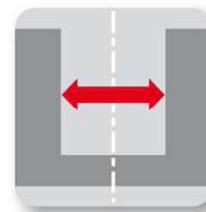


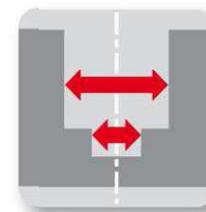
boreCONTROL LAB

**Metrology System
for non contact bore
hole inspection**

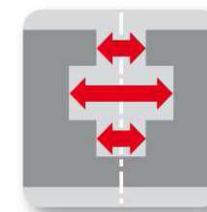
- Diameters from 4mm-16mm
- 3 μ m precision



Diameter

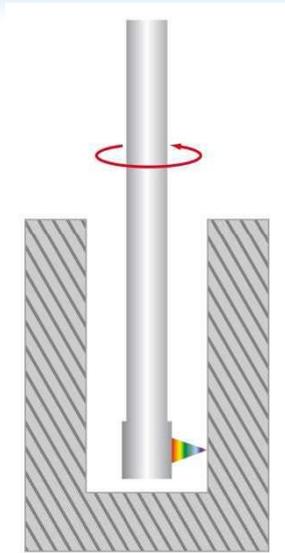


Steps



Cavity

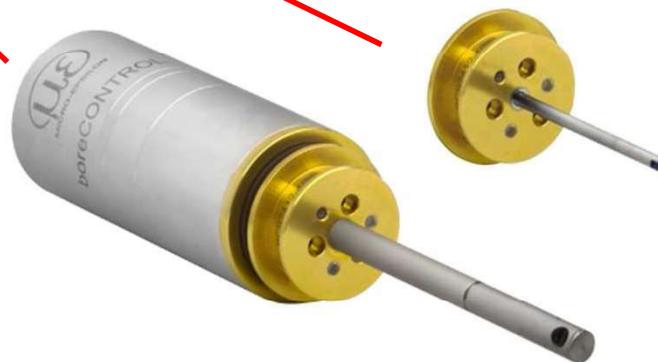
boreCONTROL Realization



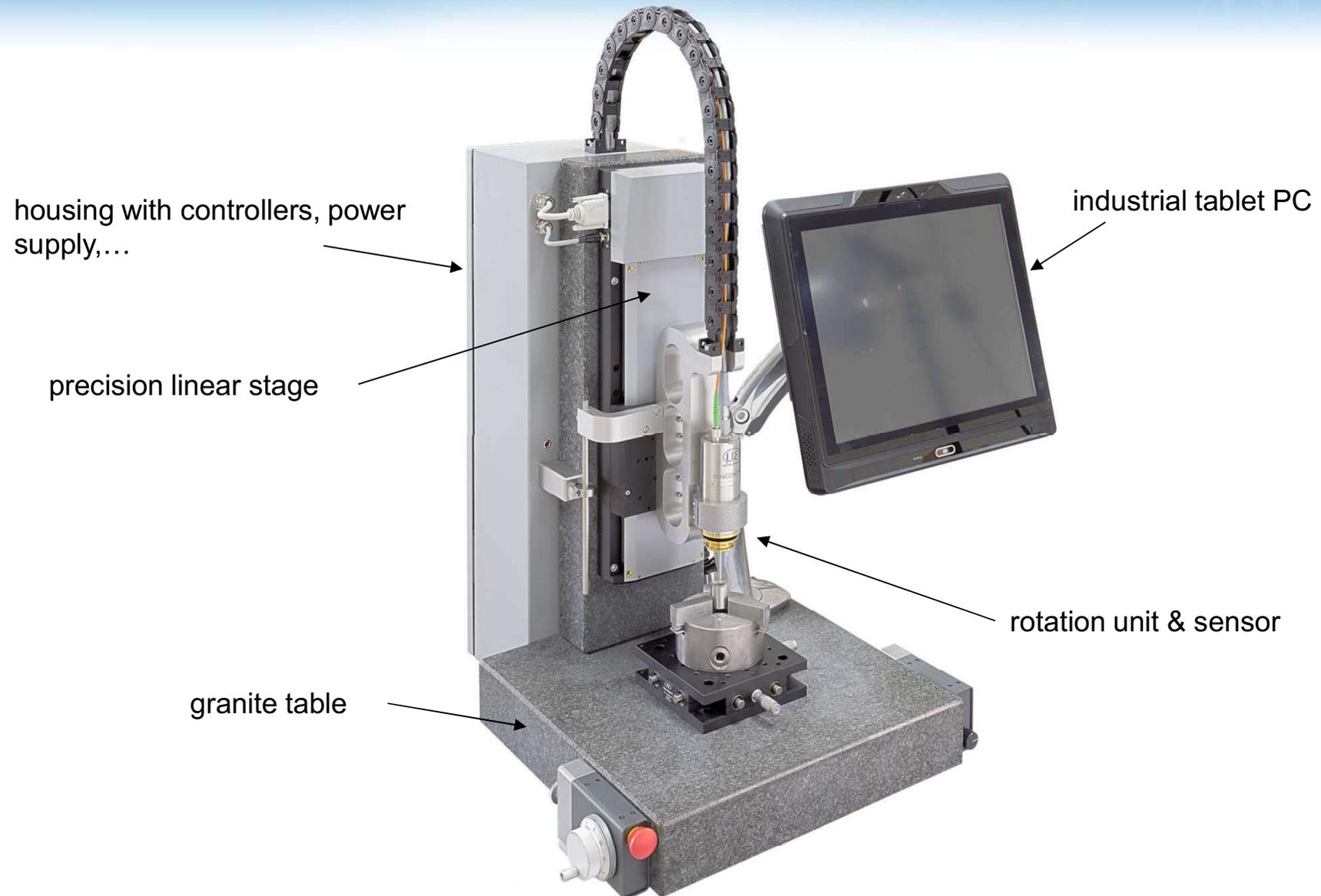
sensor controller



