

Life extension upgrade solution for Gears and Bearings in Wind Turbines

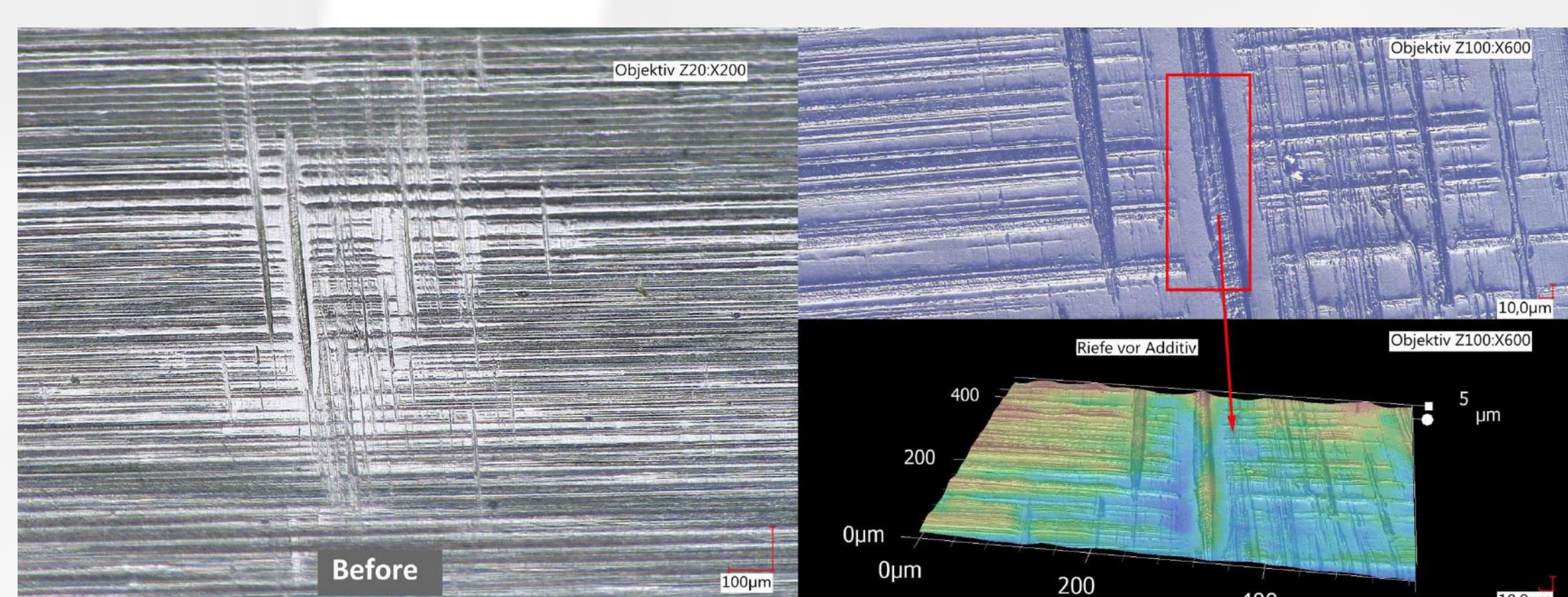
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REWITEC® is a medium-sized business that develops an innovative nano- and micro-particle based surface treatment technology. This technology uses lubricants as a carrier for a protective and repairing silicon coating in engines, gears and bearings in industry sectors like WIND ENERGY, INDUSTRY, MARITIME & AUTOMOTIVE.

