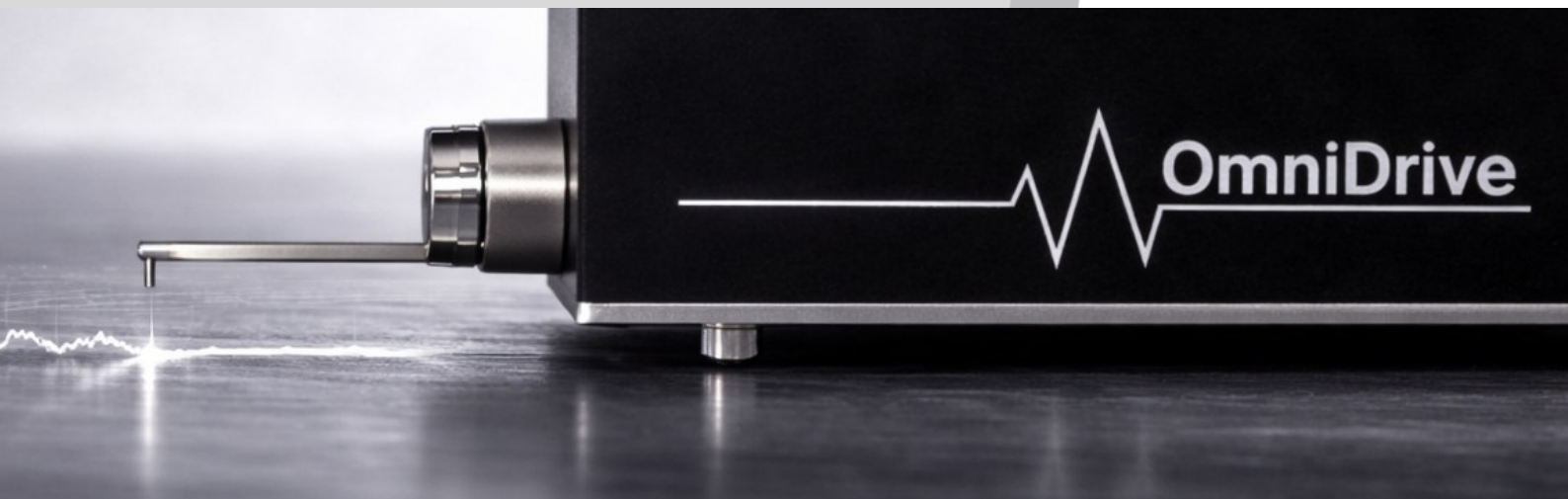


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OmniDrive



Roughness measurement

OmniDrive: A Versatile Solution for Surface Characterization

OmniDrive is a compact and robust instrument for the measurement of surface roughness and waviness.

It is designed for use both in laboratory environments and directly on the production line.

Its solid structure with a continuous V-base ensures stable positioning on both flat and cylindrical surfaces.

Probe positioning on the surface is fully motorized, with automatic zero-point detection.

OmniDrive uses skidless probes, which are ideal even for complex geometries.

The instrument can be used in different configurations:

- portable,
- bench-top,
- mounted on dedicated supports,
- in horizontal, vertical, or inverted positions.

The OmniDrive traversing unit features tilt adjustment, allowing optimal alignment along the measurement surface.



OmniDrive Key Strengths

- Compact and robust design
- Precise position control along the measurement axis
- Supports measurement in any orientation: horizontal, vertical, or inverted
- High repeatability in automated measurement cycles
- Power supply and data transmission via a single USB cable
- Manual tilt adjustment for easy operational adaptation
- The probe is equipped with durable protection, ideal for use in production environments
- Automatic height adjustment with motorization and automatic contact enables extremely fast setup
- Optimized for both fixed and mobile workstations



Typical Applications

OmniDrive is designed to adapt to various industrial and laboratory environments, providing reliable roughness and waviness measurements on a wide range of components and surfaces.

- **Automotive** Surface finish inspection on machined, ground, or turned components, both in laboratory settings and directly on the production line.
- **Aerospace** Verification of high-precision surfaces on critical components, with stringent quality and traceability requirements.
- **Medical and Micromechanics** Measurements on small parts or surfaces with highly complex geometries.
- **General Industrial Manufacturing** Quality monitoring and process verification on flat or cylindrical parts throughout different stages of production.
- **Research & Development / Metrology Laboratories** In-depth analysis of surface profiles and validation of new manufacturing processes.

