

METROLOGY-BASED INSPECTION



HEXAGON METROLOGY



TESA RUGOSURF 10

Portable, robust and versatile roughness gauge specially designed for surface testing in the workshop.



Code: Tesa_D Norm: ISO4287 / JIS B0601 Länge Cut-off: 0,8 mm Anzahl Cut-off: 5 Sitzung vom: 09.07.2007 Bediener: MR aktive: Kranke



Optional software and printer for both Rugosurf 10 and 10G roughness gauges.

- Two-line display with 16 signs
- Two stylus positions (0° or 90°)
- Interchangeable probes
- Memory capacity: up to 100 measurements
- Possible tolerancing of parameters
- RS232 data output to host computer and printer
- 10 measured parameters according to
 - ISO 4287-1997 / JIS B0601: 2001 / ASME B46-2002
 - ISO 12085 (GNOMO)
- Measuring spans
 - X-axis = 16 mm – Z-axis = 160 µm
- Cut-off lengths 0,25 – 0,8 – 2,5 mm

No. 06930010

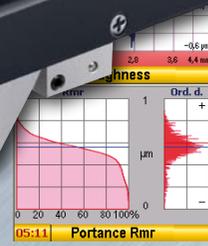


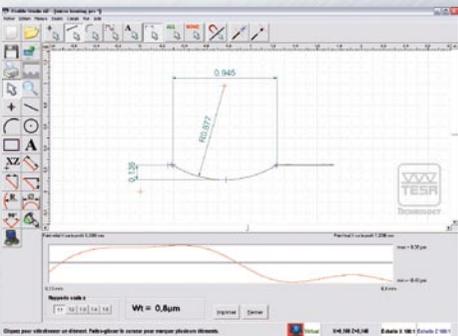
TESA Rugosurf 10G

- Graphic colour display, 2"
 - 2 probe positions (0° or 90°)
 - Interchangeable probes
 - Memory capacity: up to 999 measurements
 - Tolerancing capability
 - RS232 data output to PC and printer
 - 31 measured parameters according to
 - ISO 4287-1997 / JIS B0601: 2001 / ASME B46-2002 / PrEN 10049 / ISO 13565 DIN 4776 / DB N31007
 - ISO 12085 (CNOMO)
 - Visible profiles (Rmr, Pmr)
 - Measuring spans
 - X-axis = 16 mm
 - Z-axis = 300 µm
 - Cut-off lengths 0,25 – 0,8 – 2,5 mm
- No. 06930011**



ROUGHNESS





Software

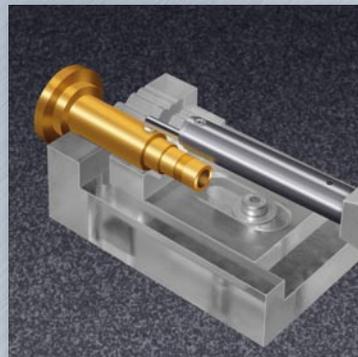
Using straight lines and regression arcs, the software calculates form errors as well as the centre distance of two heights or two bores. The results can then be exported in DXF-format for a further use.

The full set includes:

- Profil Studio test software
- SB2000 probe for profile measurement in the Z-axis (2000 µm)
- Reference test block for profile calibration
- Cable for connecting Rugosurf 90G to computer

TESA PROFIL 2 MM

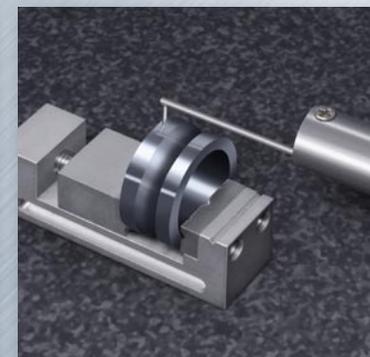
Accessories for Rugosurf 90G



TESA Profil 2 mm is a full set of accessories that converts Rugosurf 90G into a profile gauge able to evaluate geometric part features within each measuring span:

- X-axis = 50 mm
- Z-axis = 2000 µm

No. 06960100



ROUGHNESS





TESA PROFIL METER 50

TESA Profil Meter 50 is a powerful, high-performance testing tool. This Profil Meter with dedicated software allows all profile shapes as well as curve angle and radius to be measured easily, rapidly and accurately.

