



Automatic Vision Measuring Machine (VMM) - QualiVMM™ AV 400 Series



STANDARDS

ISO 10360-2

ISO 10360-7

ISO 10360-8

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Vision Measuring Machine performance matters most when teams need fast, repeatable dimensional checks across larger parts. QualiVMM™ AV 400 Series uses a moving-bridge structure that keeps the workpiece fixed while the machine runs CNC measurement routines for consistent results. The platform supports optical measurement as standard, with optional touch probe and confocal laser configurations for mixed-feature inspection.

The motion system combines precision linear guides, servo drive control, and a 0.1 µm linear scale for stable positioning across the measuring volume. HD imaging, motorized zoom optics, and programmable LED lighting help operators handle edges, surfaces, and contours without constant manual tweaking.

APPLICATIONS

Automatic Vision Measuring Machine (VMM) - QualiVMM™ AV 400 Series Applications

- Machined metal components (CNC parts, fixtures, housings)
 - Measure lengths, diameters, radii, angles, GD&T callouts, and positional relationships to support in-process checks and final inspection reporting.

- Injection-molded and cast parts
 - Verify profiles, flatness/warpage trends, and hole/boss features. Optical plus probe or laser options help when parts include mixed materials or complex surfaces.
- Electronics and precision assemblies
 - Inspect connector geometry, stamped features, and small mechanical subassemblies using multi-point measurement tools and repeatable programs for production QC.
- Medical and laboratory device components
 - Support dimensional verification on precision parts where traceability matters, using stored routines and consistent lighting control to reduce operator-to-operator variation.
- Reverse engineering and CAD-to-part comparison
 - Import/export DXF, scan features, and generate references for automated measurement workflows or reconstruction tasks.



Standards

- ISO 10360-7 (vision / imaging probing systems)
 - Commonly used for testing and verifying CMMs equipped with imaging (vision/video) probing systems.
- ISO 10360-2 (contact probing, linear measurements)
 - Used for acceptance and periodic reverification of CMM performance for measuring linear dimensions, often referenced when a touch probe is part of the measurement system.
- ISO 10360-8 (optical distance sensors)
 - Applies to Cartesian CMMs equipped with optical distance sensors, relevant when optical distance sensing is used in verification discussions.

FEATURES

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Key Features

- Gantry-style moving bridge with a fixed part position to help maintain measurement consistency during automated runs.
- Closed-loop 4-axis CNC control that executes programmed routines for hands-off measurement and repeatable results.
- Indian marble structural base and column engineered for rigidity and steady performance in metrology environments.
- RSF linear scale system with 0.1 μm resolution supported by a precision-ground ball screw and AC servo motion package for accurate axis response.
- HD color camera assembly that supports clear viewing and precise feature recognition for optical measurement.
- Motorized coaxial zoom optics (8.3 \times) designed for accurate zoom measurement with a streamlined pixel calibration workflow.
- Programmable LED lighting for both surface and edge conditions featuring 5-ring, 8-zone surface illumination plus parallel contour lighting, with automatic zone brightness control.

- iMeasuring software built for QC operation offering practical measurement tools, automation functions, and report-ready outputs.
- Expandable sensing and customization options including MCP touch probe and laser sensor modules, with configurations tailored to application requirements.

TECHNICAL SPECIFICATIONS

Automatic Vision Measuring Machine (VMM) - QualiVMM™ AV 400 Series Technical Specification

Commodity	2.5D Automatic Vision Measuring Machine	3D Automatic Contact & Vision Measuring Machine	2.5D Automatic Laser-Scan & Vision Measuring Machine	3D Automatic Multisensory Measuring Machine
Model	QualiVMM™ AV 400A	QualiVMM™ AV 400B	QualiVMM™ AV 400C	QualiVMM™ AV 400D
Sensor-Type	A-Type: One-Sensor Optical Zoom-lens Sensor	B: Twin-Sensor Zoom-lens Sensor and Contact Probe Sensor	C: Twin-Sensor Zoom-lens Sensor and Confocal Laser Sensor	D: Tri-Sensor Zoom-lens Sensor Contact Probe Sensor Confocal Laser Sensor
X/Y-axis Travel	(800*600)mm			
Z-axis Travel	200mm			
X/Y/Z-3 axis Linear Scale	European Linear Scale Resolution: 0.1um			
Guidance Mode	P-Class Precision linear guide, double-track double slider guide.			
Operation Mode	Joystick controller, Mouse operation, automatic detection program.			
Accuracy*	XY-axis: $\leq 1.8 + L/200$ (um)			

Commodity		2.5D Automatic Vision Measuring Machine			3D Automatic Contact & Vision Measuring Machine			2.5D Automatic Laser-Scan & Vision Measuring Machine			3D Automatic Multisensory Measuring Machine	
Z-axis: $\leq 4+L/200(\mu\text{m})$												
Repeatability		$\pm 2\mu\text{m}$										
Video System**		1/1.8" High-Definition Digital Color Camera										
		8.3X Motorized Zoom Lens										
		Optical Magnification: 0.6X~5.0X; Video Magnification: 20X~170X (21.5" monitor)										
Field of View(mm) (D*H*V)	Magnification	0.6X	1X	1.5X	2X	2.5X	3X	3.5X	4X	4.5X	5X	
	1/1.8" CCD	14.72 x 11.78 x 8.83	8.83 x 7.07 x 5.30	5.89 x 4.71 x 3.53	4.42 x 3.53 x 2.65	3.53 x 2.83 x 2.12	2.94 x 2.36 x 1.77	2.52 x 2.02 x 1.51	2.21 x 1.77 x 1.33	1.96 x 1.57 x 1.18	1.77 x 1.41 x 1.06	
Illumination System	Contour	LED parallel contour illumination										
	Surface	0~255 Stepless adjustable 5-ring 8-division LED surface illumination										
Measuring Software		iMeasuring Software										
Load Capacity		25Kg~50Kg										
Working Environment		Temperature $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$, temperature change $< 1^{\circ}\text{C}/\text{Hr}$; humidity 30%~80%RH; vibration $< 0.02\text{g}'\text{s}$, $\leq 15\text{Hz}$.										
Voltage		220V/50Hz/10A (110V is also available)										
Dimension (WxDxH)		(1157x1818x1590)mm										
Packing Size		(2300x1700x2000)mm										
Net Weight		2000Kg										

Model	Effective Measurement Travel mm			Dimensions (L*W*H) mm	
	X-axis	Y-axis	Z-axis	Machine dimensions	Package dimensions
QualiVMM™ AV 100	300mm	400mm	200mm	832*1195*1579mm	1380*1170*1650mm
QualiVMM™ AV 200	400mm	500mm	200mm	940*1463*1591mm	1690*1300*2000mm
QualiVMM™ AV 300	500mm	600mm	200mm	1040*1568*1591mm	1800*1400*2000mm
QualiVMM™ AV 400	600mm	800mm	200mm	1157*1818*1590mm	2300*1700*2000mm



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