



Sputter bearings – Design and fitting instructions

What are sputter bearings?

Sputter bearings are bearings with a sliding layer that is applied by a PVD (Physical Vapour Deposition) process. This sliding layer is considerably thinner and more resistant to wear than on conventional bearing shells manufactured with a galvanised sliding layer. Kolbenschmidt supplies sputter bearings for original equipment (OE) to numerous renowned car manufacturers and the worldwide aftermarket.

Why sputter bearings?

Stresses on bearings have been steadily increasing in recent decades due to higher engine performances – in particular on turbocharged diesel engines. To cope with these greater bearing stresses, it has been necessary to develop bearings with higher wear resistance and greater strength. Compared to conventional bearings, sputter bearings can withstand a 50% greater stress, and this with identical bearing dimensions.

Areas of application

Sputter bearings are primarily used in diesel engines for passenger cars and commercial vehicles. The reason for this is the increased bearing stress developed in diesel engines due to the working principle and the resulting increased working pressures. In petrol engines, sputter bearings are only used in a few exceptional cases.

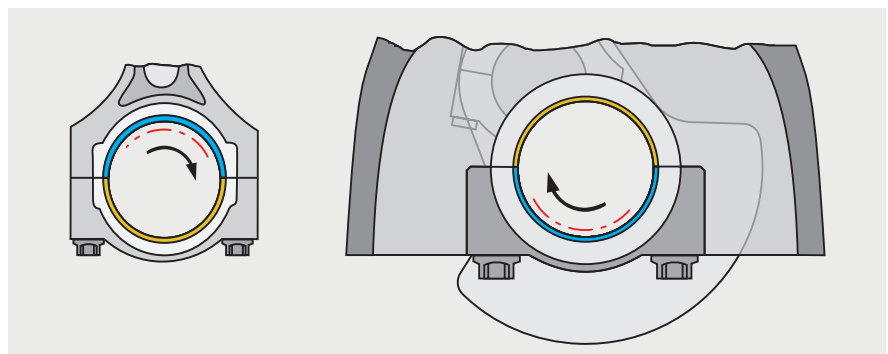


Fig. 1

Fitting instructions

Sputter bearings are normally only installed on the pressure-loaded side of conrod bearings and main bearings (blue bearing shell). The less loaded anti-thrust side is equipped with conventional two or three-component bearings (yellow bearing shell). If the bearing shells are mixed up during installation, damage to the bearings occurs even after a short running time – as we know from experience.

Differentiating characteristics

For a better differentiation, Kolbenschmidt sputter bearing shells are marked with the word “Sputter” on the back of the bearing (Fig. 2). As a result, the bearings are clearly distinguishable from bearing shells of the conventional type.



Attention:

If an engine has been designed with sputter bearings, the bearing positions should also be equipped with sputter bearings for reconditioning. The use of conventional bearings results in a significant reduction in durability, even if this is not immediately clear from bearing damage.

In order to guarantee a successful engine repair, pressure oil filling should be always carried out for reconditioned engines. This prevents damage to the various bearings caused by inadequate lubrication upon initial start-up of the engine.

Fig. 2: KOLBENSCHMIDT sputter bearing shell



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