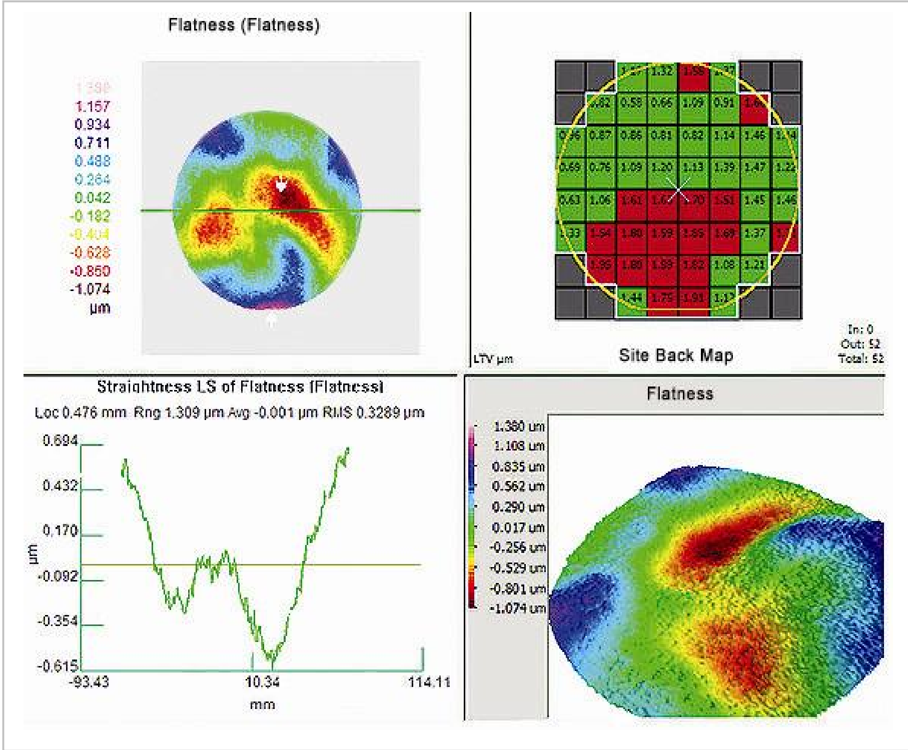
Tropel® UltraSort™ Wafer Flatness Analysis System

The next generation of automated wafer qualification

The Tropel® UltraSort™ continues our 25 year tradition of providing metrology solutions to semiconductor wafer manufacturers. Designed for volume wafer production, this automated system offers superior performance in rapid, repeatable, accurate, non-contact qualification of silicon and alternative substrate wafers.

UltraSort is an automated wafer flatness analysis system that includes cassette-to-cassette wafer handling with user configurable sorting capability. This Class 100 cleanroom compliant system integrates a grazing-incidence interferometer with industry standard robotic handling. The UltraSort can be configured to measure wafer sizes from 2 inches to 8 inches in diameter, and is well suited for a variety of different materials including gallium arsenide, sapphire, quartz, germanium, silicon and many others.



The power of grazing incidence interferometry that makes the Tropel® FlatMaster® System an industry standard for precision flatness is offered on the Tropel® UltraSort™ Automated Wafer Analysis System.

Tropel® UltraSort™ Wafer System Specifications

Measurement method	Grazing Incidence Interferometry

Performance

Accuracy[1]	50 nanometers (2.0 μinches)
Accuracy[2]	15 nanometers (0.6 μinches) (1 sigma)
Resolution	5 nanometers (0.2 μinches)
Dynamic range[1]	> 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
Throughput time[3]	Clamped measurements: 120 wafers per hour
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	80 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	142 cm x 110 cm x 173 cm, 1750 kg (56 in x 43 in x 68 in, 3850 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.
[3] Throughput clamped and unclamped: 90 wafers per hour.
This product is covered by one or more U.S. patents.
All specifications are subject to change.
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For more information about the UltraFlat or any other of our Tropel® Metrology Instruments, please contact:

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