



MORE LIGHT

Modular measuring systems for flexible, precise and quick roughness and contour measurements.
Waveline W800 / W900



The W800/W900 measuring stations can be combined with different probe systems to undertake challenging roughness and contour measurement tasks. We offer the right solution to suit all performance requirements.

Available probe systems

			
TKU400 Roughness measurement	Digiscan Contour measurement	Surfscan Roughness & contour measurement	Nanoscan Roughness & contour measurement

W800 & W900. Modern system concept for optimum flexibility and precision

Owing to a standardized system concept and state-of-the-art probe systems, the W800/W900 measuring systems provide optimum flexibility in day-to-day measurement tasks. All measuring station configurations are modular in design, meaning they can easily be expanded at a later date.

Industrial manufacturing processes and measurement technology requirements can vary wildly. Thanks to our W800/W900 systems, you can measure surfaces in exactly the right way for your individual infrastructure and your specific

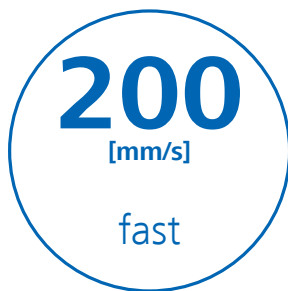
measurement requirements. The measuring systems are easy to use and also offer a variety of analysis options thanks to the Evovis measurement and evaluation software.

W800 measuring systems are ideal for semi-automated or manual measurement processes involving changing work-pieces and measurement tasks. **W900** measuring systems are used mainly in the field of automated measurement to obtain extremely rapid results.



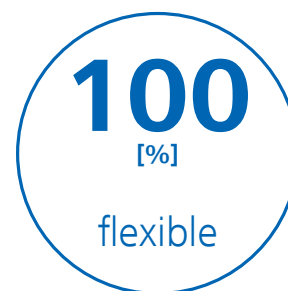
More accurate precision

- **W800**: Universal measuring system for accurate results involving a wide range of measurement tasks
- **W900**: Measuring system for the most demanding requirements and maximum performance in automated measuring processes



Faster precision

- **W800**: Positioning speed of 20 mm/s for fast, accurate results
- **W900**: A speed of 200 mm/s and positioning repetition of <math><10 \mu\text{m}</math> for optimal results in the shortest possible time



More flexible precision

- **W800**: Various probe systems enable access to the entire range of measurement tasks
- **W900**: Additional probing system interface for even greater application flexibility

W800. For reliable measurements

The W800 measuring systems are universal and deliver highly accurate results for a wide range of measurement tasks. The modular concept means a perfect match to your requirements and enables subsequent expansion of the measuring system.



Waveline W812C Digiscan with 500 mm measuring column, 120 mm traverse unit, control panel and accessories for workpiece mounting

Highlights of the Waveline W800

- + Easy-to-use measuring system
- + Modern, high-resolution probe system
- + High measurement quality thanks to stable mechanics
- + Sophisticated probe arm technology
- + All probe arms equipped with magnetic coupling
- + Unique feed concept for optimum access to measuring positions



Quick-change adapter QCA enables quick probe system changeover

- 100 % flexibility
- Minimum retooling time
- Precise positioning of probe system
- Automatic configuration feature

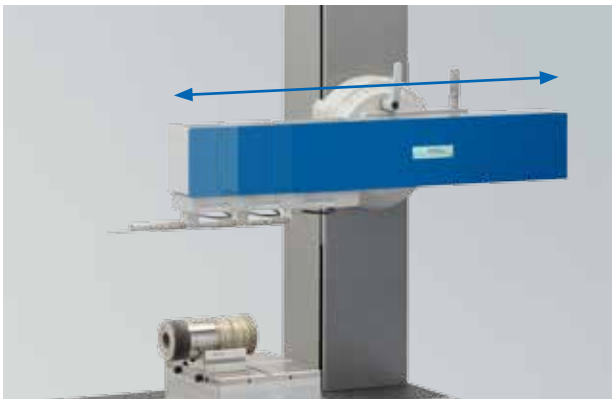


All probe arms equipped with magnetic coupling

- Fast and easy probe arm change over
- Collision protection
- Economical changeover between measurement tasks

All contour probe arms equipped with an RFID chip

- Probe arms are automatically configured
- Simplified calibration



Optimal accessibility of measuring positions

Horizontal motion of the probe system occurs via the traverse unit enclosure, meaning the probe arm is always in front of the traverse unit. This guarantees optimal accessibility of the measuring positions.



