



# HIGH ACCURACY VISION MEASURING MACHINE (VMM)



## STANDARDS

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ANSI/ASME B89.4.1

ISO 10360-7

ISO 14253-1

ISO 14978

## High Accuracy Vision Measuring Machine (VMM) - QualiVMM™ iHigh Series

Vision Measuring Machine (VMM) results depend on platform stability, optics, and lighting control. QualiVMM™ iHigh Series is a high-accuracy, manual vision measuring platform built on a granite base and column, designed for consistent 2D and 2.5D inspections across multiple travel sizes. Clear imaging, controlled LED illumination, and iMeasuring software support repeatable QC measurements without overcomplicating the workflow.

## APPLICATIONS

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## High Accuracy Vision Measuring Machine (VMM) - QualiVMM™ iHigh Series Applications

- Precision machining and toolroom inspection
  - Measures distances, diameters, radii, angles, and feature locations using crisp edge visibility. This helps confirm part geometry during first-article checks and routine in-process inspection.
- Electronics, connectors, and small stamped parts

- Supports non-contact visual measurement for delicate parts that can deform under touch. Multi-zone surface lighting and contour illumination help define edges on mixed finishes.
- Molded plastic and rubber components
  - Useful for outline verification and feature-to-feature checks where contact tools may distort softer materials. The zoom optics help switch between overview and detail checks with the same setup.
- Upgrading for height-related features and probing tasks
  - Optional contact probing and 3D measurement software can expand capability when vision-only measurement is not enough. An autofocus module option supports semi-automatic measurement when faster focus consistency is needed.



## Standards

- ISO 10360-7: Acceptance and reverification tests for Cartesian CMMs using imaging probing systems (vision/video probing).
- ISO 14253-1: Decision rules for proving conformity or nonconformity, including cases near tolerance limits where measurement uncertainty matters.
- ISO 14978: General concepts and requirements for GPS measuring equipment, often used as a framework for measurement equipment requirements.
- ASME B89.4.1: US reference for methods used to specify and test CMM performance (useful for performance language and internal verification programs).

## FEATURES

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### High Accuracy Vision Measuring Machine (VMM) - QualiVMM™ iHigh Series Key Features

- Granite base and column for stable measurement conditions
  - Supports consistent measurements during daily QC work.
- Low return-error table design
  - Uses a polished rod and fast locking approach intended to keep table return error within 2  $\mu\text{m}$ .
- High-accuracy linear measurement performance (X/Y)
  - The platform is specified with X/Y measurement accuracy up to  $E_{1x,y} = 2.5 + L/200 \mu\text{m}$ , supporting tighter tolerance checks for routine insp
- Clean imaging for edge-based measurement
  - High-definition zoom optics and a color digital camera are used to maintain minimal distortion.
- Programmable, zone-controlled LED illumination

- Includes 4-ring / 8-zone surface lighting plus contour LED parallel illumination, with intelligent brightness adjustment is available as an option.
- iMeasuring software for inspection workflow and reporting
  - Supports vision measurement routines align needs.
- Upgrade path to probing and semi-automatic measurement
  - Optional contact probe + 3D software can extend capability, and an autofocus module can enable semi-automatic measurement.

## TECHNICAL SPECIFICATIONS

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# High Accuracy Vision Measuring Machine (VMM) - QualiVMM™ iHigh Series Technical Specification

Specification	QualiVMM™ iHigh 200 Series	QualiVMM™ iHigh 250 Series	QualiVMM™ iHigh 300 Series	QualiVMM™ iHigh 400 Series	QualiVMM™ iHigh 500 Series
Product Type	High Precision Manual Vision Measuring Machine				
Marble Worktable (mm)	270 × 350	408 × 308	458 × 358	608 × 470	650 × 580
Glass Stage (mm)	142 × 242	306 × 198	356 × 248	456 × 348	540 × 440
X/Y Travel (mm)	200 × 100	250 × 150	300 × 200	400 × 300	500 × 400
Z Travel	High-precision linear guide; effective travel 200 mm (all models)				
Resolution (X/Y/Z)	0.5 µm (all models)				
Base and Uprights	High-precision granite (all models)				
Measurement Accuracy*	E1x,y: 2.5 + L/200 (µm); E1z: 4 + L/200 (µm) (all models)				

Specification	QualiVMM™ iHigh 200 Series	QualiVMM™ iHigh 250 Series	QualiVMM™ iHigh 300 Series	QualiVMM™ iHigh 400 Series	QualiVMM™ iHigh 500 Series
Repeatability (µm)	2 (all models)				
Surface Lighting (software controlled)	4-ring / 8-zone continuously adjustable LED cold surface illumination				
Contour Lighting	LED parallel contour illumination				
Optional Lighting	Coaxial light (optional)				
Camera	1/2.9" high-resolution digital camera, 1.6 Mpixel (all models)				
Zoom Lens	6.5× electronic feedback zoom lens; optical 0.7×-4.5×; video 20×-129×				
Measuring Software	iMeasuring				
Supported OS	Windows 10/11 (32/64-bit)				
Language Options	English, Simplified Chinese, Traditional Chinese (other languages optional)				
Operating Conditions	20°C ±2°C; temperature change <1°C/hr; 30-80% RH; vibration <0.02 g, ≤15 Hz				
Power	AC 220V / 50Hz; or 110V / 60Hz				
Machine Dimensions (W × D × H, mm)	677 × 552 × 998	790 × 617 × 1000	838 × 667 × 1000	1002 × 817 × 1043	1111 × 867 × 1086
Crate Dimensions (W × D × H, mm)	1030 × 780 × 1260	1030 × 780 × 1260	1030 × 780 × 1260	1130 × 1000 × 1270	1250 × 1035 × 1460
Weight (Gross / Net, kg)	220 / 150	242 / 175	275 / 185	449 / 350	550 / 380

\* L = measured length (mm).

## Notes (Rewritten)

- L represents the measured length in millimeters. Z-axis mechanical accuracy is closely related to focusing performance and the workpiece surface condition.
- Magnification values are approximate and depend on display size and resolution.
- Optional 0.5× or 2× auxiliary lenses can be added to adjust image magnification.
- Worktable material note: QualiVMM™ iHigh 200 Series/QualiVMM™ iHigh 400 Series/QualiVMM™ iHigh 500 Series use marble worktables, while QualiVMM™ iHigh 250 Series/QualiVMM™ iHigh 300 Series use metal worktables.

## Configuration Options

Configuration	Category	Model	Type	Sensor Package	Z-Axis Autofocus	Contact Probe	Software
2.5D	Vision only	QualiVMM™ iHigh 300A Series	A	Optical zoom-lens sensor	Without	Without	iMeasuring 2.1
3D	Vision + probe	QualiVMM™ iHigh 300B Series	B	Zoom-lens sensor + contact probe sensor	Without	With	iMeasuring 3.1
2.5D (Semi-auto)	Vision + autofocus	QualiVMM™ iHigh 300C Series	C	Zoom-lens sensor + Z-axis autofocus	With	Without	iMeasuring 2.2
3D (Semi-auto)	Vision + probe + autofocus	QualiVMM™ iHigh 300D Series	D	Zoom-lens sensor + contact probe + autofocus	With	With	iMeasuring 3.2



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