

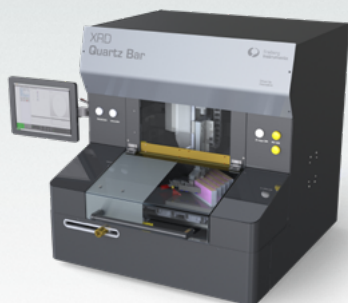


Freiberg
Instruments

Production & Quality Control of Quartz Bars, Wafers & Blanks

Bar Alignment,
Wafer Analysis &
Blank Sorting using
X - Ray Diffractometer

Orientations
AT | SC | IT | TF | X | Y | Z



Quartz Bar XRD for Aligning

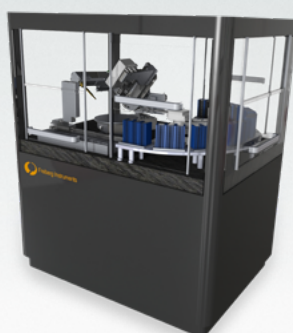
Samples

→ Quartz bars

Handling

→ Fully automated uptake and alignment of quartz bars
→ Automated gluing on adapter plate

Alignment precision: $\pm 0.03^\circ$ (AT & TF)



Quartz Wafer XRD for Analysing

Samples

→ 20 × 20 mm up to 80 × 80 mm
(automatic sample handling)

Mapping option for spatial quality check

Modular design allows future automation upgrade

Standard sample holders for input/output: cassettes or stacks

Sorting function available

Throughput: up to 350 wafers/h at standard sorting accuracy



Quartz Blank XRD for Sorting

Samples

→ Round, rectangular & square
→ 4 × 4 mm up to 17 × 17 mm
(semi-automatic sample handling)
→ 1 × 1 mm up to 6 × 6 mm
(automatic sample handling)

Sorting into quality groups

→ ± 7.5 arcsec (minimum)

Throughput: up to 700 blanks/h at standard sorting accuracy

Fully automated

Features of Quartz XRD series

Measurement speed

as low as 2 s (AT quartz)

Highest precision

≤ 10 arcsec standard deviation

Spatial resolution

1 mm \pm 0.1 mm

Determination of orientation inclination

relative to the sample surface

Automatic display of angular components

(Theta & Phi) including standard deviation

German engineering

robust and modular design

Software

easy-to-use software suite with multiple user levels. Automatic display, recording & reporting of measurement data

Automation

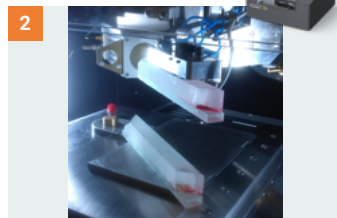
Customized sample handling systems for different size wafers or blanks, including robot, pick & place, vibratory feeder

Quartz XRD series

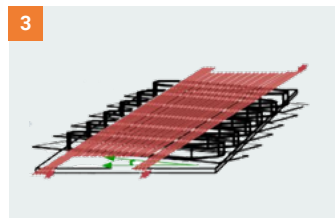
Manufacturing Process from Bar to Blank



Quartz Bar



Quartz Bar XRD for bar alignment



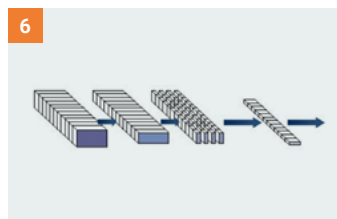
Wire sawing



Wafer slicing



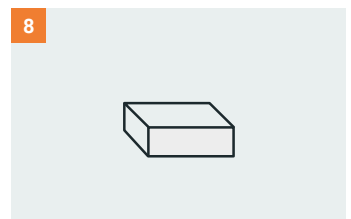
Quartz Wafer XRD for wafer analysis



Blank processing

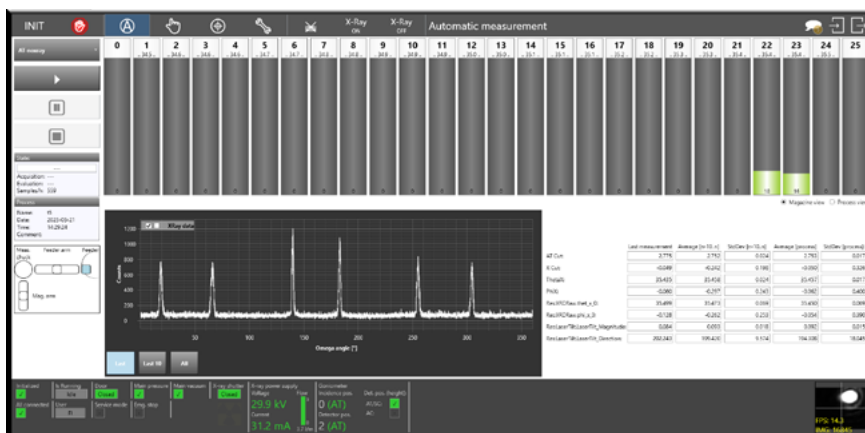


Quartz Blank XRD for blank sorting



Blanks

Easy-to-use Interface



Quartz Blank XRD Interface

Contact



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Options

- MES interface for Industry
- Mapping (wafers)
- Stereographical projection and more

Technical Data

- X-ray tube: 1.5 kW, Cu anode
- Power supply: 200 – 230 V, 16 A, single phase



Made in
Germany