

*...lets do it the sm@rter way*



**Mechanical testing today  
in material research  
and industrial quality control**

**SURFACE**

**sm@rt 500 Nanoindenter**



## The sm@rt solution

The sm@rt nanoindenter has a small footprint of only 41x41 cm - including all necessary components for convenient and fully automated indentation tests.

Sm@rt solution consists of:

- Powerful transducer ranging from  $\mu\text{N}$  to  $\sim\text{N}$ .
- Fully integrated high resolution video microscope.
- Three axis motorized positioning system for various sample stages.
- Solid frame for robustness and reliable testing.
- Real time data processing by dual core microcontroller (DSP).

The instrument is designed with priority to highest accuracy and reliability.

## The sm@rt 500 sensor

The sm@rt nanoindenter sensor is the result of our long experience in selling nano-indentation hardware of the two leading suppliers and our more than two decades long nano-lab practice in service measurements of any kind of material. Our transducer is very small in size and offers a large dynamic range in force and displacement for testing all kinds of different materials. The sensor is built for robustness and allows customization for special measurements, if required.

The transducer has a diameter of only 32 mm and is vacuum compatible. An SEM version of the sm@rt nanoindenter is offered as well.

## The sm@rt nanoindenter for industry and research

The sm@rt nanoindenter is a high precision instrument useable in industrial quality control and for material research. The sm@rt software ensures valid results for all users following a short introduction. Incorrect results due to unsuitable test parameter settings can be avoided, using pre-set recipes for various applications. Modifications of the test flow and data analysis are possible for experienced and advanced users. Each sm@rt system has access to the sm@rt cloud - a material data base which allows to share, to store, and to compare material data.

## SURFACE nanomechanical history

1996 - 2006: European distributor for Hysitron

1998: SURFACE opens NanoLab

2003: Distributor for PSIA (Park AFM), 2008: Distributor for MD-MDT (AFM)

2006 - 2008: Distributor for MTS (XP- Nanoindenter, G200)

2008 - 2018: Service partner Keysight / KLA (G200)

2012: Web-shop distributor of nanoindenter tips for the major brands

2015: SURFACE stage and tip laser heater licensed to Keysight / KLA

# SURFACE

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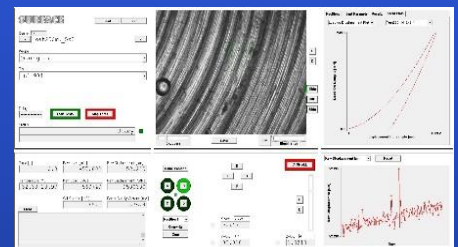


Quality Made in Germany

Fully integrated video microscope



Enclosure - isolation but easy access



Simplified software interface

### Specifications: sm@rt 500

Max load:	500 mN / 800 mN*
Max. displacement:	100 or 200 $\mu\text{m}$
Noise level:	
Force:	0.2 $\mu\text{N}$
Displacement:	0.2 nm, full range
Video microscope:	
Optic:	achromatic 10x
Monitor zoom:	150-600x
Camera:	5 MP monochrome
Illumination:	LED, monochrome
Visible sample area:	1.1 x 0.8 mm
Optical resolution:	2 $\mu\text{m}$
Digital resolution:	0.4 $\mu\text{m}/\text{pixel}$
Stage:	
Distance x/y/z:	43/117/8 mm
Resolution x/y/z:	20/20/3 nm
Accuracy (typical):	2 $\mu\text{m}$
Dimension sm@rt:	190 x 250 x 250 mm
Dimension controller:	110 x 240 x 250 mm
Dimension enclosure:	410 x 360 x 410 mm
PC:	24" all in one I5 PC
Electrical power:	110/230 VAC

\* short term application



<https://www.surface-tec.com/nanoSMART.php>