

Typical plain bearing damage:

Tribochemical reaction, tendency to swell, electrochemical contact corrosion

In addition to the wear factors of bearing load, sliding speed, temperature, shaft material and shaft surface, plain bearings are subject to further stresses arising from the operating conditions, which may have considerable impact on operational safety and durability.

Tribochemical reaction, corrosion

PERMAGLIDE® plain bearings are resistant to water (except P14), alcohol, glycol and many mineral oils.

However, some media have an aggressive effect on the composite, particularly the bronze parts. The risk usually begins at an operating temperature over 100 °C. This can have adverse effects on function. The P1 material group is not resistant to acidic media (pH < 3) and alkaline media (pH > 12). Oxidising acids and gases such as free halides, ammonia or hydrogen sulphide damage the bronze back of P11.

If corrosion would pose a risk to the sliding surface of the interacting sliding part (shaft), the following materials are recommended:

- Corrosion-resistant steel
- Hard chrome-plated steel
- Hard anodised aluminium

These corrosion-resistant materials also lower the wear rate.

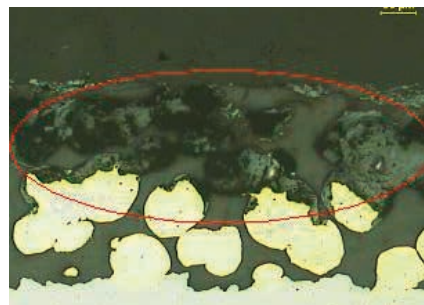
Tendency to swell

In the P1 material group, the running-in layer (solid lubricant) can swell in the presence of certain media and at operating temperatures > 100 °C. Depending on the medium, the wall thickness of the plain bearing may increase by up to 0.03 mm.

Remedy:

- Increase bearing clearance
- Use plain bearings made of P14/P147
Here, the tendency to swell is much lower at < 0.01 mm.

Please note that P14 should only be used at sliding speeds of up to 1 m/s and P147 up to sliding speeds of 0.8 m/s.



Damage due to the action of chemicals

Electrochemical contact corrosion

Local elements may form under unfavourable conditions, reducing operational safety.

Remedy:

Select appropriate material combination.