

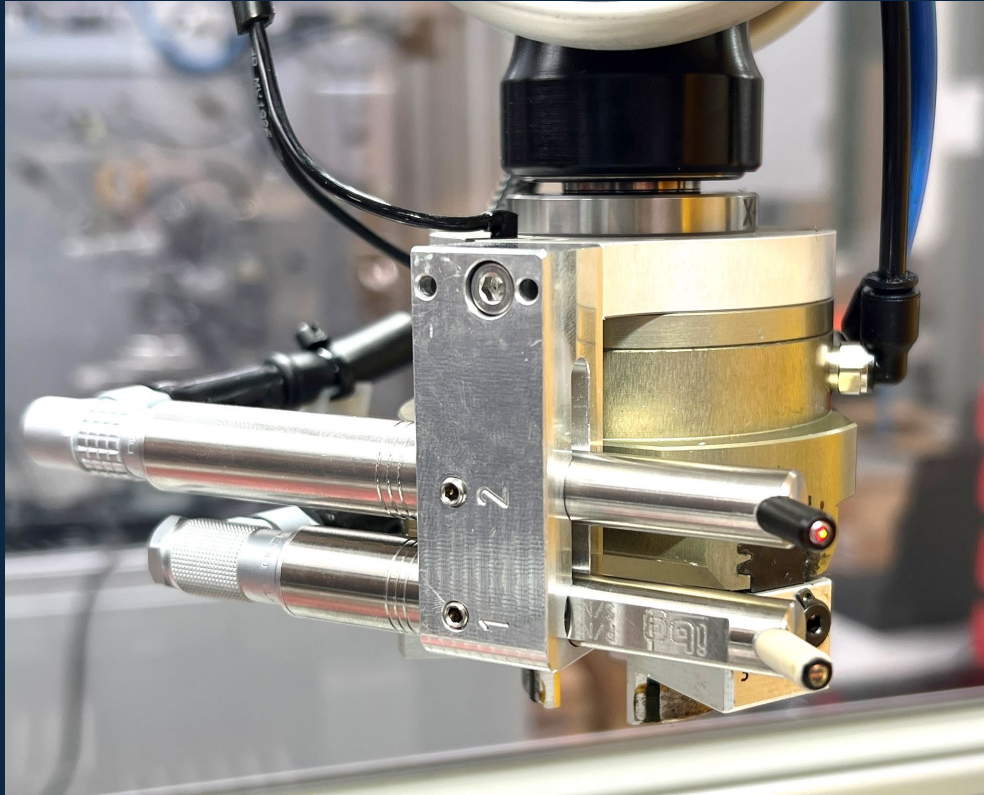
Hybrid Testing of Rolling Bearing Components

**iORS ibg's Optical Reflection Sensor
in combination with ECT Crack Testing Probes**

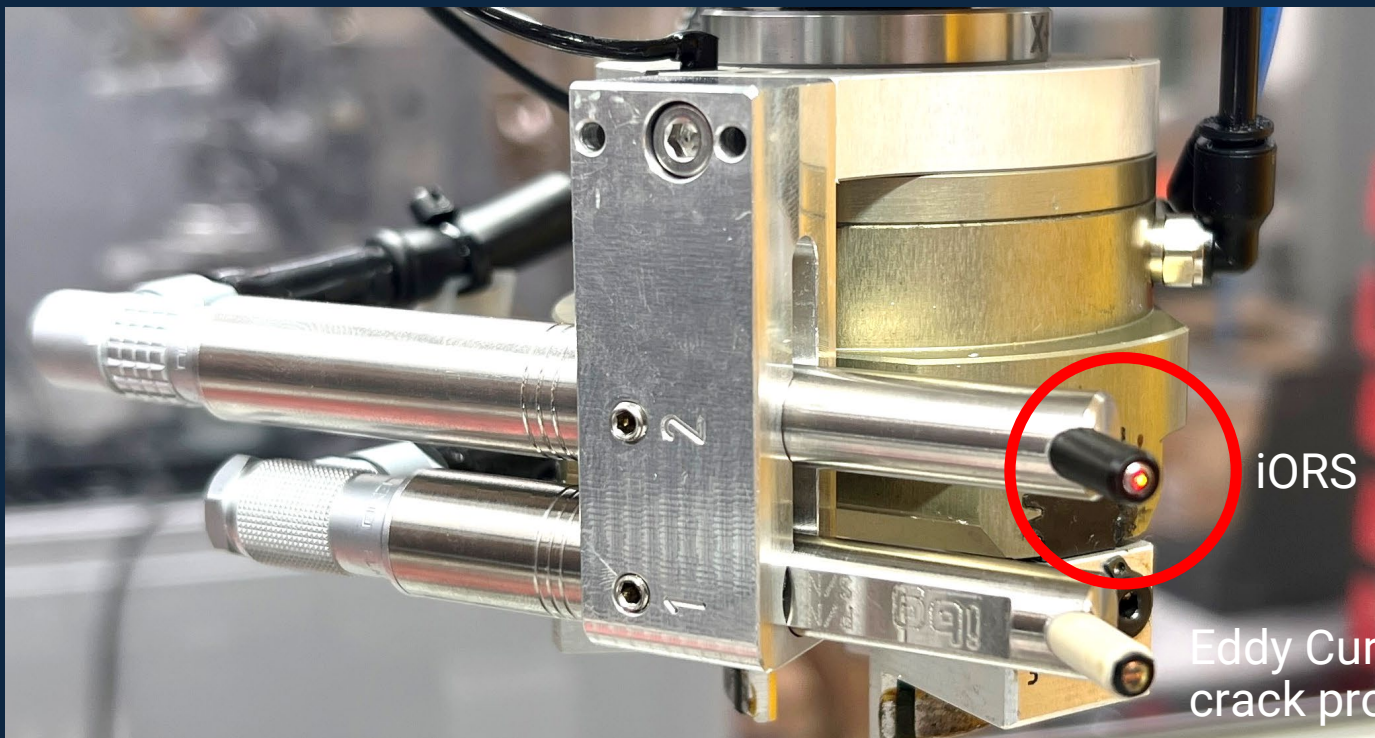
Wolfgang Korpus



iORS - Single Sensor



iORS - Single Sensor



iORS - Combi Sensor

**NEW
ARRIVAL**
SHOP NOW



iORS &
ET probe
combined

A red abstract graphic consisting of several curved, overlapping lines, resembling a stylized flame or a dynamic swirl, located on the left side of the slide.

