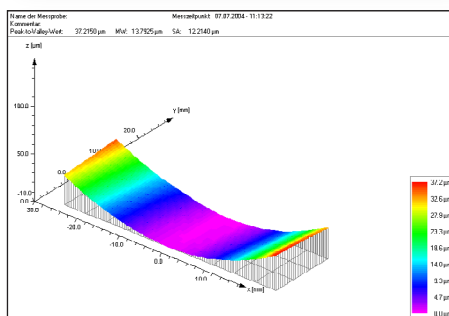
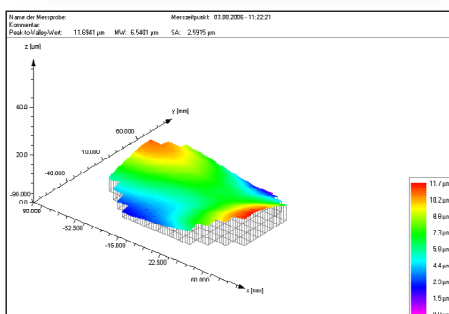
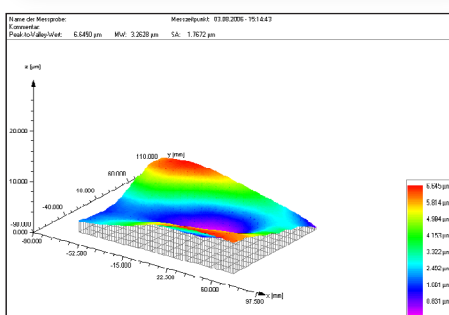
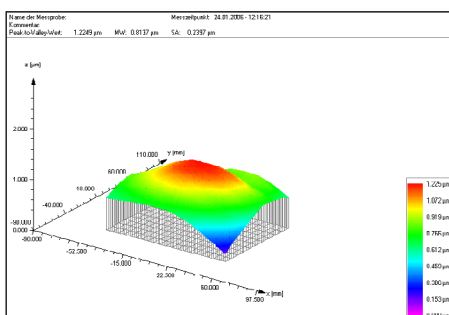


FLATSCAN

Optical non contact surface profilometer with large measuring field for 2D or 3D measurement of waferstress (thin film stress), surface curvature (radius) and slope



OPTICAL MEASURING PRINCIPLE FOR SURFACE FORM MEASUREMENT

FLATSCAN serves for the contactless measurement of flatness, surface curvature, mean radius and thin film stress (waferstress) of all kinds of reflecting surfaces like silicon wafers, mirrors, x-ray-mirrors (goebel-mirrors), metal surfaces or polished polymers. The optical measurement principle ensures a high accuracy. It is based on the measurement of the reflection angle of a perpendicular incident laser beam along a line with constant step width. The surface form can be calculated exactly from the change of the reflection angle between the measuring points. For some applications the reflection angle itself (surface slope) is interesting. Therefore the software offers additionally this measuring option.

For applications in semiconductor technology the thin film stress (waferstress) in coatings can be calculated by the measured radii before and after coating.

LARGE MEASURING FIELD

A special feature of the used measuring principle is its independence from the measuring field. Therefore the standard measuring field diameter of 200 mm can be increased nearly arbitrarily without decrease of accuracy.

HIGH MEASURING ACCURACY

FLATSCAN is featured by a high measuring accuracy. The resolution of the measuring system is 0.1 arcsec. The surface form reproducibility amounts to better than 100 nm.

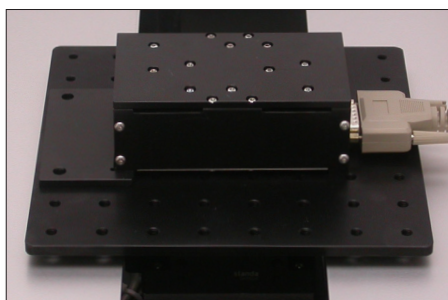
LARGE MEASURING RANGE AND WORKING DISTANCE

The measuring range is the maximum arrow height (or the smallest measurable radius of curvature), which can be measured during one scan. **FLATSCAN** is featured by an extremely large measuring range, which cannot be achieved with competitive measuring methods like fringe or phase shift interferometers.

FLATSCAN is therefore suitable for the measurement of surfaces with strong curvature like goebelmirrors, silicon wafers or others. The used optical measuring principle works independent from the working distance and ensures a high working distance, thus no danger for damaging the specimen.

TECHNICAL PARAMETERS

Reproducibility surface curvature (P-V)	≤ 100 nm*
Resolution of optical measuring system	0.1 arcsec
Accuracy of optical measuring system	1 arcsec
Measuring speed	10 mm/sec... 30 mm/sec
Measuring field	Standard: ø 200 mm, ø 300 mm (larger fields on inquiry)



Instead of the standard wafer table FLATSCAN can be equipped with hotplates or thermal chambers.

OPTIONAL 2D- OR 3D-MEASUREMENT

Optional, according device type, single line scans or complete 3D scans can be accomplished. The 3D-scans are assembled from numerous single line scans with automatic specimen positioning. The software offers all state of the art usual possibilities for graphical and numerical representation of measuring results like 3D-representation, sectional views and measuring protocols.

SOFTWARE MODULE FOR COMPUTATION OF THIN FILM STRESS

For use in semiconductor technology and for all applications, where surface modifications (like coating or removal of coatings) are accomplished, the software is equipped with a module for computation of thin film stress by the Fowkes theory which allows the fast and easy measurement of thin film stress.

The thin film stress is computed from the mean radius of curvature before and after the coating process.