motor controller



rotation unit with
exchangeable
confocal sensor



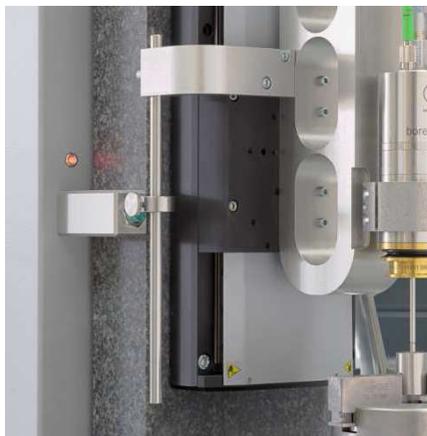
handwheel for z-movement
& emergency stop



scaling of z-movement &
safety switch



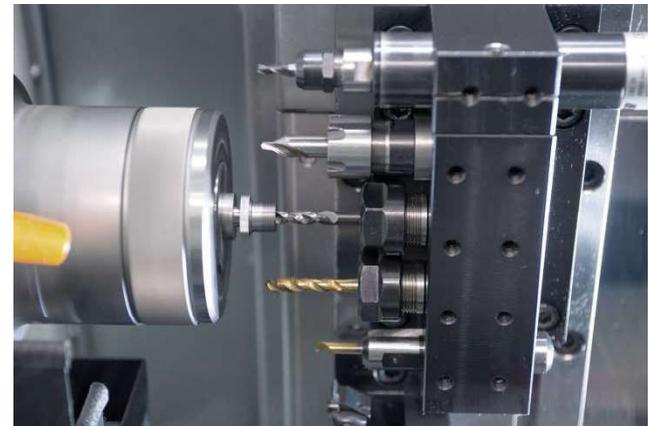
end-switch, adjustable



x-y-stage



- Quality inspection in test laboratories & in production
- Inspection of precision components
- Mechanical engineering, automotive, medical industry, aircraft,...