Missing Chrome Areas

Black Dots

Outbreaks

Pores

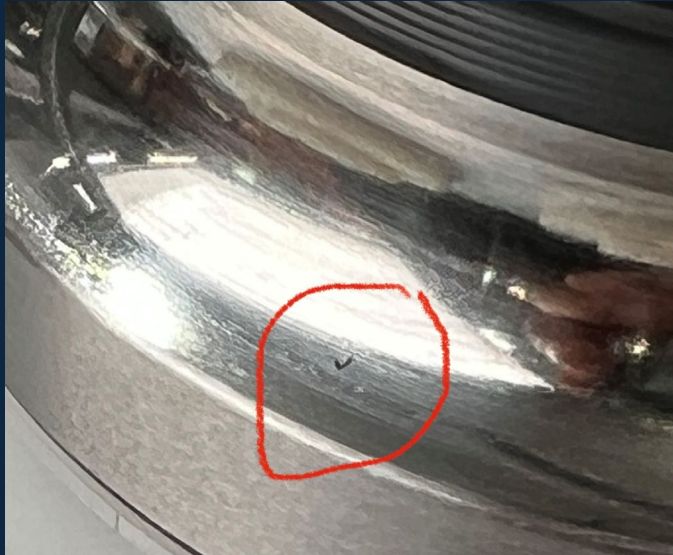
Cracks

Particles/Dirt

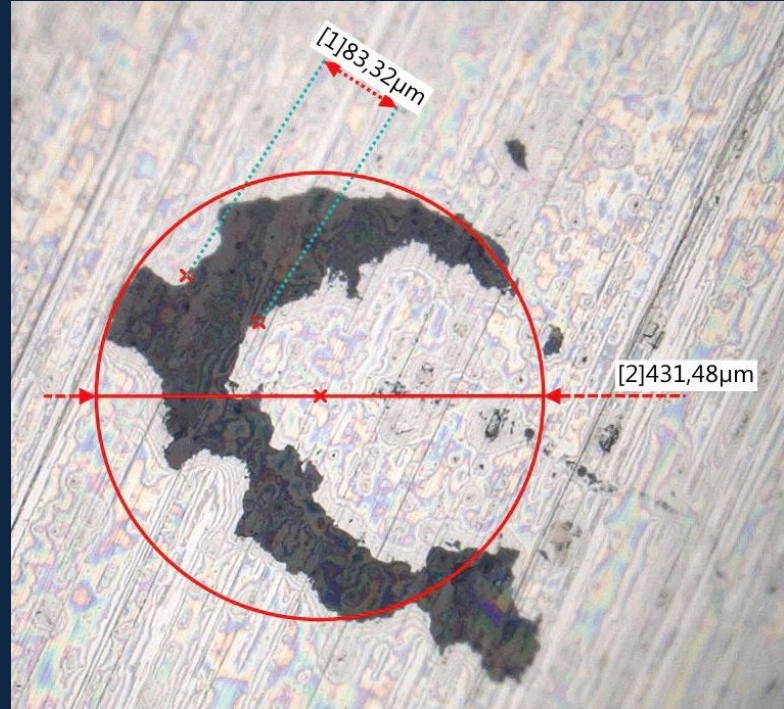
Material Inclusions

(e.g. Endogenous like Ceramic Second Phase, high/low density of additives)

iORS - Black dots & more

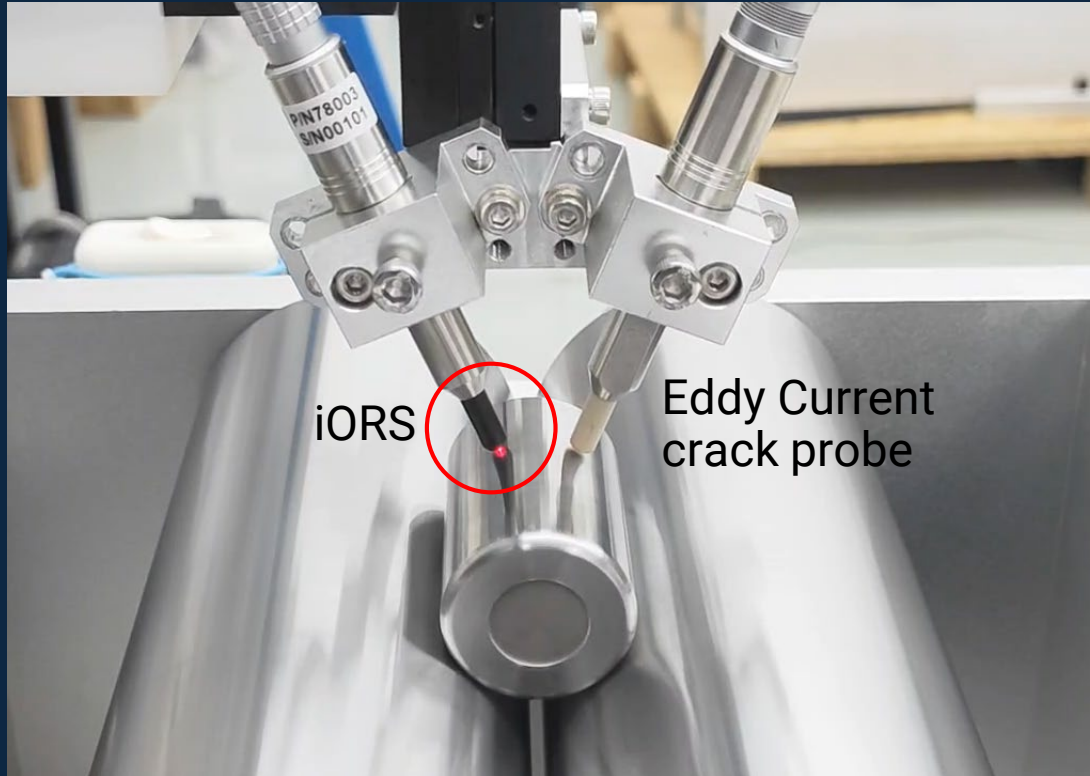


pen marker (cleaned)



