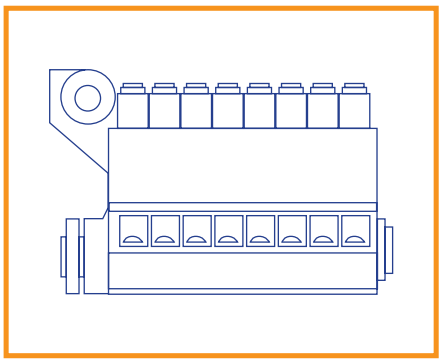
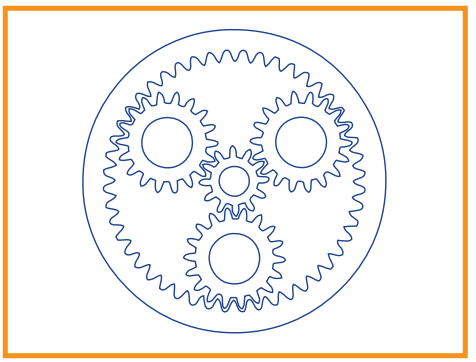
SCHALLER AUTOMATION

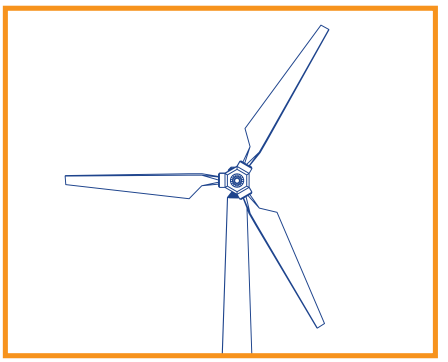
BEAROMOS®2020

BEARing MOnitoring System

Real-time condition monitoring of oil-lubricated slide bearings.
Detect wear. Plan maintenance. Avoid bearing damage.



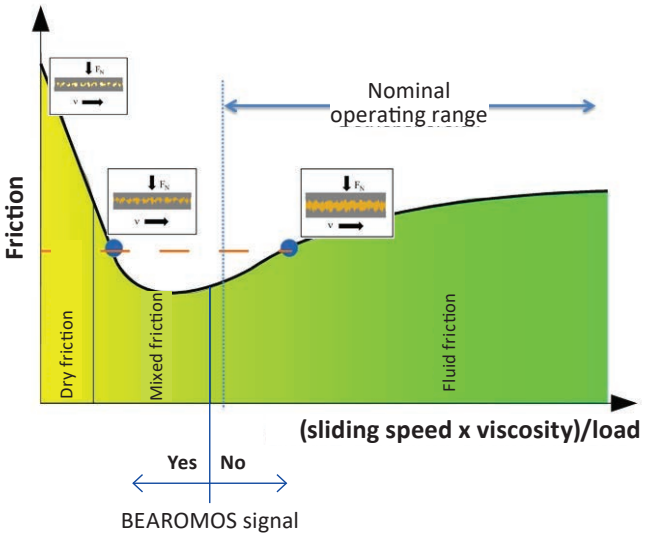




Detect bearing damage before it even starts

The problem

Slide bearings in large engines have until now typically been monitored by measuring the bearing temperature. But conventional monitoring methods of this kind have significant disadvantages in terms of the cost of installation and the response time. **Serious, expensive damage is only detected when bearing wear is at an advanced stage.**



The solution

Our BEAROMOS®2020 is the new monitoring system for oil-lubricated slide bearings that allows you to identify bearing damage quickly and reliably, even before it is causing problems. **That is because the BEAROMOS®2020 detects the transition from liquid to mixed friction as early as possible. In real time.**

The BEAROMOS®2020 was developed in cooperation with the RWTH Aachen University.

The functional principle

Hydrodynamically lubricated slide bearings are designed so that they operate within the fluid friction range. They only rarely leave this range, e.g. when starting or stopping the machine, and only for a short time towards mixed friction. When they do, it causes increased wear.

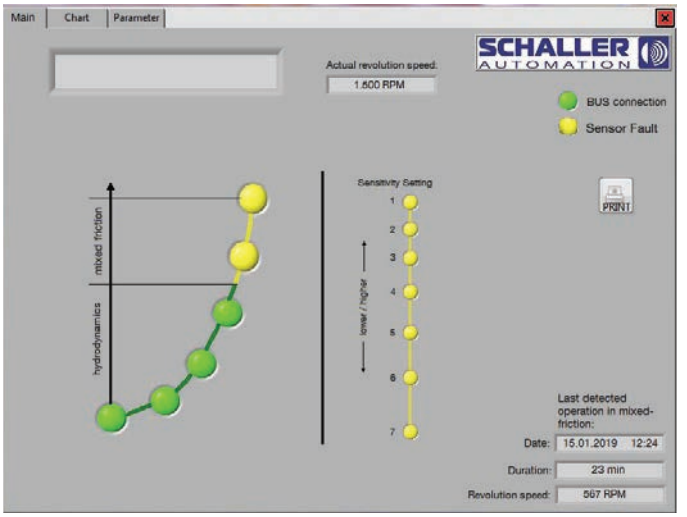
The BEAROMOS®2020 reliably detects when slide bearings are leaving normal liquid friction within seconds, even during normal operation. This is because this incipient mixed friction is a sure indication of the onset of wear.

Our monitoring system uses the physical principle behind the Seebeck effect. As soon as two different metals, normally separated by the oil film, come into contact with each other, a voltage is generated. On the first change in temperature, a thermoelectric voltage is generated, which is immediately detected by the sensor.