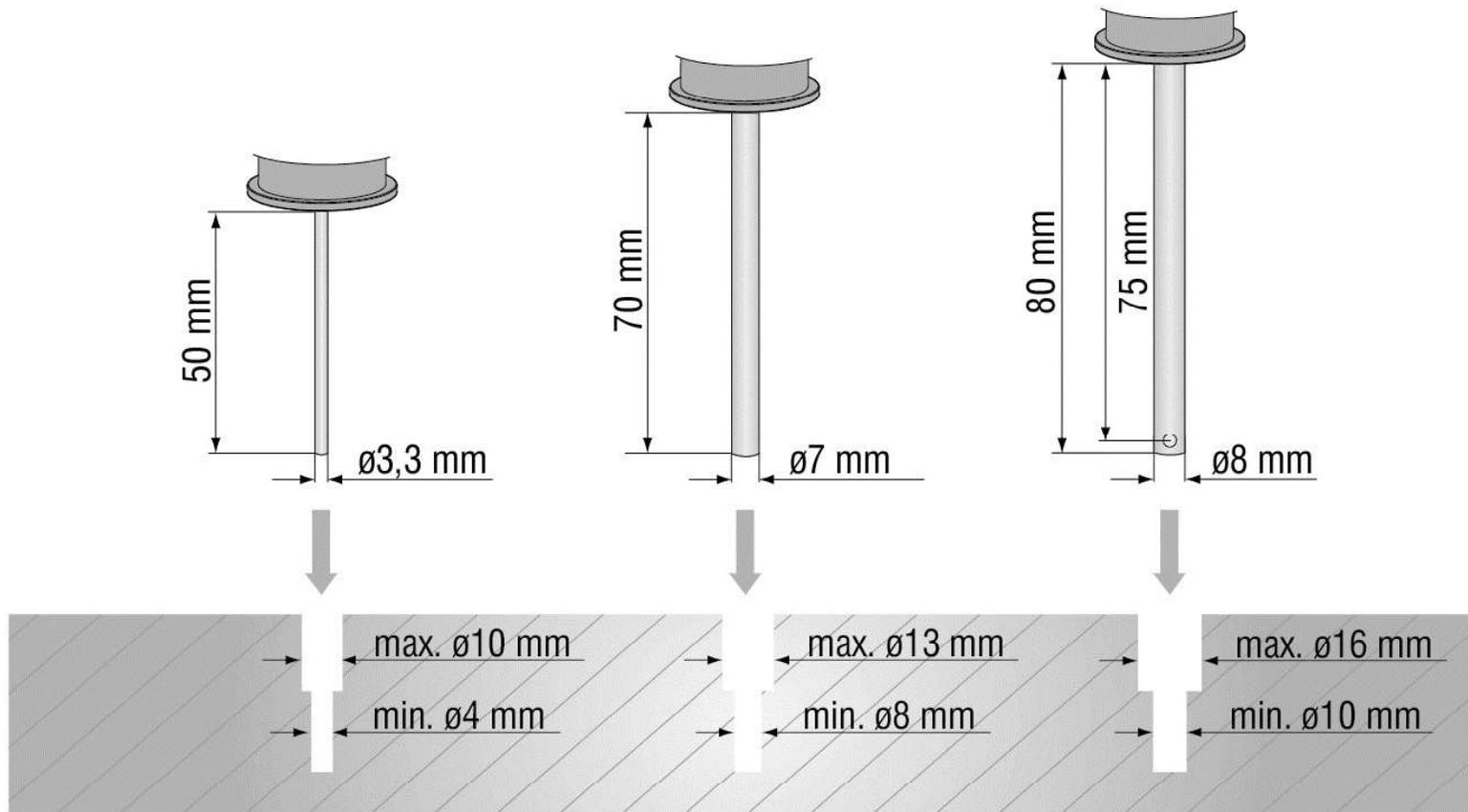


- μm precision with confocal technology
- Temperature compensation
- Non contact measurement
- Fast operation cycles, <10s possible