iORS - As easy as ibg crack test



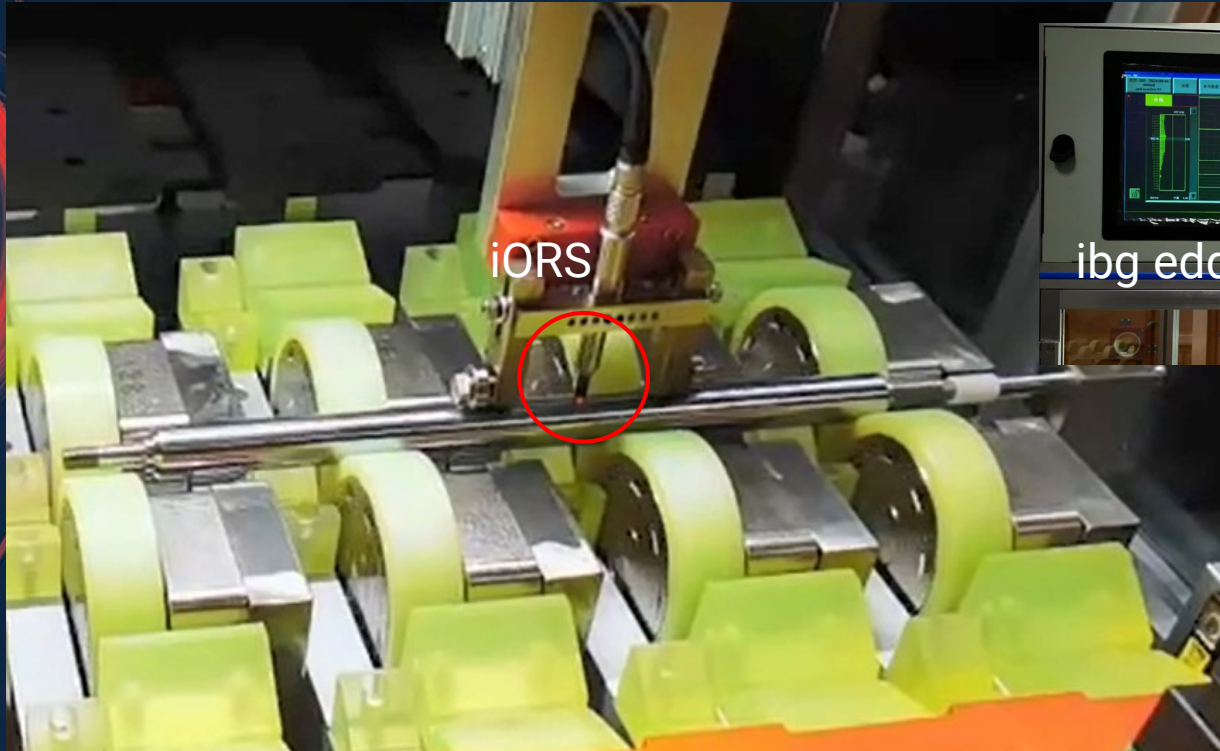


detecting
black dots &
outbreaks on
cylindrical roller



detecting
missing chrome
spots on
piston rods

iORS - Piston Rod Test System just with iORS



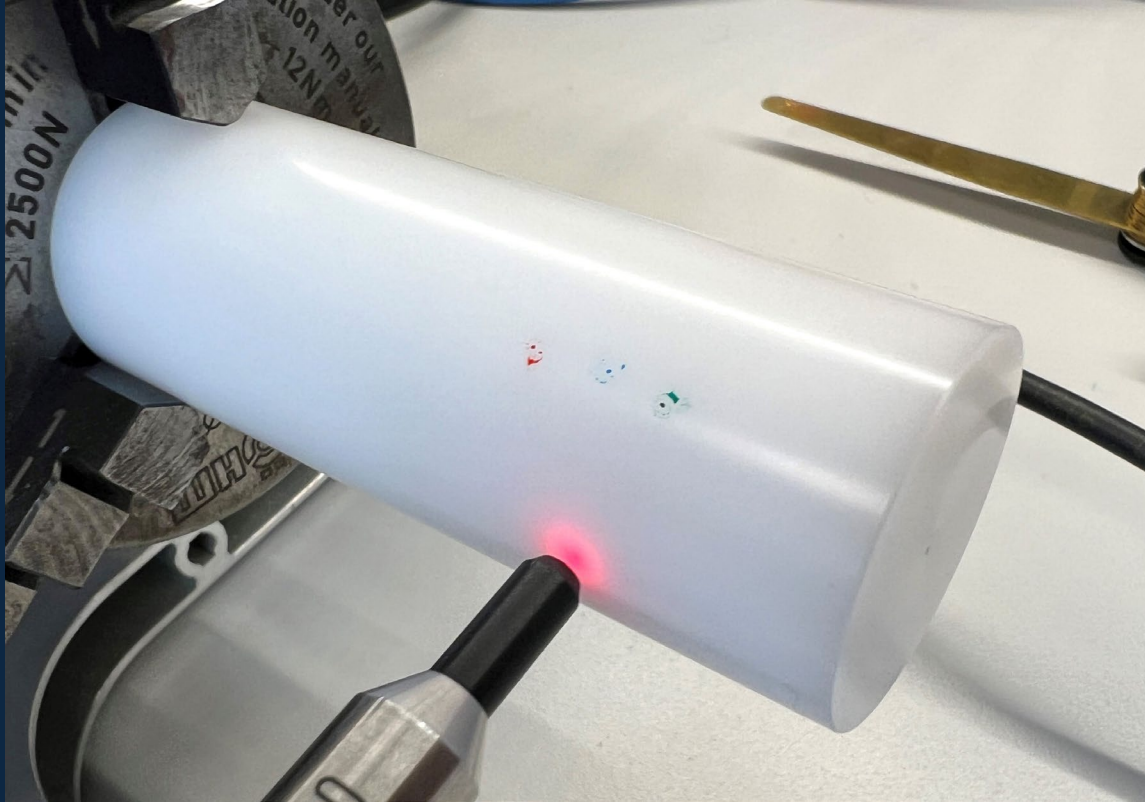
iORS



ibg eddyguard C

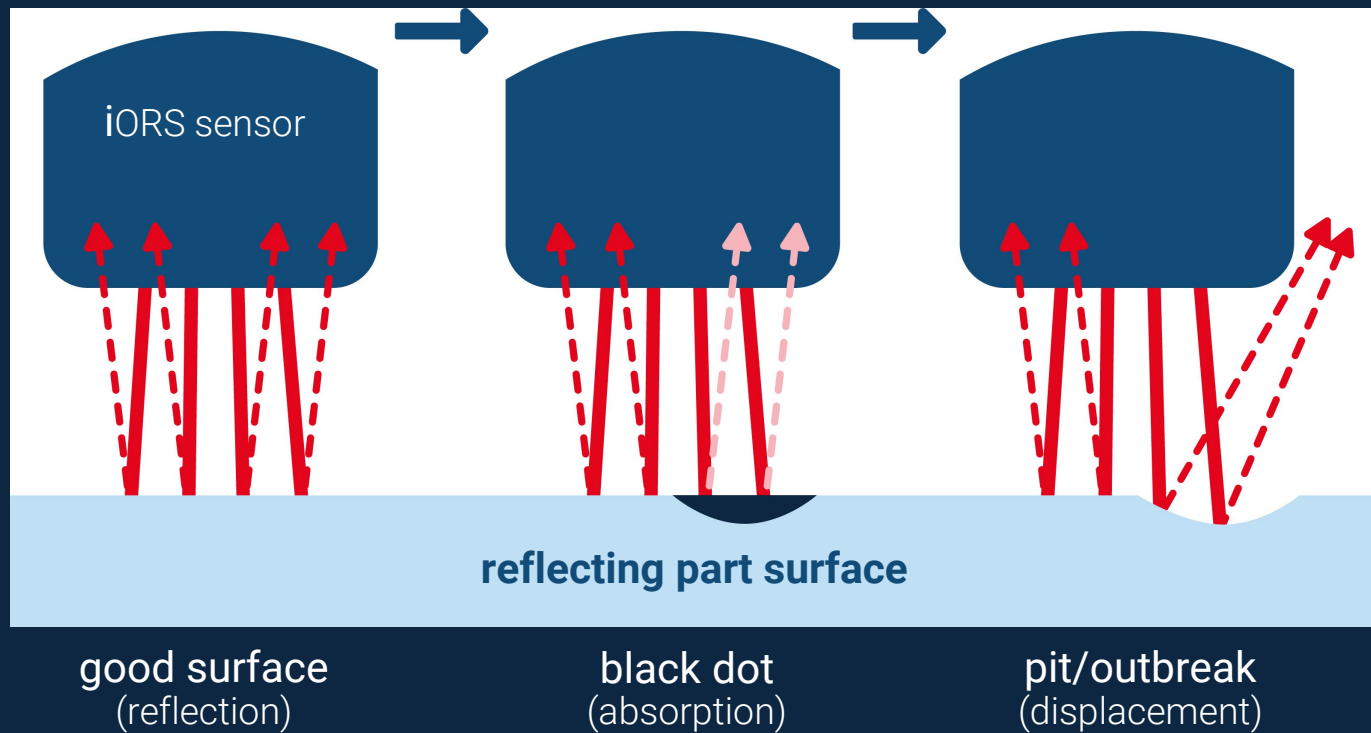
replacing
visual inspection
on piston rods

iORS - For reflective material surfaces, not only metal...