Control panel for easy operation of the measuring systems

- Direct control of the most important measuring and control functions
- Rotary controls for directly selecting axis speed
- Emergency stop function with restart at interrupted axis position

W900. For high-end performance

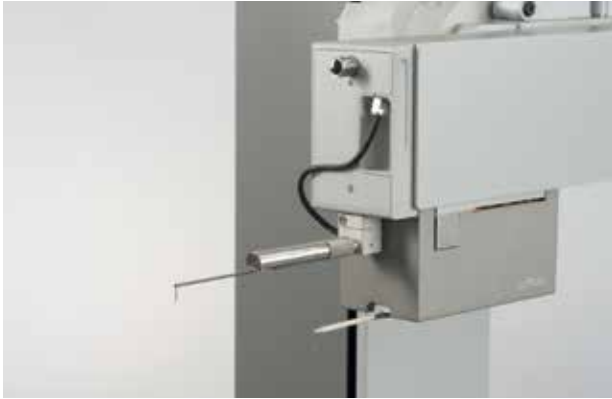
With fast measuring axes, W900 measuring systems guarantee short measuring cycles in complex measurement tasks, therefore meeting the most stringent requirements of measurement technology. In conjunction with the Nanoscan probe system, the high-precision traverse unit provides excellent measuring accuracy in combined roughness and contour measurements. W900 measuring systems offer leading quality in roughness, radius, angle and diameter measurements.



Waveline W920RC with 500 mm measuring column, 200 mm traverse unit, control panel, instrument table and accessories for workpiece mounting and positioning

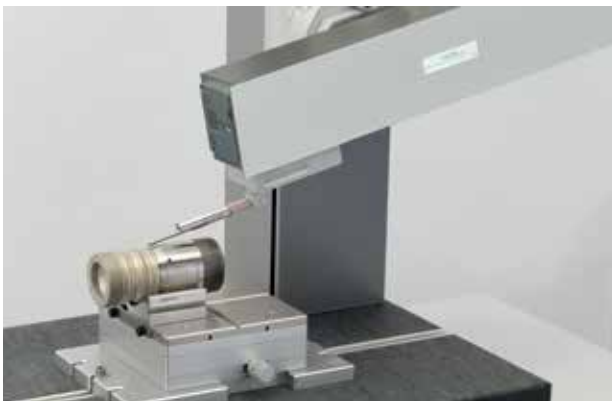
Highlights of the Waveline W900

- + Fast measurement technology
- + Excellent measuring accuracy
- + Traverse unit with interfaces for two probe systems
- + Innovative complete solution
- + Highly flexible, dynamic measurement
- + Extensive automation options



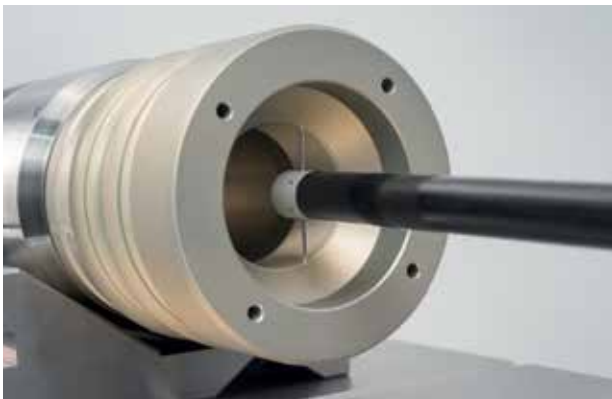
Dual operation two probe systems

- A roughness probe system can also be installed on the front of the traverse unit
- Also suitable for optional rotary module for roughness probes with probing at 0°, 90°, 180° or 270°



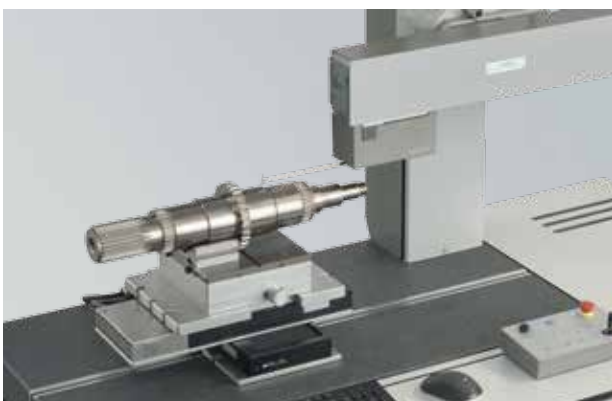
Motorized tilt unit (optional)

