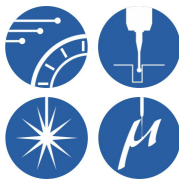


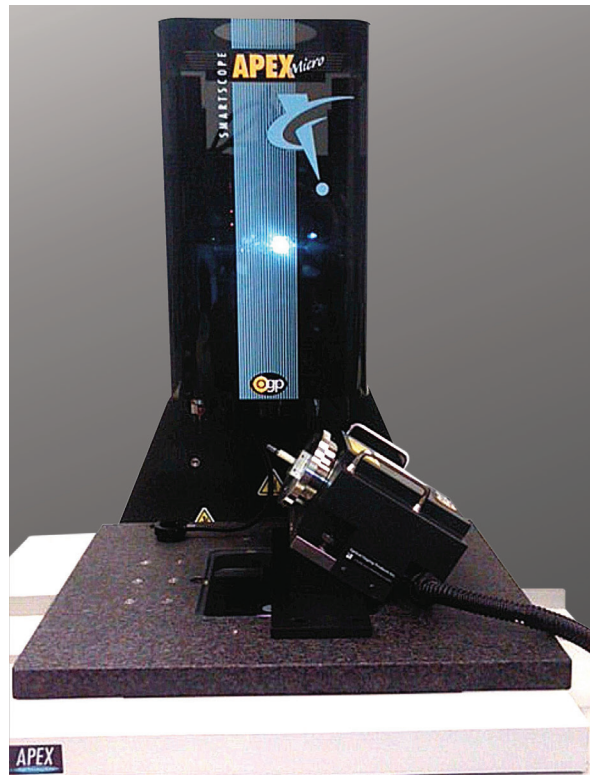
SmartScope® Apex Micro

- *High resolution optics* – Precision fixed lens optics with field interchangeable microscope objectives for optical magnification of 5x to 50x with additional 4:1 digital zoom
- *Ultra-high accuracy* – Megapixel digital camera, precision motion, and 0.05 µm scales
- *Measurement stability* – Granite base, column and stage for structural and metrological stability
- *Multisensor versatility* – Optional non-contact sensors, touch probes, and micro-probes

Unique High-Precision Micro-Metrology System



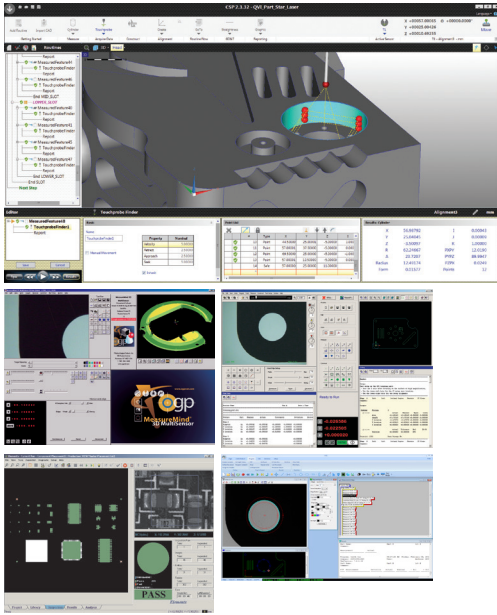
| Axis | Travel (mm) |
|------------------|-------------|
| X axis | 200 |
| Y axis | 200 |
| Z axis | 100 |
| Extended X (opt) | 300 |
| Extended Z (opt) | 150 |



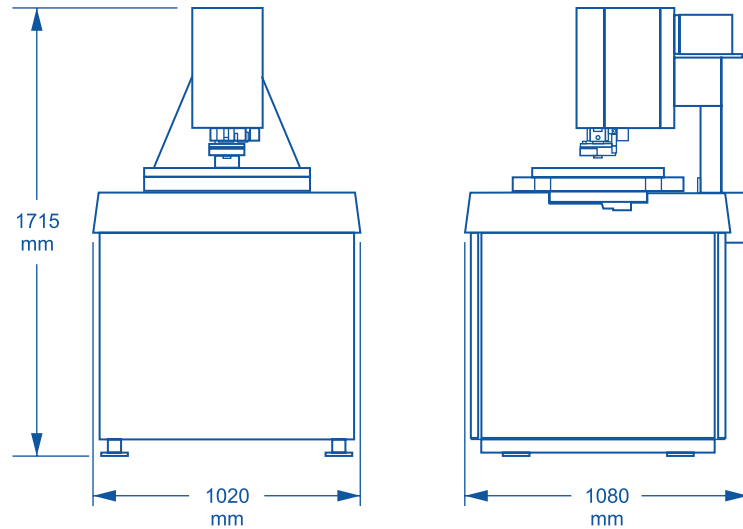
Shown with optional High Precision Rotary (HPR)



SmartScope® Apex Micro



Choose the QVI metrology software best suited to your manufacturing setting — 3D CAD-based ZONE3®, MeasureMind® 3D, Measure-X®, VMS™ or Elements®.