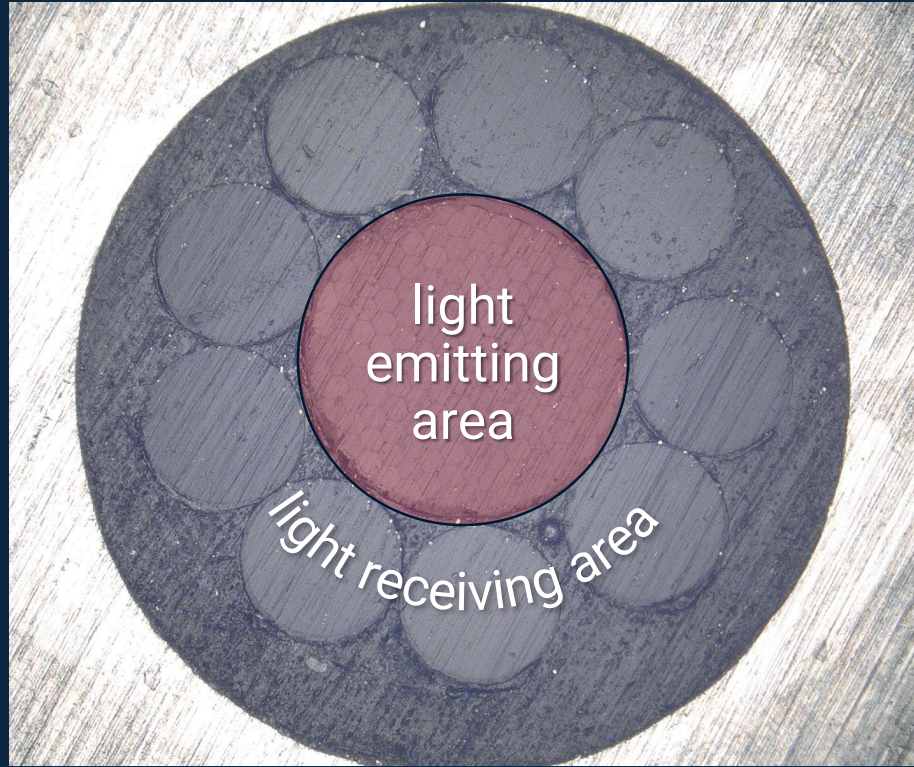


also capable on
other reflective
materials like
ceramic or plastic

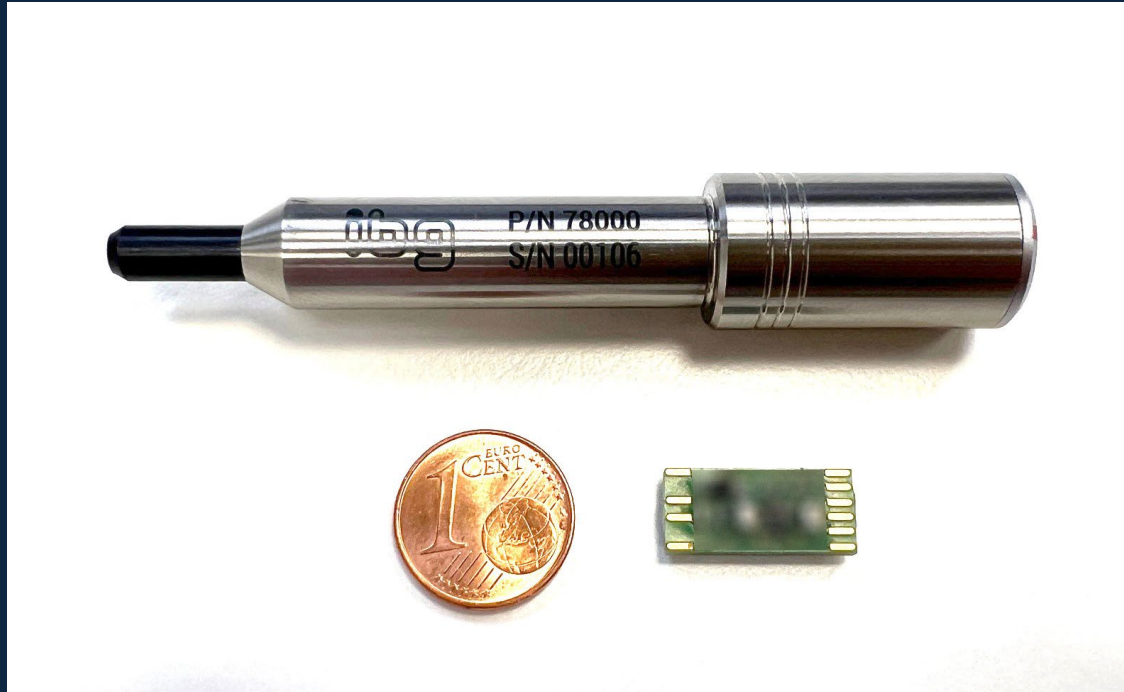
iORS - Technology



iORS - Technology

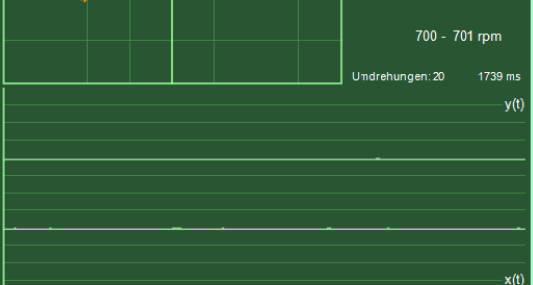


- Micro Fiber technology
- emitter: red LED light
- receiver: adapted to ibg C units
- trace width: 1mm
- sensor to part distance: 0,7mm
- sensor perpendicular to surface (but insensitive to slight tilting)
- ibg standard probe housing

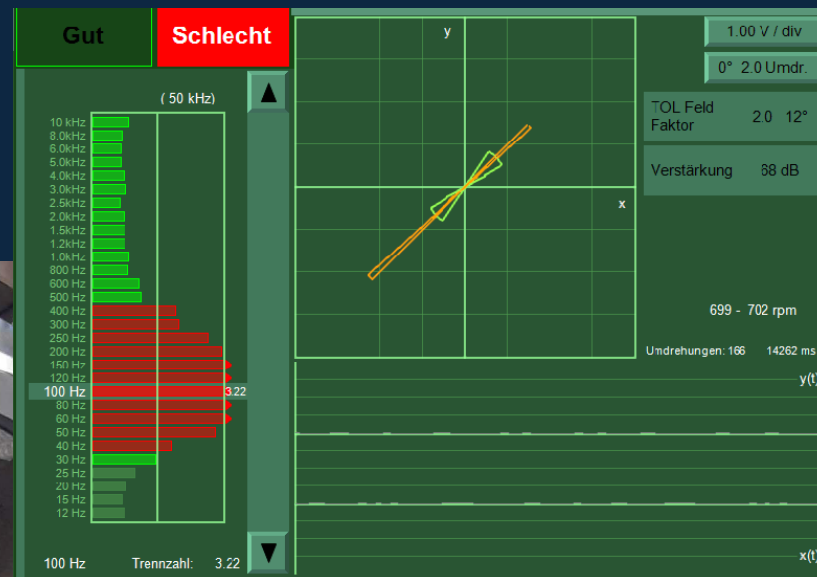


Electronic Board
inside probe housing
to adopt light signals
to the ET instrument

- 
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- 1. recommended frequency 3x amplification iORS: 50-150 kHz**
 - 2. for Combi Sensor use eddyvisor C1+1**
 - 3. switch of „probe monitor“**
 - 4. „additional gain“ & „rotating head“ only if needed**
 - 5. P/N 78000-03 - iORS Standard 3x - for finished steel surfaces**
also available: 1x (mirror) & 10x (ceramic)

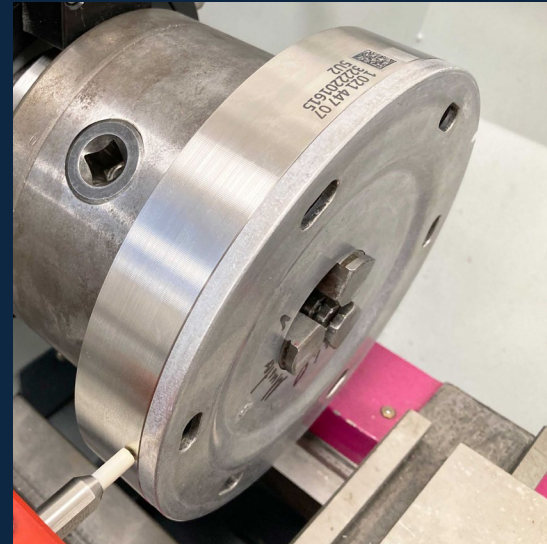
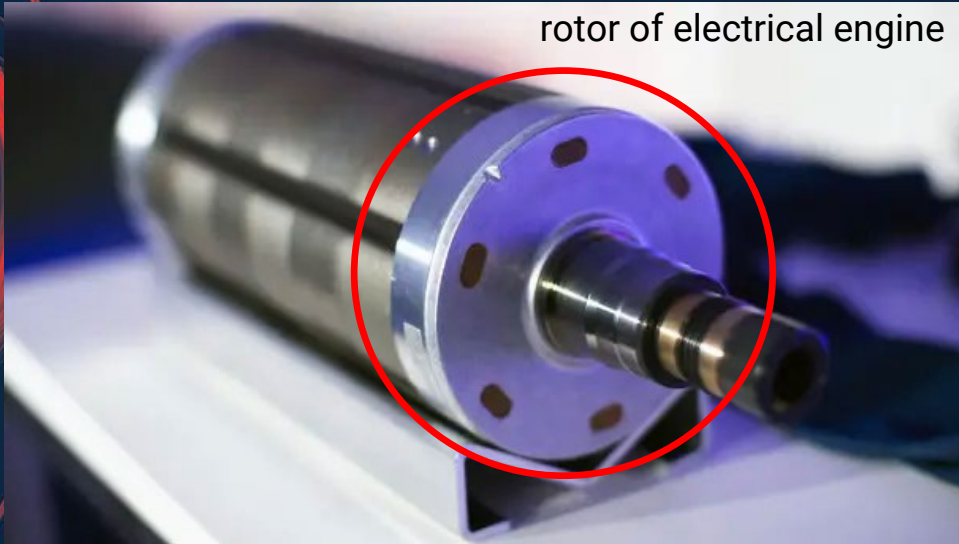


iORS - Application: Bearing Rings (Black Dots on Face Side)



