

µsurf custom



Fast measurement, simple operation, and high reproducibility are the outstanding features of the µsurf custom confocal 3D surface measurement system by NanoFocus.

The µsurf custom non-contact measurement system is based on the fast and robust CMP technology (confocal multi-pinhole) developed by NanoFocus. The system captures exact three-dimensional structures and complex geometry in the micrometer and nanometer range. High reproducible measurement is even possible on surfaces with steep edges and areas of discontinuity. The wide dynamic range offers a broad spectrum of measurable surfaces – from high reflective to rough. The robust opto-mechanical principle makes µsurf custom insensitive to

mechanical oscillations and vibrations. The system works reliably, both in the QA and testing laboratory and in harsh production environments.

NanoFocus will design your µsurf custom exactly according to your requirements. Every measurement system is tailored to the needs of the customer. You can be sure of the economically efficient implementation of your measurement task. The hardware and software can be upgraded and retrofitted. µsurf custom grows with your demands on automation, measurement convenience and precision.

- ▶ **Optical, non-contact**
- ▶ **User friendly, simple operation**
- ▶ **Nanometer accuracy**
- ▶ **Robust technology**
- ▶ **Automatable**
- ▶ **Flexible hard- and software**
- ▶ **Extended measuring field with stitching**

Application

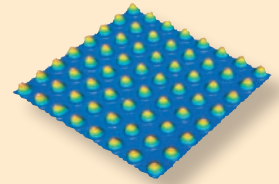
- ▶ **Tribology:** Topography and roughness measurement of sheet metal surfaces, wear and material properties of engine components and medical implants.
- ▶ **Precision parts:** Measurement of form and roughness compliant with DIN EN ISO standards. NanoFocus µsurf custom results are fully comparable with stylus systems.
- ▶ **MEMS:** Form and roughness of micro-injection cast components, micro optics made of silicon glass or polymers, micro geometry of actuators.
- ▶ **Semiconductors:** Roughness of contacts, geometry measurement in electronic packages, layer thickness, wafer angle geometry, roughness of backside grinded wafers.

NanoFocus AG

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Measuring head

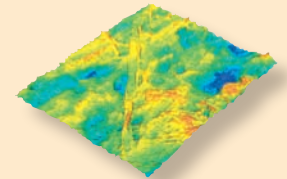
Image acquisition BM 512	High-Speed digital camera with progressive scan technology, up to 58 fps, 12 bit, firewire
Light source, adjustable	Powerfull Xe-light source



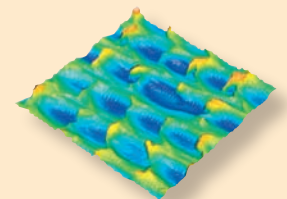
micro lenses

Scan modules

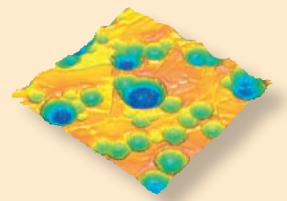
x,y-axis module MS 100	Precision x,y-table, 100x100 mm ² , resolution: 0.1 μm
z-axis module ZM 100	Precision scanning module, range 100 mm, resolution 0.1 μm
z-axis module NV 350	Fast precision scanning module (piezo), measuring range: 350 μm, resolution <1 nm
System controller	High performance industrial PC, DVD-RW, network card, Windows XP Professional
Granite measuring stand MP 100	Portal construction, for MS 100: 497x450x660 mm (lwxh)
Cabinet and work table MT 70	Stable container for electronic modules, work table 1550x800x750 mm (lwxh)
μsoft control	NanoFocus control and analysis software, profile and topography representation, roughness compliant with DIN EN ISO



paper



lasertex sheet metal



pretex sheet metal

Optic modules¹⁾

	1600 S	800 L/S/XS	320 L/S/XS	260 XS	160 S
Measuring field (μm²)	1600x1600	800x800	320x320	260x260	160x160
Numerical aperture	0.3	0.4/0.46/0.6	0.5/0.8/0.95	0.9	0.9
Working distance (mm)	10.1	12/3.1/0.9	10.6/0.66/0.3	0.4	1.0
Resolution in z-direction (nm)²⁾	20	6/5/4	4/2/2	2	1
Resolution in x,y-direction (μm)	3.1	1.6	0.7	0.5	0.31

1) L: long working distance, S: normal working distance, XS: short working distance 2) noise level

Options

Mega-pixel-image acquisition module BM 1024	Digital camera with progressive-scan technology, up to 25 fps, 1024x1024 Pixel, switchable to 512x512 Pixel, firewire, 12 bit
Off-axis camera BMT 5	Off-axis camera with 8x6 mm ² field of view for 1x, zoom up to 10x, ring light, incl. frame grabber and presentation software
Granite measuring stand MP200/300P 200/300	Portal construction, dimensions depend on choosed modules, available with active and passive absorbance
x,y-axis module MS 200/300	Motorized x,y-positioning table, 200x200 mm ² /300x300 mm ²
μsoft automation	Software for automated measurement and analysis
μsoft analysis	Software to analyse 3D measurement data, layout function, templates for series measurement and analysis
Stitch	μsoft control plugin for extending the measurement field
Winsam	μsoft control plugin for calculation and display of functional 3D parameters (tribology)
Accessories	Vacuum plate, flatness and calibration standard, sample fixture, table, printer

Are you interested in other NanoFocus-Technologies?
Please call us +49 (0) 208-62 000-0 or write an email to sales@nanofocus.de.

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