

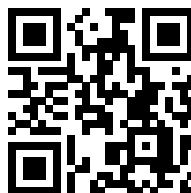


SmartScope ZIP® 450

SmartScope ZIP 450 is a floor model metrology system offering video and multisensor measurement for large parts. It has a reputation for extreme reliability and proven metrological performance. The ZIP 450 also offers:

- **Built-in Measurement Stability –**
A granite base, uprights and fixed bridge provide thermal and mechanical stability.
- **Accurate Video Metrology –**
AccuCentric® motorized zoom lens automatically compensates magnification for each zoom position. ZIP 450 offers optical configurations to suit a wide range of applications.
- **Multisensor Versatility –**
Optional touch probes, lasers and micro-probes.

Heavy-Duty Multisensor Measuring System

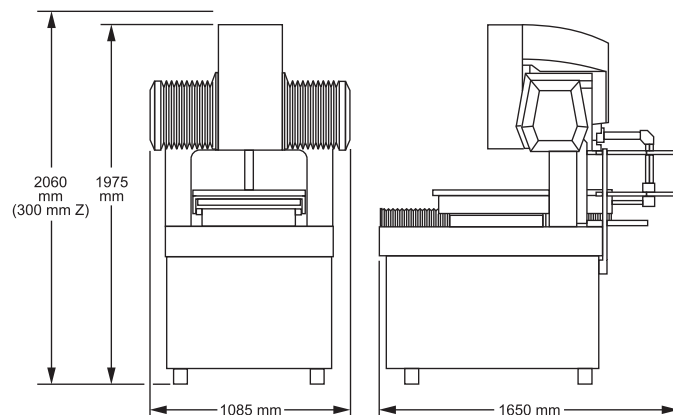


Optional Rotary Indexer shown

SmartScope ZIP® 450



ZONE3® Metrology Software represents a totally new way of working with multisensor measurement systems, providing faster, easier, and more productive measurements.



System Weight: 1040 kg
Shipping Weight: 1380 kg

	Standard	Optional
XYZ Travel	450 x 450 x 200 mm	Extended Y axis, 610 mm; extended Z axis, 300 mm
XYZ Scale Resolution	0.1 µm	0.05 µm
Drive System	DC servo with 4-axis control (X, Y, Z zoom); with multifunction handheld controller	
Worktable	Hardcoat anodized, with fixture holes, removable stage glass, 50 kg recommended max payload	
Rotary Axis		Miniature Servo Rotary (MSR™), MicroTheta Rotary (MTR™), Heavy Duty Rotary (HDR), High Precision Rotary (HPR™), Dual Rotary (requires optional 300 mm Z axis)
Optics*	AccuCentric® auto-compensating zoom, motorized; 1.0x lens; 2.0x lens attachment; 1.0x adapter tube	Focus Grid Projector: LED or Tungsten fiber-optic sources Laser Adapter: Allows for field retrofit of TTL Laser. Includes Laser Pointer Replacement Lenses: 1.0x Long Working Distance (LWD), 2.5x, 5.0x Laser Lenses: 2.0x (included with TTL Laser), 5.0x Lens Attachments for 1.0x Lens: 0.5x, 0.75x, 1.5x Factory Installed Adapter Tubes: 0.67x, 2.0x
Illumination	Substage LED profile, coaxial LED surface, SmartRing™ LED ring light (white)	Coax Light: Tungsten Fiber-Optic Ring Lights: Red, Green, or Blue SmartRing; Standard or Low Incidence VuLight; Tungsten Fiber-Optic Ring mounted below, integrated with, or in lieu of SmartRing
Metrology Camera	Monochrome digital metrology camera	
Field of View**	6.6 mm x 5.0 mm (no attachment, low zoom) to 0.7 mm x 0.5 mm (2.0x lens attachment, high zoom)	15.0 mm x 11.3 mm (0.67x tube, 1.0x lens, 0.5x attachment) to 0.13 mm x 0.10 mm (2.0x tube, 5x lens)
Working Distance	63 mm (no attachment) 24 mm (2.0x lens attachment)	Up to 98 mm (1.0x LWD, 0.5x attachment)
Sensor Options***		Tactile: TP20 or TP200 Touch Probe, SP25 Scanning Probe, Feather Probe™ Non-Contact: DRS™ Laser, Through-The-Lens (TTL) Laser, Rainbow Probe™, TeleStar® Probe
Software	• Choice of ZONE3 Express or Measure-X metrology software • QVI® Portal	Metrology software: ZONE3 Prime, ZONE3 Pro Productivity software: MeasureFit® Plus, SmartFit® 3D, OGP® EVOLVE® Suite (Design, EVOLVE SPC, Manufacturing, SmartProfile®) Offline software: ZONE3, Measure-X
System Controller	Windows® based, with up-to-date processor and onboard networking/communication ports	
Controller Options	Ergonomic sit/stand operator workstation	24" flat panel LCD monitor, or dual 24" flat panel LCD monitors, keyboard, 3-button mouse (or user supplied)
Power Requirements	100-120 VAC or 200-240 VAC, 50/60 Hz, 1 phase, 700 W	
Safe Operating Environment	15-30 °C, non-condensing	
Rated Environment	Temperature 18-22 °C, stable to ± 1 °C, max rate of change 1 °C / hour, max vertical gradient of 1 °C / meter; 30-80% humidity; vibration <0.001g below 15 Hz	
XYZ Volumetric Accuracy	$E_3 = (2.8 + 6L/1000) \mu\text{m}$	
XY Area Accuracy	$E_2 = (1.8 + 4L/1000) \mu\text{m}$	
Z Linear Accuracy	$E_1 = (2.0 + 5L/1000) \mu\text{m}$	$E_1 = (1.8 + 5L/1000) \mu\text{m}$ (requires optional TTL Laser) $E_1 = (1.3 + 5L/1000) \mu\text{m}$ (requires optional DRS Laser, Touch Probe, or TeleStar Probe)

Accuracy is evaluated with a QVI verification procedure where "L" is measured length in millimeters. Specifications apply within the rated environment. Standard optical specifications apply at the maximum optical magnification of the standard configuration. XY and XYZ accuracy applies with an evenly distributed load up to 10 kg in the standard measuring plane. Depending on load distribution, accuracy at maximum payload may be less than standard. The standard measuring plane is defined as a plane that is within 25 mm of the worktable surface. Volumetric accuracy performance requires ZONE3 and on-site verification is optional.

*Lenses and lens attachments can be manually interchanged to change magnification and working distance. Adapter tubes can be manually changed to change magnification without impacting work distance, but unlike lens changes, adapter tube changes require optical system realignment and recompensation. **FOV sizes are 15% smaller in Measure-X. ***SP25, Feather Probe, Rainbow Probe, and TeleStar Probe only supported in ZONE3.



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