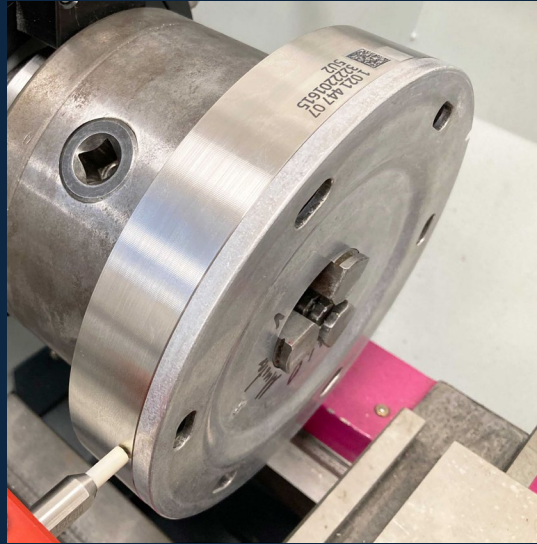
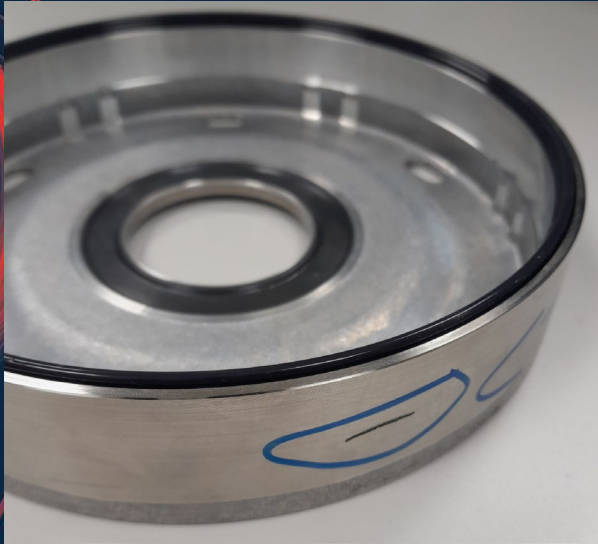
iORS - Application: Steel Ring (Bandage)

rotor of electrical engine

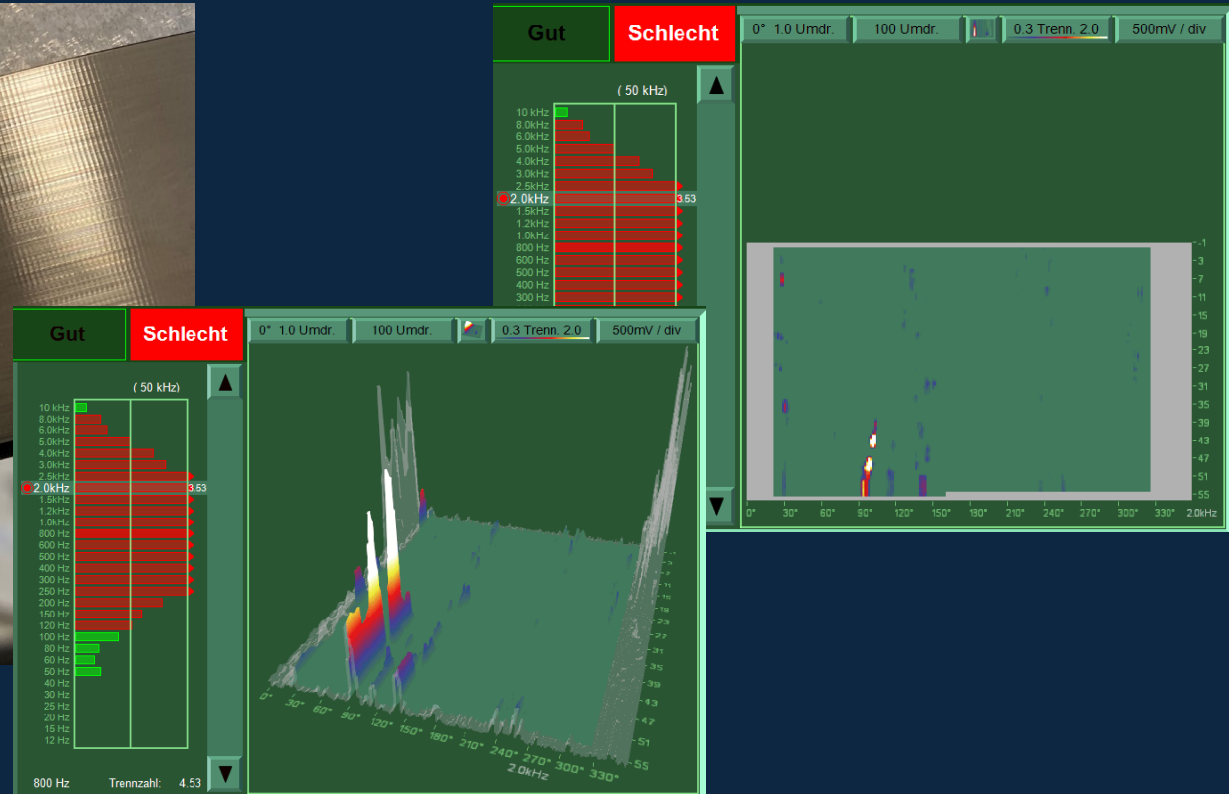
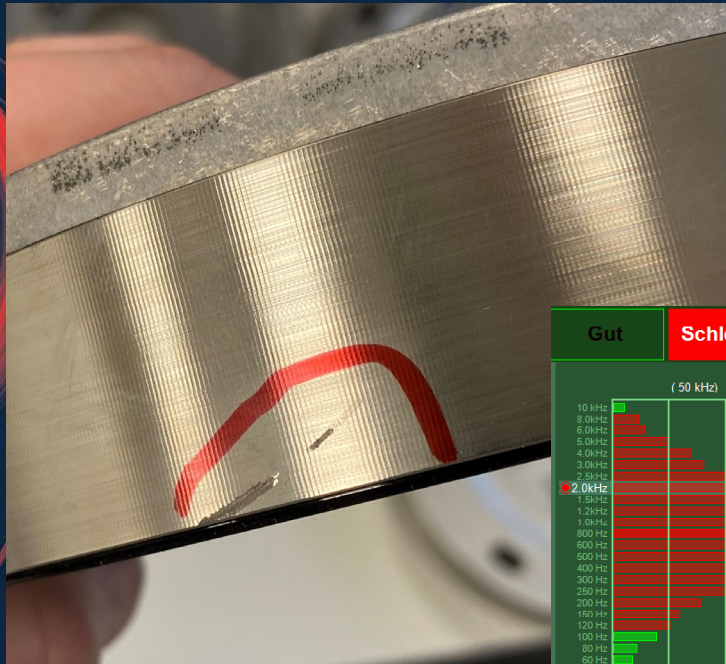