Thanks to its configurability, OmniDrive can be integrated into many application contexts beyond those listed above.

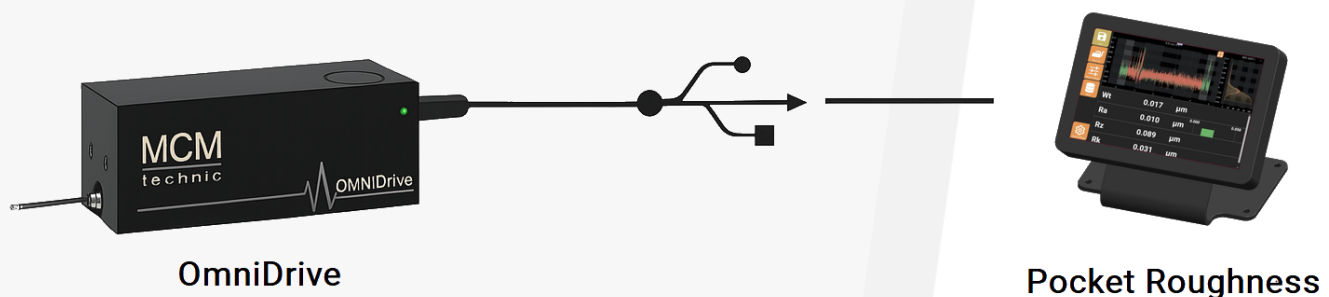


Operating Configurations

The OmniDrive unit can be used in different modes to suit portable, bench-top, or automated measurement environments:

- **Pocket Roughness**

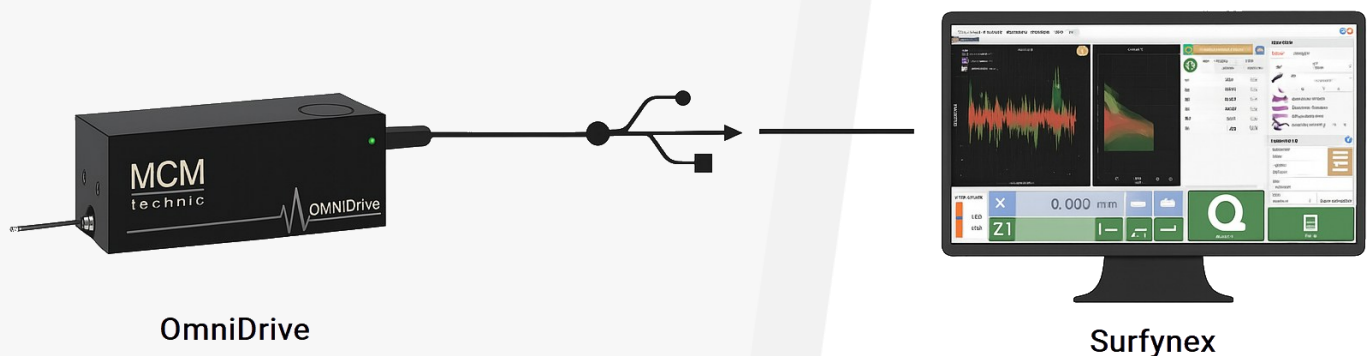
By connecting OmniDrive to the Pocket Roughness unit, real-time measurements can be performed via an 8" touch interface. This compact and standalone solution is ideal for industrial applications thanks to its robust design and ease of use.



- **PC with Surfynex Software**

OmniDrive can be directly connected to a PC via USB, using the Surfynex software for comprehensive analysis of roughness, waviness, and surface profiles.

This configuration enables advanced data processing and the export of results in various formats.

