Plastic Plain Bearing Technical Information

STRUCTURE

The series material is a thermal mould character plastic processed by crystal engineering plastic as basic material with proper intensifier and lubricant. The rigidity and high temperature engineer capability is greatly improved because of the use of intensifier, at the same time, the coefficient of thermal expansion, moulding shrinking rate and wriggle capability decreases, consequently, the size stability is improved, and EP series material range is enlarged and keeps the intrinsic anti-wear capability and anti-drug capability.

Fig.6

APPLICATION CHARACTERISTICS

1 · Maintenance-free dry operation.
2 · Excellent wear resistance.
3 · Low friction.
4 · Lower moisture absorption.
5 · Chemical solvent resistance and low moisture.
6 · Nice insulated
7 · Work very well when dirty.
8 · Save space and light.
9 · Can be used for different shaft material.
10 · Excellent cost reward.
11 · Suitable for reciprocating, oscillation and linear motion.
12 · Large dispatch but low cost.
13 · Can be used in food industries.

Plastic Plain Bearing Technical Information

PV VALUE

When working in dry, the max. PV value is 0.4N/mm2*m/s. EP bearing has a best virtue in low load and low speed when in rotating motion. The speed can reach 3m/s when in linear motion.

EP bearing designs for dry running, the function can beimproved if lubricated. The speed can reach from one to three times of its origin when working with oil, grease and lubricant. PV value enlarges at the same time. (see fig. 7)

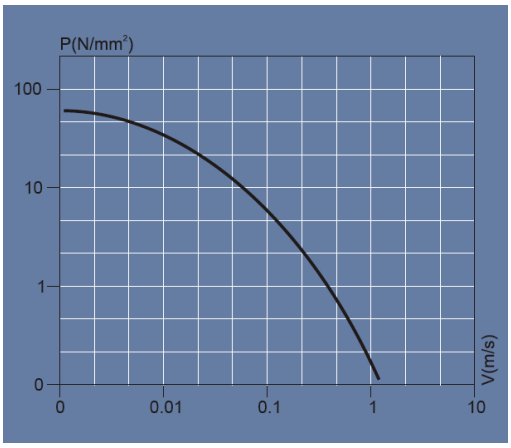

Fig.7

EP MAX. SURFACE SPEED(DRY)

Unit : m/s	Rotating motion	Oscillating motion	Linear motion
Continuous work	1.0	1.5	3.0
Short-time work	1.2	2.5	4.0

BEARING LOAD

EP bearing allows different static load at different temperature range, see attached illustration 3. The limited continuous work temperature about is 80℃, while the average pressure of the surface is 40N/mm^2.

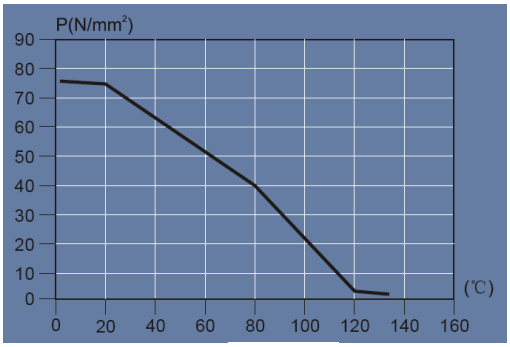

Fig.8

Plastic Plain Bearing Technical Information

FRICTION

In dry running, the friction coefficient to steel of EP series product is 0.05 ~ 0.20, when in low speed, the coefficient is low, when in high speed, the coefficient is high. (see fig. 9). The coefficient also affected by load. When in high load, it is small, when in low load, it is big. (see fig. 10). EP has excellent startup characteristic, dynamic coefficient and the static coefficient nearly the same. At the beginning of startup, the coefficient is big, but it decreases when getting to a stable value, in this situation, the value is tiny (see fig. 11). The friction coefficient can be decreased if use oil, grease, water or other liquid for lubricating. When the surface speed reaches to a suitable value, it will form an oil film.

EP FRICTION COEF./STEEL

	Dry	Grease	Oil	Water
EP	0.05~0.20	0.03	0.02	0.06
Axle	Steel shaft：Hardness is HRC50, Ra=1μm			

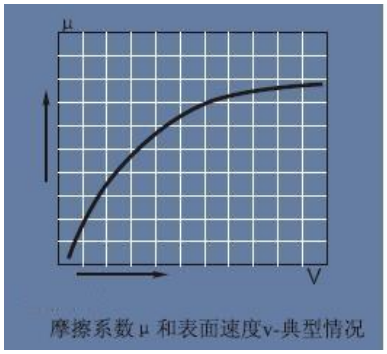

Fig.9

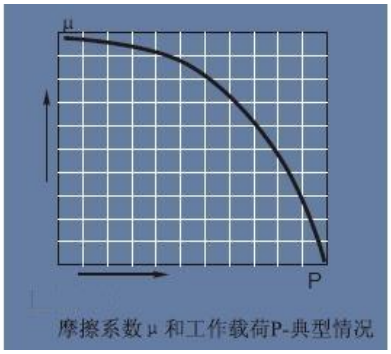

Fig. 10

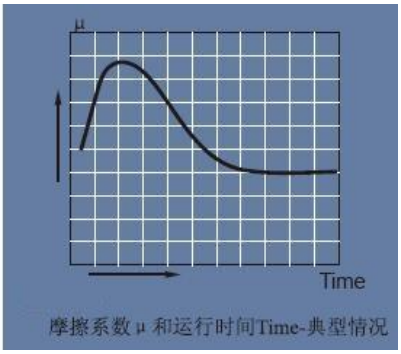

Fig. 11

WORK TEMPERATURE

Fig. 8 shows the temperature range of EP. When working short-time (about two hours), EP can work at 120℃. The max. temperature for continuous work is 80℃, high temp. will make the material crisp.

When reaching the 50℃, it has the lowest wear.

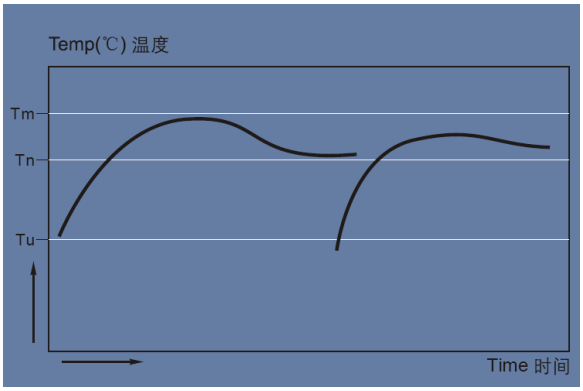

Fig. 12

When the temperature increases, the wear increases in a proportion. The test result shows the temperature has a direct ratio with the friction coefficient.

The same to other features. Generally, the temperature in continuous work is 20~40 ℃ higher than surrounding temperature. After startup, the bearings reach a stated temperature and work at almost the same temperature during the whole period. If the circle is stopped, it quickly reaches a new value after restart. (see fig. 12).

Most suitable temperature	Continuous work temperature	Short-time work temperature
50℃	80℃	120℃