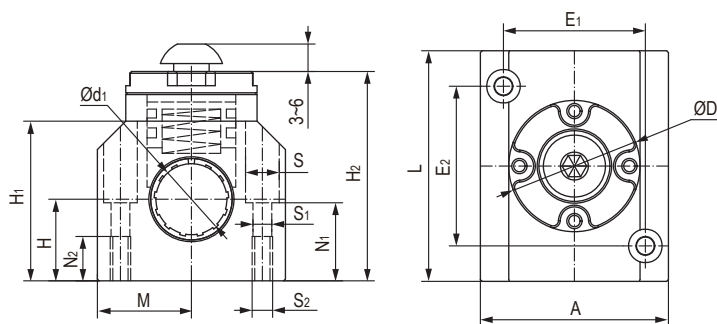
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12BL-12	12	1680	11600	170
LIN-12BL-16	16	2400	16800	250
LIN-12BL-20	20	3000	21000	300
LIN-12BL-25	25	5000	35000	550
LIN-12BL-30	30	7500	52500	750
LIN-12BL-40	40	12000	84000	1500
LIN-12BL-50	50	17500	122500	2400

LIN-12BLP 预紧加长型直线轴承滑块 Preload and long design pillow blocks



- 封闭式加长型枕块设计
- 装配2个LIN-12滑动膜
- 带预紧力调节装置
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Closed block design and increased the guide length
- Assembled 2pcs liners LIN-12
- Preload adjustable device
- Anodized aluminum adapter
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-12BLP-12

轴承内径 Inner diameter

加长型预紧设计 Preload long design

LIN-12标准滑动膜
Standard liners LIN-12

轴 Shaft: h6-h9

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	H +0.01 -0.014 [mm]	H ₁ [mm]	H ₂ [mm]	A [mm]	M [mm]	E ± 0.15 [mm]	E ₁ ± 0.15 [mm]	S [mm]	S ₁ [mm]	S ₂ [mm]	N ₁ [mm]	N ₂ [mm]	D [mm]	L [mm]
LIN-12BLP-12	12	+0.030/+0.088	17	33	43	40	20	29	35	8	4.3	M5	16	11	28	60
LIN-12BLP-16	16	+0.030/+0.088	19	38	50	45	22.5	34	40	8	4.3	M5	18	11	32	65
LIN-12BLP-20	20	+0.030/+0.091	23	45	59	53	26.5	40	45	9.5	5.3	M6	22	13	37	65
LIN-12BLP-25	25	+0.030/+0.091	27	54	70	62	31	48	55	11	6.6	M8	26	18	42	85
LIN-12BLP-30	30	+0.040/+0.110	30	60	76	67	33.5	53	70	11	6.6	M8	29	18	48	105

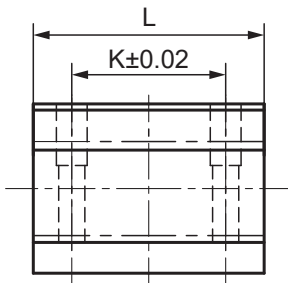
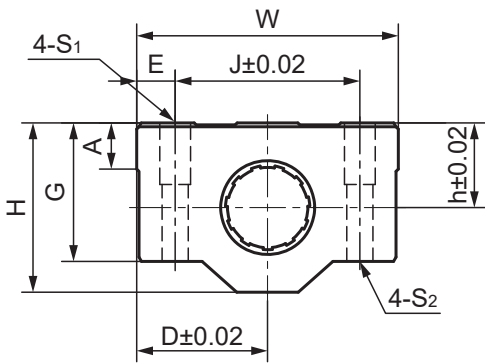
产品编码 Part No.	轴径 Shaft [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-12BLP-12	12	1200	8286	189
LIN-12BLP-16	16	1720	12040	261
LIN-12BLP-20	20	1900	13300	399
LIN-12BLP-25	25	3250	22750	639
LIN-12BLP-30	30	3900	27300	931

LIN-01G 标准设计直线轴承座 Housing bearings, standard design



- 封闭式带轴承座设计
- 装配LIN-01直线轴承
- 阳极氧化铝合金座孔
- 减小配合间隙
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-20℃/+60℃
- Closed design with housing
- Assembled linear bearings LIN-01
- Anodized aluminum housing
- Reduced bearing clearance
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -20℃/+60℃

标准规格 Standard specifications



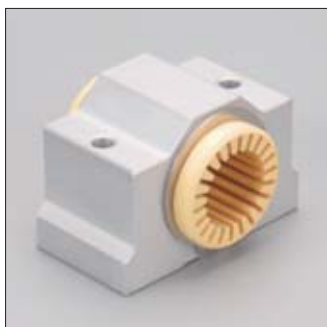
产品编码 Part No.:
LIN-01G-16
轴承内径 Inner diameter
标准设计直线轴承座
Pillow block, standard design
LIN-01直线轴承
Standard bearings LIN-01

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]											
			h	D	W	H	G	A	J	E	S ₁	S ₂	K	L
LIN-01G-12	LIN-01-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	26	39
LIN-01G-16	LIN-01-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	34	44
LIN-01G-20	LIN-01-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	40	53
LIN-01G-25	LIN-01-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	50	67
LIN-01G-30	LIN-01-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	58	76

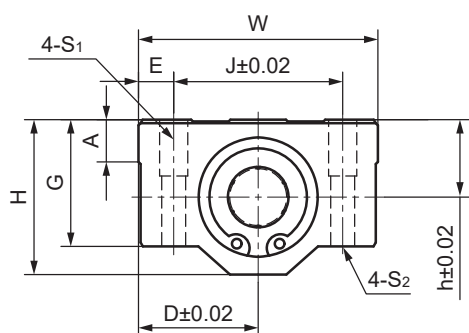
产品编码 Part No.	内径LD [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-01G-12	12	0/+0.04	480	3360	68
LIN-01G-16	16	0/+0.04	720	5040	110
LIN-01G-20	20	0/+0.04	1125	7875	133
LIN-01G-25	25	0/+0.05	1813	12688	286
LIN-01G-30	30	0/+0.05	2550	17850	359

LIN-01GN 窄设计直线轴承座 Housing bearings, short design



- 封闭式窄轴承座设计
- 装配LIN-01直线轴承
- 阳极氧化铝合金座孔
- 减小配合间隙
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-20℃/+60℃
- Closed design with short housing
- Assembled linear bearings LIN-01
- Anodized aluminum housing
- Reduced bearing clearance
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -20℃/+60℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-01GN-16

轴承内径 Inner diameter

窄设计直线轴承座
Pillow block, short designLIN-01直线轴承
Standard bearings LIN-01

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]										
			h	D	W	H	G	A	J	E	S ₁	S ₂	L
LIN-11GN-12	LIN-01-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	20.3
LIN-11GN-16	LIN-01-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	22.3
LIN-11GN-20	LIN-01-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	28.3
LIN-11GN-25	LIN-01-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	40.4
LIN-11GN-30	LIN-01-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	48.4

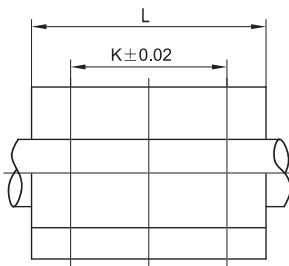
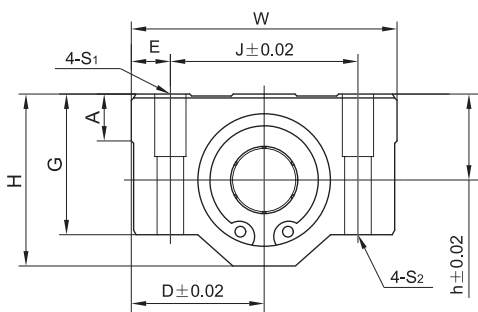
产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N]		重量 Weight [g]
			最大动载荷 Dynamic Load P=5MPa	最大静载荷 Static Load P=35MPa	
LIN-11GN-12	12	0/+0.04	480	3360	16
LIN-11GN-16	16	0/+0.04	720	5040	52
LIN-11GN-20	20	0/+0.04	1125	7875	64
LIN-11GN-25	25	0/+0.05	1813	12688	136
LIN-11GN-30	30	0/+0.05	2550	17850	169

LIN-11G 标准设计直线轴承座 Housing bearings, standard design



- 封闭式带轴承座设计
- 装配LIN-11R直线轴承
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with housing
- Assembled linear bearings LIN-11R
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11G-16

轴承内径 Inner diameter

标准设计直线轴承座
Pillow block, standard design

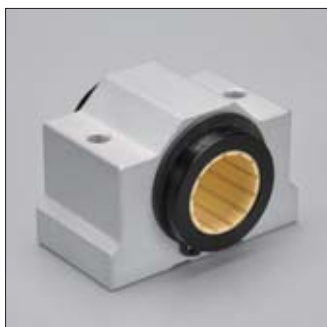
LIN-11R直线轴承
Standard bearings LIN-11R

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]											
			h	D	W	H	G	A	J	E	S ₁	S ₂	K	L
LIN-11G-12	LIN-11R-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	26	39
LIN-11G-16	LIN-11R-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	34	44
LIN-11G-20	LIN-11R-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	40	53
LIN-11G-25	LIN-11R-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	50	67
LIN-11G-30	LIN-11R-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	58	76
LIN-11G-40	LIN-11R-40	40	40	51	102	78	62	20	80	11	M10*12	Φ8.7	60	90
LIN-11G-50	LIN-11R-50	50	52	61	122	102	80	24	100	11	M10*12	Φ8.7	80	110

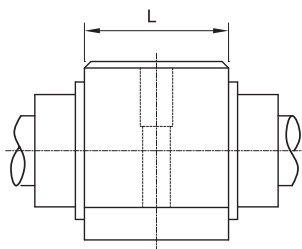
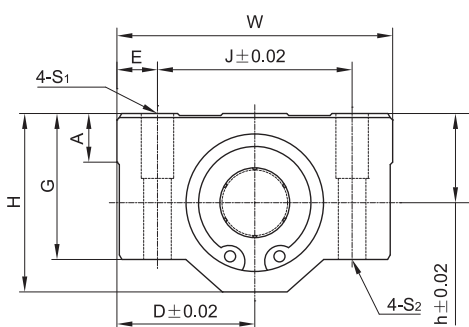
产品编码 Part No.	内径ID [mm]	公差 Tolerance [mm]	F max. [N]		重量 Weight [g]
			最大动载荷 Dynamic Load P=5MPa	最大静载荷 Static Load P=35MPa	
LIN-11G-12	12	+0.030/+0.088	960	6720	79
LIN-11G-16	16	+0.030/+0.088	1440	10080	125
LIN-11G-20	20	+0.030/+0.091	2250	15750	159
LIN-11G-25	25	+0.030/+0.091	3625	25375	343
LIN-11G-30	30	+0.040/+0.110	5100	35700	450
LIN-11G-40	40	+0.040/+0.115	8000	56000	1021
LIN-11G-50	50	+0.040/+0.130	9000	87500	1871

LIN-11GN 窄设计直线轴承座 Housing bearings, short design



- 封闭式窄轴承座设计
- 装配LIN-11R直线轴承
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度-50℃/+90℃
- Closed design with short housing
- Assembled linear bearings LIN-11R
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11GN-16

轴承内径 Inner diameter

窄设计直线轴承座
Pillow block, short designLIN-11R直线轴承
Standard bearings LIN-11R

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]										
			h	D	W	H	G	A	J	E	S ₁	S ₂	L
LIN-11GN-12	LIN-11R-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	20.3
LIN-11GN-16	LIN-11R-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	22.3
LIN-11GN-20	LIN-11R-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	28.3
LIN-11GN-25	LIN-11R-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	40.4
LIN-11GN-30	LIN-11R-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	48.4
LIN-11GN-40	LIN-11R-40	40	40	51	102	78	62	20	80	11	M10*12	Φ8.7	56.4
LIN-11GN-50	LIN-11R-50	50	52	61	122	102	80	24	100	11	M10*12	Φ8.7	72.3

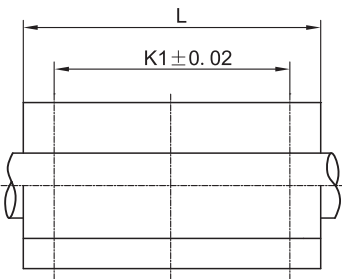
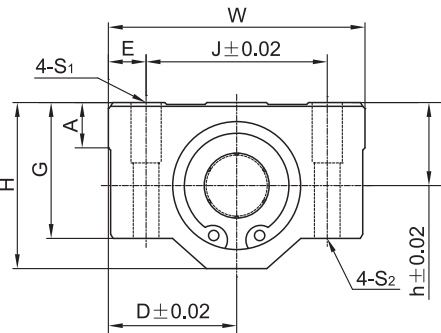
产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11GN-12	12	+0.030/+0.088	960	6720	60
LIN-11GN-16	16	+0.030/+0.088	1440	10080	67
LIN-11GN-20	20	+0.030/+0.091	2250	15750	90
LIN-11GN-25	25	+0.030/+0.091	3625	25375	193
LIN-11GN-30	30	+0.040/+0.110	5100	35700	260
LIN-11GN-40	40	+0.040/+0.115	8000	56000	641
LIN-11GN-50	50	+0.040/+0.130	9000	87500	1149

LIN-11GL 长设计直线轴承座 Housing bearings, long design



- 封闭式加长型轴承座设计
- 装配2个LIN-11R直线轴承
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Closed housing design and increased the guide length
- Assembled 2pcs linear bearings LIN-11R
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11GL-16

轴承内径 Inner diameter

长设计直线轴承座
Pillow block, long design

LIN-11R直线轴承
Standard bearings LIN-11R

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]											
			h	D	W	H	G	A	J	E	S ₁	S ₂	K	L
LIN-11GL-12	2 × LIN-11R-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	64	77
LIN-11GL-16	2 × LIN-11R-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	79	89
LIN-11GL-20	2 × LIN-11R-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	90	106
LIN-11GL-25	2 × LIN-11R-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	119	136
LIN-11GL-30	2 × LIN-11R-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	132	154
LIN-11GL-40	2 × LIN-11R-40	40	40	51	102	78	62	20	80	11	M10*12	Φ8.7	150	180
LIN-11GL-50	2 × LIN-11R-50	50	52	61	122	102	80	24	100	11	M10*12	Φ8.7	200	230

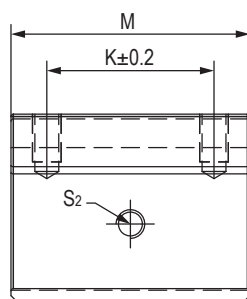
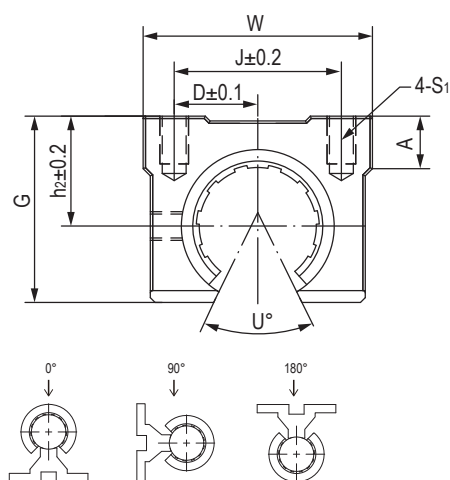
产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa	F max. [N] 最大静载荷 Static Load P=35MPa	重量 Weight [g]
LIN-11GL-12	12	+0.030/+0.088	1920	13440	210
LIN-11GL-16	16	+0.030/+0.088	2880	20160	250
LIN-11GL-20	20	+0.030/+0.091	4500	31500	318
LIN-11GL-25	25	+0.030/+0.091	7250	50750	686
LIN-11GL-30	30	+0.040/+0.110	10200	71400	905
LIN-11GL-40	40	+0.040/+0.115	16000	112000	2041
LIN-11GL-50	50	+0.040/+0.130	18000	175000	5215

LIN-11GK 标准型开口直线轴承座 Open housing bearings



- 开口型轴承座设计
- 装配LIN-11RK直线轴承
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Open housing design
- Assembled linear bearings LIN-11RK
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications



产品编码 Part No.:

LIN-11GK-16

轴承内径 Inner diameter

开口设计直线轴承座
Pillow block, open designLIN-11RK直线轴承
Standard bearings LIN-11RK

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]										
			W	G	A	M	h ₂	D	U°	J	K	S ₁	S ₂
LIN-11GK-12	LIN-1221-32RK	12	40	27.6	8	39	17	14	80	28	26	M5*10	M5
LIN-11GK-16	LIN-1628-36RK	16	45	33	9	45	20	22.5	80	32	30	M5*12	M5
LIN-11GK-20	LIN-11RK-20	20	48	39	11	50	23	24	60	35	35	M6*12	M5
LIN-11GK-25	LIN-11RK-25	25	60	47	14	65	27	30	50	40	40	M6*12	M5
LIN-11GK-30	LIN-3045-68RK	30	70	56	15	70	33	35	50	50	50	M8*18	M5

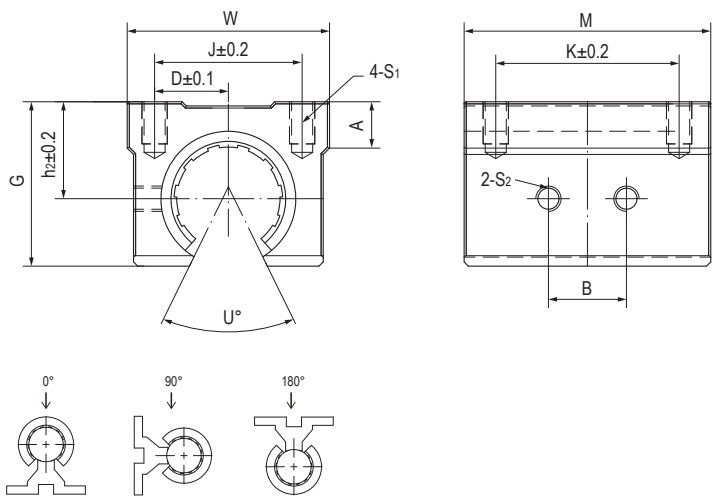
产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa			F max. [N] 最大静载荷 Static Load P=35MPa			重量 Weight [g]
			0°	90°	180°	0°	90°	180°	
LIN-11GK-12	12	+0.030/+0.088	960	635	240	6720	4445	1680	84
LIN-11GK-16	16	+0.030/+0.088	1440	990	396	10080	6943	2772	125
LIN-11GK-20	20	+0.030/+0.091	2250	1800	900	15750	12600	6300	159
LIN-11GK-25	25	+0.030/+0.091	3625	2953	1523	25375	20670	10658	343
LIN-11GK-30	30	+0.040/+0.110	5100	4250	2278	35700	29735	15948	450

LIN-11GKL 加长型开口直线轴承座 Open housing bearings, long design



- 开口型轴承座设计
- 装配2个LIN-11RK直线轴承
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 适用于污垢或灰尘环境
- 使用温度 -50℃/+90℃
- Open housing design and increased the guide length
- Assembled 2pcs linear bearings LIN-11RK
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Resistance to dirt and dust
- Operation temperature -50℃/+90℃

标准规格 Standard specifications

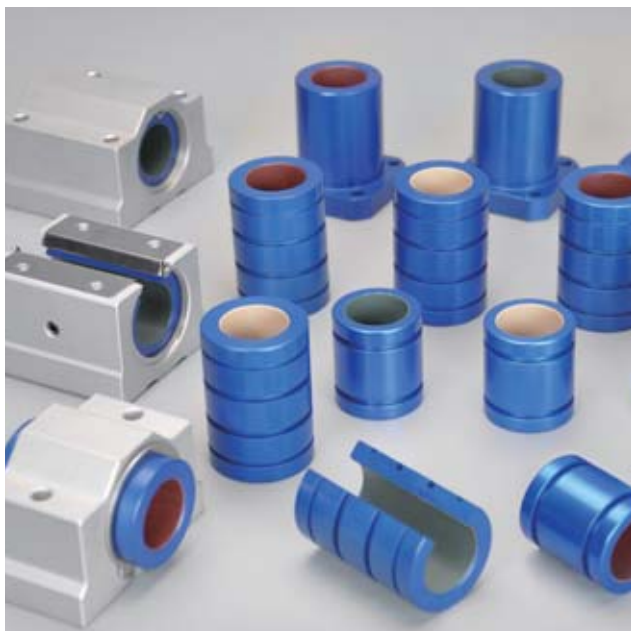


产品编码 Part No.:
LIN-11GKL-16
轴承内径 Inner diameter
开口型长设计直线轴承座
Open, pillow block, long design
LIN-11RK直线轴承
Standard bearings LIN-11RK

轴 Shaft: h6-h9

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]												
			D	W	G	A	M	h ₂	D1	U°	J	K	B	S ₁	S ₂
LIN-11GKL-16	2 × LIN-1628-36RK	16	22.5	45	33	9	85	20	22.5	80	32	60	41	M5*12	M5
LIN-11GKL-20	2 × LIN-11RK-20	20	24	48	39	11	96	23	24	60	35	70	47	M6*12	M5
LIN-11GKL-25	2 × LIN-11RK-25	25	30	60	47	14	130	27	30	50	40	100	63	M6*12	M5
LIN-11GKL-30	2 × LIN-3045-68RK	30	35	70	56	15	140	33	35	50	50	110	70	M8*18	M5

产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load P=5MPa			F max. [N] 最大静载荷 Static Load P=35MPa			重量 Weight [g]
			0°	90°	180°	0°	90°	180°	
LIN-11GKL-16	16	+0.030/+0.088	2880	1980	792	20160	13886	5544	250
LIN-11GKL-20	20	+0.030/+0.091	4500	3600	1800	31500	25200	12600	318
LIN-11GKL-25	25	+0.030/+0.091	7250	5906	3046	50750	41340	21316	686
LIN-11GKL-30	30	+0.040/+0.110	10200	8500	4556	71400	59470	31896	905



产品特性 Product features

- LINP精密直线轴承与金属滚珠直线轴承尺寸精度保持一致，但具有更高的承载能力且运行噪音极低。滑动膜采用了TEFPLAS[®]复合材料实现长期免维护，低摩擦系数，适用于高温 $\pm 200^{\circ}\text{C}$ 运行；TEFPLAS[®]材料结合LINP小间隙运行不但对轴不会造成损伤而且能清洁轴表面污垢。
- 自润滑，免维护
- 高精度，运行平稳
- 减振，无噪音
- 高速运行，长寿命
- 适合直线、旋转和摇摆运动
- LINP precision linear bearings have the same dimensional accuracy as metal ball linear bearings, but with higher load carrying capacity and extremely low operating noise. The liners are made of TEFPLAS[®] compounds developed for maintenance-free and low friction coefficient, LINP linear bearings suitable for $\pm 200^{\circ}\text{C}$ operation temperature; LINP small gap operation with TEFPLAS[®] materials will not damage to the shaft and can clean the surface dirt.
- Self-lubricating, maintenance-free
- High precision and smooth operation
- Vibration reduction, no noise
- High-speed operation and long life
- Suitable for linear, rotary and swing motion

LINP滑动膜材料 Liner materials

TEFPLAS[®] B 是LINP精密直线轴承标准滑动膜材料，综合高承载与耐磨特性，适用于硬度HRC35以上硬轴。

TEFPLAS[®] G 极好的耐磨性能，适用于硬轴、不锈钢轴或铝轴。

TEFPLAS[®] E 符合FDA食品接触安全材料，适用于不锈钢轴或铝轴。

TEFPLAS[®] B is a standard liner material for LINP precision linear bearings. It combines high load bearing and wear resistance performance, suitable for hard shaft HRC35 or higher.

TEFPLAS[®] G has excellent wear resistance, suitable for hard shaft, stainless steel shaft or aluminum shaft.

TEFPLAS[®] E FDA food contact safety materials, suitable for stainless steel shaft or aluminum shaft.

材料 Material	摩擦系数 Dry friction coefficient	最大静载荷 Max. static load MPa	最大动载荷 Max. dynamic load MPa	极限PV值 Max. PV N/mm ² x m/s	最高干运行速度 (m/s) Max. Speed ,Dry running		运行温度* Operation temperature ℃
					连续运行 Continuous	间断运行 Intermittent	
TEFPLAS [®] B	0.10-0.25	20	10	0.7	1.5	4.0	± 200
TEFPLAS [®] G	0.10-0.20	16	8	0.6	1.0	3.0	± 200
TEFPLAS [®] E	0.05-0.18	12	6	0.4	1.0	2.0	± 200

*极端高温下运行需要考虑加大配合间隙消除轴与轴承高温膨胀引起的卡滞现象，请与CSB销售工程师联系

*For operation under extreme high temperature, it is necessary to consider increasing the fitting clearance to avoid stagnation caused by the high temperature expansion of the shaft and bearing. Please contact CSB sales engineers

耐化学性 Chemical resistance

TEFPLAS[®]材料可在恶劣环境下使用，即使浸没在液体中也能表现出出色的性能。TEFPLAS[®] B材料中的填充物可能会受到去离子水和其它高强度化学物质腐蚀；TEFPLAS[®] G与TEFPLAS[®] B材料几乎对所有化学物质呈现惰性。

CSB-LIN[®] P 精密直线轴承标准壳体材料阳极氧化铝，较好的化学抗性适合大部分工业应用，同时可选配316不锈钢壳体适用于具有强腐蚀化学液体环境。

TEFPLAS[®] materials stand up to harsh environments and provide excellent performance in a submerged condition. TEFPLAS[®] B : the fillers in the material can be attacked by deionized water and other harsh chemicals.

TEFPLAS[®] G and TEFPLAS[®] E : almost universal chemical inertness.

The standard shell material is anodized aluminum of CSB-LIN[®] P precision linear bearings: good chemical resistance in most industrial applications, 316 stainless steel shell are available for corrosion resistance in harsh environments

寿命影响因素 Factors affecting wear rate and life

轴的表面粗糙度、硬度以及尺寸精度都会影响CSB-LIN[®] P 精密直线轴承的寿命

优选配合轴：

- 轴直径公差等级h6-h7，适用于所有TEFPLAS[®] 材料
- 表面粗糙度Ra0.2-0.4，适用于所有TEFPLAS[®] 材料
- 表面硬度HRC50，根据不同TEFPLAS[®] 材料可配合软轴

Affecting the life of CSB-LIN[®] P precision linear bearings: surface roughness, hardness and dimensional accuracy of the shaft

Recommend shafts for the best performance:

- Shaft diameter tolerance h6-h7, suitable for all TEFPLAS[®] materials
- Surface roughness Ra0.2-0.4, suitable for all TEFPLAS[®] materials
- Surface hardness HRC50, according to different TEFPLAS[®] materials and the soft shafts are available

偏心力 Eccentric forces

- 最大比例为2:1
- 1x = 同轴轴承距离
- 2x = 从轴到负载或驱动力的距离
- Maximum 2:1 ratio
- 1x = bearing separation on same shaft
- 2x = distance from shaft to load or force

小心：超过2:1比例时会发生爬行甚至卡死的现象！

CAUTION: uneven motion or even system blockage will occur if the 2:1 ratio is exceeded !

这个原则与负载无关！这不是由于边缘加载。它也不依赖于使用的驱动力！驱动力与轴承的距离越远，所需驱动力越大，磨损也越大。

可能还有其他因素会增加制动效果，但摩擦系数是主要原因。

注意：2:1法则是基于理论静摩擦系数0.25，然而，额外的润滑有助于降低摩擦并延长2:1的比例。

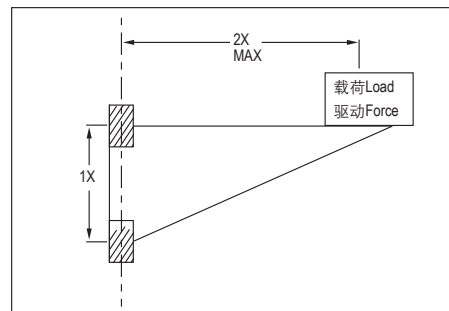
如果您有任何设计或安装方面的疑惑，请与我们的工程师联系。

This principle is NOT load dependent! It is NOT due to edge loading. It is also NOT dependent on the driving force used! The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force.

There may be other factors that add to the braking effect, but the coefficient of friction is the main cause.

NOTE: The Rule(2:1) is based on the static friction value of 0.25 theoretically, However, Additional lubrication can help to drop friction and extend the 2:1 ratio.

If you have any questions on design and/or assembly, please contact our application engineers.

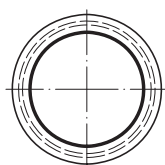
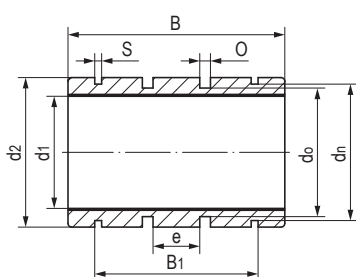


LINP-11R 封闭式精密直线轴承 Precision linear bearings, closed



- 封闭式长设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS® B
可选高耐磨材料TEFPLAS® G和
符合FDA标准材料TEFPLAS® E
- 阳极氧化铝合金适配器
- 卡簧轴向固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed and long design
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS® B
Available materials: TEFPLAS® G and E
- Anodized aluminum adapter
- Axial secured by circlips
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11R-08-C

补偿间隙 Compensated Clearance

内径 Inner diameter

封闭式保持器 Closed housing

长设计 Long design

滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h6 [mm]	B h10 [mm]	B ₁ H10 [mm]	d ₀ h10 [mm]	s H10 [mm]	O H10 [mm]	d ₀ H10 [mm]	e [mm]
LINPB-11R-08	8	+0.013/+0.035	16	25	16.2	15.2	1.1	1.86	13.20	5
LINPB-11R-10	10	+0.013/+0.035	19	29	21.6	17.5	1.3	1.86	15.40	5
LINPB-11R-12	12	+0.016/+0.043	22	32	22.6	20.5	1.3	1.86	18.40	6
LINPB-11R-16	16	+0.016/+0.043	26	36	24.6	24.2	1.3	2.86	20.40	8
LINPB-11R-20	20	+0.020/+0.053	32	45	31.2	29.6	1.6	2.86	26.40	10
LINPB-11R-25	25	+0.020/+0.053	40	58	43.7	36.5	1.85	2.86	34.40	12.5
LINPB-11R-30	30	+0.020/+0.053	47	68	51.7	43.5	1.85	2.86	41.40	15
LINPB-11R-40	40	+0.020/+0.064	62	80	60.3	57.8	2.15	2.86	56.40	20
LINPB-11R-50	50	+0.020/+0.064	75	100	77.3	70.5	2.65	2.86	69.40	25

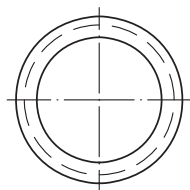
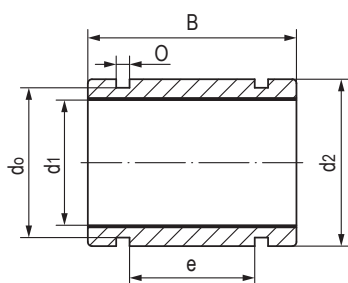
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11R-08	8	16	2000	1600	1200	4000	3200	2400	8
LINPB-11R-10	10	19	2900	2320	1740	5800	4640	3480	15
LINPB-11R-12	12	22	3840	3072	2304	7680	6144	4608	18
LINPB-11R-16	16	26	5760	4608	3456	11520	9216	6912	39
LINPB-11R-20	20	32	9000	7200	5400	18000	14400	10800	52
LINPB-11R-25	25	40	14500	11600	8700	29000	23200	17400	119
LINPB-11R-30	30	47	20400	16320	12240	40800	32640	24480	149
LINPB-11R-40	40	62	32000	25600	19200	64000	51200	38400	333
LINPB-11R-50	50	75	50000	40000	30000	100000	80000	60000	823

LINP-12R 短型直线轴承 Linear bearings, closed, short design



- 封闭式短型设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS[®] B
可选高耐磨材料TEFPLAS[®] G和
符合FDA标准材料TEFPLAS[®] E
- 阳极氧化铝合金适配器
- 过盈配合压装
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed and short design
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS[®] B
Available materials: TEFPLAS[®] G and E
- Anodized aluminum adapter
- Assembly by press fitting
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-12R-08-C

补偿间隙 Compensated Clearance

内径 Inner diameter

封闭式保持器 Closed housing

短设计 Short design

滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	B h10 [mm]	O H10 [mm]	d _o H10 [mm]	e [mm]
LINPB-12R-08	8	+0.013/+0.035	15	24	2	12.2	10
LINPB-12R-10	10	+0.013/+0.035	17	26	2	14.4	12
LINPB-12R-12	12	+0.016/+0.043	19	28	2	16.6	14
LINPB-12R-16	16	+0.016/+0.043	24	30	2	21.3	14
LINPB-12R-20	20	+0.020/+0.053	28	30	2	25.5	14
LINPB-12R-25	25	+0.020/+0.053	35	40	3.2	30.9	22
LINPB-12R-30	30	+0.020/+0.053	40	50	3.2	35.9	30
LINPB-12R-40	40	+0.020/+0.064	52	60	4.1	46.2	40
LINPB-12R-50	50	+0.020/+0.064	62	70	4.1	56.3	50

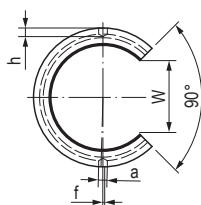
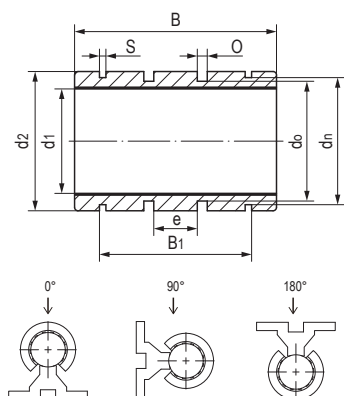
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-12R-08	8	15	1920	1536	1152	3840	3072	2304	7
LINPB-12R-10	10	17	2600	2080	1560	5200	4160	3120	9
LINPB-12R-12	12	19	3360	2688	2016	6720	5376	4032	11
LINPB-12R-16	16	24	4800	3840	2880	9600	7680	5760	18
LINPB-12R-20	20	28	6000	4800	3600	12000	9600	7200	23
LINPB-12R-25	25	35	10000	8000	6000	20000	16000	12000	44
LINPB-12R-30	30	40	15000	12000	9000	30000	24000	18000	65
LINPB-12R-40	40	52	24000	19200	14400	48000	38400	28800	123
LINPB-12R-50	50	62	35000	28000	21000	70000	56000	42000	177

LINP-11RK 开口式直线轴承 Linear bearings, open



- 开口设计，配合支撑轴
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS® B
可选高耐磨材料TEFPLAS® G和
符合FDA标准材料TEFPLAS® E
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Open design for supported shafts
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS® B
Available materials: TEFPLAS® G and E
- Anodized aluminum adapter
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11RK-08-C

- 补偿间隙 Compensated Clearance
- 内径 Inner diameter
- 开口式保持器 Open, aluminum adapter
- 长设计 Long design
- 滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h6 [mm]	B h10 [mm]	B ₁ H10 [mm]	d _n h10 [mm]	s H10 [mm]	O H10 [mm]	d ₀ H10 [mm]	e [mm]	W-1 [mm]	a+0.1 [mm]	h [mm]	f ± 0.2 [mm]
LINPB-11RK-08	8	+0.013/+0.035	16	25	16.0	15.2	1.10	1.86	13.20	5	5.50	/	/	/
LINPB-11RK-10	10	+0.013/+0.035	19	29	21.6	17.5	1.30	1.86	15.40	5	7.30	/	/	/
LINPB-11RK-12	12	+0.016/+0.043	22	32	22.6	20.5	1.30	1.86	18.40	6	9.00	3.0	1.2	1.33(7°)
LINPB-11RK-16	16	+0.016/+0.043	26	36	24.6	24.2	1.30	2.86	20.40	8	11.60	2.2	1.2	/
LINPB-11RK-20	20	+0.020/+0.053	32	45	31.2	29.6	1.60	2.86	26.40	10	12.00	2.2	1.2	/
LINPB-11RK-25	25	+0.020/+0.053	40	58	43.7	36.5	1.85	2.86	34.40	12.5	14.50	3.0	1.5	-1.50(-4.3°)
LINPB-11RK-30	30	+0.020/+0.053	47	68	51.7	43.5	1.85	2.86	41.40	15	16.60	3.0	2.0	2.00(4.9°)
LINPB-11RK-40	40	+0.020/+0.064	62	80	60.3	57.8	2.15	2.86	56.40	20	21.00	3.0	2.0	1.50(2.8°)
LINPB-11RK-50	50	+0.020/+0.064	75	100	77.3	70.5	2.65	2.86	69.40	25	25.50	3.0	2.0	2.50(3.8°)

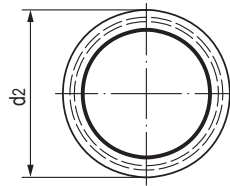
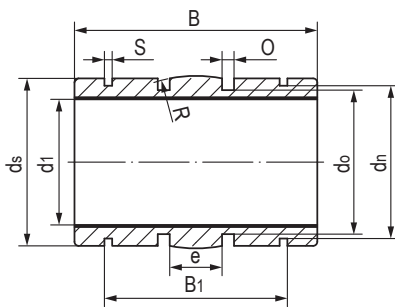
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 材料 Material: B 最大动载荷 Dynamic Load			F max. [N] 材料 Material: B 最大静载荷 Static Load			重量 Weight [g]
			0°	90°	180°	0°	90°	180°	
LINPB-11RK-08	8	16	2000	1725	625	4000	3450	1250	8
LINPB-11RK-10	10	19	2900	2442	783	5800	4884	1566	11
LINPB-11RK-12	12	22	3840	3190	960	7680	6381	1920	15
LINPB-11RK-16	16	26	5760	4864	1584	11520	9727	3168	21
LINPB-11RK-20	20	32	9000	8100	3600	18000	16200	7200	42
LINPB-11RK-25	25	40	14500	13154	6090	29000	26309	12180	70
LINPB-11RK-30	30	47	20400	18700	9112	40800	37400	18224	132
LINPB-11RK-40	40	62	32000	29600	15200	64000	59200	30400	278
LINPB-11RK-50	50	75	50000	46650	25000	100000	93300	50000	479

LINP-11RS 调心直线轴承 Floating linear bearings, closed



- 封闭式自动调心设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS[®] B
可选高耐磨材料TEFPLAS[®] G和
符合FDA标准材料TEFPLAS[®] E
- 阳极氧化铝合金适配器
- 卡簧轴向固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed and self-aligning design
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS[®] B
Available materials: TEFPLAS[®] G and E
- Anodized aluminum adapter
- Axial secured by circlips
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11RS-10-C

- 补偿间隙 Compensated Clearance
- 内径 Inner diameter
- 自调整保持器
Automatic alignment aluminum adapter
- 长设计 Long design
- 滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d_1 [mm]	公差 Tolerance [mm]	d_2 h6 [mm]	B h10 [mm]	B_1 H10 [mm]	s H10 [mm]	d_3 h10 [mm]	d_4 h10 [mm]	d_5 h10 [mm]	$o_{-0.1}$ [mm]	e [mm]	R [mm]
LINPB-11RS-08	8	+0.013/+0.035	15.8	25	16.4	1.1	15.0	15.5	13.20	1.86	5.0	20
LINPB-11RS-10	10	+0.013/+0.035	18.8	29	21.8	1.3	17.5	18.5	15.40	1.86	5.0	13
LINPB-11RS-12	12	+0.016/+0.043	21.8	32	22.8	1.3	20.5	21.5	18.40	1.86	6.0	18
LINPB-11RS-16	16	+0.016/+0.043	25.8	36	24.9	1.3	24.2	25.5	20.40	2.86	8.0	32
LINPB-11RS-20	20	+0.020/+0.053	31.8	45	31.5	1.6	29.6	31.5	26.40	2.86	10.0	50
LINPB-11RS-25	25	+0.020/+0.053	39.8	58	44.1	1.85	36.5	39.0	34.40	2.86	12.5	39
LINPB-11RS-30	30	+0.020/+0.053	46.7	68	52.1	1.85	43.5	46.0	41.40	2.86	15.0	57
LINPB-11RS-40	40	+0.020/+0.064	61.7	80	60.9	2.15	57.8	61.0	56.40	2.86	20.0	100
LINPB-11RS-50	50	+0.020/+0.064	74.7	100	78.0	2.65	70.5	74.0	69.40	2.86	25.0	157

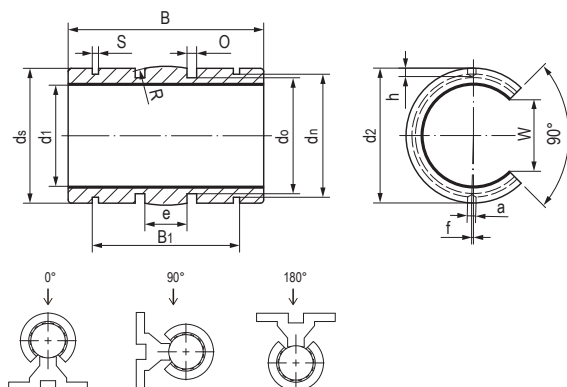
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11RS-08	8	16	2000	1600	1200	4000	3200	2400	8
LINPB-11RS-10	10	19	2900	2320	1740	5800	4640	3480	15
LINPB-11RS-12	12	22	3840	3072	2304	7680	6144	4608	18
LINPB-11RS-16	16	26	5760	4608	3456	11520	9216	6912	39
LINPB-11RS-20	20	32	9000	7200	5400	18000	14400	10800	52
LINPB-11RS-25	25	40	14500	11600	8700	29000	23200	17400	119
LINPB-11RS-30	30	47	20400	16320	12240	40800	32640	24480	149
LINPB-11RS-40	40	62	32000	25600	19200	64000	51200	38400	333
LINPB-11RS-50	50	75	50000	40000	30000	100000	80000	60000	823