TESA Profil Meter 50 is the best testing solution for both internal and external profiles with a sophisticated geometric shape, but also for many other industrial testing applications.



PROFILE

Main Features

- Measuring span:
X = 225 mm – Z = 50 mm
- Resolution: 0,5 μm
- Tester base size:
800 x 400 mm
- Manual column with a 300 mm measuring range
- Measuring angle:
up 70° – down 85°
- Interchangeable probes
- Windows-based software with graphic interface and CAD functions
- Automatic measurement cycle for part series
- Power supply:
115-230 V, 50-60 Hz

No. 06930100

HARDNESS

ETALON DUROMASTER P100 HARDNESS TESTER

Used to check fine sheet metal
(thickness to 0,08 mm)

- Suited for all types of materials, whether very hard or soft
- Designed to measure workpieces with uneven flat or round surfaces
- No need for tool setting

No. 06931001



Data acquisition in any position of use. Direct readout of the measured values.

Hardness values:

HRC, HRB, HRA, HB, HV, N/mm², HR 15N, HR 30T, HB 5, HB 30.





HARDNESS TESTING **ETALON DUROMASTER 200R or 200RB**

Used to test all materials and hard alloys such as steel, tungsten carbide, aluminium, brass and copper alloys, but also plastic materials by means of a special indenter. Safe value storage, SPC capability, RS232 data output to host computer or printer.

DUROMASTER 200R **Digital Rockwell Hardness Tester**

Pre-load: 10 kgf
 Hardness values: Rockwell;
 Vickers indentation
 Rockwell load (60 – 100 – 150 kgf)
 Vickers hardness: HV10 – HV60 – HV100
 Thickness values:
 – Hard materials ≥ 1 mm
 – Soft materials ≥ 4 mm
 Resolution: 0,1 HRC

No. 06931002

DUROMASTER 200RB **Digital Rockwell + Brinell** **Hardness Tester**

Pre-load: 10 kgf
 Hardness values: Rockwell – Brinell
 (direct readout); Vickers indentation
 Rockwell load (60 – 100 – 150 kgf)
 Vickers hardness: HV10 – HV60 – HV100
 Brinell: HB/HBT 2,5/62,5 – 2,5/187,5 – 5/125
 Thickness values:
 – Hard materials ≥ 1 mm
 – Soft materials ≥ 4 mm
 Resolution: 0,1 HRC

No. 06931003

HARDNESS



HARDNESS TESTING **ETALON DUROMASTER 300**

Sensors used to check the indentation depth

Universal yet easy-to-use automatic hardness tester. Ideal for testing materials such as iron, steel, hardened steel, brass, aluminium, nitrided aluminium, cemented carbides and hard material surfaces.

Wide variety of icon-based software options available for easy selection of the measured values. On-line help. Rockwell and Super Rockwell hardness test in compliance with ASTM E18, ISO 6508-2, 6506-2 and 6507-2, Brinell, Vickers international standards.

Single trigger key for the measurements.
Automatic selection of the test load.

Meets the requirements of both the workshop and inspection laboratory. Comes with a SIT calibration certificate.

Pre-load

3 – 10 kgf

Vickers load

3 – 5 – 10 – 15 – 20 – 30 –
60 – 100 kgf

Rockwell load

10 – 60 – 100 – 150 kgf

Super Rockwell load

3 – 15 – 30 – 45 Kgf

Brinell load

5 – 6,25 – 10 – 15.6 – 25 – 30 –
31,2 – 62,5 – 125 - 187,5 Kgf

International standards

EN-ISO 6506-2 / 6507-2 / 6508-2 /
ASTM-E18

Thickness values

– Hard materials $\geq 0,5$ mm
– Soft materials ≥ 2 mm

Hardness tests available

HRC A, B, D, F, G, L, M, R, HV, HB,
HRN, HRT

Resolution

0,1 HRC (0,01 HRC upon request)

