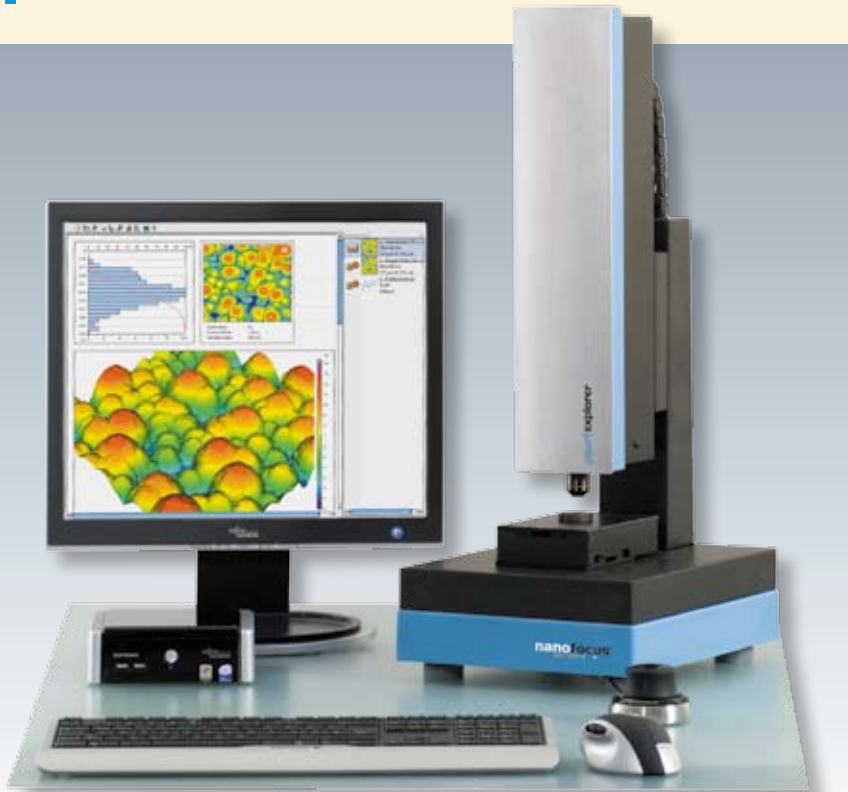


# µsurf explorer



The µsurf explorer compact optical 3D measuring instrument is a complete package for measuring and analyzing surfaces. µsurf explorer is based on the proven µsurf confocal technique. The cost-effective system is suitable both for use in the testing laboratory, as well as for the production environment.

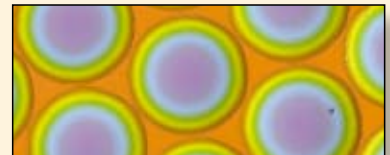
µsurf explorer can be used for DIN EN ISO compliant roughness determination, analyses of 3D structures,

layer thickness and measurement of geometry in the micrometer and nanometer range.

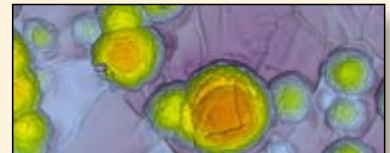
The technology is successfully deployed in numerous companies. These include renowned companies from the automotive industry, medical technology, microelectronics, the printing and paper industry, as well as a large number of research institutes.

