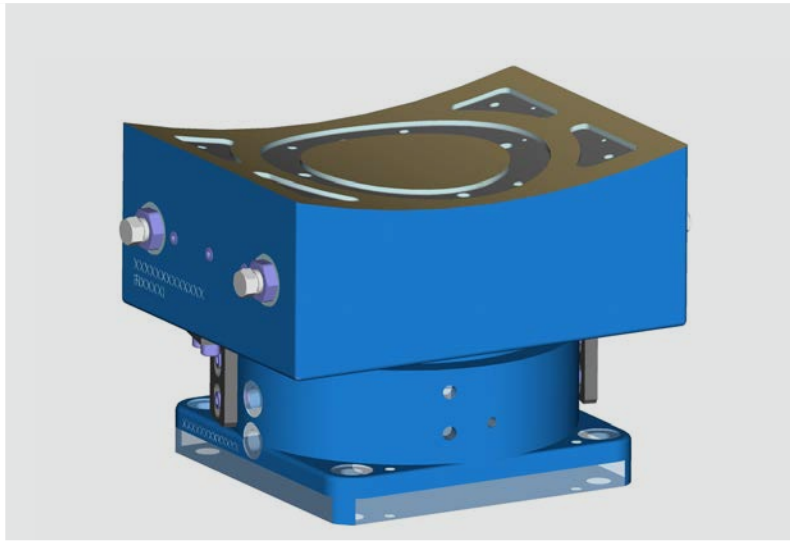




Monitoring oil gaps in hydrostatic bearings

Hydrostatic bearings are used in large plant and machinery such as stone mills, telescopic installations etc. Monitoring the gap size is a critical factor, as any disturbances in the hydraulics can cause pressure drops, which in extreme cases, can cause the gap to close, resulting in damage to the bearings and ultimately system failure. Here, it is important to have a system that is easy to install as also ageing plant has to be retrofitted. Due to the long service life and the worldwide use of this plant, the sensor should be easy to replace.

For this reason, non-contact eddy current displacement sensors of the eddyNCDT 3001 series are used. These sensors have a robust, compact design with integral controller. The plant is operated outdoors where splash oil and water is present. Decisive factors for the measurement task are good repeatability and high temperature stability. The sensor is mounted horizontally to the bearing shoe and so is not directly exposed to oil pressure in the bearing.

Advantages

- Low cost sensor
- Easy installation and replacement
- Temperature stability
- Integral controller
- Protection class IP67, resistant to water and oil

Requirements for the measurement system

- Measuring range: 0.05 - 0.35mm
- Accuracy: 20µm
- Resolution: 5µm
- Frequency response: >1kHz
- Interference fields: contact between sensor and metal powder

Ambient conditions

- Temperature: -10 to + 50°C during operation
- Medium: oil and water droplets
- Air pressure: 600hPa - 1015hPa

System design

- DT3001-U2-C8