UST® - Universal Surface Tester

Universal Instrument for determination of micro-mechanical properties of materials and surfaces

Analysis with sub-micrometer accuracy of micro-mechanic, micro-tribologic and functional properties of materials.

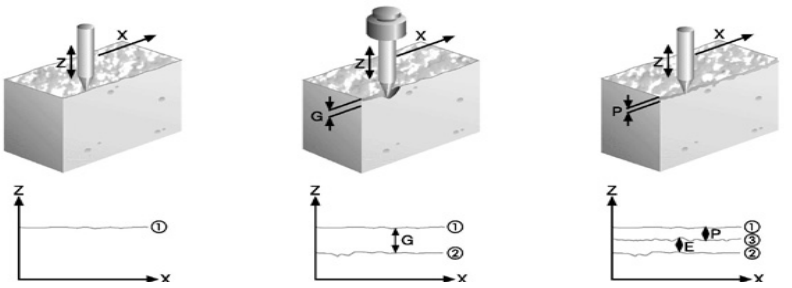
Determinations of wear, abrasion, scratch resistance, micro-friction, structure and haptic characteristics.

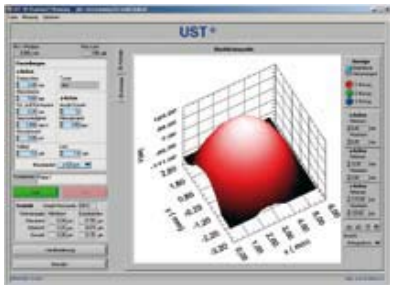
The scope of application of the UST® is not limited to only plastics, paints, coatings and prints. Rather, also metal ceramic, textile, rubber and in medicine e.g. human materials are accurately measured, evaluated and classified.

The **Universal Surface Tester (UST®)** enables the user to determine multiple parameters and functional characteristics of materials, functions and surfaces with only one, modular expandable, test stand.

Test procedure

When using the patented MISTAN®-procedure, a material surface is gauged along a tangent in three steps. This process includes the measurement of overall deformation, as well as the elastic and permanent deformation.





Hardware options

UST®1000

- Extended load range (10-1000mN) for analysis of hard material surfaces and coatings.

Module Micro-tribology and Micro-friction

- Piezo-electric force measurement system, adaptable to the UST® positioning table, for high sensitive measurement of tri-bologic force progression, stick and slip friction. Resolution < 1mN.

TA-X®

- Determination of the abrasion resistance of various materials and coatings, like paints and polymers, through "non-destructive" abrasion tests in a micro and nano measuring range.

Automatic X-Y positioning table

- For 3-dimensional evaluation of topography and deformation.

High Speed X-linear table

- For high dynamic measurements.

Software options

Scratch Test

- Module for innovative scratch resistance measurement. With progressive load increase at simultaneous recording of the dynamic resistance load.

Micro-tribology

- Module for in-situ assessment of all load, travel and deformation parameters.

Wear

Module for determination of abrasion and wear, possibility of free presetting of abrasion cycles, at simultaneous recording of the dynamic resistance load.

Viscoelasticity

- Module for stationary examination of creep and relaxation behaviour with digital time and load control.

Universal hardness

- Module for determination of universal hardness in N/mm^2 according DIN EN 14577-1, using Vickers respectively Berkovich diamond pyramids (also three-dimensional)

Damping

- Module for determination of damping properties of various materials.

Roughness according DIN EN ISO 4287

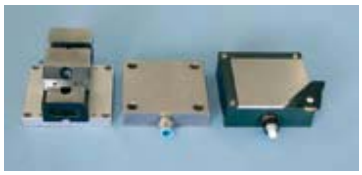
- Module for determination of Roughness parameters $R_{a\ opt}$, $R_{q\ opt}$ & $R_{z\ opt}$. Automatic or manual definition of roughness spacing filters.

Assessment of haptic surface properties

- Module for Characterisation of human tactile properties of profiled, grained or shagreened, surfaces (e.g. for determination of touch haptic of 'soft feel' paints or coatings).

Accessories

Sample attachments



- Vacuum table
- Precision mini vice bench
- Quick-changer
- Special attachments on request.

Stylus geometries

Steel cone 60°

Diamant cone

- 60° - 120° conical, for abrasion measurements, scratch tests and roughness research.

Scratch diamond

- Perpendicular to the test specimen with a 5° relief angle for scratch resistance measurements.

Vickers- respectively Berkovich diamond pyramid

- 4- respectively 3-sided diamond pyramid, α= 136° respectively 65° for universal hardness measurement

Steel ball

- Ø 0,8 / 1,8 / 5.0 / 20,0 mm

Cutting tool

- Blade for determination of the cut resistance of e.g. paper and textile.

Probe holder body

- For mounting of individual UST®-styli, with internal thread for stylus.
- Special styli on request.

Artec Testnology

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