PRODUCT SPECIFICATION 41349

Thermo Scientific ARL EQUINOX LAUE X-ray Diffractometer

LAUE diffraction is used to measure crystal orientation. The experiment differs from a traditional powder diffractometer, since Bremsstrahlung radiation is used instead of a monochromatic beam.

Measurements are made in transmission or in back reflection and Laue patterns are collected in a few seconds. On single crystal samples, the diffraction intensity is very strong, so acquisition time can be shortened.

Crystal growth

Gemology

Chemistry

Electronics

Photovoltaics

Education

ARL EQUINOX LAUE

A Laue X-ray diffractometer optimized for measurements in back reflection for crystal orientation.

Benefits

- 2D detection for acquisition in back reflection
- Customized or standard sample holder
- X-ray generator with safety
- No maintenance
- Easy to use

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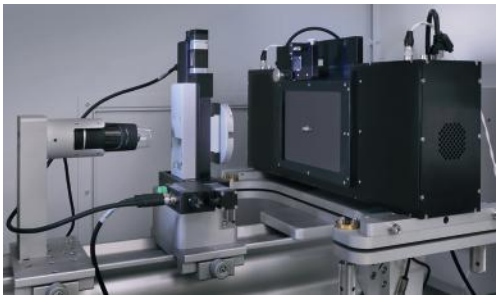
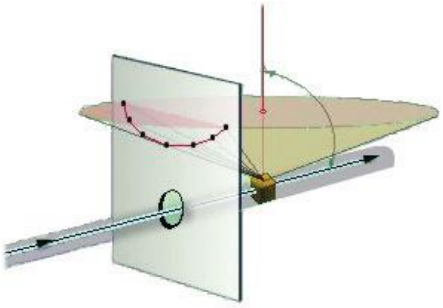
Specifications

Configuration	Mounting in back reflection
X-ray detector (2D)	2D detector with a hole in its center Active input area of ~155(h) x 105(v) mm imaged on the sensor Minimum input sizes 57µ square, 2,774 x 1,843 pixels Selectable exposure from 1ms to 35 min
X-ray source	3000 W (55 kV / 45 mA)
X-ray tube	Molybdenum or Tungsten target
Sample holder	Head goniometer mounted on XYZ displacements Customized support according to the sample form Sample alignment by video camera
Optic	Point focus mode by collimators of different diameters
Software	Global instrument driven by software Data treatment made by specific software
Computer	Windows© 10
Power	30-32 A / 208-230 V – 50-60 Hz
Weight	~410 kg
Cooling water	Flow: ~3.5l/min T°: ~18/25°C
Dimensions	1913 mm H – 828 mm D – 1200 mm W



Laue X-ray mounting



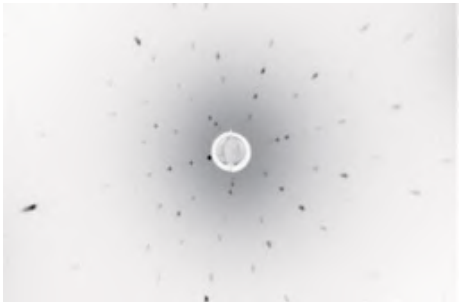
Back reflection Laue

In the back reflection method, the detector is placed between an X-ray source and the crystal. The beams which are diffracted in a backward direction are recorded. One side of the cone of Laue reflections is defined by the transmitted beam. The detector intersects the cone, with the diffraction spots generally lying on an hyperbola.

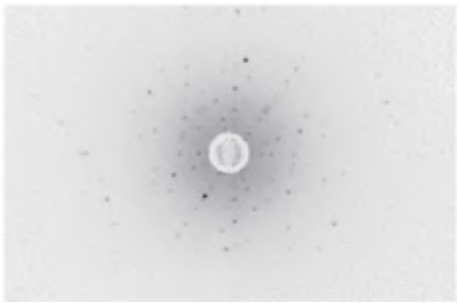
The diffracted beams form arrays of spots, that lie on curves on the film. The Bragg angle is fixed for every set of planes in the crystal. Each set of planes picks out and diffracts the particular wavelength from the white radiation that satisfies the Bragg law for the values of d and θ involved.

The sample holder can be composed by a goniometer head and mounted on a XYZ motorized stage. Other possiblities are possible too, it depends on your needs.

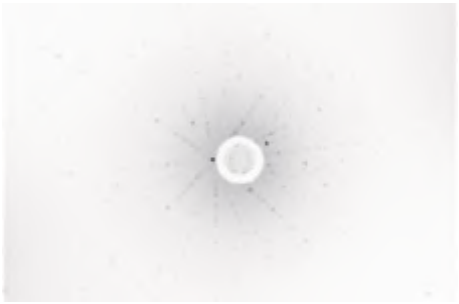
Results (in back reflection)



Diamond



Si (220)



La2TiO4

Find out more at **thermofisher.com/xrd**

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