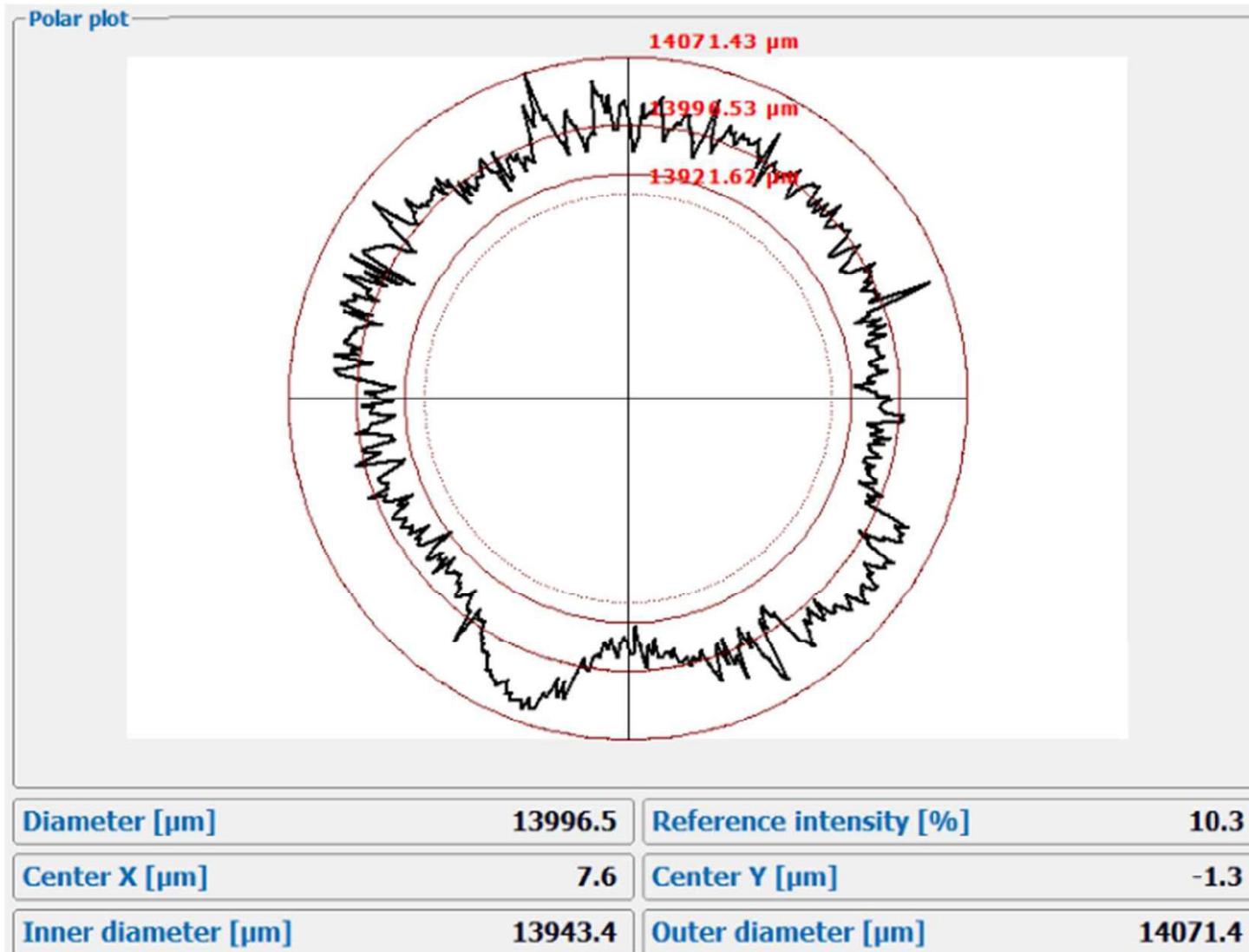
Measurement range

Diameter range 4mm-16mm

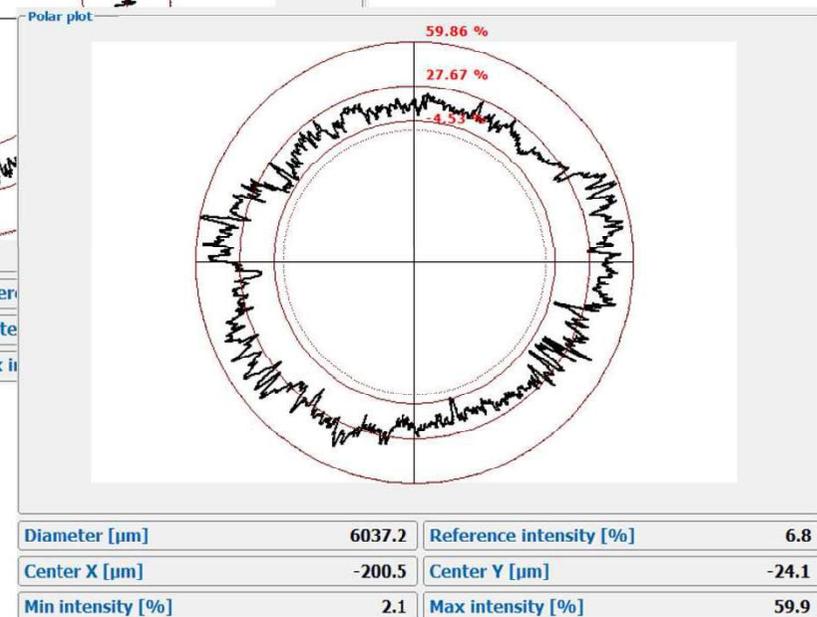
