



KS PERMAGLIDE® plain bearings: Piston pin bed in flood gates and dams

Sector: Power engineering

Products used

KS PERMAGLIDE® plain bearing bush

design PAP ... P11/P147

KS PERMAGLIDE® thrust washer

design PAW ... P11/P147

The bearings in technical systems in a maritime environment are usually quite a challenge. The harsh operating conditions often place demand on the bearing system's efficiency many times over. A maintenance-free plain bearing with minimal effort required to seal it is best suited in installation locations which are hard to reach.

In order to eliminate the risk of water contamination, dry-running or media-only-lubricated bearings are permissible.

Plain bearings fit these broad-ranging loads best. Regardless of salt or fresh water, offshore or in hydroelectric plants. KS PERMAGLIDE® plain bearings can be used wherever there is need for a reliable and robust bearing.

Although the corrosion resistance of metal-plastic composite bearings must be classified as lower than plastic plain bearings, KS Gleitlager uses two types of material specifically developed for outside use.

The materials KS PERMAGLIDE® P11 and KS PERMAGLIDE® P147 feature corrosion resistance figures better than the classic metal-polymer plain bearing materials based on PTFE available from the competition.



Flood gate

Piston pin bed in flood gates and dams with KS PERMAGLIDE® plain bearings

Large gates on locks or dams stand firm against the water pressure. Heavy link chains are used to move the gates. The piston pin bed in every link is fitted with a KS PERMAGLIDE® P11 bush. The pins are hard-chrome plated and finely polished, so that extremely high compression forces in the tensile direction with peaks of 320 N/mm². Any arising axial forces are absorbed by 2 axial discs per chain link made of KS PERMAGLIDE® P11.

A rubber seal protects the bush from coarse contamination. The material with bronze backing and embedded solid lubricant is corrosion-resistant and maintenance-free. Maintenance work must be carried out on the chain only after 16 years due to the worn gaskets.



KS PERMAGLIDE® plain bearing bush design PAP ... P11 and thrust washer design PAW ... P11

KS PERMAGLIDE® P147

P147 is a multi-layer composite system with a sliding layer made of tin-bismuth bronze. The back of the steel bearing is galvanised, transparently passivated and coated with a layer thickness of 0.012 mm. The solid lubricant consists of a PTFE compound specifically for outdoor use. KS PERMAGLIDE® P147 complies with the salt spray test in accordance with DIN 50021 and has stood the test of time a million times over in automotive applications.

Advantages of KS PERMAGLIDE® P147 plain bearing bushes:

- Unleaded
- Compliant with Directive 2011/65/EU (RoHS II)
- Does not absorb water
- Very low tendency to swell
- Very good corrosion resistance
- Maintenance-free
- Low wear
- Good chemical resistance
- Very low stick-slip tendency
- Low friction value
- No tendency to fuse with metal

KS PERMAGLIDE® P11

The material KS PERMAGLIDE® P11 contains a full-bronze back with a sliding layer made of porous sintered bronze. The solid lubricant used is a PTFE/lead compound. The bronze alloy containing phosphorous also improves the corrosion resistance as well as the thermal, mechanical and tribological properties. These are so-called wrought alloys that are resistant to stress crack corrosion and pitting corrosion-type attacks. They also offer good resistance to sea water. KS PERMAGLIDE® materials have extremely low absorption properties and therefore do not tend towards swelling.

Advantages of KS PERMAGLIDE® P11 plain bearing bushes:

- Does not absorb water
- Largely resistant to swelling
- High corrosion resistance thanks to bronze backing, no additional corrosion protection required
- Maintenance-free
- Low wear
- Good chemical resistance, especially suitable for use in aggressive media
- Very low stick-slip tendency
- Low friction value
- No tendency to fuse with metal

Further information on KS PERMAGLIDE® plain bearings

- KS PERMAGLIDE® catalogue, item no. 50003863-02
- KS PERMAGLIDE® online catalogue shop.permaglide.com