- ← Robust and reliable
- ← Flexible all round measurement solution
- ← User-friendly concept
- ← Measurement in seconds
- ← High optical resolution
- ← Real 3D measurement data

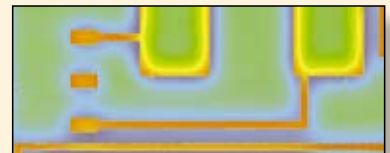
## MEMS/MOEMS



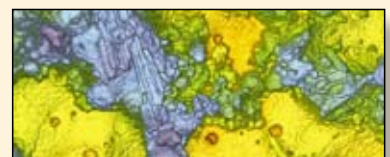
## Automotive



## Electronics



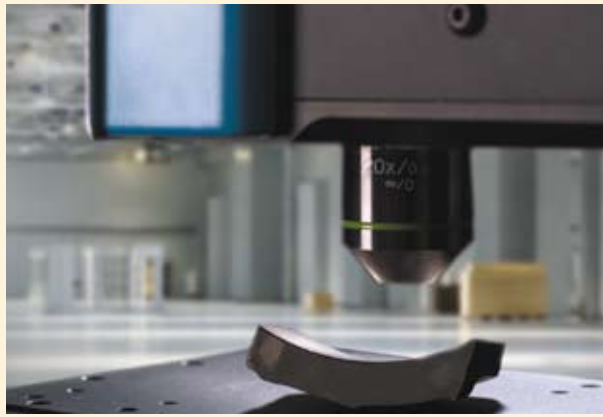
## Medical technology



## NanoFocus AG

### Robust and reliable

Measurement is effortless and reliable, even in harsh production environments. As standard IP 52 protection class and vibration absorbing feet are included. Environmental influences, such as vibrations, dust or splashed water do not affect the precision of the measurement results. Low maintenance and durable components are used in  $\mu$ surf explorer, for example a high power LED. This guarantees an instrument always ready for use and saves costs.



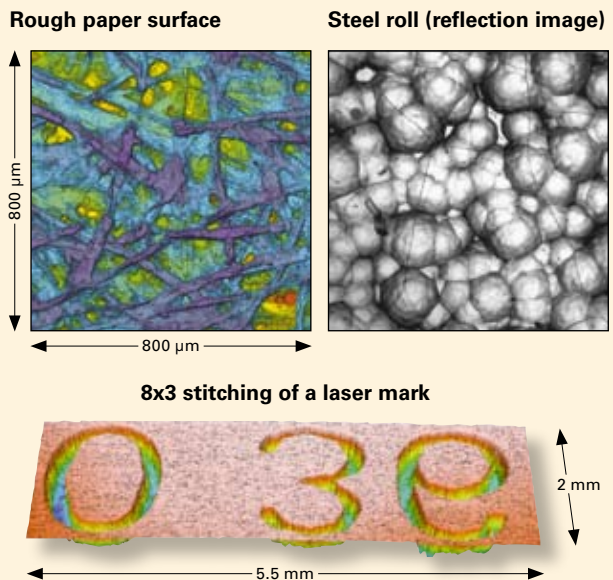
$\mu$ surf explorer in production

### Flexible all round measurement solution

$\mu$ surf explorer is ideal for a broad spectrum of materials. From polymers to metals through to composite materials, all surfaces can be transformed into precise measurement data. Special algorithms, measurement modes and analysis programs open up an enormous bandwidth of measurement tasks.

$\mu$ surf explorer is suitable both for automated quality assurance in production, as well as for versatile use in the research laboratory.

The stitching function is a standard and allows expanded measurement fields.



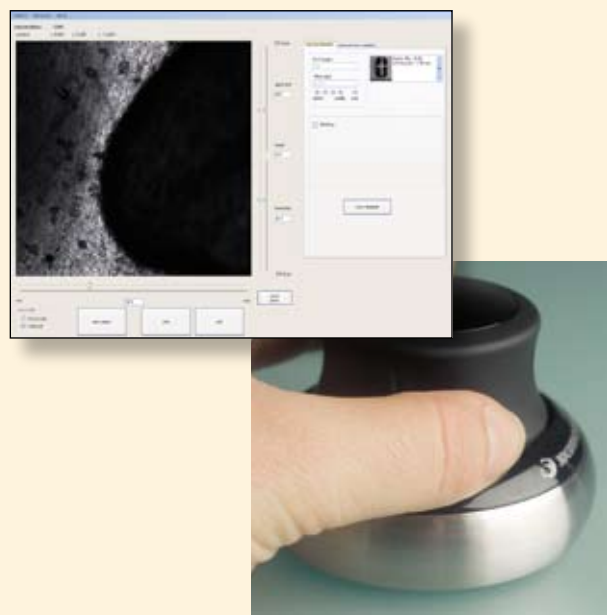
### User-friendly concept

The basic concept of  $\mu$ surf explorer is simple and intuitive operation of hardware and software. Even untrained operators can generate significant measurements after a brief induction period.

