

**High-precision,
non-
contact.**



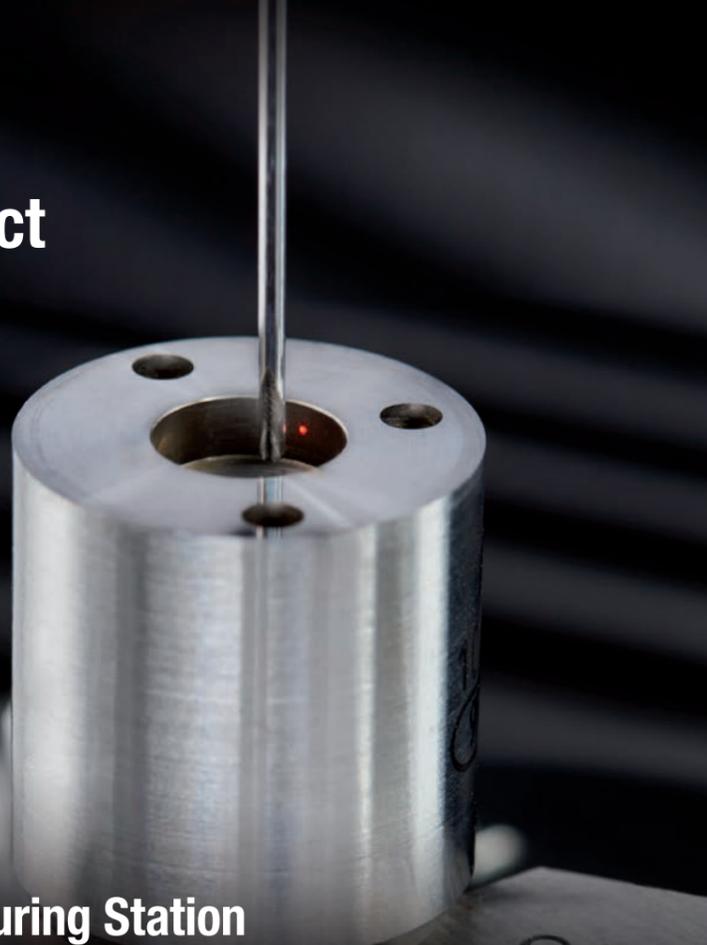
Surface Roughness Measuring Station

RMP

Fast. Compact. Reliable.

fionec
fiber optic sensor technologies

High-speed and compact surface roughness measurements.



RMP Surface Roughness Measuring Station

The surface structure of high-precision components plays a key role in determining the functional properties the final product will possess. The fionec RMP surface roughness measuring station is based on a high-precision fiber optic measuring system which is capable of capturing and analyzing surface profiles through non-contact technology. Delivering results quickly – the fionec

sensors work up to ten times faster than tactile measuring equipment – it complies with all required industry standards. On top of that, the miniaturized measuring probe can reach even the smallest cavities (down to diameters of 0.15 mm).

RMP – high precision quality control along the production line.

Ultra-Precision and Compliance with Industrial Standards

The fionec RMP surface roughness measuring station achieves measuring accuracies of less than 3 nm with resolutions of 0.1 nm. Automatic signal optimization allows our technology to generate consistent measurement values, even for heterogeneous surfaces. It delivers profile measurements that comply with the standards of DIN EN ISO.

Fast and Easy-to-Automate

The RMP technology achieves measuring speeds of up to 5 mm/s, significantly more than tactile measuring instruments. High measuring frequencies of up to 8 kHz enable our customers to perform full inspections in an industrial environment – if needed at the speed of the production line.

Non-Contact and Flexible Technology

Our sensors use non-destructive testing technology and can measure virtually any surface. The linear axle of the surface roughness measuring station is adjustable, allowing both horizontal and vertical motions. Hardware and software interfaces enable automatic loading processes and ensure that the compact system can be easily integrated into existing manufacturing processes.

