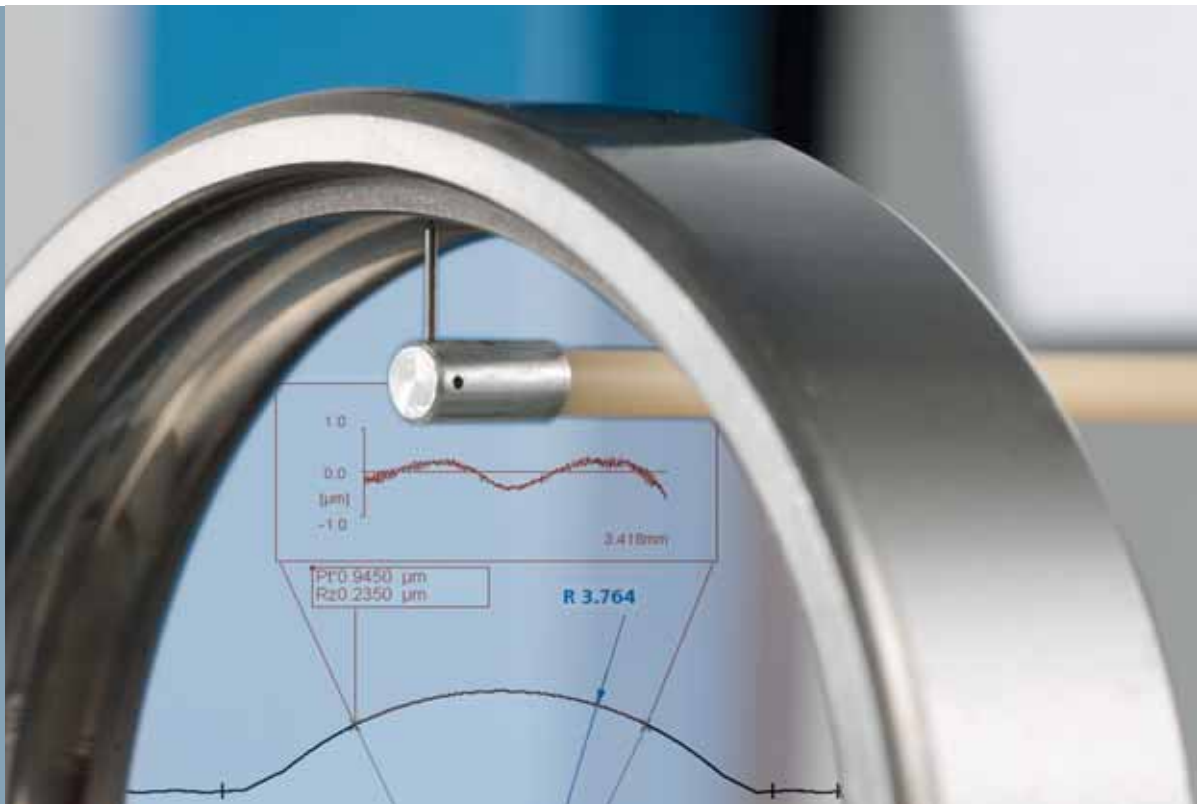




HOMMEL-ETAMIC nanoscan 855

Roughness and contour measurement with maximum precision



Precision is our business.

Your partner for industrial metrology

Hommel-Etamic, the Industrial Metrology Division of the Jenoptik Group, is a leading manufacturer and system provider of high-precision, tactile and non-tactile production metrology. The range of products provided include total solutions for a wide range of measurement tasks such as testing surfaces, form, and determining dimensional tolerances – throughout all phases of the production process, for final inspection or in a metrology lab. Our product portfolio is rounded off by a wide range of services in consulting, training and service, including long-term maintenance contracts.

Hommel-Etamic. Precision is our business.

Flexible surface roughness measurement

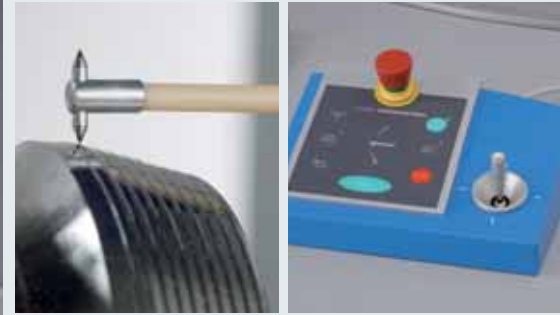
We have the right system for any measuring task. Our product line includes mobile compact roughness meas-

uring devices, as well as standard and custom stationary systems for roughness, topography and contour measurements. Hommel-Etamic measurement systems contain high precision mechanical components and are easy to operate through a menu controlled software interface.