The one click function provides for measurements on the same type of sample or on series components. The measurement settings can be set once for the entire measurement series.

The user obtains additional support with the auto-adjust-function. The measuring range and light intensity are automatically set by the system.

All measurement settings can be stored in measurement templates. Linking with individually configurable protocol templates makes evaluation easy, reliable and meaningful.

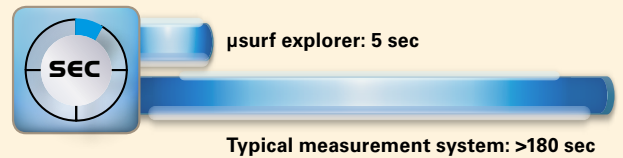


## Measurement in seconds

No sample preparation is required for measurement with  $\mu$ surf explorer. The object simply needs to be placed on the sample stage. Following selection of the measurement parameters, the measurement starts automatically. Useful measurement data are available after 5 to 10 seconds for further analysis.

With the  $\mu$ soft analysis protocol templates you obtain full evaluation protocols within a few seconds.

## Measurement time

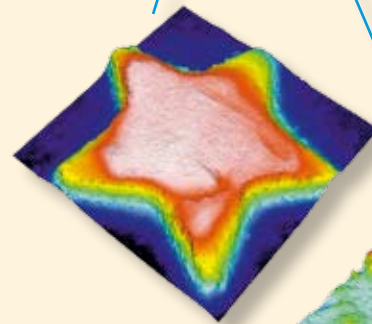


## High optical resolution

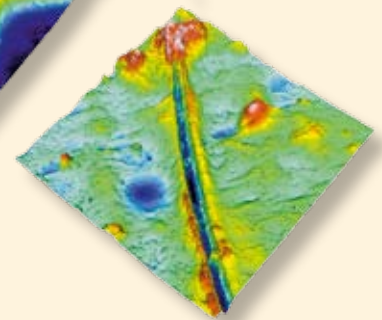
The nanometer precision resolution is based on innovative confocal Multi-Pinhole-Technology in combination with the piezo module. Even rough surfaces and structures with steep flank angles can be captured.

Even strongly reflecting or diffusely reflecting materials are captured error-free.

The objective lens used offers individual measurement field sizes between 1.6 x 1.6 mm and 260 x 260  $\mu$ m depending on the magnification with freely selectable vertical resolution.



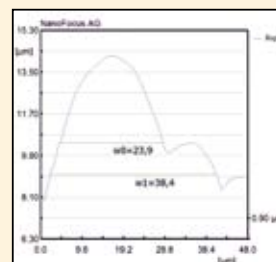
Coin surface structure:  
height 50  $\mu$ m



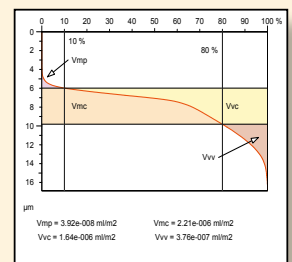
Scratch: depth 0,1  $\mu$ m

## Real 3D measurement data

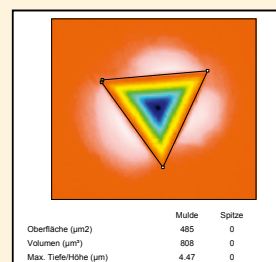
Real 3D data are available after each measurement. Only these quantitative data allow an accurate evaluation of 3D parameters. Besides standardized surface and 3D parameters,  $\mu$ surf analysis also offers numerous other functions, such as volume determination, calculation of isotropy or particle analysis. Of course, the software also includes all DIN EN ISO standardized 2D parameters and a wealth of international characteristic values



