SmartScope CNC
Large-Travel Metrology System

SmartScope® CNC 670 is an innovative multi-purpose measurement system with a large XYZ measuring range. Its generous measurement travel makes it suitable for measuring circuit boards and other large parts such as flat panel displays (FPDs), and masks; or fixtured arrays of smaller parts/assemblies, while its mechanical design provides for a small system footprint.

- **Staging.** SmartScope CNC 670 is a moving bridge machine where the instrument head moves in the X-axis across a granite bridge while the bridge moves in parallel tracks in the Y-axis. The granite bridge provides excellent metrological stability across the entire X-axis, while dual Y-axis scales assure high accuracy and repeatability. The bridge is mounted on a substantial granite base for stability. The DC motor-driven capstan drives provide XY travel of 200 mm/sec (or faster). The measured part remains stationary, while XYZ sensor translations are performed rapidly and accurately.
- **Optics.** This CNC system has large-magnification-range, precision zoom optics. The patented 12:1 AccuCentric® zoom lens provides a large measurement range and calibrates itself automatically after every magnification change, for consistent accuracy throughout its range and over its entire lifetime.
- **Illumination.** Green LED back light, coaxial TTL surface light, and OGP patented programmable SmartRing™ light address most lighting needs with ease.
- **Metrology Software.** Measure-X® metrology software provides extensive functions and logical controls. Optional MeasureMind® 3D MultiSensor software provides full 3D capability with full sensor and rotary integration. SmartScope CNC 670 is easily programmed for fully automatic operation.
- **Multisensor Capability.** In addition to excellent video measurement performance, CNC 670, with an optional laser and/or touch probe, provides the advantages of comprehensive multisensor measurements.

	Travel	mm
CNC 670	X axis Y axis Z axis	650 670 200
Extended Z (option)	Z axis	300
Extended Z (option)	Z axis	400

300/400 mm Extended Z shown

■ Standard
■ Optional

SmartScope CNC Features & Specifications

- ■ **Stage travel (XYZ):** 650 x 670 x 200 mm
- ■ **Extended Z axis:** 300 mm, 400 mm
- ■ **Measurement unit dimensions (LWH):** 183 x 156 x 196 cm (200 mm Z travel), 183 x 156 x 216 cm (300/400 mm Z travel)
- ■ **Measurement unit weight:** 2145 kg
- ■ **Crated dimensions (LWH), crated weight:** 211 x 219 x 234 cm, 2259 kg
- ■ **XYZ scale resolution:** 0.5 µm
- ■ **Motor drives:** DC servo with joystick control (X,Y,Z,zoom)
- ■ **XY stage velocity:** 200 mm/sec nominal, higher upon request
- ■ **Load capacity:** 130 kg

- ■ **Zoom lens:** Patented† 12:1 AccuCentric® auto-calibrating with up to 10 calibrated positions
- ■ **Optical accessories:** 0.5x, 0.75x, 1.5x, and 2.0x lens attachments; LED grid projector; 2.5x replacement lens; laser pointer (not available with TTL laser)
- ■ **Camera:** ½" format high resolution color CCD
- ■ **Illumination:** Green LED substage, white coaxial TTL surface, patented†† 8 sector/8 ring SmartRing™ white LED illuminator
- ■ **Image processing:** 256 level grayscale processing with 10:1 sub-pixel resolution
- ■ **Multisensor options:** Touch probe and change rack, on-axis TTL laser, off-axis DRS™ laser, Feather Probe™, Rainbow Probe™ (contact OGP for possible combinations of sensors)

- ■ **Power requirements:** 115/230 vac, 50/60 Hz, 1 φ, 850 W
- ■ **Rated environment:** Temperature between 18 and 22° C, stable to ±1° C; 30-80% humidity (non-condensing); vibration <0.001g below 15 Hz
- ■ **Operating environment, safe operation:** 15-30° C

- ■ **Computer:** Minimum configuration Dual Core processor @ 1.8 GHz, 1 GB RAM, 80 GB hard drive, 1.44 MB floppy drive, parallel, serial, and USB 2.0 ports, on board 10/100 LAN
- ■ **Operating system:** Microsoft® Windows™ 7
- ■ **Computer accessory package:** Single or dual 22" flat panel LCD monitor(s), keyboard, three-button mouse (or user supplied)
- ■ **Metrology software:** Measure-X®
- ■ MeasureMind® 3D MultiSensor
- ■ **Software:** For use with Measure-X or MeasureMind 3D; MeasureFit® Plus, SmartReport® powered by QC-Calc™, MeasureMenu™, Scan-X®
- ■ **Software:** For use with MeasureMind 3D only; SmartScript®, SmartTree™, SmartProfile®, SmartFit® 3D

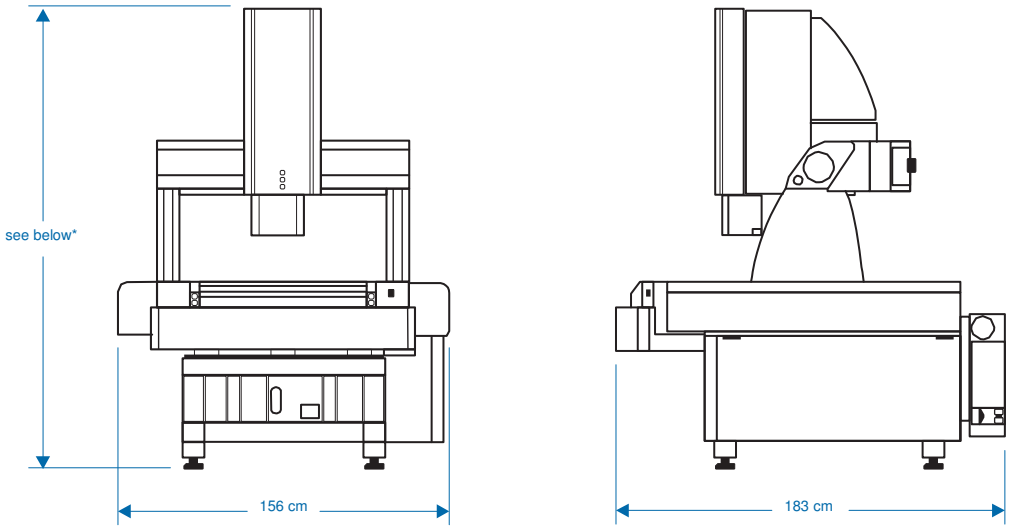
Where L=measuring length in mm. Applies to thermally stable system in rated environment. All optical accuracy specifications at maximum zoom lens setting.

- ■ **XYZ volumetric accuracy:** $E_3 = (3.0 + 5L/1000)$ µm* (requires MeasureMind 3D)
- ■ **XY area accuracy:** $E_2 = (2.5 + 5L/1000)$ µm**
- ■ **Z linear accuracy:** $E_1 = (3.0 + 8L/1000)$ µm*** (sensor-independent)

- ■ **Warranty:** One year
- ■ **Accessories:** Fixtures and calibration artifacts, rotary indexers

†Patent Number 5,389,774 ††Patent Number 5,690,417
*XYZ volumetric artifact: QVI dual linear grid reticle.
**XY axis artifact: QVI 25 intersection grid reticle at the standard measuring plane. The standard measuring plane is defined as a plane that is 25 mm above the stage glass.
***Z axis artifact: QVI step gage or master gage blocks.

Made in USA



*196 cm for 200 mm Z-travel machine
216 cm for 300/400 mm Z-travel machine

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