Machine Weight: 920 Kg
Crated Weight: 1140 Kg

| | Standard | Optional |
|--|--|---|
| XYZ travel | 200 x 200 x 100 mm | Extended X axis, 300 mm; extended Z axis, 150 mm |
| XYZ scale resolution | 0.05 µm | 0.02 µm, X & Y axes |
| Drive system | DC servo with 3-axis control (X,Y,Z); with multifunction handheld controller | |
| Worktable | Granite, with fixture holes, removable stage glass, 10 kg recommended max payload | |
| Optics | Precision fixed lens with 2.5x microscope objective and 2.0x back tube | 5.0x, 10.0x, and 25.0x fixed objectives; 1.0x back tube in lieu of standard 2.0x back tube |
| FOV size (std optical configuration) | Measured diagonally, 1.6 mm | |
| Illumination | Substage LED profile (monochromatic), coaxial LED TTL surface (white), SmartRing LED ring light (white) | VuLight™ LED oblique illuminator, autofocus grid projector |
| Camera | High resolution black & white megapixel digital metrology camera with digital zoom | |
| Image processing | 256 level grayscale processing with 10:1 subpixel resolution | |
| Sensor options (contact OGP for possible combinations of sensors) | | Touch probe and change rack, off-axis DRS™ laser, on-axis TTL laser, Rainbow Probe™ scanning white light sensor, Feather Probe™ |
| Controller | Windows® based, with up-to-date processor and on board networking/communication ports | |
| Controller accessory package | | 24" flat panel LCD monitor, or dual 24" flat panel LCD monitors, keyboard, 3-button mouse (or user supplied) |
| Software | QVI Portal, including: <ul style="list-style-type: none"> • Portal Navigation Panel • Independent Calibration Engine (ICE) • Multimedia Content Viewer • SmartLink™ | Metrology software: ZONE3® or ZONE3 Pro, MeasureMind® 3D MultiSensor, Measure-X®, VMS™, Elements® Productivity software: MeasureFit® Plus, SmartFit® 3D, SmartProfile® Offline software: ZONE3, MeasureMind 3D MultiSensor, Measure-X, VMS |
| Power requirements | 115/230 vac, 50/60 Hz, 1 phase, 900 W | |
| Rated environment | Temperature 18-22° C, stable to ±1° C; 30-80% humidity; vibration <0.001g below 15 Hz | |
| Operating environment, safe operation | 15-30° C | |
| XY area accuracy¹ | $E_2 = (0.8 + 4L/1000) \mu\text{m}^{2,3,4}$ | $E_2 = (1.0 + 4L/1000) \mu\text{m}^{2,3,4}$ (with optional extended X axis) |
| Z linear accuracy¹ | $E_1 = (1.5 + 5L/1000) \mu\text{m}^4$ (with standard optical configuration) | $E_1 = (2.0 + 5L/1000) \mu\text{m}^4$ (with optional on-axis TTL laser, DRS-2000 off-axis laser) $E_1 = (1.4 + 5L/1000) \mu\text{m}^4$ (with optional DRS-300 or -500 off-axis laser, or TP20 or TP200 touch probe) |

¹Where L = measuring length in mm. Applies to thermally stable system in rated environment. Maximum rate of temperature change: 1° C/hour. Maximum vertical temperature gradient: 1° C/meter. All optical accuracy specifications as equipped with standard optical configuration.

²With evenly distributed load up to 2 kg. Accuracy at maximum rated load may be less than standard accuracy.

³Measured in the standard measuring plane. The standard measuring plane is defined as a plane that is within 25 mm of the worktable surface.

⁴ E_1 , Z axis linear and E_2 , XY area accuracy standards are described in QVI Publication Number 790762.



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