

KS PERMAGLIDE® plain bearings: Bearing in pile-driving and drilling machines

Sector: Construction machines, civil engineering

**PRODUCT
APPLICATION**

Products used

KS PERMAGLIDE® cylindrical plain bearing bush, design **PAP ... P20**
KS PERMAGLIDE® thrust washers, design **PAW ... P20**



Pile-driving and drilling machine



KS PERMAGLIDE® P20 plain bearing bush and P20 thrust washer

Function

Pile-driving and drilling machines must function reliably.

When used outdoors on building sites, the swivelling joints of the leaders and the bearing positions on the swivelling joints are subjected to harsh conditions, such as high temperature fluctuations, moisture and dirt. When pile-driving, impacts and shocks subject the bearing position to stress.

Bearing with KS PERMAGLIDE® P20 plain bearing bushes and P20 thrust washers

In the realised application, the pins of the swivel joint bearing run in two KS PERMAGLIDE® P20 plain bearing

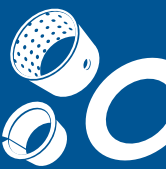
bushes. Two KS PERMAGLIDE® P20 thrust washers sit between the arms of the joint. The plain bearings compensate for misalignments in the roughly welded joints. The polymer sliding layer of the material KS PERMAGLIDE® P20 is insensitive to high edge loading.

When used with a grease lubricant, the plastic in this application has good damping performance when subjected to vibrations and impacts. This means that the impacts are diminished by the time they reach the hydraulic excavator.

By using the KS PERMAGLIDE® P20 plain bearings, the bearing functions reliably despite the difficult operating conditions.

Advantages of KS PERMAGLIDE® P20 plain bearings

- Insensitivity to shocks and impacts
- Low sensitivity to edge loading
- Good damping characteristics
- High wear resistance
- Insensitivity to dirt
- Insensitivity to moisture due to low swelling tendency
- Operating temperature range of -40 °C to 110 °C
- Low-maintenance operation with lubrication



Description of material

KS PERMAGLIDE® P20 is a low-maintenance, high-performance leaded bearing material. The material is designed for grease-lubricated or liquid-lubricated applications. This composite, multi-layered material excels thanks to its high rigidity, durability and resistance to oscillation and vibration. These characteristics are largely achieved by a sliding layer system made of polyvinylidene fluoride (PVDF), polytetrafluoroethylene (PTFE) and lead. The wear-resistant material has already proven itself many times in industry. The standard P20 version features oil distributing pockets as per DIN ISO 3547. The bearings are provided ready to install for recommended connection-design installation dimensions. Also available are versions with a different wall thickness, suitable for rework when installed, or with a smooth sliding surface for hydrodynamic applications.

Application description

Tubes, posts or guide rails are driven into the ground using pile-driving machines. Drilling machines are used for drilling bores in specialist civil engineering, tunnelling, canal construction and for drilling water wells or geothermal wells. In combined pile-driving and drilling systems, either a hydraulic hammer or a boring machine is mounted on a telescopic leader. The leader is attached to the outrigger of the hydraulic excavator. The hydraulic hammer or boring machine runs up and down the leader. The link piece between the leader and excavator takes the form of an articulated bearing. The leader is straightened laterally by free swivelling motions in this way.

Description of the joint bearing

Joint bearings are articulated bearing elements based on plain bearings. Joint bearings allow swivelling motions, rotary motions and tilting motions and transfer static and dynamic forces. Maintenance-free joint bearings or joint bearings that can be re-lubricated are used depending on the application.

Additional designations for pile-driving machines

- Piling system
- Piling machine
- Pile-driver
- Caterpillar-mounted pile-driver
- Pile-ramming machine
- Post-driving machine

Additional designations for drilling machines

- Drilling system
- Drilling rig
- Drilling technology
- Drill jumbo

Further information on KS PERMAGLIDE® P20 plain bearing bushes

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