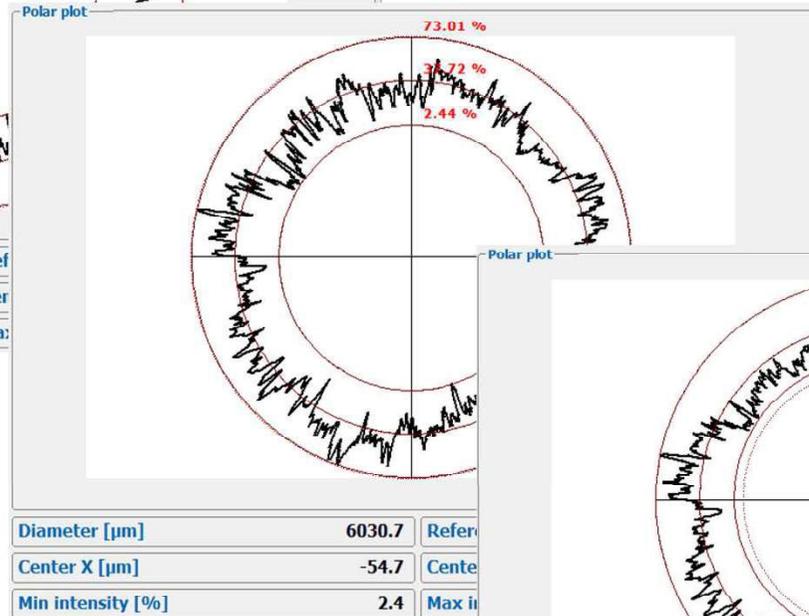
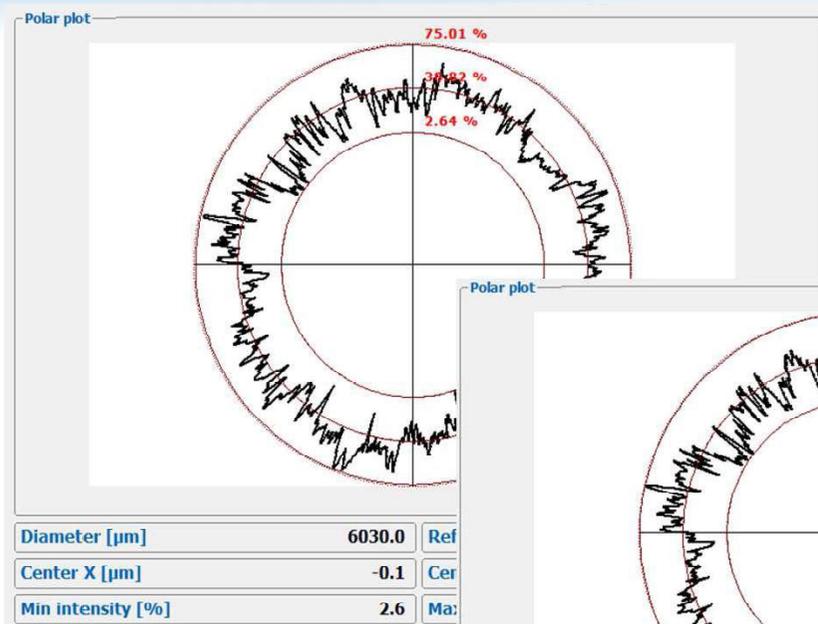


Visualization of measurement results

Polar Plot (scaled magnitude)