LINP-11RSK 调心直线轴承 Floating linear bearings, open



- 开口式自动调心设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS® B
可选高耐磨材料TEFPLAS® G和
符合FDA标准材料TEFPLAS® E
- 阳极氧化铝合金适配器
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Open and self-aligning design
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS® B
Available materials: TEFPLAS® G and E
- Anodized aluminum adapter
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11RSK-10-C

补偿间隙 Compensated Clearance

内径 Inner diameter

开口式自调整保持器
Open, automatic alignment aluminum adapter

长设计 Long design

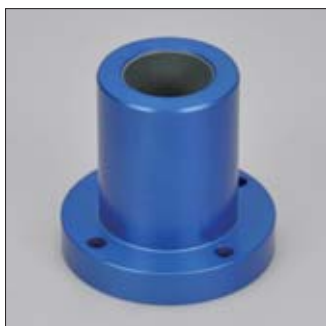
滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d _i [mm]	公差 Tolerance [mm]	d _s h7 [mm]	B h10 [mm]	B ₁ H10 [mm]	s H10 [mm]	d _n h10 [mm]	d _s h10 [mm]	d _o h10 [mm]	o+0.1 [mm]	e [mm]	R [mm]	W-1 [mm]	a+0.1 [mm]	h [mm]	f ± 0.2 [mm]
LINPB-11RSK-08	8	+0.013/+0.035	15.8	25	16.4	1.1	15.0	15.5	13.20	1.86	5.50	20	5.50	/	/	/
LINPB-11RSK-10	10	+0.013/+0.035	18.8	29	21.8	1.3	17.5	18.5	15.40	1.86	7.30	13	7.30	/	/	/
LINPB-11RSK-12	12	+0.016/+0.043	21.8	32	22.8	1.3	20.5	21.5	18.40	1.86	9.00	18	9.00	3.0	1.2	1.33(7°)
LINPB-11RSK-16	16	+0.016/+0.043	25.8	36	24.9	1.3	24.2	25.5	20.40	2.86	11.60	32	11.60	2.2	1.2	/
LINPB-11RSK-20	20	+0.020/+0.053	31.8	45	31.5	1.6	29.6	31.5	26.40	2.86	12.00	50	12.00	2.2	1.2	/
LINPB-11RSK-25	25	+0.020/+0.053	39.8	58	44.1	1.85	36.5	39.0	34.40	2.86	14.50	39	14.50	3.0	1.5	-1.50(-4.3°)
LINPB-11RSK-30	30	+0.020/+0.053	46.7	68	52.1	1.85	43.5	46.0	41.40	2.86	16.60	57	16.60	3.0	2.0	2.00(4.9°)
LINPB-11RSK-40	40	+0.020/+0.064	61.7	80	60.9	2.15	57.8	61.0	56.40	2.86	21.00	100	21.00	3.0	2.0	1.50(2.8°)
LINPB-11RSK-50	50	+0.020/+0.064	74.7	100	78.0	2.65	70.5	74.0	69.40	2.86	25.50	157	25.50	3.0	2.0	2.50(3.8°)

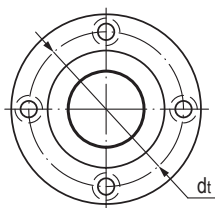
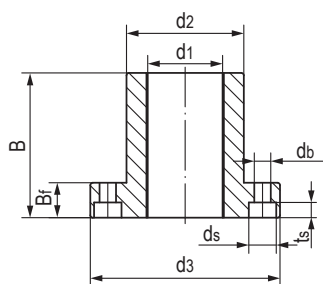
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 材料 Material: B 最大动载荷 Dynamic Load			F max. [N] 材料 Material: B 最大静载荷 Static Load			重量 Weight [g]
			0°	90°	180°	0°	90°	180°	
LINPB-11RSK-08	8	16	2000	1725	625	4000	3450	1250	8
LINPB-11RSK-10	10	19	2900	2442	783	5800	4884	1566	11
LINPB-11RSK-12	12	22	3840	3190	960	7680	6381	1920	15
LINPB-11RSK-16	16	26	5760	4864	1584	11520	9727	3168	21
LINPB-11RSK-20	20	32	9000	8100	3600	18000	16200	7200	42
LINPB-11RSK-25	25	40	14500	13154	6090	29000	26309	12180	70
LINPB-11RSK-30	30	47	20400	18700	9112	40800	37400	18224	132
LINPB-11RSK-40	40	62	32000	29600	15200	64000	59200	30400	278
LINPB-11RSK-50	50	75	50000	46650	25000	100000	93300	50000	479

LINP-11RF 圆法兰直线轴承 Round flange linear bearings



- 封闭式圆法兰设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS[®] B
可选高耐磨材料TEFPLAS[®] G和
符合FDA标准材料TEFPLAS[®] E
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed design with round flange
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS[®] B
Available materials: TEFPLAS[®] G and E
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11RF-10-C

补偿间隙 Compensated Clearance
内径 Inner diameter
圆法兰保持器
Round flange aluminum adapter
长设计 Long design
滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d _{t ± 0.15} [mm]	d ₃ [mm]	B [mm]	B _f [mm]	t _s [mm]	d _s [mm]	d ₅ [mm]
LINPB-11RF-08	8	+0.013/+0.035	16	24	32	25	8	3.1	3.5	6.0
LINPB-11RF-10	10	+0.013/+0.035	19	29	39	29	9	4.1	4.5	7.5
LINPB-11RF-12	12	+0.016/+0.043	22	32	42	32	9	4.1	4.5	7.5
LINPB-11RF-16	16	+0.016/+0.043	26	36	46	36	9	4.1	4.5	7.5
LINPB-11RF-20	20	+0.020/+0.053	32	43	54	45	11	5.1	5.5	9.0
LINPB-11RF-25	25	+0.020/+0.053	40	51	62	58	11	5.1	5.5	9.0
LINPB-11RF-30	30	+0.020/+0.053	47	62	76	68	14	6.1	6.6	11.0
LINPB-11RF-40	40	+0.020/+0.064	62	80	98	80	18	8.1	9.0	14.0
LINPB-11RF-50	50	+0.020/+0.064	75	94	112	100	18	8.1	9.0	14.0

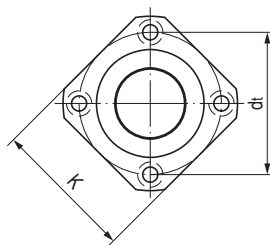
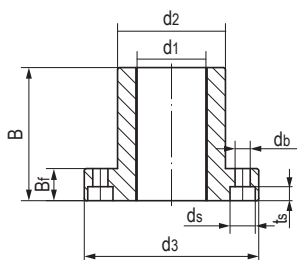
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11RF-08	8	16	2000	1600	1200	4000	3200	2400	20
LINPB-11RF-10	10	19	2900	2320	1740	5800	4640	3480	34
LINPB-11RF-12	12	22	3840	3072	2304	7680	6144	4608	43
LINPB-11RF-16	16	26	5760	4608	3456	11520	9216	6912	54
LINPB-11RF-20	20	32	9000	7200	5400	18000	14400	10800	91
LINPB-11RF-25	25	40	14500	11600	8700	29000	23200	17400	154
LINPB-11RF-30	30	47	20400	16320	12240	40800	32640	24480	266
LINPB-11RF-40	40	62	32000	25600	19200	64000	51200	38400	555
LINPB-11RF-50	50	75	50000	40000	30000	100000	80000	60000	852

LINP-11RT 方法兰塑料直线轴承 Angular flang linear bearings



- 封闭式方法兰设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS® B
可选高耐磨材料TEFPLAS® G和
符合FDA标准材料TEFPLAS® E
- 阳极氧化铝合金适配器
- 螺栓固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed design with square flange
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS® B
Available materials: TEFPLAS® G and E
- Anodized aluminum adapter
- Secured by bolts
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11RT-10-C

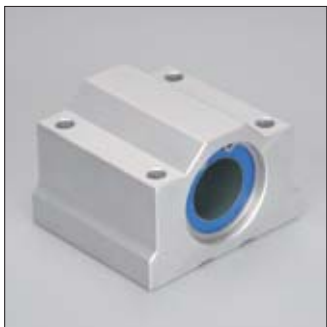
- 补偿间隙 Compensated Clearance
- 内径 Inner diameter
- 方法兰保持器
Angular flange aluminum adapter
- 长设计 Long design
- 滑动膜材料 Liner material: B/G/E

座孔 Housing: H7 轴 Shaft: h6-h7

产品编码 Part No.	d ₁ [mm]	公差 Tolerance [mm]	d ₂ h7 [mm]	d ₁ ± 0.15 [mm]	d ₃ [mm]	B [mm]	B _f [mm]	t _s [mm]	d _b [mm]	d _s [mm]	K ± 0.15 [mm]
LINPB-11RT-08	8	+0.013/+0.035	16	24	32	25	8	3.1	3.5	6.0	25
LINPB-11RT-10	10	+0.013/+0.035	19	29	39	29	9	4.1	4.5	7.5	30
LINPB-11RT-12	12	+0.016/+0.043	22	32	42	32	9	4.1	4.5	7.5	32
LINPB-11RT-16	16	+0.016/+0.043	26	36	46	36	9	4.1	4.5	7.5	35
LINPB-11RT-20	20	+0.020/+0.053	32	43	54	45	11	5.1	5.5	9.0	42
LINPB-11RT-25	25	+0.020/+0.053	40	51	62	58	11	5.1	5.5	9.0	50
LINPB-11RT-30	30	+0.020/+0.053	47	62	76	68	14	6.1	6.6	11.0	60
LINPB-11RT-40	40	+0.020/+0.064	62	80	98	80	18	8.1	9.0	14.0	75
LINPB-11RT-50	50	+0.020/+0.064	75	94	112	100	18	8.1	9.0	14.0	88

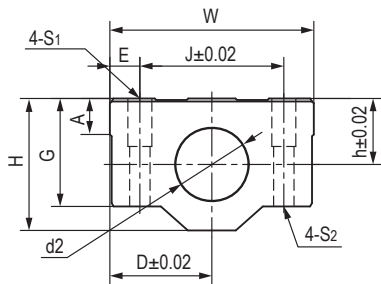
产品编码 Part No.	轴径 Shaft [mm]	座孔 Housing [mm] H7	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11RT-08	8	16	2000	1600	1200	4000	3200	2400	20
LINPB-11RT-10	10	19	2900	2320	1740	5800	4640	3480	34
LINPB-11RT-12	12	22	3840	3072	2304	7680	6144	4608	43
LINPB-11RT-16	16	26	5760	4608	3456	11520	9216	6912	54
LINPB-11RT-20	20	32	9000	7200	5400	18000	14400	10800	91
LINPB-11RT-25	25	40	14500	11600	8700	29000	23200	17400	154
LINPB-11RT-30	30	47	20400	16320	12240	40800	32640	24480	266
LINPB-11RT-40	40	62	32000	25600	19200	64000	51200	38400	555
LINPB-11RT-50	50	75	50000	40000	30000	100000	80000	60000	852

LINP-11G 标准设计直线轴承座 Pillow blocks, standard design



- 封闭式带轴承座设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS[®] B
可选高耐磨材料TEFPLAS[®] G和
符合FDA标准材料TEFPLAS[®] E
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed design with housing
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS[®] B
Available materials: TEFPLAS[®] G and E
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11G-16-C

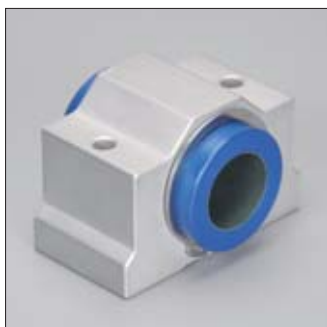
- 补偿间隙 Compensated Clearance
- 轴承内径 Inner diameter
- 标准设计直线轴承座
Pillow block, standard design
- 长设计 Long design
- 滑动膜材料 Liner material: B/G/E

轴 Shaft: h6-h7

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]											
			h	D	W	H	G	A	J	E	S ₁	S ₂	K	L
LINPB-11G-12	LINPB-11R-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	26	39
LINPB-11G-16	LINPB-11R-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	34	44
LINPB-11G-20	LINPB-11R-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	40	53
LINPB-11G-25	LINPB-11R-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	50	67
LINPB-11G-30	LINPB-11R-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	58	76
LINPB-11G-40	LINPB-11R-40	40	40	51	102	78	62	20	80	11	M10*25	Φ8.7	60	90
LINPB-11G-50	LINPB-11R-50	50	52	61	122	102	80	24	100	11	M10*25	Φ8.7	80	110

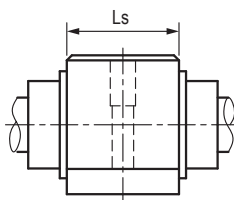
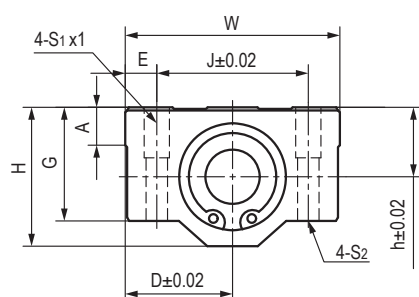
产品编码 Part No.	内径 I.D [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11G-12	12	+0.016/+0.043	3840	3072	2304	7680	6144	4608	79
LINPB-11G-16	16	+0.016/+0.043	5760	4608	3456	11520	9216	6912	125
LINPB-11G-20	20	+0.020/+0.053	9000	7200	5400	18000	14400	10800	159
LINPB-11G-25	25	+0.020/+0.053	14500	11600	8700	29000	23200	17400	343
LINPB-11G-30	30	+0.020/+0.053	20400	16320	12240	40800	32640	24480	450
LINPB-11G-40	40	+0.020/+0.064	32000	25600	19200	64000	51200	38400	1021
LINPB-11G-50	50	+0.020/+0.064	50000	40000	30000	100000	80000	60000	1871

LINP-11GN 窄设计直线轴承座 Pillow blocks, short design



- 封闭式窄轴承座设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS® B
可选高耐磨材料TEFPLAS® G和
符合FDA标准材料TEFPLAS® E
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Closed design with short housing
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS® B
Available materials: TEFPLAS® G and E
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications



产品编码 Part No.:

LINPB-11GN-16-C

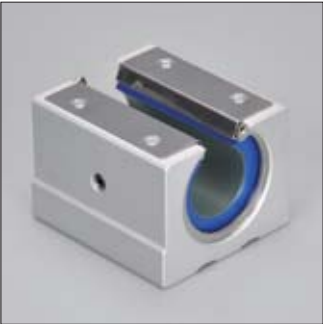
- 补偿间隙 Compensated Clearance
- 轴承内径 Inner diameter
- 窄设计直线轴承座
Pillow block, short design
- 长设计 Long design
- 滑动膜材料 Liner material: B/G/E

轴 Shaft: h6-h7

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]										
			h	D	W	H	G	A	J	E	S ₁	S ₂	L
LINPB-11GN-12	LINPB-11R-12	12	15	22	44	30	24	8	33	5.5	M5*12	Φ4.3	20.3
LINPB-11GN-16	LINPB-11R-16	16	19	25	50	38.5	32.5	9	36	7	M5*12	Φ4.3	22.3
LINPB-11GN-20	LINPB-11R-20	20	21	27	54	41	35	11	40	7	M6*12	Φ5.2	28.3
LINPB-11GN-25	LINPB-11R-25	25	26	38	76	51.5	41	12	54	11	M8*12	Φ7	40.4
LINPB-11GN-30	LINPB-11R-30	30	30	39	78	59.5	49	15	58	10	M8*12	Φ7	48.4
LINPB-11GN-40	LINPB-11R-40	40	40	51	102	78	62	20	80	11	M10*25	Φ8.7	56.4
LINPB-11GN-50	LINPB-11R-50	50	52	61	122	102	80	24	100	11	M10*25	Φ8.7	72.3

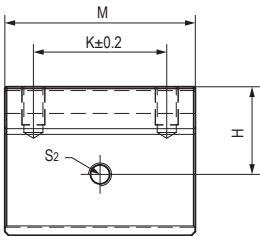
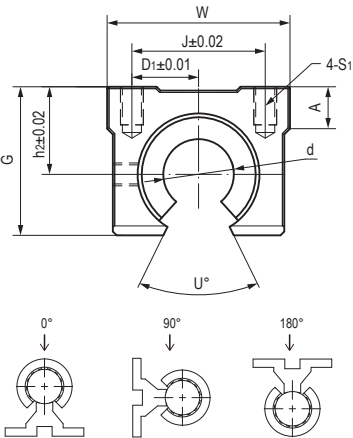
产品编码 Part No.	内径 I.D. [mm]	公差 Tolerance [mm]	F max. [N] 最大动载荷 Dynamic Load			F max. [N] 最大静载荷 Static Load			重量 Weight [g]
			B	G	E	B	G	E	
LINPB-11GN-12	12	+0.016/+0.043	3840	3072	2304	7680	6144	4608	43
LINPB-11GN-16	16	+0.016/+0.043	5760	4608	3456	11520	9216	6912	67
LINPB-11GN-20	20	+0.020/+0.053	9000	7200	5400	18000	14400	10800	90
LINPB-11GN-25	25	+0.020/+0.053	14500	11600	8700	29000	23200	17400	193
LINPB-11GN-30	30	+0.020/+0.053	20400	16320	12240	40800	32640	24480	260
LINPB-11GN-40	40	+0.020/+0.064	32000	25600	19200	64000	51200	38400	641
LINPB-11GN-50	50	+0.020/+0.064	50000	40000	30000	100000	80000	60000	852

LINP-11GK 标准型开口直线轴承座 Open pillow blocks



- 开口型轴承座设计
- 高精度与滚珠轴承相同
- 标准滑动膜材料TEFPLAS[®] B
可选高耐磨材料TEFPLAS[®] G和符合FDA标准材料TEFPLAS[®] E
- 阳极氧化铝合金座孔
- 螺栓固定
- 免维护、低噪音
- 使用温度 $\pm 200^{\circ}\text{C}$
- Open housing design
- High precision similar to preloaded ball bearing
- Standard liner material TEFPLAS[®] B
Available materials: TEFPLAS[®] G and E
- Anodized aluminum housing
- Secured by bolts
- Maintenance-free and low noise
- Operation temperature $\pm 200^{\circ}\text{C}$

标准规格 Standard specifications

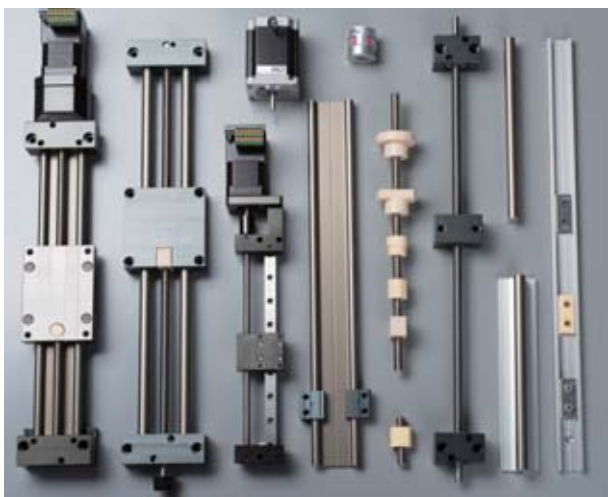


产品编码 Part No.:
LINPB-11GK-16-C
补偿间隙 Compensated Clearance
轴承内径 Inner diameter
开口设计直线轴承座
Pillow block, open design
长设计 Long design
滑动膜材料 Liner material: B/G/E

轴 Shaft: h6-h7

产品编码 Part No.	内装轴承 Bearing [mm]	轴径 Shaft [mm]	尺寸 Size [mm]										
			W	G	A	M	h ₂	D	U°	J	K	S ₁	S ₂
LINPB-11GK-12	LINPB-11RK-12	12	40	27.6	8	39	17	14	80	28	26	M5*10	Φ4.5
LINPB-11GK-16	LINPB-11RK-16	16	45	33	9	45	20	22.5	80	32	30	M5*10	Φ5.5
LINPB-11GK-20	LINPB-11RK-20	20	48	39	11	50	23	24	60	35	35	M6*12	Φ5.5
LINPB-11GK-25	LINPB-11RK-25	25	60	47	14	65	27	30	50	40	40	M6*12	Φ6.6
LINPB-11GK-30	LINPB-11RK-30	30	70	56	15	70	33	35	50	50	50	M8*18	Φ6.6
LINPB-11GK-40	LINPB-11RK-40	40	90	72	20	90	42	45	50	65	65	M10*25	Φ9
LINPB-11GK-50	LINPB-11RK-50	50	120	92	25	110	53	60	50	94	80	M10*25	Φ11

产品编码 Part No.	内径ID [mm]	公差 Tolerance [mm]	F max. [N] 材料 Material: B 最大动载荷 Dynamic Load			F max. [N] 材料 Material: B 最大静载荷 Static Load			重量 Weight [g]
			0°	90°	180°	0°	90°	180°	
LINPB-11GK-12	12	+0.016/+0.043	3840	3190	960	7680	6381	1920	79
LINPB-11GK-16	16	+0.016/+0.043	5760	4864	1584	11520	9727	3168	125
LINPB-11GK-20	20	+0.020/+0.053	9000	8100	3600	18000	16200	7200	159
LINPB-11GK-25	25	+0.020/+0.053	14500	13154	6090	29000	26309	12180	343
LINPB-11GK-30	30	+0.020/+0.053	20400	18700	9112	40800	37400	18224	450
LINPB-11GK-40	40	+0.020/+0.064	32000	29600	15200	64000	59200	30400	1021
LINPB-11GK-50	50	+0.020/+0.064	50000	46650	25000	100000	93300	50000	1871



产品特性 Product features

- CSB-LMS®直线驱动系统均是采用免维护的滑动结构设计，所有滑动单元均采用经过耐磨优化的CSB-EPB®材料制成，而所有的轴或导轨均采用表面硬化处理的铝合金或不锈钢制成。合理的材料和结构设计实现了CSB-LMS®直线驱动系统长期免维护、耐灰尘、抗腐蚀和低噪音。
- CSB-LMS® linear motion system is designed with a maintenance-free sliding structure. All sliding units are made of wear-resistant material CSB-EPB®. All shafts or rails are Made of anodized aluminum alloy or stainless steel. Duo to the reasonable design of the material and structure, CSB-LMS® linear motion system is maintenance-free, resistant to dust, anti-corrosion and low noise.

精密轴 Precision shafts



- AS表面硬化铝轴-LIN直线轴承优选配合材料
- CS硬铬钢轴-性价比高
- ES不锈钢304轴-适合化学液体
- 可提供轴端加工和打孔服务
- AS: Hard anodized aluminum shaft, the best shaft for LIN linear bearings
- CS: Hard-chromed steel shaft, the effective-cost shaft
- ES: 304 Stainless steel shaft, the best for chemical liquid
- Shaft end processing service is available

微型窄支撑轴 Small supported shafts



- 窄矮型设计铝支撑
- 标准型设计铝支撑
- 可选配3种轴材料：AS表面硬化铝轴，CS硬铬钢轴，ES不锈钢304轴
- 10种不同尺寸常备库存
- Compact and low high design support
- Standard design support
- 3 materials shaft: Hard anodized aluminum shaft, Hardchromed steel shaft, 304 Stainless steel shaft
- 10 sizes stocks

WR直线导轨 Linear guides



- 铝合金制成的导轨，硬质氧化滑动表面
- 免维护的线性滑动导轨提供几乎无限的设计自由度
- 免润滑、抗污
- 重量轻和静音
- 安装简单，免维护
- 通过干摩擦消除对污物的敏感性
- 自由设计安装宽度
- Aluminum alloy material, Hard anodized surface of sliding
- Maintenance-free linear slide guides providing virtually limitless design freedom
- Lubrication-free and dirt-resistant
- Weight saving and silent
- Simple installation, maintenance-free
- Insensitivity to dirt through dry operation
- Variable width can be fitted

NR01微型直线导轨 Small linear guides



- 很小安装高度6-12mm
- 轻量级
- 较多的滑块选项 - 也有预张力
- 免维护，自润滑
- 耐腐蚀
- 低磨损，摩擦系数低
- 银色阳极氧化处理
- Small installation height between 6 and 12 mm
- Lightweight
- Numerous carriage options – also with pretension
- Maintenance-free, self lubricating
- Corrosion-resistant
- Low wear with low coefficient of friction
- Rails in silver anodized

直线模组 Linear modules



- 标准设计模组
- 可选不同轴材料和丝杆
- 免维护，耐腐蚀
- 可选丝杆TR10x2, TR18x4, TR24x5
- 可在+60 °C 环境中长期使用
- Standard design
- Various materials for shaft and lead screw
- Maintenance-free and optionally corrosion resistant
- TR10x2, TR18x4, TR24x5
- Temperature resistant up to +60 °C

系统附件 Accessories



设计规则 Design rules

直线驱动系统中的浮动式轴承

在有两根轴或导轨平行使用的直线运动系统里，我们建议其中一边安装浮动直线轴承。无论是水平安装，垂直安装还是侧向安装，这种固定轴承加浮动轴承的合理结构适合每个方向。这种安装方式可以避免由于两根轴或导轨的平行度偏差导致的卡死现象。这是由浮动轴承通过对可能产生平行度偏差的方向做一定范围的游动来实现的。

在安装时，必须保证浮动轴承在同两个方向上有相似的角度。轴或导轨和轴承之间的接触面必须充分平整以避免应力集中。安装不顺畅的小区域可以由浮动轴承自动调整。

Floating bearings for linear slide guides

In the case of a linear motion system with two shafts or rails, We recommend that the floating linear bearing must be fitted in one of sides. A suitable solution comprising fixed and floating bearings is available for every installation position, whether horizontal, vertical or lateral. This type of assembly prevents jamming and blockage on the guides resulting from discrepancies in parallelism.

Floating bearings are created through a controlled extension of play in the direction of the expected parallelism error. During installation, take care that the floating bearing has approximately the same clearance on both sides. The mounting surfaces of the Shafts, rails and linear bearings should possess a good evenness to prevent twisting in the system. Smaller areas of mounting surface unevenness can be compensated to a certain extent by the floating bearing.

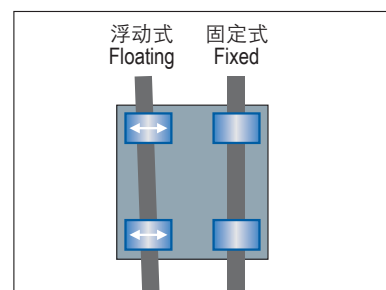


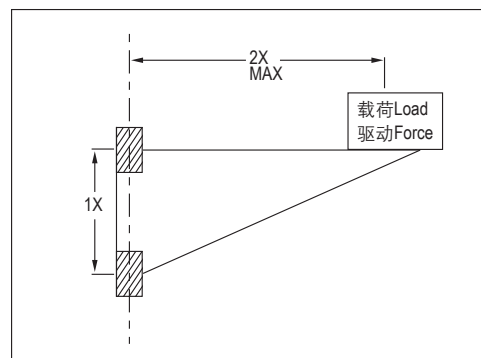
图 02: 自动补偿平衡度误差
Figure 02: Automatic compensation of parallelism errors

偏心力 Eccentric forces

- 最大比例为2:1
- 1x = 同轴轴承距离
- 2x = 从轴到负载或驱动力的距离
- Maximum 2:1 ratio
- 1x = bearing separation on same shaft
- 2x = distance from shaft to load or force

小心：超过2:1比例时会发生爬行甚至卡死的现象！

CAUTION: uneven motion or even system blockage will occur if the 2:1 ratio is exceeded !



这个原则与负载无关！这不是由于边缘加载。它也不依赖于使用的驱动力！驱动力与轴承的距离越远，所需驱动力越大，磨损也越大。

可能还有其他因素会增加制动效果，但摩擦系数是主要原因。

注意：2:1法则是基于理论静摩擦系数0.25，然而，额外的润滑有助于降低摩擦并延长2:1的比例。

如果您有任何设计或安装方面的疑惑，请与我们的工程师联系。

This principle is NOT load dependent! It is NOT due to edge loading. It is also NOT dependent on the driving force used! The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force.

There may be other factors that add to the braking effect, but the coefficient of friction is the main cause.

NOTE: The Rule(2:1) is based on the static friction value of 0.25 theoretically, However, Additional lubrication can help to drop friction and extend the 2:1 ratio.

If you have any questions on design and/or assembly, please contact our application engineers.

CSB-LMS®连接的拧紧力矩

Tightening torque for CSB-LMS® connections between metal parts

公制螺纹 Metric thread	扭矩 Torque	推荐扭矩 Recommended torque [Nm]
M4	1.0 - 2.8	1.5
M5	2.0 - 5.5	3.0
M6	4.0 - 10.0	6.0
M8	8.0 - 23.0	15.0
M10	22.0 - 46.0	30.0

注意：铝合金最小螺栓深度：1.5 × Da

Please be aware of the minimal screw in depth for aluminum parts: 1.5 x Da

精密轴 Precision shafts



AS精密铝轴 Precision aluminum shafts

- EPB13材料制成的直线轴承优选配合轴材料
- 材料: EN AW 6061/6060
- 直线度: EN 754-3
- 硬度: 75 HB
- 表面: 硬质氧化
- 表面硬度: 450-550 HV
- The recommended shaft material for all linear plain bearings made of EPB13
- Material: EN AW 6061/6060
- Straightness: EN 754-3
- Hardness: 75 HB
- Surface: hard anodized
- Surface hardness: 450-550 HV

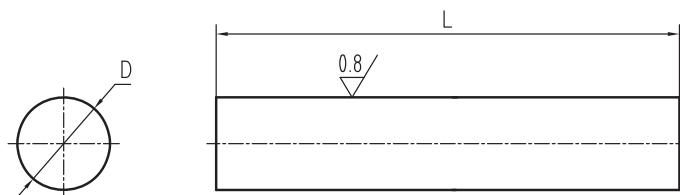
CS精密钢轴 Precision steel shafts

- 高性价比轴材料
- 可配合铝支撑底座
- 45钢, 表面镀硬铬
- 硬度: 60 HRC
- Cost-effective steel shafts
- Also completely supported and assembled with standard aluminium support
- C45 steel, hard-chromed
- Hardness: 60 HRC

ES精密不锈钢轴 Precision stainless steel shafts

- 高耐腐蚀
- 可配合铝支撑底座
- 适用于潮湿场合
- 304不锈钢, 硬化
- High corrosion-resistance
- Also completely supported and assembled with standard aluminium support
- Ideal solution for the wet area
- 304 Stainless steel, hardened

标准规格 Standard specifications



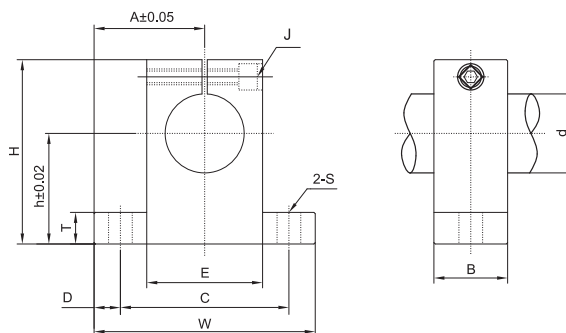
产品编码 Part No.:

AS-06-L

长度 Length
直径 Diameter
材料 Material: AS CS ES

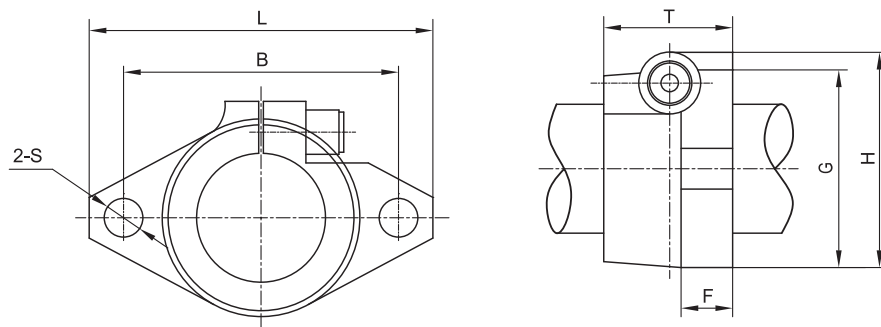
D [mm]	AS铝轴 Aluminum shaft			CS硬轴 Hard carbon steel shaft			ES不锈钢轴 Stainless steel shaft			L max.
	产品编码 Part No.	公差 Tolerance h8 [mm]	重量 Weight [kg/m]	产品编码 Part No.	公差 Tolerance h6 [mm]	重量 Weight [kg/m]	产品编码 Part No.	公差 Tolerance h9 [mm]	重量 Weight [kg/m]	
6	AS-06-L	0/-0.018	0.08	CS-06-L	-0.004/-0.012	0.23	ES-06-L	0/-0.030	0.23	1000
8	AS-08-L	0/-0.022	0.14	CS-08-L	-0.005/-0.014	0.4	ES-08-L	0/-0.036	0.4	1000
10	AS-10-L	0/-0.022	0.22	CS-10-L	-0.005/-0.014	0.6	ES-10-L	0/-0.036	0.6	3000
12	AS-12-L	0/-0.027	0.32	CS-12-L	-0.006/-0.017	0.9	ES-12-L	0/-0.043	0.9	3000
16	AS-16-L	0/-0.027	0.56	CS-16-L	-0.006/-0.017	1.58	ES-16-L	0/-0.043	1.58	3000
20	AS-20-L	0/-0.033	0.88	CS-20-L	-0.006/-0.020	2.5	ES-20-L	0/-0.052	2.5	3000
25	AS-25-L	0/-0.033	1.37	CS-25-L	-0.006/-0.020	3.9	ES-25-L	0/-0.052	3.9	3000
30	AS-30-L	0/-0.033	1.48	CS-30-L	-0.006/-0.020	5.55	ES-30-L	0/-0.052	5.55	3000

SH 轴端标准支撑块 Shaft end standard blocks



产品编码 Part No.	轴径 Shaft d ₁	尺寸 Size [mm]											重量 Weight [g]
		h	A	W	H	T	E	D	C	B	S	J	
SH-10	10	20	21	42	32.8	6	18	5	32	14	5.5	M4	24
SH-12	12	23	21	42	37.5	6	20	5	32	14	5.5	M4	30
SH-16	16	27	24	48	44	8	25	5	38	16	5.5	M4	40
SH-20	20	31	30	60	51	10	30	7.5	45	20	6.6	M5	70
SH-25	25	35	35	70	60	12	38	7	56	24	6.6	M6	130
SH-30	30	42	42	84	70	12	44	10	64	28	9	M6	180
SH-40	40	60	57	114	96	15	60	12	90	36	11	M8	420
SH-50	50	70	63	126	120	18	74	13	100	40	14	M12	750

SHF 轴端法兰支撑块 Shaft end flange blocks



产品编码 Part No.	轴径 Shaft [mm]	尺寸 Size [mm]							安装螺栓 Fitting screws	安全螺栓 Safety screws	重量 Weight [g]
		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

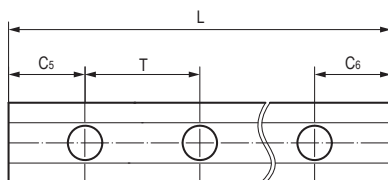
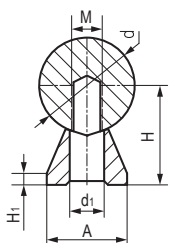
微型窄支撑轴 Small supported shafts



产品特性 Product features

- 窄矮型设计铝支撑
- 交货范围不包括安装螺丝
- 可用轴材料：AS精密铝轴，CS精密硬铬钢轴，ES精密304不锈钢轴
- 轴和支撑件未组装
- 最大许可长度2000mm
- Completely supported with aluminum low support
- Scope of delivery doesn't include mounting screws
- Available shaft materials:
Aluminum, hard anodized
C45, hard-chromed
Stainless steel (304), hardened
- Shafts and supports are supplied unassembled
- The max. length of supports: 2000 mm

标准规格 Standard specifications



产品编码 Part No.:

ASS01-12-L

长度 Length

直径 Diameter

支撑类型 Type: S01

装配轴 Shaft: AS CS ES

产品编码 Part No.	装配轴 Shaft	d [mm]	d ₁ [mm]	H [mm]	H ₁ [mm]	M [mm]	A [mm]	T [mm]	C ₅ =C ₆ [mm]		L max. [mm]	重量 Weight [kg/m]
									min.	max.		
ASS01-12-L	AS-12	12	4.5	14.5	3	M4	11	75	20	57	2000	0.53
ASS01-16-L	AS-16	16	5.5	18	3	M5	14	75	20	57	2000	0.87
ASS01-20-L	AS-20	20	6.6	22	3	M6	17	75	20	57	2000	1.32
ASS01-25-L	AS-25	25	9	26	3	M8	21	75	20	57	2000	1.98
ASS01-30-L	AS-30	30	11	30	3	M10	23	100	20	69.5	2000	2.24

产品编码 Part No.	装配轴 Shaft	d [mm]	d ₁ [mm]	H [mm]	H ₁ [mm]	M [mm]	A [mm]	T [mm]	C ₅ =C ₆ [mm]		L max. [mm]	重量 Weight [kg/m]
									min.	max.		
CSS01-12-L	CS-12	12	4.5	14.5	3	M4	11	75	20	57	2000	1.1
CSS01-16-L	CS-16	16	5.5	18	3	M5	14	75	20	57	2000	1.9
CSS01-20-L	CS-20	20	6.6	22	3	M6	17	75	20	57	2000	2.91
CSS01-25-L	CS-25	25	9	26	3	M8	21	75	20	57	2000	4.46
CSS01-30-L	CS-30	30	11	30	3	M10	23	100	20	69.5	2000	6.31

产品编码 Part No.	装配轴 Shaft	d [mm]	d ₁ [mm]	H [mm]	H ₁ [mm]	M [mm]	A [mm]	T [mm]	C ₅ =C ₆ [mm]		L max. [mm]	重量 Weight [kg/m]
									min.	max.		
ESS01-12-L	ES-12	12	4.5	14.5	3	M4	11	75	20	57	2000	1.1
ESS01-16-L	ES-16	16	5.5	18	3	M5	14	75	20	57	2000	1.9
ESS01-20-L	ES-20	20	6.6	22	3	M6	17	75	20	57	2000	2.91
ESS01-25-L	ES-25	25	9	26	3	M8	21	75	20	57	2000	4.46
ESS01-30-L	ES-30	30	11	30	3	M10	23	100	20	69.5	2000	6.31

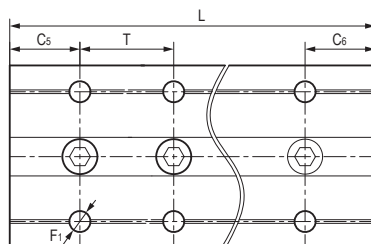
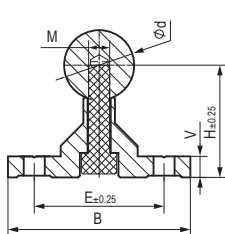
标准支撑轴 Standard supported shafts



产品特性 Product features

- 标准设计支撑轴
- 可用轴材料：AS精密铝轴，CS精密硬铬钢轴，ES精密304不锈钢轴
- 轴和支撑件组装
- 最大许可长度2500mm
- Standard support shafts
- Available shaft materials: Aluminum, hard anodized C45, hard-chromed Stainless steel (304), hardened
- Shafts and supports are supplied assembled
- The max. length of supports: 2500 mm

标准规格 Standard specifications



产品编码 Part No.:

ASS02-12-L
 长度 Length
 直径 Diameter
 支撑类型 Type: S02
 装配轴 Shaft: AS CS ES

产品编码 Part No.	装配轴 Shaft	d [mm]	F ₁ [mm]	H [mm]	V [mm]	B [mm]	E [mm]	M [mm]	C ₅ =C ₆ [mm]		T [mm]	L max. [mm]	重量 Weight [kg/m]
									min.	max.			
ASS02-12-L	AS-12	12	4.5	22	5	40	29	M4	20	57	75	2500	1.07
ASS02-16-L	AS-16	16	5.5	26	5	45	33	M5	20	69	100	2500	1.47
ASS02-20-L	AS-20	20	6.6	32	6	52	37	M6	20	69	100	2500	2.16
ASS02-25-L	AS-25	25	6.6	36	6	57	42	M6	20	79	120	2500	2.94
ASS02-30-L	AS-30	30	9	42	7	69	51	M8	20	94	150	2500	3.56

产品编码 Part No.	装配轴 Shaft	d [mm]	F ₁ [mm]	H [mm]	V [mm]	B [mm]	E [mm]	M [mm]	C ₅ =C ₆ [mm]		T [mm]	L max. [mm]	重量 Weight [kg/m]
									min.	max.			
CSS02-12-L	CS-12	12	4.5	22	5	40	29	M4	20	57	75	2500	1.64
CSS02-16-L	CS-16	16	5.5	26	5	45	33	M5	20	69	100	2500	2.49
CSS02-20-L	CS-20	20	6.6	32	6	52	37	M6	20	69	100	2500	3.75
CSS02-25-L	CS-25	25	6.6	36	6	57	42	M6	20	79	120	2500	5.42
CSS02-30-L	CS-30	30	9	42	7	69	51	M8	20	94	150	2500	7.63

产品编码 Part No.	装配轴 Shaft	d [mm]	F ₁ [mm]	H [mm]	V [mm]	B [mm]	E [mm]	M [mm]	C ₅ =C ₆ [mm]		T [mm]	L max. [mm]	重量 Weight [kg/m]
									min.	max.			
ESS02-12-L	ES-12	12	4.5	22	5	40	29	M4	20	57	75	2500	1.64
ESS02-16-L	ES-16	16	5.5	26	5	45	33	M5	20	69	100	2500	2.49
ESS02-20-L	ES-20	20	6.6	32	6	52	37	M6	20	69	100	2500	3.75
ESS02-25-L	ES-25	25	6.6	36	6	57	42	M6	20	79	120	2500	5.42
ESS02-30-L	ES-30	30	9	42	7	69	51	M8	20	94	150	2500	7.63

