Wafer Flatness Specifications

Global Flatness Specifications

Bow
Distance between the surface and the best fit plane at the center of an unclamped wafer.

Warp
Sum of the maximum positive and negative deviations from the best fit plane (wafer unclamped).

$$WARP=|A|+|B|$$
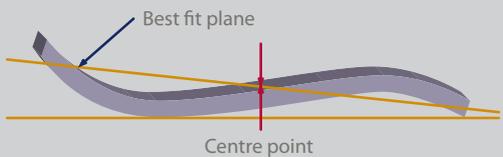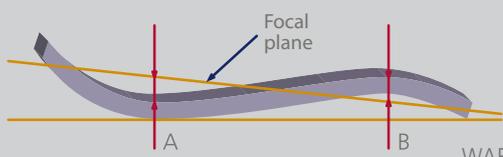
TTV
Total Thickness Variation

Difference between the maximum and minimum values of the wafer thickness (wafer clamped).

$$TTV=|A|+|B|$$

TIR
Total Indicated Reading

Sum of the maximum positive and negative deviations from the best fit plane (wafer clamped).

$$TIR=|A|+|B|$$
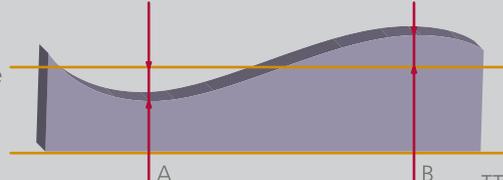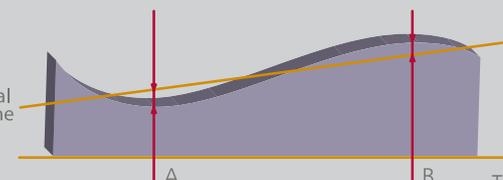
SRAD
Spherical Reference Measurement ('Radius of Curvature')

The length of the radius in metres for the best fit sphere. The flatter the surface, the larger the best fit sphere.

Local Flatness Specifications

LFPD
Local Focal Plane Deviation

Maximum distance between the wafer surface and best fit plane (above or below), for a given area (wafer unclamped).

$$LFPD=max(LFPD_{1...n})$$

LTV
Local Thickness Variation

Difference between the maximum and minimum values of wafer thickness for a given area (wafer clamped).

$$LTV=max(LTV_{1...n})$$