TRACEiT®

3D Topography

Roughness (Ra opt, Rq opt, and Rz opt)

Visual Documentation

Height Distribution

Porosity Distribution

Effective Contact Area

Basic Functions

Surface profile is a key parameter of a product's quality, which affects the product's overall performance. The height values of the surface (often referred as to "valleys" and "peaks") determine many functional features, e.g. abrasion, adhesion, etc. Furthermore, the analysis of wear or abrasion after the mechanical tests is also needed to determine the quality of surface coatings. Therefore, an accurate measurement and documentation of the surface profile helps to make the right decision for the product's quality control.

TRACEiT® is by far the only mobile measurement instrument which measures the surface profiles in a fast, mobile, optical, non-contact fashion. The real-time measurement of 3D topography as well as the documentation of visual impression makes it widely used in R&D for new material development as well as in the quality control of manufacturing processes.

Parameters which can be measured with TRACEiT® include:
- Roughness
- 3D Topography/Mapping
- Light intensity
- Porosity
- Effective contact area

Additionally, **TRACEiT**® is suitable for use on lab samples and finished products with handheld, or a positioning adapter, or a a tripod or a robotics unit.

Highlights

- Mobile design
- Fast measurement
- Easy operation
- Non-contact method
- Reproducible and calibratable system
- Real time documentation of 3D topography & visual impression & porosity

Test Principle
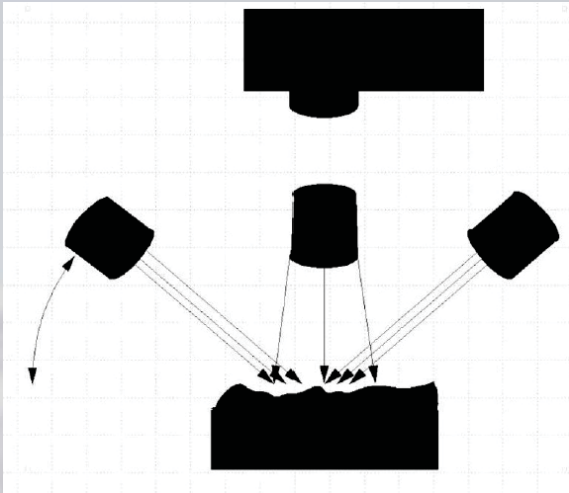
- Measuring head with 3 white light optics for topography measurement
- Additional built-in camera for visual impression documentation
- 1500 times both in x- and y- directions
- 5mm x 5mm fixed measurement area
- Simultaneous quantative analysis of **all measurements** with the **same resolution** on the **same sample area**

Applications

- Automotive: interior and exterior parts (leather, plastics, textiles, coating, paints)
- Paper: painting, drawing, safety paper, ancient paper
- Security paper: banknote, counterfeit indentification, passport, ID
- Medical: skin structure, skin cancer, scar
- Cosmetics: skin type and structure
- Cultural heritage: wall painting, sculpture, sandstone, wood
- Customs: counterfeit identification
- Textile: handbag, wallet, functional clothes

Options

Transmitted Light

Providing the standard light to recognize
and rate the structures of transparent or
translucent materials, e.g. glass, foils,
paper or fabrics. Mainly for the
measurements of porosity, fibre structures,
and etc.
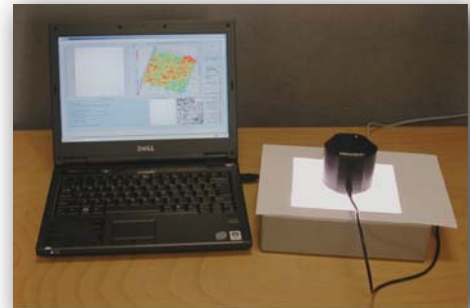
Positioning Device

For accurate positioning of the sample and
further stitching functionality. Standard
tripod can be also provided.

Robotic Device

Compatible with Battenberg Robot for on-
site measurement both in laboratory and
manufacturing plants.

Software Illustration-Main Analysis

The topography values and the visual impression are not only measured but are also transformed by an analysis tool into various roughness parameters with standard deviation values.
All measurements and calculations are carried out via interaction of the measuring head and the notebook, in which data storage, evaluation and analysis take place. Data can also be exported to other programs for further calculation.