Two measuring instruments in one

The nanoscan 855 combines roughness and contour measurements all in one complete measuring pass. This guarantees complete flexibility over a large range of surface metrology measurement tasks.





Combined roughness and contour measurement

Ultra-precision, opto-mechanical measuring system

The simultaneous high-precision measurement of roughness and contour characteristics, on curved or inclined surfaces, requires a high resolution measuring system with a wide measuring range. The nanoscan 855 is an extremely precise measuring system, with a resolution of 0.6 nm and a measuring stroke of 24 mm, delivering unprecedented flexibility in a measurement system. Together with the high-precision traverse unit, the system achieves excellent measuring accuracy both in the measurement of micro-geometry characteristics and in contours with large measuring strokes.

Universal application possibilities

The nanoscan 855 is capable of highly accurate measurements of even the smallest tolerances. Numerous applications are possible thanks to a wide measuring range, a scanning length of 200 mm, and a measuring stroke of 24 mm. The flexibility of an upgradable measurement system guarantees your ability to meet today's or tomorrow's metrology requirements – an investment in quality for the future.

Automatic measuring runs

Fast, CNC-controlled measuring axes allow efficient, fully automatic measuring runs and guarantee maximum productivity in the quality control.

Ergonomic measuring station design

The overall design of the nanoscan 855 focuses around splitting the work table and equipment table into two separate entities. The equipment table contains an integrated granite plate, complete with active level regulation and vibration dampening, that guarantees optimal measurement results every time. The work table contains the evaluation computer and printer in lockable cabinets and offers additional storage possibilities. The most important functions are performed directly on the control panel, in complete view of the measuring task.

Wide range of probe arms

The nanoscan 855 offers a wide range of application specific probe arms, complete with highly stable geometric stylus tips made of diamond, carbide, or ruby spheres. Complete roughness and contour measurement flexibility at your fingertips.

Maximum performance in simultaneous measurement of roughness and contour

Technologically innovative

The nanoscan 855 uses an extremely advanced technologically innovative opto-mechanical measuring system. Tactile workpiece scanning is transmitted to an optical scale by a high-precision mechanical pick-up which is then interpreted by a laser interferometer. This innovative design makes the nanoscan 855 the measuring system of choice for high precision applications.

- **Electronic probe arm detection**
The probe arms are detected electronically and automatically assigned to each measuring task. This eliminates measuring errors due to incorrect probe arms.
- **Electronic stylus tip protection device (patent pending)**
Damage to the stylus tip is eliminated using an electronic speed limiter to prevent abrupt contact with the workpiece.
- **Electronic probe force setting**
Probe force can be electronically adjusted, depending on the stylus tip, to avoid measuring errors or stylus tip damage.
- **High-precision probe arm positioning**
For small bore measurements or automatic measurement of surfaces with interruptions.

New evaluation possibilities

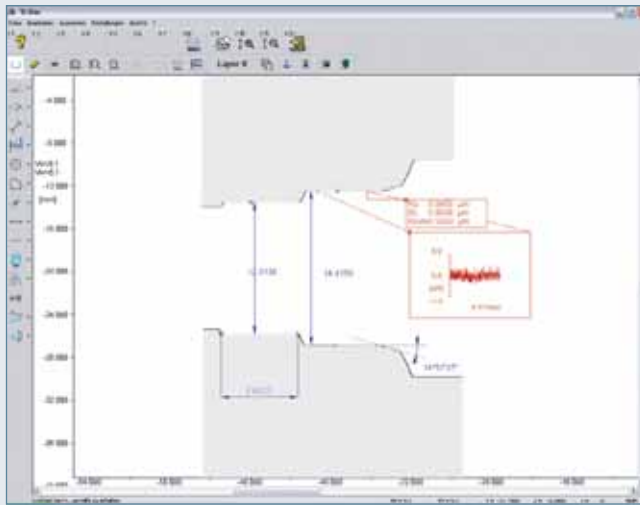
- **Combined roughness and contour evaluation**
Roughness and contour are measured simultaneously and displayed as one evaluation. Due to the large measuring stroke and the top/bottom scanning of the workpiece, the nanoscan 855 is an extremely flexible system.
- **Top and bottom measurement**
Complex measurements requiring scanning in both directions, and instances where multiple single traces are required, can all be accomplished with a single measuring routine using probe arms with a double stylus tip. This extends the range of applications to measurements of inside diameters as well as the evaluation of parallelism and angularity of geometric elements from several profiles.
- **Topography measurement with large stroke**
Topography measurements requiring a large measuring stroke and high resolution can be completed with an optional Y-axis.

