

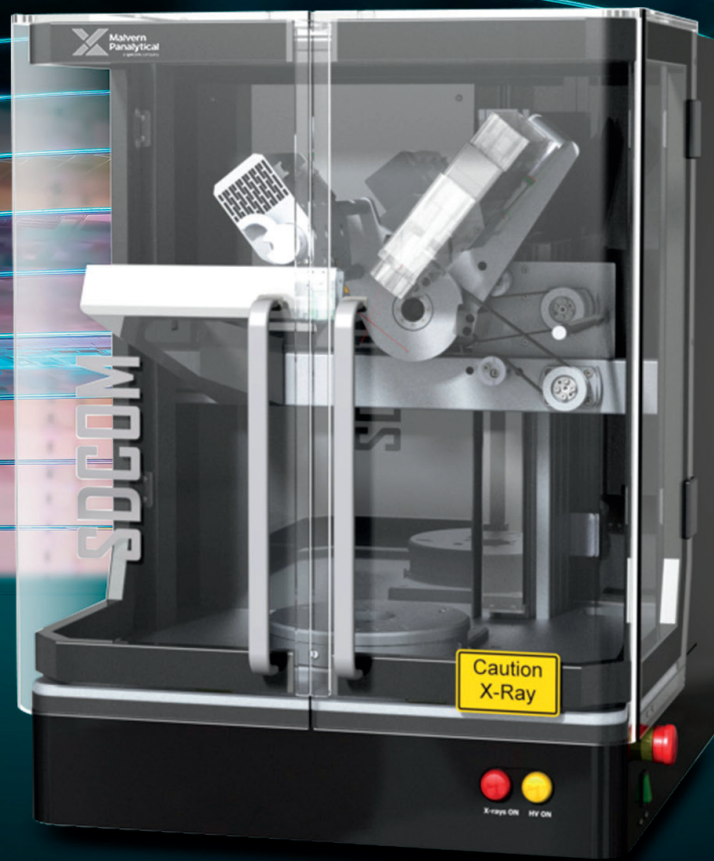


**Malvern  
Panalytical**  
a spectris company

# SDCOM

Panalytical X-ray technology

Smart diffractometer for crystal orientation measurements

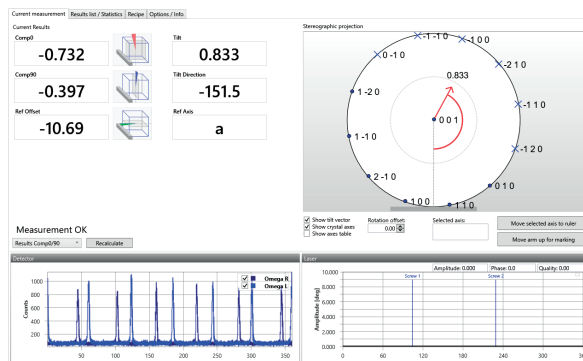


# SDCOM smart diffractometer for crystal orientation measurements

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.

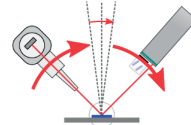
## Features of SDCOM

- **Ultra-fast measurements:** all desired crystal orientation parameters are captured in one sample rotation i.e. within 10 seconds
- **Many samples sizes:** measures samples from 1 mm  $\phi$  up to 200 mm  $\phi$
- **Fully automated analysis** and orientation determination of any single crystalline material
- **Typical standard deviation (Si 100):** <0.01° tilt magnitude, < 0.03° tilt direction
- **Uptime:** > 99%
- **Theta-scan capability:** for sophisticated research and material characterization
- **Transfer technology:** up to 6 orientated crystals on one cutting beam
- **Ready for integration** with MES like SECS/GEM

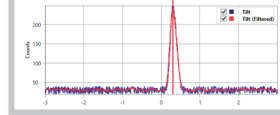


XRDStudio - operating and evaluation software

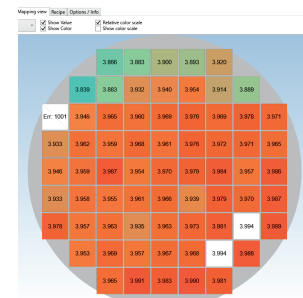
Tilt scan:  $-3...+3^\circ$  scan range



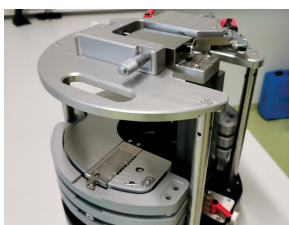
Direct measurement of the tilt angle:



Theta-scan



Mapping



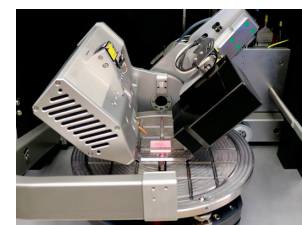
Multiple ingot stacking unit



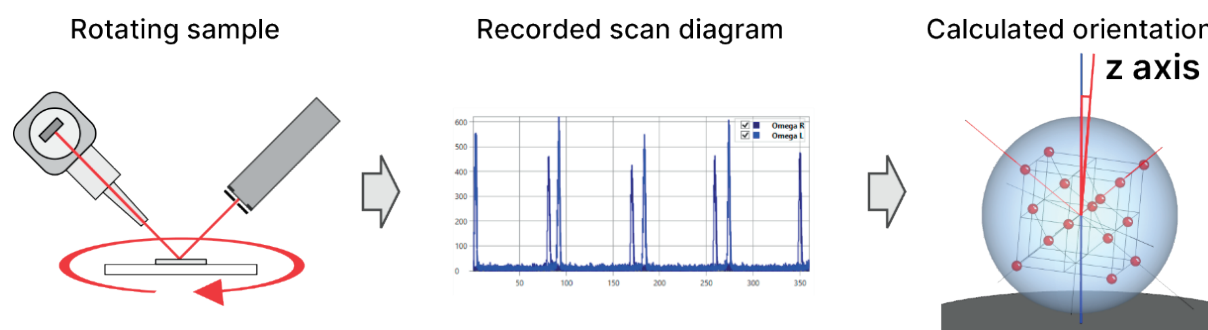
Vertical holder for small samples



Horizontal holder for small samples



Mapping stage



## Few examples of measurable materials

- **Zinc blende structure:**  
Diamond, Si, Ge, GaAs, GaSb, GaP, InAs, InP, InSb, AlAs, AlP, AlSb, ZnTe, CdTe, SiC<sub>3</sub>C, 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: < 10 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
Sample holder	Precise turntable, setting accuracy 0.01°, customized sample holders
Sample diameter	down to 1 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

Malvern Panalytical is a global leader in the analytics of material and life sciences. We unleash the power of small things to make big things happen for our customers.

Our vision is to make the world cleaner, healthier, and more productive.

We partner with our customers to make their solutions possible through the power of precision measurements, our expertise, trusted data, and insights.

Our people are partners in discovery. We collaborate with our customers and with each other to discover new possibilities and achieve breakthroughs.

Our culture is a healthy, high-performance culture shaped by our values: Own it, Aim High and Be True.

We're committed to Net Zero in our own operations by 2030 and in our total value chain by 2040.

With over 2300 employees across the globe, 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, and ensure that as your analytical requirements grow, we're 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.

- Proactive local and remote support
- Full and flexible range of service agreements
- Compliance and validation support
- Onsite or classroom-based training courses
- e-Learning training courses and web seminars
- Digital services, including MyStore and My Customer Support Portal
- Sample analysis, method development, and applications consultancy



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