Software Main Analysis Window

Visual Impression

3D Mapping

Operation Button

Roughness Value with Standard Deviation
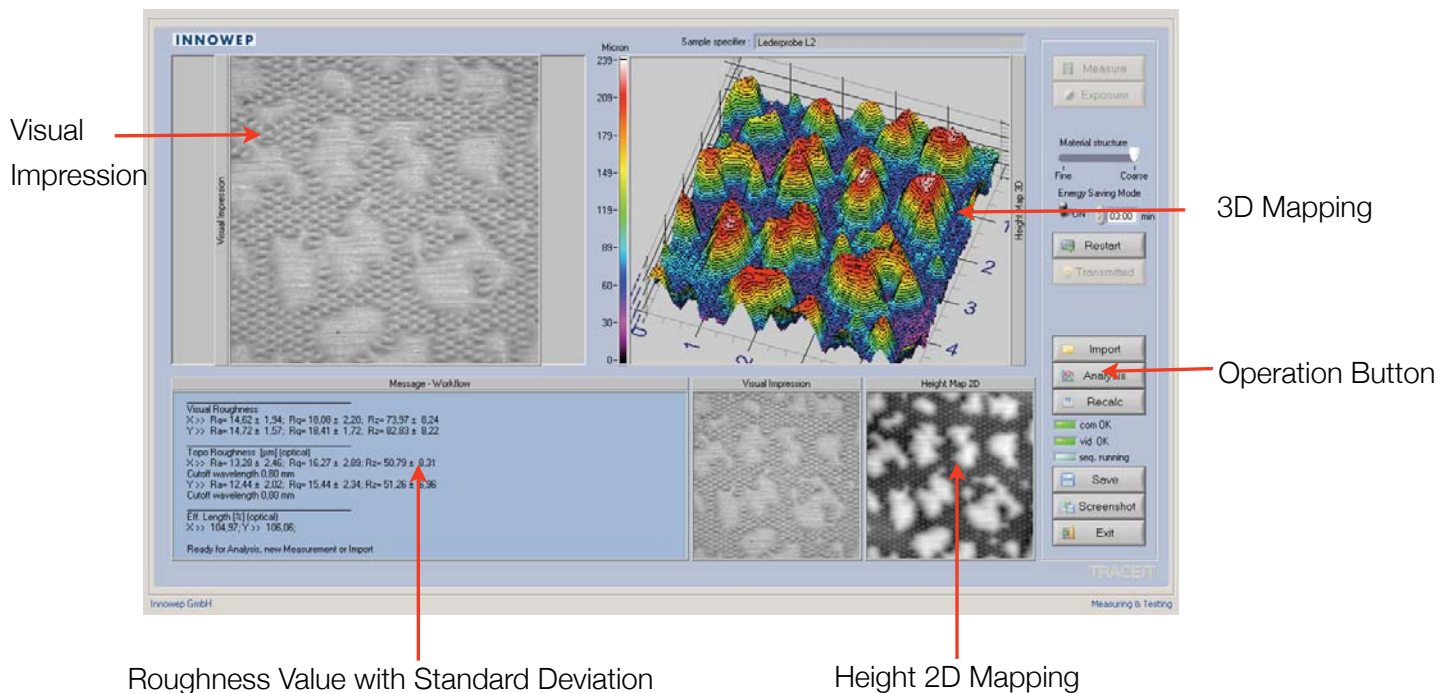
Height 2D Mapping

- Visual Impression: overall appearance of a surface to the human eye
- Roughness Value: complex micro- and macro- structure
- 3D Mapping: physical topography
- Height 2D Mapping: two dimensional topography

Software Analysis - Further Analysis

Direct comparative analysis on a surface after a scratch test with the same resolution of:

a) Visual Impression, light intensity;

b) Area of the lower height between 0-106 μm marked in turquoise;

c) Selected topography area with the highest peak and lowest valley area marked in yellow;

d) Top view of 3D topography/3D mapping with the height range of 0-182 μm;

a scratch

a scratch