

DATA SHEET



SMARTSCOPE[®] M45

SmartScope M45 is a large capacity floor model multisensor measurement system with a large travel, fixed bridge design.

SmartScope M45 is powered by ZONE3[®] metrology software and is fully 3D and multisensor capable. SmartScope M45 also offers:

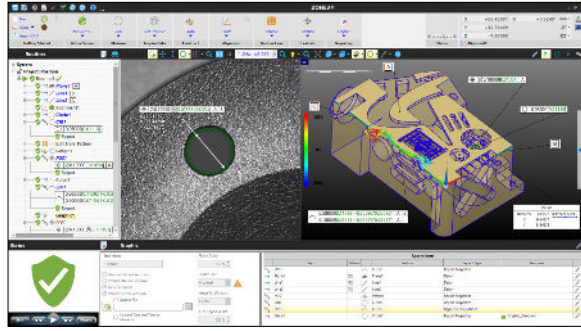
IntelliCentric[™]-M Optical System: Fully telecentric optics with instantaneous magnification change and Virtual Zoom.

Parts move on a precision DC motor-driven Y-axis stage while the optics travel in the X-axis mounted on a rigid bridge support structure for metrological integrity.

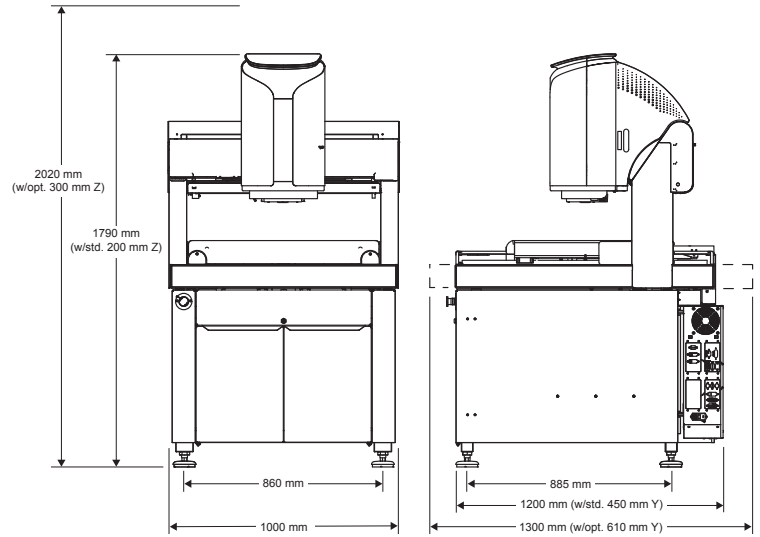
Optional tactile probes, non-contact sensors, and rotary indexers.



Equipped with optional scanning probe and TTL Laser.



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



System Weight: 960 kg
Shipping Weight: 1020 kg

	Standard	Optional
XYZ Travel	500 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 3-axis control (X, Y, Z) and multifunction handheld controller	
Worktable	Nickel plated steel with fixture holes and removable stage glass; 65 kg recommended max payload	
Rotary Axis		Miniature Servo Rotary (MSR™), MicroTheta Rotary (MTR™)
Optics¹	Fixed optical magnification with virtual zoom, M 11.5 standard lens	Focus Grid Projector: LED source Laser Adapter: Allows for field retrofit of TTL Laser (includes laser pointer) Replacement Lens: M 20.10 Wide Field-of-View/Long Working Distance Replacement / Laser Lens: M 6.3 High Magnification (included with TTL laser)
Illumination	Substage LED profile, coaxial LED surface, SmartRing™ LED ring light	
Metrology Camera	20 megapixel monochrome digital metrology camera	
Field of View	8 x 8 mm	M 20.10: 14 x 14 mm M 6.3: 4 x 4 mm
Minimum Feature Size²	5 µm	M 20.10: 10 µm M 6.3: 3 µm
Working Distance	68 mm	M 20.10: 98 mm M 6.3: 36 mm
Sensor Options³		Tactile: TP20 or TP200 Touch Probe, SP25 Scanning Probe, Feather Probe™ Non-Contact: Through-The-Lens (TTL) Laser, TeleStar® Probe Rainbow Probe™, DRS™ Laser
Software	ZONE3 Express metrology software, QVI® Portal	Metrology Software: ZONE3 Prime or Pro Productivity Software: EVOLVE® Suite (Design, Manufacturing, SmartProfile®, SPC) Offline Software: ZONE3
System Controller	Windows® based with up-to-date processor and onboard networking/communication ports	
Controller Options		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 <0.001 g below 15 Hz	
XY Area Accuracy	$E_2 = (2.5 + 5L/1000) \mu\text{m}$	
Z Linear Accuracy	$E_1 = (3.0 + 8L/1000) \mu\text{m}$	$E_1 = (2.5 + 8L/1000) \mu\text{m}$ (requires touch probe or TTL laser) $E_1 = (2.0 + 8L/1000) \mu\text{m}$ (requires TeleStar Probe)

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

¹US Patent No. 12 052 501. Lenses can be manually interchanged to change magnification and working distance.

²Based on width measurement of USAF resolution test chart in best focus at the highest magnification. For reference only.

³Touch Probe can be fixed mounted or on motorized deployment mechanism. TeleStar and Rainbow Probes can be fixed mounted or on mechanical deployment mechanism. TTL Laser and TeleStar Probe not available together.



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