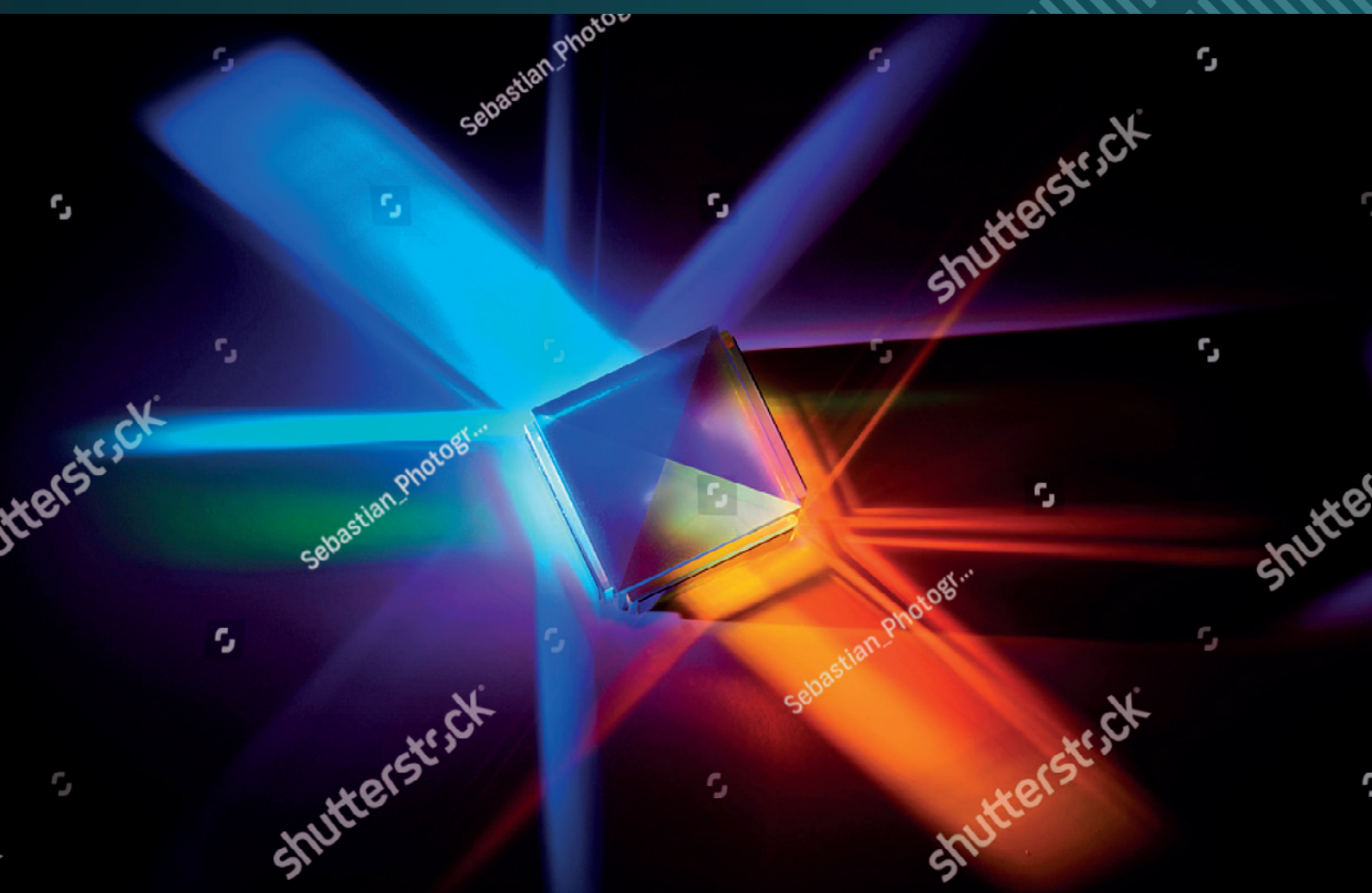




**Malvern  
Panalytical**  
a spectris company

# SDCOM

Smart diffractometer for crystal orientation measurements



# SDCOM smart diffractometer for crystal orientation measurements

A desktop XRD device for material research, production and quality control of single crystals (Ingots & Wafers).  
Si | SiC | Diamond | AlN | GaAs | Quartz | LiNbO<sub>3</sub> | BBO | GaN and 100s more.

