



# 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

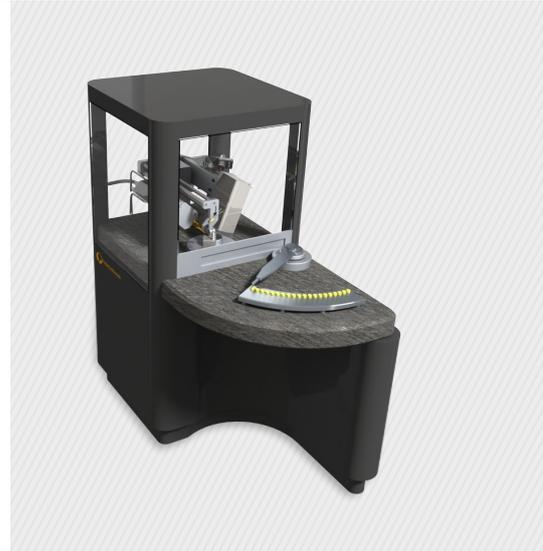
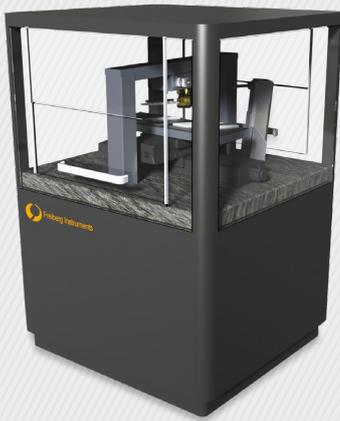


## Features of Quartz XRD

**Measurement speed:** as low as 2 s (AT quartz)  
**Highest precision:**  $\leq 10$  arcsec standard deviation  
**Spatial resolution:** 1 mm  $\pm$  0.1 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

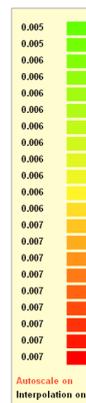
### Quartz Blank XRD

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:
  - ›  $\pm 7.5$  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

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