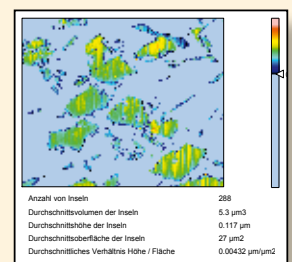
Geometry



Bearing ratio



Volume



Particles

## Measuring head

<b>Image acquisition module</b>	Fast digital camera with progressive scan technology, up to 55 fps, 512x512 Pixel, 10 bit, firewire
<b>Light source</b>	High efficiency LED, ( $\lambda = 505 \text{ nm}$ ), MTBF: 50,000 h

## Scan modules

<b>x,y-axis module MN 50</b>	Precision x,y-table, range: 50x50 mm, resolution: 0.3 $\mu\text{m}$
<b>z-axis module MN 75</b>	Precision scanning module, range: 75 mm
<b>z-axis module NV 250</b>	Fast precision scanning module (piezo), range: 250 $\mu\text{m}$ , resolution: <10 nm
<b>Peripherals &amp; controller</b>	Compact PC with Intel Core Duo processor, Windows XP Professional, 1 GB RAM, Firewire, DVD-Writer, ethernet, 19" TFT monitor, wireless keyboard and mouse, 3D hand navigator, emergency stop
<b>Granite measuring stand</b>	440x260x320 mm (hwxwd) including vibration isolation rubber feet

## Software

<b>µsoft control</b>	NanoFocus control and analysis software, profile and topography representation, roughness compliant with DIN EN ISO
<b>µsoft analysis (standard version)</b>	Software to analyse 3D measurement data, layout function, templates for series measurement and analysis
<b>Stitch (Standard)</b>	µsoft control plugin for extended measurement field

## Optical modules

	<b>1600 S</b>	<b>800 L, S, XS</b>	<b>320 L, S</b>	<b>260 XS</b>
<b>Magnification</b>	10x	20x	50x	60x
<b>Measuring field (<math>\mu\text{m}</math>)</b>	1600x1600	800x800	320x320	260x260
<b>Numerical aperture</b>	0.3	0.4/0.45/0.6	0.5/0.8	0.9
<b>Working distance (mm)</b>	11.0	12.1/3.1/0.9	10.6/1.0	0.4
<b>Resolution in z-direction (nm)</b>	20	6/5/4	4/2	2
<b>Resolution in x, y-direction (<math>\mu\text{m}</math>)</b>	3.1	1.6	0.7	0.5

## General

<b>Accessories (optional)</b>	Vacuum plate, flatness/calibration standards, active absorbance plate, table, printer
<b>File format</b>	NMS, OMS, ACSII, SDF, TIF, BMP, MNT, SUR
<b>File size</b>	Single measurement approx. 0.8 MB
<b>Typical measuring time</b>	5-10 seconds
<b>Sample properties</b>	Max. sample height: 70 mm, reflectivity: 1-100%, coated, non coated, reflective, diffuse
<b>Vibration</b>	Extra prevention for most applications not necessary
<b>Clean room class:</b>	Capability class 6 (according to DIN EN ISO 14644)
<b>Protection class:</b>	IP 52
<b>Power supply</b>	100-240V, 50-60Hz, input: <45W
<b>Total weight</b>	28 kg
<b>Dimensions</b>	710x270x330 mm (hwxwd)

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

## NanoFocus AG

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Customer center: Nobelstr. 9-13 | D-76275 Ettlingen | Phone +49 (0) 7243 7158-40 | Fax +49 (0) 7243 7158-59 | [ettlingen@nanofocus.de](mailto:ettlingen@nanofocus.de)