



DDCOM

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

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



+ Ultra-fast Omega-scan approach

- › 200 times faster than Theta-scan method
- › Automatic evaluation of the complete lattice orientation in 3D
- › Determination of entire crystal orientation within 5 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

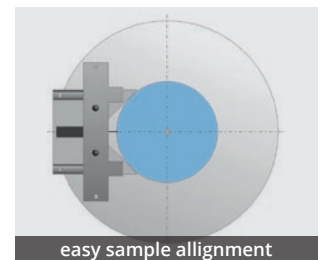
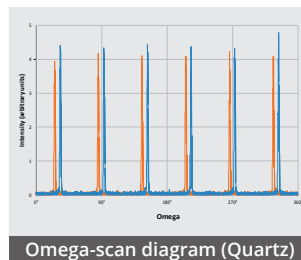
- › Easily movable and lightweight desktop design
- › Convenient sample handling and easy to operate
- › Low energy consumption and operating costs due to air cooled X-ray tube (no water cooling required)

+ 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

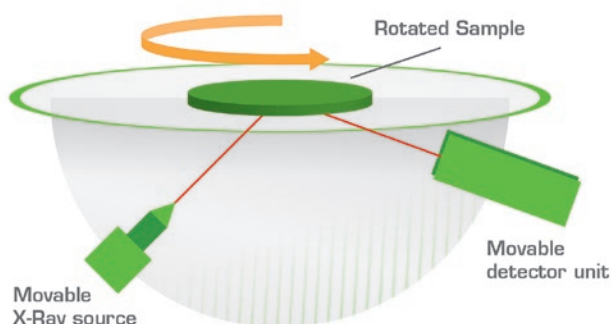
Highlights

- › Determination of the complete lattice orientation of single crystals
- › Ultra-fast crystal orientation measurement using the Omega-scan method
- › 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

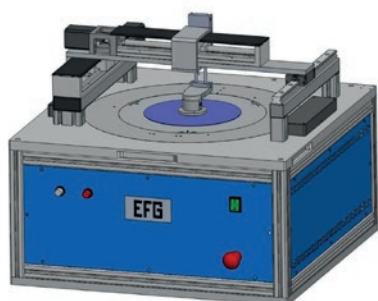


Omega-scan method

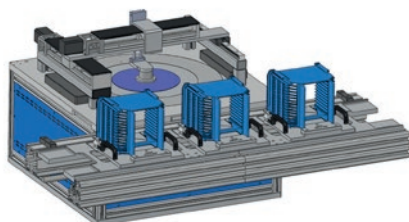
All desired crystal orientation parameters are captured in one rotation within 5 seconds.



Device for mapping of wafers



Device for automatic loading from cassettes



Technical 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°, tools for defined sample positioning and marking
Dimensions	600 mm × 600 mm × 850 mm
Weight	80 kg
Power supply	100-230 V, 100 W, single phase
Room temperature	≤ 30° C

Options

- › Device for mapping of wafers (maximum diameter 225 mm)
- › Device for automatic loading from cassettes

Examples of measurable materials

- › **Cubic / arbitrary unknown orientation:** Si, Ge, GaAs, GaP, AlAs, AlP, InP, NaCl, AgCl, CaF₂
- › **Cubic / special orientation:** Ag, Au, Ni, Pt, GaSb, InAs, InSb, AlSb, ZnTe, CdTe, SiC 3C, PbS, PbTe, SnTe, MgO, LiF, MgAl₂O₄, SrTiO₃, LaTiO₃
- › **Tetragonal:** MgF₂, TiO₂, SrLaAlO₄
- › **Hexagonal / Trigonal:** SiC 2H, 4H, 6H, 15R, GaN, ZnO, LiNbO₃, SiO₂ (quartz), Al₂O₃ (sapphire), GaPO₄, La₃Ga₅SiO₁₄
- › **Orthorhombic:** Mg₂SiO₄, NdGaO₃
- › Further materials according to the customers' demands

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