ET raw data from ring scan - untestable by ET because of internal stress signals after bending

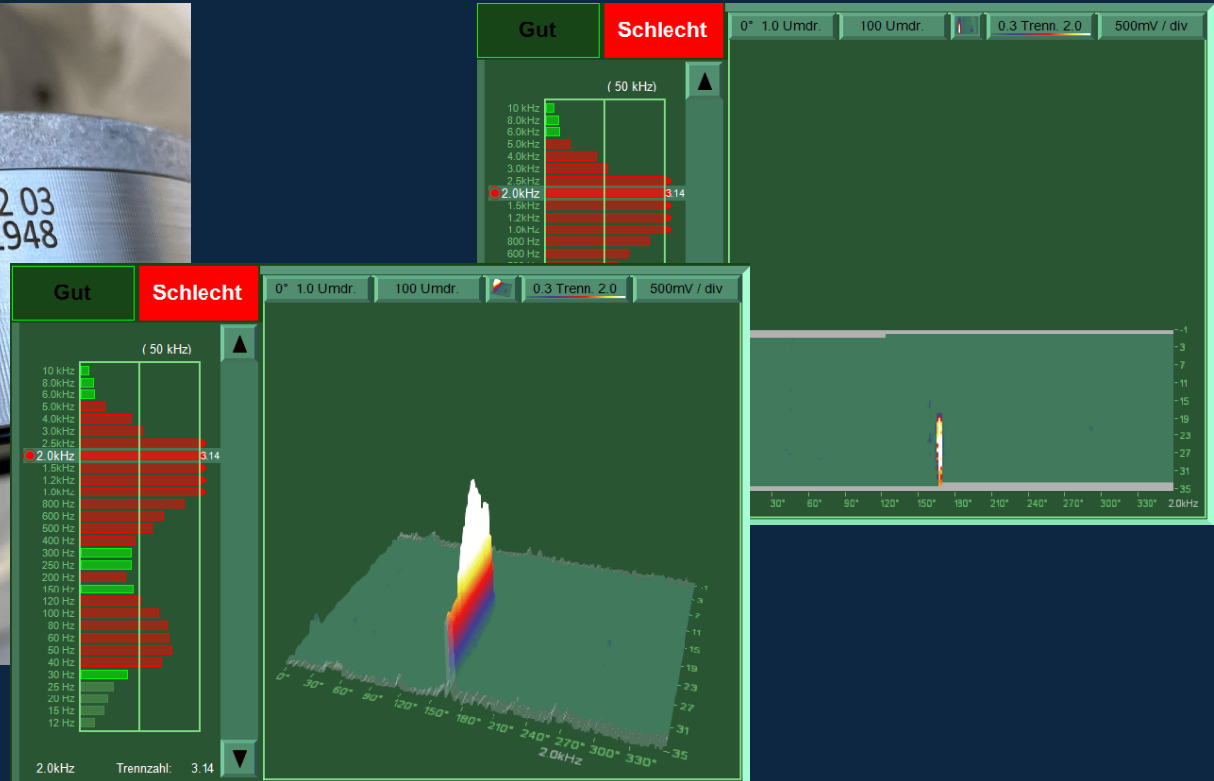
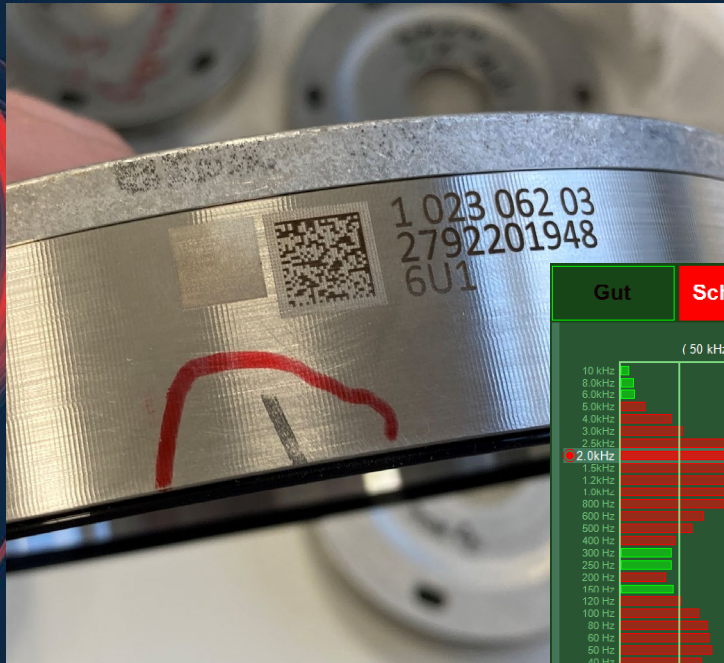
iORS - Application: Steel Ring (Bandage)



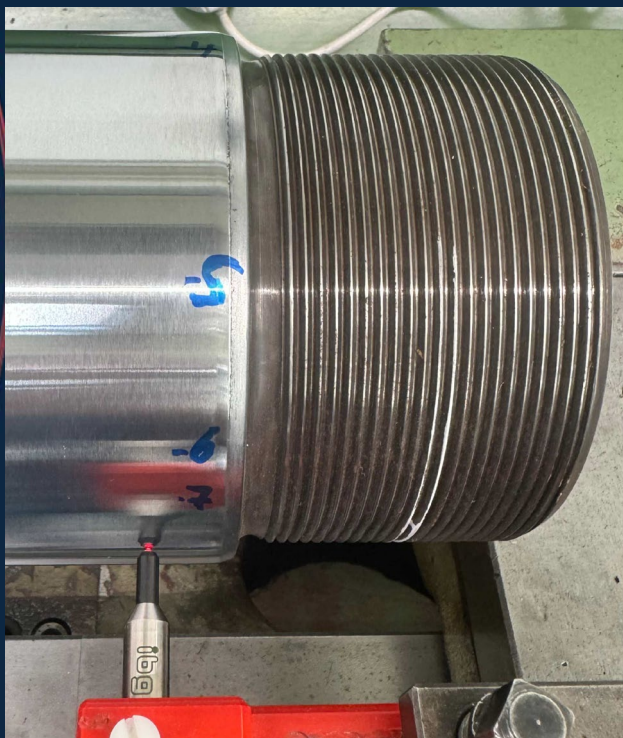
iORS - Application: Steel Ring (Bandage)



iORS - Application: Steel Ring (Bandage)

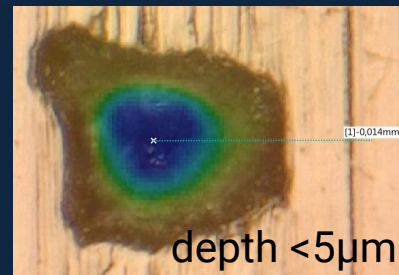
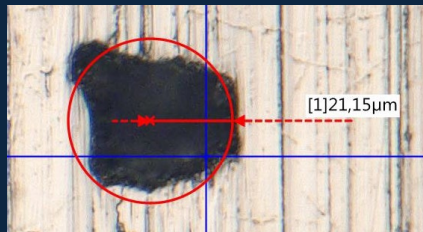


iORS - Application: Piston Rod (Outbreaks/Missing Material)



