



# SMARTSCOPE SPECIALIST



## Medical Device Metrology System

	Range	mm	in
<b>Specialist 300</b>	X axis	300	12
	Y axis	300	12
	Z axis	250	10

SmartScope® Specialist™ 300 is an innovative benchtop multisensor metrology system that offers micron-level measurements within a generous 300x300x250 mm (12x12x10") of XYZ travel to accommodate a multitude of parts. Specialist verifies critical dimensions of a wide range of medical parts from orthopedic implants such as intervertebral disc spacers and artificial discs; the stem, ball and cup of prosthetic ball joints; tibial and femoral knee implants; to syringe components; to medical fluid flow components. A measurement routine for one part is easily repeated for a batch of fixtured parts, providing throughput to support production requirements. FDA Validation software supports 21 CFR Part 11 regulatory requirements.

SmartScope Specialist features a unique mechanical design with machined-in axial straightness and perpendicularity, and a patented twin-Z elevating bridge for structural integrity.

With its completely telecentric TeleStar® motorized zoom optics, high-resolution grayscale camera, narrow-band green LED surface and profile illumination, and industry-leading image processing, every SmartScope Specialist excels at non-contact, high speed video metrology. Three configurations of SmartScope Specialist systems make it easy to choose the capabilities for your quality challenges. The video configuration adds the laser pointer and MeasureFit® Plus. With SP25 scanning probe and MicroTheta™ rotary, the scanning configuration can measure edges and critical coordinates with ease. For the ultimate in multisensor metrology, TP200 touch probe and the unique QVI interferometric TTL laser combine contact and non-contact point probing and SmartFit® 3D fitting for complete characterization of the most complicated parts.

SmartScope Specialist has the capabilities medical device manufacturers need for the products of today, and those of tomorrow.

