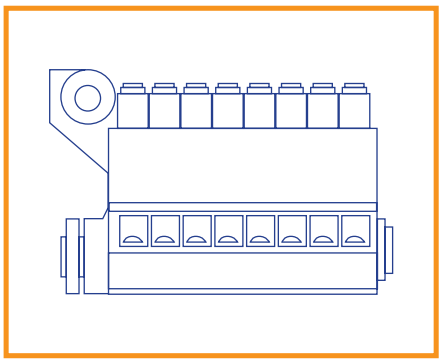
SCHALLER AUTOMATION

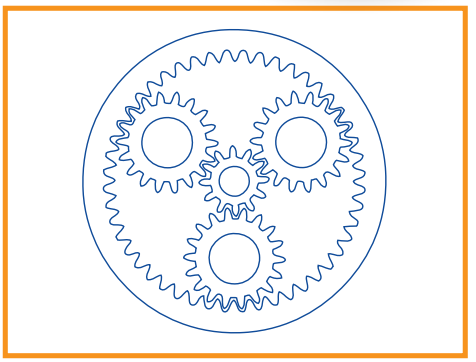
BEAROMOS®2020

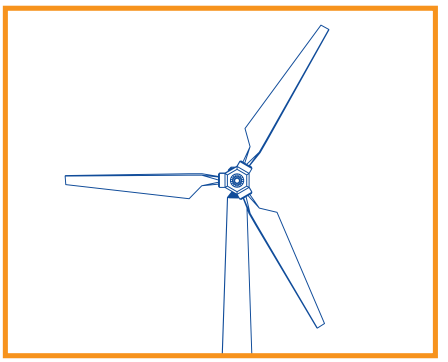
BEARing MOnitoring System

For oil-lubricated slide bearings



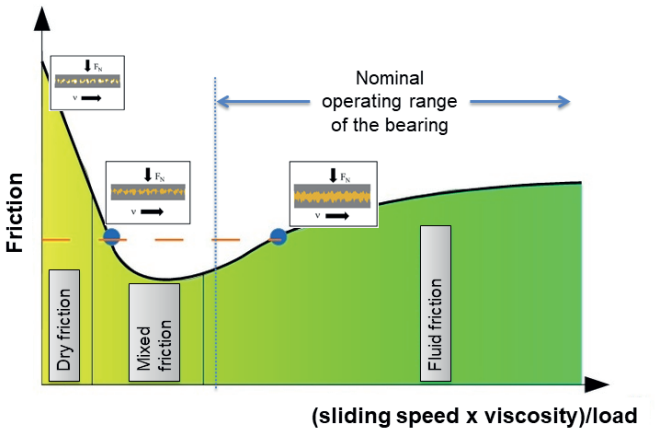






Detect the onset of bearing damage

even before signs of overheating



Operating ranges of hydrodynamic slide bearings

The BEAROMOS®2020 is an innovative monitoring system for oil-lubricated slide bearings, which detects the transition from sliding friction to mixed friction.

If it occurs during nominal bearing operation, this transition can cause incipient bearing damage.

The innovation in this application uses the physical phenomenon of the “Seebeck effect”, which generates a voltage as soon as 2 different metals, normally separated by the oil film, come into contact with each other.

On the first temperature change, a thermoelectric voltage is generated, which is detected by the sensor.

The system consists of an easy-to-install sensor that can be attached to for example an engine frame, at level of its crankshaft end.

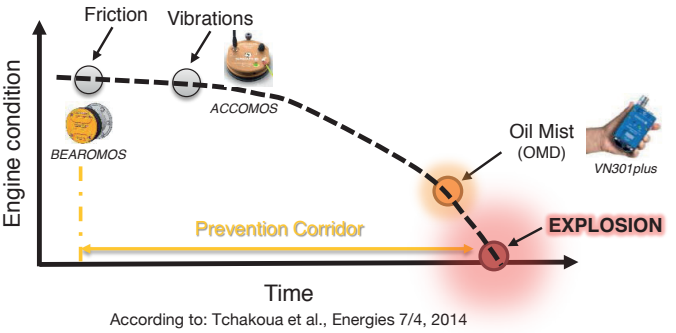
A shaft is integrated in the sensor, which is bolted to the crankshaft, e.g. using a simple adapter. A built-in compensator ensures that any radial and axial vibrations of the crankshaft do not damage the sensor.

The sensor housing is bolted to the existing cover on the engine frame, which is usually given at the crankshaft center level. Hydrodynamically lubricated slide bearings are designed so that they operate within the fluid friction range.

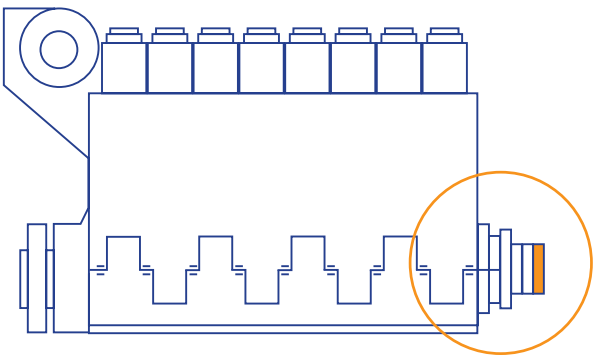
The bearings only move out of this range to mixed friction for a short time in rare cases (e.g. start/stop), and they then see increased wear.

BEAROMOS®2020 detects the deviation from normal fluid friction and can, for example, detect an anomaly when mixed friction occurs while running at constant engine operation to warn of possible acute severe damage in one of the main bearings.