WR01单圆直线导轨 Linear guides, single round rail



产品特性 Product features

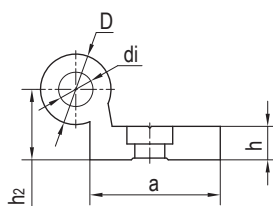
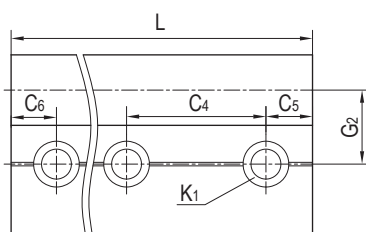
- 铝合金制成的导轨，硬质氧化滑动表面
- 免维护的线性滑动导轨提供几乎无限的设计自由度
- 免润滑、抗污
- 重量轻和静音
- 安装简单，免维护
- 通过干摩擦消除对污物的敏感性
- 自由设计安装宽度
- Aluminum alloy material, Hard anodized surface of sliding
- Maintenance-free linear slide guides providing virtually limitless design freedom
- Lubrication-free and dirt-resistant
- Weight saving and silent
- Simple installation, maintenance-free
- Insensitivity to dirt through dry operation
- Variable width can be fitted

WR01

CSB-LMS®

www.csb-ep.com
sales@csb-ep.comTel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

标准规格 Standard specifications



产品编码 Part No.:

WR01-10-L-NH

空白Blank: 带安装孔 With mounting holes
NH: 无安装孔 No mounting holes
长度 Length
直径 Diameter

产品编码 Part No.	D [mm]	di [mm]	h [mm]	a [mm]	h ₂ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		K ₁ [mm]	G ₂ [mm]	L max. [mm]	重量 Weight [kg/m]
							min.	max.				
WR01-10-L	10	-	5.5	27	9	120	20	79.5	*M6	17	3000	0.62
WR01-16-L	16	8	7.5	27	14	120	20	79.5	M8	19	3000	0.98
WR01-20-L	20	10.2	9.5	27	20	120	20	79.5	M8	21	3000	1.32

*M6: 通孔 Plain holes

产品编码 Part No.	D [mm]	di [mm]	h [mm]	a [mm]	h ₂ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		K ₁ [mm]	G ₂ [mm]	L max. [mm]	重量 Weight [kg/m]
							min.	max.				
WR01-10-L-NH	10	-	5.5	27	9	-	-	-	-	-	3000	0.62
WR01-16-L-NH	16	8	7.5	27	14	-	-	-	-	-	3000	0.98
WR01-20-L-NH	20	10.2	9.5	27	20	-	-	-	-	-	3000	1.32

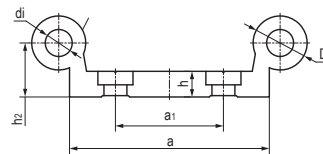
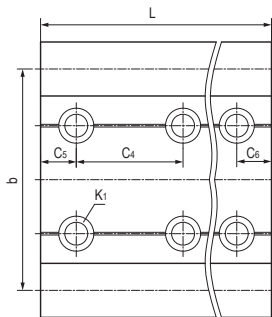
WR02双圆直线导轨 Linear guides, double round rail



产品特性 Product features

- 铝合金制成的导轨，硬质氧化滑动表面
 - 免维护的线性滑动导轨提供几乎无限的设计自由度
 - 免润滑、抗污
 - 重量轻和静音
 - 安装简单，免维护
 - 通过干摩擦消除对污物的敏感性
 - 标准安装宽度
- Aluminum alloy material, Hard anodized surface of sliding
 - Maintenance-free linear slide guides providing virtually limitless design freedom
 - Lubrication-free and dirt-resistant
 - Weight saving and silent
 - Simple installation, maintenance-free
 - Insensitivity to dirt through dry operation
 - Standard fitting width

标准规格 Standard specifications



产品编码 Part No.:

WR02-10-40-L-NH

- 空白Blank: 带安装孔 With mounting holes
- NH: 无安装孔 No mounting holes
- 长度 Length
- 宽度 Width
- 直径 Diameter

产品编码 Part No.	D [mm]	di [mm]	h [mm]	h ₂ [mm]	b [mm]	a _{0.5} [mm]	a ₁ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		K ₁ [mm]	L max. [mm]	重量 Weight [kg/m]
									min.	max.			
WR02-10-40-L	10	-	5.5	9	40	40	-	120	20	79.5	*M6	3000	1
WR02-10-80-L	10	-	5.5	9	74	74	40	120	20	79.5	*M6	3000	1.5
WR02-16-60-L	16	8	7.5	14	58	54	-	120	20	79.5	M8	3000	1.9
WR02-20-80-L	20	10.2	9.5	20	82	74	40	120	20	79.5	M8	3000	3.3

*M6: 通孔 Plain holes

**WR02-10-40/WR02-16-60为单排安装孔 a single row of mounting holes

产品编码 Part No.	D [mm]	di [mm]	h [mm]	h ₂ [mm]	b [mm]	a _{0.5} [mm]	a ₁ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		K ₁ [mm]	L max. [mm]	重量 Weight [kg/m]
									min.	max.			
WR02-10-40-L-NH	10	-	5.5	9	40	40	-	-	-	-	-	3000	1
WR02-10-80-L-NH	10	-	5.5	9	74	74	-	-	-	-	-	3000	1.5
WR02-16-60-L-NH	16	8	7.5	14	58	54	-	-	-	-	-	3000	1.9
WR02-20-80-L-NH	20	10.2	9.5	20	82	74	-	-	-	-	-	3000	3.3

WRU01圆导轨滑块 Round rail sliding blocks



产品特性 Product features

- 安装标准滑动膜EPB13, 可选铝轴滑动膜MN2
- 自润滑、免维护
- 重量轻、快速装配
- 可用于WR系列单轨和双轨
- 抵抗灰尘
- 无噪音运行
- Fitted standard liners EPB13, MN2 liners for aluminum shafts
- Maintenance-free, dry-running
- Fast assembly and light weight
- For WR single and dual guide rails
- Resistant dust
- Silent operation

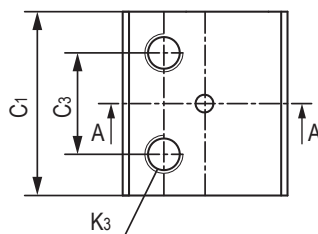
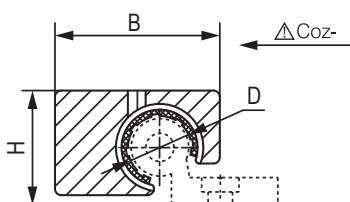
WRU01

CSB-LMS®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

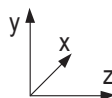
标准规格 Standard specifications



产品编码 Part No.:

WRU01-10-MN2-NA

NA:本色 Nature color
空白 Blank:深灰色 Dark grey
材料 Material:MN2
空白 Blank:EPB13
内径 Inner diameter



产品编码 Part No.	D [mm]	公差 Tolerance [mm]	B [mm]	C ₃ [mm]	C ₁ [mm]	H [mm]	K ₃ [mm]	重量 Weight [g]	静态载荷 Static load		
									Coy- [N]	Coz+ [N]	Coz- [N]
WRU01-10	10	+0.083/+0.020	26	16	29	18	M6	20	1200	1200	250
WRU01-16	16	+0.102/+0.032	34.5	18	36	27	M8	48	2100	2100	400
WRU01-20	20	+0.124/+0.040	42.5	27	45	36	M8	99	3200	3200	500
WRU01-10-MN2-NA	10	+0.083/+0.020	26	16	29	18	M6	20	1200	1200	250
WRU01-16-MN2-NA	16	+0.102/+0.032	34.5	18	36	27	M8	48	2100	2100	400
WRU01-20-MN2-NA	20	+0.124/+0.040	42.5	27	45	36	M8	99	3200	3200	500

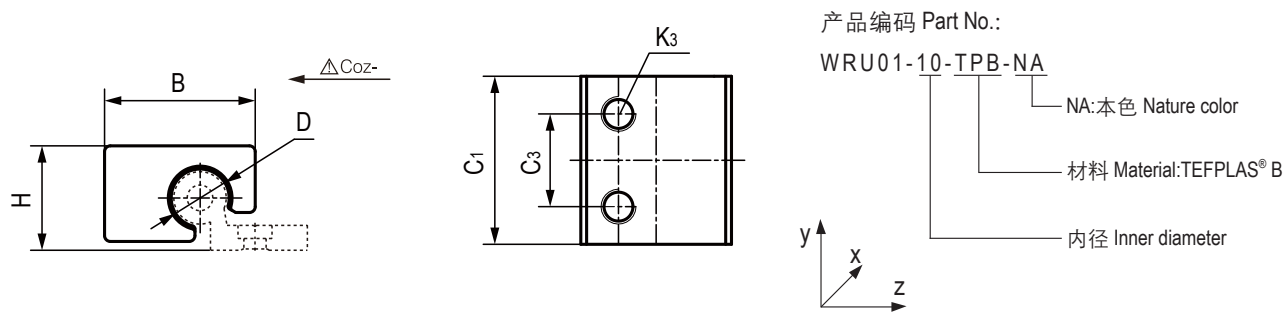
WRU01多用型圆导轨滑块 Round rail sliding blocks(High-performance)



产品特性 Product features

- 耐磨层材料TEFPLAS®B
 - 使用温度 ± 200℃
 - 最高允许速度4m/s
 - 重量轻、快速装配
 - 可用于WR系列单轨和双轨
 - 无噪音运行
- Wear layer material: TEFPLAS® B
 - Operation temperature ± 200℃
 - Max. speed 4m/s
 - Fast assembly and light weight
 - For WR single and dual guide rails
 - Silent operation

标准规格 Standard specifications



产品编码 Part No.	D [mm]	公差 Tolerance [mm]	B [mm]	C ₃ [mm]	C ₁ [mm]	H [mm]	K ₃ [mm]	重量 Weight [g]	静态载荷 Static load		
									Coy- [N]	Coz+ [N]	Coz- [N]
WRU01-10-TPB-NA	10	+0.083/+0.020	26	16	29	18	M6	20	5800	5800	2900
WRU01-16-TPB-NA	16	+0.102/+0.032	34.5	18	36	27	M8	48	11520	11520	5760
WRU01-20-TPB-NA	20	+0.124/+0.040	42.5	27	45	36	M8	99	18000	18000	9000

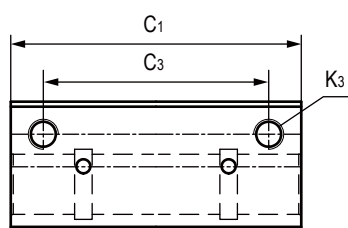
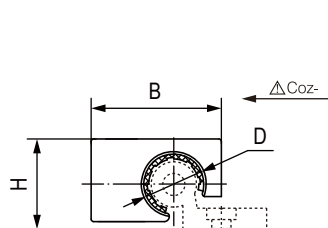
WRU01加长型圆导轨滑块 Round rail sliding blocks(long design)



产品特性 Product features

- 安装2个标准滑动膜EPB13, 可选铝轴滑动膜MN2
- 承载能力是标准型的2倍
- 自润滑、免维护
- 重量轻、快速装配
- 可用于WR系列单轨和双轨
- 抵抗灰尘
- 无噪音运行
- Assembled 2pcs standard liners EPB13, MN2 liners for aluminum shafts
- Carrying capacity is twice that of the standard type
- Maintenance-free, dry-running
- Fast assembly and light weight
- For WR single and dual guide rails
- Resistant dust
- Silent operation

标准规格 Standard specifications



产品编码 Part No.:

WRU01-10-MN2-L-NA

NA:本色 Nature color
空白 Blank:深灰色 Dark grey

加长型设计 Long design

材料 Material:MN2
空白 Blank:EPB13

内径 Inner diameter

产品编码 Part No.	D [mm]	公差 Tolerance [mm]	B [mm]	C ₃ [mm]	C ₁ [mm]	H [mm]	K ₃ [mm]	重量 Weight [g]	静态载荷 Static load		
									Coy- [N]	Coz+ [N]	Coz- [N]
WRU01-10-L-NA	10	+0.083/+0.020	26	45	58	18	M6	40	2400	2400	500
WRU01-16-L-NA	16	+0.102/+0.032	34.5	54	72	27	M8	96	4200	4200	800
WRU01-20-L-NA	20	+0.124/+0.040	42.5	72	90	36	M8	198	6400	6400	1000
WRU01-10-MN2-L-NA	10	+0.083/+0.020	26	45	58	18	M6	40	2400	2400	500
WRU01-16-MN2-L-NA	16	+0.102/+0.032	34.5	54	72	27	M8	96	4200	4200	800
WRU01-20-MN2-L-NA	20	+0.124/+0.040	42.5	72	90	36	M8	198	6400	6400	1000

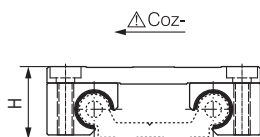
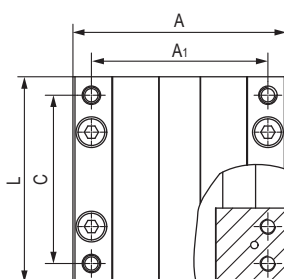
WRC01圆导轨滑台 Assembled guide carriages



产品特性 Product features

- 安装标准滑动膜EPB13
- 自润滑、免维护
- 重量轻、快速装配
- 用于WR系列双轨
- 抵抗灰尘
- 无噪音运行
- Fitted standard liners EPB13
- Maintenance-free, dry-running
- Fast assembly and light weight
- For WR dual guide rails
- Resistant dust and silent
- Silent operation
- Variable length can be fitted

标准规格 Standard specifications



产品编码 Part No.:

WRC01-10-40-100-MN2-NA

NA:本色 Nature color
空白 Blank:深灰色 Dark grey
材料 Material:MN2
空白 Blank:EPB13
长度 Length
宽度 Width
直径 Diameter

产品编码 Part No.	A [mm]	A ₁ [mm]	L [mm]	C [mm]	H [mm]	静态载荷 Static load					重量 Weight [kg]
						Coy- [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]	
WRC01-10-40-100	73	60	100	87	24	4800	2400	96	170	170	0.29
WRC01-10-40-150	73	60	150	137	24	4800	2400	96	290	290	0.34
WRC01-10-40-200	73	60	200	187	24	4800	2400	96	410	410	0.4
WRC01-10-80-100	107	94	100	87	24	4800	2400	178	170	170	0.34
WRC01-10-80-150	107	94	150	137	24	4800	2400	178	290	290	0.42
WRC01-10-80-200	107	94	200	187	24	4800	2400	178	410	410	0.5
WRC01-16-60-100	104	86	100	82	35	8400	4200	240	270	270	0.71
WRC01-16-60-150	104	86	150	132	35	8400	4200	240	480	480	0.84
WRC01-16-60-200	104	86	200	182	35	8400	4200	240	690	690	0.97
WRC01-20-80-150	134	116	150	132	44	12800	6400	525	670	670	1.2
WRC01-20-80-200	134	116	200	182	44	12800	6400	525	990	990	1.2
WRC01-20-80-250	134	116	250	232	44	12800	6400	525	1250	1250	1.5

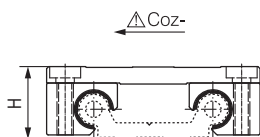
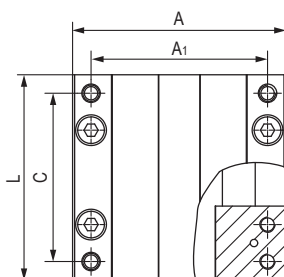
WRC01圆导轨滑台 Assembled guide carriages



产品特性 Product features

- 铝轴滑动膜MN2
- 自润滑、免维护
- 重量轻、快速装配
- 用于WR系列双轨
- 抵抗灰尘
- 无噪音运行
- MN2 liners for aluminum shafts
- Maintenance-free, dry-running
- Fast assembly and light weight
- For WR dual guide rails
- Resistant dust and silent
- Silent operation
- Variable length can be fitted

标准规格 Standard specifications



产品编码 Part No.:

WRC01-10-40-100-MN2-NA

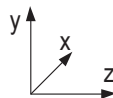
NA:本色 Nature color
空白 Blank:深灰色 Dark grey

材料 Material: MN2
空白 Blank: EPB13

长度 Length

宽度 Width

直径 Diameter



产品编码 Part No.	A [mm]	A ₁ [mm]	L [mm]	C [mm]	H [mm]	静态载荷 Static load					重量 Weight [kg]
						Coy- [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]	
WRC01-10-40-100-MN2	73	60	100	87	24	4800	2400	96	170	170	0.29
WRC01-10-40-150-MN2	73	60	150	137	24	4800	2400	96	290	290	0.34
WRC01-10-40-200-MN2	73	60	200	187	24	4800	2400	96	410	410	0.4
WRC01-10-80-100-MN2	107	94	100	87	24	4800	2400	178	170	170	0.34
WRC01-10-80-150-MN2	107	94	150	137	24	4800	2400	178	290	290	0.42
WRC01-10-80-200-MN2	107	94	200	187	24	4800	2400	178	410	410	0.5
WRC01-16-60-100-MN2	104	86	100	82	35	8400	4200	240	270	270	0.71
WRC01-16-60-150-MN2	104	86	150	132	35	8400	4200	240	480	480	0.84
WRC01-16-60-200-MN2	104	86	200	182	35	8400	4200	240	690	690	0.97
WRC01-20-80-150-MN2	134	116	150	132	44	12800	6400	525	670	670	1.2
WRC01-20-80-200-MN2	134	116	200	182	44	12800	6400	525	990	990	1.2
WRC01-20-80-250-MN2	134	116	250	232	44	12800	6400	525	1250	1250	1.5

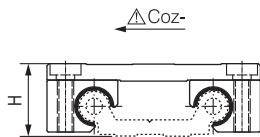
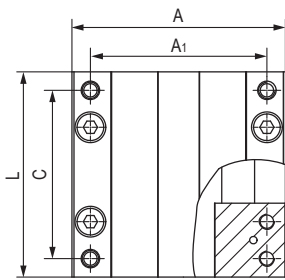
WRC01圆导轨滑台 Assembled guide carriages



产品特性 Product features

- 耐磨层材料TEFPLAS®B
- 使用温度 ± 200℃
- 最高允许速度4m/s
- 重量轻、快速装配
- 用于WR系列双轨
- 抵抗灰尘
- 无噪音运行
- Wear layer material: TEFPLAS® B
- Operation temperature ± 200℃
- Max. speed 4m/s
- Fast assembly and light weight
- For WR dual guide rails
- Resistant dust and silent
- Silent operation
- Variable length can be fitted

标准规格 Standard specifications



产品编码 Part No.:

WRC01-10-40-100-TPB-NA

- NA:本色 Nature color
- 材料 Material:TEFPLAS® B
- 长度 Length
- 宽度 Width
- 直径 Diameter

产品编码 Part No.	A [mm]	A ₁ [mm]	L [mm]	C [mm]	H [mm]	静态载荷 Static load					重量 Weight [kg]
						Coy- [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]	
WRC01-10-40-100-TPB	73	60	100	87	24	5600	2800	112	200	200	0.29
WRC01-10-40-150-TPB	73	60	150	137	24	5600	2800	112	340	340	0.34
WRC01-10-40-200-TPB	73	60	200	187	24	5600	2800	112	482	482	0.4
WRC01-10-80-100-TPB	107	94	100	87	24	5600	2800	209	200	200	0.34
WRC01-10-80-150-TPB	107	94	150	137	24	5600	2800	209	340	340	0.42
WRC01-10-80-200-TPB	107	94	200	187	24	5600	2800	209	482	482	0.5
WRC01-16-60-100-TPB	104	86	100	82	35	9840	4920	282	318	318	0.71
WRC01-16-60-150-TPB	104	86	150	132	35	9840	4920	282	565	565	0.84
WRC01-16-60-200-TPB	104	86	200	182	35	9840	4920	282	810	810	0.97
WRC01-20-80-150-TPB	134	116	150	132	44	15040	7520	617	788	788	1.2
WRC01-20-80-200-TPB	134	116	200	182	44	15040	7520	617	1164	1164	1.2
WRC01-20-80-250-TPB	134	116	250	232	44	15040	7520	617	1470	1470	1.5

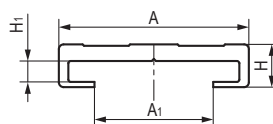
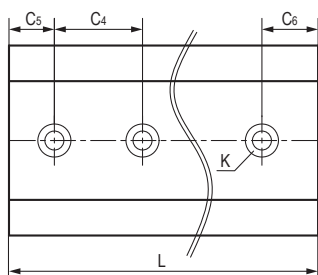
NR01微型直线导轨 Small linear guides



产品特性 Product features

- 很小安装高度6-12mm
 - 轻量级
 - 较多的滑块选项 - 有带预张力设计
 - 免维护，自润滑
 - 耐腐蚀
 - 低磨损，摩擦系数低
 - 银色阳极氧化处理
- Small installation height from 6 to 12 mm
 - Lightweight
 - Numerous carriage options – also with preload design
 - Maintenance-free, self lubricating
 - Corrosion-resistant
 - Low wear with low coefficient of friction
 - Rails in silver anodized

标准规格 Standard specifications



产品编码 Part No.:

NR01-17-L-NH

空白Blank: 带安装孔 With mounting holes
NH: 无安装孔 No mounting holes

长度 Length

宽度 Width

产品编码 Part No.	A [mm]	A ₁ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		H [mm]	H ₁ [mm]	K [mm]	L max. [mm]	重量 Weight [g/m]
				min.	max.					
NR01-17-L-NH	17	10.6	-	-	-	5.5	1.5	-	3000	150
NR01-27-L-NH	27	17	-	-	-	9	4.4	-	3000	290
NR01-40-L-NH	40	25	-	-	-	9	4.4	-	3000	450

产品编码 Part No.	A [mm]	A ₁ [mm]	C ₄ [mm]	C ₅ =C ₆ [mm]		H [mm]	H ₁ [mm]	K [mm]	L max. [mm]	重量 Weight [g/m]
				min.	max.					
NR01-17-L	17	10.6	60	20	49.5	5.5	1.5	M3	3000	150
NR01-27-L	27	17	60	20	49.5	9	4.4	M4	3000	290
NR01-40-L	40	25	60	20	49.5	9	4.4	M4	3000	450

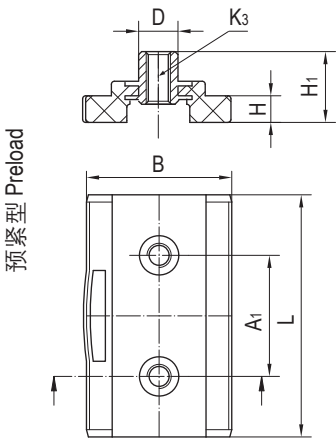
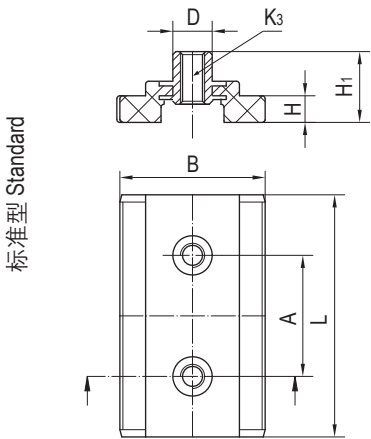
NRU01导轨滑块 Guide rail sliders



产品特性 Product features

- 标准耐磨材料EPB13制成
- 多种选择：标准和带预紧设计
- 极小重量和无噪音运行
- 自润滑、免维护
- 配合导轨NR01-17和NR01-27
- 最大载荷为50N和500N
- Made of high anti-wear material EPB13
- Variants: Standard, Preload (P)
- Extrem low weight quiet running
- Maintenance-free, self lubricating
- Installation for NR01-17 and NR01-27
- Max. load 50N and 500N

标准规格 Standard specifications



产品编码 Part No.:
NRU01-17-20-P
带预紧 Preload
长度 Length
宽度 Width

产品编码 Part No.	A ₁ [mm]	B [mm]	L [mm]	H [mm]	H ₁ [mm]	K ₃ [mm]	重量 Weight [g]
NRU01-17-20-P	14	14.6	20	1.5	5.3	M4	1.7
NRU01-27-40-P	20	24	40	4.4	11.8	M4	8
NRU01-17-20	14	14.6	20	1.5	5.3	M4	1.7
NRU01-27-40	20	24	40	4.4	11.8	M4	8

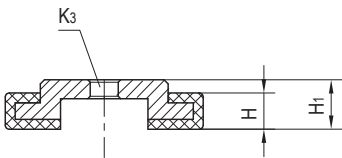
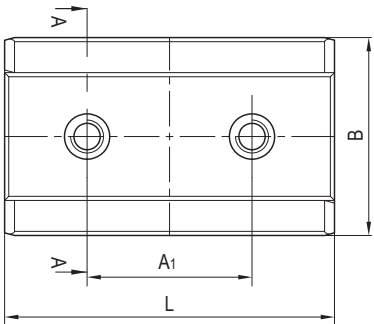
NRU02导轨滑块 Guide rail sliders



产品特性 Product features

- 标准耐磨材料EPB13制成
- 极小重量和无噪音运行
- 自润滑、免维护
- 配合导轨NR01-27和NR01-40
- 最大载荷为500N和700N
- Made of high anti-wear material EPB13
- Extrem low weight quiet running
- Maintenance-free, self lubricating
- Installation for NR01-27 and NR01-40
- Max. load 500N and 700N

标准规格 Standard specifications



产品编码 Part No.:

NRU02-27-40

长度 Length
宽度 Width

产品编码 Part No.	A ₁ [mm]	B [mm]	L [mm]	H [mm]	H ₁ [mm]	K ₃ [mm]	重量 Weight [g]
NRU02-27-40	20	24	40	4.4	6.8	4.5	8.5
NRU02-40-50	20	36	50	4.4	6.8	4.5	17

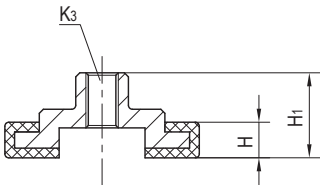
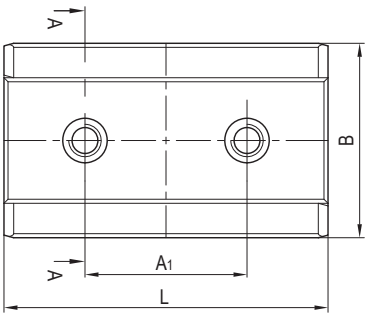
NRU03导轨滑块 Guide rail sliders



产品特性 Product features

- 标准耐磨材料EPB13制成
- 多种选择：标准和带预紧设计
- 极小重量和无噪音运行
- 自润滑、免维护
- 配合导轨NR01-27和NR01-40
- 最大载荷为500N和700N
- Made of high anti-wear material EPB13
- Variants: Standard, Preload (P)
- Extrem low weight quiet running
- Maintenance-free, self lubricating
- Installation for NR01-27 and NR01-40
- Max. load 500N and 700N

标准规格 Standard specifications



产品编码 Part No.:

NRU03-27-40

长度 Length
宽度 Width

产品编码 Part No.	A ₁ [mm]	B [mm]	L [mm]	H [mm]	H ₁ [mm]	K ₃ [mm]	重量 Weight [g]
NRU03-27-40	20	24	40	4.4	11.8	M4	9
NRU03-27-80	60	24	80	4.4	11.8	M4	18
NRU03-40-50	20	36	50	4.4	11.8	M4	19

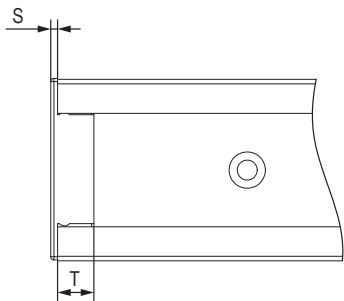
NCAP导轨端盖 Guide rail end caps



产品特性 Product features

- 易安装
- 低成本
- 可拆卸
- 高压紧力
- Easy installation
- Low-priced
- Dismantling possible
- High retention force

标准规格 Standard specifications



产品编码 Part No.:

NCAP-17

宽度 Width

产品编码 Part No.	S [mm]	T [mm]	导轨 Guide rail
NCAP-17	1.5	7	NR01-17
NCAP-27	2	8	NR01-27
NCAP-40	1.5	8	NR01-40

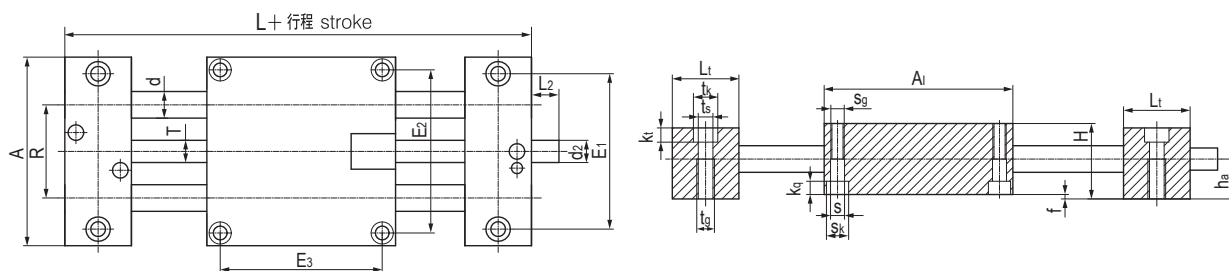
LMS01直线模组 Linear modules



产品特性 Product features

- 标准设计模组
 - 可选不同轴材料和丝杆
 - 免维护，耐腐蚀
 - 可选丝杆TR10x2, TR18x4, TR24x5
 - 可在+60 °C 环境中长期使用
 - 配合丝杆螺母可单独供货P271
 - 配合电机参考P277
 - 可选附件参考P278
-
- Standard design
 - Various materials for shaft and lead screw
 - Maintenance-free and optionally corrosion resistant
 - TR10x2, TR18x4, TR24x5
 - Temperature resistant up to +60 °C
 - Lead screw nuts are available separately Page 271
 - Available with motor Page 277
 - Available accessories Page 278

标准规格 Standard specifications



产品编码 Part No.	产品编码 Part No.	最大行程S Max.stroke length [mm]	铝合金轴 Aluminium shaft [kg]		钢轴 Steel shaft [kg]		最大静态载荷 Max. stat. load capacity [N]	
			重量 Weight	增加重量 Additional (每Per 100mm)	重量 Weight	增加重量 Additional (每Per 100mm)	轴向 Axial	径向 Radial
LMS01-12-AS-S*	LMS01BB-12-AS	750	1.1	0.1	1.3	0.2	700	2800
LMS01-20-AS-S*	LMS01BB-20-AS	1000	3.2	0.3	3.9	0.6	1600	6400
LMS01-30-AS-S*	LMS01BB-30-AS	1250	8.6	0.6	10.9	1.4	2500	10000

产品编码 Part No.	产品编码 Part No.	A-0.3	A ₁ -0.3	H	E ₁ ± 0.15	E ₂ ± 0.15	E ₃ ± 0.15	L	R	f	L ₁ ± 0.1	t _k	t _s
LMS01-12-AS-S*	LMS01BB-12-AS	85	85	34	70	73	73	145	42	2	30	11	6.6
LMS01-20-AS-S*	LMS01BB-20-AS	130	130	48	108	115	115	202	72	2	36	15	9
LMS01-30-AS-S*	LMS01BB-30-AS	180	180	68	150	158	158	280	96	4	50	20	13.5

产品编码 Part No.	产品编码 Part No.	t _g	k _t ± 0.1	s	s _k	s _g	k _a	d	T	L ₂	d ₂	h _a
LMS01-12-AS-S*	LMS01BB-12-AS	M8	6.4	6.3	10	M6	6	12	Tr10 × 2	17	8 h9	18
LMS01-20-AS-S*	LMS01BB-20-AS	M10	8.6	6.4	11	M8	7	20	Tr18 × 4	26	12 h9	23
LMS01-30-AS-S*	LMS01BB-30-AS	M16	12.6	11	18	M12	10.6	30	Tr24 × 5	38	14 h9	36

*BB: 滚珠轴承设计 Ball bearing design

S*: 行程 Stroke

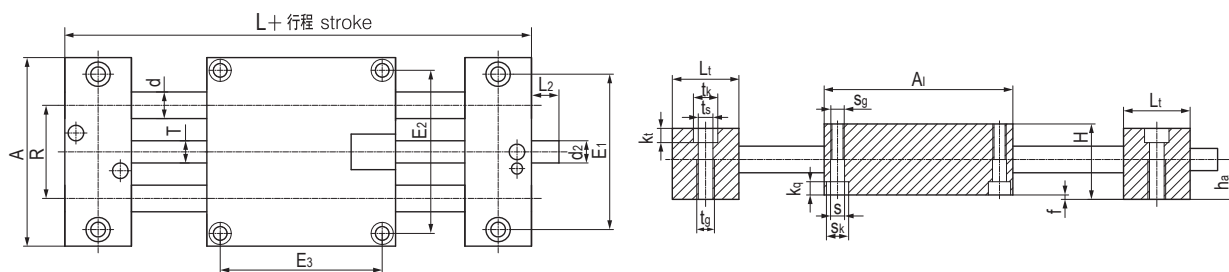
LMS01PL直线模组 Linear modules



产品特性 Product features

- 预紧梯形丝杠螺母，预紧力：50N
- 手动和连续可调的径向游隙
- 免维护且重量轻
- 耐温高达+60℃
- 配合丝杆螺母可单独供货P271
- 配合电机参考P277
- 可选附件参考P278
- Preloaded trapezoidal lead screw nuts, preload force: 50 N
- Manually and continuously adjustable radial clearance
- Lubrication-free and lightweight
- Temperature resistant up to +60 °C
- Lead screw nuts are available separately Page 271
- Available with motor Page 277
- Available accessories Page 278

标准规格 Standard specifications



产品编码 Part No.	产品编码 Part No.	最大行程S Max.stroke length [mm]	铝合金轴 Aluminium shaft [kg]		钢轴 Steel shaft [kg]		最大静态载荷 Max. stat. load capacity [N]	
			重量 Weight	增加重量 Additional (每Per 100mm)	重量 Weight	增加重量 Additional (每Per 100mm)	轴向 Axial	径向 Radial
LMS01-12PL-AS-S*	LMS01BB-12PL-AS-S*	750	1.1	0.1	1.3	0.2	700	2800
LMS01-20PL-AS-S*	LMS01BB-20PL-AS-S*	1000	3.2	0.3	3.9	0.6	1600	6400
LMS01-30PL-AS-S*	LMS01BB-30PL-AS-S*	1250	8.6	0.6	10.9	1.4	2500	10000

产品编码 Part No.	产品编码 Part No.	A-0.3	A ₁ -0.3	H	E ₁ ± 0.15	E ₂ ± 0.15	E ₃ ± 0.15	L	R	f	L ₁ ± 0.1	t _k	t _s
LMS01-12PL-AS-S*	LMS01BB-12PL-AS-S*	85	85	34	70	73	73	145	42	2	30	11	6.6
LMS01-20PL-AS-S*	LMS01BB-20PL-AS-S*	130	130	48	108	115	115	202	72	2	36	15	9
LMS01-30PL-AS-S*	LMS01BB-30PL-AS-S*	180	180	68	150	158	158	280	96	4	50	20	13.5

产品编码 Part No.	产品编码 Part No.	t _g	k ₁ ± 0.1	s	s _k	s _g	k _q	d	T	L ₂	d ₂	h ₃
LMS01-12PL-AS-S*	LMS01BB-12PL-AS-S*	M8	6.4	6.3	10	M6	6	12	Tr10 × 2	17	8 h9	18
LMS01-20PL-AS-S*	LMS01BB-20PL-AS-S*	M10	8.6	6.4	11	M8	7	20	Tr18 × 4	26	12 h9	23
LMS01-30PL-AS-S*	LMS01BB-30PL-AS-S*	M16	12.6	11	18	M12	10.6	30	Tr24 × 5	38	15 h9	36

*BB: 滚珠轴承设计 Ball bearing design

PL: 带预紧 Preload

S*: 行程 Stroke

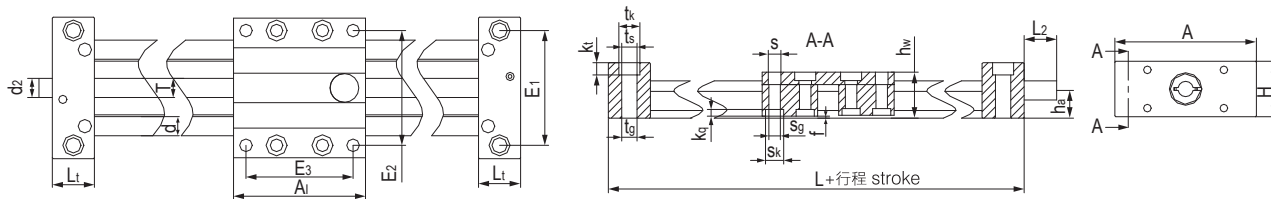
LMS02直线模组 Linear modules



产品特性 Product features

- 经凑型设计
- 稳定传动
- 表面硬化处理铝制WR导轨
- 配合丝杆螺母可单独供货P271
- 配合电机参考P277
- 可选附件参考P278
- Flat and compact
- High torsional stability
- Aluminium WR guide rails, hard anodized
- Lead screw nuts are available separately Page 271
- Available with motor Page 277
- Available accessories Page 278

标准规格 Standard specifications



产品编码 Part No.	最大行程S Max.stroke length [mm]	WR重量 Weight [kg]	增加重量 Additional (每Per 100mm)	最大静态载荷 Max. stat. load capacity [N]		轴端支撑座材料 End block material
				轴向 Axial	径向 Radial	
LMS02-1040-S*	750	0.7	0.10	700	2800	铝
LMS02-1080-S*	750	0.9	0.20	700	2800	铝
LMS02-1660-S*	750	1.5	0.30	1200	4600	铝
LMS02-2080-S*	1000	3.0	0.40	1600	6400	铝

产品编码 Part No.	A-0.3	A ₁ -0.3	H	E ₁ ± 0.15	E ₂ ± 0.15	E ₃ ± 0.15	L	h _w	f	L ₁ ± 0.1	t _k	t _s	t _g
LMS02-1040-S*	74	69	29	60	60	56	113	24	1.5	22	11	6.8	M8
LMS02-1080-S*	108	100	29	94	94	87	144	24	1.5	22	11	6.8	M8
LMS02-1660-S*	104	100	37	84	86	82	150	35	1.5	25	15	9	M10
LMS02-2080-S*	134	150	46	116	116	132	206	44	1.5	28	15	8.6	M10

产品编码 Part No.	k ₁ ± 0.1	s	s _k	s _g	k _q	d	T	L ₂	d ₂	h _a
LMS02-1040-S*	6.4	6.6	9.5	M6	4.4	10	Tr10 × 2	17	6 h9	14.5
LMS02-1080-S*	6.4	6.6	9.5	M6	4.4	10	Tr10 × 2	17	6 h9	14.5
LMS02-1660-S*	8.6	9.0	11.0	M8	5.5	16	Tr14 × 4	20	8 h9	18.5
LMS02-2080-S*	8.6	9.0	14.0	M8	5.5	20	Tr18 × 4	26	12 h9	23.0

S*: 行程 Stroke

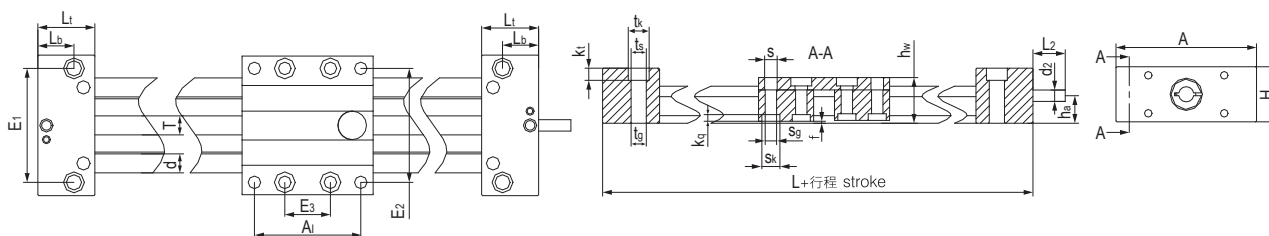
LMS02BB直线模组 Linear modules



产品特性 Product features

- 较低的驱动力
- 表面硬化处理铝制WR导轨
- 降低了系统振动，噪音低
- 丝杆两端采用滚珠轴承支撑
- 配合丝杆螺母可单独供货P271
- 配合电机参考P277
- 可选附件参考P278
- Lower drive force
- Aluminum WR guide rails, hard anodized
- Quiet operation – reduced vibration of the overall system
- Ball bearings in both lead screw end supports
- Lead screw nuts are available separately Page 271
- Available with motor Page 277
- Available accessories Page 278

标准规格 Standard specifications



产品编码 Part No.	最大行程S Max. stroke length [mm]	重量 Weight [kg]	增加重量 Additional (每Per 100mm)	最大静态载荷 Max. stat. load capacity [N]		极限转速 [1/min]	最大进给率 [m/min]
				轴向 Axial	径向 Radial		
LMS02BB-1040-S*	500	0.90	0.10	500	2000	1500	3.0
LMS02BB-1080-S*	500	1.10	0.20	500	2000	1500	3.0
LMS02BB-1660-S*	750	1.80	0.30	700	2800	1500	6.0
LMS02BB-2080-S*	900	3.30	0.40	1250	5000	1500	6.0

产品编码 Part No.	A-0.3	A1-0.3	H	E1 ± 0.15	E2 ± 0.15	E3 ± 0.15	L	h _w	f	L1 ± 0.1	Lb	t _k	t _s	t _g
LMS02BB-1040-S*	74	69	29	60	60	56	129	24	1.5	30	19	11	6.8	M8
LMS02BB-1080-S*	108	100	29	94	94	87	144	24	1.5	30	19	11	6.8	M8
LMS02BB-1660-S*	104	100	37	84	86	82	170	35	1.5	35	22.5	15	9.0	M10
LMS02BB-2080-S*	134	150	46	116	116	132	230	44	1.5	40	26	15	9.0	M10

