

WHITE LIGHT INTERFEROMETER (OPTICAL 3D SENSOR)

# WM | RS-C

Optical roughness measurement



SURFACE BASED MEASUREMENT & TESTING OF  
**3D TOPOGRAPHIES, ROUGHNESS & MICROSTRUCTURES**

# WM | RS-C

## OPTICAL ROUGHNESS MEASUREMENT

The optical 3D sensor WM | RS-C is an surface measuring white light interferometer and was developed for measuring, characterizing and inspecting topographies, roughness and finest structures in a microscopic environment. The WM | RS-C captures 3D surfaces as a point cloud or triangulated STL mesh and thus enables DIN EN ISO-compliant 2D and 3D roughness evaluation. The particular strength of the sensor lies in the measurement of vertically and horizontally high-resolution surfaces.

The optical 3D sensor WM | RS-C uses the short coherence length of „white“ light to measure technical surfaces vertically at highest resolution. An internal GigE camera with full HD resolution and an integrated LED with optimized spectral distribution are used. The interferometer is usually operated with exchangeable Mirau lenses. In the table version, the interferometer works with a piezo-driven actuator, which enables high-resolution scanning of topographies.

## FEATURES

- **Highest vertical and lateral resolution**
- „**Stitching**“ of multiple surfaces
- **Very small sensor size.** Smallest device in its class!
- **Stand-Alone** & interchangeable in machine (multi-sensor interface)
- **Fully integrated** in the software WM | PointMaster 5
- **Optional, graphical sensor interface** with TCP-/IP interface for autonomous sensor operation...
- **Compatible with WENZEL CORE** (with slightly reduced resolution)

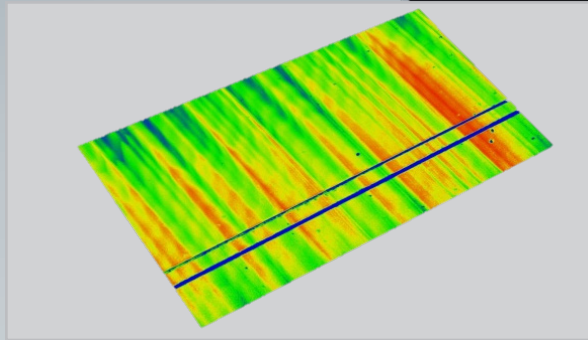
## APPLICATIONS

During the production of components, not only the dimensional accuracy and tolerances are in the focus of the quality assurance but also the functional properties of the component surfaces must be checked.

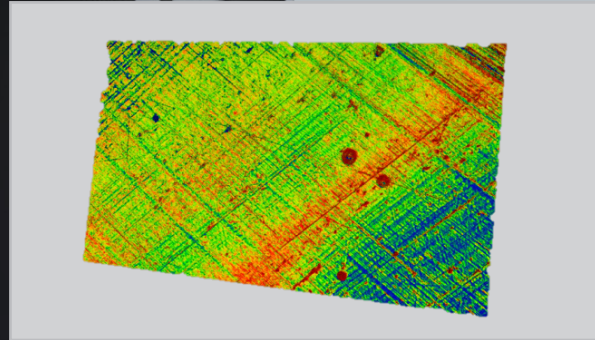
This is where the WM | RS-C comes into play.

With the WM | RS-C the quality of the manufactured surfaces and their functionality, such as sealing, lubrication, friction and wear behaviour can be analysed.

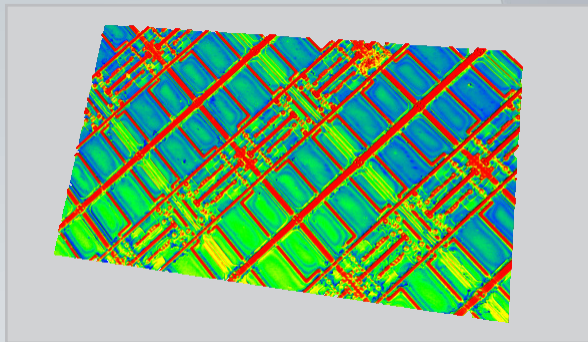
- |                                       |  |
|---------------------------------------|--|
| ■ Quality assurance & measuring rooms | ■ Roughness measurement & shop floor application |
| ■ Medical Technology                  | ■ Semiconductor industry and chip production     |
| ■ Metalworking & Finishing            | ■ Coating analysis                               |
| ■ Optics and lens production          | ■ Automation Technology                          |
| ■ Aerospace sector                    | ■ Research & university applications             |



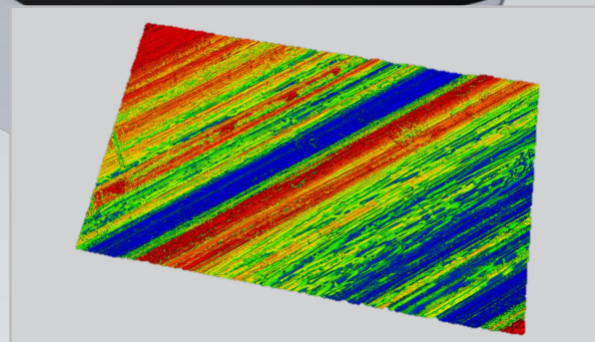
Roughness standard Super Fine



Characteristic honing structure



X-ray detector



Polished surface

## TECHNICAL SPECIFICATIONS

Physical measuring principle	Surface measuring white light interferometer (short coherent)			
Light source	LED (blue)			
Weight / g	~ 750			
Measuring field / Pixel	Point cloud with >2 million individual measurement points (full ROI) ; STL mesh with >4 million triangles per individual measurement (full ROI) ; Report			
Vertical resolution* / nm	< 5			
Unit dimension with lens / mm	53*71*159			
Lens Magnification	10x	20x	50x	100x
Numerical aperture (NA / AN)**	0,30	0,40	0,55	0,70
Working distance** / mm	7,4	4,7	3,4	2,0
Measuring field / (µm x µm)	1056,0 x 594,0	528,0 x 297,0	211,2 x 118,8	105,6 x 59,4
Horizontal resolution*** / nm	550	275	110	55

\*The atomic shell is the actual physical resolution limit (without filtering)

\*\*The values may vary depending on the design of the lens used!

\*\*\*The resolution limit is in any case the diffraction limit due to physical reasons!

## YOUR ADVANTAGES AT A GLANCE

### ■ High Productivity

Interchangeable system | Fully integrated in WM |  
Quartis | Working in the component coordinate system |  
Fully integrated in automated measuring sequence

### High flexibility

Sensor can be changed like a touch probe | Integrated  
in 5-axis measuring machine WENZEL CORE | Use as  
stand-alone device

## INNOVATION MEETS TRADITION

The WENZEL Group is a market leader in innovative Metrology. WENZEL offers a comprehensive product portfolio in the fields of Coordinate Metrology, Computed Tomography and Optical High Speed Scanning. The technology of WENZEL is used in all industries, including the automotive sector, aeronautics, power generation and

medicine. WENZEL looks at today on an installed base of more than 10,000 machines worldwide. Subsidiaries and agencies in more than 50 countries support sales and provide after-sales service for our customers. The WENZEL Group today employs more than 600 people.



## YOUR LOCAL CONTACT PERSON

### WENZEL GROUP GMBH & CO. KG

Werner-Wenzel-Straße  
97859 Wiesthal  
Phone: +49 6020 201-6006  
E-Mail: [sales@wenzel-group.com](mailto:sales@wenzel-group.com)

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