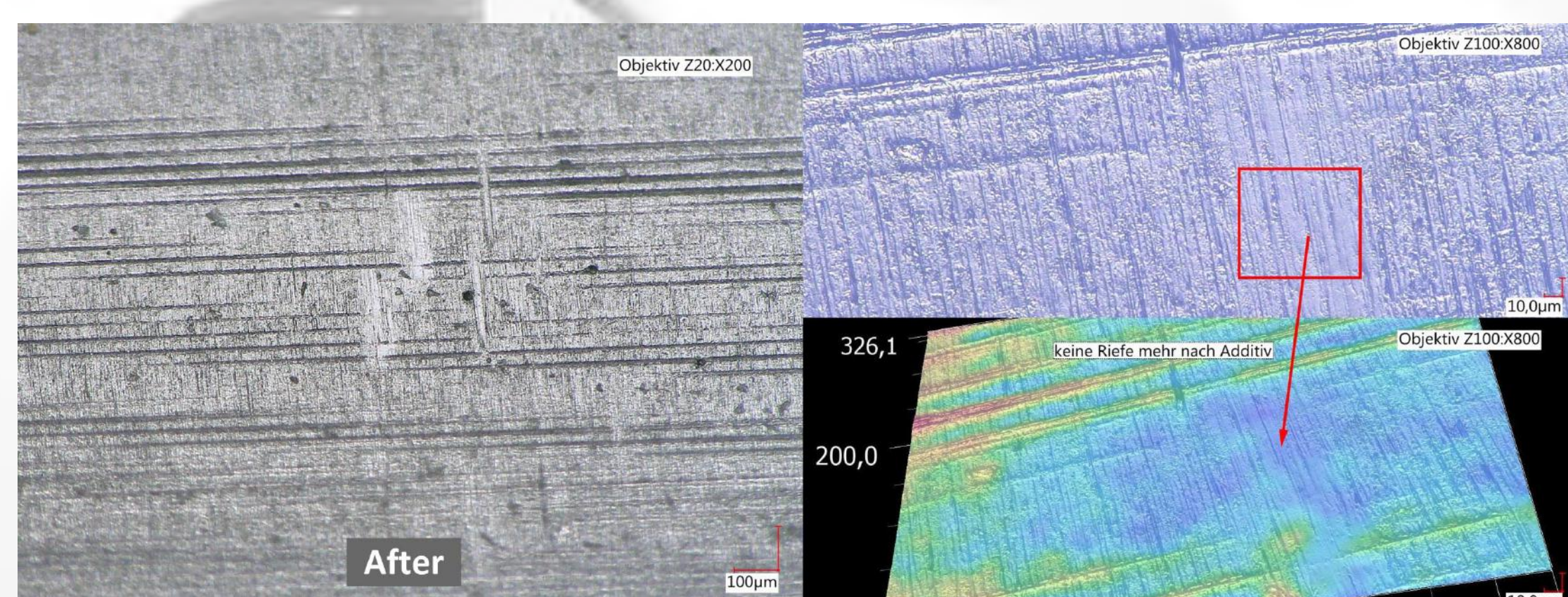
Application example

The Gearbox of a GE 1.5sl wind turbine was after operation prophylactically treated against tribological wear such as micro pitting, and seizing of surfaces.



Picture 1: Imprints before the application

Before treatment with REWITEC® there was operational wear visible and in the foot area visible seizing and stray metallic particle run through marks.



