

October 24, 2019

KS Kolbenschmidt

## **New maintenance-free plain bearing KS P180 for undiminished drive comfort**

**The trend toward SUVs continues unabated while at the same time the electrification of the powertrain is progressing. Both factors drive the vehicle weight upwards, which also increases the loads on the plain bearings in the chassis and car exterior. In the interior, on the other hand, electrification poses a completely different challenge: virtually noiseless electric driving places higher NVH requirements on shock absorbers, valves, actuators and the countless bearing points in the interior. Their silent operation is important to the perceived comfort of the occupants. Especially for these applications, KS Gleitlager GmbH now offers a new maintenance-free plain bearing KS P180. By reducing the stick-slip effects, it lowers noise and also has an increased load-bearing capacity under edge-wear conditions.**

The perceptible and audible vibrations in a vehicle are summarized under the abbreviation NVH (Noise-Vibration-Harshness). In the interior of electrically powered vehicles, the NVH level is subject to a new comfort requirement: the elimination of the combustion engine changes the noise perception of the occupants. Irritating sounds such as squeaking or creaking come to the fore. These are generated, among other things, by conditions causing the components and their bearings to stick and then break away (slip). This noise usually increases over the service life of the vehicle, as wear develops in the bearings or lubricants age. In order to avoid these stick-slip effects, a permanently low friction level and low static friction are essential. With the new KS P180 plain bearings, friction remains at a low level over the entire service life, making them ideal for the applications described.

### **Low friction level and high load capacity**

Despite advancing lightweight engineering, the average vehicle is gaining weight. Increasing electrification is contributing to this through the additional driveline components in hybrid vehicles, but above all the heavy battery modules. The higher vehicle weight puts particular strain on the chassis components, for example the transverse forces on the shock absorbers increase considerably. As a result, the piston rod bends more severely and the bearings are heavily stressed at their edges. KS P180 uses a new bronze structure and a tribologically optimized PTFE compound which, in combination, significantly exceed the load-bearing capacity, in particular the edge load-bearing capacity, of PTFE bearings until now available on the market. KS P180 thus offers a longer service life with a low coefficient of friction and represents a

solution for the shock absorbing function that is so important for undiminished driving comfort.

### **Comparison with standard PTFE solutions**

On the axial test bench, the new bearing offers significant advantages over standard PTFE materials - the coefficients of friction of KS P180 remain at a consistently low level throughout its entire service life. Due to the good sliding behavior with lower coefficient of friction fluctuations, not only is a significant reduction in the undesired stick-slip effect observed, these maintenance-free plain bearings also have a higher load capacity, which significantly reduces wear, especially in applications with high edge load concentration. KS P180 thus addresses the growing concentration of loads and also demonstrates other favorable properties such as greater robustness in start-stop operation, excellent dry-running properties, and outstanding chemical resistance to corrosion and other adverse environmental effects.

With its new bearing, KS Gleitlager offers a wide range of customized plain bearing solutions for the challenges of electromobility. The application potentials of KS P180 are not limited to shock absorbers. The new products are also suitable, for example, for fluid pumps, compressors, actuators and steering systems. In all these applications, the combination of higher wear resistance and low friction has a positive effect. The new maintenance-free bearing is therefore the logical progress of this manufacturer's Permaglide portfolio.