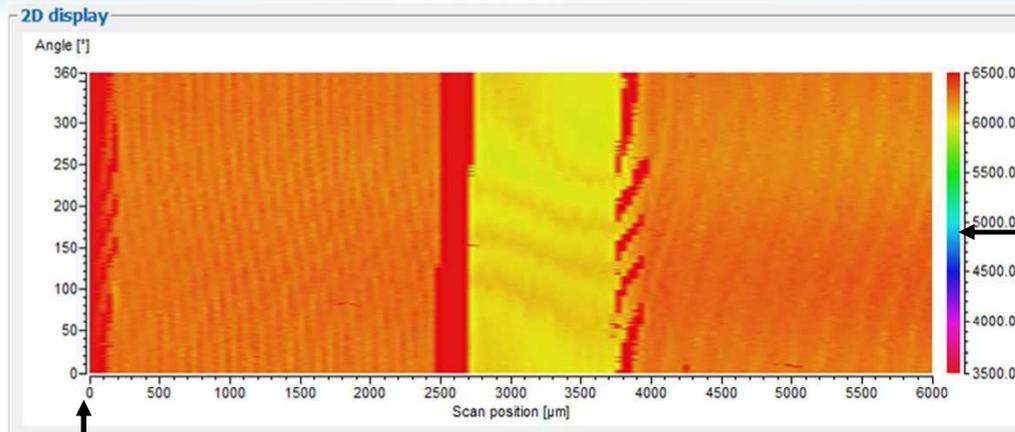


Positioning of measuring objects (centering)



Visualization of measurement results II

Distance:

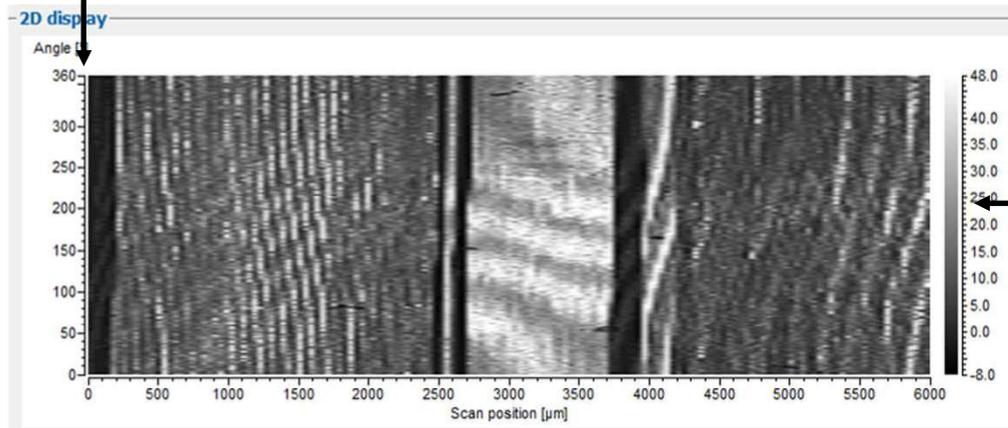


Visualization of the distance
(sensor - measurement object
inside wall, "radius")

Angle (0° ... 360°, rotation)

Z-direction (Scan-direction)

