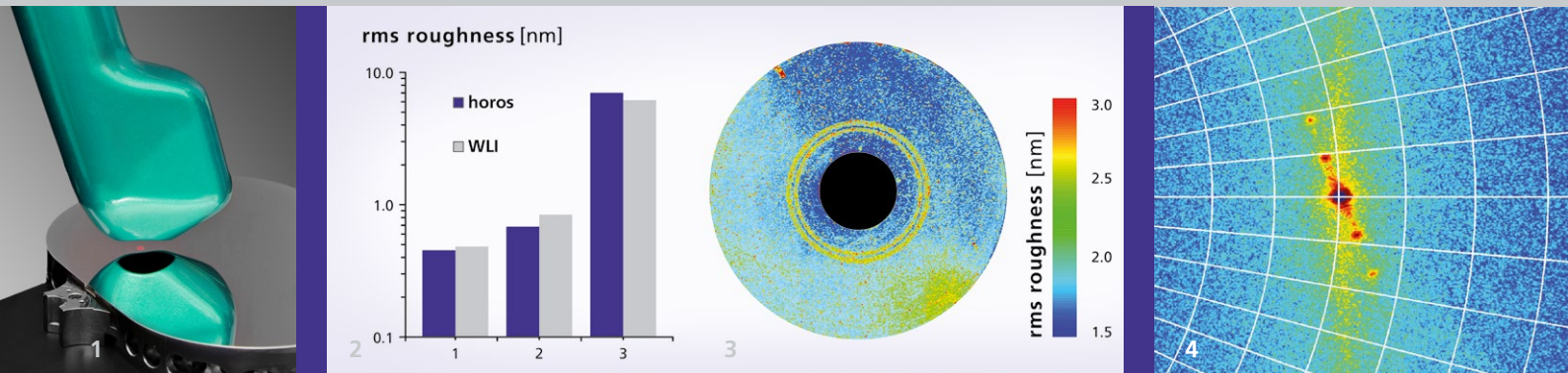


COMPACT OPTICAL ROUGHNESS SENSOR



**PROCESS-INTEGRATABLE
TEST SYSTEM – horas**



- 1 The horos sensor.
- 2 Roughness measurements using horos and WLI (1 MoSi-mirror, 2 Ti-coating, 3 diamond turned Al-surface).
- 3 Roughness mapping of a 600 mm Ritchey–Chrétien telescope mirror.
- 4 Scattering distribution of a diamond turned Al-surface.
- 5 Robot based sensor set-up for full surface characterization.

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horos – COMPACT SCATTERING AND ROUGHNESS SENSOR

Measurement capabilities

The scattering and roughness sensor horos (high-sensitive optical roughness sensor) is a compact instrument for 3D angle resolved scattering measurements (ARS, BRDF) which combines highest sensitivity and easy operation.

The rms-roughness, the power spectral density function, and isotropy properties, of surfaces can be determined. These measurement results can be directly linked to alternative techniques, e.g. white light interferometry (WLI).

The 3D scattering distribution is measured in a cone angle of $\pm 7^\circ$ around the specular reflection of a sample. Integration of this data serves as an indicator for the total scattering loss (TS).

Specifications

- Illumination wavelength: e.g. 650 nm
- Sensitivity: ARS $< 10^{-4} \text{ sr}^{-1}$, rms $< 0.5 \text{ nm}$
- Working distance: $> 10 \text{ mm}$
- Measurement time: $< 1 \text{ s}$
- Calibrated quantitative measurements
- Compact dimensions: $200 \times 170 \times 65 \text{ mm}^3$
- Option: combination with robotic arm

Applications

- Integration of sensor directly in optical fabrication processes for quality control
- Fully automated measurements of plane and complex (freeform) surfaces based on CAD data