Applications

Profile-based Surface Roughness Measurements according to Common Standards

- Inspection of technological surfaces and micro-structures following all common production processes (turning, milling, honing, polishing, coating etc.)
- Measuring flat surfaces and rotationally symmetrical components (bearing seats, valves and valve seats, high-precision components for the automotive industry and its suppliers / Powertrain)
- Measurements in hard-to-access spaces and cavities

Controlling Quality, Process Operation and Functionality

- **Quality assurance** (for instance of components with tribological or functionally critical tolerances)
- **Control of tool wear and tear**
- **Full inspections**

Standalone and Inline Solutions

Technical Data

Surface Roughness Values

Surface roughness parameters according to DIN EN ISO 4287	Ra, Rk, Rt, Rq, Rz, Rp, Rsk, Rku, RSm, Rc, RPl
others	Rmax, Rlq, Rda, Rla, Rpmx, Rvmax
Bearing area curve and Rk parameters according to DIN EN ISO 13565	Rk, Rpk, Rvk, Rpkx, Rvkx, A1/2, Mr1/2, R1/2
Application of filters	in compliance with DIN EN ISO 11562, 13565, 16610

Measuring System

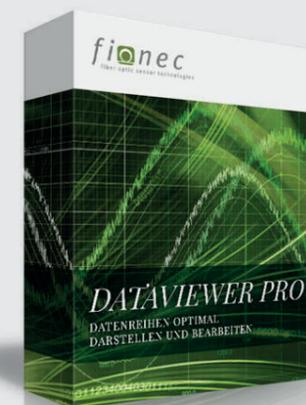
Measurement principle	Low-coherence interferometry
Diameter of the measuring probe	≥80 µm
Working distance	from 0.02 mm (depending on the probe)
Inner diameter of the tested object	≥0.15 mm
Direction of measurement	angular (90°), axial (0°)
Measuring frequency	up to 8 kHz (depending on the surface)
Maximum travel	100 mm
Suitable materials and surfaces	Glass, metal, ceramics, plastic etc. – transparent, glossy, matt
Software	RMPControl / DataViewer
Integrated interfaces	API / DLL
Power supply	230 V (AC)

Custom designs for individual measurement requirements available.

Optional Extras

The standard version features a manual three-axis positioning unit and a manual three-jaw chuck.

The following optional extras are also available: Pneumatic three-jaw chuck, assembly panel for three-jaw chuck, engine-driven two-axis positioning unit (x, y), equipment table with a passive or active vibration insulation system.



Software DataViewer Pro

DataViewer is the perfect software for a straightforward 2D-display and the easy processing of large data series. The program can perform many mathematical operations – for example, calculating moving averages and standard deviations, applying adjustable filters, establishing polynomial regressions or corrections and conducting FFT operations.

DataViewer benefits from an intuitive operational system and many configuration options. **DataViewer is automatically included in the scope of deliveries for the RMP surface roughness measuring station.** System-independent single-user licenses are available on fionec.com/software.

10 years of sophisticated fiber optic technology.

fionec has been developing, manufacturing and marketing innovative fiber optic measuring systems and components since 2007. Our sophisticated miniature measuring probes are unrivaled in the high-tech industry, allowing us to maintain the technological leadership in high-precision measurements of tiny or hard-to-access spaces and of surface structures in the nanometer range. Flexible and modular systems architecture, freely adaptable configurations and integrated interfaces enable us to provide customized measuring systems that meet the elevated demands of high-precision and ultra-precision manufacturing environments.

We provide a complete and integrated range of services, from the development of customized measuring concepts, simulations and contract measurement projects to the construction, adaptation and distribution of fiber optic measuring probes and optical wave guides.

A large, three-dimensional metallic logo of the word "fionec" is centered on a dark, textured background. The letters are highly reflective and have a brushed metal appearance. The 'i' has a dot, and the 'o' is a solid circle. The 'n' and 'e' are connected to the 'c'.A two-dimensional logo of the word "fionec" in a white, lowercase, sans-serif font. A green square with a white circle inside is positioned over the letter 'o'. The background is dark with a green gradient at the bottom.

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