



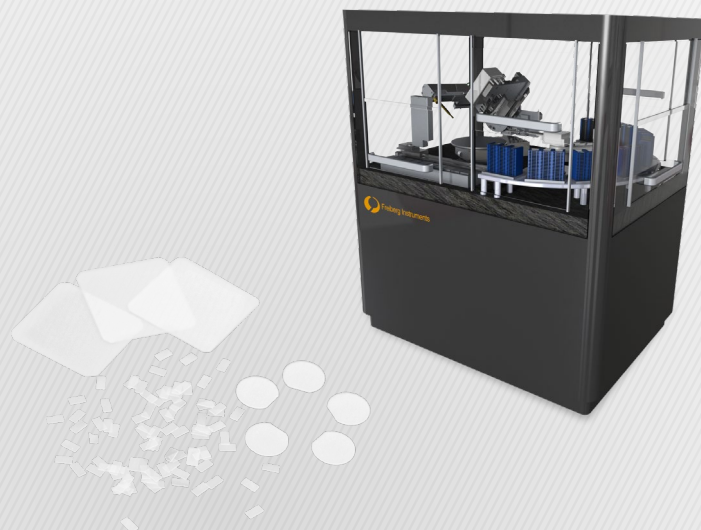
Production & Quality Control

of Quartz Bars, Wafers and Blanks
using X-ray Diffractometer (XRD)

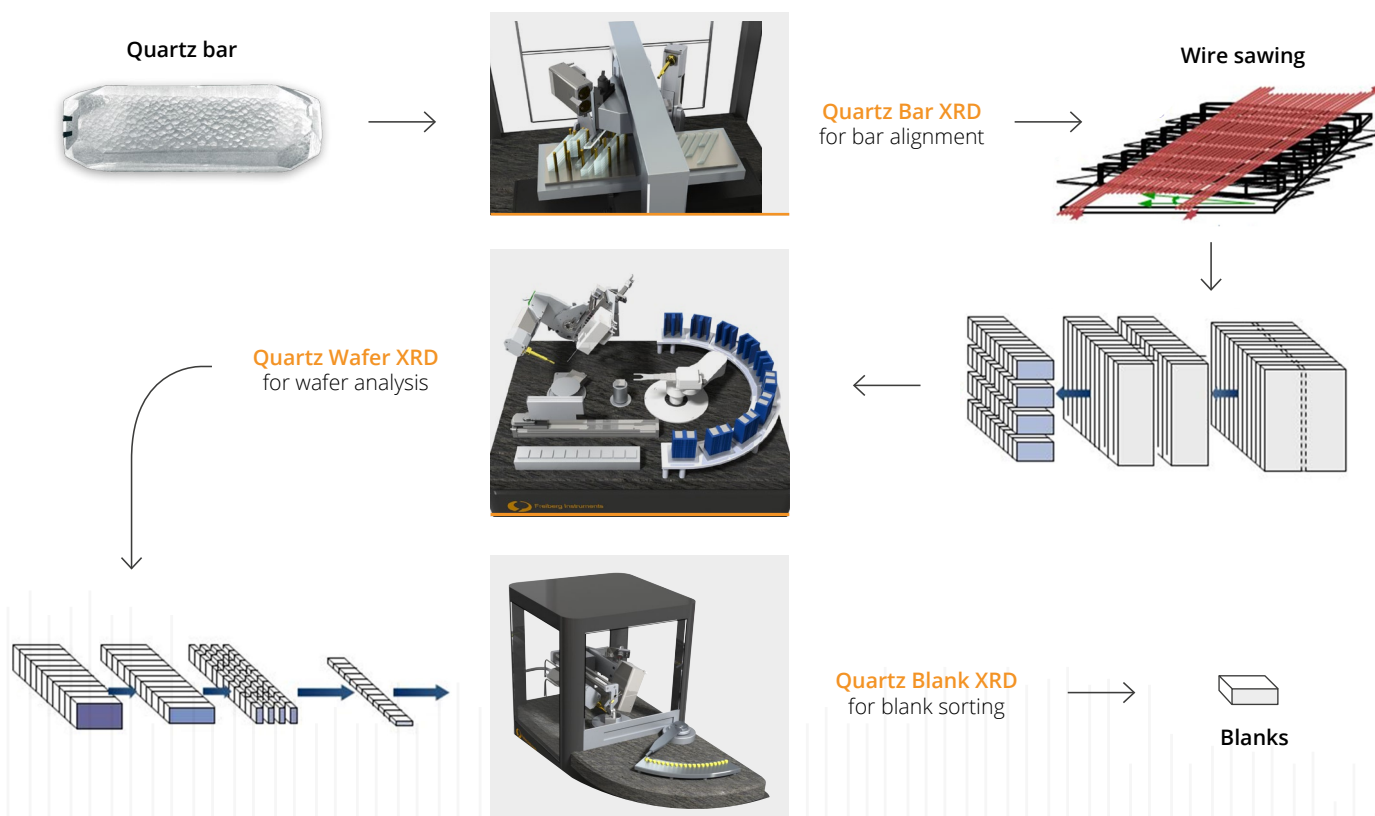
Bar Alignment | Wafer Analysis |
Blank Sorting