- Maximum tilt range $\pm 45^\circ$
(depending on the probe system)
- Precise motorized adjustment of the tilt angle
- Automatic alignment of probe to workpiece level
- CNC capability for automated measurement processes



Measuring Z-column

- Z-column with linear scale at a resolution of 0.1 μm
- Measurement of vertical distances outside the Z measuring range of the probe
- Requires probe arm with double probe tip



Additional measuring and positioning axes (optional)

- Motorized Y-axis or X-Y-axis combination for
 - automatic zenith search
 - topography measurement
 - workpiece positioning
- Rotational axis for roughness measurement on cylindrical workpieces in circumferential and axial direction

Probe systems with quick-change adapter QCA. For optimal configuration of your measuring system

Four different probe systems with quick-change adapters QCA allow quick and simple system changeovers to accommodate new measurement tasks. In conjunction with the selected measuring station configuration and the Evovis software, this means the ideal measurement performance is always achieved.

Characteristics

- + Three-point-docking on the traverse unit
- + Magnetic probe arm coupling
- + Automatic detection of probe system
- + No tools required for changeovers
- + Hot-plug-capable

Advantages

- + Fully modular
- + Easy and safe to operate
- + Probe systems can be retrofitted at any time
- + Reproducible measurement results

Surfscan. Nanoscan. Roughness and contour measurement rolled into one

The innovative Surfscan and Nanoscan probe systems deliver two measuring systems in one and are suitable for both extremely precise measurement of surface roughness and exact determination of contour features such as radii, distances and angles. Electronically controlled probe arm positioning allows efficient measurement sequences in manual operation and in CNC-controlled measuring processes.



Probe arm length	Measuring range	Resolution
Standard	8 mm	3 nm
Double	16 mm	6 nm

Surfscan probe system

- Probe arm changeover without the need for tools
- Electronic probe arm detection
- Top/bottom measurement possible (software option)
- High-resolution roughness measurement across the full measuring range



Probe arm length	Measuring range	Resolution
Standard	24 mm	0.3 nm
Double	48 mm	0.6 nm

Nanoscan probe system

- Ultra-precise opto-mechanical probe system
- Wide measuring range with extremely high resolution
- Excellent roughness and contour measuring accuracy in conjunction with W900



WCN probe arms

- Ceramic tubes for low temperature influence and excellent stability
- RFID tag for electronic probe arm detection
- Compensation for probe tip deviations in form and radius for high-precision measurements

TKU400. Roughness measurement

The newly developed TKU400 roughness probe system is used universally for the measurement of surface roughness, waviness and micro contours. It provides a very high measuring resolution across the full measuring range without switching-over the measuring range. Precise roughness measurement even on oblique and curved surfaces is therefore possible and avoids the potential need for mechanical alignment of the workpiece.



Probe arm length	Measuring range	Resolution
Standard	±400 µm	1 nm
Double	±600 µm	1.5 nm
1.5 fold	±800 µm	2 nm

TKU400 probe system

- Simple changeover to transverse measurement
- Highest resolution across the full measuring range



TAM probe arms

- Made of carbon fiber for a highly robust probe arm construction
- Probe arms can be easily changed
- Magnetic mount for additional collision protection
- Three lengths and various versions
- Optimum flexibility

Digiscan. Contour measurement

The Digiscan contour probe system with state-of-the-art technology offers users safe and easy operation as well as absolutely reliable measurement results. Thanks to the intelligent probe arms, the system automatically sets the appropriate calibration data for the specific probe arm. Operating errors are thus excluded.



Probe arm length	Measuring range	Resolution
Standard	60 mm	10 nm
1.5 fold	90 mm	15 nm

Digiscan probe system

- Probe arm change without the need for tools
- Electronic probe arm detection
- Top/bottom measurement possible (software option)
- Quick and easy calibration of the probe arms



TD probe arms

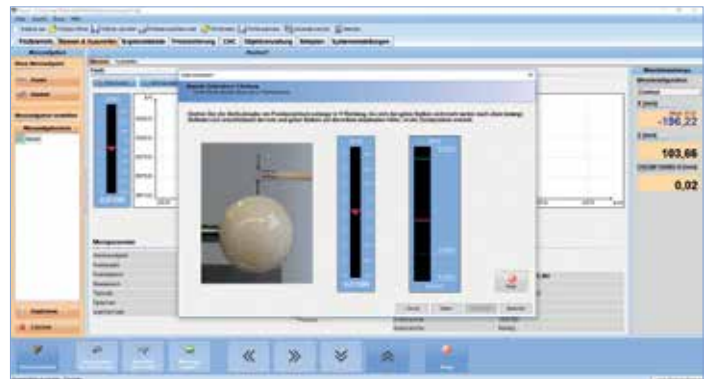
- Made of carbon fiber for a highly robust probe arm construction
- The probe tips are replaceable on standard probe arms
- Wide range of probe arm variants, also with double tips for top/bottom measurement