ET not detected

iORS SNR 3.0 : 1

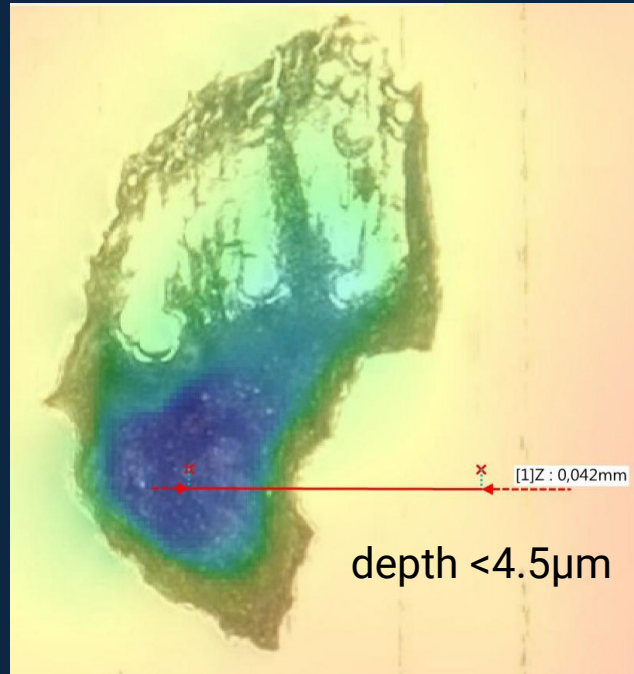
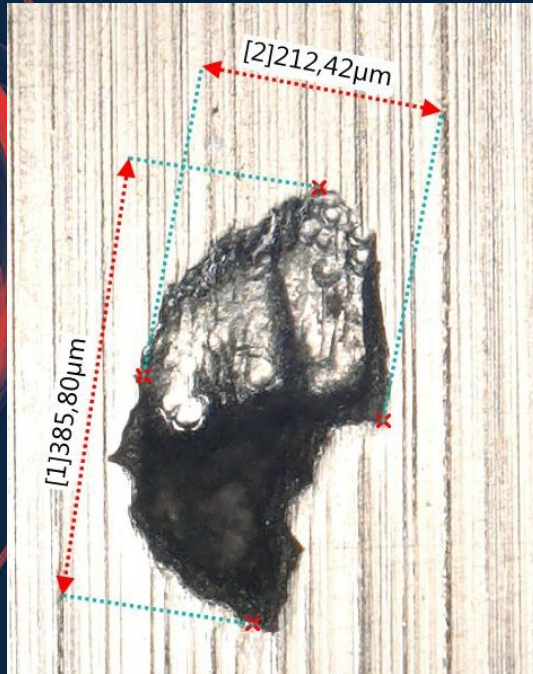


ET not detected

iORS SNR 3.0 : 1



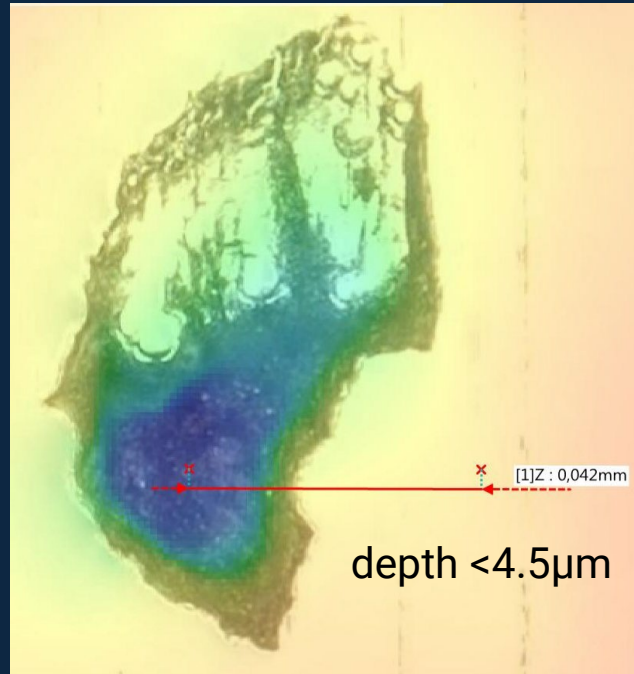
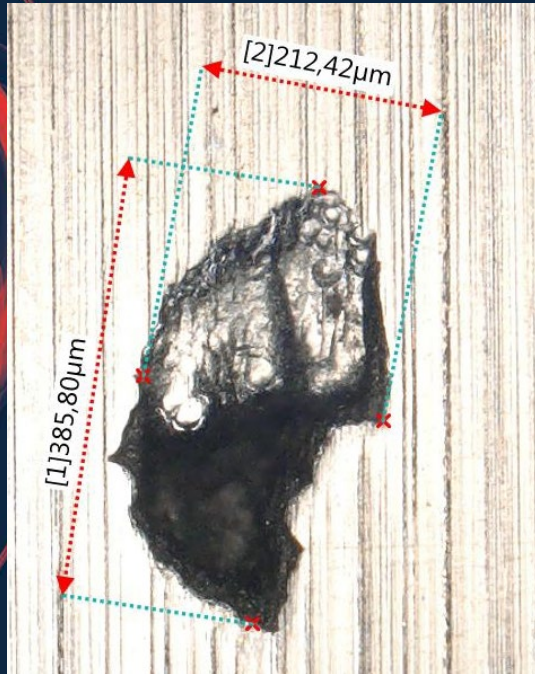
iORS - Application: Piston Rod