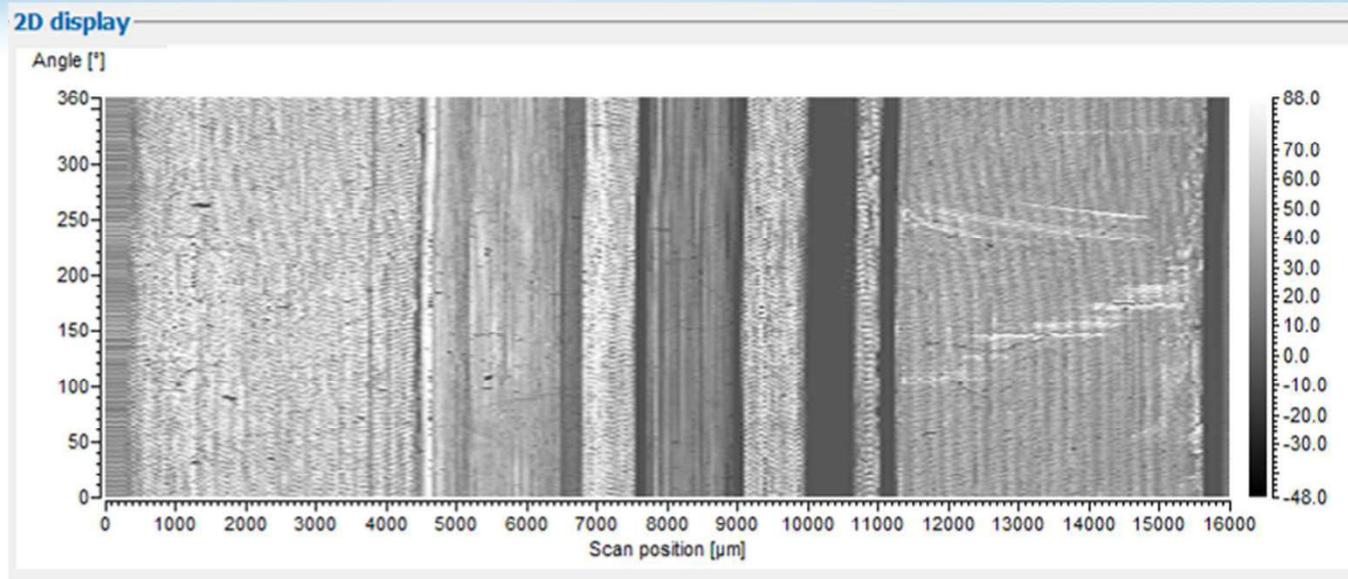
Intensity:



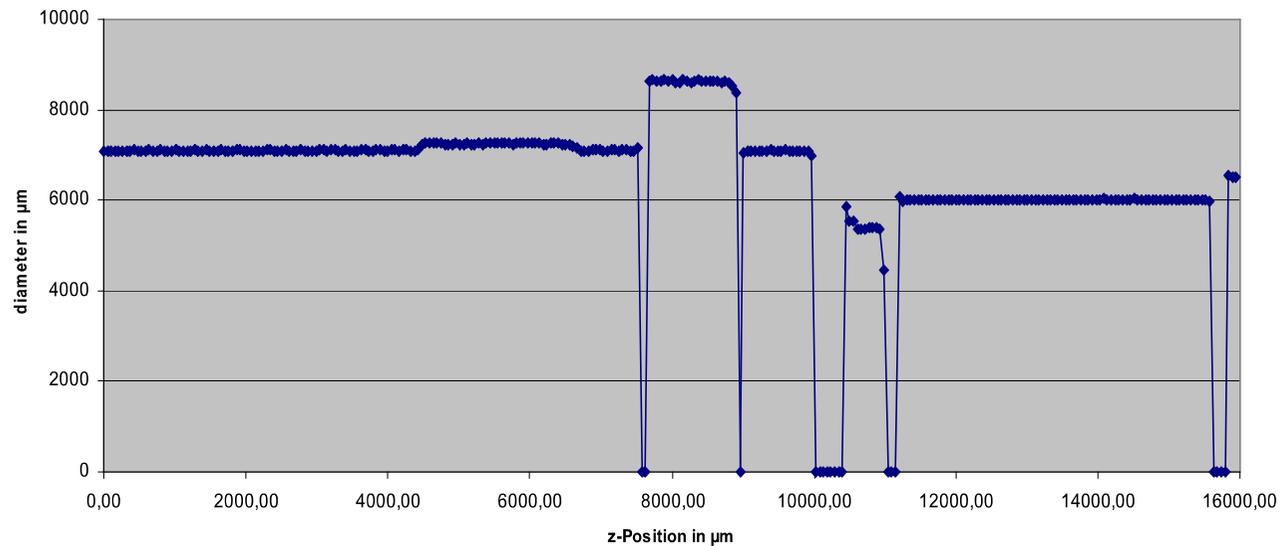
Visualization of the reflected
light in %

