PRODUCT APPLICATION

PERMAGLIDE® plain bearings: Articulated joints of concrete placing booms

Sector: Construction machines

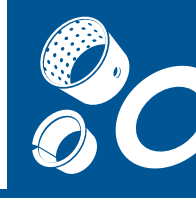
Product used
PERMAGLIDE® cylindrical plain bearing bush, design **PAP ... P11**

Function
Concrete placing booms can be extended in different ways depending on the operating conditions. When used outdoors on building sites, the articulated joints and their bearing positions are subjected to harsh conditions. Constant temperature fluctuations, moisture, dirt and chemically aggressive concrete or cement dust all influence the durability of the bearing positions. The booms must always function reliably. The bearing positions must therefore be robust, wear-resistant and always have a high freedom of movement in every boom configuration. Signs of corrosion after longer downtime periods must not lead to the articulated joints becoming stuck. The bearings must slide smoothly to place the concrete exactly, even when subjected to minor swivelling motions. The bearings must not fail prematurely due to abrasive sand or cement particles.

Bearing of the articulated joints with PERMAGLIDE® P11 plain bearing bushes
In the realised application, the bearing positions of the articulated joints have been equipped with PERMAGLIDE® P11 plain bearing bushes. Thanks to its bronze structure, the material PERMAGLIDE® P11 is very corrosion-resistant and has good embedding ability thanks to the polymer solid lubricant. PERMAGLIDE® P11 is intended as a maintenance-free plain bearing material for dry running. The bearing position should nevertheless still be regularly inspected due to the difficult operating conditions of this application. The bearing position has also been sealed with grease to ensure that no dirt can infiltrate it. In addition, this grease protects the pins of the joints from corrosion, and squeezing out the grease cleans the bearings. PERMAGLIDE® P11 plain bearing bushes are robust and reliable in operation with a minimum of sealing effort – and under harsh conditions. These properties make PERMAGLIDE® P11 plain bearing bushes ideally suited for bearing the articulated joints in concrete placing booms.

Advantages of PERMAGLIDE® P11 plain bearings
- Maintenance-free
- Low wear
- No additional corrosion protection required
- High chemical resistance, especially suitable for use in aggressive media
- Temperature range –200 °C to +280 °C
- Largely resistant to swelling
- Does not absorb water
- Almost no stick-slip effect
- Constantly low friction value

Concrete placing boom



Description of material
PERMAGLIDE® P11 is a leaded, robust bearing material that has the highest levels of tribological performance. The material is designed for maintenance-free, dry-running applications, but can also be used in systems with liquid lubrication.

The material P11 is recommended for more stringent requirements in terms of corrosion resistance or for use in aggressive media. In comparison to composite materials using plastic and steel, the material has the following advantages:

- Very good thermal conductivity and therefore also increased operational safety for fast-running systems
- Not ferromagnetic
- Higher corrosion resistance thanks to bronze backing

Application description
Concrete placing booms are booms that are attached to utility vehicles or special columns, and that have pipelines through which concrete is pumped. Using one or more articulated joints, the booms can be folded up to be more compact or raised and aligned precisely. After use, the boom is cleaned with water and folded up completely.

Additional designations for concrete placing booms

- Truck-mounted concrete pump
- Truck mixer concrete pump
- Long-reach boom pump
- In addition to these, separate placing booms are used in combination with stationary concrete pumps.

Further information on PERMAGLIDE® P11 plain bearing bushes:

- **PERMAGLIDE® catalogue,** item no. 50003863-02
- **PERMAGLIDE® online catalogue** www.permaglide.de/onlineshop