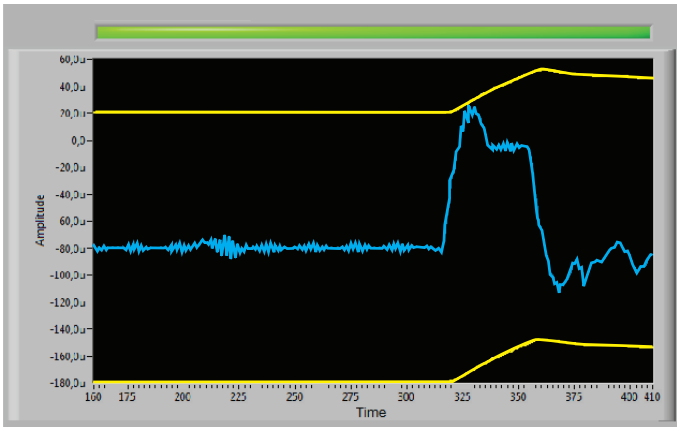
When mixed friction occurs during operation at constant speed, the BEAROMOS®2020 immediately detects an anomaly and warns of potential damage in one of the monitored slide bearings.

The software

All of this is clearly visualised by the supplied software. The sensor signal as a bargraph display (green <-> yellow) provides **information on the status of the monitored bearings at all times.**



Information about the condition of the bearings kept to a minimum



Long-term observation of bearing condition is possible

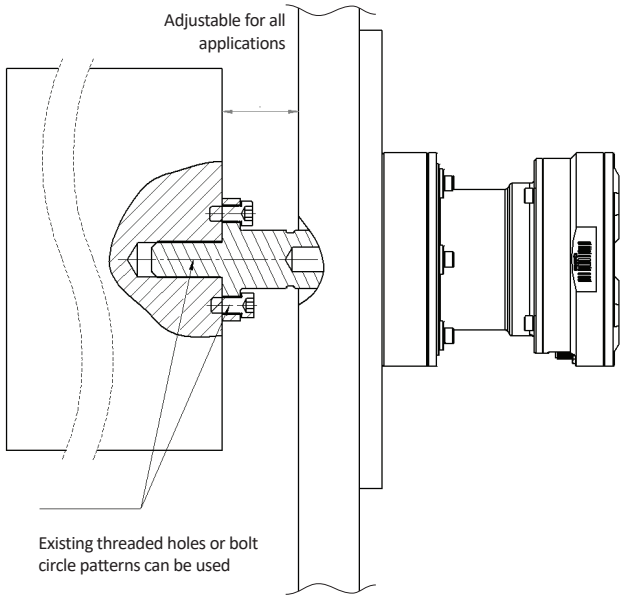
The key software functions and options:

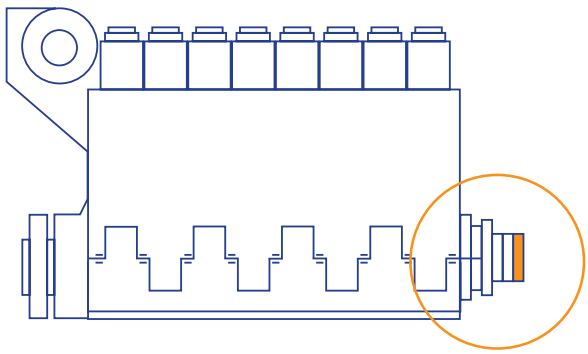
- Together with the sensor-recorded speed, the status of the bearing operation is displayed: liquid friction or mixed friction.
- The last transition from liquid friction to mixed friction is documented with date, time, duration and revolution speed.
- The transition from liquid friction to mixed friction and vice versa can also optionally be displayed as an average over time.
- Communication between software and sensor is continuously monitored with LED indicator.
- Long-term trends can also be displayed.
- Other features include: screenshot function, CSV export.

Installation

The system consists of an easy-to-install sensor to be attached to the e.g. combustion engine frame, at level of the crankshaft end.

The sensor is mounted on the rotating shaft using an application-specific adapter. The mounting can compensate for axial and radial movements of the shaft. If necessary, a sealing system can be integrated to protect the sensor from ingress of lubrication oil.





The highlights

The BEAROMOS®2020 allows the real-time condition monitoring of oil-lubricated slide bearings and detects the transition from normal operation to mixed friction within seconds.

This makes it the fastest measuring method on the market for detecting metallic contacts in slide bearings – and incipient wear.

The BEAROMOS®2020 allows you to:

- detect anomalies early in how slide bearings are running;
- calculate the remaining service life of oil-lubricated slide bearings;
- assess the severity of wear;
- monitor all the slide bearings of the crankshaft on large engines with just one sensor.

The benefits for you at a glance

Our slide bearing monitoring system is a fast, sensitive and reliable tool for developing predictive maintenance strategies, i.e. for anticipatory, proactive maintenance of your engines.

The BEAROMOS®2020 comes with the following benefits:

- Maintenance-optimised performance of your engines
- Valuable insights into operating condition
- Less downtime and greater availability
- More targeted planning of servicing
- Extended, efficient and plannable maintenance intervals
- Less downtime and lower repair costs

Technical data of the sensor

Power supply:	18-32 V DC (nominal 24 V DC)
Current consumption:	Max. 400 mA
Temperature range:	-25°C to +70°C
Speed range:	up to 1,500 rpm
Diameter:	140 mm
Total length up to flange:	125 mm
Weight:	4.5 kg
Attachment:	Application-specific adaptation
Protection rating:	IP56

SCHALLER AUTOMATION

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