



**Malvern  
Panalytical**  
a spectris company

# DDCOM

Panalytical X-ray Technology

for ultra-fast crystal orientation measurement  
using Omega-scan method



# DDCOM for ultra-fast crystal orientation measurement

The Desktop X-ray Diffractometer for Crystal Orientation Measurement (DDCOM) is an automated tool to determine the orientation of various crystals.

## Ultra-fast scan approach

- 200 times faster than Theta-scan method
- Automatic evaluation of the complete lattice orientation in 3D
- **Determination of entire crystal orientation within 10 seconds**

## Efficient workflows for quality control

- For standard research and industrial workflows
- Azimuthal setting and marking of crystal orientation
- Preprogrammed cubic crystal parameters
- State-of-the-art and convenient software
- High precision, i.e up to  $(1/100)^\circ$

## Compact, user friendly and cost effective

- Convenient sample handling and easy to operate
- Low energy consumption and operating costs due to air cooled X-ray tube (no water cooling required)

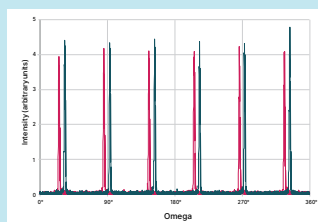


## Control of cutting, grinding and lapping

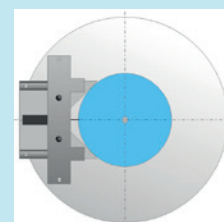
- Complete lattice orientation of single crystals
- Suitable for a unique variety of materials in a large range of size and weight, such as: Wafers from 2-12" and Ingots up to 20kg

## Highlights

- Determination of the complete lattice orientation of single crystals
- Ultra-fast crystal orientation measurement
- Determination of the arbitrary unknown orientation of cubic crystals
- Designed especially for azimuthal setting and marking of lattice directions
- Air cooled X-ray tube, no water cooling required
- Appropriate for research and production quality control



Azimuthal-scan diagram (Quartz)



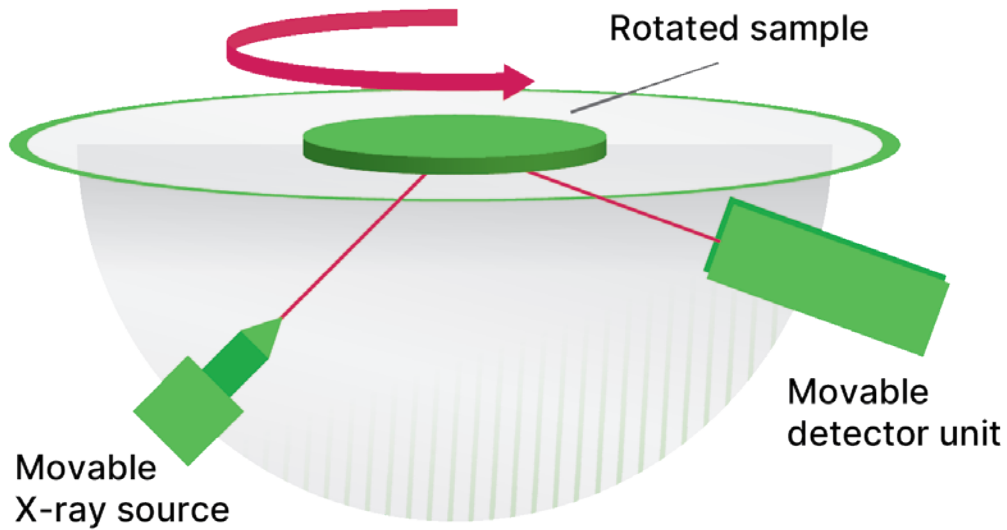
Easy sample alignment



Suitable for a vast variety of materials

## Scan method

All desired crystal orientation parameters are captured in one rotation within 10 seconds.



## 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°, tools for defined sample positioning and marking
Dimensions	600 mm × 600 mm × 850 mm
Weight	80 kg
Power supply	100-230 V, 500 W, single phase
Room temperature	≤ 30° C
Examples of measurable materials	
<b>Cubic / arbitrary unknown orientation:</b> Si, Ge, GaAs, GaP, AlAs, AlP, InP, NaCl, AgCl, CaF <sub>2</sub>	
<b>Cubic / special orientation:</b> Ag, Au, Ni, Pt, GaSb, InAs, InSb, AlSb, ZnTe, CdTe, SiC 3C, PbS, PbTe, SnTe, MgO, LiF, MgAl <sub>2</sub> O <sub>4</sub> , SrTiO <sub>3</sub> , LaTiO <sub>3</sub>	
<b>Tetragonal:</b> MgF <sub>2</sub> , TiO <sub>2</sub> , SrLaAlO <sub>4</sub>	
<b>Hexagonal / Trigonal:</b> 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>	
<b>Orthorhombic:</b> Mg <sub>2</sub> SiO <sub>4</sub> , NdGaO <sub>3</sub>	
Further materials according to the customers' demands	



## 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.

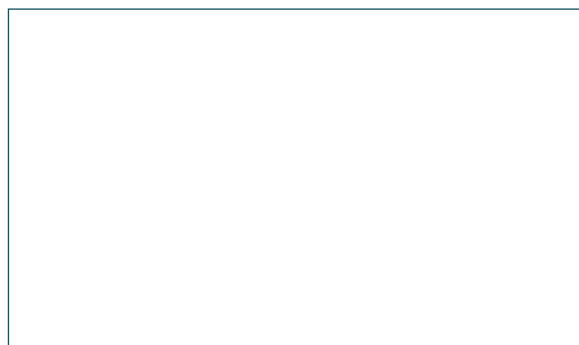
**Malvern Panalytical. We're BIG on small™**

## 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



## Malvern Panalytical

Groveswood Road, Malvern,  
Worcestershire, WR14 1XZ,  
United Kingdom

Tel. +44 1684 892456  
Fax. +44 1684 892789

Lelyweg 1,  
7602 EA Almelo,  
The Netherlands

Tel. +31 546 534 444  
Fax. +31 546 534 598

[www.malvernpanalytical.com](http://www.malvernpanalytical.com)