



Tropel® FlatMaster® Surface Form Analysis System

Fast and Precise Measurement of Ground, Lapped, Honed, Polished and Super-finished Components

The Tropel® FlatMaster® offers industry leading performance for surface form measurements to precision component manufacturers. Our non-contact optical technique analyzes the entire surface of the part in seconds, regardless of its size or complexity. The FlatMaster provides five nanometer resolution and a standard accuracy of 50 nm (2.0 μ”). It rapidly and accurately measures flatness, line profile, radius and other surface parameters on a variety of materials and surface finishes.

A FlatMaster on the shop floor or in the QC lab will significantly improve processes, yields and productivity via full-form measurements with unprecedented speed and throughput.

Key Benefits

- Improves product quality, manufacturing yield and throughput
- Lowers manufacturing costs
- Increases process awareness and understanding
- Reduces time-to-market
- Increases customer satisfaction

Power

- High resolution and accuracy
- Large dynamic range
- Fast measurements -- complete surface analysis in seconds
- Excellent reproducibility results from operator to operator

Flexibility

- Measures a variety of material types
- Measures a wide range of surface finishes

Easy to Use

- Place the part and measure, little or no fixturing required
- Intuitive recipe driven operation
- Suitable for production, quality control, or development environments



Tropel® FlatMaster® System Specifications

Performance

	FlatMaster 40	FlatMaster 100	FlatMaster 200
Part Size Range ¹	5 mm — 40 mm (0.2 in — 1.6 in)	25 mm — 100 mm (1.0 in — 4.0 in)	25 mm — 200 mm (1.0 in — 8.0 in)
Dynamic Range ²	>50 µm	>100 µm	>100 µm
Measurement method	Grazing Incidence Interferometry		
Accuracy ³	50 nanometers (2.0 µinches)		
Repeatability ³	15 nanometers (0.6 µinches) (1 sigma)		
Resolution	5 nanometers (0.2 µinches)		
Measurement time	5 seconds typical		
Measured data points	up to 230,000 per measurement		
Measurement Datum	Least squares, minimum zone		
Filtering	ISO standard included		

Materials and Surfaces

Materials	Metals, glass, polymers, ceramics, and many others
Surfaces	Ground, lapped, polished, honed, super-finished and others
Reflectivity	Minimum of 10% at 85° incidence angle
Maximum roughness	1.0 µm (40 µinches) Ra (typical at 4 µm/fringe)

Environmental and Facility

Temperature	15 °C to 30°C (59 °F to 86 °F)
Rate of temperature change	<2° C, with no more than 0.5°C per half hour period
Humidity	35% - 75% non-electrostatic and non-condensing
Power	100-240 VAC, 50/60 Hz, 4 Amp
Air/Vacuum	n/a
FlatMaster 40 System dimensions/weight	103 cm x 57 cm x 26 cm / 60 Kg (41 in x 22 in x 10 in / 132 lb)
FlatMaster 100/200 System dimensions/weight	76 cm x 65 cm x 34 cm / 75 kg (30 in x 26 in x 13 in / 165 lb)

¹Smaller parts may be measured at different performance characteristics.

²Typical, limited by surface slope.

³Refers to instrument limited accuracy as measured on NIST traceable artifact as measured at 2 µm / fringe sensitivity. See FlatMaster Acceptance Procedure for further details.

This product is covered by one or more U.S. patents.

All specifications are subject to change.

Tropel® is a registered trademark of Corning Incorporated.

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For more information about the Tropel® FlatMaster product line, or any other of our Tropel® Metrology

Instruments, please contact:

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