



Reg.-Nr.: Q1 0403012



New development in 2009:

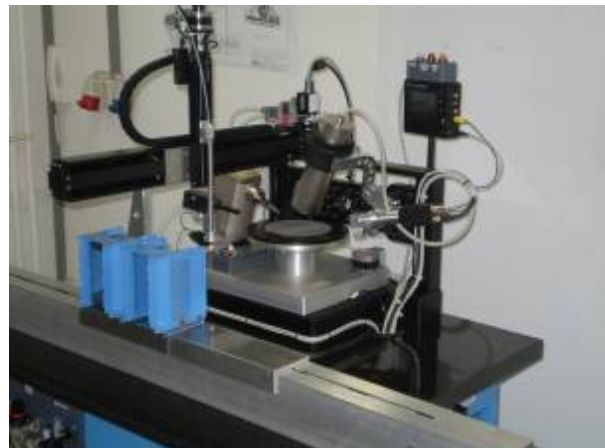
Automatic X-ray measuring and sorting of sapphire wafers (SAPW-CR)

The machine loads wafers from a cassette, takes a measurement and then places the wafer into the same or another cassette. Crystal orientation is determined in a high-precision X-ray Ω -scan measurement. In addition, the position of the wafer mark (flat, notch) is recognized from optical imaging. As a special feature, wafer bow & warp is determined by use of a line laser. Sorting can be based on X-ray orientation, mark position and bow & warp criteria. Measurement instructions for one or more cassettes can be defined in advance so that after start of the run, wafers are processed in fully automatic fashion using the bar code designation on the cassettes.

Machine Features

Characteristics

- C-/R-sapphire wafers 2"-8"
- Manual/automatic
- High-precision X-ray Ω -scan for orientation measurement
- 1-3 Standard cassettes per slide
- 3 Loading slides
- Integrated bar code reader
- Typical cycle time per wafer 1'15"

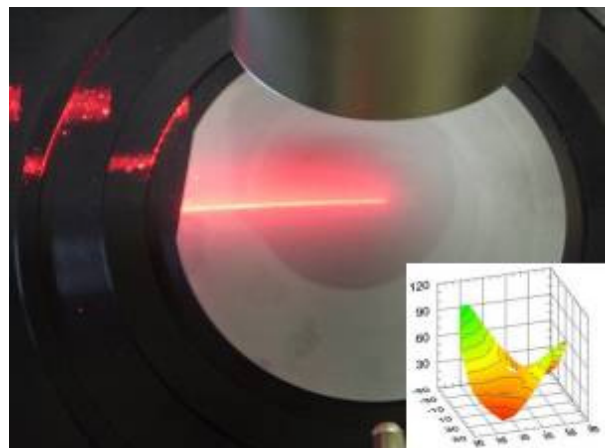


Bow and Warp Determination

- Linie laser
- 3D-Reconstruction of the surface
- Can be used as sorting criterium

Position of Marks

- Optical imaging
- Flat or notch



Machine Description

Measuring Principles

- Orientation: X-ray- Ω -scan
- Surface normal: laser measurement
- Bow & warp: line laser
- Marks: illumination bar and optical imaging/processing

Typical Precision

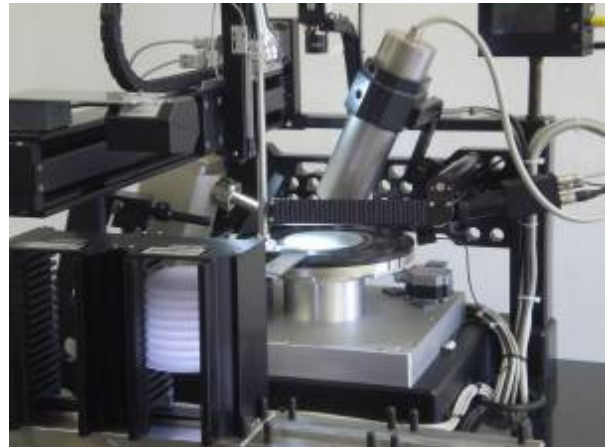
- Orientation: 0.01 °
- Bow & warp: 10 μ m
- Mark detection: 0.1 °
- Diameter: 0.5mm

Machine Specifications

- Radiation full-protection device
- X-ray generator max. 1.2 kW
- X-ray tube, Cu anode, max. 1.5 kW
- Modern control computer with monitor
- Control software with intuitive GUI
- Diode light bar and optical camera for imaging
- Line laser (sensor module integrated)
- Dimensions 1700 x 880 x 2050 mm
- Weight 350 kg
- Power supply 230 V / 50 Hz
- Max. power consumption 2.5 kW

External Supply

- Cooling water (4l/Min, 0,3MPa)
- Pressure (0,6-0,8MPa, dry, oil-free)



EFG INTERNATIONAL

<http://www.efg-berlin.de>

- More than 40 years X-ray experience –
- World-wide service and technical support –

Beeskowdamm 6, 14167 Berlin, Germany

Tel: +49 30 809 740 0; Fax: +49 30 802 2355; eMail: sales@efg-berlin.de