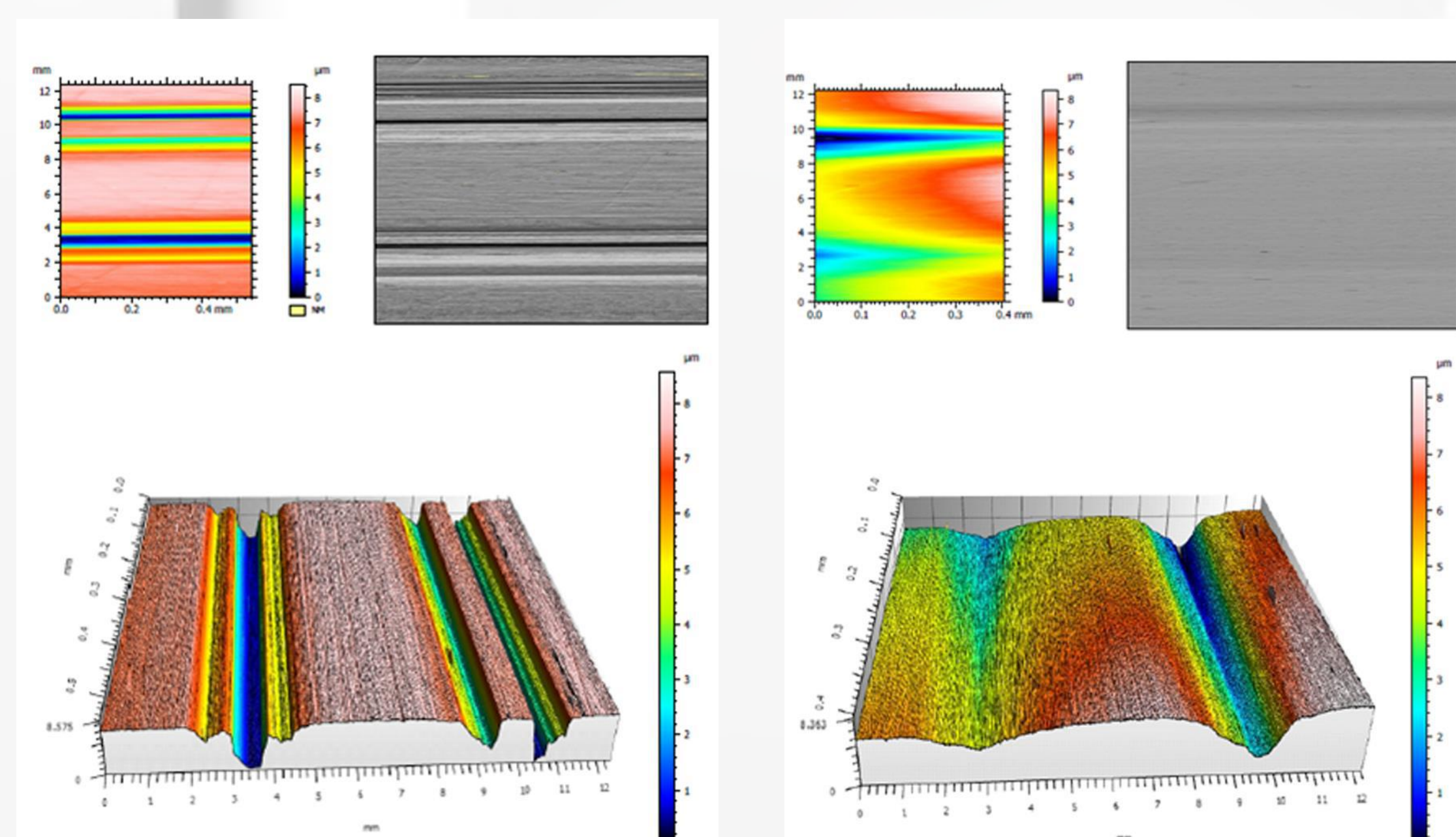
Picture 2: Imprints after the application

The addition of REWITEC® resulted in a significant improvement of the surface roughness. Stray metallic particle run through and seizure are greatly smoothed out. Run through marks and pitting are greatly smoothed out, too.

