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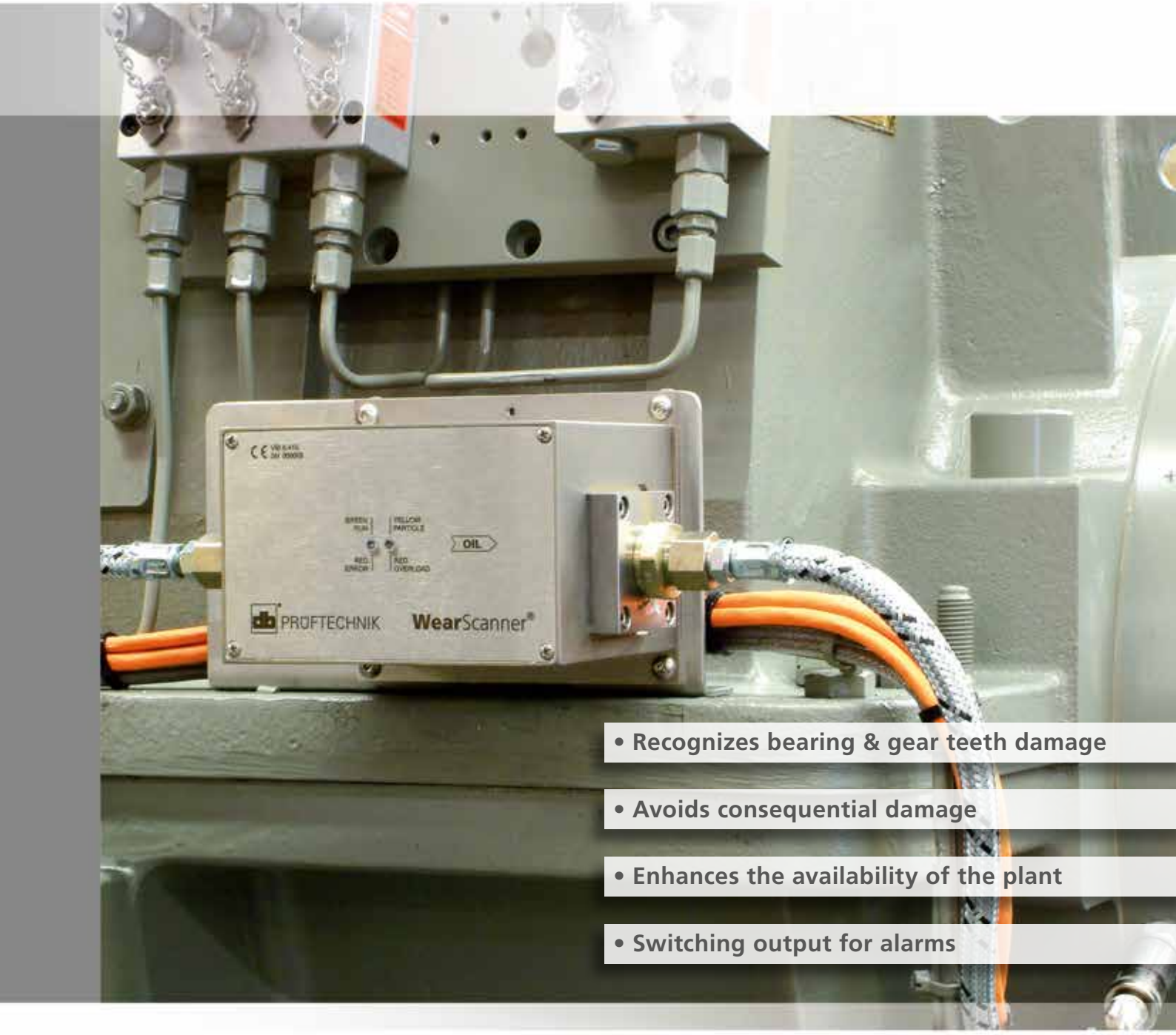
PRÜFTECHNIK

WEARSCANNER®

Online particle size distribution counter monitors wear debris in oil



- Recognizes bearing & gear teeth damage
- Avoids consequential damage
- Enhances the availability of the plant
- Switching output for alarms

Early recognition of bearing and gearbox damage with WEARSCANNER®

Several hundred liters of oil circulate within a gearbox. In large machines and oil tanks it may even be several thousand. The function of the oil is to lubricate, clean and cool. Contaminants in the oil are indicators of incipient damage. However, they can also lead to premature failure by disrupting the thin lubricating film in roller bearings, pumps, valves, crank shafts and gear meshes.

