

CORNING



## 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

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Improves product quality, manufacturing yield and throughput

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Lowers manufacturing costs

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Increases process awareness and understanding

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Reduces time-to-market

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Increases customer satisfaction

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### Power

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High resolution and accuracy

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Large dynamic range

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Fast measurements -- complete surface analysis in seconds

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Excellent reproducibility results from operator to operator

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### Flexibility

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Measures a variety of material types

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Measures a wide range of surface finishes

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### Easy to Use

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Place the part and measure, little or no fixturing required

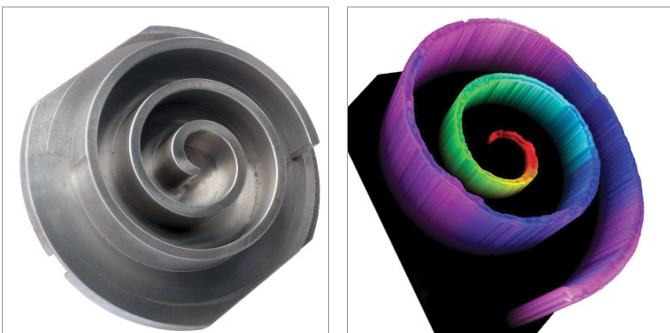
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Intuitive recipe driven operation

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Suitable for production, quality control, or development environments

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# Tropel® FlatMaster® System Specifications

## Performance

	FlatMaster 40	FlatMaster 100	FlatMaster 200
Part Size Range <sup>1</sup>	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 <sup>2</sup>	>50 µm	>100 µm	>200 µm
Measurement method	Grazing Incidence Interferometry		
Accuracy <sup>3</sup>	50 nanometers (2.0 µinches)		
Repeatability <sup>3</sup>	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)

<sup>1</sup>Smaller parts may be measured at different performance characteristics.

<sup>2</sup>Typical, limited by surface slope. >200 µm may require recipe optimization.

<sup>3</sup>Refers 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

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