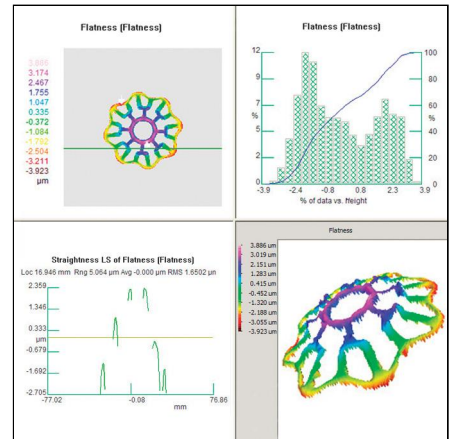


Tropel® FlatMaster® Surface Form Analysis System

Fast and Precise Measurements 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 μm). 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

Powerful

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

Flexible

- 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

Tropol® 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 nm (2.0 µinches)		
Repeatability ³	15 nm (0.6 µinches) (1 sigma)		
Resolution	5 nm (0.2 µinches)		
Measurement time	5 seconds typical		
Measured data points	up to 230,000 million 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)

Tropol Metrology Software (TMS™)

Standard Measurements	Flatness, line profile, surface profile, spherical radius
User-defined Report Layouts	User-configurable including: OpenGL® 3-D, 2-D, line trace (X/Y, radial, circular), color contour, isometric, histogram, user-defined tolerances, pass/fail criteria, yield, distribution, flat, spherical, conical fit data, local flatness
Data Management	Available in report layouts, also database, MicroSoft Excel®, CSV and serial port, optional export to industry standard database formats

Environmental and Facility

Temperature	15 °C to 25°C (59 °F to 77 °F)
Rate of temperature change	< 1.0 °C per hour
Humidity	5% to 95% relative humidity, 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 200 System Dimensions /Weight	76 cm x 65 cm x 34 cm / 75 Kg (30 in x 26 in x 13 in / 165 lb)

Standard System Configuration

Computer	Windows® based PC
Software	TMS™ Analysis software
Traceable artifact	Included

*Describes typical specifications at 2 µm/fringe sensitivity and subject to change based on specific customer requirements
1 Smaller parts may be measured at different performance characteristics. Contact Corning Tropol Corporation.*

2 Typical, limited by surface slope

3 Refers to instrument limited accuracy as measured on NIST traceable artifact. See FlatMaster Acceptance Procedure for further details.

CORNING

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METROLOGY INSTRUMENTS



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