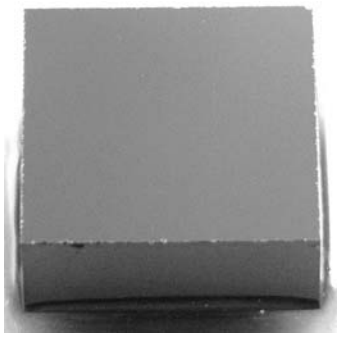

Flatness Standard
FtS

1. Description

The standard provides a surface of very good flatness at the top of a silicon block. Because of the large thickness the surface is mechanically stable.
Especially the standard is developed to serve the correction of the field curvature of optical instruments. Other applications requiring a flat surface are possible.
The flatness standard is made out of a thick silicon plate. This plate is cut from Si crystals consecutively lapped at both sides. Then one side (top) is carefully polished in two steps followed by a cleaning similarly to the polishing process of the production of semiconductor silicon wafers. For dicing into blocks the polished surface is protected by a foil. After dicing this foil is removed followed by a final cleaning of the block
The polished surface is free of structures.
The block dimensions are 12 mm × 12 mm x 6 mm (width x length x height)

2. Calibration Procedure

The flatness of the polished surface can be calibrated in a non-contacting way by two optical methods: by a large area interferometer (circular region with a maximum diameter of 10 mm) or by optical scanning profilometry (quadratic region with maximum sides of 10 mm). For the flatness standard a PTB calibration certificate (PTB: Physikalisch-Technische Bundesanstalt, the national metrology institute of Germany) is available.

3. Packaging, Handling and Cleaning

For a better handling the flatness standards are mounted on borosilicate glass with a size of 5 cm x 5 cm as substrate. Further sizes are possible on request. The blocks are mounted by an epoxy resin adhesive.
The standards are stored in a membrane box. The polished surface does not come into contact with the membrane.
In all cases the suitability of clean room use is guaranteed.
Do not touch the block especially the regions destinated for measuring and calibration. Use suitable (plastic) tweezers for handling.
For cleaning the flatness standards please contact SiMETRICS for a cleaning process.

4. Assortment and Specification

Type	Region in the centre [mm]	Deviation from the level (Pt) [nm]
FtS	5 x 5 10 x 10	65 110