No. 06931004





ETALON POLO HORIZONTAL MEASURING BENCH

Application ranges

- Internal measurement 0 to 100 mm
- External measurement 10 to 110 mm

Max. perm. error

0,5 μm

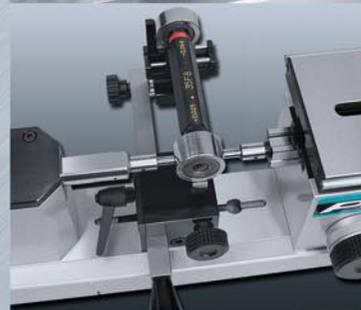
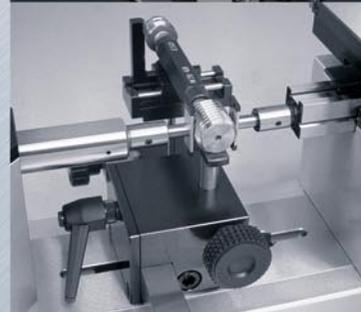
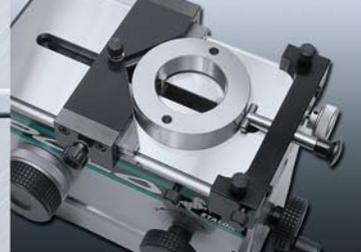
Typical applications

- Calibration of reference standards
 - Reference test pins
 - Plain or threaded plug gauges
 - Reference gauges
 - Gauge blocks
- Calibration of precision tools
 - Dial gauges and indicators
 - Electronic probes
- Workpiece inspection
 - Shafts
 - Cutting tools
 - Balls
 - Grooves
 - Threads

No. 05939000



CALIBRATION



TESA NIVELTRONIC

The Firsts for levelling !

Most popular electronic levels with a solid cast iron body used for checking and levelling surfaces lying either vertically or horizontally.

Also suited for accurate measurement of light slopes, especially when inspecting granite surface plates for flatness.



FLATNESS AND SLOPE

Horizontal model

Fitted with a flat measuring face and a V-recess for mounting another tool base (e.g. optional granite base), or for use directly on the machine or the surface to be inspected.



Mainly applied for adjusting or aligning horizontal machines as well as for checking the measuring table and guiding parts for flatness.

No. 03130063

Square model

Fitted with flat and prismatic measuring faces for checking surfaces or shafts with diameters from 20 to 120 mm in both horizontal and vertical positions.

Measuring faces to the highest accuracy through manual grinding.

This model is the perfect tool for adjusting parts on machine-tools or any structure with perpendicular walls.

No. 03130060



Accuracy

0,005 mm/m + 1%
of the measured value

2 Measuring ranges

$\pm 0,75 \text{ mm/m} \pm 150''$

$\pm 0,15 \text{ mm/m} \pm 30''$



FLATNESS AND SLOPE

TESA CLINOBEVEL 1 – USB ELECTRONIC INCLINOMETER

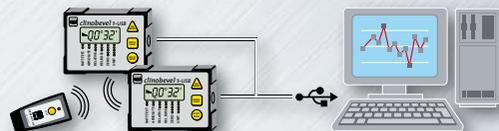
Universal, user-friendly inclinometer. Large LC display for easy reading of each measured value.

Supplied complete with ClinoSOFT and USB cable.

Multi-tasking operation, including the measurement of 2 planes against the values obtained from 2 inclinometers.

No. 05330203

ClinoSOFT 1 USB – For use of 2 inclinometers with automatic generation of inspection reports using Microsoft Excel.



*Optional wireless remote control
(maximum 15 m)*



TESA SERVICE SET 2 WIRELESS FOR FITTERS

This kit consists of a reading unit along with 2 Beveltronic (electronic inclinometers). Including the wireless technology, they can both be safely used for any inspection task, e.g.:

- On a travelling platform
- For inspecting gantry type CMMs
- For adjusting machine-tools
- For levelling voluminous parts

The distance from the reading unit to the Beveltronic is as high as 50 metres - thus allowing comparative measurements over 100 metres.

Due to their rugged, heavy-duty construction, these inclinometers can equally be used indoors and outdoors.