nanoscan 855 with
optional cover for reducing
environmental influences

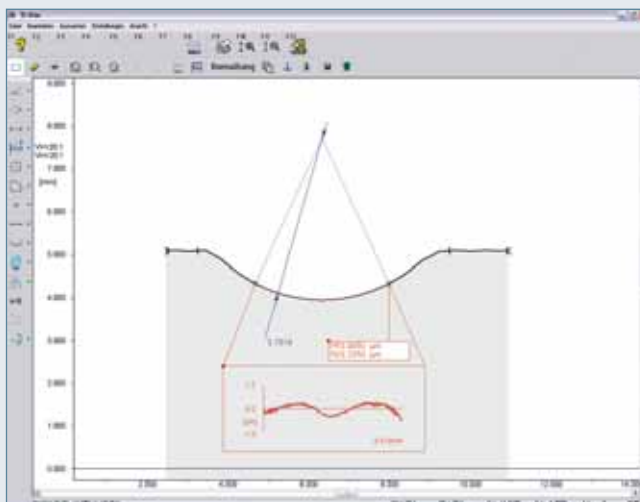


Flexible in application

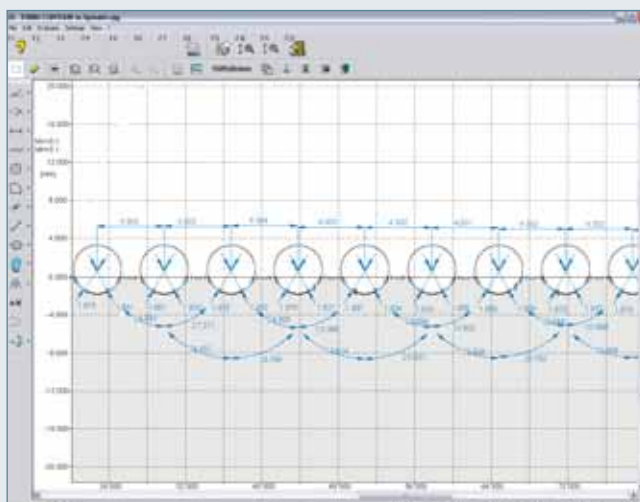
Probe arm with double tip for top/bottom measurement on an inside contour with diameter measurement



Combined roughness and contour measurement in a single pass



Thread measurement with automatic evaluation



Simple operation and international conformity

With the TURBO WAVE software you can configure measuring conditions simply and clearly and create individual parameters. Versatile viewing options simplify the profile analysis of roughness and contour. Screen and printout forms can be designed freely and adapted individually to your needs.

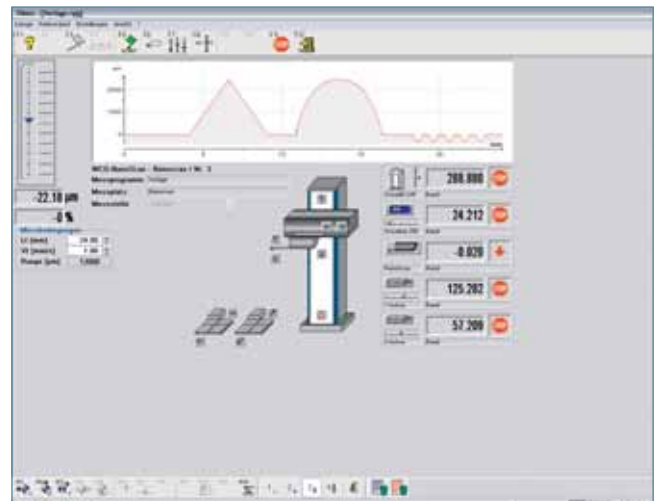
The performance characteristics of TURBO WAVE at a glance

- Logically structured operating menus and easily comprehensible function keys for direct operation of frequently used functions
- Clear control of all measurement and evaluation functions
- Extensive contour evaluation possibilities for single and multiple profiles
- Roughness and waviness measurement according to common international standards
- Display of roughness and contour characteristics as well as tolerances in one view
- Fast and simple calibration method
- Morphological filtering of profiles
- ASCII data export interface
- Fast online help in all menus