Precision metrology  
for medical device  
manufacturers



Technical Specifications

■ Standard ■ Optional

<ul style="list-style-type: none"> <li>■ <b>Measuring range (XYZ):</b> 300 x 300 x 250 mm</li> <li>■ <b>Measuring unit dimensions (approx LWH):</b> 80 x 85 x 80cm, 150 kg</li> <li>■ <b>Shipping crate dimensions (approx LWH):</b> 150 x 112 x 115 cm, 180 kg</li> <li>■ <b>Scale resolution:</b> 0.1 μm</li> <li>■ 0.05 μm</li> <li>■ <b>Motor drives:</b> DC servo with joystick control (X, Y, Z, zoom)</li> <li>■ <b>Worktable:</b> Nickel-plated with fixture holes and removable stage glass, 25 kg load capacity</li> <li>■ <b>Mechanical design:</b> Patented<sup>†</sup> "elevating bridge" design yields large XYZ travel with compact machine size</li> </ul>			
<ul style="list-style-type: none"> <li>■ <b>Zoom lens:</b> Patented<sup>††</sup> 10:1 AccuCentric® TeleStar® auto-calibrating, telecentric</li> <li>■ <b>Camera:</b> High resolution, grayscale with 768 x 494 pixel array</li> <li>■ <b>Illumination:</b> Patented<sup>†††</sup> LED moving aperture substage, LED coaxial TTL surface, patented<sup>††††</sup> SmartRing™ LED</li> <li>■ <b>Image processing:</b> 256 level grayscale processing with 50:1 sub-pixel resolution</li> </ul>			
<ul style="list-style-type: none"> <li>■ <b>Power requirements:</b> 100/120/220/240 vac, ± 5%, 50/60 Hz, 1 φ, 700 W</li> <li>■ <b>Rated environment:</b> 18-22° C ± 2° C/hr, 30-80% humidity (non-condensing), vibration &lt;0.0015g below 15 Hz</li> <li>■ <b>Operating environment:</b> 15-30° C</li> </ul>			
<ul style="list-style-type: none"> <li>■ <b>Metrology software:</b> OGP MeasureMind® 3D MultiSensor, FDA Validation software (reporting, statistics, security)</li> <li>■ <b>Computer:</b> Minimum configuration dual-core processor @ 1.86 GHz, 1 GB RAM, 40 GB hard drive, 1.44 MB floppy, CD-ROM, parallel, serial, and USB 2.0 ports, on board 10/100 LAN</li> <li>■ 20" LCD monitor, keyboard, three button mouse (or user supplied)</li> <li>■ <b>Operating system:</b> Microsoft® Windows™ XP</li> </ul>			
<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top;"> <p><b>Video configuration:</b></p> <ul style="list-style-type: none"> <li>■ 1.0x front lens</li> <li>■ Laser pointer</li> <li>■ MeasureFit® Plus</li> <li>■ Pre-wired for rotary</li> </ul> </td> <td style="vertical-align: top;"> <p><b>Multisensor configuration:</b></p> <ul style="list-style-type: none"> <li>■ 1.0x front lens</li> <li>■ TP200 touch probe</li> <li>■ Interferometric TTL laser</li> <li>■ SmartProfile™</li> <li>■ Pre-wired for rotary</li> </ul> </td> <td style="vertical-align: top;"> <p><b>Scanning configuration:</b></p> <ul style="list-style-type: none"> <li>■ 0.5x front lens</li> <li>■ SP25 scanning probe</li> <li>■ MicroTheta™ rotary indexer</li> <li>■ SmartFit® 3D</li> </ul> </td> </tr> </table>	<p><b>Video configuration:</b></p> <ul style="list-style-type: none"> <li>■ 1.0x front lens</li> <li>■ Laser pointer</li> <li>■ MeasureFit® Plus</li> <li>■ Pre-wired for rotary</li> </ul>	<p><b>Multisensor configuration:</b></p> <ul style="list-style-type: none"> <li>■ 1.0x front lens</li> <li>■ TP200 touch probe</li> <li>■ Interferometric TTL laser</li> <li>■ SmartProfile™</li> <li>■ Pre-wired for rotary</li> </ul>	<p><b>Scanning configuration:</b></p> <ul style="list-style-type: none"> <li>■ 0.5x front lens</li> <li>■ SP25 scanning probe</li> <li>■ MicroTheta™ rotary indexer</li> <li>■ SmartFit® 3D</li> </ul>
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<p><b>Options, all configurations:</b></p> <ul style="list-style-type: none"> <li>■ <b>Accessories:</b> Grid projector, 2.0x lens option, fixtures, calibration artifacts, Feather Probe™</li> <li>■ <b>Software:</b> SmartCAD® 3D</li> </ul>			
<p><b>Measurement uncertainty:</b></p> <ul style="list-style-type: none"> <li>■ <b>Z linear:</b> <math>E_1=(2.5 + 5L/1000) \mu\text{m}^*</math></li> <li>■ <b>X,Y,Z linear:</b> <math>E_1=(1.0 + 6L/1000) \mu\text{m}^*</math> (with optional 2x front lens and grid projector, TTL laser, or TP200 touch probe)</li> <li>■ <b>XY area:</b> <math>E_2=(1.5 + 5L/1000) \mu\text{m}^*</math></li> </ul>			
<ul style="list-style-type: none"> <li>■ <b>Warranty:</b> One year</li> </ul>			

<sup>†</sup>Patent Number 6,518,996 <sup>††</sup>Patent Numbers: 5,389,774 (AccuCentric); 6,292,306 (TeleStar) <sup>†††</sup>Patent Number 6,161,940 <sup>††††</sup>Patent Number 5,690,417

\*Where L=measuring length in mm. Applies to thermally stable system in rated environment, maximum zoom lens setting, and evenly distributed 5 kg load. Depending on load distribution, accuracy at maximum rated load may be less than standard accuracy. XY axis artifact: QVI 25 intersection grid reticle at standard measuring plane. Z axis artifact: QVI step gage or master gage blocks.



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A Quality Vision International Company

Multisensor Metrology

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