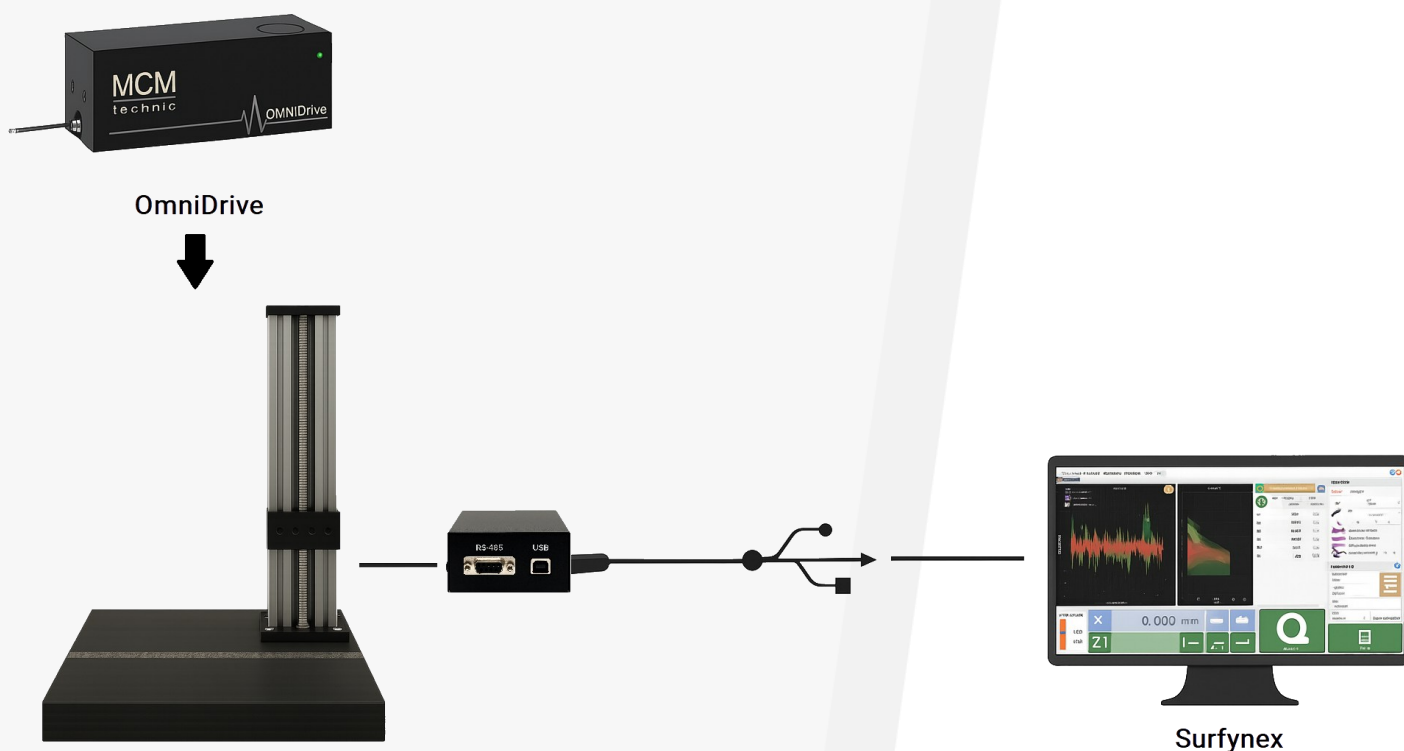


- **Motorized Column with Control Unit**

For applications requiring automated vertical movement, OmniDrive can be connected to a motorized column. The column control box connects to the PC via USB, allowing full operation directly through the Surfynex software.

Thanks to the auto-learning function available in Surfynex, complete measurement programs—including positioning, analysis, and result export—can be stored.

The operator can then simply start the program, and the system will automatically perform the entire measurement cycle. Execution can be initiated directly from the software or via QR code scanning.



The analysis functions, parameter calculations, and compliance with standards are described in the dedicated **Pocket Roughness** and **Surfynex** brochures.

Technical Data

The technical specifications of OmniDrive reflect its versatility and precision across all application areas.

	OmniDrive Technical Specifications
X-axis travel length	25,4 mm
Measuring speed	0,1 / 0,5 / 1,0 mm/s
X-axis positioning speed	2 mm/s
Sampling step	From 0,1µm to 1µm depending on the speed
Guide deviation	< 0,3 µm/25,4 mm
Z-axis travel length	8 mm
Z-axis positioning speed	1 mm/s
Tilt range	± 20 µm/mm (Manual)
Measuring range	± 300 µm (Optional ± 600 µm)
Residual Ra value	< 10 nm
Dimension	245 x 50 x 65 mm
Weight	1 Kg
Fixing	Rear mounting holes
Connections	USB cable, Micro DSub (RS-485) cable
Other functions	Input pin for remote measurement start. Output pin for signaling.
Power Supply	5V via USB port or Micro D-Sub connector
Declaration of Conformity	CE

OmniProbe AX – Probe

The OmniProbe AX probe enables precise measurements of surface roughness and waviness. It is characterized by high linearity, high resolution, and a wide measuring range.

