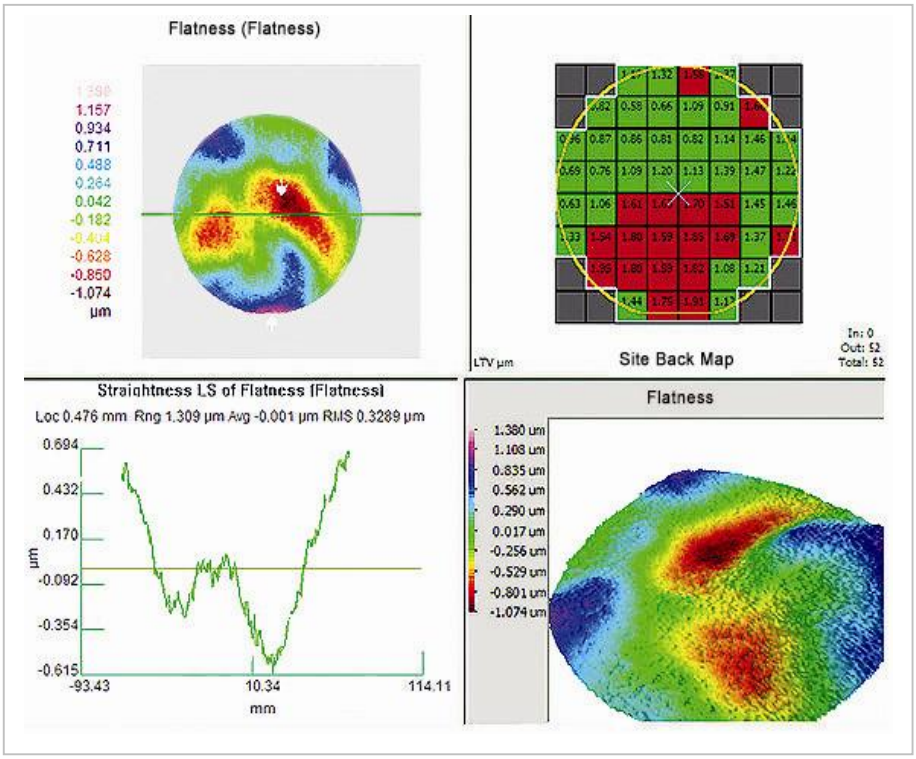
Tropel® FlatMaster® Wafer Flatness Analysis System

Fast and precise wafer flatness measurements

CORNING

The continued demand for higher density chips with smaller critical dimensions leads to tighter substrate form tolerances both on the global scale and on the individual die-site scale. We have optimized our patented grazing-incidence interferometry technology for the highest precision wafer flatness measurements. The Tropel® FlatMaster® Wafer Analysis System is ideal for processes development, particularly for new, non-silicon materials. From wire saw to finished wafer, you can quickly and accurately measure wafer flatness to verify that you or your customers have the ability to achieve the required device yields.
The FlatMaster Wafer system measures flatness, taper, thickness variation, thickness, stress, bow, warp, SORI, and many other parameters including stepper simulation of any wafer surface. Industry standard chucks are easy to load and are non-damaging to wafers. Combined with our state of the art optical fabrication techniques and Tropel's renowned phase-shifting analysis software, the FlatMaster Wafer offers full form surface information with 50 nanometer accuracy in seconds.



FlatMaster® wafer systems use a wide range of east to load wafer chuck to allow clamped or free-state measurements. Windows®-based software simultaneously tests wafers to multiple user-definable global and site flatness parameters.

Tropel® FlatMaster® Wafer System Specifications

Measurement method	Grazing Incidence Interferometry

Performance

Accuracy[1]	50 nanometers (2.0 µinches)
Repeatability[1]	15 nanometers (0.6 µinches) (1 sigma)
Resolution	5 nanometers (0.2 µinches)
Dynamic range[2]	> 100 micrometers
Part range	50 mm – 200 mm
Part range configuration	50 mm – 150 mm; 100 mm – 200 mm
Measured data points	≤ 230,000 per measurement
Measurement time	5 seconds typical
Measurement datum	Front referenced, back referenced, clamped and local site
Measurement parameters	Bow, Warp, SORI, TTV, LTV, LDOF, thickness, stress and many others
Data analysis	3-D, contour, slice: x, y circumferential and radial, histogram and wafer analysis plots

Materials and Surfaces

Materials	Silicon, silicon carbide, gallium arsenide, gallium nitride, gallium phosphide, indium phosphide, sapphire, germanium, lithium niobate and many others
Surfaces	Wire sawn, ground, lapped, polished, etched

Data Management

Data storage	80 Gb hard drive
Communications	10/100-BaseT Ethernet, RS-232C port
Operating system	Windows® XP

Weights and Dimensions

Interferometer housing	76 cm x 65 cm x 34 cm, 75 kg (30 in x 26 in x 13 in, 165 lb)

Describes typical specifications at 2 µm/fringe sensitivity and subject to change based on specific customer requirements.
[1] Refers to instrument limited accuracy as measured on NIST traceable artifact. (See Corning Tropel Acceptance Procedure for details)
[2] Typical, limited by surface slope.
This product is covered by one or more U.S. patents.
All specifications are subject to change.
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TROPEL®
METROLOGY INSTRUMENTS

For more information about the UltraFlat or any other of our Tropel® Metrology Instruments, please contact:

Corning Tropel Corporation
60 O'Connor Road
Fairport, New York 14450
Tel: +1-585-388-3500
Fax: +1-585-388-3414
E-mail: metrology_info@corning.com
Website: www.corning.com/metrology