APPLICATION

KS PERMAGLIDE® plain bearings: Bearing of the piston rod in pneumatic cylinders

Sector: Conveyor technology, automation technology, drive engineering, engineering, handling technology, compressed-air technology

Product used

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

Function

Pneumatic cylinders are used for the drive of linear movements, e.g. in conveyor technology and in engineering. Pneumatic cylinders are either single-acting or double-acting. The force of the piston rod thus acts in one or in both directions on the axle. This means that the cylinder can be used to generate a pushing force or a pulling force. The use of compressed air can lead to jerky movements and vibrations.

Bearing with KS PERMAGLIDE® P20 plain bearings

In pneumatic cylinders, KS PERMAGLIDE® P20 plain bearing bushes are used as spigot bearings for the piston rod. The plain bearings are sealed and initially lubricated with grease.

The plain bearings are designed with oil distributing pockets in the sliding surface. This guarantees the appropriate distribution of lubricant over the entire service life.

Lubrication ensures a low and constant friction coefficient and enables smooth linear movement. The bearing also provides a high level of guidance accuracy under changing operating conditions. The structure of the P20 makes it ideally suited to this application. High lateral forces, significant vibrations and sometimes high speeds act on the bearing position. With its extreme stress potential and distinct damping characteristic, the P20 constantly maintains its function as a precise spigot bearing.

Advantage: Reliable bearing with KS PERMAGLIDE® P20 plain bearings

- Low-maintenance operation with lubrication
- High wear resistance
- Constant and low friction coefficient
- Good damping characteristics
- Insensitivity to shocks and impacts

Pneumatic cylinder application, bearing with KS PERMAGLIDE® P20 plain bearings

Description of material
KS PERMAGLIDE® P20 is a low-maintenance, leaded bearing material with a high performance. It is designed for grease-lubricated or liquid-lubricated applications. This composite, multi-layered material excels through its high rigidity, durability and resistance to oscillation and vibration. These characteristics are largely achieved by a sliding layer system made of polyvinylidenfluoride (PVDF), polytetra-fluoroethylene (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
A pneumatic cylinder comprises a cylindrical tube housing and a moving piston rod. Single-acting cylinders are usually also equipped with a return spring.

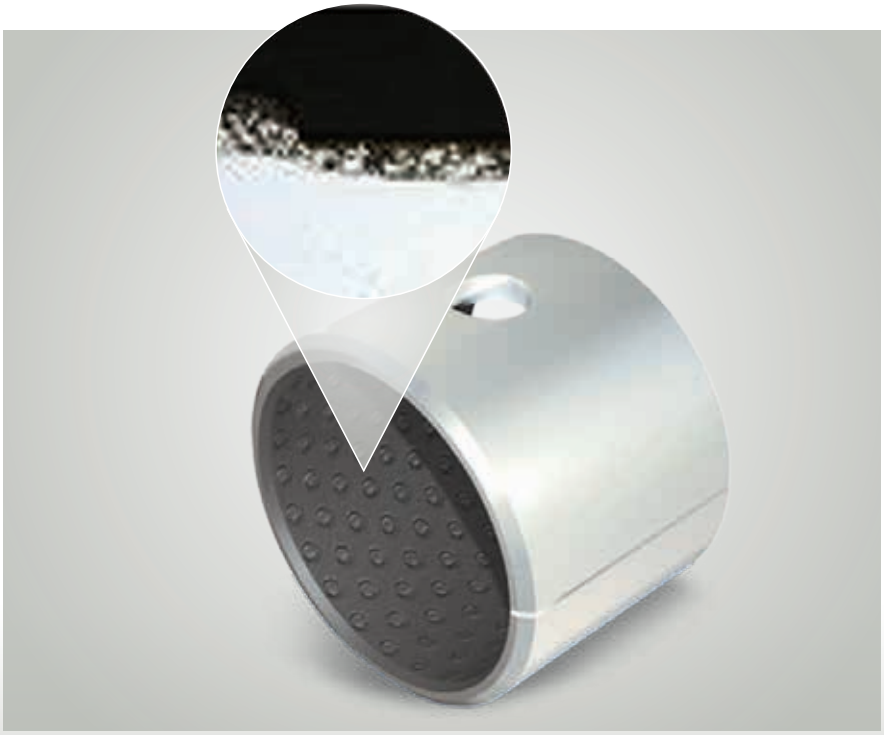
Requirement of pneumatic cylinders or bearing in pneumatic cylinders
- Functional reliability
- High durability
- Wear resistance
- No subsequent lubrication required
- Smooth piston-rod movement
- Vibration damping

Technical data
- Operating temperature up to 130°C
- Sliding speed up to 6 m/s
- Piston diameter from Ø 30 mm to Ø 110 mm
- Stroke 25 mm to 500 mm

Pneumatic cylinder applications include the following:
- Sheet-metal working: Cutting, stamping, shaping, bending, pressing, embossing, mounting, riveting, pressure-joining, clinching, press-fitting
- Conveyor technology: Sorting, transporting, lifting, lowering
- Clamping devices
- Driving compressed-air motors in tools
- Injection-moulding technology
- Clamping units: Opening and closing valves
- Automation technology
- Engineering
- Assembly units
- Packaging units

Note for the food industry:
The material P20 contains lead and must not be used in the food sector. The material P200 (unleaded) can be used in the food sector.

Other terms for pneumatic cylinder:
- Piston-rod cylinder
- Single-acting cylinder
- Double-acting cylinder



KS PERMAGLIDE® P20 plain bearing bush with oil distributing pockets

Further information on KS PERMAGLIDE® P20 plain bearings.

KS PERMAGLIDE® catalogue,
item no. 50003863-02
KS PERMAGLIDE® online catalogue
www.permaglide.com/onlineshop