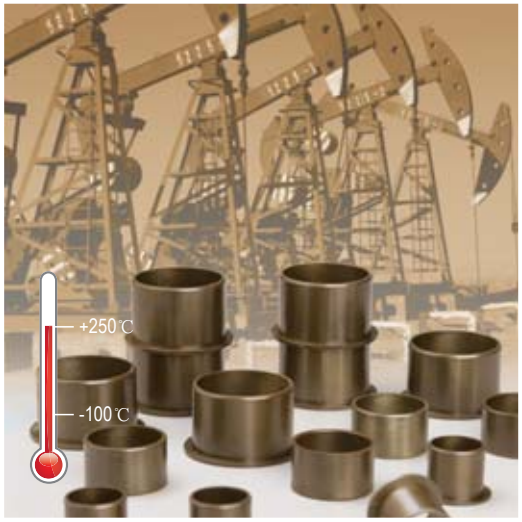


◉ 标准产品规格表 Standard specifications: P135

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.

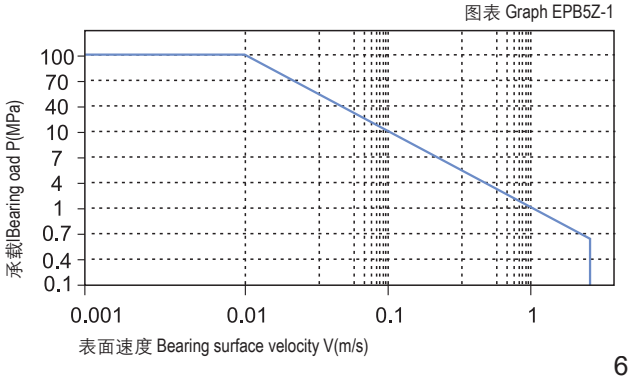
轴承PV值 PV value

CSB-EPB5Z塑料轴承最大运行PV值为1.0N/mm^2 × 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/mm^2 × 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



www.csb-ep.com
sales@csb-ep.com
Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

www.csb-ep.com
sales@csb-ep.com
Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517

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

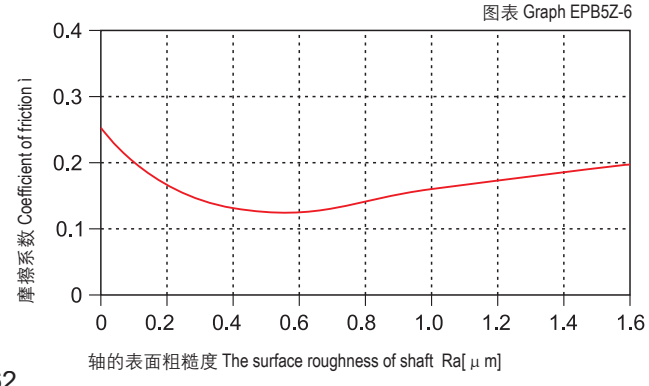
图表EPB5Z-4表明CSB-EPB5Z塑料轴承在载荷保持不变的情况下轴承的摩擦系数随着旋转速度的增加而先随之升高，当速度值达到0.2m/s后则又随着速度的增加而降低；图表EPB5Z-5表明CSB-EPB5Z塑料轴承的摩擦系数在旋转速度保持不变的情况下随着载荷的不断上升而逐渐降低。图表EPB5Z-6表明CSB-EPB5Z塑料轴承对磨轴的粗糙度在Ra0.4 ~ 0.7um时最适合的。

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

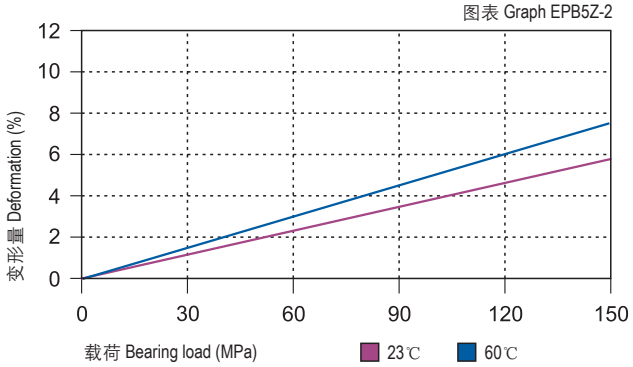
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB5Z-6



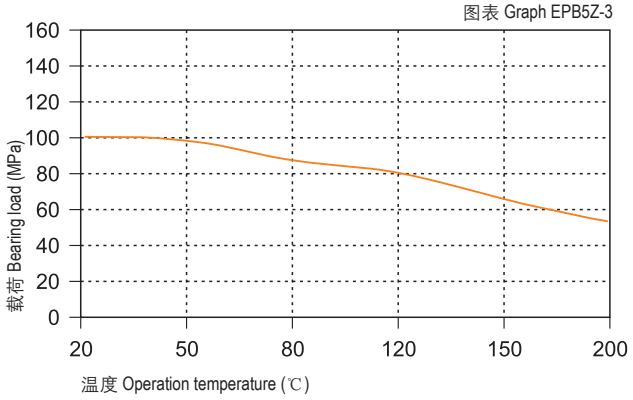
■ 载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB5Z-2