TESA Service Set 2-C

No. 05330304

Resolution: 1 $\mu\text{m}/\text{m}$

No. 05330305

Resolution: 5 $\mu\text{m}/\text{m}$

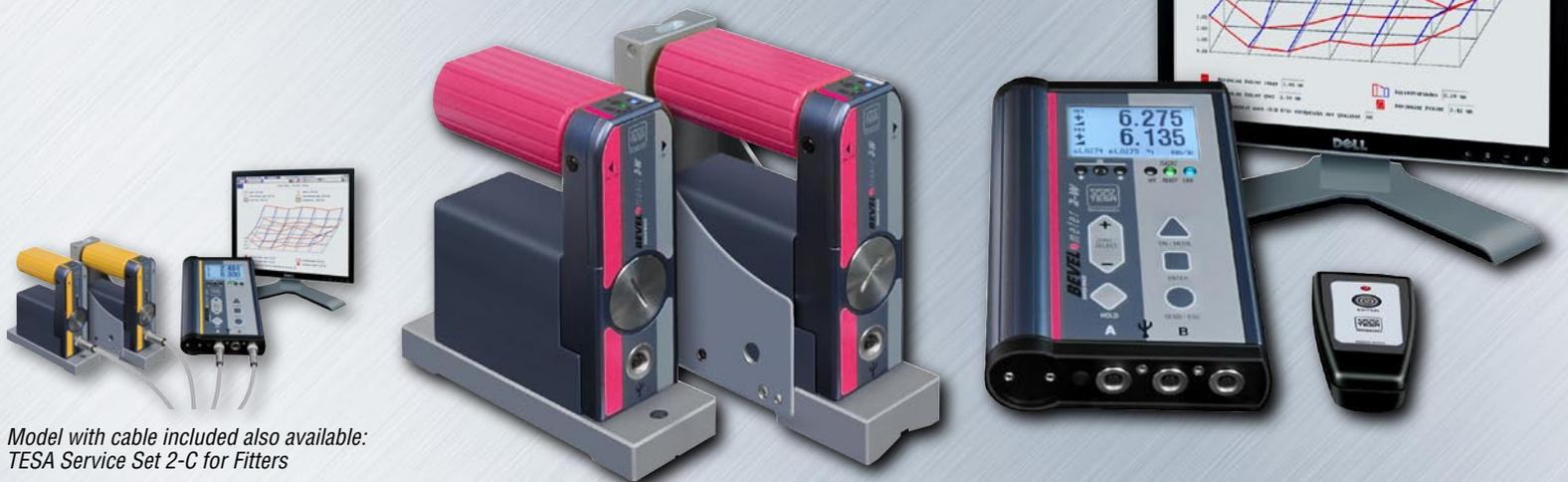
TESA Service Set 2-W

No. 05330310

Resolution: 1 $\mu\text{m}/\text{m}$

No. 05330311

Resolution: 5 $\mu\text{m}/\text{m}$



Model with cable included also available:
TESA Service Set 2-C for Fitters



PRESETTING BENCHES



TESA TPS 300 / 500 / 1000 MOTORISED PRESETTING BENCHES

Each TESA TPS motorised bench is specifically designed for setting the indication of any handheld tools with 2-point or 3-point contact used to measure internal or external dimensions up to 1000 mm.

TPS 300: No. 02130001

TPS 500: No. 02130002

TPS 1000: No. 02130003

Benefit

A single bench can replace a wide number of setting standards such as gauge blocks and setting rings. Ideal for setting precision tools like TESA VERIBOR, TESA IMICRO or external micrometers.

TESA D-Tect L10 **SENSITIVE SHOCK DETECTOR**

The ultimate solution to detect almost imperceptible and unwelcome shocks and disturbances during dimensional inspection or the implementation of high-precision manufacturing processes.

Adding to used devices in the laboratory (for temperature, humidity and particles control), TESA D-Tect L10 lets you make sure that your environment is free from vibrations - one of the main requirements for the measurements or manufacturing processes requiring high precision.

TESA D-Tect L10 is capable to detect, quantify and store the smallest disturbances as measured, which will then be transferred to your computer through its digital output.

TESA D-Tect L10 makes sure that your laboratory or your production line is not subject to parasitic disturbances.

No. 05332001



*TESA D-Tect L10
Detects and tells you the
smallest parasitic disturbance*



TROUBLE DETECTION





TECHNOLOGY



TESA DataDirect FOR DATA ACQUISITION

This intuitive software allows data obtained from one or several precision tools to be transferred to your PC, but also custom made reporting.

Acting as a keypad emulator, it is fully compatible with Microsoft Excel or any other software package for SPC analysis.

No. 04981001

TESA StatExpress FOR STATISTICAL ANALYSIS

This software is not just able to save and output your inspection reports but it also allows you to keep full control on your measurements.

Includes DataDirect for data collection. Lets you check at a glance if the measured value is within tolerance, performs statistical data processing and continuous graphics updating.

No. 04981002

