

## μikro *TOP* 3D-MEASUREMENT OF MICROSTRUCTURES

### High resolution analysis of surface structure of objects, components, tools and models:

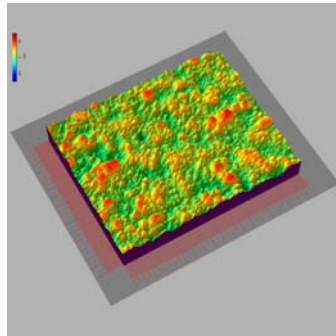
The topometric 3D-digitization system μikro *TOP* was specially developed for the detailed analysis and three-dimensional measurement of microstructures with high resolution.

Here are the key features of the μikro *TOP* system in brief:

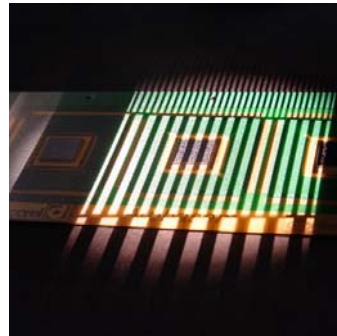
- ❑ μikro *TOP* is based upon our proven opto *TOP* sensor
- ❑ The sensors of the μikro *TOP* system is equipped with a high resolution digital camera (1280 x 1024 pixel)
- ❑ The 3 x zoom allows a continuously variable setting of the measurement field between 11 x 8 and 33 x 24 mm
- ❑ Scans with variable numbers of measurement points and acquisition time are permitted by digital zoom function
- ❑ The scanning is performed non contacting and non destructive
- ❑ Neither pre-treatments nor preparations are necessary
- ❑ The entire system can be controlled by a laptop and is thus flexible and quickly transportable
- ❑ The new control unit of the sensor may be driven independently from the main supply; thus ,in combination with a laptop, the complete system is suited for mobile application



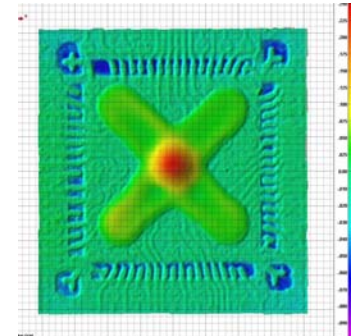
μikro *TOP* on a car test track



Microstructure of road profile



Measurement of a Chip Carrier



High profile, 250μm

The μikro *TOP* system has the following characteristics:

- ❑ As standard the roughness parameters  $R_a$  and  $R_z$  are available
- ❑ In addition to these, other characteristics concerning surface roughness can be quantitatively measured (e.g. waviness, profile)
- ❑ Furthermore an evaluation of surface and volume as well as a deformation analysis can be carried out
- ❑ The data output is possible in standard data formats for point clouds and triangular meshes

## μkro TOP 3D-MEASUREMENT OF MICROSTRUCTURES

### Technical Data

#### Image processing

Host computer .....	Intel Pentium IV, ≥ 2 GHz, ≥ 512 MHz RAM, ≥ 40 GB
Image data interface.....	IEEE 1394 Interface (FireWire®)
Operating system.....	Windows 2000, XP
Measurement software .....	OPTOCAT for Windows
Data interface.....	SDF, ASCII, BRE, STL*, PLY*, VRML*

\* detailed specification on inquiry

#### Sensors

Projection unit .....	Miniaturized projection technique
Light source .....	100 W Halogen
Imaging .....	Digital camera, IEEE 1394 Interface
Digitization .....	1280 x 1024 pixel
Operating distance .....	ca. 20 cm
Acquisition time .....	approx. 300 - 400 msec

#### Options

Host computer .....	Notebook or Laptop
Software option.....	TOPOSURF
Positioning equipment .....	Tripod, Swivel arm, microscope table

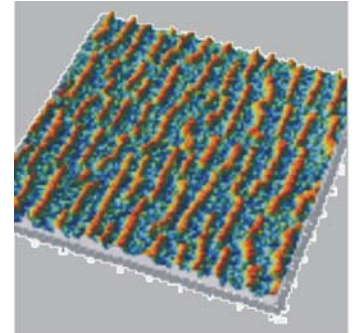
#### The specifications of the systeme with fixed measurement area

Measurement field [mm]	continuously setting between 11 x 8 and 33 x 24 mm
Lateral resolution [μm]	8 - 24
Depth resolution [μm]	better than 2
Repeatability [μm]	1 - 2

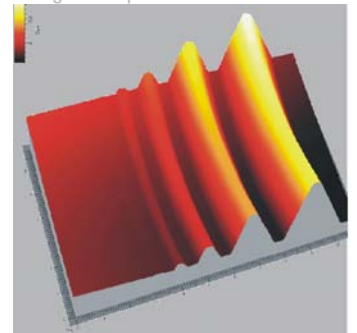
The system with the 3x zoom option is suitable in particular for applications where the highest resolution is required and where frequent switching between different magnifications is needed.

Our HighEnd 3D-digitization system μkro TOP takes advantage of an advanced high resolution digital camera, which is directly connected with the host computer via IEEE-1394-interface. This allows the use of any arbitrary PC - especially a laptop - which offers this interface without integrating additional frame grabbers or I/O-cards.

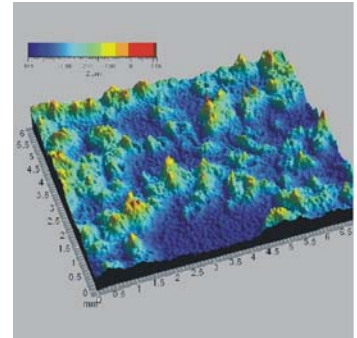
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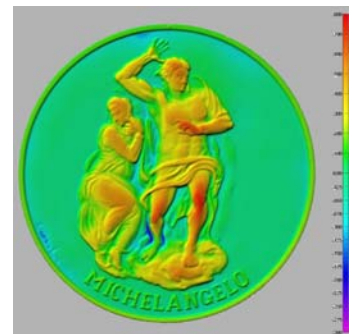
Roughness profile of leather



Profile



Facial hair



Ancient coin

Breuckmann GmbH  
Industrial 3D Image Processing  
and Automation  
Torenstr.14 D-88709 Meersburg  
Tel: +49 (0) 75 32 - 43 46 0  
Fax: +49 (0) 75 32 - 43 46 50  
info@breuckmann.com  
www.breuckmann.com