产品编码 Part No.	k _i ± 0.1	s	s _k	s _j	k _s	d	T	L ₂	d ₂	h ₈
LMS02BB-1040-S*	6.4	6.6	9.5	M6	4.4	10	Tr10 × 2	17	6 h9	14.5
LMS02BB-1080-S*	6.4	6.6	9.5	M6	4.4	10	Tr10 × 2	17	6 h9	14.5
LMS02BB-1660-S*	8.6	9.0	11.0	M8	5.5	16	Tr14 × 4	20	8 h9	18.5
LMS02BB-2080-S*	8.6	9.0	14.0	M8	5.5	20	Tr18 × 4	26	12 h9	23.0

*BB: 滚珠轴承设计 Ball bearing design

S*: 行程 Stroke

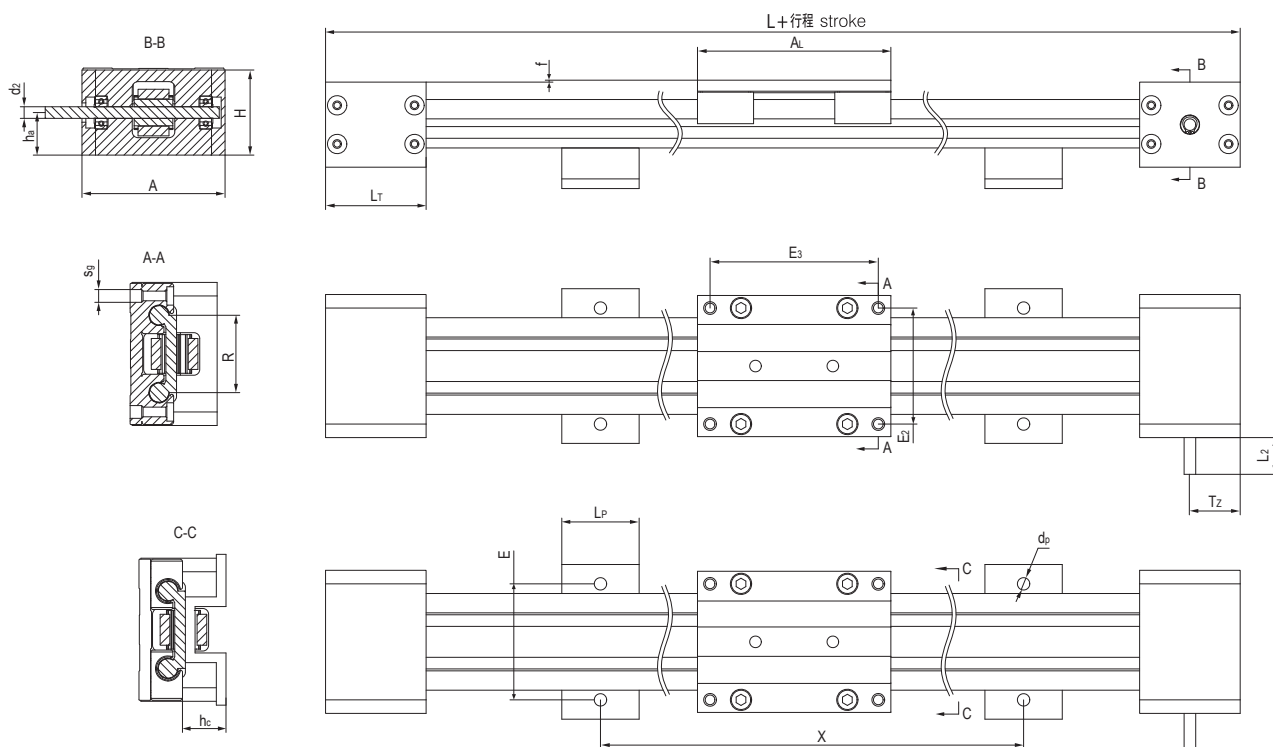
LMS03直线模组 Linear modules



产品特性 Product features

- 轻载快速定位
- 紧凑型无噪音设计
- 驱动轴单边或双边设计
- 多种滑块长度可选
- 配合电机参考P277
- 可选附件参考P278
- Fast positioning of small loads
- Quiet operation and flat design
- Drive shaft on one or both sides
- Linear carriages available in different lengths
- Available with motor Page 277
- Available accessories Page 278

标准规格 Standard specifications



产品编码 Part No.	A 0/-0.3	AL	H	E2 ± 0.15	E3 ± 0.15	L	R ± 0.15	f	L _T ± 0.30	sg	ha	hc	l2	d2 (h9)	X	E ± 0.2	L _p	dP
LMS03-1040-S*	74	100	44	60	87	204	40	1	52	M6	22	22.5	20	10	可调 Variable	60	40	6.4
LMS03-1080-S*	90	100	44	94	87	204	74	1	52	M6	22	22.5	12	10	可调 Variable	94	40	6.4
LMS03-1660-S*	104	100	72	86	82	252	60	2	76	M8	43	22.5	20	14	可调 Variable	100	40	9.0

产品编码 Part No.	重量 Weight [kg]		最大行程S Max. stroke length [mm]	导程 Transmission [mm/rev]	齿形 Tooth profile	宽度 Toothed belt width [mm]	张力 Toothed belt tension [N]	最大径向力 Max. radial load [N]	导向轴承 Guide bearing	最大速度 Max. speed [m/s]	最大定位精度 Max. position variation [mm]
	无行程 Without stroke	100mm行程 Stroke									
LMS03-1040-S*	1	0.14	2000	70	5M	16	300	200	滚珠轴承 Ball bearing	5	± 0.2
LMS03-1080-S*	1.3	0.2	2000	70	5M	16	300	300	滚珠轴承 Ball bearing	5	± 0.2
LMS03-1660-S*	4	0.5	3000	120	5M	32	500	2000	滚珠轴承 Ball bearing	5	± 0.2

S*: 行程 Stroke

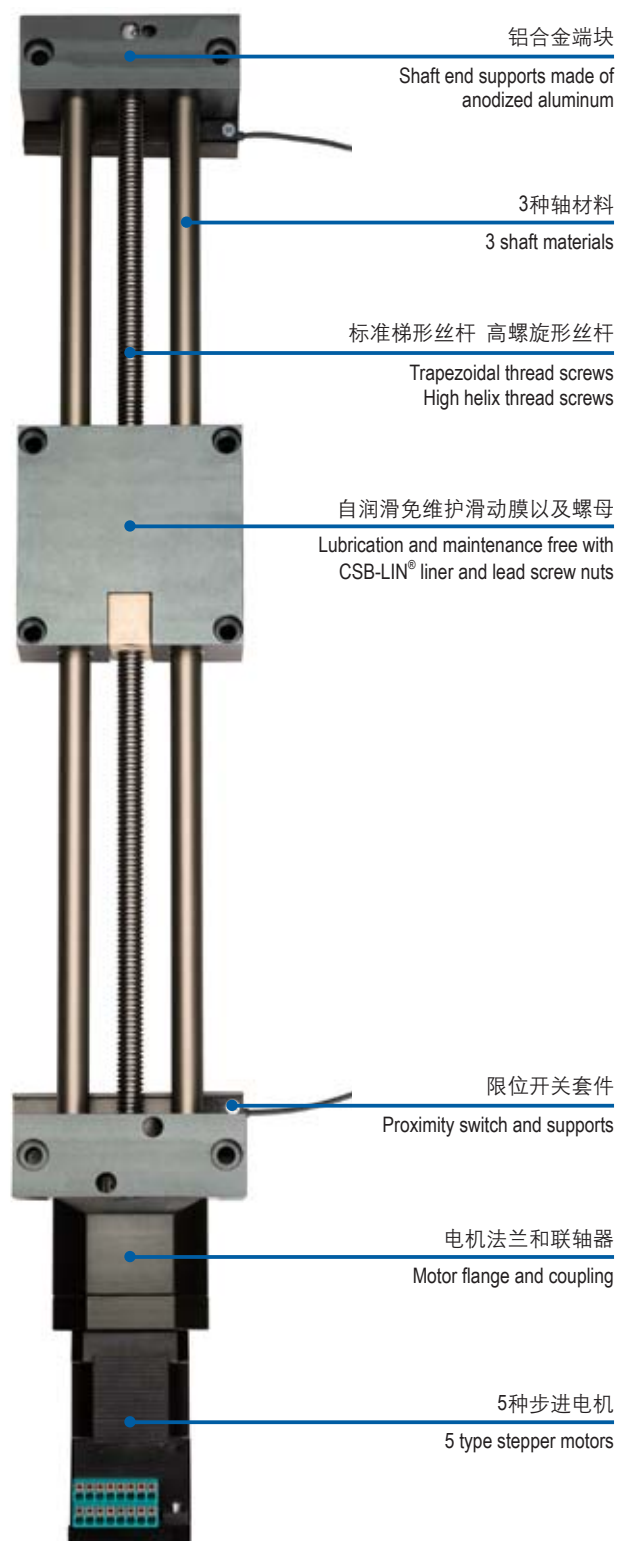
LMS04直线模组 Linear modules



产品特性 Product features

- 薄型设计，采用梯形丝杆和导轨平行安装
- 自润滑，高效能，重量轻
- 可自由设计间距和长度
- 可选右旋或左旋丝杆
- 配合丝杆螺母可单独供货P260
- 配合电机参考P277
- 可选附件参考P278
- Low profile structure through lateral lead screw arrangement
- Lubrication-free, high efficiency, lightweight
- Variable pitch and length
- Lead screw arrangement can be selected either left or right
- Lead screw nuts are available separately Page 260
- Available with motor Page 277
- Available accessories Page 278

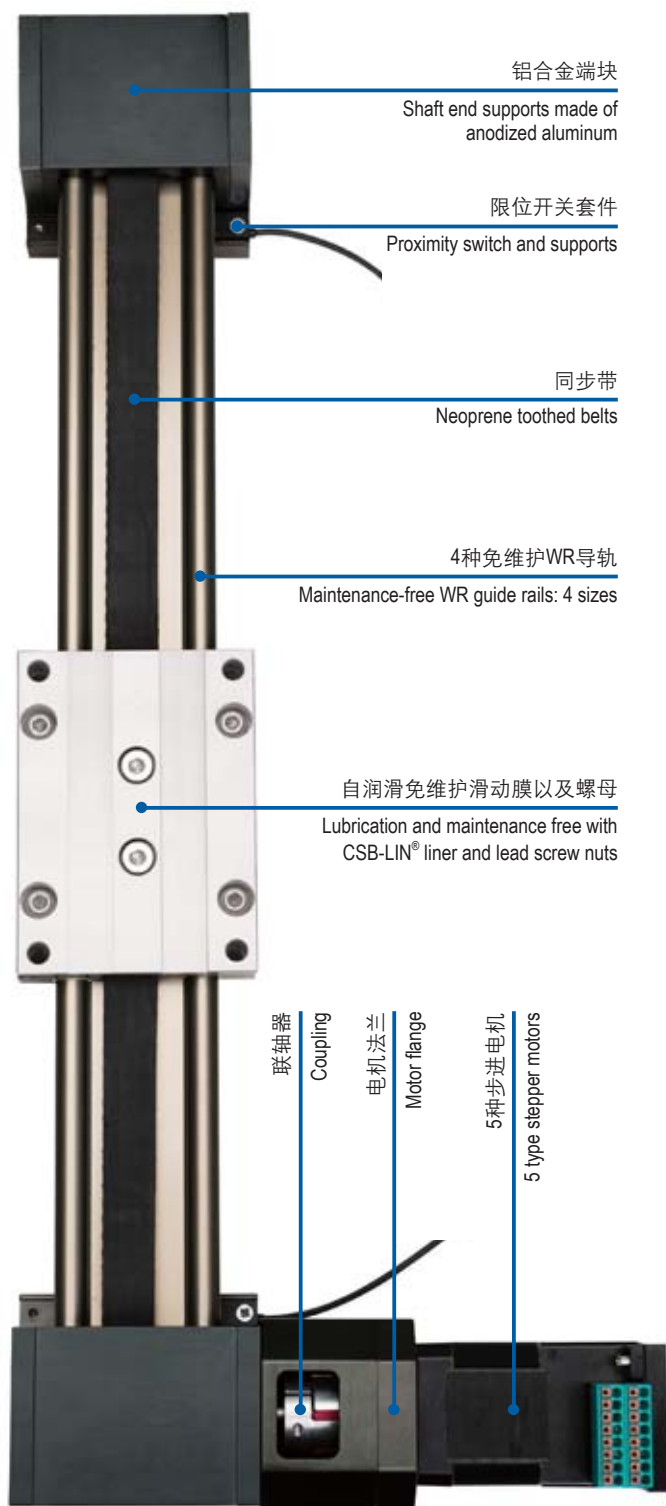
LMS01-E直线模组 Linear modules



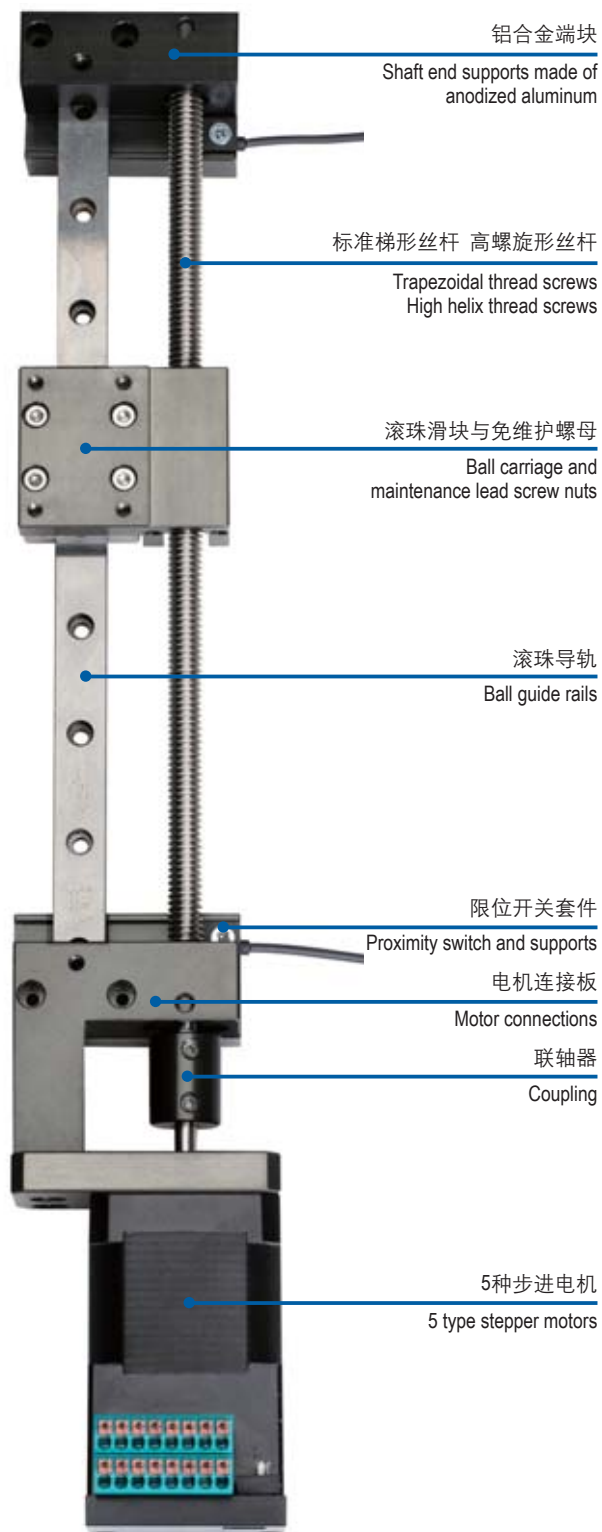
LMS02-E直线模组 Linear modules



LMS03-E直线模组 Linear modules



LMS04-E直线模组 Linear modules





产品特性 Product features

- 丝杆传动组件是将旋转运动转换成直线运动的机器元件。CSB-LMS®丝杆传动组件采用CSB-EPB®材料制成的自润滑的塑料螺母，因此无需外部润滑就可实现长期运转。
- 高效耐用快速螺纹
- 标准梯形自锁螺纹
- 免维护，干运行
- 耐腐蚀、耐脏污、低噪音
- Screw drives are machine elements that convert rotary motion into linear motion. CSB-LMS® screw drives are always based on CSB-EPB® self-lubricating plastic nuts, thus enabling long-lasting operation without external lubrication.
- Efficient and durable CSB-LMS® high helix threads
- Self-locking trapezoidal standard threads
- Maintenance-free, dry operation
- Corrosion resistant、Resistant to dirt and Low-noise

丝杆与螺母设计 Lead screws and nuts design

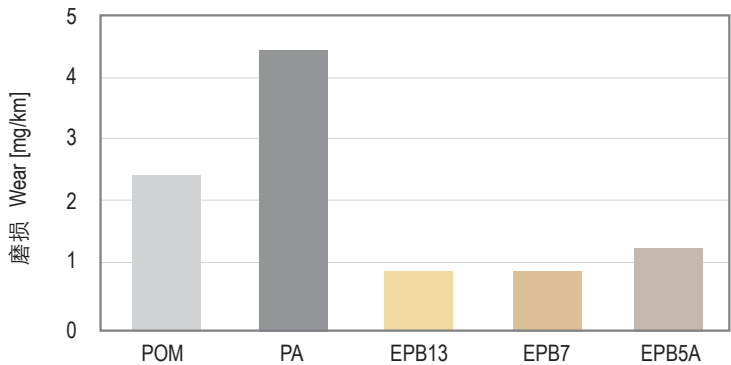
CSB-LMS® 标准梯形丝杆是根据 DIN 103 标准制造，高螺旋线丝杆采用了特殊螺纹角度设计在低转速下可获得高移动速度。CSB-LMS® 丝杆由不锈钢制成，并通过冷轧工艺形成。它们配有高耐磨材料CSB-EPB13螺母设计。对于较高的负载或特殊应用，CSB-EPB5A可用于螺母。

CSB-LMS® lead screw drives are manufactured in accordance with DIN 103. CSB-LMS® high-helix lead screws have high moving speeds been obtained at low rotational speeds. CSB-LMS® high-helix lead screws has made this possible by using a high-helix pitch. CSB-LMS® lead screws are made of stainless steel and are formed by the cold-rolling process. They are coupled with high wear-resistant material CSB-EPB13 nuts designs. For higher loads or special applications, CSB-EPB5A may be used for the nuts.

丝杆材料Screw material: 不锈钢Stainless steel

螺母材料Nut material: CSB-EPB13
CSB-EPB5A
CSB-EPB7

材料 Material	耐温 Temperature
CSB-EPB13	-50/+90 °C
CSB-EPB5A	-100/+250 °C
CSB-EPB7	-40/+90 °C



Wear test on a rolled EPB13/EPB7/EPB5A
EPB13, EPB7和EPB5A螺母旋转磨损测试

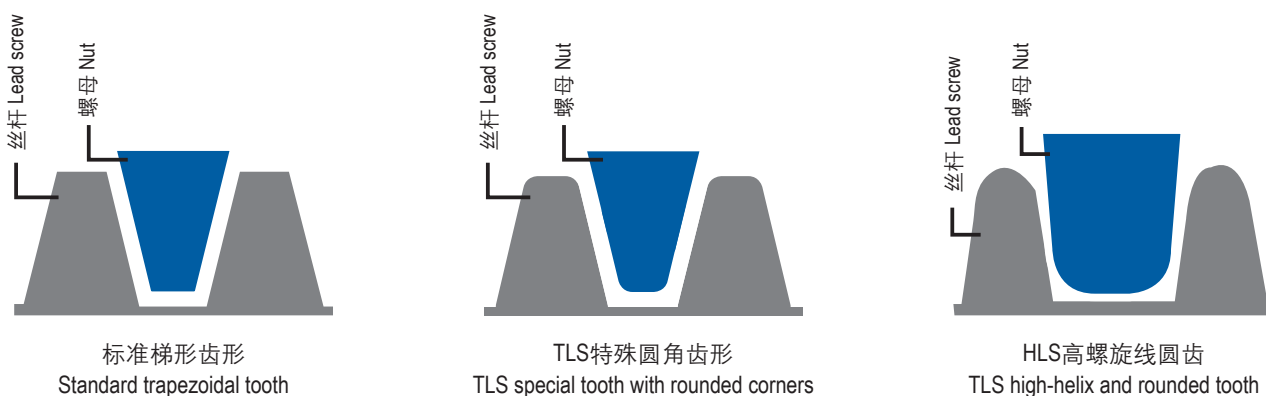
请注意：除了在达到最大额定载荷时会发生变化外，在运行中的热膨胀也会引起变化。我们建议通过具体实验来测试丝杆螺母在低温或高温应用中的可行性。

Please note that the temperature also has an effect on the clearance of the nut, as well as the maximum load capacity. When the application is exposed to particularly low or high temperatures, we recommend testing the suitability of the lead screw nuts in this specific case by a practical test.

高效螺纹设计 Higher efficiency thread design

CSB-LMS® 高螺旋线丝杆和螺母采用了较平坦的螺纹角度，驱动力有效地转换为平移运动，与标准梯形螺纹角度相比具有较低的功率损耗。由于圆齿几何形状，在无润滑运动过程中噪音和振动均减轻。

Due to a flatter thread angle in CSB-LMS® high-helix lead screws and nuts, the drive force is efficiently converted into a translational motion. Compared with standard trapezoidal thread angle, this means a lower power loss. Due to the radius tooth design, the thread moving without lubrication, low noise and vibration dampening.



多种螺母结构设计 Multiple structure nuts design



径向载荷和扭矩 Radial loads and torque

在螺母上承受的径向载荷或扭矩导致单个接触表面过载，从而严重影响导螺杆组件的使用寿命。因此，正确安装螺丝并符合所有相关形式和位置公差是很重要的。

Radial loads or torque brought to bear upon the nut result in overload of individual contact surfaces, thus seriously affecting the service life of the lead screw assembly. Therefore it is important to properly mount the screw and to comply with all relevant form and positional tolerances.

所需驱动扭矩 Required drive torque

丝杆螺母所需的驱动扭矩取决于轴向载荷，丝杆螺距，丝杆螺纹表面与螺母之间的摩擦系数。在高速时，必须考虑加速扭矩，这可能导致安装精度引起的扭矩增加。污垢，灰尘和表面不良可导致驱动扭矩增加的导螺杆可以增加驱动扭矩。然而，润滑可以暂时减少所需的驱动力。

The required drive torque of the threaded nut is obtained from the axial load, the lead screw pitch, the coefficient of surface friction of lead screw unit and the lead screw bearing. At high speeds, the acceleration torque must be taken into account, which may cause increased start torque depending on the installation. Dirt, dust and the surface or the condition of the lead screw can increase the drive torque. However, lubrication can temporarily reduce the required drive forces.

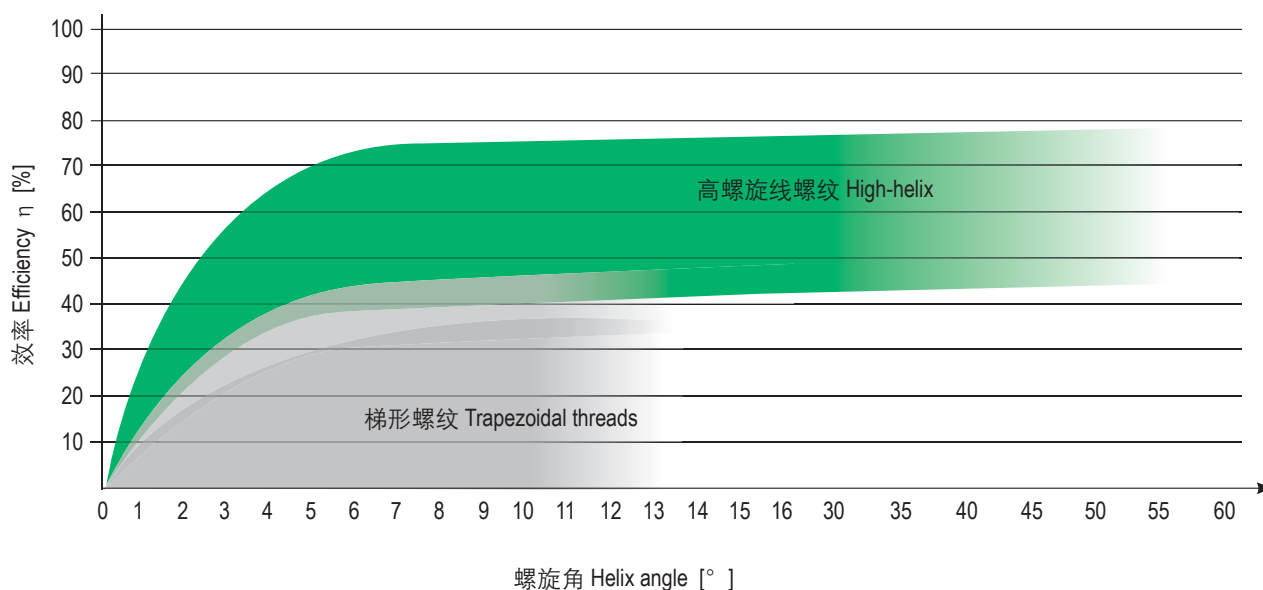
效率 Levels of efficiency

效率是输出功率与输入功率的比值。CSB-LMS®导向螺母具有低摩擦系数，因此有很高的效率。

在干运行条件下，单头梯形导向螺母效率在 20% 到 48%之间。快速螺纹的导向螺母效率在 50% 到 80%之间。虽然 CSB-LMS®导向螺母是专为完全干运行开发的，但添加润滑油能增加效率。

Efficiency is the ratio between the output and input power rating. CSB-LMS® lead screw nuts are characterised by low friction values, resulting in high efficiencies.

Single start trapezoidal lead screw nuts achieve efficiencies between 20 and 48% under dry running conditions. High helix lead screw nuts achieve efficiencies between 50 and 80% under dry running conditions. Even though CSB-LMS® lead screw nuts were developed for completely dry running conditions, lubrication can help to additionally increase efficiency.



以下是高螺旋线丝杆设计 and 安全操作的相关计算。

The following are the relevant calculations which underlie high-helix screw design and safe operation.

许可转速计算 Critical rotational speed n_{per}

允许的转速与丝杆本身效率有很大关系。

Permissible rotational speeds depends on the frequency of the screw.

$$n_{per} = K_D \cdot 10_6 \cdot \frac{d_2}{l_a^2} \cdot S_n \text{ [min}^{-1}\text{]}$$

n_{per} = 许可旋转速度
permissible rotational speed [min⁻¹]

K_D = 轴承的特征参数
characteristic constant as a function
of bearing configuration

d_2 = 底径 core diameter [mm]

l_a = 轴承间距 bearing distances [mm]

计算中包含最大许可的 l_a
(always include maximum allow-
able l_a in calculation)

S_n = 安全系数 safety factor
一般 usually $S_n = 0.5 \dots 0.8$ [-]

图 Configuration 1:

A: 限位支撑 fixed

B: 限位支撑 fixed

$K_D = 276$

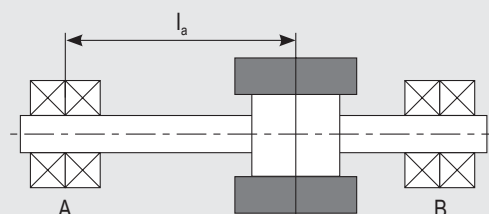


图 Configuration 2:

A: 限位支撑 fixed

B: 支撑 simple

$K_D = 190$

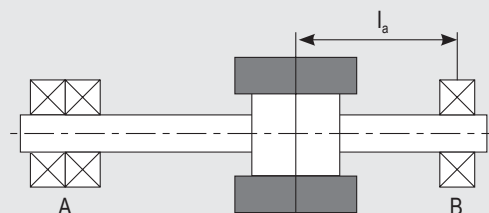


图 Configuration 3:

A: 支撑 simple

B: 支撑 simple

$K_D = 122$

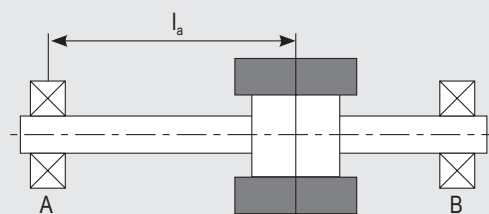
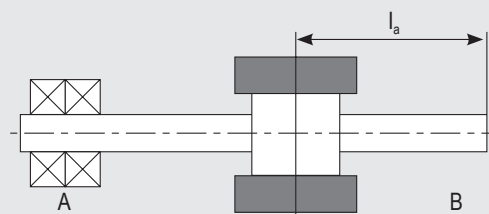


图 Configuration 4:

A: 限位支撑 fixed

B: 自由 free

$K_D = 43$



最大许可载荷与速度关系 Maximun outhorized load depending on speed

$$F_{per} = C_o \cdot f_L \text{ [N]}$$

C_o = 静载荷 static load rate [N]

f_L = 载荷因子 load factor [-] for EPB13 螺母 nuts

转速 circumferential speed V_c [m/min]	载荷因子 load factor f_L [-]
5	0.95
10	0.75
20	0.45
30	0.37
40	0.12
50	0.08

驱动力矩 Driving torque M

依赖于动力传输系统类型 Depends upon the type of power transmission

例 Case 1 : 扭矩 torque → 直线运动 linear movement

$$M_a = \frac{F_a \cdot P}{2000 \cdot \pi \cdot \eta} \quad [\text{Nm}]$$

M_a = 输入扭矩 input torque [Nm]

η = 效率 efficiency [%]

例 Case 2 : 轴向力 axial force → 扭矩 torque

$$M_a = \frac{F_a \cdot P \cdot \eta'}{2000 \cdot \pi} \quad [\text{Nm}]$$

M_o = 输出扭矩 output torque [Nm]

η' = 纠正效率 corrected efficiency [%]

F_a = 轴向力 axial force [N]

P = 螺距 pitch [mm]

输入功率 Input performance P

$$P = \frac{M_a \cdot n}{9550} \quad [\text{kW}]$$

P = 输入功率 input performance [kW]

n = 旋转速度 rotational speed [min^{-1}]

选择驱动时推荐保留20%安全余量 A safety margin of 20% is recommended when selecting drives.

潮湿环境 Wet environments

CSB-EPB13材料制成的梯形螺母非常适合潮湿的环境应用。这些材料的特性之一就是吸水率低。

Trapezoidal lead screw nuts from CSB-EPB13 must be used for applications in humid environments, especially for wet applications. These material are characterised by very low moisture absorption.

脏污 Dirt

通过用免维护的 CSB-EPB® 材料来制造导向螺母，CSB-LMS® 丝杠驱动就能实现完全干运行。

通过避免使用润滑油，可显著减少软质颗粒如灰尘和纤维的附着。相比传统的需要润滑的材料，免润滑的导向螺母显著提高了在脏污环境中的使用寿命。但是，在污染很严重并且有硬质颗粒如金属碎片或花岗岩粉尘的环境中，导向螺母需要使用防护罩。

Dirt with the use of the maintenance-free CSB-EPB® materials for lead screw nut production, CSB-LMS® lead screw drives feature completely dry-running operation. Due to the deliberate avoidance of lubricants, the adhesion of soft particles such as dust and fibres is reduced. When compared to conventional, lubricated materials, it is common to see significant improvements in the service life in contaminated environments. However, in environments with significant contamination and hard particles, such as metal chips or granite dust, the lead screw should be covered.

噪音 Noise

滑动丝杠驱动经常会伴随有噪音，特别是长丝杠和长行程会导致运动系统的自激振动。CSB-LMS® 导向螺母由经过摩擦优化的CSB-EPB®材料制成，具有良好的滑动特性，导向螺母比传统塑料或金属材料如青铜或黄铜噪音更低。

Noise can generally occur with the use of lead screw drives. In particular, long lead screws and long travel distances can cause self-induced vibrations in the systems. Due to their good sliding characteristics, lead screw nuts from the tribologically optimised CSB-EPB® materials tend to develop less noise than conventional plastics or metallic materials, such as bronze or brass.

法兰型导向螺母 Lead screw nuts with flange

装配法兰型导向螺母的最大拧紧力矩为 2.5Nm。我们建议通过第三方介质（如放脱落螺丝胶）来固定安装螺钉。更高拧紧力矩时应使用防松垫圈。

The maximum tightening torque for the assembly of flanged lead screw nuts is 2.5 Nm. We recommend that assembly screws are secured with a semi permanent thread locking glue. Metallic ferrules should be used for even higher tightening torques.



圆柱型导向螺母 Cylindrical lead screw nuts

圆柱型导向螺母的外径面设计有螺纹。我们建议通过第三方介质（如放脱落螺丝胶）来固定安装。

The outer diameter of cylindrical lead screw nuts is designed for screw connection. We recommend that assembly screws are secured with a semi permanent thread locking glue.



梯形螺纹丝杆 Lead screws with trapezoidal thread



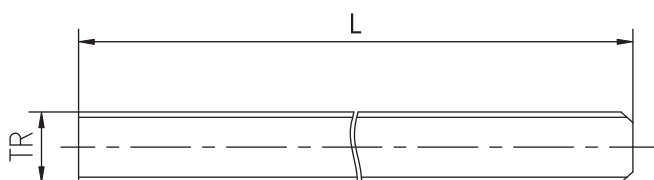
产品特性 Product features

- 左旋和右旋螺纹可选
- 可选材料：C45钢和不锈钢
- 可以根据客户图纸加工
- Thread: right- or left-hand
- Available materials: C45 steel /304 stainless steel
- Length and machining according to customer drawing

TLS

CSB-LMS®

标准规格 Standard specifications



产品编码 Part No.:

TLS-8 × 1.5R-N1-ES-L

长度 Length
 不锈钢 Stainless steel
 螺纹数 Thread number
 R-右旋Right L-左旋Left
 螺纹 Thread

产品编码 Part No.	直径 Outer diameter [mm]	齿根直径 Core diameter [mm]	导程 Lead S[mm]	螺距 Pitch P[mm]	螺纹角 Pitch angle α [°]	头数 Numb of threads N [pcs]	重量 Weight [kg/m]
TLS-8 × 1.5R-N1-ES-L	8	6.2	1.5	1.5	3.42	1	0.40
TLS-10 × 2R-N1-ES-L	10	7.5	2	2	3.64	1	0.62
TLS-10 × 3R-N1-ES-L	10	6.5	3	3	5.45	1	0.89
TLS-10 × 4R-N2-ES-L	10	7.5	4	2	7.26	2	0.62
TLS-12 × 3R-N1-ES-L	12	8.5	3	3	4.55	1	0.89
TLS-12 × 6R-N2-ES-L	12	8.5	6	3	9.04	2	0.89
TLS-14 × 3R-N1-ES-L	14	10.5	3	3	3.9	1	1.22
TLS-14 × 4R-N1-ES-L	14	9.5	4	4	5.2	1	1.22
TLS-16 × 2R-N1-ES-L	16	12.8	2	2	2.28	1	1.59
TLS-16 × 4R-N1-ES-L	16	11.5	4	4	4.55	1	1.59
TLS-16 × 8R-N2-ES-L	16	11.5	8	4	9.04	2	1.59
TLS-18 × 4R-N1-ES-L	18	13.5	4	4	4.05	1	2.01
TLS-18 × 8R-N2-ES-L	18	13.5	8	4	8.05	2	2.01
TLS-20 × 4R-N1-ES-L	20	15.5	4	4	3.64	1	2.48
TLS-24 × 5R-N1-ES-L	24	18.5	5	5	3.79	1	3.57
TLS-26 × 5R-N1-ES-L	26	20.5	5	5	3.5	1	4.19
TLS-28 × 5R-N1-ES-L	28	22.5	5	5	3.25	1	4.86
TLS-30 × 6R-N1-ES-L	30	23	6	6	3.64	1	5.58

www.csb-ep.com
 sales@csb-ep.com

Tel: 0086 573 84186133/84185527
 Fax: 0086 573 84185517

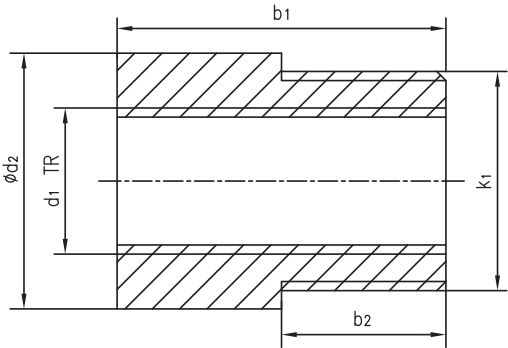
圆柱螺母 Lead screw nuts, round



产品特性 Product features

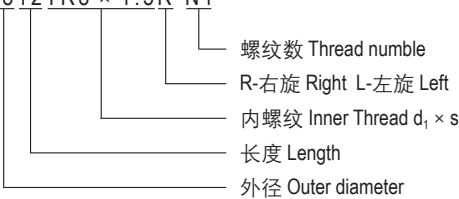
- 自润滑、低磨损
 - 极低的摩擦系数
 - 耐腐蚀，可用于液体介质环境
 - 抵抗灰尘和无噪音运行
 - 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
 - Best coefficient of friction
 - Chemical resistant
 - Dust resistant and quiet running
 - Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNR-1812TR8 × 1.5R-N1



产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	d ₁ × s [mm]	头数 Numbel of threads N [pcs]	k ₁ × p [mm]	b ₂ [mm]
SNR-1812TR8 × 1.5R-N1	18	12	TR8 × 1.5	1	M16 × 1.5	6
SNR-2220TR10 × 2R-N1	22	20	TR10 × 2	1	M20 × 1.5	10
SNR-2220TR10 × 3R-N1	22	20	TR10 × 3	1	M20 × 1.5	10
SNR-2220TR10 × 4R-N2	22	20	TR10 × 4	2	M20 × 1.5	10
SNR-2624TR12 × 3R-N1	26	24	TR12 × 3	1	M24 × 2	12
SNR-2624TR12 × 6R-N2	26	24	TR12 × 6	2	M24 × 2	12
SNR-3028TR14 × 3R-N1	30	28	TR14 × 3	1	M27 × 2	14
SNR-3028TR14 × 4R-N1	30	28	TR14 × 4	1	M27 × 2	14
SNR-3632TR16 × 2R-N1	36	32	TR16 × 2	1	M33 × 2	16
SNR-3632TR16 × 4R-N1	36	32	TR16 × 4	1	M33 × 2	16
SNR-3632TR16 × 8R-N2	36	32	TR16 × 8	2	M33 × 2	16
SNR-4036TR18 × 4R-N1	40	36	TR18 × 4	1	M36 × 3	18
SNR-4036TR18 × 8R-N2	40	36	TR18 × 8	2	M36 × 3	18
SNR-4540TR20 × 4R-N1	45	40	TR20 × 4	1	M42 × 3	20
SNR-5048TR24 × 5R-N1	50	48	TR24 × 5	1	M48 × 3	24
SNR-5052TR26 × 5R-N1	50	52	TR26 × 5	1	M48 × 3	26
SNR-6056TR28 × 5R-N1	60	56	TR28 × 5	1	M56 × 4	28
SNR-6060TR30 × 6R-N1	60	60	TR30 × 6	1	M56 × 4	30

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNR-1812TR8 × 1.5R-N1	137	547	19-27	0.1-0.25	3.7
SNR-2220TR10 × 2R-N1	283	1131	20-39	0.1-0.25	9.0
SNR-2220TR10 × 3R-N1	267	1068	27-48	0.1-0.25	9.0
SNR-2220TR10 × 4R-N2	282	1127	33-55	0.1-0.25	9.0
SNR-2624TR12 × 3R-N1	396	1583	24-44	0.1-0.25	14.9
SNR-2624TR12 × 6R-N2	396	1583	37-60	0.1-0.25	14.9
SNR-3028TR14 × 3R-N1	550	2199	24-40	0.1-0.25	23.1
SNR-3028TR14 × 4R-N1	528	2111	26-47	0.1-0.25	23.1
SNR-3632TR16 × 2R-N1	754	3016	14-28	0.1-0.25	38.9
SNR-3632TR16 × 4R-N1	704	2815	24-44	0.1-0.25	38.9
SNR-3632TR16 × 8R-N2	704	2815	37-60	0.1-0.25	38.9
SNR-4036TR18 × 4R-N1	905	3619	22-41	0.1-0.25	53.8
SNR-4036TR18 × 8R-N2	905	3619	35-58	0.1-0.25	53.8
SNR-4540TR20 × 4R-N1	1131	4524	20-39	0.1-0.25	76.1
SNR-5048TR24 × 5R-N1	1621	6484	21-40	0.1-0.25	108.1
SNR-5052TR26 × 5R-N1	1920	7678	19-38	0.1-0.25	111.0
SNR-6056TR28 × 5R-N1	2243	8972	18-36	0.1-0.25	184.5
SNR-6060TR30 × 6R-N1	2545	10179	20-39	0.1-0.25	189.6

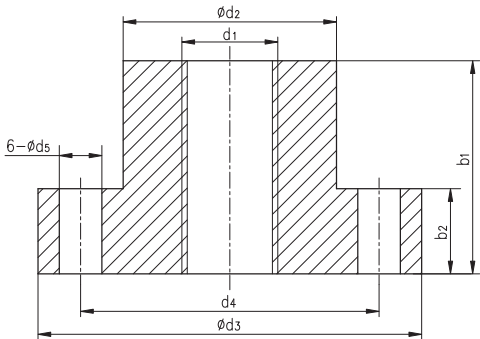
圆柱法兰螺母 Lead screw nuts, round flange



产品特性 Product features

- 自润滑、低磨损
- 螺丝固定，易安装
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- Easy installation with bolts
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNRF-2020TR8 × 1.5R-N1

- 螺纹数 Thread numble
- R-右旋Right L-左旋Left
- 内螺纹 Inner thread $d_1 \times s$
- 长度 Length
- 外径 Outer diameter

