Corning introduces the dual-head Tropel® FlatMaster® MSP-DH Optical Metrology System; a non-contact frequency scanning interferometer that simultaneously measures both sides of precision parts. This system provides measurement results for absolute thickness, depth, height, parallelism and flatness. Complex parts are fully characterized with sub-micron accuracy in just seconds!

Key Benefits
- Improves product quality, manufacturing yield and throughput
- Lowers manufacturing costs
- Increases process understanding and reduces time to market
- Increases customer satisfaction

Powerful
- Measure two opposing surfaces of a single part simultaneously
- Full-surface characterization in seconds
- Absolute thickness, relative height, depth, flatness and parallelism of multiple regions on opposing sides

Flexible
- Fast and easy programming setup
- Measures a variety of surface types and finishes
- Suitable for production, quality control or R&D applications

Easy to Use
- Load parts with little or no fixturing
- Intuitive recipe-driven measurements
# Tropel® FlatMaster® MSP-DH System Specifications

## Performance

<table>
<thead>
<tr>
<th></th>
<th>FlatMaster MSP-DH 40</th>
<th>FlatMaster MSP-DH 150</th>
<th>FlatMaster MSP-DH 300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field of view</td>
<td>43 mm (1.7 in)</td>
<td>150 mm (5.9 in)</td>
<td>305 mm (12.0 in)</td>
</tr>
<tr>
<td>Z-Resolution</td>
<td>1 nm (0.04 µin)</td>
<td>1 nm (0.04 µin)</td>
<td>1 nm (0.04 µin)</td>
</tr>
<tr>
<td>Lateral resolution</td>
<td>0.04 mm (0.0016 in)</td>
<td>0.15 mm (0.006 in)</td>
<td>0.17 mm (0.007)</td>
</tr>
<tr>
<td>Maximum Part Thickness</td>
<td>Up to 50 mm (2.0 in)</td>
<td>Up to 300 mm (11.8 in)</td>
<td>Up to 300 mm (11.8 in)</td>
</tr>
</tbody>
</table>

- **Measurement method**: Frequency Scanning Interferometry
- **Measurement time**: 30 seconds typical
- **Measured data points**: up to 3.0 million per measurement
- **Materials**: Metals, glass, polymers, ceramics, and many others
- **Surfaces**: Fine-ground, lapped, polished, super-finished and others

## Accuracy and Repeatability

<table>
<thead>
<tr>
<th></th>
<th>Accuracy*</th>
<th>Repeatability*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flatness</td>
<td>60 nm (2.4 µin)</td>
<td>20 nm (0.8 µin)</td>
</tr>
<tr>
<td>Parallelism</td>
<td>100 nm (4.0 µin)</td>
<td>20 nm (0.8 µin)</td>
</tr>
<tr>
<td>Depth/Height/Thickness</td>
<td>50 nm + 30 nm per mm step height</td>
<td>100 nm (4.0 µin)</td>
</tr>
</tbody>
</table>

* Refers to instrument limited Accuracy and Repeatability ($1\sigma$) as based on measurement of traceable artifact

## Tropel Metrology Software (TMS™)

- **Standard Parameters**: Flatness, depth/height, parallelism, line profile, surface profile
- **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
- **Data Management**: Available in report layouts, also MS Access®, CSV and serial port, optional export to industry standard database formats

## Environmental and Facility

<table>
<thead>
<tr>
<th></th>
<th>15 °C to 25°C (59 °F to 77 °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of temperature change</td>
<td>&lt; 1.0 °C per hour</td>
</tr>
<tr>
<td>Vibration Isolation</td>
<td>Passive isolation included</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95% relative humidity, non-condensing</td>
</tr>
<tr>
<td>Power</td>
<td>100-240 VAC, 50/60 Hz, 4 Amp</td>
</tr>
<tr>
<td>Air/Vacuum</td>
<td>None required</td>
</tr>
<tr>
<td>System Dimensions (W x D x H)</td>
<td>160 cm x 103 cm x 150 cm (63 in x 40 in x 59 in)</td>
</tr>
<tr>
<td>System Weight</td>
<td>390 kg (860 lb)</td>
</tr>
</tbody>
</table>

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