

Sintered bearing Porite SIM

Porite SIM was developed to be a powder for “high porosity and low permeability sintered bearing”.

[Purpose of development]

A sintered bearing has air pores which act as a storage for the lubricating oil which is squeezed onto the sliding surface of the bearing imparting a self lubricating property. The life of the bearing can be increased by increasing the amount of air pores in the bearing, however, an increase in the air pores results in a high permeability due to which there is an escape of the oil pressure generated at the sliding surface. This has a detrimental effect on the sliding properties of the bearing and also due to a reduction in the capillary force it becomes easy for oil leak to occur.

Porite SIM uses a special copper coated iron powder having an added constituent to improve the boundary lubrication property. By using a special sintering process a bearing having high porosity and low permeability is made possible. This bearing shows superior sliding properties from the low-speed to the high-speed range.

[Characteristics]

1. A long life bearing because of high porosity and high reliability.
2. The high permeability reduced the escape of oil pressure created at the sliding surface and improves the sliding property. Oil leak is also controlled.
3. A reduction in the temperature of the bearing during operation can be achieved.
4. At low operating speeds a low sliding torque can be sustained.
5. Since the sliding surface is a copper alloy, a superior ageing and corrosion resistance can be achieved even though this is a Fe-Cu type bearing.
6. Since the base constituent is iron, the advance of bearing after ageing is reduced.
7. Corresponds to ELV and RoHS.

[Applications]

Vibration motor, Drier, Shaver, Camera, Juicer, Mixer, Blower, Fan, etc.

[Chemical composition and Physical characteristics]

Chemical composition (weight%)

Fe	Cu	Sn	Zn	C	Others
Bal	18~25	1~3	0.5~2	1Max	1Max

Physical characteristics

Density	: 5.8~6.8	[$\times 10^3 \text{kg/cm}^3$]
Porosity	: 18 Min	[Vol%]
Radial strength	: 150 Min	[Kgf/mm ²]
PV value	: 2.0	[MPa · m/s]

[Bearing properties]

1. Bearing temperature property

Condition

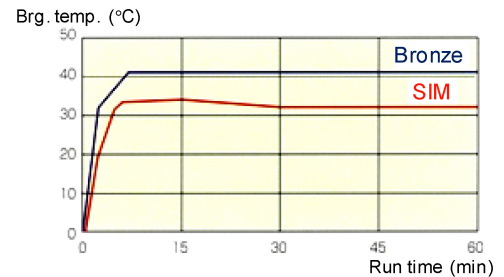
Bearing : ID ϕ 6 \times OD ϕ 12 \times L4mm

Imp. oil : Semi synthetic oil
(32cSt/40°C)

Shaft : S45C 0.8S ϕ 6mm

Rot. Speed : 15000rpm

Load : 0.6 MPa



2. Wear resistance property

Condition

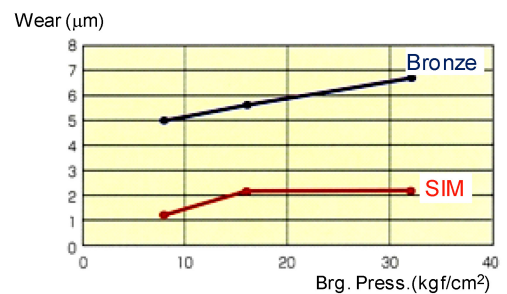
Bearing : ID ϕ 6 \times OD ϕ 12 \times L4mm

Imp. oil : Semi synthetic oil
(32cSt/40°C)

Shaft : S45C 0.8S ϕ 6mm

Rot. Speed : 2800rpm

Load : 0.8, 1.6, 3.2MPa



[Lubricating oil]

The impregnating oil may change depending on the various operating conditions, please discuss with technical department personnel.

Overseas:

Taiwan, Singapore, Malaysia, China, Hong Kong,
Europe, Thailand, USA

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