WEARSCANNER® is an intelligent sensor that detects electrically conductive particles, counting them in real-time and classifying them by size according to ISO 16232. The non-intrusive sensor can be mounted upstream from the bypass oil filter in large machines, for example.

It automatically transfers the measured data to the plant control system via ModBus and/or straight to the operator or service center via online CMS. Changes in the quantity and size of the detected particles observed during trend monitoring enable the early detection of progressive damage to gear teeth or roller bearings.

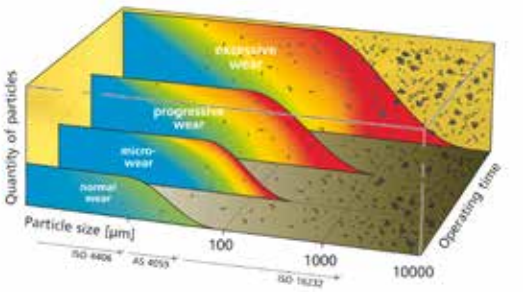
WEARSCANNER® uses a new patented method for detecting particles that is based on the eddy current principle and works independently of oil temperature, flow rate, viscosity, air and water content and oil color (darkening). In this way, it is also able to detect very slow-moving particles.

Particle size classes according to ISO 16232

WEARSCANNER®

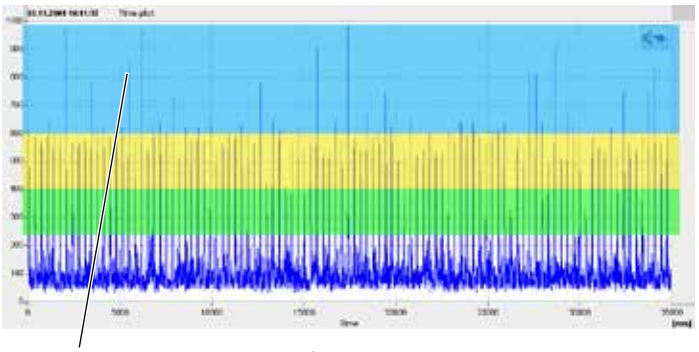
							Size classes covered by WEARSCANNER®			
Class	B	C	D	E	F	G	H	I	J	K
Size	5-15µm	15-25µm	25-50µm	50-100µm	100-150µm	150-200µm	200-400µm	400-600µm	600-1000µm	>1000µm

Size and distribution of particles



General rule: The larger the particles, the greater the damage.

How WEARSCANNER® works



- Each peak represents a particle that flows through the sensor tube.
- The amplitude indicates the size of the particle.
- The peaks are counted in set time intervals – and the number of peaks per time interval is transmitted via ModBus TCP.
- The size categories – three in this case – are configured for each particular situation.
- The time resolution and scan rate can be selected.
- The sensitivity of the WEARSCANNER® can be adapted by adjusting the gain, power and filter to the machine application.

Technical details

Fitting dimensions
1/2" - other sizes available upon request
Measuring method
eddy current, differential coil principle
Particles
ferritic or non-ferritic
Particle size class
up to 8 size classes can be set
Flow velocity
0.01 m/s – 5 m/s (0.1 - 40 l/min)
Oil type
mineral, synthetic or biodegradable
Oil pressure
max. 16 bar

Temperature range
-20°C – 80°C
Signal processing
particle distribution counter with integral average determination and classification
Display
LED 1: green = system ready, red = fault
LED 2: yellow = particles passing through, red = overload
Interfaces
TCP/IP, Ethernet
Protocols
Modbus TCP
Power supply
21 V – 30 V

Internal memory
64 MB (~ 150 days)
Maintenance
no moving parts, maintenance-free
Self-monitoring
integrated
Lightning protection
integrated
Casing material
stainless steel 1.4308 (seawater-proof)
Dimensions
120 x 80 x 80 mm
Weight
3.5 kg

PRÜFTECHNIK
PROVEN QUALITY
▸ Made in Germany
▸ Global Presence
▸ Qualified Support
▸ Quality Service

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