



● 标准产品规格表 Standard specifications: P153

产品特性 Product Features

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

技术数据表 Technical data label

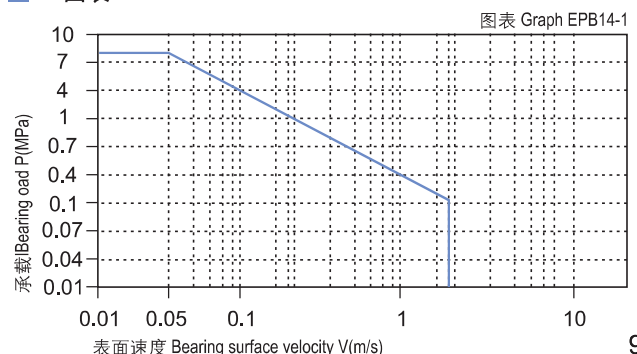
材料性能 Material Properties	试验方法 Testing Method	单位 Unit	CSB-EPB14
密度 Density	ISO1183	g/cm ³	2.13
颜色 Color			黑色Black
对钢的动摩擦系数 Dynamic friction /steel(dry)			0.08-0.18
最大P.V值 Max. PV (dry)		N/mm ² × m/s	0.3
最大旋转速度值 Max. rotating velocity		m/s	2.0
最大摇摆速度值 Max. oscillating velocity		m/s	1.4
最大直线速度值 Max. linear velocity		m/s	5
抗拉强度 Tensile strength	ISO527	MPa	13
抗压强度 (轴向) Compressive strength (Axial)		MPa	8
弹性模量 E-module	ISO527	MPa	790
允许最大表面静压力(20℃)Max. static pressure of the surface, 20℃		MPa	8
邵氏硬度 Shore hardness	ISO 868	D	65
连续工作温度 Continuous work temperature		℃	-200/+260
短时运行温度 Short-time work temperature		℃	-200/+310
导热性 Thermal conductivity	ASTME1461	W / m × k	0.25
线性热膨胀系数 Linear coef. of thermal expansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	12
RH50/23℃时的吸湿性 Moisture absorption RH50/23℃	ASTMD570	%	<0.1
最大吸水率23℃ Max. water absorption, 23℃		%	<0.1
燃烧性能 Flammability	UL94		V0
体电阻率 Volume resistivity	IEC60093	Ω cm	>10 ⁴
面电阻率 Surface resistivity	IEC60093	Ω	>10 ³

轴承PV值 PV Value

CSB-EPB14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EPB14-1。

The max PV value of the CSB-EPB14 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 EPB14-1).

■ PV图表 Permissible PV value for CSB-EPB14



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

CSB-EPB14塑料轴承可承受最大静载荷为8Mpa，在此载荷下轴承的最大压缩变形量参考图表EPB14-2，轴承实际工作载荷略小于8Mpa，载荷还受到运行速度以及温度的影响，速度越快 (Vmax: 2.0m/s) 会导致摩擦温度上升，而温度上升 (Tmax: 260℃) 会导致轴承的承载能力逐渐减弱，载荷随轴承工作温度变化情况参考图表EPB14-3。

CSB-EPB14 allows the Max static load of 8Mpa, The max compressive deformation rate under the max load is listed in Graph EPB14-2, The actual load capacity of bearing is slightly less than 8Mpa, The bearing load is variable against the speed and temperature, Fast speed (Vmax: 2.0m/s) results into higher temperature (Tmax: 260℃) which decreases the load capacity of the bearing. Please refer to the Graph EPB14-3 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

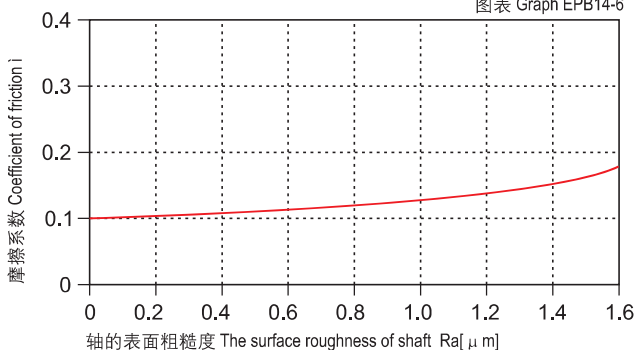
通常情况下，塑料轴承随着速度的增加，它的耐磨性能和摩擦系数都会下降，但CSB-EPB14轴承由于高速产生的变化影响相对较小（见图EPB14-4与图EPB14-5）；根据图EPB14-6显示CSB-EPB14轴承的摩擦系数还会受到对磨轴表面粗糙度的影响而发生变化，我们推荐此轴承使用轴表面粗糙度值为Ra0.2~0.5um。

The coefficient of friction decreases like the wear resistance with increasing surface speed. In contrast, a higher surface speed has less impact on the coefficient of friction of CSB-EPB14 bearing (Graph EPB14-4 and EPB14-5). From the figure EPB14-6, we could see that the friction factor is variable against the changing of shaft roughness. The recommended shaft roughness is Ra0.2~0.5um.