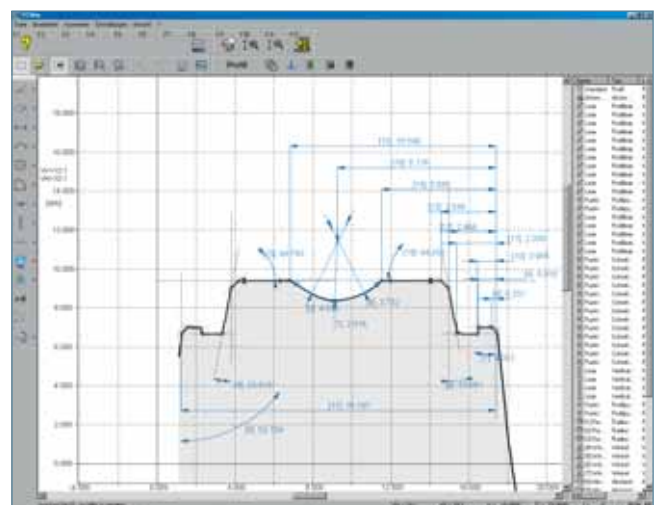
Available software options

- qS-STAT® data export according to the "Automotive Quality Data Exchange Format" – specification
- Evaluation of the dominant waviness in accordance with VDA 2007
- CNC software module for controlling automatic measuring runs
- HOMMEL MAP basic/expert for the evaluation of 3D topography data

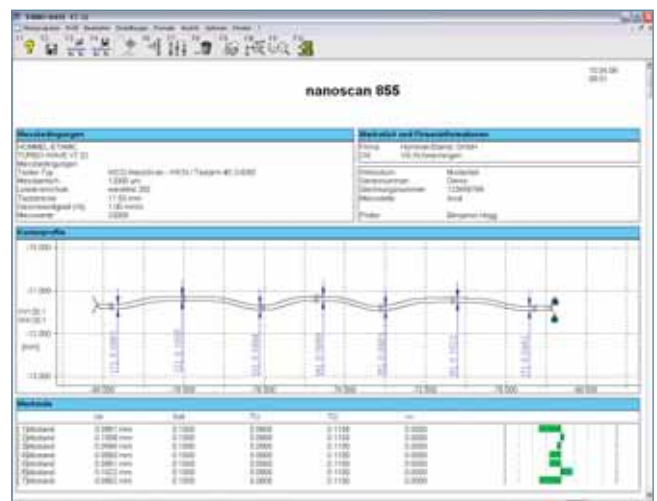
Adjustment



Evaluation



Screen log





Calibration method

Only one sphere standard is required for the calibration of the entire system. Calibration is performed by an automatic measuring run which covers all parts of the system calibration. The electronic probe arm identification links the probe arm data automatically with the calibration. Due to the precise, magnetic probe arm holder, no recalibration is necessary after changing the probe arm.

Probe arm holder with electronic identification

The probe arms can be changed quickly and safely thanks to the magnetic probe arm holder. The magnetic coupling is designed so that the standard probe arms can be inserted either in „down“ or „up“ scanning direction.

DKD calibration laboratory for roughness, form and contour

Our DKD calibration laboratory is accredited for roughness, profile depth, roughness measuring systems, roundness, straightness, parallelism as well as contour standards and therefore guarantees high-level measurement/calibration. We provide qualified counseling, assistance with the calibration of master pieces and conduct capability tests for demanding measuring tasks.

Technical data HOMMEL-ETAMIC nanoscan 855

Scanning system

Measuring range	24 mm (48 mm with double length probe arm)
Resolution	0.6 nm (1.2 nm with double length probe arm)
Measurement force	±1 mN to ±50 mN, programmable
Scanning direction	Z+ / Z-, programmable
Stylus tip protection	Electronic limiting of the lowering speed
Positioning accuracy stylus tip in Z	± 25 µm

Probe arm

Probe arm length (standard)	90 mm
Stylus tip	Diamond tip 2 µm/60°; ruby sphere Ø 1 mm
Probe arm holder	Magnetic with collision protection
Probe arm detection	Electronic, RFID

Traverse unit

Measuring range (scan distance)	200 mm
Resolution	10 nm to 10 µm
Measurement speed	0.1 – 3 mm/sec.
Positioning speed	Max. 9 mm/sec.
Straightness guide	≤ 0.4 µm / 200 mm

Measuring column

Travel	550 mm
Autozero function	In Z+ / Z-, programmable
Traverse speed	0.1 – 50 mm/sec.
Repetitive accuracy of positioning	≤ 10 µm

Measuring station

Granite plate (L x W x H)	850 x 600 x 140 mm
Damping	Active level regulation with damping function
Equipment table (L x W x H)	1190 x 800 x 780 mm
Work table (L x W x H)	810 x 800 x 780 mm
Cover	Optional

Measuring accuracy¹⁾

Angle measurement	± 0.5'	angle standard, nominal 90°
Radius measurement	± 0.01%	calibration sphere, nominal R = 10 mm
Distance measurement	± 2 µm	KN8, nominal 82 mm

1) Ambient temperature 20° ± 1°, tension-free and insulated from low-frequency floor vibrations



Our global presence.

Germany	Spain	Mexico
France	Czech Republic	China
Switzerland	United States	South Korea
		India

Group companies, affiliates and representation worldwide

www.hommel-etamic.com