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	d ₃ [mm]	b ₂ [mm]	d ₄ [mm]	d ₅ [mm]	d ₁ × s [mm]	头数 N Number of threads N [pcs]
SNRF-2020TR8 × 1.5R-N1	20	20	36	8	28	4	TR8 × 1.5	1
SNRF-2525TR10 × 2R-N1	25	25	42	10	34	5	TR10 × 2	1
SNRF-2525TR10 × 3R-N1	25	25	42	10	34	5	TR10 × 3	1
SNRF-2525TR10 × 4R-N2	25	25	42	10	34	5	TR10 × 4	2
SNRF-2835TR12 × 3R-N1	28	35	48	12	38	6	TR12 × 3	1
SNRF-2835TR12 × 6R-N2	28	35	48	12	38	6	TR12 × 6	2
SNRF-2835TR14 × 3R-N1	28	35	48	12	38	6	TR14 × 3	1
SNRF-2835TR14 × 4R-N1	28	35	48	12	38	6	TR14 × 4	1
SNRF-2835TR16 × 2R-N1	28	35	48	12	38	6	TR16 × 2	1
SNRF-2835TR16 × 4R-N1	28	35	48	12	38	6	TR16 × 4	1
SNRF-2835TR16 × 8R-N2	28	35	48	12	38	6	TR16 × 8	2
SNRF-2835TR18 × 4R-N1	28	35	48	12	38	6	TR18 × 4	1
SNRF-2835TR18 × 8R-N2	28	35	48	12	38	6	TR18 × 8	2
SNRF-3244TR20 × 4R-N1	32	44	55	12	45	7	TR20 × 4	1
SNRF-3244TR24 × 5R-N1	32	44	55	12	45	7	TR24 × 5	1
SNRF-3846TR26 × 5R-N1	38	46	62	14	50	7	TR26 × 5	1
SNRF-3846TR28 × 5R-N1	38	46	62	14	50	7	TR28 × 5	1
SNRF-3846TR30 × 6R-N1	38	46	62	14	50	7	TR30 × 6	1

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNRF-2020TR8 × 1.5R-N1	228	911	19-27	0.1-0.25	16.3
SNRF-2525TR10 × 2R-N1	353	1414	20-39	0.1-0.25	28.7
SNRF-2525TR10 × 3R-N1	334	1335	27-48	0.1-0.25	28.7
SNRF-2525TR10 × 4R-N2	353	1412	33-55	0.1-0.25	28.7
SNRF-2835TR12 × 3R-N1	577	2309	24-44	0.1-0.25	47.6
SNRF-2835TR12 × 6R-N2	577	2309	37-60	0.1-0.25	47.6
SNRF-2835TR14 × 3R-N1	687	2749	24-40	0.1-0.25	45.4
SNRF-2835TR14 × 4R-N1	660	2639	26-47	0.1-0.25	45.4
SNRF-2835TR16 × 2R-N1	825	3299	14-28	0.1-0.25	43.0
SNRF-2835TR16 × 4R-N1	770	3079	24-44	0.1-0.25	43.0
SNRF-2835TR16 × 8R-N2	770	3079	37-60	0.1-0.25	43.0
SNRF-2835TR18 × 4R-N1	880	3519	22-41	0.1-0.25	40.2
SNRF-2835TR18 × 8R-N2	880	3519	35-58	0.1-0.25	40.2
SNRF-3244TR20 × 4R-N1	1244	4976	20-39	0.1-0.25	60.2
SNRF-3244TR24 × 5R-N1	1486	5944	21-40	0.1-0.25	51.2
SNRF-3846TR26 × 5R-N1	1698	6320	19-38	0.1-0.25	80.7
SNRF-3846TR28 × 5R-N1	1843	4560	18-36	0.1-0.25	74.8
SNRF-3846TR30 × 6R-N1	1951	3576	20-39	0.1-0.25	68.6

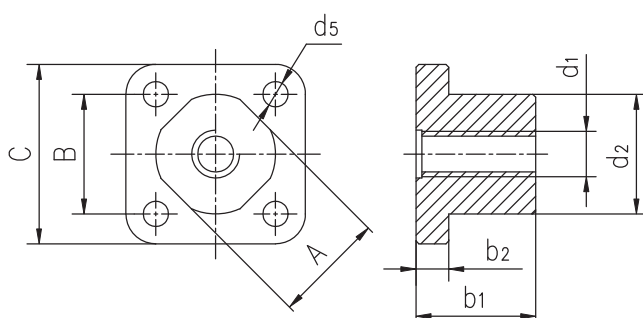
方法兰螺母 Lead screw nuts, square flange



产品特性 Product features

- 自润滑、低磨损
- 高效率传动
- 螺丝固定易安装
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- High efficiency drive
- Easy installation with bolts
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNSF-202030TR8 × 1.5R-N1

- 螺纹数 Thread numble
- R-右旋Right L-左旋Left
- 内螺纹 Inner thread d₁ × s
- 法兰边长 Flange width
- 长度 Length
- 外径 Outer diameter

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	A [mm]	B [mm]	C [mm]	b ₂ [mm]	d ₅ [mm]	d ₁ × s [mm]	头数 N [pcs]
SNSF-202030TR8 × 1.5R-N1	20	20	19	20	30	5.5	4.2	TR8 × 1.5	1
SNSF-202030TR10 × 2R-N1	20	20	19	20	30	5.5	4.2	TR10 × 2	1
SNSF-202030TR10 × 3R-N1	20	20	19	20	30	5.5	4.2	TR10 × 3	1
SNSF-202030TR10 × 4R-N2	20	20	19	20	30	5.5	4.2	TR10 × 4	2
SNSF-242534TR12 × 3R-N1	24	25	22.6	24	34	6	5	TR12 × 3	1
SNSF-242534TR12 × 6R-N2	24	25	22.6	24	34	6	5	TR12 × 6	2
SNSF-242534TR14 × 3R-N1	24	25	22.6	24	34	6	5	TR14 × 3	1
SNSF-242534TR14 × 4R-N1	24	25	22.6	24	34	6	5	TR14 × 4	1
SNSF-282538TR16 × 2R-N1	28	25	25.5	27	38	6.5	6	TR16 × 2	1
SNSF-282538TR16 × 4R-N1	28	25	25.5	27	38	6.5	6	TR16 × 4	1
SNSF-282538TR16 × 8R-N2	28	25	25.5	27	38	6.5	6	TR16 × 8	2
SNSF-282538TR18 × 4R-N1	28	25	25.5	27	38	6.5	6	TR18 × 4	1
SNSF-282538TR18 × 8R-N2	28	25	25.5	27	38	6.5	6	TR18 × 8	2

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNSF-202030TR8 × 1.5R-N1	228	911	19-27	0.1-0.25	12.66
SNSF-202030TR10 × 2R-N1	283	1131	20-39	0.1-0.25	11.82
SNSF-202030TR10 × 3R-N1	267	1068	27-48	0.1-0.25	11.82
SNSF-202030TR10 × 4R-N2	282	1127	33-55	0.1-0.25	11.82
SNSF-242534TR12 × 3R-N1	412	1649	24-44	0.1-0.25	18.93
SNSF-242534TR12 × 6R-N2	412	1649	37-60	0.1-0.25	18.93
SNSF-242534TR14 × 3R-N1	491	1963	24-40	0.1-0.25	17.41
SNSF-242534TR14 × 4R-N1	471	1885	26-47	0.1-0.25	17.41
SNSF-282538TR16 × 2R-N1	589	2356	14-28	0.1-0.25	22.85
SNSF-282538TR16 × 4R-N1	550	2199	24-44	0.1-0.25	22.85
SNSF-282538TR16 × 8R-N2	550	2199	37-60	0.1-0.25	22.85
SNSF-282538TR18 × 4R-N1	628	2513	22-41	0.1-0.25	21.48
SNSF-282538TR18 × 8R-N2	628	2513	35-58	0.1-0.25	21.48

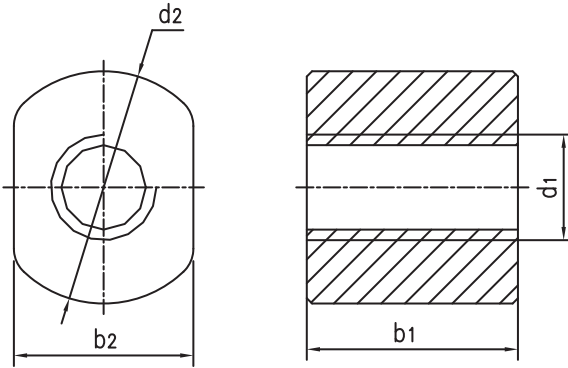
扁螺母 Lead screw nuts with spanner flat



产品特性 Product features

- 自润滑、低磨损
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 节约空间，安装简易
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Save space and easy installation
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:
SNF-192020TR8 × 1.5R-N1

螺纹数 Thread numble
R-右旋Right L-左旋Left
内螺纹 Inner thread d_i × s
法兰边长 Flange width
长度 Length
外径 Outer diameter

产品编码 Part No.	d ₂ [mm]	b ₂ [mm]	b ₁ [mm]	d ₁ × s [mm]	头数 Numbel of threads N [pcs]
SNF-192020TR8 × 1.5R-N1	20	19	20	TR8 × 1.5	1
SNF-192020TR10 × 2R-N1	20	19	20	TR10 × 2	1
SNF-192020TR10 × 3R-N1	20	19	20	TR10 × 3	1
SNF-192020TR10 × 4R-N2	20	19	20	TR10 × 4	2
SNF-222425TR12 × 3R-N1	24	22.6	25	TR12 × 3	1
SNF-222425TR12 × 6R-N2	24	22.6	25	TR12 × 6	2
SNF-222425TR14 × 3R-N1	24	22.6	25	TR14 × 3	1
SNF-222425TR14 × 4R-N1	24	22.6	25	TR14 × 4	1
SNF-252825TR16 × 2R-N1	28	25.5	25	TR16 × 2	1
SNF-252825TR16 × 4R-N1	28	25.5	25	TR16 × 4	1
SNF-252825TR16 × 8R-N2	28	25.5	25	TR16 × 8	2
SNF-252825TR18 × 4R-N1	28	25.5	25	TR18 × 4	1
SNF-252825TR18 × 8R-N2	28	25.5	25	TR18 × 8	2

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNF-192020TR8 × 1.5R-N1	228	500	19-27	0.1-0.25	7.86
SNF-192020TR10 × 2R-N1	283	1131	20-39	0.1-0.25	7.02
SNF-192020TR10 × 3R-N1	267	1068	27-48	0.1-0.25	7.02
SNF-192020TR10 × 4R-N2	282	1127	33-55	0.1-0.25	7.02
SNF-222425TR12 × 3R-N1	412	1649	24-44	0.1-0.25	12.64
SNF-222425TR12 × 6R-N2	412	1649	37-60	0.1-0.25	12.64
SNF-222425TR14 × 3R-N1	491	1963	24-40	0.1-0.25	11.12
SNF-222425TR14 × 4R-N1	471	1885	26-47	0.1-0.25	11.12
SNF-252825TR16 × 2R-N1	589	2356	14-28	0.1-0.25	15.45
SNF-252825TR16 × 4R-N1	550	2199	24-44	0.1-0.25	15.45
SNF-252825TR16 × 8R-N2	550	2199	37-60	0.1-0.25	15.45
SNF-252825TR18 × 4R-N1	628	2362	22-41	0.1-0.25	13.46
SNF-252825TR18 × 8R-N2	628	2362	35-58	0.1-0.25	13.46

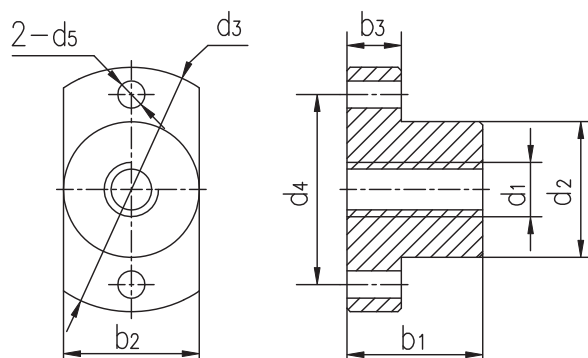
扁法兰螺母 Lead screw nuts with flat flange



产品特性 Product features

- 自润滑、低磨损
- 节约空间，螺丝固定易装配
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- Save space and Easy installation with bolts
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNFF-2020TR8 × 1.5R-N1

螺纹数 Thread numble
R-右旋Right L-左旋Left
内螺纹 Inner thread $d_1 \times s$
长度 Length
外径 Outer diameter

产品编码 Part No.	d_2 [mm]	b_1 [mm]	d_3 [mm]	b_3 [mm]	b_2 [mm]	d_1 [mm]	d_5 [mm]	$d_1 \times s$ [mm]	头数 Number of threads N [pcs]
SNFF-2020TR8 × 1.5R-N1	20	20	36	8	20	28	4	TR8 × 1.5	1
SNFF-2525TR10 × 2R-N1	25	25	42	10	25	34	5	TR10 × 2	1
SNFF-2525TR10 × 3R-N1	25	25	42	10	25	34	5	TR10 × 3	1
SNFF-2525TR10 × 4R-N2	25	25	42	10	25	34	5	TR10 × 4	2
SNFF-2835TR12 × 3R-N1	28	35	48	12	28	38	6	TR12 × 3	1
SNFF-2835TR12 × 6R-N2	28	35	48	12	28	38	6	TR12 × 6	2
SNFF-2835TR14 × 3R-N1	28	35	48	12	28	38	6	TR14 × 3	1
SNFF-2835TR14 × 4R-N1	28	35	48	12	28	38	6	TR14 × 4	1
SNFF-2835TR16 × 2R-N1	28	35	48	12	28	38	6	TR16 × 2	1
SNFF-2835TR16 × 4R-N1	28	35	48	12	28	38	6	TR16 × 4	1
SNFF-2835TR16 × 8R-N2	28	35	48	12	28	38	6	TR16 × 8	2
SNFF-2835TR18 × 4R-N1	28	35	48	12	28	38	6	TR18 × 4	1
SNFF-2835TR18 × 8R-N2	28	35	48	12	28	38	6	TR18 × 8	2

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量Weight [g]
SNFF-2020TR8 × 1.5R-N1	228	911	19-27	0.1-0.25	12.7
SNFF-2525TR10 × 2R-N1	353	1414	20-39	0.1-0.25	23.7
SNFF-2525TR10 × 3R-N1	334	1335	27-48	0.1-0.25	23.7
SNFF-2525TR10 × 4R-N2	353	1412	33-55	0.1-0.25	23.7
SNFF-2835TR12 × 3R-N1	577	2309	24-44	0.1-0.25	39.2
SNFF-2835TR12 × 6R-N2	577	2309	37-60	0.1-0.25	39.2
SNFF-2835TR14 × 3R-N1	660	2639	24-40	0.1-0.25	37.1
SNFF-2835TR14 × 4R-N1	660	2639	26-47	0.1-0.25	37.1
SNFF-2835TR16 × 2R-N1	825	3299	14-28	0.1-0.25	34.6
SNFF-2835TR16 × 4R-N1	770	3079	24-44	0.1-0.25	34.6
SNFF-2835TR16 × 8R-N2	770	3079	37-60	0.1-0.25	34.6
SNFF-2835TR18 × 4R-N1	880	3519	22-41	0.1-0.25	31.9
SNFF-2835TR18 × 8R-N2	880	3519	35-58	0.1-0.25	31.9

高螺旋线丝杆 Lead screws with high helix



产品特性 Product features

- 左旋和右旋螺纹可选
- 可选材料：304不锈钢
- 可以根据客户图纸加工
- Thread: right- or left-hand
- Available materials: 304 stainless steel
- Length and machining according to customer drawing

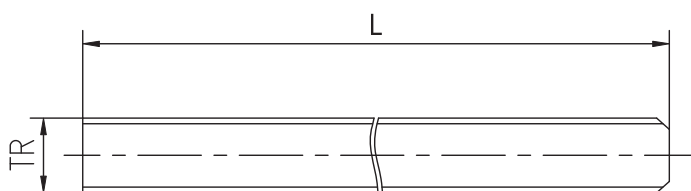
HLS

CSB-LMS®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

标准规格 Standard specifications



产品编码 Part No.:

HLS-6.35 × 12.7R-N6-ES-L

长度 Length

不锈钢 Stainless steel

螺纹数 Thread numble

R-右旋Right L-左旋Left

螺纹 Thread

产品编码 Part No.	直径 Outer diameter [mm]	齿根直径 Core diameter [mm]	导程 Lead S [mm]	螺距 Pitch P [mm]	Pitch angle α [°]	头数 Numbler of threads N [pcs]	重量 Weight [kg/m]
HLS-6.35 × 12.7R-N6-ES-L	6.35	4.35	12.7	2.12	32.48	6	0.25
HLS-6.35 × 25.4R-N8-ES-L	6.35	4.15	25.4	3.175	51.85	8	0.25
HLS-8 × 10R-N4-ES-L	8	5.63	10	2.5	21.70	4	0.40
HLS-8 × 15R-N10-ES-L	8	5.63	15	1.5	30.83	10	0.40
HLS-10 × 12R-N4-ES-L	10	6.95	12	3	21.54	4	0.62
HLS-10 × 25R-N10-ES-L	10	7.10	25	2.5	38.51	10	0.62
HLS-12 × 25R-N10-ES-L	12	8.95	25	3.175	33.55	10	0.89
HLS-14 × 30R-N6-ES-L	14	9.60	30	5	34.30	6	1.22
HLS-18 × 24R-N8-ES-L	18	14.40	24	3	22.99	8	2.01
HLS-18 × 40R-N8-ES-L	18	13.60	40	5	35.55	8	2.01
HLS-20 × 20R-N5-ES-L	20	15.60	20	4	17.66	5	2.48

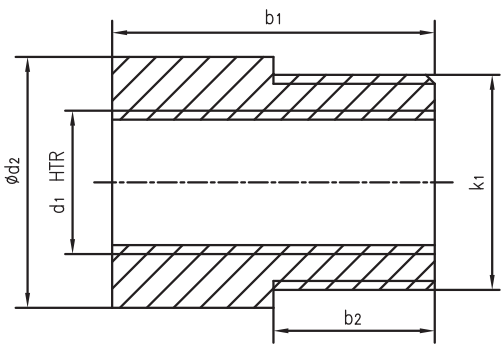
高螺旋线圆柱螺母 High helix nuts, round



产品特性 Product features

- 自润滑、低磨损
 - 高效率传动
 - 极低的摩擦系数
 - 耐腐蚀，可用于液体介质环境
 - 抵抗灰尘和无噪音运行
 - 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
 - High efficiency drive
 - Best coefficient of friction
 - Chemical resistant
 - Dust resistant and quiet running
 - Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNR-1413HTR6.35 × 12.7R-N6

- 螺纹数 Thread numble
- R-右旋Right L-左旋Left
- 螺纹 Thread
- 长度 Length
- 直径 Diameter

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	d ₁ × s [mm]	头数 Numbel of threads N [pcs]	k ₁ × p [mm]	b ₂ [mm]
SNR-1413HTR6.35 × 12.7R-N6	14	13	HTR6.35 × 12.7	6	M12 × 1.5	6
SNR-1413HTR6.35 × 25.4R-N8	14	13	HTR6.35 × 25.4	8	M12 × 1.5	6
SNR-1812HTR8 × 10R-N4	18	12	HTR8 × 10	4	M16 × 1.5	6
SNR-1812HTR8 × 15R-N10	18	12	HTR8 × 15	10	M16 × 1.5	6
SNR-2220HTR10 × 12R-N4	22	20	HTR10 × 12	4	M20 × 1.5	10
SNR-2220HTR10 × 25R-N10	22	20	HTR10 × 25	10	M20 × 1.5	10
SNR-2624HTR12 × 25R-N10	26	24	HTR12 × 25	10	M24 × 2	12
SNR-3027HTR14 × 30R-N6	30	27	HTR14 × 30	6	M27 × 2	14
SNR-4036HTR18 × 24R-N8	40	36	HTR18 × 24	8	M36 × 3	18
SNR-4036HTR18 × 40R-N8	40	36	HTR18 × 40	8	M36 × 3	18
SNR-4540HTR20 × 20R-N5	45	40	HTR20 × 20	5	M42 × 3	20

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNR-1413HTR6.35 × 12.7R-N6	67	152	60-81	0.1-0.25	2.40
SNR-1413HTR6.35 × 25.4R-N8	74	152	57-81	0.1-0.25	2.40
SNR-1812HTR8 × 10R-N4	127	275	55-77	0.1-0.25	3.65
SNR-1812HTR8 × 15R-N10	110	275	60-81	0.1-0.25	3.65
SNR-2220HTR10 × 12R-N4	195	487	55-76	0.1-0.25	6.74
SNR-2220HTR10 × 25R-N10	249	623	61-82	0.1-0.25	8.70
SNR-2624HTR12 × 25R-N10	302	754	61-81	0.1-0.25	14.94
SNR-3027HTR14 × 30R-N6	440	1101	61-81	0.1-0.25	21.50
SNR-4036HTR18 × 24R-N8	844	2110	55-77	0.1-0.25	52.00
SNR-4036HTR18 × 40R-N8	786	1966	61-81	0.1-0.25	52.00
SNR-4540HTR20 × 20R-N5	984	2460	52-74	0.1-0.25	73.50

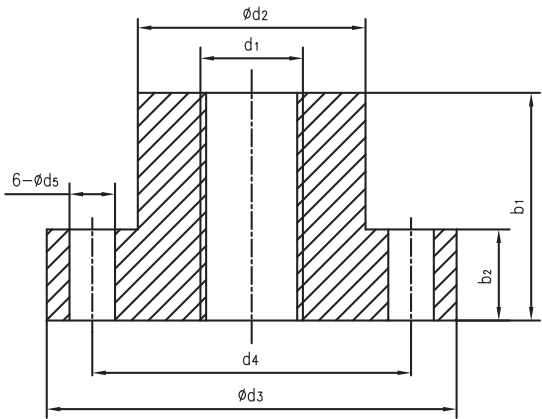
高螺旋线圆柱法兰螺母 High helix nuts, round flange



产品特性 Product features

- 自润滑、低磨损
- 高效率传动
- 螺丝固定易安装
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- High efficiency drive
- Easy installation with bolts
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNRF-1315HTR6.35 × 12.7R-N6

- 螺纹数 Thread numble
- R-右旋Right L-左旋Left
- 螺纹 Thread
- 长度 Length
- 直径 Diameter

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	d ₃ [mm]	b ₂ [mm]	d ₄ [mm]	d ₅ [mm]	d ₁ × s [mm]	头数 Number of threads N [pcs]
SNRF-1315HTR6.35 × 12.7R-N6	13	15	25	5	19	3.2	HTR6.35 × 12.7	6
SNRF-1315HTR6.35 × 25.4R-N8	13	15	25	5	19	3.2	HTR6.35 × 25.4	8
SNRF-2020HTR8 × 10R-N4	20	20	34	5	28	4	HTR8 × 10	4
SNRF-2020HTR8 × 15R-N10	20	20	34	5	28	4	HTR8 × 15	10
SNRF-2525HTR10 × 12R-N4	25	25	42	10	34	5	HTR10 × 12	4
SNRF-2525HTR10 × 25R-N10	25	25	42	10	34	5	HTR10 × 25	10
SNRF-2835HTR12 × 25R-N10	28	35	48	12	38	6	HTR12 × 25	10
SNRF-2835HTR14 × 30R-N6	28	35	48	12	38	6	HTR14 × 30	6
SNRF-2835HTR18 × 24R-N8	28	35	48	12	38	6	HTR18 × 24	8
SNRF-2835HTR18 × 40R-N8	28	35	48	12	38	6	HTR18 × 40	8
SNRF-3244HTR20 × 20R-N5	32	44	55	12	45	7	HTR20 × 20	5

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNRF-1315HTR6.35 × 12.7R-N6	78	125	60-81	0.1-0.25	4.90
SNRF-1315HTR6.35 × 25.4R-N8	86	125	57-81	0.1-0.25	4.90
SNRF-2020HTR8 × 10R-N4	212	458	55-77	0.1-0.25	12.29
SNRF-2020HTR8 × 15R-N10	183	459	60-81	0.1-0.25	12.29
SNRF-2525HTR10 × 12R-N4	325	811	55-76	0.1-0.25	28.70
SNRF-2525HTR10 × 25R-N10	312	780	61-82	0.1-0.25	28.70
SNRF-2835HTR12 × 25R-N10	440	1100	61-81	0.1-0.25	45.40
SNRF-2835HTR14 × 30R-N6	571	1428	61-81	0.1-0.25	45.40
SNRF-2835HTR18 × 24R-N8	710	1776	55-77	0.1-0.25	40.19
SNRF-2835HTR18 × 40R-N8	764	1910	61-81	0.1-0.25	50.90
SNRF-3244HTR20 × 20R-N5	1083	2708	52-74	0.1-0.25	60.20

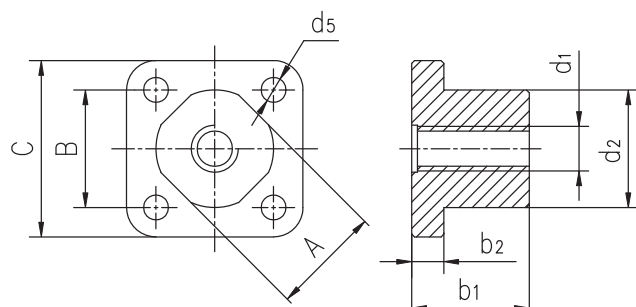
高螺旋线方法兰螺母 High helix nuts, square flange



产品特性 Product features

- 自润滑、低磨损
- 高效率传动
- 螺丝固定易安装
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- High efficiency drive
- Easy installation with bolts
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNSF-111212HTR6.35 × 12.7R-N6

螺纹数 Thread numble
R-右旋Right L-左旋Left
螺纹 Thread
长度 Length
直径 Diameter
宽度 Width

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	A [mm]	B [mm]	C [mm]	b ₂ [mm]	d ₅ [mm]	d ₁ × s [mm]	头数 Number of threads N [pcs]
SNSF-111212HTR6.35 × 12.7R-N6	12	12	11	12	18	4	3.2	HTR6.35 × 12.7	6
SNSF-111212HTR6.35 × 25.4R-N8	12	12	11	12	18	4	3.2	HTR6.35 × 25.4	8
SNSF-192020HTR8 × 10R-N4	20	20	19	20	30	5.5	4.2	HTR8 × 10	4
SNSF-192020HTR8 × 15R-N10	20	20	19	20	30	5.5	4.2	HTR8 × 15	10
SNSF-192020HTR10 × 12R-N4	20	20	19	20	30	5.5	4.2	HTR10 × 12	4
SNSF-192020HTR10 × 25R-N10	20	20	19	20	30	5.5	4.2	HTR10 × 25	10
SNSF-222425HTR12 × 25R-N10	24	25	22.6	24	34	6	5	HTR12 × 25	10
SNSF-222425HTR14 × 30R-N6	24	25	22.6	24	34	6	5	HTR14 × 30	6
SNSF-252825HTR18 × 24R-N8	28	25	25.5	27	38	6.5	6	HTR18 × 24	8
SNSF-252825HTR18 × 40R-N8	28	25	25.5	27	38	6.5	6	HTR18 × 40	8

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNSF-111212HTR6.35 × 12.7R-N6	78	125	60-81	0.1-0.25	2.71
SNSF-111212HTR6.35 × 25.4R-N8	86	125	57-81	0.1-0.25	2.71
SNSF-192020HTR8 × 10R-N4	203	507	55-77	0.1-0.25	12.66
SNSF-192020HTR8 × 15R-N10	254	634	60-81	0.1-0.25	12.66
SNSF-192020HTR10 × 12R-N4	338	846	55-76	0.1-0.25	11.82
SNSF-192020HTR10 × 25R-N10	312	779	61-82	0.1-0.25	11.82
SNSF-222425HTR12 × 25R-N10	433	1083	61-81	0.1-0.25	18.93
SNSF-222425HTR14 × 30R-N6	571	1427	61-81	0.1-0.25	17.41
SNSF-252825HTR18 × 24R-N8	802	2004	55-77	0.1-0.25	21.48
SNSF-252825HTR18 × 40R-N8	764	1911	61-81	0.1-0.25	21.48

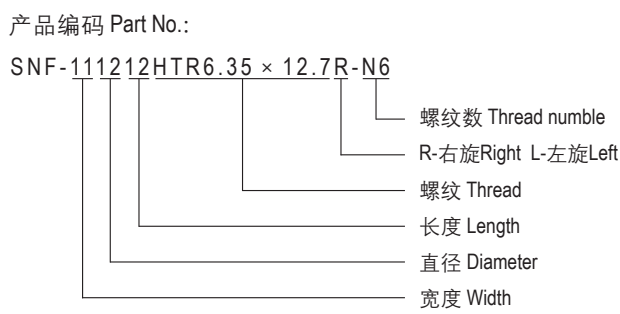
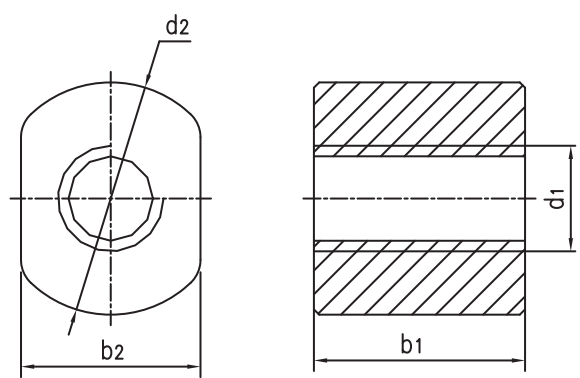
高螺旋线扁螺母 High helix nuts with spanner flat



产品特性 Product features

- 自润滑、低磨损
 - 高效率传动
 - 极低的摩擦系数
 - 耐腐蚀，可用于液体介质环境
 - 抵抗灰尘和无噪音运行
 - 节约安装空间，易装配
 - 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
 - High efficiency drive
 - Best coefficient of friction
 - Chemical resistant
 - Dust resistant and quiet running
 - Save space and easy installation
 - Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.	d ₂ [mm]	b ₂ [mm]	b ₁ [mm]	d ₁ × s [mm]	头数 Numbel of threads N [pcs]
SNF-111212HTR6.35 × 12.7R-N6	12	11	12	HTR6.35 × 12.7	6
SNF-111212HTR6.35 × 25.4R-N8	12	11	12	HTR6.35 × 25.4	8
SNF-192020HTR8 × 10R-N4	20	19	20	HTR8 × 10	4
SNF-192020HTR8 × 15R-N10	20	19	20	HTR8 × 15	10
SNF-192020HTR10 × 12R-N4	20	19	20	HTR10 × 12	4
SNF-192020HTR10 × 25R-N10	20	19	20	HTR10 × 25	10
SNF-222425HTR12 × 25R-N10	24	22.6	25	HTR12 × 25	10
SNF-222425HTR14 × 30R-N6	24	22.6	25	HTR14 × 30	6
SNF-252825HTR18 × 24R-N8	28	22.6	25	HTR18 × 24	8
SNF-252825HTR18 × 40R-N8	28	22.6	25	HTR18 × 40	8

产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNF-111212HTR6.35 × 12.7R-N6	62	152	60-81	0.1-0.25	1.46
SNF-111212HTR6.35 × 25.4R-N8	69	152	57-81	0.1-0.25	1.46
SNF-192020HTR8 × 10R-N4	203	507	55-77	0.1-0.25	7.86
SNF-192020HTR8 × 15R-N10	203	507	60-81	0.1-0.25	7.86
SNF-192020HTR10 × 12R-N4	271	677	55-76	0.1-0.25	7.02
SNF-192020HTR10 × 25R-N10	249	623	61-82	0.1-0.25	7.02
SNF-222425HTR12 × 25R-N10	433	1083	61-81	0.1-0.25	7.02
SNF-222425HTR14 × 30R-N6	408	1019	61-81	0.1-0.25	11.12
SNF-252825HTR18 × 24R-N8	573	1431	55-77	0.1-0.25	13.46
SNF-252825HTR18 × 40R-N8	546	1365	61-81	0.1-0.25	13.46

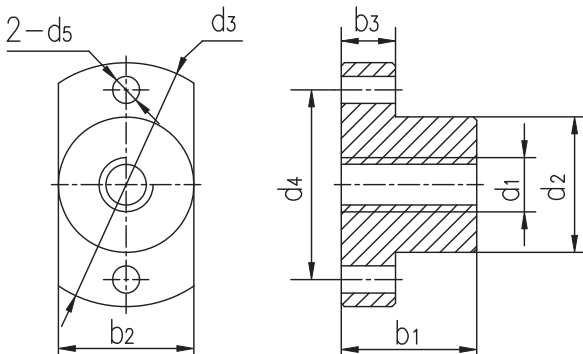
高螺旋线扁法兰螺母 High helix nuts with flat flange



产品特性 Product features

- 自润滑、低磨损
- 高效率传动
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 节约安装空间，易用螺丝固定
- 可选材料：EPB13, EPB7, EPB5A
- Self lubricating and lower wear
- High efficiency drive
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Save space and easy installation with bolts
- Available materials: EPB13, EPB7 and EPB5A

标准规格 Standard specifications



产品编码 Part No.:

SNFF-1315HTR6.35 × 12.7R-N6

- 螺纹数 Thread numble
- R-右旋Right L-左旋Left
- 螺纹 Thread
- 长度 Length
- 直径 Diameter

产品编码 Part No.	d ₂ [mm]	b ₁ [mm]	d ₃ [mm]	b ₃ [mm]	b ₂ [mm]	d ₄ [mm]	d ₅ [mm]	d ₁ × s [mm]	头数 N [pcs]
SNFF-1315HTR6.35 × 12.7R-N6	13	15	25	5	13	19	3.2	HTR6.35 × 12.7	6
SNFF-1315HTR6.35 × 25.4R-N8	13	15	25	5	13	19	3.2	HTR6.35 × 25.4	8
SNFF-2020HTR8 × 10R-N4	20	20	36	8	20	28	4	HTR8 × 10	4
SNFF-2020HTR8 × 15R-N10	20	20	36	8	20	28	4	HTR8 × 15	10
SNFF-2525HTR10 × 12R-N4	25	25	42	10	25	34	5	HTR10 × 12	4
SNFF-2525HTR10 × 25R-N10	25	25	42	10	25	34	5	HTR10 × 25	10
SNFF-2835HTR12 × 25R-N10	28	35	48	12	28	38	6	HTR12 × 25	10
SNFF-2835HTR14 × 30R-N6	28	35	48	12	28	38	6	HTR14 × 30	6
SNFF-2835HTR18 × 24R-N8	28	35	48	12	28	38	6	HTR18 × 24	8
SNFF-2835HTR18 × 40R-N8	28	35	48	12	28	38	6	HTR18 × 40	8

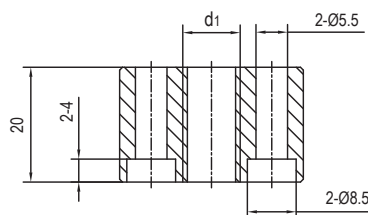
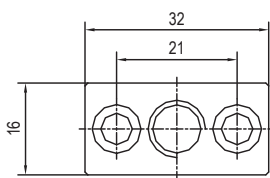
产品编码 Part No.	有效接触面积 Effective supporting surface [mm ²]	最大轴向静载荷 Max. stat. axial F [N]	效率 Efficiency η	摩擦系数 Coefficient of friction μ	重量 Weight [g]
SNFF-1315HTR6.35 × 12.7R-N6	78	125	60-81	0.1-0.25	3.7
SNFF-1315HTR6.35 × 25.4R-N8	114	125	57-81	0.1-0.25	3.7
SNFF-2020HTR8 × 10R-N4	203	507	55-77	0.1-0.25	12.7
SNFF-2020HTR8 × 15R-N10	205	513	60-81	0.1-0.25	12.7
SNFF-2525HTR10 × 12R-N4	343	858	55-76	0.1-0.25	23.7
SNFF-2525HTR10 × 25R-N10	312	779	61-82	0.1-0.25	23.7
SNFF-2835HTR12 × 25R-N10	562	1405	61-81	0.1-0.25	39.2
SNFF-2835HTR14 × 30R-N6	571	1427	61-81	0.1-0.25	37.1
SNFF-2835HTR18 × 24R-N8	821	2053	55-77	0.1-0.25	31.9
SNFF-2835HTR18 × 40R-N8	764	1911	61-81	0.1-0.25	31.9

特殊螺母 Special nuts

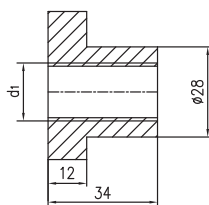
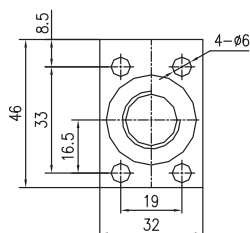


产品特性 Product features

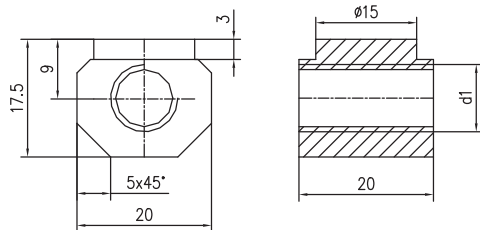
- 为LMS直线运动系统而特殊设计的丝杆螺母
- 自润滑、低磨损
- 极低的摩擦系数
- 耐腐蚀，可用于液体介质环境
- 抵抗灰尘和无噪音运行
- 节约安装空间，易装配
- 可选材料：EPB13, EPB7, EPB5A
- Special design nuts for LMS linear motion system
- Self lubricating and lower wear
- Best coefficient of friction
- Chemical resistant
- Dust resistant and quiet running
- Save space and Easy installation
- Available materials: EPB13, EPB7 and EPB5A



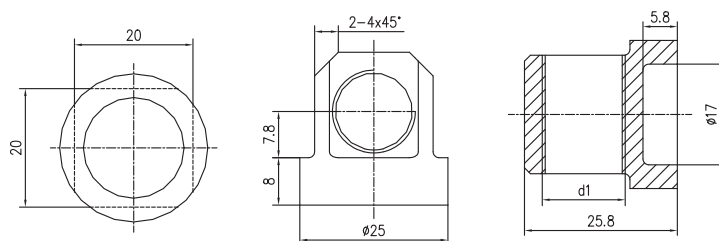
产品编码 Part No.	d ₁ × s [mm]	头数 N N [pcs]	平台页码 LMS Page
LMS01-1210-TR10 × 2R-N1	TR10 × 2	1	P242-243
LMS01-1210-TR10 × 3R-N1	TR10 × 3	1	P242-243
LMS01-1210-HTR10 × 12R-N4	HTR10 × 12	4	P242-243
LMS01-1210-HTR10 × 25R-N10	HTR10 × 25	10	P242-243



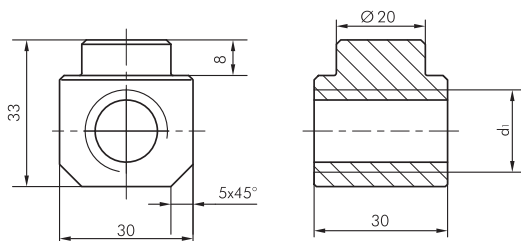
产品编码 Part No.	螺纹 Thread [mm]	头数 N N [pcs]	平台页码 LMS Page
LMS01-2018-TR18 × 4R-N1	TR18 × 4	1	P242-243
LMS01-2018-TR18 × 8R-N2	TR18 × 8	2	P242-243



产品编码 Part No.	$d_1 \times s$ [mm]	头数 Number of threads N [pcs]	平台页码 LMS Page
LMS02-1040-TR10 × 2R-N1	TR10 × 2	1	P244-245
LMS02-1040-TR10 × 3R-N1	TR10 × 3	1	P244-245
LMS02-1040-HTR10 × 12R-N4	HTR10 × 12	4	P244-245
LMS02-1040-HTR10 × 25R-N4	HTR10 × 25	10	P244-245



产品编码 Part No.	$d_1 \times s$ [mm]	头数 Number of threads N [pcs]	平台页码 LMS Page
LMS02-1660-TR14 × 3R-N1	TR14 × 3	1	P244-245
LMS02-1660-TR14 × 4R-N1	TR14 × 4	1	P244-245
LMS02-1660-HTR14 × 30R-N6	HTR14 × 30	6	P244-245



产品编码 Part No.	$d_1 \times s$ [mm]	头数 Number of threads N [pcs]	平台页码 LMS Page
LMS02-2080-TR18 × 4R-N1	TR18 × 4	1	P244-245
LMS02-2080-TR18 × 8R-N2	TR18 × 8	2	P244-245
LMS02-2080-HTR18 × 24R-N8	HTR18 × 24	8	P244-245

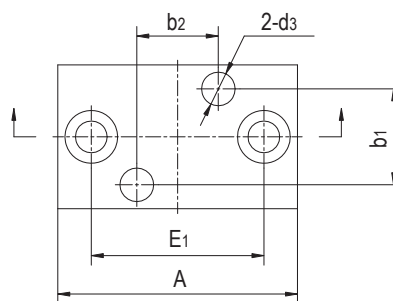
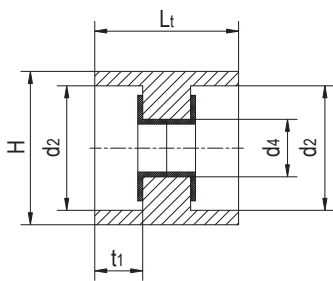
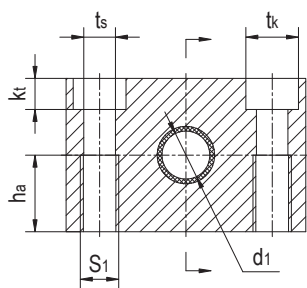
丝杆支撑，固定式 Lead screw supports, fixed bearing side



产品特性 Product features

- 阳极氧化铝轴承座
- 灵活安装丝杠
- 丝杠直径：10, 18和24 mm
- 通过内置塑料轴承实现自润滑
- Anodized aluminum bearing blocks
- Flexible mounting of the leadscrew
- Leadscrew diameter: 10, 18 and 24 mm
- Lubricant-free through built-in plastic bearing