Orientations

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



Manufacturing process: From Bar to Blank



Features of Quartz XRD

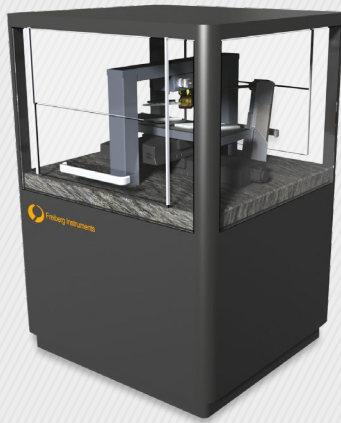
Measurement speed: as low as 2 s (AT quartz)

Highest precision: ≤ 10 arcsec standard deviation

Spatial resolution: $1 \text{ mm} \pm 0.1 \text{ mm}$

- › Determination of orientation inclination relative to the sample
- › Automatic display of angular components (Theta & Phi) including standard deviation

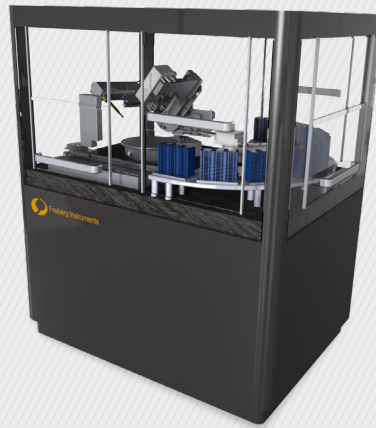
- › German engineering: robust and modular design
- › Software: easy-to-use software suite with multiple user levels. Automatic display, recording and reporting of measurement data
- › Automation: Customized sample handling systems for different size wafers or blanks, including robot, pick & place, vibratory feeder



Quartz Bar XRD

Fully automated quartz bar aligning machine

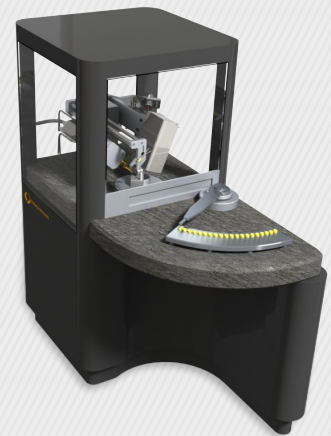
- › Samples:
 - › Quartz bars
- › Handling:
 - › Fully automated uptake and alignment of quartz bars
 - › Automated gluing on adapter plate
- › **Alignment precision: $\pm 0.5^\circ$ (AT & TF)**



Quartz Wafer XRD

Fully automated quartz wafer analysing machine

- › Samples:
 - › Round, rectangular & square
 - › 4 x 4 mm up to 80 x 80 mm (manual sample handling)
 - › 20 x 20 mm up to 80 x 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



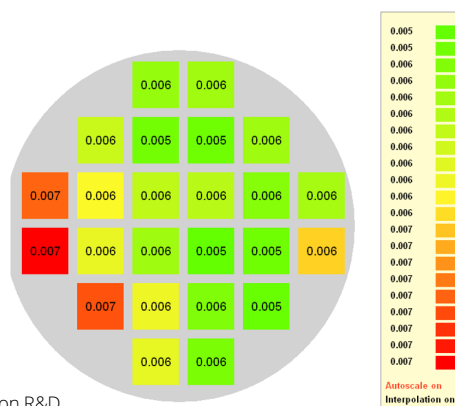
Quartz Blank XRD

Fully automated quartz blank sorting machine

- › Samples:
 - › Round, rectangular & square
 - › 4 x 4 mm up to 12 x 12 mm (semi-automatic sample handling)
 - › 1 x 1 mm up to 6 x 6 mm (automatic sample handling)
- › Sorting into quality groups:
 - › ± 7.5 arcsec (minimum)
- › Throughput: up to 1000 blanks/h at standard sorting accuracy

Configuration options

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



- › X-ray tube: 1.5 kW, Cu anode
- › Power supply: 100 - 230 V, 16 A, single phase

*All technical parameters are subject to changes based on R&D.



Made in Germany

Last revision: 14th June, 2022

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