Evovis. Powerful and easy to use

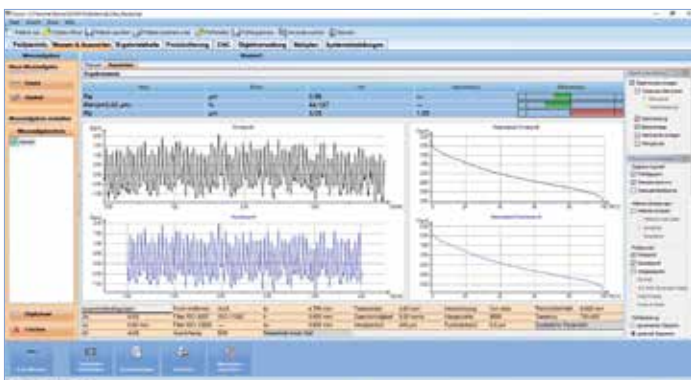
Evovis, the measurement and evaluation software for roughness and contour measurement, offers a standardized user interface with easy-to-understand control logic and extensive support functions for designing individual measurement applications. Its applications range from simple measurements of a single characteristic to fully automated measurement applications within the Industry 4.0 environment.



Measuring station control



Calibration assistant



Profile analysis of surface roughness



Contour evaluation

Highlights

- Measuring station control with live display
- Automatic system configuration when changing the probe system or probe arm
- Individual design of test plans & print forms
- Extensive statistical functions
- Interactive analysis and evaluation functions
- All globally standardized surface parameters for primary, roughness and waviness profiles
- Professional contour evaluation with evaluation of geometric dimensions, tolerance of profiles and extensive functions to evaluate profile form deviations
- Simple definition of automated measuring and evaluation processes

Options

[qs-STAT® \(Q-DAS ASCII transfer format\)](#)
AQDEF-certified statistics export interface.

CNC Professional

Programming of complex, automated measuring processes: Axis controllers, electronic workpiece identification, simplified user interface and automated data export.

Dominant waviness

Calculation of dominant waviness according to VDA 2007.

TwistLive®

Twist evaluation in accordance with the Daimler standard, with additional quick twist test and live display.

[Other company-specific surface parameters are available on request.](#)

Technical data

Measuring systems

Waveline	W800				W900			
Traverse unit XM120 XM200								
Traverse length	120 mm 200 mm				120 mm 200 mm			
Straightness	0.4 µm 0.6 µm				0.2 µm 0.4 µm			
Positioning repeatability	<50 µm				<10 µm			
X-axis scale resolution	0.1 µm				0.01 µm			
Max. positioning speed	20 mm/s				200 mm/s			
Max. basic disturbance Rz (0.2 mm/s)	<50 nm				<30 nm			
Number of probe system interfaces	1, bottom				2, bottom & front			
Measuring column ZM500 ZM800								
Vertical travel	500 mm 800 mm				500 mm 800 mm			
Positioning repeatability	<50 µm				<10 µm			
Max. positioning speed	20 mm/s				80 mm/s			
Scale resolution	-				0.1 µm			
Vertical distance measurement	-				absolute angle, inner/outer diameter			
Tilt unit								
Tilt range ¹⁾	± 45°				± 45°			
Fine adjustment (optional)	± 5°				± 5°			
Probe system accuracy								
Rz min. tolerance cg/cgk ≥ 1.33	TKU400	Digiscan	Surfscan	Nanoscan	TKU400	Digiscan	Surfscan	Nanoscan
Radius measurement R = 15 mm	0.8 µm	-	0.8 µm	0.5 µm	0.5 µm	-	0.5 µm	0.15 µm
Radius form deviation	-	±5 µm	±5 µm	±3 µm	-	±3 µm	±3 µm	±1 µm
Radius form deviation	-	3 µm	3 µm	1.5 µm	-	1.5 µm	1.5 µm	0.8 µm

