

## optoSCAN THE AUTOMATIC 3D-DIGITIZATION SYSTEM

### The fast way from the model to the 3D-data set:

The topometric 3D-digitization system optoSCAN was specially developed for the rapid and automatic scanning of small components.

Here are the key features of the optoSCAN system in brief:

- ❑ optoSCAN is based upon our proven optoTOP system
- ❑ An additional rotation / tilt unit allows the automatic scanning even of complex components
- ❑ By means of adaptable intensity control, components with variable reflection characteristics are captured without problems
- ❑ The measurement positioning is pre-defined but can be modified by the user according to the measuring object
- ❑ The images resulting from the individual scans are optimally aligned to each other by using a best fit (alignment) approximation
- ❑ The measured images are automatically merged and stored in a STL file
- ❑ The sensor of the optoSCAN system is equipped with a high resolution digital camera (1280 x 1024 Pixel)
- ❑ Two standard measurement field sizes are available: HE 100 with 80 x 60 mm or or 200 160 x 130 mm FOV
- ❑ The change between this two measuring ranges is realized by changing the objectives and/or the sensor base in a matter of minutes



Motor cover of Ducati



Coin Ø 45mm



Spanner



optoSCAN system

### Low system weight, short measurement and analysis time:

- ❑ The optoSCAN system weights less than 15 kg (incl. sensors, controller, rotation / tilt unit, baseplate, cover and laptop)
- ❑ For a typical sequence with 3 tilt and for each of these 6 rotation positions, less than 3 minutes are required
- ❑ The analysis of the data, including alignment, merging and calculation of STL files needs between 5 and 10 minutes, depending on the complexity of the component and resolution
- ❑ Optionally, the calculated STL-data can be filtered and thinned out according to the curvature of the surface

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### Technical Data

#### Image processing

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

\* detailed specification on inquiry

#### Sensors

Projection unit.....	Miniaturized projection technique
Light source.....	100 W Halogen
Imaging.....	High resolution digital camera, IEEE 1394-Interface (FireWire®)
Digitizing.....	1280 x 1024 pixel
Operating distance.....	approx. 40 cm
Acquisition time.....	approx. 1 sec

#### Rotation / Tilt unit

Control unit.....	integrated in optoSCAN-controller
Angle area of rotation.....	360 degrees
Angle area of tilt.....	+/- 40 degrees, adjustable in 3 steps
Resolution, rotation.....	approx. 1,25 degrees
Load capacity.....	to 2 kg ( at apt fixation of object)

#### Options

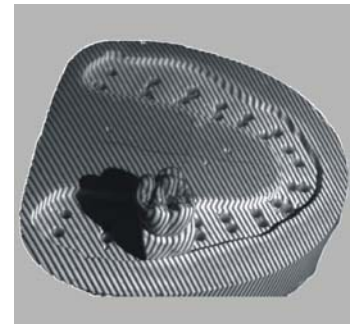
Host computer..... Notebook or Laptop

#### Versions of optoSCAN- system

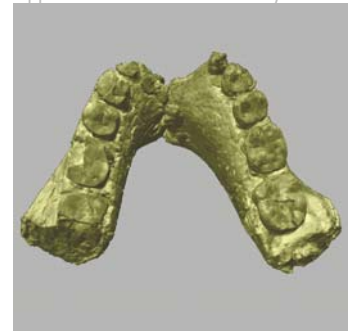
optoSCAN-HE has been designed as a HighEnd-system and is based on the same sensors as the optoTOP-HE-system . The system will be delivered with two sets of objectives for the measuring ranges 100 and 200.

#### Measurement fields of optoSCAN- system

Sensor	HE-100	HE-200
Measurement field [mm]	80 x 60	160 x 130
Digitizing [Pixel]	1280 x 1024	1280 x 1024
Distance from object [mm]	210	430
Triangulation angle [degree]	30	30
Measuring point distance [mm]	0,06	430
X,Y-resolution [ $\mu$ m]	30	60
Z-resolution [ $\mu$ m]	$\pm 7$	$\pm 10$
Feature accuracy [ $\mu$ m]	$\pm 10$	$\pm 15$



Application in dental laboratory



Denture UR501 (Senckenberg-Institute)



Camshart



Handy cover

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