## Features of SDCOM

**Compact design:** manual handling of very small crystals down to ~1 mm diameter

**Customized for industrial crystals:** fully automated analysis and orientation determination of more than 100 different materials

**Typical standard deviation tilt** (example: Si 100): < 0.0025°, minimum < 0.003°

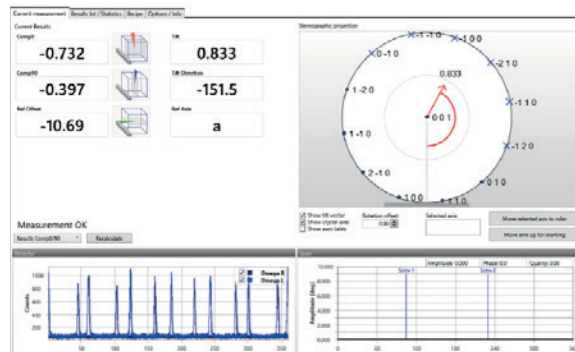
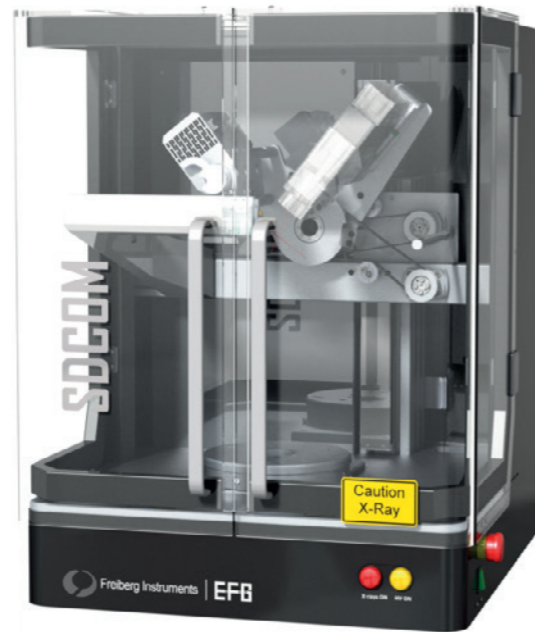
**Ultra-fast measurements:** all desired crystal orientation parameters are captured in one sample rotation i.e. within 5 seconds

**Repeatability:** > 99.5%

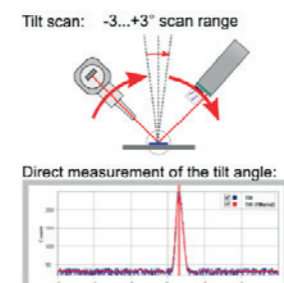
**Theta-scan capability:** for sophisticated research and material characterization

**Transfer technology:** up to 10 orientated crystals on one slicing beam

**Accessibility:** IP based system allows remote operation and technical support from anywhere in the world



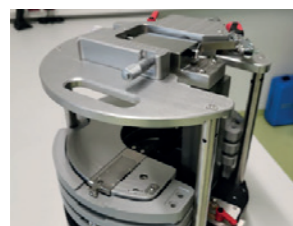
XRDSudio - operating and evaluation software