■ 载荷-温度图表 Load-Temperature diagrams

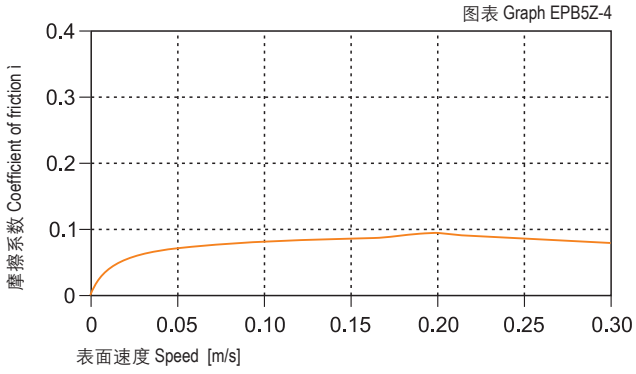
图表 Graph EPB5Z-3



■ 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

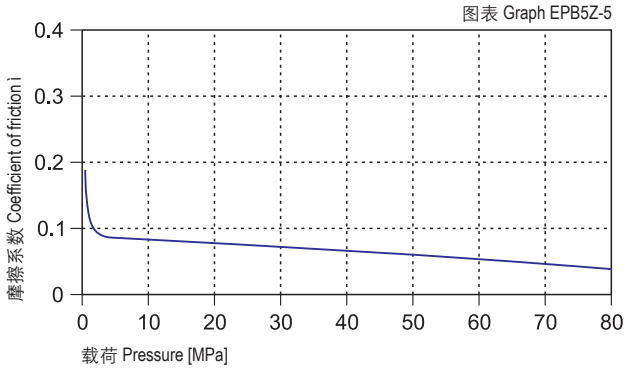
图表 Graph EPB5Z-4



■ 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

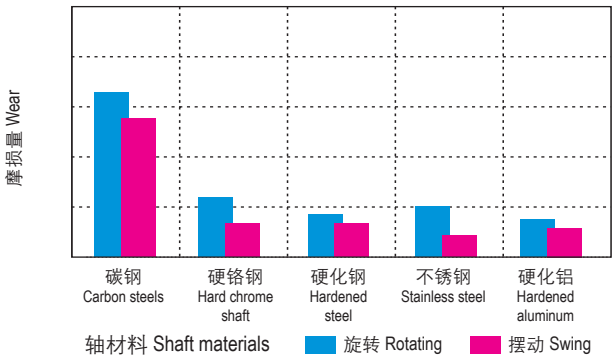
CSB-EPB5Z塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB5Z F10 [mm]	座孔 Housing H7 [mm]	轴 Shaft h9 [mm]
>0 ~ 3	+0.014 ~ +0.054	0 ~ +0.010	0 ~ -0.025
>3 ~ 6	+0.020 ~ +0.068	0 ~ +0.012	0 ~ -0.030
>6 ~ 6	+0.025 ~ +0.083	0 ~ +0.015	0 ~ -0.036

在不同轴材料上旋转时的磨损量 p=2MPa, v=0.2m/s

Wear under rotating with different shaft materials, p = 2 MPa, v = 0.2 m/s

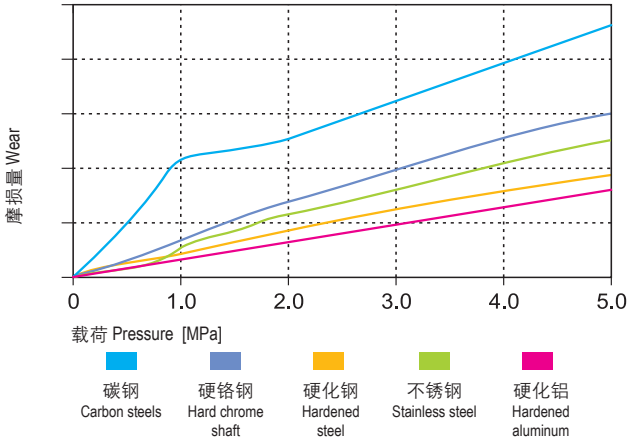
图表 Graph EPB5Z-7



旋转磨损随轴材料与压力变化关系 v=0.2m/s

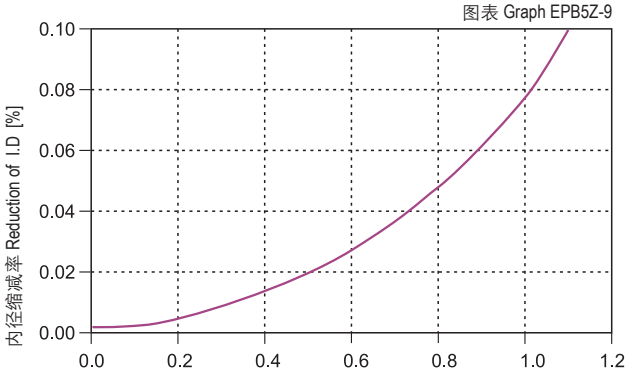
Wear & pressure under rotating with different shaft materials, v = 0.2 m/s

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	+0.032 ~ +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

标准产品规格表 Standard specifications: P135

www.csb-ep.com
sales@csb-ep.com
Tel: 0086 573 84186133/84185527
Fax: 0086 573 84185517