标准规格 Standard specifications



产品编码 Part No.	d ₁ [mm]	A [mm]	H [mm]	E ₁ [mm]	L ₁ [mm]	k ₁ [mm]	t _k [mm]	t _s [mm]	S ₁ [mm]	h _a [mm]	d ₂ [mm]	d ₄ [mm]	t ₁ [mm]	d ₃ [mm]	b ₁ [mm]	b ₂ [mm]	最大轴向载荷 Max. axial static load [N]	重量 Weight [g]
LSS-10-FI	10	50	32	36	30	6.5	11	6.6	M8	16	26	12	10	7	20	17	700	88
LSS-18-FI	18	72	46	54	36	8.6	15	9	M10	23	38	20	15	10	21	27	1600	205
LSS-24-FI	24	94	64	70	50	13	20	13.5	M16	32	47	26	17	12	34	34	2500	525

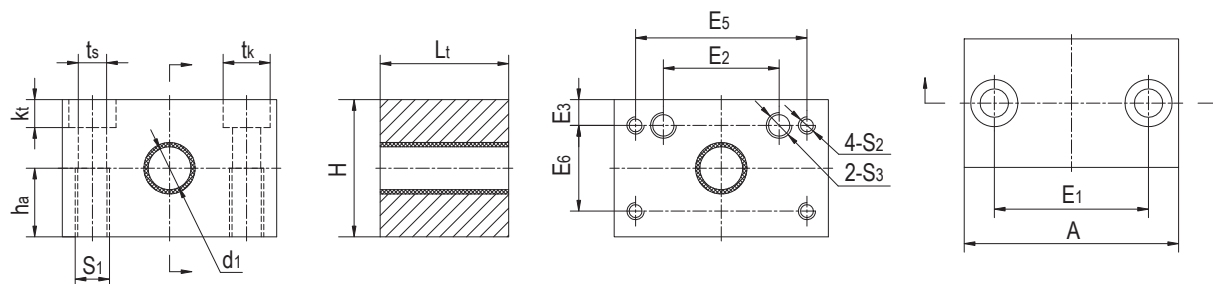
丝杆支撑，浮动式 Lead screw supports, floating bearing side



产品特性 Product features

- 阳极氧化铝轴承座
- 灵活安装丝杠
- 丝杠直径：10, 18和24 mm
- 通过内置塑料轴承实现自润滑
- Anodized aluminum bearing blocks
- Flexible mounting of the leadscrew
- Leadscrew diameter: 10, 18 and 24 mm
- Lubricant-free through built-in plastic bearing

标准规格 Standard specifications



产品编码 Part No.	d_1 [mm]	A [mm]	H [mm]	E_1 [mm]	L_t [mm]	k_t [mm]	t_k [mm]	t_s [mm]	S_1 [mm]	h_a [mm]	E_2 [mm]	E_5 [mm]	E_3 [mm]	E_6 [mm]	S_2 [mm]	S_3 [mm]	重量 Weight [g]
LSS-10-FL	10	50	32	36	30	6.5	11	6.6	M8	16	27	40	6.5	20	M4	M6	115
LSS-18-FL	18	72	46	54	36	8.6	15	9	M10	23	27	40	13.5	20	M4	M6	295
LSS-24-FL	24	94	64	70	50	13	20	13.5	M16	32	27	40	22.5	20	M4	M6	725

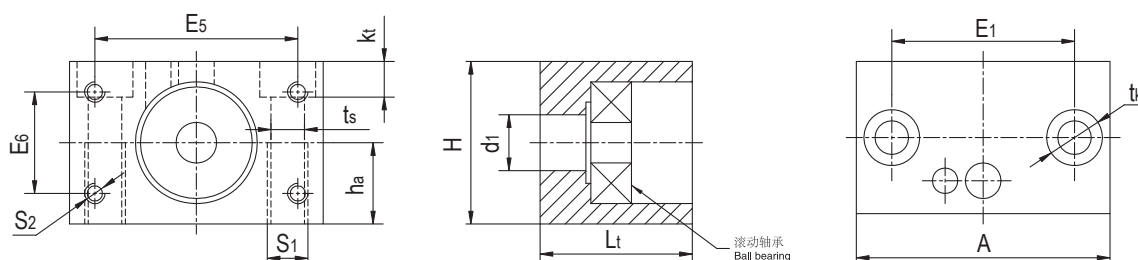
丝杆支撑，滚动轴承 Lead screw supports, ball bearing-faster



产品特性 Product features

- 自润滑、免维护
- 快速连接安装
- 传输高转速
- 低摩擦
- 精准无间隙配合
- Lubricant- and maintenance-free
- Quick connection
- Transmission of high rotation speed
- Low friction
- Accurate and clearance-free

标准规格 Standard specifications



产品编码 Part No.	S_1 [mm]	S_2 [mm]	A [mm]	H [mm]	E_1 [mm]	E_5 [mm]	E_6 [mm]	L_t [mm]	k_t [mm]	t_k [mm]	t_s [mm]	d_1 [mm]	h_a [mm]	最大轴向载荷 Max. axial static load [N]	重量 Weight [g]
LSS-10-BB	M8	M4	50	32	36	40	20	30	6.5	11	6.6	10	16	350	110
LSS-18-BB	M10	M4	72	46	54	48	36	36	8.6	15	9	18	23	1000	265
LSS-24-BB	M16	M4	94	64	70	48	36	50	13	20	13.5	24	32	1500	350

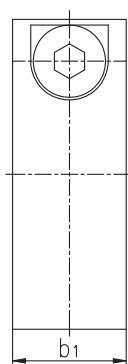
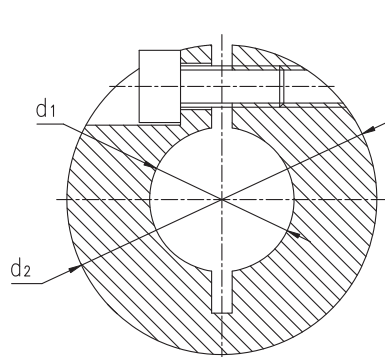
CR01丝杆夹环，带螺纹 Lead screw clamping rings with thread



产品特性 Product features

- 直接与丝杆螺纹配合安装
- 配合梯形丝杆支撑客户解决方案
- 承受较高的轴向力
- 采用表面硬质氧化铝合金制成
- 带锁紧螺丝
- Ready to install in the screw
- Custom solutions for lead screw support
- Can absorb even high axial forces
- Clamping rings made from coated aluminum
- Screw included in delivery

标准规格 Standard specifications



产品编码 Part No.:

CR01-TR8 × 1.5R

R-右旋 Right
L-左旋 Left
螺纹 Thread

产品编码 Part No.	螺纹 Thread $d_1 \times P$	d_2 h9 [mm]	b_1 [mm]	最大轴向载荷 Max. axial static load [N]
CR01-TR8 × 1.5R	TR08 × 1.5	16	9	1530
CR01-TR10 × 2R	TR10 × 2	24	8	1800
CR01-TR12 × 3R	TR12 × 3	28	8	2096
CR01-TR14 × 4R	TR14 × 4	30	11	3312
CR01-TR16 × 4R	TR16 × 4	34	11	3840
CR01-TR18 × 4R	TR18 × 4	36	13	5216
CR01-TR20 × 4R	TR20 × 4	45	15	6784
CR01-TR24 × 5R	TR24 × 5	45	15	8096

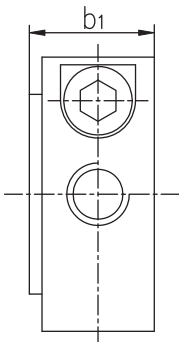
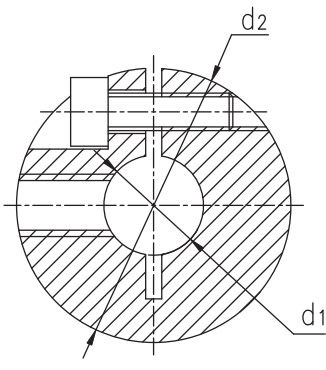
CR02丝杆夹环，无螺纹 Lead screw clamping rings without thread



产品特性 Product features

- 直接与丝杆端安装
- 承受较高的轴向力
- 采用表面硬质氧化铝合金制成
- 带锁紧螺丝
- Ready to install in the end of screw
- Can absorb even high axial forces
- Clamping rings made from coated aluminum
- Screw included in delivery

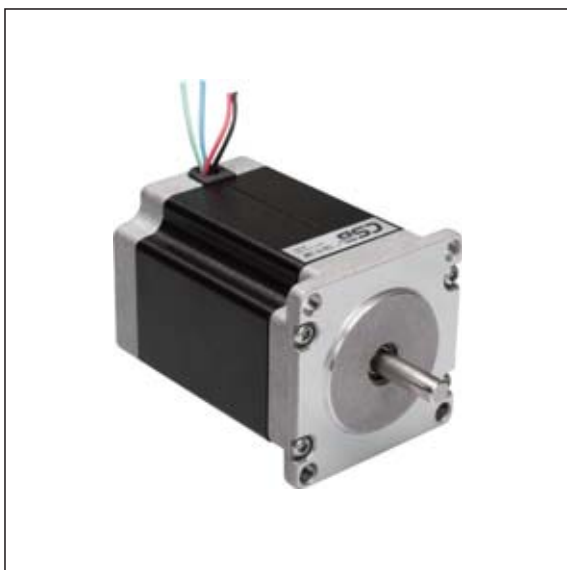
标准规格 Standard specifications



产品编码 Part No.:
CR02-10
内径 Inner diameter

产品编码 Part No.	d ₁ [mm]	d ₂ h9 [mm]	b ₁ [mm]
CR02-10	10	24	8
CR02-12	12	28	11
CR02-14	14	30	11
CR02-16	16	34	11
CR02-18	18	36	13
CR02-24	24	45	15

步进电机 Stepper motors, SM01



产品特性 Product features

- SM01电机是性价比高的步进电机，这款电机的连接线直接从外壳接出，适合安装在有额外外壳或用于清洁环境中的机器设备
- SM01 motor is the most cost-effective stepper motor, this motor cable directly exit from the housing, They are suitable for installation in an extra housing or for the machine equipment in cleaning the environment

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www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

标准规格 Standard specifications

产品编码 Part No.	最大电压 Max. voltage [VDC]	额定电压 Nominal voltage [VDC]	额定电流 Nominal current [A]	步距角 Step angle [°]	机座尺寸 Flange dimension [mm]	长度 Length [mm]	保持扭矩 Holding torque [N*m]	转动惯量 Moment of inertia / rotor [kg*cm ²]	载荷Load [N]		重量 Weight [kg]
									轴向 Axial	径向 Radial	
SM01-11-060-001	60	24-48	1.6	1.8	28	51.0	0.12	0.02	7	20	0.20
SM01-17-060-005	60	24-48	1.8	1.8	42	48.3	0.50	0.08	7	20	0.36
SM01-23-060-020	60	24-48	2.2	1.8	56	76.0	1.80	0.46	15	52	1.00
SM01-24-060-035	60	24-48	4.5	1.8	60	85.0	2.50	0.90	15	63	1.40
SM01-34-060-059	60	24-48	7.0	1.8	86	96.0	5.00	1.85	65	200	2.70

运行数据 Operating data

环境温度 Ambient temperature	℃	-10至+50
最大运行上升温度 Max temperature rise	℃	80
绝缘等级 Insulation class		B
空气湿度（无压缩） Humidity (not condensing)	%	85
IP等级-电机外壳 Protection class engine case		IP65（轴密封 Shaft seal IO52，电机带绞线 Motor with stranded wires IP40）
CE认证 Standard		EVM标准 EMV guideline

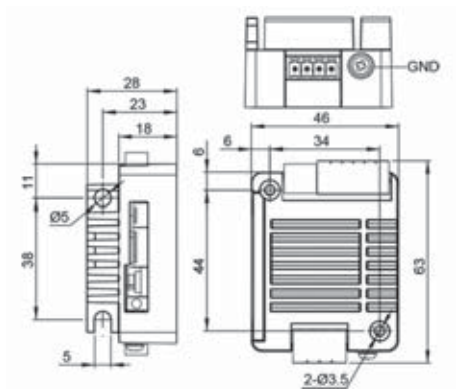
步进电机控制器 Stepper motor controllers



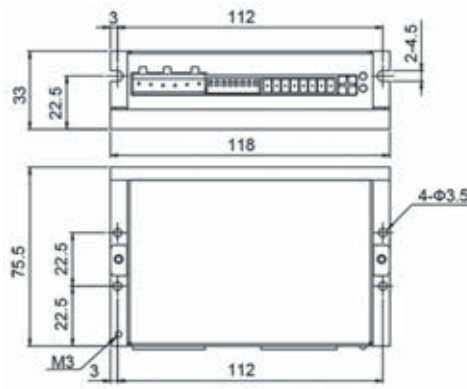
产品特性 Product features

- 步进电机驱动器是基于PID电流控制算法设计的高性价比驱动器，具有优越的性能表现，高速大力矩输出，低噪音，低振动，低发热。驱动器可通过拨码开关选择运行电流和细分，有8种细分，8种电流供选择，具有过压，欠压，相电流过流保护，其输入输出控制信号均采用光电隔离。
- Stepper motor driver is based on PID current control algorithm design, and cost-effective with superior performance, high speed and torque output, low noise and vibration. The running current can be set by DIP switch, there are 8 kinds of subdivision and current options, Protection with overvoltage, undervoltage, phase current overcurrent, The input and output control signals are used optical isolation.

标准规格 Standard specifications



SR3-mini



SR4

产品编码 Part No.	电流 Output Current	电压 S supply Voltage	速度范围 Max.Speed	工作环境温度 Operation temperature	最高环境湿度 Max. ambient humidity	重量 Weight [g]
SR3-mini	0.4-3.0A	12-48VDC	3000	0 - 40℃	90%	120
SR4	1.0-4.5A	24-48VDC	3000	0 - 40℃	90%	310

联轴器 Flexible jaw couplings, COU01



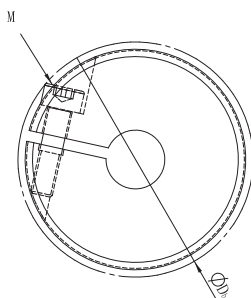
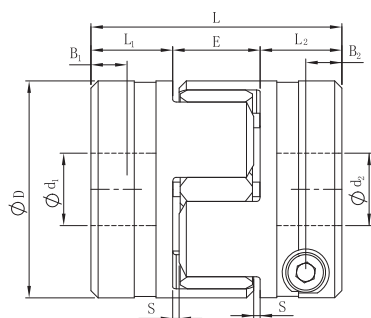
产品特性 Product features

- 联轴器将轴的驱动轴连接到电机，中间弹性聚合物承受电机转动扭矩，该阻尼元件补偿径向和轴向间隙
- 标准品常备库存
- 振动阻尼，易于安装
- The coupling connects the drive shaft of the axis to the Motor, An elastic polymer insert in the centre of the coupling transfers the motor torque, This damping element compensates for radial and axial clearance.
- Standard versions from stock
- Vibration dampening and easy fitting

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标准规格 Standard specifications



产品编码 Part No.:

COU01-1418-d1d2

内径 Inner diameter
内径 Inner diameter
长度 Length
外径 Outer diameter

产品编码 Part No.	d_1/d_2 (H7)		D	D_0	L	L_1/L_2	E	S	B_1/B_2	M (ISO 4762)	扭矩 Tightening torque [Nm]	最高转速 Max. speed [rpm]	重量 Weight [kg]
	Min.	Max.											
COU01-1418-d1d2	3	7	14	16.7	18	7.0	8	1.0	2.5	M2	0.8	20,000	0.006
COU01-2024-d1d2	4	10	20	21.4	24	7.0	10	1.0	3.5	M2.5	1.2	15,000	0.016
COU01-2525-d1d2	4	12	25	26.3	25	7.0	11	1.0	3.5	M3	2.0	15,000	0.027
COU01-3032-d1d2	5	12	30	31.8	32	9.5	13	1.5	4.5	M4	2.9	12,700	0.041
COU01-4050-d1d2	8	20	40	45.8	50	17.0	16	2.0	9.0	M6	10.0	9,500	0.120
COU01-5554-d1d2	10	32	55	57.6	54	18.0	18	2.0	11.0	M6	10.0	6,900	0.240

产品编码 Part No.	标准孔径 d_1/d_2 和最大扭矩值 Standard bore diameter d_1/d_2 [mm] and friction torques for hub [Nm]																			
	3	4	5	6	6.35	7	8	10	11	12	14	15	16	18	19	20	22	24	25	28
COU01-1418-d1d2	0.8	0.9	1.0	1.0	1.0	1.1														
COU01-2024-d1d2		1.9	2.0	2.2	2.2	2.3	2.4	2.5												
COU01-2525-d1d2			3.4	3.6	3.7	3.7	3.9	4.1	4.4	4.6	4.7									
COU01-3032-d1d2				7.1	7.4	7.4	7.7	8.0	8.5	5.4	5.8									
COU01-4050-d1d2								24	25	26	27	28	29	30	31	32	33			
COU01-5554-d1d2									21	25	25	30	32	34	38	40	42	45	51	53

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sales@csb-ep.com

Tel: 0086 573 84186133/84185527
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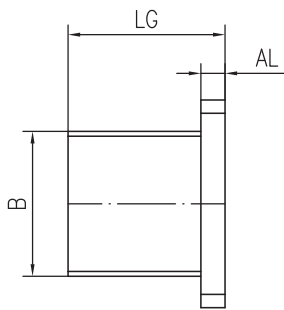
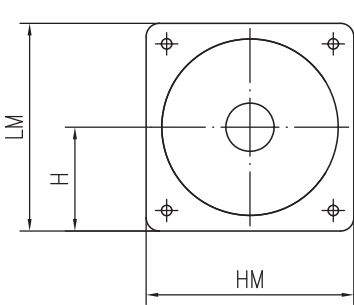
电机法兰 Motor flange



产品特性 Product features

- 电机法兰用于封闭并保护联轴器，并为NEMA电机提供匹配的安装尺寸
- The motor flange encloses and protects the coupling and provides the matching mounting dimensions for your NEMA motor

标准规格 Standard specifications



产品编码 Part No.:

MF-2040-NEMA17

- 步进电机 Stepper motors
- 连接尺寸 Connection size
- 连接尺寸 Connection size

产品编码 Part No.	LG [mm]	AL [mm]	HM [mm]	LM [mm]	B [mm]	HA [mm]
MF-2040-NEMA17	47	12	56	56	56	28
MF-2040-NEMA23-S	48	13	56	56	56	28
MF-3648-NEMA23	56	13	56	56	56	28
MF-3648-NEMA34	65	10	86	86	46	43
MF-3648-NEMA34-XL	76	10	86	86	56	43

限位开关 Proximity switches

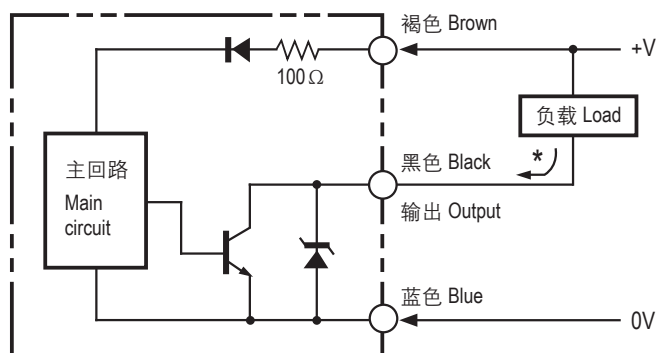


产品特性 Product features

- 限位开关结构紧凑、易安装
- 塑料外壳设计使得限位开关可作为限位、定位或参考点开关使用
- 重量轻，长寿命
- The compact and easy assembly of the proximity switches
- The plastic housing design makes the proximity switches, which can be used as limit, position or reference switches
- Light and longer life

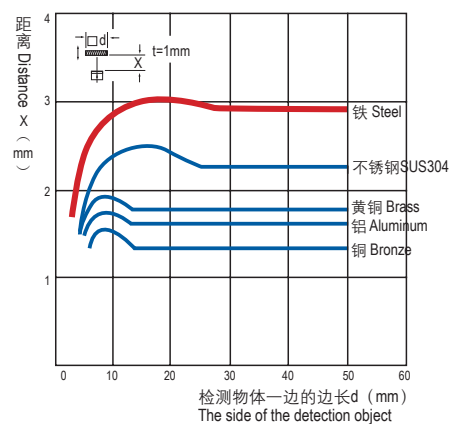
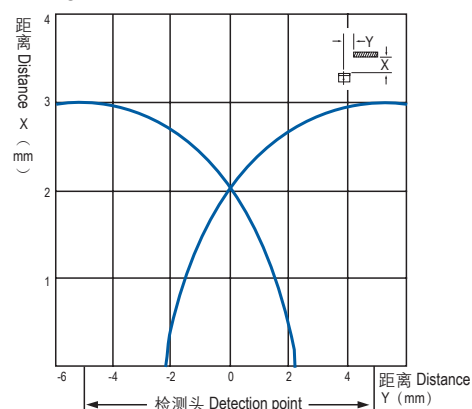
限位开关参数 Proximity switches data

限位开关 Proximity switches	单位 Unit	TL-W3MC1
工作电压 Operating voltage	[VDC]	10...30
最大促发电流 Max. trigger current	[mA]	100
环境温度 Ambient temperature	[°C]	-25...+70
触发距离 Trigger distance	[mm]	3.0
防护级别 Protection class		IP67
连接器 Connectors		M3



* 最大电流负载100mA
Max. current load 100mA

TL-W3MC1



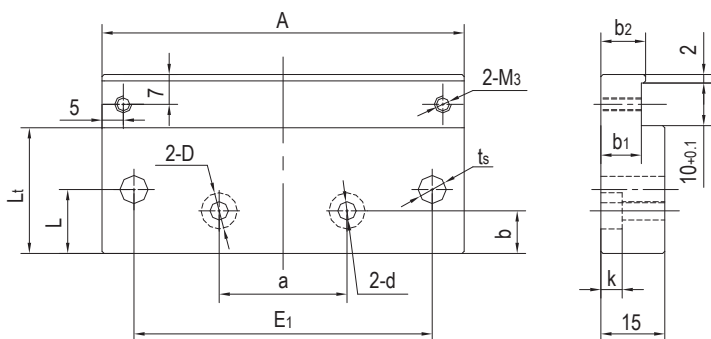
模组支架 Space supports



产品特性 Product features

- 模组支架用于E系列模组提升安装高度，并为限位开关提供匹配的安裝尺寸。
- The Space support be used to increase the fitting high of E modules and provides the matching mounting dimensions for the proximity switches.

标准规格 Standard specifications



产品编码 Part No.:

LMS01-12-AS-SUP

支架 Support

模组型号 LMS type

产品编码 Part No.	A-0.3 [mm]	L _r -0.3 [mm]	E _t ± 0.1 [mm]	L [mm]	t _s [mm]	a ± 0.1 [mm]	D [mm]	d [mm]	b [mm]	k [mm]	b ₁ [mm]	b ₂ [mm]
LMS01-12-SUP	85	30	70	15.0	6.6	30	11	6.6	10	6.4	10.0	11.0
LMS01-20-SUP	130	36	108	18.0	9.0	50	11	6.6	15	6.4	10.0	11.0
LMS01-30-SUP	180	50	150	25.0	13.5	70	11	6.6	20	6.4	12.0	13.0
LMS02-1040-SUP	74	22	60	11.0	6.8	30	11	6.6	8	6.4	9.5	10.5
LMS02-1080-SUP	108	22	94	11.0	6.8	50	11	6.6	8	6.4	9.5	10.5
LMS02-1660-SUP	104	25	84	12.5	9.0	50	11	6.6	8	6.4	9.5	10.5
LMS02-2080-SUP	134	28	116	14.0	8.6	70	11	6.6	8	6.4	9.5	10.5
LMS02BB-1040-SUP	74	30	60	19.0	6.8	30	11	6.6	8	6.4	9.5	10.5
LMS02BB-1080-SUP	108	30	94	19.0	6.8	50	11	6.6	8	6.4	9.5	10.5
LMS02BB-1660-SUP	104	35	84	22.5	9.0	50	11	6.6	8	6.4	9.5	10.5
LMS02BB-2080-SUP	134	40	116	26.0	8.6	70	11	6.6	8	6.4	9.5	10.5

SRB-01高速型回转支承轴承 High speed slewing ring bearings



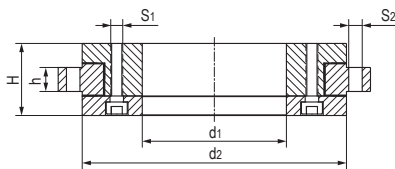
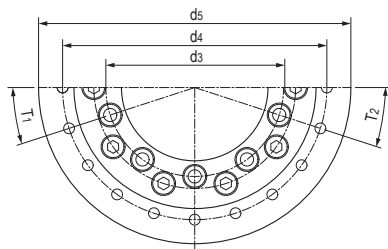
产品特性 Product features

- 自润滑，免维护
- 运行平稳，无噪音
- 高速运行，长寿命
- 标准滑动材料TEFPLAS™ G
可选符合FDA标准材料TEFPLAS™ E
- 转盘材料硬质氧化铝合金，可选不锈钢
- 工作温度：± 200℃
- Self-lubricating, maintenance-free
- Smooth operation, no noise
- High-speed operation and long life
- Standard material of sliding layer: TEFPLAS™ G
Available FDA grade material: TEFPLAS™ E
- Disc made of anodized aluminum, available stainless steel
- Operation temperature ± 200℃

产品技术数据表 Technical data table

项目 Item	单位 Unit	SRB-01-20	SRB-01-30	SRB-01-40	SRB-01-50	SRB-01-60	SRB-01-80	SRB-01-100
重量 Weight	kg	0.2	0.4	0.6	1.0	1.1	1.2	1.3
最大旋转速度 Max. Rotation Speed	r/min	450	350	280	240	220	200	180
最大静载荷 Max. Static Load	轴向 Axial	N	6000	15000	13000	16000	18000	23000
	径向 Radial	N	1000	1400	2600	3300	3700	6000
最大动载荷 Max. Dynamic Load	轴向 Axial	N	1700	4100	3700	4500	5000	6400
	径向 Radial	N	300	400	780	1000	1100	1800
最大允许倾覆力矩 Max. Permitted Overturning	Nm	80	200	300	400	500	800	700

标准规格 Standard specifications



产品编码 Part No.:

SRB-01-20

内径 Inner diameter

系列号 Design No.

产品编码 Part No.	d ₁ [mm]	d ₂ ± 0.2 [mm]	d ₃ [mm]	d ₄ [mm]	* d ₅ [mm]	H [mm]	h [mm]	T ₁ [mm]	T ₂ [mm]	S ₁ [mm]	S ₂ [mm]
SRB-01-20	20	60	31	70	80	24	8	6 × 60°	6 × 60°	M4	4.5
SRB-01-30	30	82	42.5	91	100	29	10	8 × 45°	8 × 45°	M4	4.5
SRB-01-40	40	100	53	110	120	30	10	8 × 45°	8 × 45°	M4	4.5
SRB-01-50	50	120	65	135	150	33	10	8 × 45°	16 × 22.5°	M4	4.5
SRB-01-60	60	130	74	145	160	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-01-80	80	150	92	163	175	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-01-100	100	160	112	170	185	34	12	12 × 30°	16 × 22.5°	M5	5.5

* 公差参照 Tolerance according to ISO 2768 mK

SRB-02高载型回转支撑轴承 High load slewing ring bearings



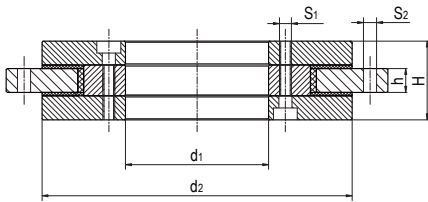
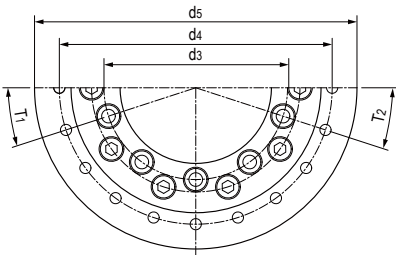
产品特性 Product features

- 滑动膜单元均采用高载低摩擦材料CSB-11
- 内外环均采用优质碳钢表面硬铬处理
- 极高载荷和扭矩
- 工作温度: -196℃/+260℃
- 易安装、免维护
- The sliding element is a standard CSB-11 bearing with high load and low friction factor
- Inside and outside of the bearing are made with carbon steel and with chrome hard coated
- The part is with extremely high load capacity and torque
- Working temperature -196℃/+260℃
- Easy installation and maintenance free

产品技术数据表 Technical data table

项目 Item	单位 Unit	SRB-02-20	SRB-02-30	SRB-02-40	SRB-02-50	SRB-02-60	SRB-02-80	SRB-02-100
重量 Weight	kg	0.5	1.0	1.5	2.5	3.0	3.5	4.0
最大旋转速度 Max. Rotation Speed	r/min	400	300	250	200	190	160	150
最大静载荷 Max. Static Load	轴向 Axial	N	30000	80000	140000	170000	180000	220000
	径向 Radial	N	12000	19000	22000	29000	33000	40000
最大动载荷 Max. Dynamic Load	轴向 Axial	N	8000	23000	37000	46000	51000	60000
	径向 Radial	N	3700	5700	6800	8900	9900	12000
最大允许倾覆力矩 Max. Permitted Overturning	Nm	200	600	1500	2500	2700	3300	6000

标准规格 Standard specifications



产品编码 Part No.:

SRB-02-20

内径 Inner diameter

系列号 Design No.

产品编码 Part No.	d ₁ [mm]	d ₂ ± 0.2 [mm]	d ₃ [mm]	d ₄ [mm]	* d ₅ [mm]	H [mm]	h [mm]	T ₁ [mm]	T ₂ [mm]	S ₁ [mm]	S ₂ [mm]
SRB-02-20	20	60	31	70	80	24	8	6 × 60°	6 × 60°	M4	4.5
SRB-02-30	30	82	42.5	91	100	29	10	8 × 45°	8 × 45°	M4	4.5
SRB-02-40	40	100	53	110	120	30	10	8 × 45°	8 × 45°	M4	4.5
SRB-02-50	50	120	65	135	150	33	10	8 × 45°	16 × 22.5°	M4	4.5
SRB-02-60	60	130	74	145	160	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-02-80	80	150	92	163	175	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-02-100	100	160	112	170	185	34	12	12 × 30°	16 × 22.5°	M5	5.5

* 公差参照 Tolerance according to ISO 2768 mK

SRB-03回转支承轴承 Slewing ring bearings



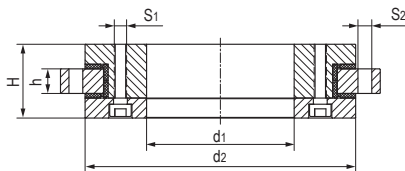
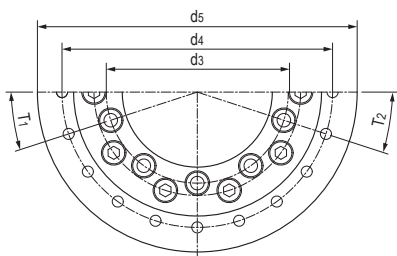
产品特性 Product features

- 自润滑、免维护
- 滑动原件采用高耐磨材料EPB13制成
- 回转环表面硬化处理
- 工作温度: -50℃/+90℃
- 可选铝合金或不锈钢304材料
- Maintenance-free, self lubricating
- Sliding elements made of high wear resistance EPB13
- Slewing ring with high stiffening
- Working temperature -50℃/+90℃
- Available as aluminum or stainless steel version 304

产品技术数据表 Technical data table

项目 Item	单位 Unit	SRB-03-20	SRB-03-30	SRB-03-40	SRB-03-50	SRB-03-60	SRB-03-80	SRB-03-100
重量 Weight	kg	0.2	0.4	0.6	1.0	1.1	1.2	1.3
最大旋转速度 Max. Rotation Speed	r/min	300	230	190	160	150	130	120
最大静载荷 Max. Static Load	轴向 Axial	N	15000	27000	35000	40000	50000	55000
	径向 Radial	N	2300	5000	6000	8000	10000	16000
最大动载荷 Max. Dynamic Load	轴向 Axial	N	4000	7000	9000	10000	15000	16000
	径向 Radial	N	600	1500	1800	2500	3000	5000
最大允许倾覆力矩 Max. Permitted Overturning	Nm	100	200	400	600	800	1000	1500

标准规格 Standard specifications



产品编码 Part No.:

SRB-03-20

内径 Inner diameter

系列号 Design No.

产品编码 Part No.	d ₁ [mm]	d ₂ ± 0.2 [mm]	d ₃ [mm]	d ₄ [mm]	* d ₅ [mm]	H [mm]	h [mm]	T ₁ [mm]	T ₂ [mm]	S ₁ [mm]	S ₂ [mm]
SRB-03-20	20	60	31	70	80	24	8	6 × 60°	6 × 60°	M4	4.5
SRB-03-30	30	82	42.5	91	100	29	10	8 × 45°	8 × 45°	M4	4.5
SRB-03-40	40	100	53	110	120	30	10	8 × 45°	8 × 45°	M4	4.5
SRB-03-50	50	120	65	135	150	33	10	8 × 45°	16 × 22.5°	M4	4.5
SRB-03-60	60	130	74	145	160	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-03-80	80	150	92	163	175	33	10	10 × 36°	20 × 18°	M5	5.5
SRB-03-100	100	160	112	170	185	34	12	12 × 30°	16 × 22.5°	M5	5.5

* 公差参照 Tolerance according to ISO 2768 mK

CSB-SFP 耐磨半成品 Semi-finished products



CSB自润滑工程塑料半成品为客户特殊尺寸轴承少量快速制作提供了可能；节省了额外的模具费用和提高交货速度。而且可以直接用来加工尺寸或形状非标准件产品，为用户提供各种自润滑部件的解决方案。

CSB self-lubricated plastic semi-finished products are customized materials available by the customer special requirement of uncommon bearing sizes. It is possible for the mold cost saving and improves the delivery time. The non-standard bearings are available with this flexible solution.

技术数据表 Technical data table

材料性能 Material properties	标准 Standard	单位 Unit	M80	M81	M82	M83	MN73
颜色 Color	-	-	蓝色 Blue	绿色 Green	棕色 Brown	紫色 Purple	灰色 Grey
密度 Density	ISO1183	g/cm ³	1.15	0.94	1.45	1.10	1.48
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	2.5	0.01	0.3	0.65	0.3
最大吸水率 Max. water absorption	ISO62	%	7.0	0.05	1.3	6.3	1.3
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.30	0.05-0.15	0.05-0.15	0.10-0.18	0.05-0.20
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.25	0.20	0.40	0.40	0.30
弯曲模量 Flexural modulus	ISO178	MPa	3000	650	2400	2750	2350
弯曲强度 Flexural strength	ISO178	MPa	90	20	65	60	60
最大静载荷 Max. static load	ITS027	MPa	70	25	40	65	35
最大动载荷 Max. dynamic load	ITS028	MPa	36	6	17	33	14
邵氏硬度 Shore hardness	ISO868	D	80	62	75	80	74
连续运行温度 Long-term application temperature	ITS029	℃	+90	+80	+90	+90	+90
短时运行温度 Short-term application temperature	ITS029	℃	+180	+120	+120	+180	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40	-100	-50	-40	-50
导热性 Thermal conductivity	ISO22007	W/m/K	0.24	0.40	0.25	0.30	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	9	19	9	10	10
阻燃等级 Flammability	UL94	Class	HB	HB	HB	HB	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³	>10 ¹⁴	>10 ¹³	>10 ¹⁴	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ¹⁴	>10 ¹²	>10 ¹⁴	>10 ¹²

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

材料性能 Material properties	标准 Standard	单位 Unit	MN70	MN71	MN73	EPB	EPB5A
颜色 Color	-	-	白色 White	白色 White	灰色 Grey	深灰 Dark grey	米色 Beige
密度 Density	ISO1183	g/cm ³	1.42	1.38	1.40	1.46	1.28
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3	0.3	0.3	0.3	0.3
最大吸水率 Max. water absorption	ISO62	%	1.4	0.5	0.5	1.2	0.5
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.10-0.35	0.15-0.40	0.10-0.30	0.05-0.15	0.25-0.40
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.30	0.25	0.35	0.40	0.25
弯曲模量 Flexural modulus	ISO178	MPa	2300	5000	4200	2300	3600
弯曲强度 Flexural strength	ISO178	MPa	60	130	120	60	140
最大静载荷 Max. static load	ITS027	MPa	30	85	80	35	90
最大动载荷 Max. dynamic load	ITS028	MPa	13	45	41	15	46
邵氏硬度 Shore hardness	ISO868	D	76	81	80	75	80
连续运行温度 Long-term application temperature	ITS029	℃	+90	+110	+110	+80	+250
短时运行温度 Short-term application temperature	ITS029	℃	+110	+180	+180	+120	+300
最低运行温度 Lowest application temperature	ITS029	℃	-50	-40	-40	-40	-100
导热性 Thermal conductivity	ISO22007	W/m/K	0.25	0.25	0.25	0.20	0.24
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	11	6	6	10	9
阻燃等级 Flammability	UL94	Class	HB	HB	HB	HB	V0
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³	>10 ¹⁴	>10 ¹⁴	>10 ¹³	>10 ¹⁴
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ¹⁴	>10 ¹⁴	>10 ¹²	>10 ¹³

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

材料性能 Material properties	标准 Standard	单位 Unit	EPB6	EPB7	EPB10	EPB13
颜色 Color	-	-	白色 White	米黄 Cream	黑色 Black	黄色 Yellow
密度 Density	ISO1183	g/cm ³	1.45	1.25	1.42	1.48
最大吸湿率 Max. moisture absorption, 50%RH	ISO62	%	0.3	1.3	0.1	0.3
最大吸水率 Max. water absorption	ISO62	%	1.2	6.5	0.5	1.3
对钢动摩擦系数 Coefficient of sliding friction(steel)	ITS025	μ	0.05-0.18	0.09-0.20	0.10-0.25	0.05-0.15
极限PV值 Max. PV value	ITS026	N/mm ² × m/s	0.30	0.50	1.35	0.40
弯曲模量 Flexural modulus	ISO178	MPa	2300	3200	10000	2600
弯曲强度 Flexural strength	ISO178	MPa	60	75	210	60
最大静载荷 Max. static load	ITS027	MPa	35	60	125	35
最大动载荷 Max. dynamic load	ITS028	MPa	14	25	80	14
邵氏硬度 Shore hardness	ISO868	D	74	75	86	74
连续运行温度 Long-term application temperature	ITS029	℃	+80	+90	+250	+90
短时运行温度 Short-term application temperature	ITS029	℃	+120	+180	+315	+120
最低运行温度 Lowest application temperature	ITS029	℃	-40	-40	-100	-50
导热性 Thermal conductivity	ISO22007	W/m/K	0.20	0.24	0.60	0.25
线性热膨胀系数 Coefficient of thermal expansion	ISO11359	K ⁻¹ × 10 ⁻⁵	10	9	5	10
阻燃等级 Flammability	UL94	Class	HB	HB	V0	HB
体电阻率 Volume resistance	IEC60093	Ω · cm	>10 ¹³	>10 ¹³	>10 ⁵	>10 ¹³
面电阻率 Surface resistance	IEC60093	Ω	>10 ¹²	>10 ¹²	>10 ⁵	>10 ¹²

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

M80耐磨棒 Round rods



- 自润滑、免维护
- 通用性较强
- 适合中高载荷
- 低成本选择
- 连续使用温度: -40/+90℃
- Maintenance-free, self-lubricated
- Suitable for most application
- Suitable for medium and high load operation
- Low cost
- Continuous working temperature: -40/+90℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M80-025-1000	25	1000
M80-030-1000	30	1000
M80-035-1000	35	1000
M80-040-1000	40	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M80-045-1000	45	1000
M80-050-1000	50	1000
M80-055-1000	55	1000
M80-060-1000	60	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M80-065-1000	65	1000
M80-070-1000	70	1000
M80-080-1000	80	1000
M80-100-1000	100	1000

M81耐磨棒 Round rods



- 自润滑、免维护
- 低摩擦、耐磨损
- 抗冲击、低噪音
- 极低吸水性
- 耐低温-196℃
- Maintenance-free, self-lubricated
- Low friction, anti-wear
- Impact resistance, low noise
- Low water absorption
- Very low temperature -196℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M81-015-1000	15	1000
M81-020-1000	20	1000
M81-025-1000	25	1000
M81-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M81-035-1000	35	1000
M81-040-1000	40	1000
M81-045-1000	45	1000
M81-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M81-055-1000	55	1000
M81-060-1000	60	1000
M81-065-1000	65	1000

M82耐磨棒 Round rods



- 自润滑、免维护
- 特种润滑耐磨
- 低摩擦系数
- 长寿命
- 连续使用温度: -40/+90℃
- Maintenance-free, self-lubricated
- Special lubricant and wear resistant
- Low friction coefficient
- Long service time
- Continuous working temperature: -40/+90℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M82-015-1000	15	1000
M82-020-1000	20	1000
M82-025-1000	25	1000
M82-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M82-035-1000	35	1000
M82-040-1000	40	1000
M82-045-1000	45	1000
M82-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
M82-055-1000	55	1000
M82-060-1000	60	1000
M82-065-1000	65	1000

EPB耐磨棒 Round rods



- 自润滑、免维护
- 特种润滑耐磨
- 低摩擦系数
- 长寿命
- 连续使用温度: -40/+80℃
- Maintenance-free, self-lubricated
- Special lubricant and wear resistant
- Low friction coefficient
- Long service time
- Continuous working temperature: -40/+80℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB-015-1000	15	1000
EPB-020-1000	20	1000
EPB-025-1000	25	1000
EPB-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB-035-1000	35	1000
EPB-040-1000	40	1000
EPB-045-1000	45	1000
EPB-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB-055-1000	55	1000
EPB-060-1000	60	1000
EPB-065-1000	65	1000