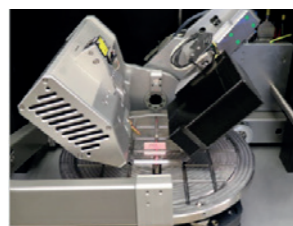
Theta-scan



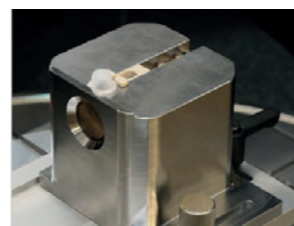
Mapping



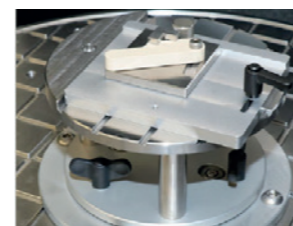
Multiple ingot stacking unit



Mapping stage

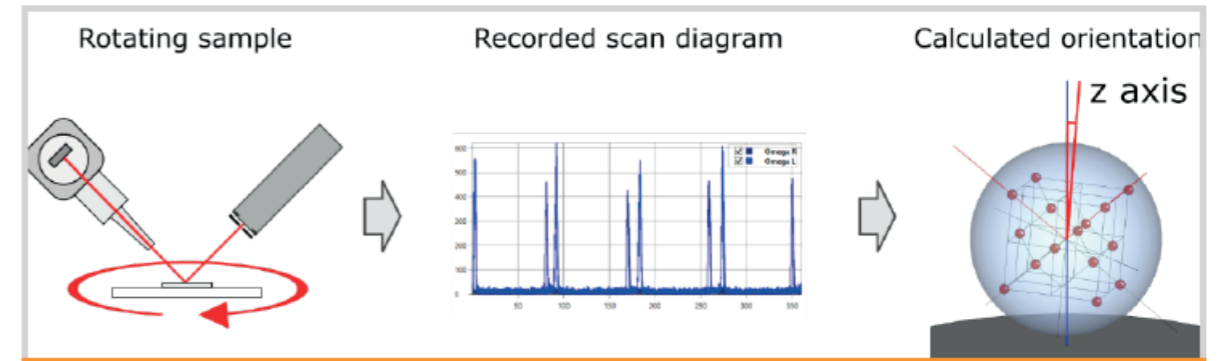


Horizontal holder for small samples



Vertical holder for small samples

## Advantages of Omega-scan



## Few examples of measurable materials

- Zinc blende structure:** Diamond, Si, Ge, GaAs, GaSb, GaP, InAs, InP, InSb, AlAs, AlP, AlSb, ZnTe, CdTe, SiC 3C, etc.
- FCC metals:** Ag, Au, Ni, Pt, etc.
- Rock salt structures:** NaCl, AgCl, PbS, PbTe, SnTe, MgO, LiF, etc.
- Other cubic/special orientation:** Ag, Au, Ni, MgAl<sub>2</sub>O<sub>4</sub>, SrTiO<sub>3</sub>, LaTiO<sub>3</sub>, CaF<sub>2</sub>, etc.
- Tetragonal:** MgF<sub>2</sub>, TiO<sub>2</sub>, SrLaAlO<sub>4</sub>, etc.
- Hexagonal / Trigonal:** SiC (2H, 4H, 6H, 15R), GaN, ZnO, LiNbO<sub>3</sub>, SiO<sub>2</sub> (quartz), Al<sub>2</sub>O<sub>3</sub> (sapphire), GaPO<sub>4</sub>, La<sub>3</sub>Ga<sub>5</sub>SiO<sub>14</sub>, etc.
- Orthorhombic:** Mg<sub>2</sub>SiO<sub>4</sub>, NdGaO<sub>3</sub>, etc.
- Ultra-fast measurement: < 5 s
- Determination of all tilt components in one rotation
- Absolute measurement, no calibration needed
- Integration of customized sample holders
- Specialized for manufacturing process of pre-defined material(s) quality control and data transfer in accordance with customer's demands
- Fully automated loading and unloading of samples (optional)
- MES or SECS/GEM interface (optional)

## Technical specifications\*

Specifications	
X-ray source	30 W air-cooled X-ray tube, Cu anode
Detectors	Two scintillation counters
Sample holder	Precise turntable, setting accuracy 0.01°, customized sample holders
Sample diameter	down to 2 mm ø, up to 200 mm
Ambient temperature	≤ 30° C
Laptop or PC requirements	Windows 10 or latest, .NET Framework update, 2 Ethernet ports
Power requirements	100 to 230 V, single phase, 500 W
Dimensions	600 mm (L) x 600 mm (B) x 840 mm (H)
Weight	ca, 100 kg
Certification	manufactured under ISO 9001 guidelines, CE conform

\* All technical parameters are subject to changes based on R&D



## About Malvern Panalytical

We draw on the power of our analytical instruments and services to make the invisible visible and the impossible possible.

Through the chemical, physical and structural analysis of materials, our high precision analytical systems and top-notch services support our customers in creating a better world. We help them improve everything from the energies that power us and the materials we build with, to the medicines that cure us and the foods we enjoy.

We partner with many of the world's biggest companies, universities and research organizations. They value us not only for the power of our solutions, but also for the depth of our expertise, collaboration and integrity.

We are committed to Net Zero in our own operations by 2030 and in our total value chain by 2040. This is woven into the fabric of our business, and we help our employees and customers think about their part in creating a healthier, cleaner, and more productive world.

With over 2300 employees, we serve the world, and we are part of Spectris plc, the world-leading precision measurement group.

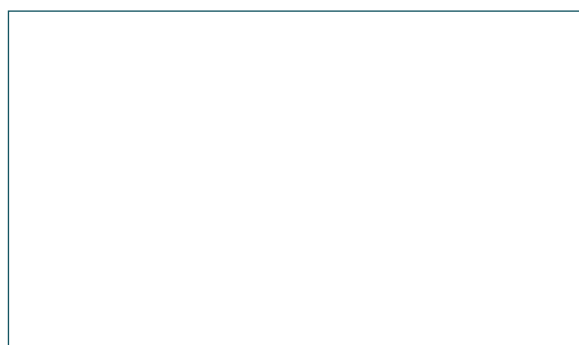
**Malvern Panalytical. We're BIG on small™**

## Service & Support

Malvern Panalytical provides the global training, service and support you need to continuously drive your analytical processes at the highest level. We help you increase the return on your investment with us, and ensure that as your laboratory and analytical needs grow, we are there to support you.

Our worldwide team of specialists adds value to your business processes by ensuring applications expertise, rapid response and maximum instrument uptime.

- Local and remote support
- Full and flexible range of support agreements
- Compliance and validation support
- Onsite or classroom-based training courses
- e-Learning training courses and web seminars
- Sample and application consultancy



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