Possible causes of mixed friction on the rotating shaft include: Particles in oil, consequences of cavitation, bearing wear, geometric deviations on bearing journals/shells, etc.



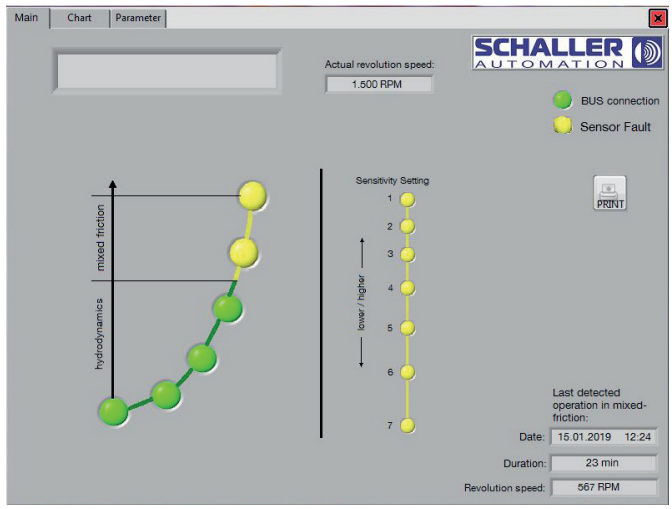
SCHALLER AUTOMATION product philosophy



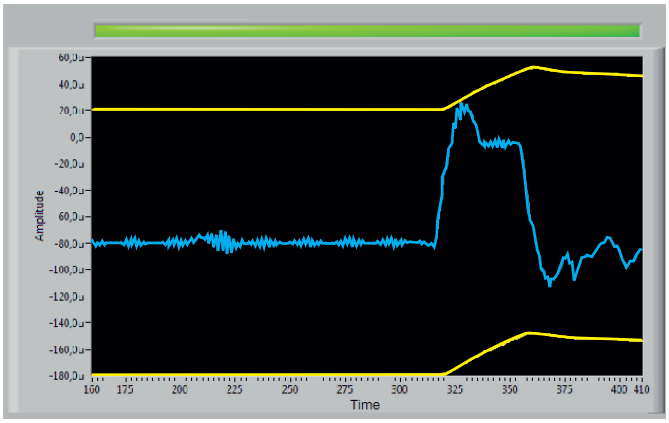
- Online monitoring of the main bearings of propulsion/ auxiliary engines
- Developed in cooperation with RWTH Aachen University, Germany
- Minimises maintenance costs
- Very easy to install, also as retrofit
- Proven faster response than bearing temperature monitoring

Software

- The supplied software uses the sensor signal to display the status of the monitored bearings.
- Together with the speed detected by the sensor, it is possible to make a statement about the status of how the bearing is running: hydrodynamic friction or mixed friction.
- Bearing status is displayed as a bar graph (green<->yellow)
- Long-term trends can be shown
- Records the last transition from hydrodynamic friction to mixed friction with date, time, duration and revolution speed



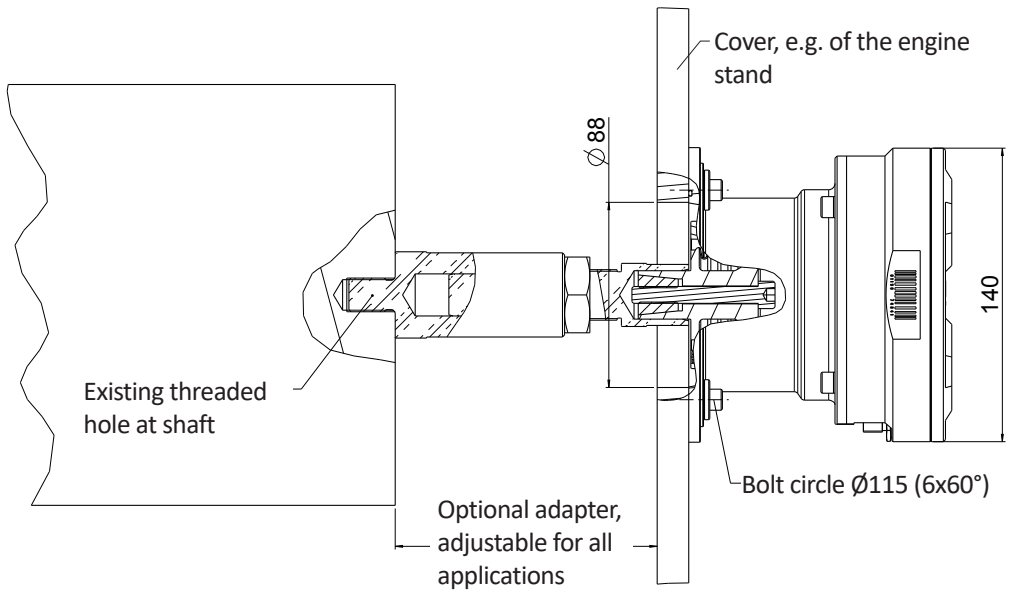
Information about the condition of the bearings concentrated to a minimum



Long-term observation of bearing condition is possible

- Continuously monitors communication between software and sensor via LED indicator.
- Screenshots can be taken of current display
- Possible to export the current data content from the graph to a CSV file
- The transition from hydrodynamic friction to mixed friction and vice versa can also be displayed as an average over time
- There is a visual status indicator, if threshold value is exceeded

Sensor Installation



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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ISO 9001/2015 certified