EPB5A耐磨棒 Round rods



- 适合高载荷低速运用
- 高温下保持较高的承载能力
- 较广泛的化学抗性
- 符合FDA等级
- 连续使用温度: -100/+250℃
- Suitable for high load and low speed operation
- High load capacity at higher temperature
- Good chemical resistance
- FDA grade
- Continuous working temperature: -100/+250℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB5A-010-1000	10	1000
EPB5A-015-1000	15	1000
EPB5A-020-1000	20	1000
EPB5A-025-1000	25	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB5A-030-1000	30	1000
EPB5A-035-1000	35	1000
EPB5A-040-1000	40	1000
EPB5A-045-1000	45	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB5A-050-1000	50	1000
EPB5A-055-1000	55	1000
EPB5A-060-1000	60	1000
EPB5A-065-1000	65	1000

EPB6耐磨棒 Round rods



- 自润滑、免维护
- 极低摩擦系数
- 耐磨性能优越
- FDA食品安全等级
- 长期使用温度-40/+80℃
- Maintenance-free, self-lubricated
- Low friction coefficient
- Good wear resistant
- FDA grade
- Continuous working temperature: -40/+80℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB6-015-1000	15	1000
EPB6-020-1000	20	1000
EPB6-025-1000	25	1000
EPB6-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB6-035-1000	35	1000
EPB6-040-1000	40	1000
EPB6-045-1000	45	1000
EPB6-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB6-055-1000	55	1000
EPB6-060-1000	60	1000
EPB6-065-1000	65	1000

*更多尺寸规格请查询网站 Please visit website for more specification: www.csb-ep.com

EPB7耐磨棒 Round rods



- 自润滑、免维护
- 耐磨性能优越
- 极低摩擦系数
- 连续使用温度: -40/+90℃
- Maintenance-free, self-lubricated
- Good wear resistant
- Low friction coefficient
- Continuous working temperature: -40/+90℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB7-015-1000	15	1000
EPB7-020-1000	20	1000
EPB7-025-1000	25	1000
EPB7-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB7-035-1000	35	1000
EPB7-040-1000	40	1000
EPB7-045-1000	45	1000
EPB7-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB7-055-1000	55	1000
EPB7-060-1000	60	1000
EPB7-065-1000	65	1000

EPB10耐磨棒 Round rods



- 自润滑、免维护
- 非常耐磨长寿命
- 极好的耐腐蚀性
- 长期使用温度-100/+250℃
- Maintenance-free, self-lubricated
- Good wear resistance with long service life
- Good chemical resistance
- Continuous work temperature -100/+250℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB10-010-1000	10	1000
EPB10-015-1000	15	1000
EPB10-020-1000	20	1000
EPB10-025-1000	25	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB10-030-1000	30	1000
EPB10-035-1000	35	1000
EPB10-040-1000	40	1000
EPB10-045-1000	45	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB10-050-1000	50	1000
EPB10-055-1000	55	1000
EPB10-060-1000	60	1000
EPB10-065-1000	65	1000

EPB13耐磨棒 Round rods



- 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
- 连续使用温度: -50/+90℃
- Maintenance-free dry operation
- Small wear off amount against various shaft materials
- Lower friction
- Suitable for soft shaft
- Low water absorption
- Continuous working temperature: -50/+90℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB13-015-1000	15	1000
EPB13-020-1000	20	1000
EPB13-025-1000	25	1000
EPB13-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB13-035-1000	35	1000
EPB13-040-1000	40	1000
EPB13-045-1000	45	1000
EPB13-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
EPB13-055-1000	55	1000
EPB13-060-1000	60	1000
EPB13-065-1000	65	1000

MN70耐磨棒 Round rods



- 自润滑、免维护
- 低摩擦系数
- 长寿命
- 符合FDA标准
- 连续使用温度: -40/+80℃
- Maintenance-free, self-lubricated
- Low friction coefficient
- Long service time
- FDA grade
- Continuous working temperature: -40/+80℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN70-015-1000	15	1000
MN70-020-1000	20	1000
MN70-025-1000	25	1000
MN70-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN70-035-1000	35	1000
MN70-040-1000	40	1000
MN70-045-1000	45	1000
MN70-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN70-055-1000	55	1000
MN70-060-1000	60	1000
MN70-065-1000	65	1000

MN71耐磨棒 Round rods



- 自润滑、免维护
- 适合在灰尘中运行
- 适合在潮湿环境中运行
- 连续使用温度: -40/+120℃
- Maintenance-free, self-lubricated
- Suitable for operation in dusty environment
- Suitable for working in humid environment
- Continuous working temperature: -40/+120℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN71-015-1000	15	1000
MN71-020-1000	20	1000
MN71-025-1000	25	1000
MN71-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN71-035-1000	35	1000
MN71-040-1000	40	1000
MN71-045-1000	45	1000
MN71-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN71-055-1000	55	1000
MN71-060-1000	60	1000
MN71-070-1000	70	1000
MN71-080-1000	80	1000

MN73耐磨棒 Round rods



- 适合干运行、免维护
- 较低的摩擦系数
- 适合在潮湿环境中运行
- 连续使用温度: -40/+120℃
- Maintenance-free dry operation
- Low friction coefficient
- Suitable for working in humid environment
- Continuous working temperature: -40/+120℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN73-015-1000	15	1000
MN73-020-1000	20	1000
MN73-025-1000	25	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN73-030-1000	30	1000
MN73-035-1000	35	1000
MN73-040-1000	40	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MN73-050-1000	50	1000
MN73-060-1000	60	1000
MN73-070-1000	70	1000

*更多尺寸规格请查询网站 Please visit website for more specification: www.csb-ep.com

MR4耐磨棒 Round rods



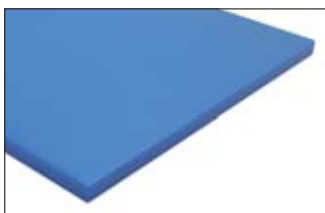
- 适合干运行、免维护
- 较低的摩擦系数
- 适用于软轴
- 吸水性较低
- 低成本
- 连续使用温度: -50/+90℃
- Maintenance-free dry operation
- Low friction coefficient
- Suitable for soft shaft
- Low water absorption
- Low cost
- Continuous working temperature: -40/+120℃

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MR4-015-1000	15	1000
MR4-020-1000	20	1000
MR4-025-1000	25	1000
MR4-030-1000	30	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MR4-035-1000	35	1000
MR4-040-1000	40	1000
MR4-045-1000	45	1000
MR4-050-1000	50	1000

产品编码 Part No.	直径 Diameter [mm]	长度 Length L [mm]
MR4-055-1000	55	1000
MR4-060-1000	60	1000
MR4-065-1000	65	1000

M80耐磨板 Anti-wear plates



- 连续使用温度: -40/+90℃
- 自润滑、免维护
- 通用性较强
- 适合中高载荷
- 低成本选择
- Continuous working temperature: -40/+90℃
- Maintenance-free, self-lubricated
- Suitable for most application
- Suitable for medium and load operation
- Low cost

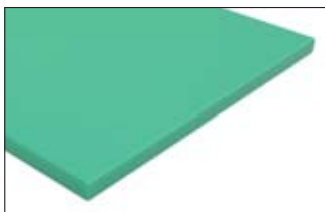
产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
M80-20-0600-1000	20	+0.30/+2.50	600	1000
M80-25-0600-1000	25	+0.30/+2.50	600	1000
M80-30-0600-1000	30	+0.50/+2.50	600	1000
M80-35-0600-1000	35	+0.50/+2.50	600	1000
M80-40-0600-1000	40	+0.50/+2.50	600	1000

产品编码 Part No.:

M80-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

M81耐磨板 Anti-wear plates



- 自润滑、免维护
- 低摩擦、耐磨损
- 抗冲击、低噪音
- 极低吸水性
- 耐低温-196℃
- Maintenance-free, self-lubricated
- Low friction, anti-wear
- Impact resistance, low noise
- Low water absorption
- Very low temperature -196℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
M81-10-0600-1000	10	+0.20/+2.50	600	1000
M81-15-0600-1000	15	+0.20/+2.50	600	1000
M81-20-0600-1000	20	+0.30/+2.50	600	1000
M81-25-0600-1000	25	+0.30/+2.50	600	1000
M81-30-0600-1000	30	+0.50/+2.50	600	1000
M81-35-0600-1000	35	+0.50/+2.50	600	1000
M81-40-0600-1000	40	+0.50/+2.50	600	1000

产品编码 Part No.:

M81-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

M83耐磨板 Anti-wear plates



- 自润滑、免维护
- 低摩擦、耐磨损
- 抗冲击、低噪音
- 极小蠕变性
- 连续使用温度: -40/+90℃

- Maintenance-free, self-lubricated
- Low friction, anti-wear
- Impact resistance, low noise
- Excellent dimensional stability
- Continuous working temperature: -40/+90℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
M83-10-0600-1000	10	+0.30/+1.50	600	1000
M83-15-0600-1000	15	+0.50/+2.00	600	1000
M83-20-0600-1000	20	+0.50/+2.00	600	1000
M83-25-0600-1000	25	+0.50/+2.00	600	1000
M83-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

M83-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

MN71耐磨板 Anti-wear plates



- 自润滑、免维护
- 适合在灰尘中运行
- 适合在潮湿环境中运行
- 连续使用温度: -40/+120℃

- Maintenance-free, self-lubricated
- Suitable for operation in dusty environment
- Suitable for working in humid environment
- Continuous working temperature: -40/+120℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
MN71-08-0600-1000	08	+0.30/+1.50	600	1000
MN71-10-0600-1000	10	+0.30/+1.50	600	1000
MN71-12-0600-1000	12	+0.30/+1.50	600	1000
MN71-15-0600-1000	15	+0.30/+1.50	600	1000
MN71-20-0600-1000	20	+0.50/+2.50	600	1000
MN71-25-0600-1000	25	+0.50/+2.50	600	1000
MN71-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

MN71-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

MN73耐磨板 Anti-wear plates



- 适合干运行、免维护
- 较低的摩擦系数
- 适合在潮湿环境中运行
- 连续使用温度: -40/+120℃

- Maintenance-free dry operation
- Low friction coefficient
- Suitable for working in humid environment
- Continuous working temperature: -40/+120℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
MN73-08-0600-1000	08	+0.30/+1.50	600	1000
MN73-10-0600-1000	10	+0.30/+1.50	600	1000
MN73-12-0600-1000	12	+0.30/+1.50	600	1000
MN73-15-0600-1000	15	+0.30/+1.50	600	1000
MN73-20-0600-1000	20	+0.50/+2.50	600	1000
MN73-25-0600-1000	25	+0.50/+2.50	600	1000
MN73-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

MN73-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

*更多尺寸规格请查询网站 Please visit website for more specification: www.csb-ep.com

EPB5A耐磨板 Anti-wear plates



- 自润滑、免维护
- 非常耐磨长寿命
- 极好的耐腐蚀性
- 长期使用温度-100℃/+250℃

- Maintenance-free, self-lubricated
- Good wear resistance with long service life
- Good chemical resistance
- Continuous working temperature: -100/+250℃

产品编码 Part No.	厚度Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
EPB5A-08-0600-1000	05	+0.20/+0.70	600	1000
EPB5A-10-0600-1000	06	+0.20/+0.70	600	1000
EPB5A-08-0600-1000	08	+0.20/+0.70	600	1000
EPB5A-10-0600-1000	10	+0.30/+1.50	600	1000
EPB5A-12-0600-1000	12	+0.30/+1.50	600	1000
EPB5A-15-0600-1000	15	+0.30/+1.50	600	1000
EPB5A-20-0600-1000	20	+0.30/+1.50	600	1000
EPB5A-25-0600-1000	25	+0.30/+1.50	600	1000
EPB5A-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

EPB5A-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

EPB6耐磨板 Anti-wear plates



- 自润滑、免维护
- 极低摩擦系数
- 耐磨性能优越
- FDA食品安全等级
- 长期使用温度-40/+80℃

- Maintenance-free, self-lubricated
- Low friction coefficient
- Good wear resistant
- FDA grade
- Continuous working temperature: -40/+80℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
EPB6-10-0600-1000	10	+0.20/+2.50	600	1000
EPB6-15-0600-1000	15	+0.20/+2.50	600	1000
EPB6-20-0600-1000	20	+0.30/+2.50	600	1000
EPB6-25-0600-1000	25	+0.30/+2.50	600	1000
EPB6-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

EPB6-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

EPB13耐磨板 Anti-wear plates



- 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
- 连续使用温度: -50/+90℃

- Maintenance-free dry operation
- Small wear off amount against various shaft materials
- Lower friction
- Suitable for soft shaft
- Low water absorption
- Continuous working temperature: -50/+90℃

产品编码 Part No.	厚度 Thickness [mm]	公差 Tolerance [mm]	宽度 Width [mm]	长度 Length L [mm]
EPB13-10-0600-1000	10	+0.20/+2.50	600	1000
EPB13-15-0600-1000	15	+0.20/+2.50	600	1000
EPB13-20-0600-1000	20	+0.30/+2.50	600	1000
EPB13-25-0600-1000	25	+0.30/+2.50	600	1000
EPB13-30-0600-1000	30	+0.50/+2.50	600	1000

产品编码 Part No.:

EPB13-10-0600-1000

长度 Length
宽度 Width
厚度 Thickness
材料 Material

M81BK摩擦带 Tribo-tape made of M81BK



产品特性 Product features

- 连续使用温度: -196/+80℃
- 低摩擦系数
- 可用于水下环境
- 容易切割
- 标准宽度库存
- 宽度从20到100毫米
- Continuous working temperature: -196/+80℃
- Low coefficients of friction
- Available underwater
- Easy to cut
- Standard width from stock
- Individual widths from 20 to 100 mm

标准规格 Standard specifications

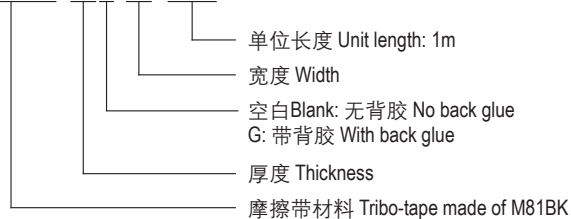
产品编码 Part No.	厚度 Thickness ± 0.015 [mm]	宽度 Width ± 0.2 [mm]	最大长度 Length Lmax. [m]
M81BKT-05-10-1000	0.5	10	30
M81BKT-05-15-1000	0.5	15	30
M81BKT-05-20-1000	0.5	20	30
M81BKT-05-25-1000	0.5	25	30
M81BKT-05-30-1000	0.5	30	30
M81BKT-05-40-1000	0.5	40	30
M81BKT-05-50-1000	0.5	50	30
M81BKT-05-60-1000	0.5	60	30
M81BKT-05-80-1000	0.5	80	30
M81BKT-05-100-1000	0.5	100	30

产品编码 Part No.	*厚度 Thickness ± 0.015 [mm]	宽度 Width ± 0.2 [mm]	最大长度 Length Lmax. [m]
M81BKT-05G-10-1000	0.5	10	30
M81BKT-05G-15-1000	0.5	15	30
M81BKT-05G-20-1000	0.5	20	30
M81BKT-05G-25-1000	0.5	25	30
M81BKT-05G-30-1000	0.5	30	30
M81BKT-05G-40-1000	0.5	40	30
M81BKT-05G-50-1000	0.5	50	30
M81BKT-05G-60-1000	0.5	60	30
M81BKT-05G-80-1000	0.5	80	30
M81BKT-05G-100-1000	0.5	100	30

*未包含背胶层厚度 Excluding adhesive layer thickness: 0.1mm

产品编码 Part No.:

M81BKT-05G-20-1000

*更多尺寸规格请查询网站 Please visit website for more specification: www.csb-ep.com

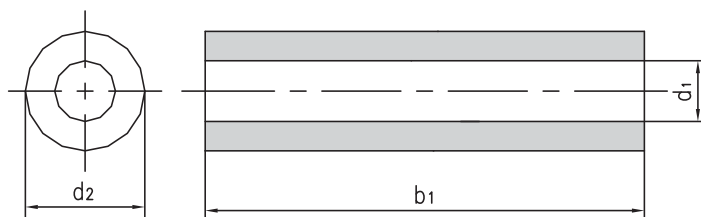
KER转角轴承 Knife edge rollers



产品特性 Product features

- 自润滑、免维护
- 低驱动力
- 抗灰尘、无噪音
- 抗化学腐蚀，可用于液体环境
- 紧凑的偏转半径
- 延长传输带寿命
- 高性价比
- 材料：EPB18
- Self-lubricating, maintenance-free
- Low driving force
- Resistant to dust, no noise
- Resistant to chemical corrosion, available in liquid environment
- Compact deflection radius
- Extend the life of the belt
- Cost-effective
- Materials: EPB18

标准规格 Standard specifications



产品编码 Part No.:

KER18-0309-50

长度 Length
外径 Outer diameter
内径 Inner diameter
材料 Material: EPB18

产品编码 Part No.	d_1 +0.1/0 [mm]	d_2 ± 0.1 [mm]	b_1 0/-0.3 [mm]
KER18-0309-50	3.1	9.0	50
KER18-0409-50	4.1	9.0	50
KER18-0511-70	5.1	11.0	70
KER18-0514-70	5.1	14.0	70
KER18-0612-70	6.1	12.0	70
KER18-0614-70	6.1	14.0	70
KER18-0812-70	8.1	12.0	70
KER18-0814-70	8.1	14.0	70
KER18-0818-70	8.1	18.0	70
KER18-1020-70	10.1	20.0	70



产品特性 Product features

CSB-PRB®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；PRB系列塑料滚动轴承具有良好的自润滑性能和耐腐蚀性能；突出的是比CSB-EPB®系列塑料滑动轴承具有其极高的运行速度，CSB-PRB®塑料轴承弥补了CSB-EPB®塑料轴承不能在高速运动使用的场合。

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

PRB

CSB-PRB®

www.csb-ep.com
sales@csb-ep.com

Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

PRB10 塑料滚动轴承 Plastic ball bearings



PRB10作为通用性更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℃。

PRB10 has good strength and wear resistance as a generic plastic rolling bearings, 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℃.

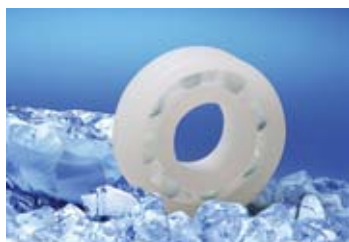
PRB15 塑料滚动轴承 Plastic ball bearings



PRB15塑料滚动轴承材料具有极好的强度和耐磨性能，无论是在潮湿环境还是水下均保持良好的尺寸稳定性能；对有机溶剂以及过氧化氢等具有良好的抗性；标准配置内外圈材料为：改良PETR，保持架材料为：改良PA，滚珠材料为：玻璃或不锈钢（选配）；长期使用温度：-50~+120℃。

PRB15 Plastic Roller Bearings are with excellent strength and wear resistance. The dimensions of the bearings are remaining stable either in the humidity environment or in the water. It has good chemical resistance against the organic solvents or Hydrogen peroxide. The standard material of the inner and outer ring is PETR, the ball cage is PA, and the balls are glass or stainless steel. The working temperature range is -50 ~ +120℃.

PRB20 塑料滚动轴承 Plastic ball bearings



PRB20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 ~ +80℃。

PRB20 series of plastic rolling bearing with low friction and 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: -150 ~ +80℃.

PRB25 塑料滚动轴承 Plastic ball bearings



PRB25塑料滚动轴承材料是经过摩擦优化的耐磨材料，具有较低的摩擦系数；耐疲劳性较好；允许在高速下运转。耐碱、弱酸以及洗涤剂的腐蚀；标准配置内外圈材料为：改良PA，保持架材料为：改良PA，滚珠材料为：玻璃或不锈钢（选配）；长期使用温度：-40~+100℃。

PRB25 Plastic roller bearings material is friction optimized wear resistance material with low friction and good fatigue resistance. It is suitable for the high speed operation. The material is alkali, acid and detergent resistance. The standard material of inner and outer ring is PA, ball cage is PA and the balls are glass or stainless steel. The working temperature range is -40~+100℃.

PRB30 塑料滚动轴承 Plastic ball bearings



PRB30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几乎能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℃。

PRB30 series of plastic rolling bearing has excellent mechanical strength and wear resistance, Max. operation temperature 250℃, 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℃.

PRB40 陶瓷滚动轴承 Ceramic ball bearings



PRB40系列塑料滚动轴承具有耐高低温、高承载以及更好的抗腐蚀性性能；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，滚珠材料为：陶瓷；长期连续使用温度-200~+250℃。

PRB40 series of plastic rolling bearing can work under very high temperature and very 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 well 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℃.

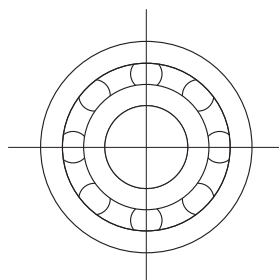
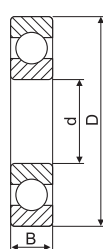
PRTB10 轴向推力轴承 Plastic thrust bearings



PRTB10作为通用性更强的塑料滚动轴承材料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，滚珠材料为：玻璃球或不锈钢（选配）；长期连续使用温度-40~+80℃。

PRTB10 has good strength and wear resistance as a generic plastic rolling bearings, 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, ball material: glass or stainless steel; The long-term operation temperature: -40 ~ +80℃.

PRB 滚动轴承尺寸规格表 Plastic ball bearings specifications



产品编码 Part No.:

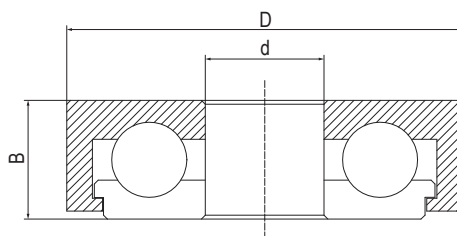
PRB10-6012

产品规格 Specification
轴承材料标准配置
Standard material:
PRB10, PRB15, PRB20,
PRB25, PRB30, PRB40

产品编码 Part No.	d [mm]	D [mm]	B [mm]	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
PRB10-623	3	10	4	25	40	4050
PRB10-624	4	13	5	35	50	3240
PRB10-625	5	16	5	40	55	2745
PRB10-626	6	19	6	40	60	2340
PRB10-607	7	19	6	35	50	2340
PRB10-627	7	22	7	45	65	1980
PRB10-608	8	22	7	45	65	1980
PRB10-609	9	24	7	50	75	1845
PRB10-629	9	26	8	60	85	1710
PRB10-6000	10	26	8	75	110	1710
PRB10-6200	10	30	9	110	140	1485
PRB10-6300	10	35	11	160	235	1260
PRB10-6001	12	28	8	90	135	1575
PRB10-6201	12	32	10	125	180	1395
PRB10-6301	12	37	12	175	260	1170
PRB10-6002	15	32	9	110	160	1395
PRB10-6202	15	35	11	140	210	1260
PRB10-6302	15	42	13	215	310	1080
PRB10-16002	15	32	8	110	160	1350
PRB10-6003	17	35	10	140	200	1260
PRB10-6203	17	40	12	180	265	1125
PRB10-6303	17	47	14	250	375	945
PRB10-16003	17	35	8	135	200	1260
PRB10-6004	20	42	12	165	250	1080
PRB10-6204	20	47	14	225	350	945
PRB10-6304	20	52	15	290	440	855
PRB10-16004	20	42	8	160	240	1035
PRB10-6005	25	47	12	200	300	945
PRB10-6205	25	52	15	265	400	855
PRB10-6305	25	62	17	330	500	655
PRB10-16005	25	47	8	175	260	945
PRB10-6006	30	55	13	235	350	810
PRB10-6206	30	62	16	300	450	720
PRB10-6306	30	72	19	380	580	610
PRB10-16006	30	55	9	200	310	810
PRB10-6007	35	62	14	265	400	720
PRB10-6207	35	72	17	340	515	630
PRB10-6307	35	80	21	405	625	540
PRB10-16007	35	62	9	240	350	720

产品编码 Part No.	d [mm]	D [mm]	B [mm]	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
PRB10-6008	40	68	15	290	430	675
PRB10-6208	40	80	18	365	550	560
PRB10-6308	40	90	23	455	690	468
PRB10-16008	40	68	9	250	375	675
PRB10-6009	45	75	16	315	465	585
PRB10-6209	45	85	19	390	600	522
PRB10-6309	45	100	25	450	750	450
PRB10-16009	45	75	10	275	415	585
PRB10-6010	50	80	16	325	480	540
PRB10-6210	50	90	20	450	640	495
PRB10-6011	55	90	18	335	500	495
PRB10-6211	55	100	21	500	665	450
PRB10-6012	60	95	18	350	530	450
PRB10-6212	60	110	22	525	730	405
PRB10-6013	65	100	18	365	555	430
PRB10-6014	70	110	20	380	590	405

PRTB10 塑料滚动推力轴承 Plastic ball thrust bearings



产品编码 Part No.:

PRTB10-51100

产品规格 Specification

轴承材料标准配置
Standard material: POM

产品编码 Part No.	d [mm]	D [mm]	B [mm]	重量 weight [kg]
PRTB10-51100	10	24	9	0.004
PRTB10-51200	10	26	11	0.005
PRTB10-51101	12	26	9	0.004
PRTB10-51201	12	28	11	0.006
PRTB10-51102	15	28	9	0.004
PRTB10-51202	15	32	12	0.008
PRTB10-51103	17	30	9	0.004
PRTB10-51203	17	35	12	0.009
PRTB10-51104	20	35	10	0.007
PRTB10-51204	20	40	14	0.014
PRTB10-51105	25	42	11	0.010

产品编码 Part No.	d [mm]	D [mm]	B [mm]	重量 weight [kg]
PRTB10-51205	25	47	15	0.020
PRTB10-51106	30	47	11	0.011
PRTB10-51206	30	52	16	0.026
PRTB10-51107	35	52	12	0.014
PRTB10-51207	35	62	18	0.037
PRTB10-51108	40	60	13	0.021
PRTB10-51208	40	68	19	0.049
PRTB10-51109	45	65	14	0.026
PRTB10-51209	45	73	20	0.056
PRTB10-51110	50	70	14	0.028
PRTB10-51210	50	78	22	0.068



产品特性 Product features

- 专门为汽车转向器行业开发的轴承。采用高弹性材料ME650和高耐磨材料EPB7制成的滑动片相结合的设计。彻底解决了弹性阻力耐久性和耐磨性无法兼顾的困境
- 高弹性与稳定滑动阻力
- 出色的耐磨性
- 开口设计安装简易
- The bearing specially designed for the automotive steering system. The designation is with the advantages of combining high elastic material ME650 and high wear resistance material EPB7. This perfect design provides the solution of ensuring both elastic resistance duration and wear resistance could be both guaranteed
- High elastic feature and stable sliding resistance
- Outstanding wearing resistance
- Assembly cutout designation for easily installation

结构设计 Structure design

CSB-RPM5支撑套采用弹性材料与耐磨材料的结合设计。支撑套圆周120度分布有开口缝使得安装过程变得非常简易；端部三个凸台限制了支撑套使用过程中轴向移动；滑动片上设计了储油穴在初始装配时可涂抹油脂提高滑动片的耐磨性能。

CSB-RPM5 Steering Rack Bearing is made from the combination of elastic material and wear resistance material. The individually designed slot in 120 degrees around the diameter provides easy assembly of the bearings. The 3 pilot blocks near the surface end of the bearing hold the bearing from the axial movement during the operation. The oil deposits in the bearing layer hold the lubricants during the initial assembly for a better lubricating feature and provide good wear resistance of the bearing.

材料设计 Material design

主体部分采用了弹性以及抗疲劳性优良的弹性材料ME650，确保了滑动阻力的长久稳定性能；内径支撑滑动片采用了CSB塑料轴承材料中的耐磨专家EPB7，从而确保了支撑套不会因为内径快速磨损而降低了弹性。

The main material of the bearing is the elastic and fatigue resistance polymer ME650 which provide long lasting stable sliding resistance of the bearing. The bearing layer of the ID is made of EPB7 material which prevents the loss of elastic feature due to the quick wear of the bearing ID.

安装设计 Assembly design

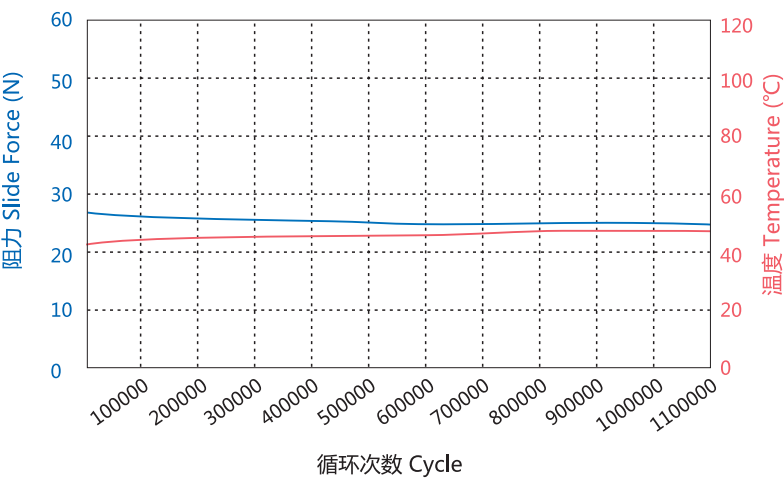
CSB-RPM5轴承采用直接压装配合，外径留有盈尺寸确保轴承在运动过程中在没有额外限位的情况下也不会从座孔中脱落。推荐使用油脂：CALTEX Multifak EP2 或 ONELUBER MO NO.2。

CSB-RPM5 Bearing is designed for direct press fit installation. The interference of OD ensures the bearing to be tightly seated in the housing without clapping installed.

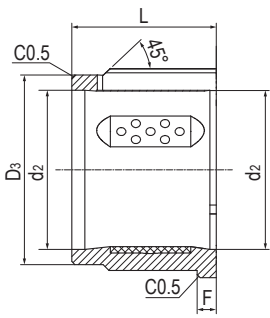
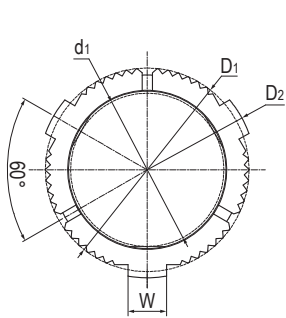
Recommended grease: CALTEX Multifak EP2 or ONELUBER MO NO.2 .

RPM5耐久测试 Endurance test for RPM5

产品规格Specification: RPM5-24
环境Environment: 20 ~ 25℃; RH50-70%
齿条轴Shaft: $\Phi 24_{-0.005}^0$ mm; Ra0.4
壳体Housing: $\Phi 31.49_{+0.005}^0$ mm
润滑Lubricant: CALTEX Multifak EP2
载荷Load: 100N
线速度Speed: 0.3m/s
行程Stroke: 120mm
循环次数Cycle: 1080000



标准规格 Standard specifications

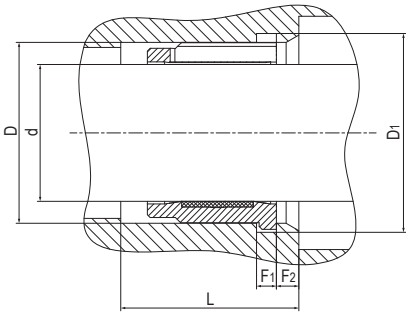


产品编码 Part No.:
RPM5-22
内径 Inner diameter
型号 Type

产品编码 Part No.	d ₁ [mm]	D ₁ [mm]	D ₂ [mm]	W [mm]	d ₂ [mm]	D ₃ [mm]	L [mm]	F [mm]	滑动阻力 N Slide Force
RPM5-22	22	29.9	31.6	6	23.55	27.5	22.5	3	10 ~ 30
RPM5-24	24	31.9	33.6	6	25.55	29.5	22.5	3	10 ~ 57
RPM5-25	25	32.9	34.6	6	26.55	30.5	22.5	3	10 ~ 57
RPM5-26	26	33.9	35.6	6	27.55	31.5	22.5	3	10 ~ 57

安装尺寸 Installation size

产品编码 Part No.	d [mm]	D ₁ [mm]	D [mm]	F ₁ [mm]	F ₂ [mm]	L [mm]
RPM5-22	22 _{-0.052} ⁰	33	29.6 _{-0.13} ^{-0.09}	3.7	4	30
RPM5-24	24 _{-0.052} ⁰	35	31.6 _{-0.13} ^{-0.09}	3.7	4	30
RPM5-25	25 _{-0.052} ⁰	36	32.6 _{-0.13} ^{-0.09}	3.7	4	30
RPM5-26	26 _{-0.052} ⁰	37	33.6 _{-0.13} ^{-0.09}	3.7	4	30





滚动轴承回转链 Rolling bearing rotary chains

扶梯回转链一般都是采用滚动轴承设计，扶手带与导轨摩擦产生大量的磨屑和灰尘，这些磨屑和灰尘对滚动轴承的正常工作和寿命造成了严重影响，室外运行滚动轴承还带来因生锈失效的问题，滚动轴承工作一段时间后容易出现噪音加大甚至卡死现象，容易导致扶手带磨损加剧损坏，扶梯运行系统负载增加，影响了电机使用寿命。



The design of the escalator rotary chain is usually with rolling bearings. There are a lot of containment and dust generated between the chain belt and the guide rail during the operation, therefore it induces damages to the rolling bearing and reduces the service life of the bearing and affects the performance of the bearing. Furthermore, outdoor operation of the escalator may cause corrosions to the rolling bearings. Under the above conditions, the rolling bearing in the chain is easy to cause failure of the operation of the chain. It may damage the chain system or consequently damage the driving motor in the escalator system.

CSB-PEC®自润滑回转链 Self-lubricated rotary chains

CSB-PEC®自润滑回转链关键转动部位采用了自润滑塑料轴承设计，自润滑塑料轴承由EPB15材料制成解决了轴承需要加油维护的问题，而且EPB15材料对灰尘有极好的抵抗能力，采用此材料制成的自润滑轴承能在环境非常恶劣的情况下长期正常工作；CSB-PEC®新型回转链长期平稳低噪音运行成功解决了滚动轴承回转链长期存在的噪音和滚动轴承容易卡死的缺陷；CSB-PEC®回转链上的金属部件均采用了特殊的表面处理技术可以确保在户外长期平稳运行。

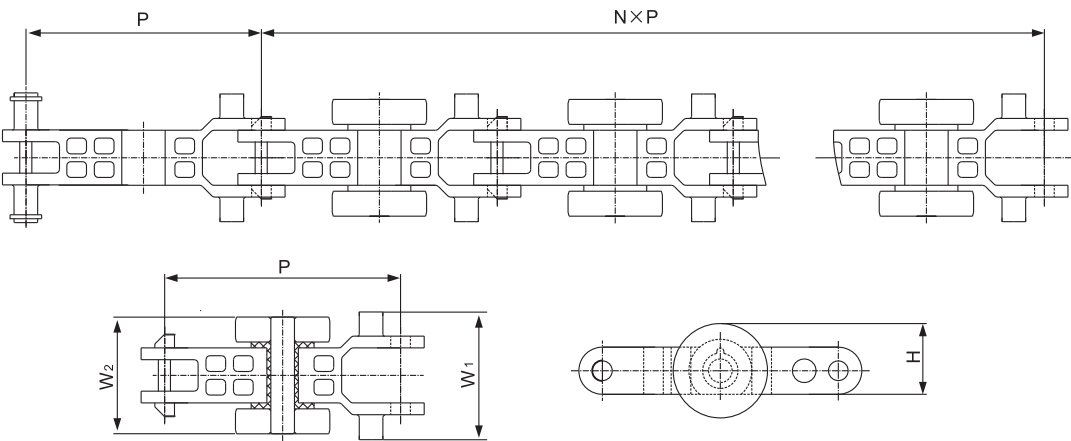


The rotation parts of CSB-PEC® series rotary chain are with self-lubricated plastic bearings, the material CSB-EPB15 used in the plastic bearings provides maintenance free feature of the chain system and with the anti-dust and anti-corrosion feature of the bearing material, the chain system could be free to operate under critical conditions. The long term stable operation with low noise design of CSB-PEC® chain prevent the chain system from stuck and operation failure comparing with the traditional rolling bearing design. The metal parts of the CSB-PEC® chain are specially treated for the long term outdoor operation.

CSB-PEC®链条技术数据表 Technical data table

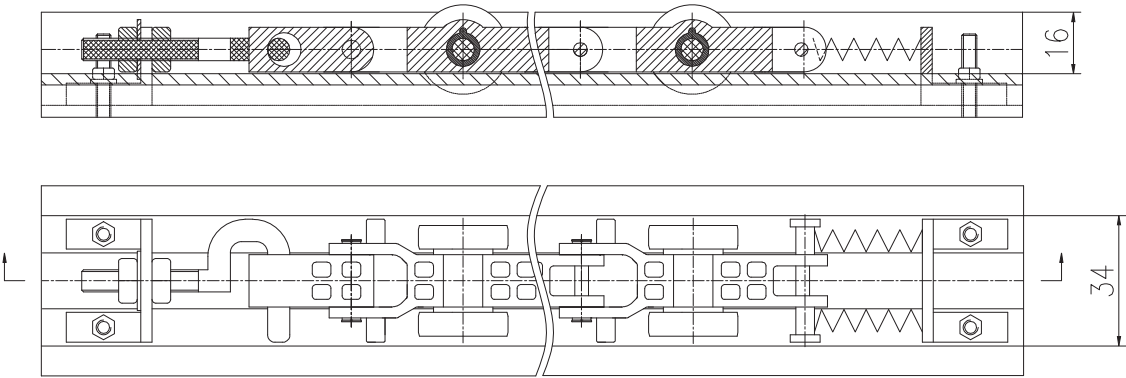
产品编码 Part No.	最高PV值 Max. PV value	极限压力 Max. load [N/P]	使用温度 Temperature [°C]	极限线速度 Max. speed [m/s]	摩擦系数 Friction coefficient.	拉断力 Break strength [N]
PEC03	0.9	4320	-40~100	1.0	0.05-0.20	≥1000

CSB-PEC®链条型号规格 Standard specifications



产品编码 Part No.	P [mm]	W ₁ [mm]	公差 Tolerance [mm]	W ₂ [mm]	公差 Tolerance [mm]	H [mm]	C [mm]	N [pcs]
PEC03-N	60	33.5	± 0.15	30	+0.30/0.00	18	48	节数quantity

CSB-PEC®链条标准安装方式 Standard installation method



产品编码 Part No.:
PEC03-17
 └─ 节数 N=17 Unit quantity
 └─ 03:结构系列 Structure NO.



材料结构 Material structure

CSB-FWB®材料以高强度玻璃纤维增强高温环氧树脂作为承载层，以特种纤维和PTFE纤维作为滑动层，使得轴承在高载低速工况条件下具有优良的耐磨性和很低的摩擦系数，甚至可以在长时间不加油的情况下仍能发挥良好的自润滑特性和很高的轴承比压。由此我们开发了可以适合不同工况下的多种自润材料。

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

典型特征 Typical features

- 极高的动承载能力，最高140Mpa;
- 优秀的耐磨性能;
- 极低的摩擦系数，摩擦系数<0.12;
- 长期干运行，不推荐加油。
- Very high load capacity, Max. 140Mpa;
- Very good chemical resistance;
- Lower friction and good wear properties. Friction coefficient<0.12;
- Long time dry operation without oil.

技术数据表 Technical data table

材料性能 Material properties	标准 Standard	单位 Unit	 CRM	 CRB	 CRG	 CRP	 CRW	 CRF
基本类型 Basic type			通用型 Universal	标准型 Standard	高载型 High load	高速型 High speed	水下型 Under water	多用型 Multi-role
密度 Density	ISO1183	g/cm ³	1.95	1.95	1.95	1.95	1.95	1.30
最大吸水率 Max. water absorption	ISO62	%	0.1	0.1	0.1	0.1	0.1	0.5
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.8	1.8	2.0	1.6	1.8	1.2
摩擦系数 Coefficient of friction	ITS025	μ	0.05~0.15	0.03~0.12	0.03~0.12	0.02~0.12	0.02 ~ 0.10	0.08~0.30
连续运行温度 Long-term application temperature	ITS029	℃	+160	+160	+160	+160	+100	+130
短时运行温度 Short-term application temperature	ITS029	℃	+180	+180	+180	+180	+160	+160
最低运行温度 Lowest application temperature	ITS029	℃	-100	-100	-100	-100	-100	-40
最高速度 Max. Speed	ITS032	m/s	0.20	0.20	0.20	0.40	0.40	0.13
抗压强度 Compressive strength	ITS033	MPa	420	420	420	420	420	300
最大静载荷 Max. static load	ITS027	MPa	240	240	240	240	240	150
最大动载荷 Max. dynamic load	ITS028	MPa	120	140	160	30	120	45
邵氏硬度 Shore hardness	ISO868	D	95	95	95	95	95	90
线性热膨胀系数(25 ~ 150℃) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13	13	13	13	13	40

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

轴承摩擦系数 Friction coefficient

缠绕轴承的摩擦系数为0.03 ~ 0.12，影响摩擦系数的主要因素有承载、运动方式、速度以及相配轴的表面粗糙度等。

图1显示了缠绕轴承在PV旋转载荷下的摩擦系数随着载荷的升高而降低。

Friction Coefficient of filament Bearing is 0.03 ~ 0.12. The main factors affect the Friction Coefficient are Load, Moving method, Speed and Roughness of mating surfaces. Graph 1 shows the friction coefficient is going down while load is increasing under the rotation method.

