

NanoSurf™

3D white light confocal microscope

Leveraging the years of experience and expertise of Solarius, this robust, stand-alone metrology tool integrates ease of use with high accuracy and speed.

The NanoSurf™ scanning 3D confocal microscope was designed specifically for R&D and industrial quality assurance environments. The confocal "physical filtering" principle leads to the dramatic reduction of optical artifacts, resulting in a robust and predictable height measurement where other optical methods fail.

The second generation NanoSurf adds enhanced automated measuring routines with step and repeat functionality. This automation functionality allows the operator to program a sequence of measuring tasks. The NanoSurf then moves to each discrete location and performs the measurement operation. The locations and type of the measurement can easily be programmed in the user setup interface. Automatic positioning and measurement lends itself very well to a production environment.

- Minimal optical artifacts
- Measuring of high aspect ratios
- Exceptional accuracy
- Large measuring range
- Easy to use

Customer Applications

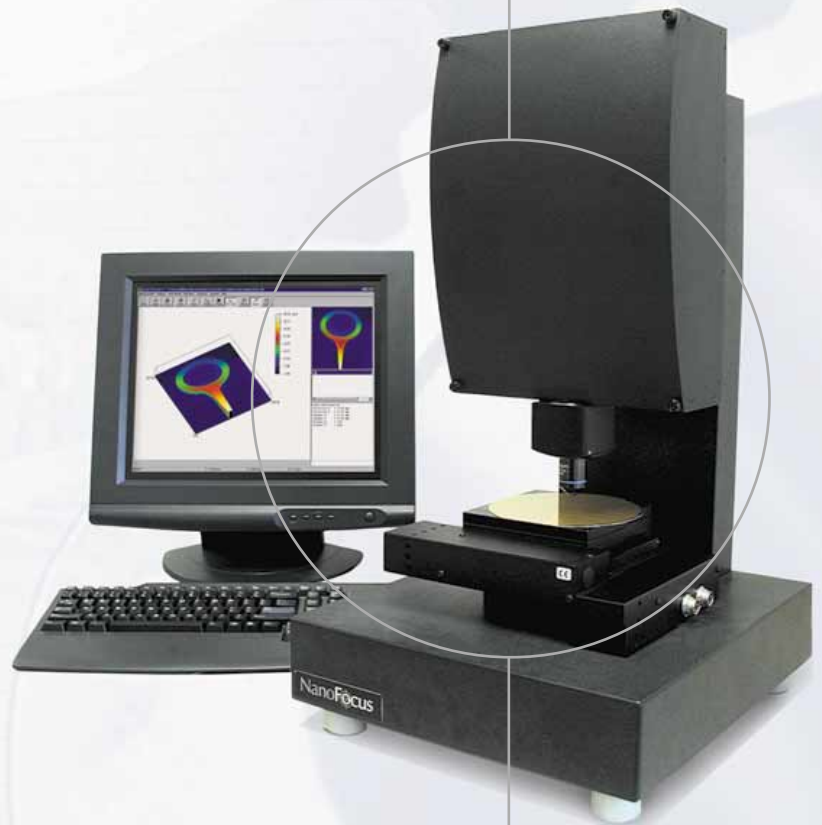
MEMS: Height, width and form of micro-optical and micro-mechanical components, including micro lenses and high aspect ratio devices.

Tribology: Visualization and quantification of surfaces with a high aspect ratio, this allows for a clear measurement definition of edges on diamond impregnated surfaces.

Engineering Surfaces: Inspection of surface finish, angle and height of small structures.

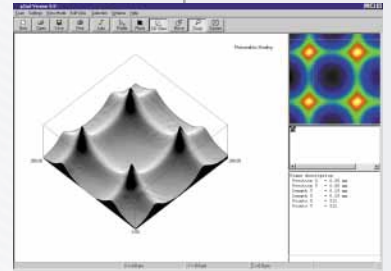
Biotech: Measurement of the size and depth of capillaries for miniature fluid delivery devices.

Semiconductor: Characterization of high density interconnects, vias and laser-cut depth.



Software

NanoSurf software uses speed-optimized routines for display and result analysis. It is capable of visualizing and analyzing high volumes of data without any noticeable loss of performance. Designed from the ground up with ergonomics in mind, the learning curve is negligible for engineers and production level workers alike.



NanoSurf software

Sensor

MICROSCOPE OBJECTIVE	10x	20x	50x	100x
Basic field [$\mu\text{m} \times \mu\text{m}$]	1600 x 1510	800 x 755	320 x 302	160 x 151
Working distance [mm]	10.1	3.1/12.0*	0.66/10.6*	0.31/3.4*
Numerical aperture	0.30	0.46/0.40*	0.80/0.50*	0.95/0.80*
Vertical resolution [nm]	50	<30**	<20**	<20**

* Long working distance

** Material dependent

System Specifications

- Integrated electronic control with the latest CPU, motion control and Windows 2000® operating system
- Vertical measurement range is based on working distance of objectives
- 3 axis motor control unit
- Precision cross roller x-y stages with 100 to 200 mm travel
- Z stage allows for 100 mm of vertical travel

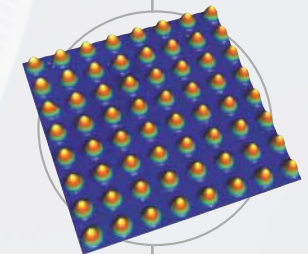
Options

- Stitching (automatic measurements of larger areas)
- Long working distance objectives
- AutoFocus for fast surface capture
- Advanced data analysis software

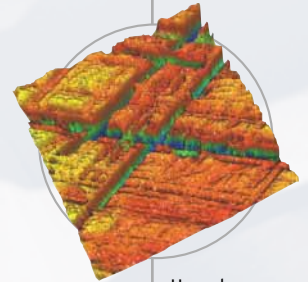
All specifications subject to change without notice.

Solaris Development Inc.

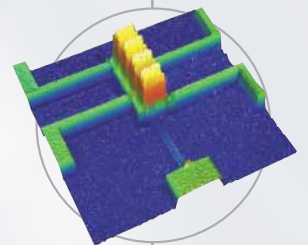
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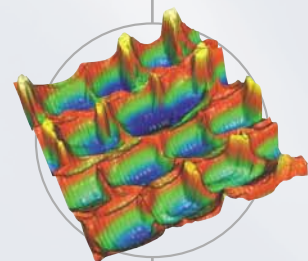
Array of microlenses on wafer



Honed grooves in cylinder



Micro-structure



Textured sheet metal