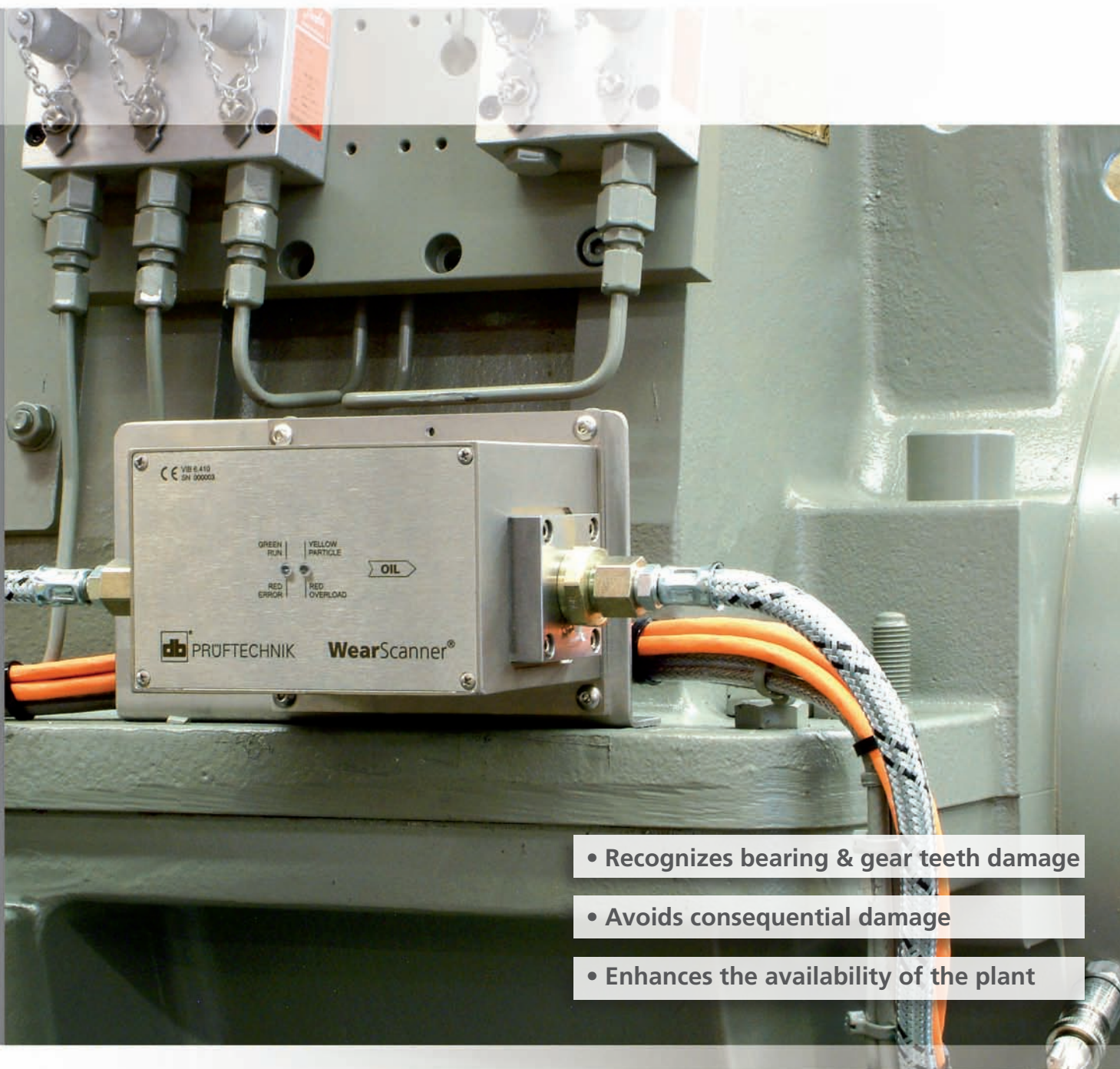


# WEARSCANNER®

Online particle size distribution counter monitors wear debris in oil



- Recognizes bearing & gear teeth damage
- Avoids consequential damage
- Enhances the availability of the plant

# 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 sen-

sor 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

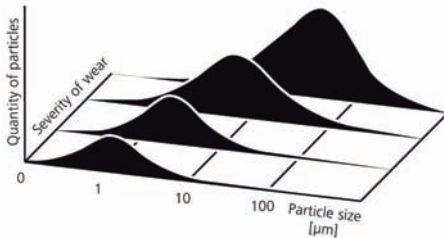
Class	B	C	D	E	F	G	H	I	J	K
Size	5-15µm	15-25µm	25-50µm	50-100µm	100-150µm	150-200µm	200-400µm	400-600µm	600-1000µm	>1000µm

Size classes covered by WEARSCANNER®



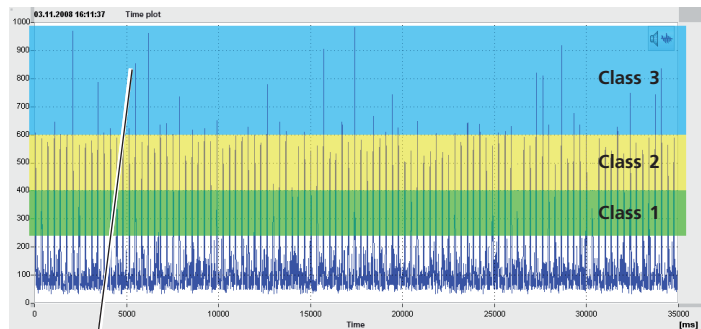
WEARSCANNER®

## 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

**Oil type**  
mineral or synthetic

**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**  
24V – 48V

**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

Visit us at [www.pruftechnik.com](http://www.pruftechnik.com)

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Productive maintenance technology