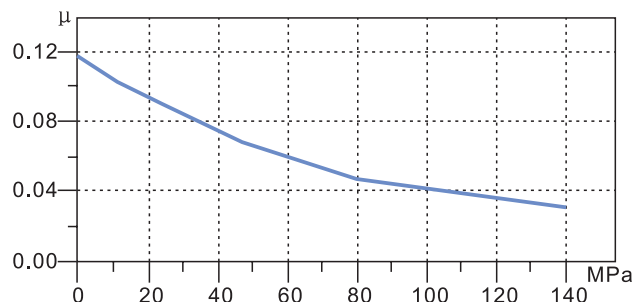


图1: 纤维缠绕轴承的载荷与摩擦系数曲线
Graph 1: Load vs Friction Coefficient

轴承规格: CRB-6070-50	Specification: CRB-6070-50
轴: 45# HRC50, Ra=0.4	Shaft: 45# HRC50, Ra=0.4
轴承载荷: 20~140MPa	Load: 20~140MPa
速度: 1.0m/min	Speed: 1.0m/min
润滑: 干	Lubricate: Dry

轴承的磨损 The anti-wear property

轴承磨损的影响因素有承载、运动方式、速度以及相配轴的表面粗糙度等；图2说明了缠绕轴承在50MPa载荷、室温的条件下摇摆运动中的磨损情况。根据图表我们可以看出在最初的时间内轴承磨损很快，在这段时间内，内衬中的润滑物质逐渐向相配轴上转移并均匀分布在运动方向上，从而形成光滑的摩擦表面，之后保持很长时间的稳定不磨损阶段。

The main factors affect the anti-wear property are the load, moving method, speed and roughness of mating surfaces. Graph 2 shows the bearing wear off under room temperature with the load of 50MPa when the bearing is swinging. It is found the wear off increases sharply during the initial running-in while the lubricant is transferred from the inner liner and a smooth surface is created there of to form the lubricating surface. After running-in period, it will maintain stable without wear off.

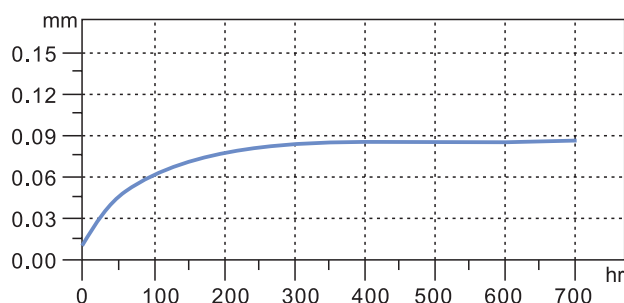
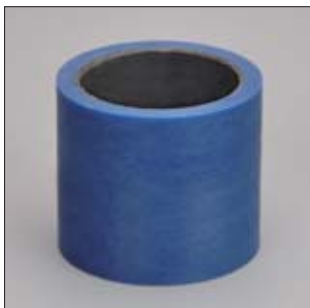


图2: 纤维缠绕轴承工作时间与磨损量的曲线
Graph 2: Duration vs Wear off amount

轴承规格: CRB-4050-30	Specification: CRB-4050-30
轴: 45# HRC50, Ra=0.4	Shaft: 45# HRC50, Ra=0.4
轴承载荷: 50MPa	Load: 50MPa
速度: 1.0m/min, ± 45°	Speed: 1.0m/min, ± 45°
润滑: 干	Lubrication: Dry

CRM 通用型缠绕轴承 Universal type bearings



■ 轴承材料结构

内衬：以PTFE纤维与高强度纤维填充内部润滑剂与高温环氧树脂作为滑动层；
衬背：以高强度玻璃纤维增强高温环氧树脂作为承载层。

■ Material structure

Sliding layer: Continuous wound PTFE and high-strength fibers encapsulated in an internally lubricated, high temperature filled epoxy resin.

Backing: Continuous wound glass fiber encapsulated in a high temperature epoxy resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRM
密度 Density	ISO1183	g/cm ³	1.95
最大吸水率 Max. water absorption	ISO62	%	0.1
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.8
摩擦系数 Coefficient of friction	ITS025	μ	0.05~0.15
连续运行温度 Long-term application temperature	ITS029	°C	+160
短时运行温度 Short-term application temperature	ITS029	°C	+180
最低运行温度 Lowest application temperature	ITS029	°C	-100
最高速度 Max. Speed	ITS032	m/s	0.2
抗压强度 Compressive strength	ITS033	MPa	420
最大静载荷 Max. static load	ITS027	MPa	240
最大动载荷 Max. dynamic load	ITS028	MPa	120
邵氏硬度 Shore hardness	ISO868	D	95
线性热膨胀系数(25 ~ 150 °C) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

典型特征 Typical features

很好的耐磨性能
高承载能力
优良的耐污性能
较好的化学抗性



Very good friction and wear properties
High load capacity
Excellent contamination resistance
Good chemical resistance

典型应用 Typical applications

升降作业机械
油缸耳环轴套
物流机械
包装机械

Boom lifts, Scissor lifts
Hydraulic cylinder pivots
Handling machinery
Packager machinery

CRB 标准型缠绕轴承 Standard type bearings



■ 轴承材料结构

内衬：以PTFE纤维与高强度纤维填充内部润滑剂与高温环氧树脂作为滑动层；
衬背：以高强度玻璃纤维增强高温环氧树脂作为承载层。

■ Material structure

Sliding layer: Continuous wound PTFE and high-strength fibers encapsulated in an internally lubricated, high temperature filled epoxy resin.
Backing: Continuous wound glass fiber encapsulated in a high temperature epoxy resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRB
密度 Density	ISO1183	g/cm ³	1.95
最大吸水率Max. water absorption	ISO62	%	0.1
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.8
摩擦系数 Coefficient of friction	ITS025	μ	0.03~0.12
连续运行温度 Long-term application temperature	ITS029	℃	+160
短时运行温度 Short-term application temperature	ITS029	℃	+180
最低运行温度 Lowest application temperature	ITS029	℃	-100
最高速度 Max. Speed	ITS032	m/s	0.2
抗压强度 Compressive strength	ITS033	MPa	420
最大静载荷 Max. static load	ITS027	MPa	240
最大动载荷 Max. dynamic load	ITS028	MPa	140
邵氏硬度 Shore hardness	ISO868	D	95
线性热膨胀系数(25 ~ 150℃) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13

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**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

典型特征 Typical features

高承载能力
极好的耐磨特性
耐腐蚀能力强
低摩擦系数
不推荐加油



High load capacity
Excellent wear resistance
Very good chemical resistance
Lower friction coefficient
Oil forbidden

典型应用 Typical applications

油缸耳轴套
升降机械
起重机械、物料机械
建筑机械
港口机械
包装机械

Hydraulic cylinder pivots
Construction machinery arm bushes
Boom lifts, scissor lifts
Cranes, material handling equipment
Port machinery
Package machine

CRG 高承载型缠绕轴承 High load type bearings



■ 轴承材料结构

内衬：以PTFE纤维与高强度纤维填充内部润滑剂与高温高强环氧树脂作为滑动层；

衬背：以高强度玻璃纤维增强高温高强环氧树脂作为承载层。

■ Material structure

Sliding layer: Continuous wound PTFE and high-strength fibers encapsulated in an internally lubricated, high-temperature and high-strength filled epoxy resin.

Backing: Continuous wound glass fiber encapsulated in a high-temperature and high-strength epoxy resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRG
密度 Density	ISO1183	g/cm ³	1.95
最大吸水率 Max. water absorption	ISO62	%	0.1
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	2
摩擦系数 Coefficient of friction	ITS025	μ	0.03~0.12
连续运行温度 Long-term application temperature	ITS029	°C	+160
短时运行温度 Short-term application temperature	ITS029	°C	+180
最低运行温度 Lowest application temperature	ITS029	°C	-100
最高速度 Max. Speed	ITS032	m/s	0.2
抗压强度 Compressive strength	ITS033	MPa	420
最大静载荷 Max. static load	ITS027	MPa	240
最大动载荷 Max. dynamic load	ITS028	MPa	160
邵氏硬度 Shore hardness	ISO868	D	95
线性热膨胀系数(25 ~ 150 °C) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

典型特征 Typical features

极高的动承载能力
极好的耐磨特性
较强的耐腐蚀能力
低摩擦系数
不推荐加油



Very high load capacity
Excellent wear resistance
Very good chemical resistance
Low friction coefficient
Oil forbidden

典型应用 Typical applications

油缸耳轴套
建筑机械曲肘轴套
升降机械
起重机械、物料机械
港口机械
包装机械

Hydraulic cylinder pivots
Construction machinery arm bushes
Boom lifts, scissor lifts
Cranes, material handling equipment
Port machinery
Package machine

CRP 高速型缠绕轴承 High speed type bearings



■ 轴承材料结构

内衬：以纤维填充PTFE耐磨带作为滑动层；
衬背：以高强度玻璃纤维增强高温环氧树脂作为承载层。

■ Material structure

Sliding layer: Fibers and PTFE compound tape as internally lubricating layer.
Backing: Continuous wound glass fiber encapsulated in a high temperature epoxy resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRP
密度 Density	ISO1183	g/cm ³	1.95
最大吸水率Max. water absorption	ISO62	%	0.1
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.6
摩擦系数 Coefficient of friction	ITS025	μ	0.02~0.12
连续运行温度 Long-term application temperature	ITS029	℃	+160
短时运行温度 Short-term application temperature	ITS029	℃	+180
最低运行温度 Lowest application temperature	ITS029	℃	-100
最高速度 Max. Speed	ITS032	m/s	0.4
抗压强度 Compressive strength	ITS033	MPa	420
最大静载荷 Max. static load	ITS027	MPa	240
最大动载荷 Max. dynamic load	ITS028	MPa	30
邵氏硬度 Shore hardness	ISO868	D	95
线性热膨胀系数(25 ~ 150℃) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13

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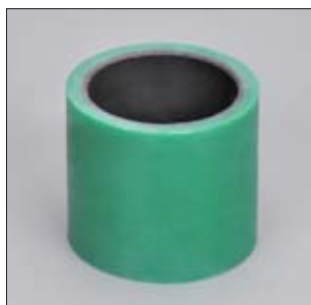
典型特征 Typical features

较低的摩擦系数	Low friction coefficient
较高的运动速度	High motion speed
特别适用于往复运动	Suitable for linear motion
内孔可机加工	Inside bore machineable
允许加油	Oil allowed

典型应用 Typical applications

球阀、蝶阀轴套	Ball and butterfly trunnion bearing
气泵轴套	Air pump guide bushes
伺服电机	Servo-motor bearings
塑胶机械格林柱导套	Water dam bearings
水利机械轴套	Tie-bar guide bearing
油压机械导套	Hydraulic pressure machinery

CRW 水下型缠绕轴承 Water-lub type bearings



■ 轴承材料结构

内衬：以PTFE纤维与高强度纤维填充内部水下润滑剂与高温环氧树脂作为滑动层；

衬背：以高强度玻璃纤维增强高温环氧树脂作为承载层。

■ Material structure

Sliding layer: Continuous wound PTFE and high-strength fibers encapsulated in an internally water lubricated, high temperature filled epoxy resin.

Backing: Continuous wound glass fiber encapsulated in a high temperature epoxy resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRW
密度 Density	ISO1183	g/cm ³	1.95
最大吸水率 Max. water absorption	ISO62	%	0.1
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.8
摩擦系数 Coefficient of friction	ITS025	μ	0.02 ~ 0.10
连续运行温度 Long-term application temperature	ITS029	°C	+100
短时运行温度 Short-term application temperature	ITS029	°C	+160
最低运行温度 Lowest application temperature	ITS029	°C	-100
最高速度 Max. Speed	ITS032	m/s	0.4
抗压强度 Compressive strength	ITS033	MPa	420
最大静载荷 Max. static load	ITS027	MPa	240
最大动载荷 Max. dynamic load	ITS028	MPa	120
邵氏硬度 Shore hardness	ISO868	D	95
线性热膨胀系数(25 ~ 150℃) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	13

*ITS: CSB内部测试标准 CSB company's internal test standards.

**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

典型特征 Typical features

极好的水下耐磨性能
高承载能力
优良的耐污性能
较好的化学抗性
非常低的摩擦系数

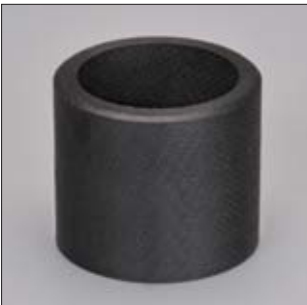
Excellent anti-wear property under water
High load capacity
Excellent dirty resistance
Good chemical resistance
Very lowest friction coefficient

典型应用 Typical applications

船舶机械
港口机械
水电闸门
清洗设备

Marine machinery
Port machinery
Water gate machinery
Cleaning equipment

CRF 多用型缠绕轴承 Multi-role type bearings



■ 轴承材料结构

CRF轴承是采用特种高强树脂和高强度纤维织物浸渍缠绕而成，并填充专用内部耐磨剂。

■ Material structure

Materials: Continuous wound high-strength fiber textile encapsulated in a special internally lubricated, high-strength filled resin.

轴承技术数据 Technical data

材料性能 Material properties	标准 Standard	单位 Unit	CRF
密度 Density	ISO1183	g/cm ³	1.3
最大吸水率Max. water absorption	ISO62	%	0.5
极限PV值 Max. PV (dry)	ITS026	N/mm ² × m/s	1.2
摩擦系数 Coefficient of friction	ITS025	μ	0.08~0.30
连续运行温度 Long-term application temperature	ITS029	℃	+130
短时运行温度 Short-term application temperature	ITS029	℃	+160
最低运行温度 Lowest application temperature	ITS029	℃	-40
最高速度 Max. Speed	ITS032	m/s	0.13
抗压强度 Compressive strength	ITS033	MPa	300
最大静载荷 Max. static load	ITS027	MPa	150
最大动载荷 Max. dynamic load	ITS028	MPa	45
邵氏硬度 Shore hardness	ISO868	D	90
线性热膨胀系数(25 ~ 150℃) Linear coef. of thermal Expansion	ISO11359	10 ⁻⁶ × K ⁻¹	40

*ITS: CSB内部测试标准 CSB company's internal test standards.
**除非特殊说明测试温度为23℃ Test temperatures are 23℃ unless otherwise stated.

典型特征 Typical features

- 特别适用于油和水润滑应用
极好流体润滑耐磨性
内外径可机加工
允许加油
- Suitable for oil and water lubricating applications
Excellent wear resistance in liquids
Completely machinable
Oil allowed

典型应用 Typical applications

- 水力机械轴套
拉杆轴套
包装机械
气泵轴套
伺服电机
- Hydraulic machinery bearing
Tie-bar bearing
Package machine
Air pump guide bushes
Servo-motor bearings

CSB-FWB® 纤维缠绕轴承化学抗性表 Chemical resistance table

化学名 Chem	CRM	CRB	CRG	CRP	CRW	CRF
醋酸10% Acetic 10%	●	●	●	●	●	●
砷10% Arsenic 10%	●	●	●	●	●	●
硼酸10% Boric 10%	●	●	●	●	●	●
碳10% Carbonic 10%	●	●	●	●	●	●
柠檬酸10% Citric 10%	●	●	●	●	●	●
盐酸10% Hydrochloric 10%	●	●	●	●	●	●
水电氟10% Hydro-fluoric 10%	●	●	●	●	●	●
硝酸10% Nitric 10%	●	●	●	●	●	●
硫酸10% Sulfuric 10%	●	●	●	●	●	●
铝10% Aluminum 10%	●	●	●	●	●	●
钙10% Calcium 10%	●	●	●	●	●	●
镁10% Magnesium 10%	●	●	●	●	●	●
氢氧化钾10% Potassium Hydroxide 10%	●	●	●	●	●	●
氢氧化钠10% Sodium Hydroxide 10%	●	●	●	●	●	●
三氯化铝 Aluminum Chloride	●	●	●	●	●	●
硝酸铝 Aluminum Nitrate	●	●	●	●	●	●
硫酸铝 Aluminum Sulfate	●	●	●	●	●	●
氯化钙 Calcium Chloride	●	●	●	●	●	●
三氯化铁 Ferric Chloride	●	●	●	●	●	●
碳酸镁 Magnesium Carbonate	●	●	●	●	●	●
氯化镁 Magnesium Chloride	●	●	●	●	●	●
硫酸镁 Magnesium Sulfate	●	●	●	●	●	●
醋酸钠 Sodium Acetate	●	●	●	●	●	●
碳酸氢钠 Sodium Bicarbonate	●	●	●	●	●	●
硫酸氢钠 Sodium Bisulfate	●	●	●	●	●	●
氯化钠 Sodium Chloride	●	●	●	●	●	●
硝酸钠 Sodium Nitrate	●	●	●	●	●	●
硫酸锌 Zinc Sulfate	●	●	●	●	●	●
丙酮醇 Acetol	●	●	●	●	●	●
烯丙基 Allyl	●	●	●	●	●	●
丁基 Butyl	●	●	●	●	●	●
甲酸乙酯 Ethyl	●	●	●	●	●	●
异丁基 Iso Butyl	●	●	●	●	●	●
异丙基 Iso Propyl	●	●	●	●	●	●
甲基 Methyl	●	●	●	●	●	●
丙烷基 Propyl	●	●	●	●	●	●
丙酮 Acetone	●	●	●	●	●	●
苯 Benzene	●	●	●	●	●	●

化学名 Chem	CRM	CRB	CRG	CRP	CRW	CRF
四氯化碳 Carbon Tetrachloride	●	●	●	●	●	●
二氯甲烷 Methylene Chloride	●	●	●	●	●	●
甲乙酮 Methyl Ethyl Ketone	●	●	●	●	●	●
石脑油 Naphtha	●	●	●	●	●	●
甲苯 Toluol	●	●	●	●	●	●
三氯乙烷 Trichlorethane	●	●	●	●	●	●
棉籽 Cottonseed	●	●	●	●	●	●
原油 Crude Oil	●	●	●	●	●	●
液压油 Hydraulic Fluids	●	●	●	●	●	●
亚麻籽油 Linseed Oil	●	●	●	●	●	●
机油 Motor Oil	●	●	●	●	●	●
变速箱油 Transmission Fluids	●	●	●	●	●	●
柴油 Diesel	●	●	●	●	●	●
汽油 Gasoline	●	●	●	●	●	●
喷气燃料 Jet Fuel	●	●	●	●	●	●
煤油 Kerosene	●	●	●	●	●	●
乙炔溴 Acetylene Bromine	●	●	●	●	●	●
丁烷 Butane	●	●	●	●	●	●
二氧化碳 Carbon Dioxide	●	●	●	●	●	●
氯 Chlorine	●	●	●	●	●	●
醚 Ethers	●	●	●	●	●	●
氟 Fluorine	●	●	●	●	●	●
氢 Hydrogen	●	●	●	●	●	●
天然气 Natural Gas	●	●	●	●	●	●
氮 Nitrogen	●	●	●	●	●	●
臭氧 Ozone	●	●	●	●	●	●
丙烷 Propane	●	●	●	●	●	●
二氧化硫 Sulfur Dioxide	●	●	●	●	●	●
无水氨 Anhydrous Ammonia	●	●	●	●	●	●
洗涤剂 Detergents	●	●	●	●	●	●
乙二醇 Ethylene Glycol	●	●	●	●	●	●
甲醛 Formaldehyde	●	●	●	●	●	●
氟利昂 Freon	●	●	●	●	●	●
过氧化氢 Hydrogen Peroxide	●	●	●	●	●	●
石灰 Lime	●	●	●	●	●	●
水 Water	●	●	●	●	●	●

● 完全抵抗 Resistant
● 无抵抗 Not Resistant

CSB-FWB® 纤维缠绕轴承尺寸表(壁厚2.5mm) Standard specifications (wall 2.5mm)

■ 可供规格 Specifications:

产品编码 Part No.:

CRB-20 25-30

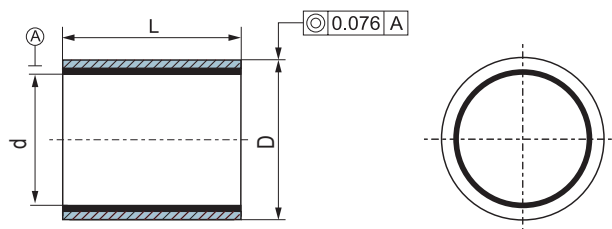
长度 Length

外径 Outer diameter

内径 Inner diameter

材料 Materials:

CRM, CRB, CRG, CRP, CRW, CRF



长度公差表 Length tolerance table		L		
		≤75 mm	> 75 to < 150 mm	≥150 mm
d	≤75 mm	-0.50 mm	-1.00 mm	-1.50 mm
	> 75 to ≤120 mm	-1.00 mm	-1.00 mm	-1.50 mm
	> 120 to ≤150 mm	-1.00 mm	-1.50 mm	-1.50 mm

产品编码 Part No.	轴承尺寸 Bearing Size		推荐尺寸 Recommend		装配间隙 Assembly Interference	标准长度 Standard Length L
	内径 d	外径 D	轴 Shaft D _s h7	孔 Housing H7 D _h		
CRB-2025-L	20 ^{+0.196} _{+0.116}	25 ^{+0.096} _{+0.046}	20 ⁰ _{-0.021}	25 ^{+0.021} ₀	0.025-0.096	15、20、30
CRB-2227-L	22 ^{+0.196} _{+0.116}	27 ^{+0.096} _{+0.046}	22 ⁰ _{-0.021}	27 ^{+0.021} ₀	0.025-0.096	15、20、30
CRB-2530-L	25 ^{+0.196} _{+0.116}	30 ^{+0.096} _{+0.046}	25 ⁰ _{-0.021}	30 ^{+0.021} ₀	0.025-0.096	20、30、40
CRB-2833-L	28 ^{+0.200} _{+0.120}	33 ^{+0.100} _{+0.050}	28 ⁰ _{-0.021}	33 ^{+0.025} ₀	0.025-0.100	20、30、40
CRB-3035-L	30 ^{+0.200} _{+0.120}	35 ^{+0.100} _{+0.050}	30 ⁰ _{-0.021}	35 ^{+0.025} ₀	0.025-0.100	20、30、40
CRB-3540-L	35 ^{+0.200} _{+0.120}	40 ^{+0.100} _{+0.050}	35 ⁰ _{-0.025}	40 ^{+0.025} ₀	0.025-0.100	30、40、50
CRB-4045-L	40 ^{+0.200} _{+0.120}	45 ^{+0.100} _{+0.050}	40 ⁰ _{-0.025}	45 ^{+0.025} ₀	0.025-0.100	30、40、60
CRB-4550-L	45 ^{+0.230} _{+0.130}	50 ^{+0.105} _{+0.055}	45 ⁰ _{-0.025}	50 ^{+0.025} ₀	0.025-0.105	30、40、60
CRB-5055-L	50 ^{+0.230} _{+0.130}	55 ^{+0.105} _{+0.055}	50 ⁰ _{-0.025}	55 ^{+0.030} ₀	0.025-0.105	40、50、60
CRB-5560-L	55 ^{+0.245} _{+0.145}	60 ^{+0.120} _{+0.070}	55 ⁰ _{-0.030}	60 ^{+0.030} ₀	0.040-0.120	40、55、70
CRB-6065-L	60 ^{+0.245} _{+0.145}	65 ^{+0.120} _{+0.070}	60 ⁰ _{-0.030}	65 ^{+0.030} ₀	0.040-0.120	40、60、80
CRB-6570-L	65 ^{+0.245} _{+0.145}	70 ^{+0.120} _{+0.070}	65 ⁰ _{-0.030}	70 ^{+0.030} ₀	0.040-0.120	50、60、80
CRB-7075-L	70 ^{+0.245} _{+0.145}	75 ^{+0.120} _{+0.070}	70 ⁰ _{-0.030}	75 ^{+0.030} ₀	0.040-0.120	50、70、90
CRB-7580-L	75 ^{+0.275} _{+0.175}	80 ^{+0.120} _{+0.070}	75 ⁰ _{-0.030}	80 ^{+0.030} ₀	0.040-0.125	50、70、90
CRB-8085-L	80 ^{+0.275} _{+0.175}	85 ^{+0.125} _{+0.075}	80 ⁰ _{-0.030}	85 ^{+0.035} ₀	0.040-0.125	60、80、100
CRB-8590-L	85 ^{+0.275} _{+0.175}	90 ^{+0.125} _{+0.075}	85 ⁰ _{-0.035}	90 ^{+0.035} ₀	0.040-0.125	60、80、100
CRB-9095-L	90 ^{+0.275} _{+0.175}	95 ^{+0.125} _{+0.075}	90 ⁰ _{-0.035}	95 ^{+0.035} ₀	0.050-0.135	60、80、120
CRB-95100-L	95 ^{+0.310} _{+0.185}	100 ^{+0.125} _{+0.075}	95 ⁰ _{-0.035}	100 ^{+0.035} ₀	0.050-0.135	60、80、120
CRB-100105-L	100 ^{+0.310} _{+0.185}	105 ^{+0.125} _{+0.075}	100 ⁰ _{-0.035}	105 ^{+0.035} ₀	0.050-0.135	80、100、120
CRB-110115-L	110 ^{+0.315} _{+0.190}	115 ^{+0.135} _{+0.085}	110 ⁰ _{-0.035}	115 ^{+0.035} ₀	0.050-0.140	80、100、120
CRB-120125-L	120 ^{+0.340} _{+0.215}	125 ^{+0.135} _{+0.085}	120 ⁰ _{-0.035}	125 ^{+0.040} ₀	0.050-0.165	100、120、150
CRB-130135-L	130 ^{+0.340} _{+0.215}	135 ^{+0.165} _{+0.090}	130 ⁰ _{-0.040}	135 ^{+0.040} ₀	0.050-0.165	100、120、150
CRB-140145-L	140 ^{+0.340} _{+0.215}	145 ^{+0.165} _{+0.090}	140 ⁰ _{-0.040}	145 ^{+0.040} ₀	0.050-0.165	100、150、180
CRB-150155-L	150 ^{+0.340} _{+0.215}	155 ^{+0.165} _{+0.090}	150 ⁰ _{-0.040}	155 ^{+0.040} ₀	0.050-0.165	120、150、180

CSB-FWB® 纤维缠绕轴承尺寸表(壁厚5mm) Standard specifications (wall 5mm)

■ 可供规格 Specifications:

产品编码 Part No.:

CRB-20 30-30

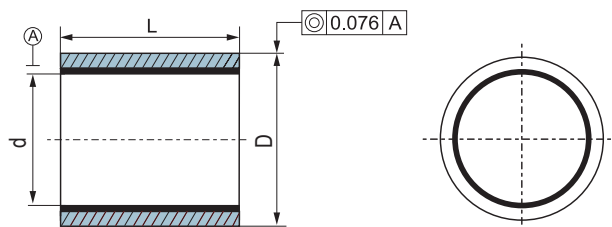
长度 Length

外径 Outer diameter

内径 Inner diameter

材料 Materials:

CRM, CRB, CRG, CRP, CRW, CRF



长度公差表 Length tolerance table		L		
		≤75 mm	> 75 to < 150 mm	≥150 mm
d	≤75 mm	-0.50 mm	-1.00 mm	-1.50 mm
	> 75 to ≤120 mm	-1.00 mm	-1.00 mm	-1.50 mm
	> 120 to ≤150 mm	-1.00 mm	-1.50 mm	-1.50 mm

产品编码 Part No.	轴承尺寸 Bearing Size		推荐尺寸 Recommend		装配间隙 Assembly Interference	标准长度 Standard Length L
	内径 d	外径 D	轴 Shaft D _s h7	孔 Housing H7 D _H		
CRB-2030-L	20 ^{+0.196} _{+0.116}	30 ^{+0.096} _{+0.046}	20 ⁰ _{-0.021}	30 ^{+0.021} ₀	0.025-0.096	15、20、30
CRB-2232-L	22 ^{+0.196} _{+0.116}	32 ^{+0.096} _{+0.046}	22 ⁰ _{-0.021}	32 ^{+0.021} ₀	0.025-0.096	15、20、30
CRB-2535-L	25 ^{+0.196} _{+0.116}	35 ^{+0.096} _{+0.046}	25 ⁰ _{-0.021}	35 ^{+0.021} ₀	0.025-0.096	20、30、40
CRB-2838-L	28 ^{+0.200} _{+0.120}	38 ^{+0.100} _{+0.050}	28 ⁰ _{-0.021}	38 ^{+0.025} ₀	0.025-0.100	20、30、40
CRB-3040-L	30 ^{+0.200} _{+0.120}	40 ^{+0.100} _{+0.050}	30 ⁰ _{-0.021}	40 ^{+0.025} ₀	0.025-0.100	20、30、40
CRB-3545-L	35 ^{+0.200} _{+0.120}	45 ^{+0.100} _{+0.050}	35 ⁰ _{-0.025}	45 ^{+0.025} ₀	0.025-0.100	30、40、50
CRB-4050-L	40 ^{+0.200} _{+0.120}	50 ^{+0.100} _{+0.050}	40 ⁰ _{-0.025}	50 ^{+0.025} ₀	0.025-0.100	30、40、60
CRB-4555-L	45 ^{+0.230} _{+0.130}	55 ^{+0.105} _{+0.055}	45 ⁰ _{-0.025}	55 ^{+0.030} ₀	0.025-0.105	30、40、60
CRB-5060-L	50 ^{+0.230} _{+0.130}	60 ^{+0.105} _{+0.055}	50 ⁰ _{-0.025}	60 ^{+0.030} ₀	0.025-0.105	40、50、60
CRB-5565-L	55 ^{+0.245} _{+0.145}	65 ^{+0.120} _{+0.070}	55 ⁰ _{-0.030}	65 ^{+0.030} ₀	0.040-0.120	40、55、70
CRB-6070-L	60 ^{+0.245} _{+0.145}	70 ^{+0.120} _{+0.070}	60 ⁰ _{-0.030}	70 ^{+0.030} ₀	0.040-0.120	40、60、80
CRB-6575-L	65 ^{+0.245} _{+0.145}	75 ^{+0.120} _{+0.070}	65 ⁰ _{-0.030}	75 ^{+0.030} ₀	0.040-0.120	50、60、80
CRB-7080-L	70 ^{+0.245} _{+0.145}	80 ^{+0.120} _{+0.070}	70 ⁰ _{-0.030}	80 ^{+0.030} ₀	0.040-0.120	50、70、90
CRB-7585-L	75 ^{+0.275} _{+0.175}	85 ^{+0.125} _{+0.075}	75 ⁰ _{-0.030}	85 ^{+0.035} ₀	0.040-0.125	50、70、90
CRB-8090-L	80 ^{+0.275} _{+0.175}	90 ^{+0.125} _{+0.075}	80 ⁰ _{-0.030}	90 ^{+0.035} ₀	0.040-0.125	60、80、100
CRB-8595-L	85 ^{+0.275} _{+0.175}	95 ^{+0.125} _{+0.075}	85 ⁰ _{-0.035}	95 ^{+0.035} ₀	0.040-0.125	60、80、100
CRB-90100-L	90 ^{+0.275} _{+0.175}	100 ^{+0.125} _{+0.075}	90 ⁰ _{-0.035}	100 ^{+0.035} ₀	0.050-0.135	60、80、120
CRB-95105-L	95 ^{+0.310} _{+0.185}	105 ^{+0.125} _{+0.075}	95 ⁰ _{-0.035}	105 ^{+0.035} ₀	0.050-0.135	60、80、120
CRB-100110-L	100 ^{+0.310} _{+0.185}	110 ^{+0.135} _{+0.085}	100 ⁰ _{-0.035}	110 ^{+0.035} ₀	0.050-0.135	80、100、120
CRB-110120-L	110 ^{+0.315} _{+0.190}	120 ^{+0.135} _{+0.085}	110 ⁰ _{-0.035}	120 ^{+0.040} ₀	0.050-0.140	80、100、120
CRB-120130-L	120 ^{+0.340} _{+0.215}	130 ^{+0.165} _{+0.090}	120 ⁰ _{-0.035}	130 ^{+0.040} ₀	0.050-0.165	100、120、150
CRB-130140-L	130 ^{+0.340} _{+0.215}	140 ^{+0.165} _{+0.090}	130 ⁰ _{-0.040}	140 ^{+0.040} ₀	0.050-0.165	100、120、150
CRB-140150-L	140 ^{+0.340} _{+0.215}	150 ^{+0.165} _{+0.090}	140 ⁰ _{-0.040}	150 ^{+0.040} ₀	0.050-0.165	100、150、180
CRB-150160-L	150 ^{+0.340} _{+0.215}	160 ^{+0.165} _{+0.090}	150 ⁰ _{-0.040}	160 ^{+0.040} ₀	0.050-0.165	120、150、180

CSB-PCC® Plastic Cable Chains

CSB-PCC® 工程塑料电缆拖链

CSB-PCC® 微型电缆拖链 Micro cable chains

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]	弯曲半径 R Bend radius [mm]
C01微型电缆拖链 Micro cable chains, Closed design				
沿拖链外侧横杆不可打开 For the smallest applications. One-piece, non-openable				
		07-15	7-50	15-38
C11易填充微型电缆拖链 Micro cable chains, Opening design				
易填充电缆线，内侧横杆为分离式设计 Fill the cable quickly and easily; Split crossbar along the inner radius				
		05-10	5-30	10-38
C21可打开微型电缆拖链 Micro cable chains, Openable along the outer radius				
沿拖链外侧方向打开 Fill the cable quickly and easily; Openable along the outer radius				
		15-20	16-50	28-48

CSB-PCC® 通用型电缆拖链 Universal cable chains

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]	弯曲半径 R Bend radius [mm]
C02半封闭 Half enclosed design				
沿拖链内外侧方向可打开 For almost any application. Crossbars removable along the inner and outer radius				
		25-45	50-200	55-250
C12全封闭 Fully enclosed design				
全封闭 - 沿拖链内外侧方向可打开 Fully enclosed design. Shelves can be removed from the inner and outer radius				
		25-45	50-200	55-250

CSB-PCC® 重载型电缆拖链 High load cable chains

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]	弯曲半径 R Bend radius [mm]
C03半封闭 Half enclosed design				
每节带横杆 - 加强型 Strong chain with crossbars every link				
		32-56	50-200	50-250
C13全封闭 Fully enclosed design				
全封闭 - 沿拖链内外侧方向可打开 Fully enclosed design. Shelves can be removed from the inner and outer radius				
		32-56	50-200	50-250

CSB-PCC® 静音电缆拖链 Quiet cable chains

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]	弯曲半径 R Bend radius [mm]
C04静音型电缆拖链 Quiet and cleanroom cable chains				
特殊结构与小节距设计静音无尘运行 Special design and small pitch for quite and cleanroom, Openable along the inner and outer radius				
		28	30-60	55-150

CSB-PCC® 抗静电电缆拖链 ESD cable chains

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]	弯曲半径 R Bend radius [mm]
C01E 抗静电微型电缆拖链 ESD micro cable chains, Closed design				
沿拖链外侧横杆不可打开 For the smallest applications. One-piece, non-openable				
		07-15	7-50	15-38
C21E 抗静电可打开微型电缆拖链 ESD micro cable chains, Openable along the outer radius				
沿拖链外侧方向打开 Fill the cable quickly and easily; Openable along the outer radius				
		15-20	16-50	28-48
C02E 抗静电半封闭 ESD half enclosed design				
沿拖链内外侧方向可打开 For almost any application. Crossbars removable along the inner and outer radius				
		25-45	50-200	55-250

CSB-PCC® 附件 Accessories

系列 Series	开启原理 Opening principle	内高 Hi Inner height [mm]	内宽 Bi Inner width [mm]
分隔片 Strain relief separators			
 竖分隔片 Vertical separators	可安装在横杆任意位置 Can be placed at any point in the horizontal separators	25-56	
应力件 Strain relief elements			
 C型支架 C-profile supporter	铝制C型支架采用螺丝固定 Aluminum C-profile supporter assembled with screws		C02: 57-250 C03: 50-300
 消除应力元件 Tiewrap elements	可直接嵌入C型槽使用 Tiewrap elements with clip-on connection for C-profile supporter		

CSB[®] Metal sliding Bearings

CSB[®] 金属自润滑轴承

金属塑料复合自润滑轴承 Metal-polymer composite bearings

CSB-50	钢+多孔铜粉+PTFE/添加物 Steel + bronze powder + PTFE/filler	自润滑 Self-lubricating		
CSB-10DH	钢+多孔铜粉+PTFE/铜粉 Steel + bronze powder + PTFE/bronze powder	自润滑 Self-lubricating		
CSB-50MP	钢+多孔铜粉+PTFE/含氟树脂 Steel + bronze powder + PTFE/fluoropolymer	自润滑 Self-lubricating		
CSB-40	钢+多孔铜粉+PTFE/纤维 Steel + bronze powder + PTFE/Fibre	自润滑 Self-lubricating		
CSB-11	铜+多孔铜粉+PTFE/添加物 Bronze + bronze powder + PTFE/filler	自润滑 Self-lubricating		
CSB-25	铝+PTFE Aluminum + PTFE Tape	自润滑 Self-lubricating		
CSB-FR	铜网+PTFE/固体润滑剂 Bronze mesh + PTFE/Solid lubricants	自润滑 Self-lubricating		
CSB-20	钢+多孔铜粉+改性聚甲醛 Steel + bronze powder + POM	边界润滑 Boundary lubricating		
CSB-80	钢+多孔铜粉+PEEK/添加物 Steel + bronze powder + PEEK/filler	边界润滑 Boundary lubricating		

双金属卷制类复合轴承 Bi-metallic composite bearings

CSB-800	钢+铜铅合金粉 Steel + Lead bronze powder	持续给油 Conventional lubrication		
CSB-820	钢+无铅铜合金粉 Steel + Lead-free bronze powder	持续给油 Conventional lubrication		

青铜基卷制类轴承 Bronze wrapped bearings

CSB-090	铜基卷制轴承 Bronze wrapped bearings	持续给油 Conventional Lubrication		
CSB-T90	铜基卷制轴承 Bronze wrapped bearings	持续给油 Conventional Lubrication		
CSB-09G	含固体润滑剂铜基卷制轴承 Bronze wrapped bearings with graphite	起始润滑 Initial lubricating		

金属自润滑轴承 Metallic self-lubricating bearings

CSB650	铜基镶嵌型固体润滑轴承 Cast bronze with graphite plug	自润滑 Self-lubricating	
CSB650GT	钢基铜合金镶嵌型固体润滑轴承 Steel shell cast bronze with graphite plug	自润滑 Self-lubricating	
CSB250	铸铁镶嵌型固体润滑轴承 Cast iron with graphite plug	自润滑 Self-lubricating	
CSB85H	粉末烧结弥散型固体润滑轴承 Powder metallurgy sintered with solid lubricants	自润滑 Self-lubricating	
CSB850BM	钢基铜合金弥散型固体润滑轴承 Metal backed bronze powder with solid lubricants	自润滑 Self-lubricating	
CSB850S	钢基铁镍合金弥散型固体润滑轴承 Metal backed Fe-Ni sintered alloy with solid lubricants	自润滑 Self-lubricating	 

声明:

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Acknowledgement:

The information and data, contained in the catalogue, are induced by our understanding of the stated products. These information and data are only references during the user designation and application. The designation and application data provided by CSB® could not be directly applied to the real application conditions. A specific test is recommended for the practical application environment to ensuring the suitable use of CSB® products. Any damages or lost caused by improper use of CSB® bearings will not be warranted by CSB®. Due to the materials and techniques are continuously updated, we reserve the right to change the necessary data and information without advanced notice in time.

Http: //www.csb-ep.com

浙江长盛塑料轴承技术有限公司
地址: 浙江省嘉善惠民街道汾湖路6号
邮编: 314100
Tel: 0573-84186133/84185527
Fax: 0573-84185517
E-mail: sales@csb-ep.com

Zhejiang CSB Plastic Bearing Technology Co.,Ltd.
Add: No.6, Fenhui Road, Huimin Sub-district, Jiashan, Zhejiang, China
Zip Code: 314100
Tel: 0086 573 84187009/84183318
Fax: 0086 573 84185517
E-mail: sales@csb-ep.com

总部: 浙江长盛滑动轴承股份有限公司
地址: 浙江嘉善经济开发区鑫达路6号
Http: //www.csb.com.cn

Zhejiang Changsheng Sliding Bearing Co., Ltd.
Add: No.6 Xinda Road, Economic Development Zone,
Jiashan, Zhejiang, China.

CSB全球 CSB Global

▣ CSB in Germany

CSB Gleitlager GmbH
Add: Meierstr.34-36,D-32120
Hiddenhausen
Tel: +49(0)5223-985069-0
Fax: +49(0)5223-985069-0
Web: www.csb-gleitlager.de
E-mail: info@csb-gleitlager.de

▣ CSB in France

CSB Bearing France
Add: 3,Boulevard Eugene Marie 27800
Brionne, France
Tel: +33-232-433276
Fax: +33-970-063257
Web: www.csb-bearings.de
E-mail: p.mouclier@csb-bearings.fr

▣ CSB in America

CSB Americas Inc.
Add: 493 Mission St. Carol Stream,
Chicago,IL 60188,USA
Tel:+1-248-630-9082
Web: www.csbamerica.com
Email: sales@csbamerica.com

▣ CSB in Finland

SKS Mekaniikka Oy
Add: Martinkyläntie
50 FI-01720
Vantaa, Finland
Tel: +358 20 764 5000
Web: www.sks.fi
E-mail: sales.mekaniikka@sks.fi

▣ CSB in Turkey

O-Pak İthalat ve İhracat Ltd. Sti.
Add: Perpa Ticaret Merkezi A-Blok Kat 5
No: 282-284-286 Okmeydanı
No: 34384 İstanbul Turkey
Tel: +90-212-222 57 00/221 53 15
Fax: +90-212-222 56 99/221 23 18
Web: www.o-pak.com.tr
E-mail: a.arevyan@o-pak.com.tr

▣ CSB in India

CSB Sliding Bearing (India) PVT. LTD.
Add: Akash Deep Building Suite 206
Second Floor 26-A, Barakkhamba Road
New Delhi-1 10001, India
Tel: +91-11-66302220/21
Fax: +91-11-23715557
Web: www.csbslidingbearings.com
E-mail: info@csbslidingbearings.com

▣ CSB in Sweden

D&E Bearing AB
Add: Himmelsbodavägen
9 SE-147 39
Tumba, Sweden
Tel: +46 8 4474050
Fax: +46 8 4474060
Web: www.debearings.se
E-mail: johan@debearings.se



CSB/CAT.062E
Print: 09/2021