摩擦系数与轴表面粗糙度关系图表

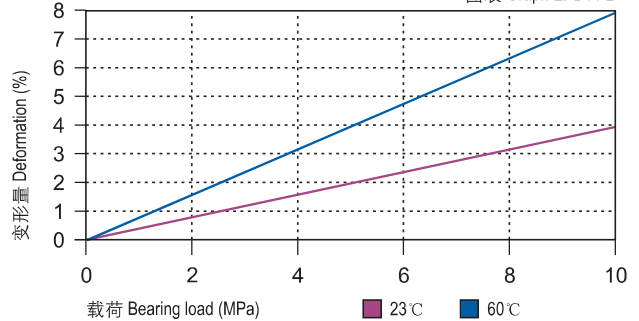
Coefficient of friction & the surface roughness of shaft

图表 Graph EPB14-6



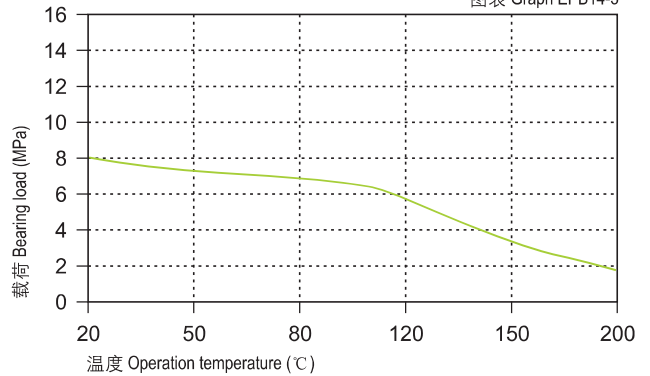
载荷-温度-变形量图表 Load-Temperature deformation

图表 Graph EPB14-2



载荷-温度图表 Load-Temperature diagrams

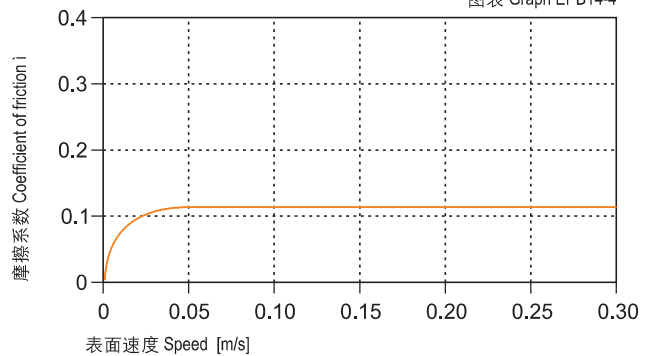
图表 Graph EPB14-3



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

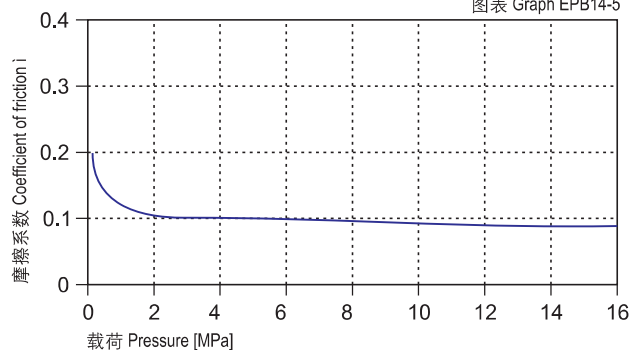
图表 Graph EPB14-4



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 EPB14-5



CSB-EPB14	干运行 Dry	油脂 Grease	油 Oil	水 Water
摩擦系数 μ Friction coef.	0.03~0.15	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-EPB14轴承适合几乎所有的轴材料；通过图EPB14-7可以看出当使用硬铬钢轴或硬化钢轴时CSB-EPB14轴承的磨损特性都非常出色。图EPB14-7显示CSB-EPB14轴承更适合用于旋转运动场合。

The shaft material is an important media for the bearing wearing but CSB-EPB14 is suitable for almost all kinds of shaft materials. Graph EPB14-7 shows that the wearing feature of CSB-EPB14 is excellent when the shaft material are hardened chrome steel or hardened steel. Graph EPB14-7 shows that the material CSB-EPB14 is most suitable for the rotation operation.

化学抗性 Chemical Resistance

CSB-EPB14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-EPB14 is very good. It can work well in the heavy acid of 65%.

吸水性 Water Absorbability

在标准大气压中，CSB-EPB14塑料轴承的吸水率极低小于0.1%，浸泡水中最大平衡吸水率小于0.1%；因此材料不会吸水而发生性能和尺寸变化，适合用于潮湿环境和水下。

The water absorb rate of CSB-EPB14 is less than 0.1% under the atmospheric pressure while it is less than 0.1% when the material is immersed into water. The material performance and dimensions of the material is stabilized for the applications under humid environment or even in the water.

抗UV性能 UV Resistance

CSB-EPB14长久暴露在紫外线下材料性能不会发生变化。

CSB-EPB14 can maintain its performance to be stable even exposed in the UV ray for long period.

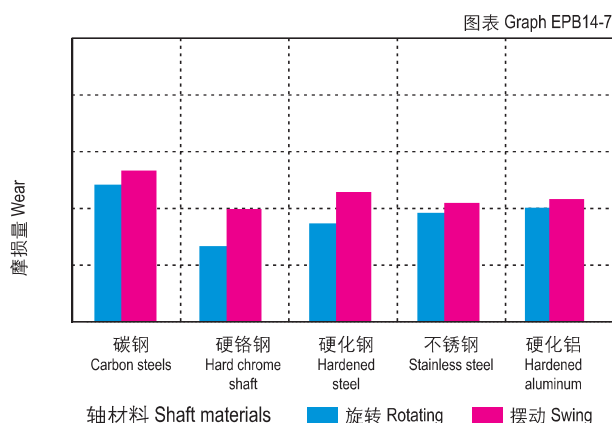
安装公差 Installation Tolerances

CSB-EPB14塑料轴承压装后公差 Tolerances after pressfit

直径 Di. [mm]	CSB-EPB14 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, $p = 2 \text{ MPa}$, $v = 0.2 \text{ m/s}$



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, $v = 0.2 \text{ m/s}$

