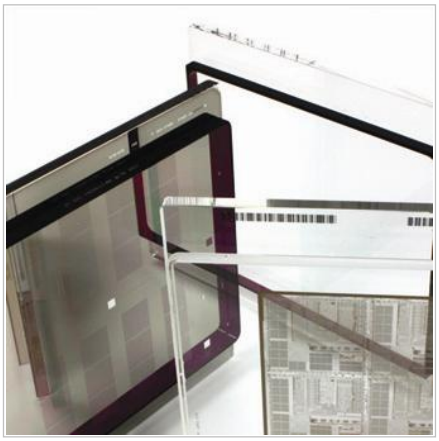
Tropel® UltraFlat™ Photomask Form Analysis System

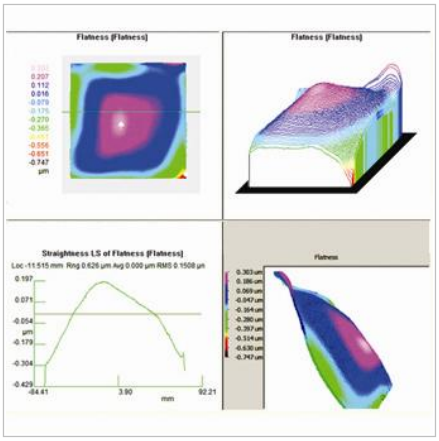
Ultra-precise flatness measurements of substrates, mask blanks and photomasks

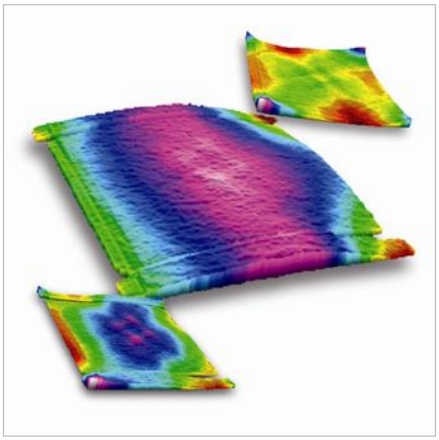
CORNING



The Tropel® UltraFlat™ 200 Mask System, manufactured by Corning Tropel Corporation, is designed specifically for the photomask industry. Its low measurement uncertainty makes the UltraFlat System the perfect tool for today's ever-tightening mask flatness specifications. The push for smaller device features requires that photomasks be extremely flat. The UltraFlat System is used to measure flatness of photoblanks and photomasks throughout every stage of the manufacturing process, including, polishing, coating, patterning, pellicle mounting and analyzing the effects film stress.

The UltraFlat system utilizes near-normal incidence interferometry, rock solid structural design, state-of-the-art optics and Corning Tropel's renowned phase shifting analysis software; delivering up to 6 nm measurement uncertainty. The system is NIST traceable and provides measurements that conform to SEMI standards. An automated photomask handling and measurement configuration and clean room option are also available.





The Tropel® UltraFlat™ 200 Mask System provides unprecedented flatness measurements of photomasks. Manual handling, fully automated robotic handling, and Class 1 clean room environment options are available.

Tropel® UltraFlat™ 200 Mask System Specifications

Measurement method	Near Normal-Incidence Interferometry

Performance

Uncertainty[1]	6 nanometers
Dynamic range[2]	10 micrometers
Mask sizes	≤ 6 inches (6025, 5009 and other available upon request)
Measured data points	≤ 1,000,000 per measurement
Measurement time	≤ 30 seconds
Standard measurements	Front referenced flatness, local slope, stress, microwaviness, x-y polyfit
Data analysis	3-D, contour, isometric, histogram and site plots, site analysis

Data Management

Data storage	80 Gb hard drive
Communications	10/100-BaseT Ethernet
Operating system	Windows® XP

Dimensions

Interferometer housing and base	89 cm x 117 cm x 132 cm (35 in x 46 in x 52 in)
Computer workstation	66 cm x 66 cm x 168 cm (26 in x 26 in x 66 in)

Weights

Interferometer housing and base	400 kg (880 lb)
Computer workstation	34 kg (75 lb)

Options

Fully automated Class 1 chamber
Robotic mask handling and sorting

[1] Refers to instrument limited uncertainty as measured on NIST traceable artifact and λ/100 reference flat. (See Corning Tropel Acceptance Procedure for details)
[2]Typical, limited by surface slope.
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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:

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