

# MicroProf® 300

The **MicroProf® 300** is part of the high-performance and versatile MicroProf® generation and is particularly used in quality assurance, development and manufacturing. The smallest deviations from the ideal surface shape must be determined contact-free without destroying the sample as the surface must be precise down to the sub- $\mu\text{m}$  range. Besides roughness of the sample surface, shape is one of the most important parameters. Narrow tolerances must be precisely determined. The MicroProf® 300 is perfect for these requirements and can also be integrated into production in a fully automated way. An extensive range of sensors and the option of conduct bilateral sample inspections (TTV) make it possible to optimally and individually adapt the MicroProf® 300 to suit your measuring task at any time. Furthermore, the simple automation of measurements boosts productivity and process reliability.



## MEASURING TASKS

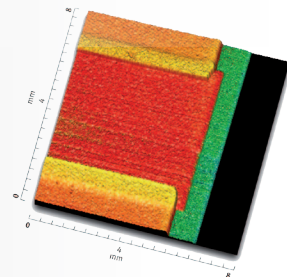
*Roughness*    *Step Height*    *Film Thickness*    *Wear*    *Warp*  
*Defect Inspection*    *3D Map*    *Waviness*    *Bow*    *TTV*  
*Layer Stacks*    *Bumps*    *Flatness*    *Topography*    ...

## SYSTEM CHARACTERISTICS

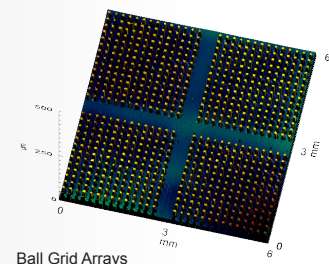
- Full multi-sensor capability
- Integrated CCD camera with add-on illumination
- Brilliant, long-living, and energy-efficient LED
- Based on the tried and tested FRT CWL technology
- Motorized sensor approach with high-precision axis
- Vertical stitching function to expand the height measuring range
- Control and measurement computer with TFT monitor
- Simple and efficient control with FRT Acquire software

## BENEFITS

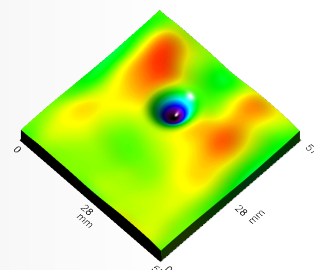
- Attractive price-performance ratio
- 3D measurements with micro- and nanometer resolution
- Professional quality assurance based on precise optical metrology
- High performance and economical measuring tool
- Durable, minimal servicing and low maintenance
- Fast availability and simple operation
- Application specific consulting from skilled FRT experts
- Qualified and worldwide operating service network



Back side metallization of a wafer

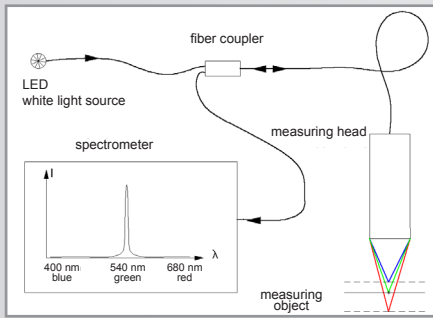


Ball Grid Arrays



Dimple in a wafer

# MicroProf® 300



## Measuring Principle

The **MicroProf® 300** is one of the FRT multi-sensor measuring devices and can be flexibly adjusted to customer requirements by the simple change of the sensor. Among other, the principle of the chromatic distance measurement can be used. White light is focused on the surface by a measuring head with a strongly wavelength-dependent focal length.

The spectrum of the light reflected on the surface generates a peak in the spectrometer. The wavelength of this peak is used to determine the height on the sample. The measuring tool handles transparent, highly reflective or even light absorbing surfaces and materials.

System	
Assembly	Gantry Design
Sensor	Multi-Sensor
Scanning Stage	
Travel	415 mm x 305 mm
Drive Type	Direct Drive
Bearing Type	Crossed Roller Bearing
Encoder Resolution	50 nm
Flatness	< 2 µm / 100 mm
Max. Speed	300 mm / s
Load Capacity	5 kg
z-Axis	Motorized Axis
z-Axis Travel	50 mm (100 mm optional)
System Requirements	
Environmental Requirements	Clean, Vibration Free, Stable Temperature
Input Voltage	110 V / 220 V AC, 1 Phase
Footprint (L x W x H)	1200 mm x 800 mm x 1500 mm
Weight	approx. 700 kg
Measuring Characteristics (Measuring Head)	
	<b>CWL 600 µm *</b>
Measuring Range xy	415 mm x 305 mm
Measuring Range z	600 µm
Resolution (lateral)	2 µm
Resolution (vertical)	6 nm

\* Sensor CWL 600 µm taken as an example, other sensors are available.

## Questions? Talk to an expert!

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