Eddy Current
SNR 3.8 : 1

iORS Optical
SNR 3.6 : 1

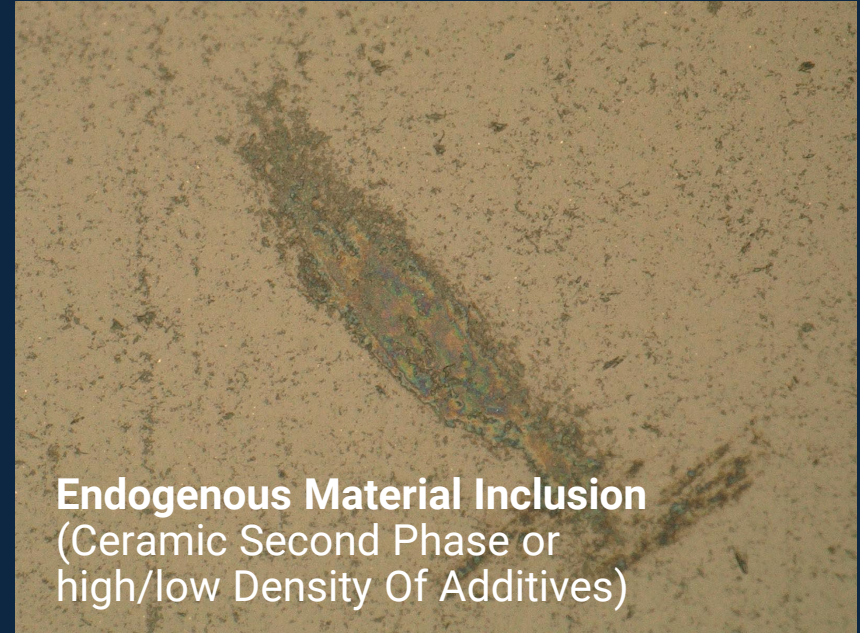
iORS - Application: Piston Rod



Eddy Current
SNR 3.8 : 1

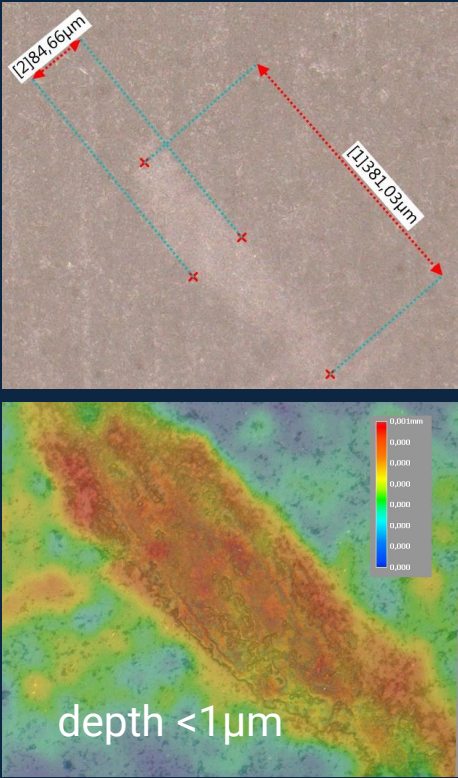
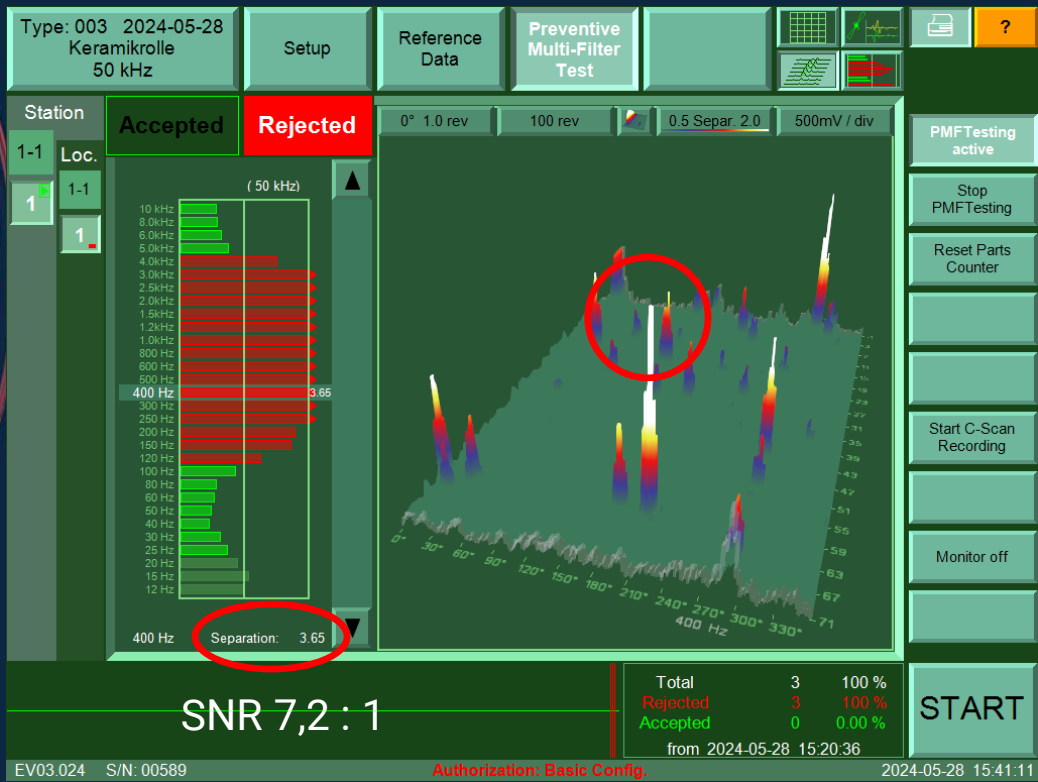
iORS Optical
SNR 3.6 : 1

iORS - Application: Silicon Nitride Ceramic Roller

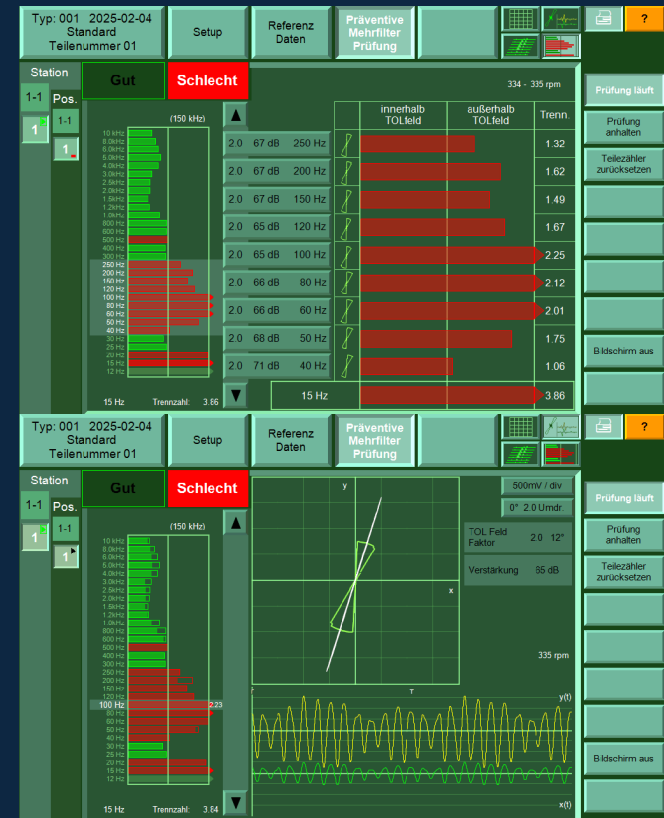


Endogenous Material Inclusion
(Ceramic Second Phase or
high/low Density Of Additives)

iORS - Application: Silicon Nitride Ceramic Roller



iORS - Application: Centering Flange

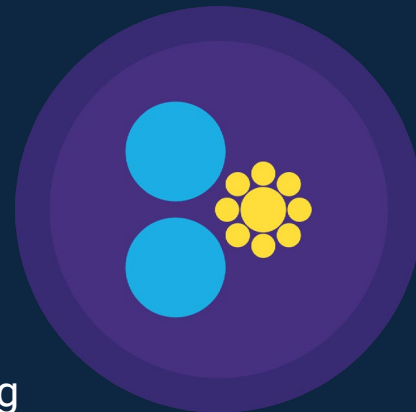


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- A red abstract graphic consisting of several curved, overlapping lines, resembling a stylized flame or a dynamic swirl, located on the left side of the slide.
- 1. alternative for vision systems, not a replacement**
 - 2. for a variety of reflective materials**
(steel, ceramic, plastic...)
 - 3. easy upgrade of existing ET systems**
 - 4. solution for „unsolved“ applications**
e.g. spherical roller bearings - nightmare for traditional camera based solutions
 - 5. two „physics“ at the same time**
 - 6. no specific worker training needed**
 - 7. cost effective, but powerful solution**

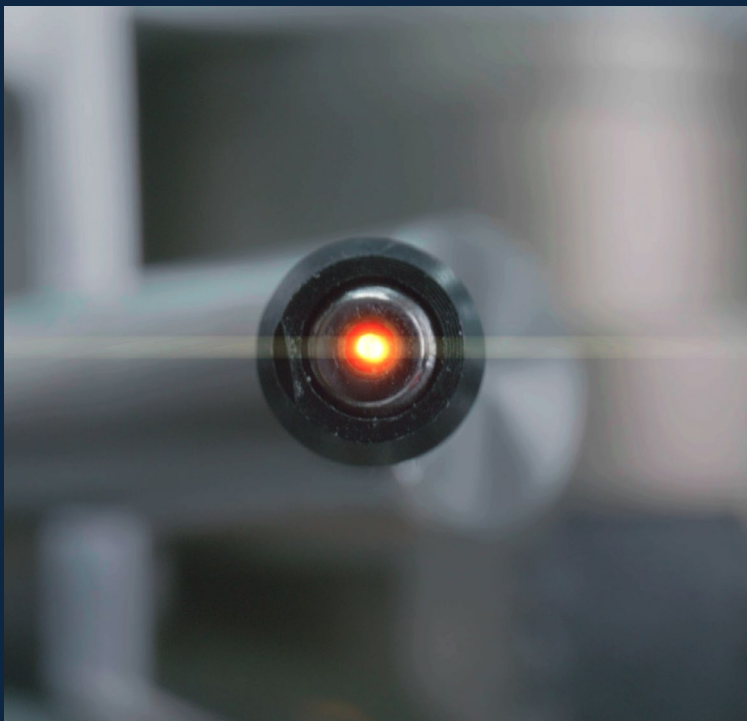


Combined Sensor ET / iORS

Eddy Current probe & iORS in one standard housing
different ET probe types in combination with iORS
(on request)



...see the demo here!



the end ?
no, just the start ...



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