Case Study

Grundfos

ceramicspeed

Improved reliability and extended lifetime

With an annual production of more than 16 million pumps, Grundfos is one of the world's leading pump manufacturers and in addition Grundfos has its own inhouse manufacturing of highly efficient electrical motors.

Grundfos has since years been a technology front runner offering a safe solution to the increasing number of customers experiencing issues with electrical erosion (bearing currents) in the bearings of electrical motors.

The solution is CeramicSpeed Insulate hybrid bearings, which improve reliability significantly. The bearings are guaranteed to prevent the passage of electrical currents and have a lifetime which is significantly longer than standard bearings.

Frequency converters

Leading motor manufacturers agree that stray currents are likely to cause damage to bearings of frequency-controlled motors.

Various attempts have been made to solve this problem. One typical solution is to install bearings with an insulating coating on the outer ring surface or in the bore of the inner ring. This technology however, can not be considered safe anymore as the high frequency voltages from modern high efficiency converters builds up on the thin insulation layer as if it was a capacitor, and eventually this voltage will jump and cause a damage to the bearing. In the case of ceramic hybrid bearings, the insulation distance equals the full diameter of the ball. A distance that only lightning scale voltages would ever jump.

Typically, the combined positive effects of ceramic hybrid bearings increase bearing life by a factor of 4-8 in comparison with ordinary steel bearings.

Technical Highlights

- 4-8 times longer bearing life
- 100% guarantee against bearing current damage
- Lower energy loss in bearing
- Lower operating temprature