1) The technical data of the whole system can change depending on the tilt angle

Probe systems

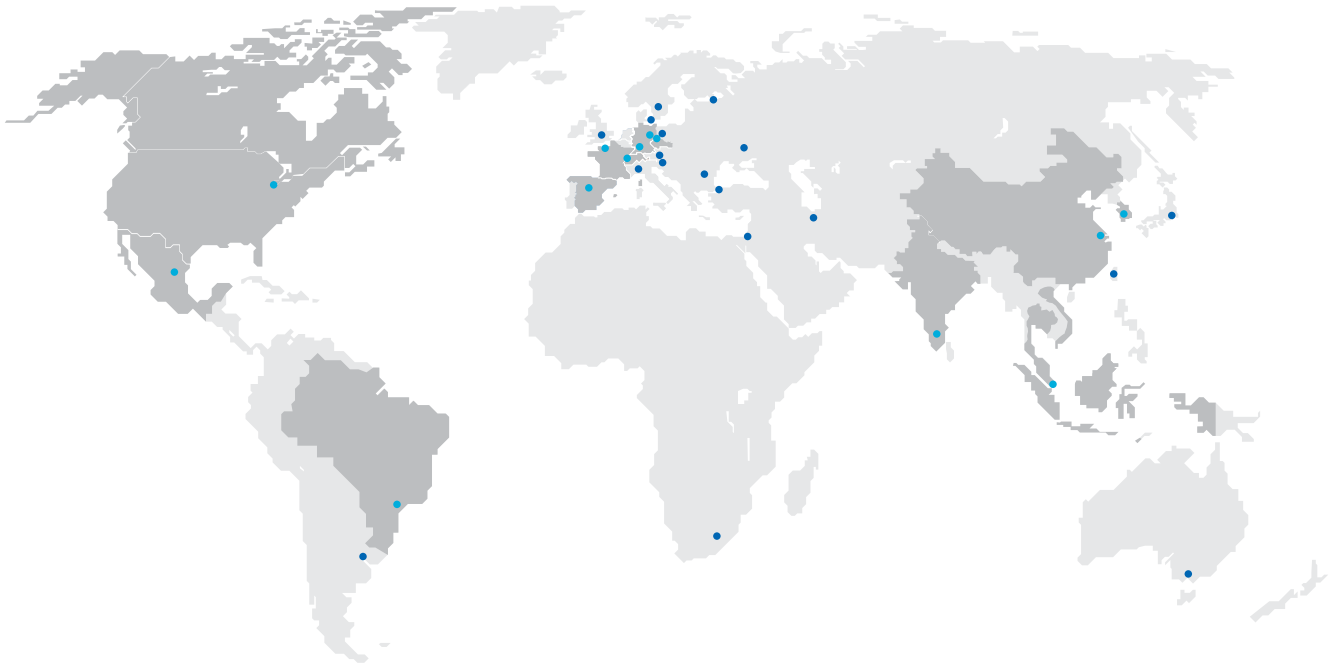
Probe system	TKU400	Digiscan	Surfscan	Nanoscan
Measurement of	roughness	contour	roughness & contour	roughness & contour
Measuring range/resolution (Standard probe arm length)	± 400 µm/1 nm ¹⁾	60 mm/10 nm ¹⁾	8 mm / 3 nm	24 mm/0.3 nm
Measuring range/resolution (1.5x probe arm length)	± 600 µm/1.5 nm ¹⁾	90 mm/15 nm ¹⁾	-	-
Measuring range/resolution (2x probe arm length)	± 800 µm/2 nm ¹⁾	-	16 mm/6 nm	48 mm/0.6 nm
Top/bottom measurement	no	optional	optional	yes
Measuring principle	analog	digital	digital	digital
Probe identification	yes	yes	yes	yes
Probe force setting	fixed	electronic	electronic	electronic
Probe arm identification	no	yes	yes	yes
Probe arm interface	magnetic	magnetic	magnetic	magnetic

1) Resolution across the entire measuring range

System configurations

System configuration	Description
W800R W900R	Roughness measuring station with TKU400 probe system
W800C Digiscan W900C Digiscan	Contour measuring station with Digiscan probe system
W800RC Digiscan W900RC Digiscan	Roughness and contour measuring station with separate TKU400 and Digiscan probe systems
W800RC Surfscan W900RC Surfscan	Combined roughness and contour measuring station with Surfscan probe system
W800RC Nanoscan W900RC Nanoscan	Combined roughness and contour measuring station with Nanoscan probe system
Optional for all system configurations	Traverse unit 120 mm or 200 mm Measuring column 500 mm or 800 mm Granite plate 700 x 520 mm or 1000 x 520 mm Desktop, instrument table, measuring cabin

We support you worldwide.



Our qualified employees are available to assist you across the globe. We have subsidiaries and distribution partners in key industrial nations, meaning that we are always close by to offer you optimum support as a reliable partner.

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