Example: high quality steel housing

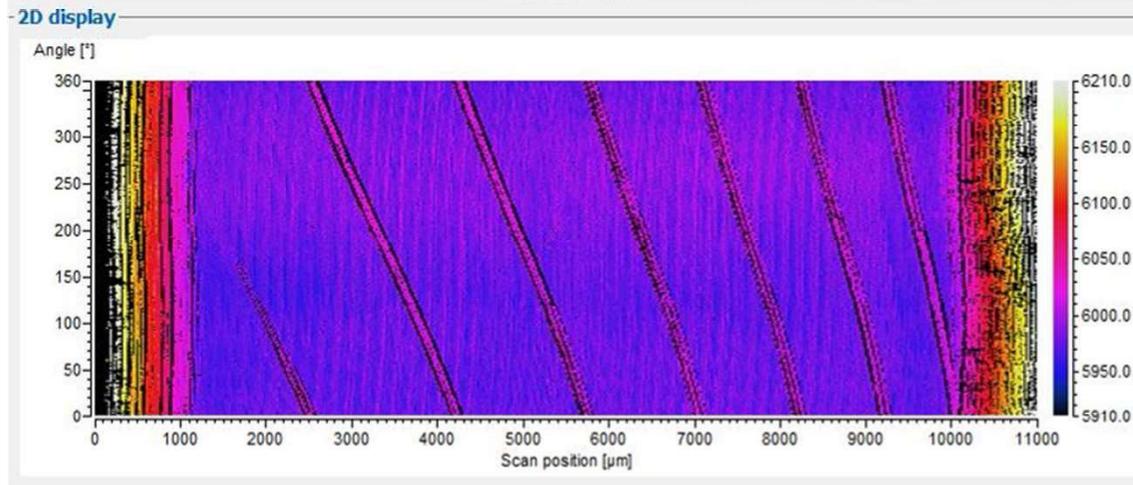
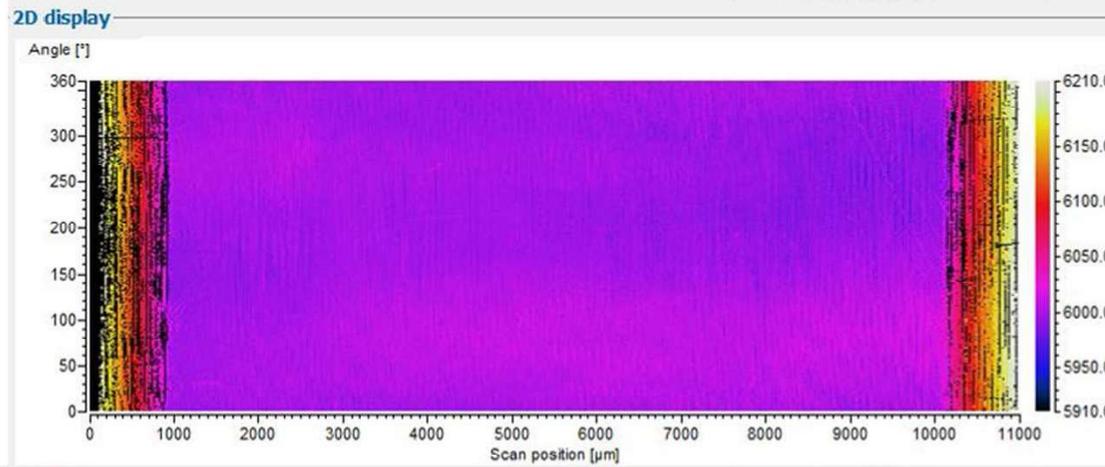
Intensity:



Diameter:

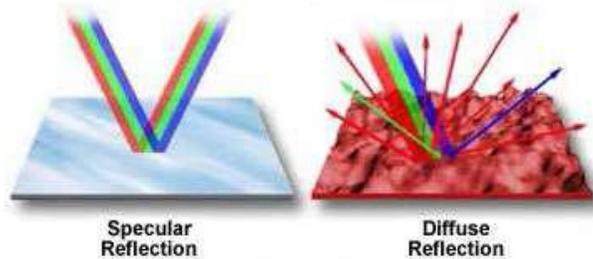


Example: Surface Assessment



Limitations

Specular and Diffuse Reflection



–No roughness measurement

–Max. tilt angle ($\pm 3-5^\circ$ on reflective surfaces)

–Calibration for one complete channel