Scientific Tests

FE-8 Test

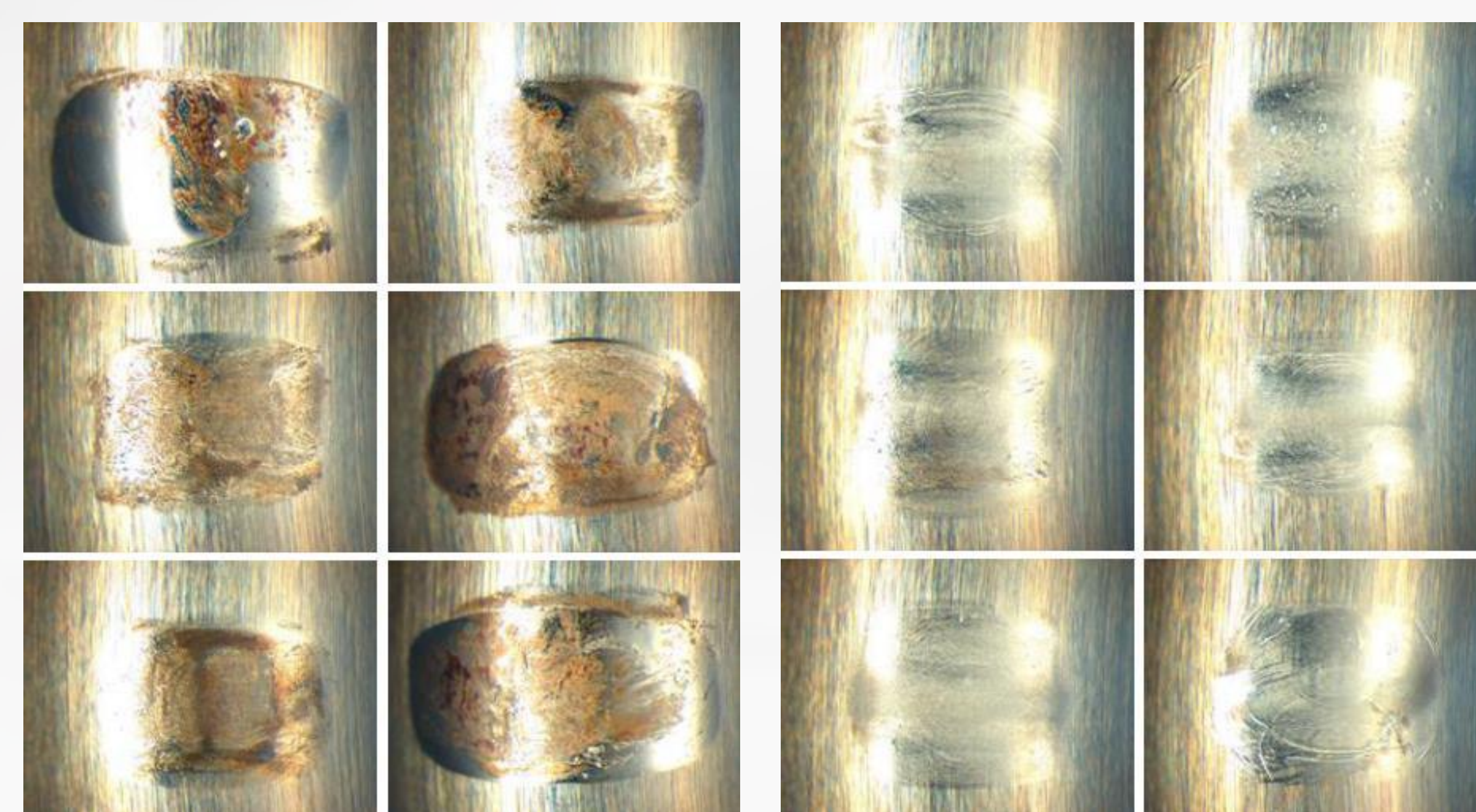
The FE-8 Test is used to examine lubricating oils and greases with regard to their wear and friction behaviour under specific influences.



Picture 3: Bearing examination under a microscope without and with REWITEC®

False-Brinelling / SNR-Tests

The Competence Center of Tribology, Mannheim show the influence of the REWITEC® additive on existing standstill marks. The bearings were pre-damaged in a preliminary test with very small swivel angle.



Picture 4: Surfaces after 3 hours, left: pure grease, right: REWITEC®-modified

- By using REWITEC® the markings were on average again less severely damaged
 - Oxidation in the contact point is significantly lower
- The tests show that adding REWITEC® to a standard grease can provide benefits in case of standstill mark / false-brinelling damage.

Results

The innovative technology increases reliability and extends system lifetime by permanently reducing surface roughness, friction, temperature, and wear. Utilizing REWITEC® especially in the Wind Energy Industry will help reduce operational expenses and thus help drive the lower cost of energy making clean energy more sustainable.

Less friction and surface roughness in tribologic systems means:

- Less stress and wear for the gearbox and bearings
- Higher efficiency
- Less stress for the lubricant
- Higher reliability and availability, no downtime
- Cost savings, higher earnings
- Longer Lifetime