Thanks to the integrated preload spring, the probe maintains proper contact with the surface, ensuring reliable measurement, including in-orientation, including in-conventional directions.



OmniProbe AX Technical Specifications

Sensor Type	Optical
Mode	Skidless
Linearity	< 1%
Standard measuring range	± 300 µm
Extended measuring range	± 600 µm
Interchangeable arms	Yes
Contact force	0.7 mN
Standard tip radius	2 µm / 90°

The quick replacement of probe arms makes the instrument extremely versatile, allowing it to be adapted to different applications.

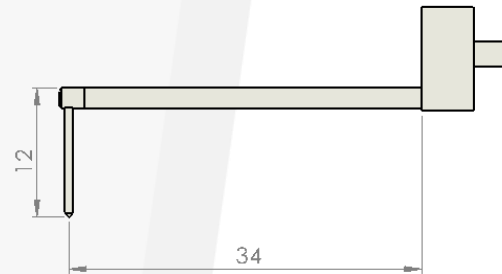
The robust and rigid design is engineered to eliminate natural vibrations or resonances, ensuring measurement stability and reliability.

The special probe arms described below must be selected according to the application requirements. Additional probe arms and stylus tip geometries are available upon request.

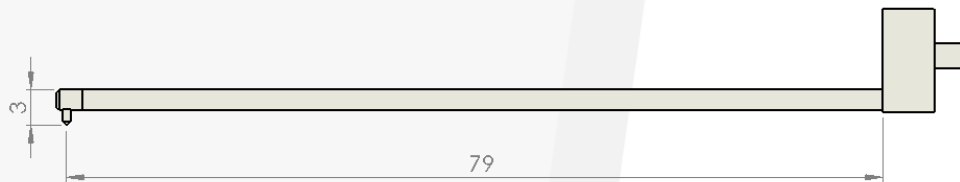
Probe arm $\varnothing$ 4.5mm (Cod. M1AAMA)



Step probe arm 10mm (Cod. M1BAMA)



Probe arm $\varnothing$ 4.5mm (Cod. M1CAMA)



Manual Measuring Support – Stand MX Module

OmniDrive can be mounted on a manual stand with a granite base, ideal for ensuring stability during measurement operations.

The structure is compatible with optional accessories to improve alignment and operational adaptability.

The main dimensional specifications of the **Stand MX** are listed below:



	Specifications
Granite base dimensions	400 x 250 x 70 mm
Useful working height	300 mm
T-slot	10 mm
Option	Til adjuster $\pm 15^\circ$

Identification Codes

Below is a list of the identification codes (Product Numbers) for the main configurations and accessories of the OmniDrive system. Use these codes to order specific components, request quotations, or integrate parts into technical documentation.

Code	Description	Note
OMDRMA	OmniDrive	
OMPRMA	OmniProbe AX	
M1AAMA	Stylus 90°, Ø Tip 2 µm, H = 3 mm	Length 34 mm
M1BAMA	Stylus 90°, Ø Tip 2 µm, H = 12 mm	Length 34 mm
M1CAMA	Stylus 90°, Ø Tip 2 µm, H = 3 mm	Length 79 mm
OMGMMA	Stand MX (Manual)	
OMGAMA	Stand AX (Motorized)	
SG1R16	Specimen Ra 1.6 µm	

Roughness Specimen

As a standard supply, we provide a roughness specimen with an Ra value of 1.6 µm. Upon request, specimens with different Ra values can be supplied, selected according to specific application requirements.

The specimens are made of glass, a material that ensures high stability and long-term durability. They feature a periodic square-wave profile, suitable for verifying the performance of the measurement system.

Specimens supplied with accredited certification are also available to ensure metrological traceability and compliance with quality system requirements.

Standard Supply

The supply case includes all the components required for immediate use of the instrument:

- OmniDrive instrument with probe
- Roughness specimen
- USB drive containing software and user manual

All components are housed in a protective case designed for safe transport and storage.



For further information, please visit our website or contact us: we will be pleased to provide you with all the support you may need.



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