



VIEW Benchmark™ 250

A compact, high accuracy dimensional metrology system



BENCHMARK

Featuring:

300 x 150 x 150 mm (12 x 6 x 6 in.) measuring range

E_2 (XY plane) = $(2.0 + 5L/1000)$ μm

Sub-micron scale resolution

High-precision dual magnification optical system

Optional Programmable Multi-Color Ring Light (PRL)

Optional through-the-lens (TTL) laser with autofocus and scanning capabilities

Advanced image processing for high speed, accuracy and robustness

Subpixel accuracy of 1/10 to 1/50 pixel

Choice of powerful metrology software and data analysis tools

MTBF 8,000 hours



*Photo Description: VIEW Benchmark 250
The product photo above displays the Benchmark 250 model with optional Elements™ software.
Additional options are listed in the technical specifications and are not included in this photo.*

The VIEW Benchmark™ 250 delivers the high performance and reliability you expect from VIEW Micro-Metrology in a compact, benchtop package. Its advanced optics, illumination, available through-the-lens laser, and image processing capabilities make it a world-class metrology system.

Benchmark 250 is equally at home in the QA lab performing first article inspection or on the production floor providing precision measurements for process control.

Available optional software packages increase system versatility:

- CAD import (DXF/IGES) Software
- Form fitting and analysis Software
- Off-line Programming Software
- QC-Calc™ Statistical Process Control (SPC) — Real-time analysis and reporting software
- Elements™ CAD To Measure metrology software

Advanced metrology for leading technologies

Applications for Benchmark include:

Semiconductor/Electronics

- BGA, μBGA, CSP, flip-chip, MCM, bump-on-die
- Lead frames, wire bonds, flex circuits, connectors
- SMT component placement
- Solder paste/Epoxy glue dot
- Chip carriers and trays
- Inkjet printer cartridges
- Fiber optic components and MEMs

Data Storage

- Suspensions
- Slider and Head Gimble Assemblies (HGA)
- Disk media substrates

Precision plastic molded and machined parts

- Dies and tooling
- Medical devices
- Fuel injection components
- Watch components

Technical Specifications - VIEW Benchmark™ 250

● Standard ● Optional

Measuring Range	● 300 x 150 x 150 mm (12 x 6 x 6 in.)
Resolution	● 0.1 μm (0.000004")
Stage Drive System	● DC servo motor control (X,Y and Z)
Stage Drive Velocity	● X-Y: 150 mm/sec; Z: 100 mm/sec.
Stage Error Mapping	● Non-linear 2D error corrections in X-Y plane
Load Capacity	● 25 kg (55 lbs) maximum load
Optical System	● Dual magnification, fixed lens optical system with 1X and 4X internal magnifications
Objective Magnification	0.8x/3.2x ● 1x/4x ● 2.5x/10x ● 5x/20x ● 10x/40x ● 25x/100x
Working Distance	84 mm ● 34 mm ● 32 mm ● 33 mm ● 30 mm ● 13 mm
Field of View (mm)	
Low	● 8.3 x 6.2 ● 6.8 x 5.1 ● 2.7 x 2.0 ● 1.3 x 1.03 ● 0.6 x 0.5 ● 0.27 x 0.20
High	● 1.9 x 1.4 ● 1.5 x 1.2 ● 0.64 x 0.48 ● 0.32 x 0.24 ● 0.15 x 0.11 ● 0.06 x 0.05
Optical Accessories	● Ronchi Grid Projection
Illumination	● Programmable LED Illumination system for stage backlight and coaxial surface light ● Multi-color (red, blue, green, and composed white) LED Illumination Programmable Ring Light (PRL) ● VectorLight™ programmable ring light with white LEDs
Cameras	● Dual, digital, 1.4 megapixel monochrome cameras; 4:1 ratio
Image Processing	● Frame integration; 10:1 to 50:1 subpixeling
Sensor Options	● Through-the-lens (TTL) laser autofocus and scanning sensor ● SpectraProbe™ high resolution chromatic sensor
Controller	● Dedicated system controller with embedded Intel® 2.66 Ghz Quad CPU Processor and Windows® operating system.
Display Monitors	● Single 20" LCD flat panel monitor, joystick, keyboard, and mouse. ● Dual 20" LCD flat panel monitors, joystick, keyboard, and mouse.
Metrology Software	● VIEW Metrology Software (VMS) ● Elements™ CAD to Measure metrology software ● VMS Off-Line Workstation Software
Workstation	● Industrial workstation bench that provides support for the Benchmark system, computer and peripherals; 152 x 76 x 74 cm (60 x 30 x 29 in.)
Mechanical Options	● Certified calibration standards and accessories ● Fixture kits ● Rotary Indexers
MTBF	≥ 8,000 hours
Power Supply	115/230 VAC, 50/60 Hz, 1-phase, 700 W
Rated Environment	18-22°C, (65-71°F) 30-80% humidity (non-condensing), vibration <0.0015g below 15Hz
System Dimensions	(W x D x H) - 720 x 775 x 873 mm (28.3 x 30.5 x 38.3 in.)
Weight	Crated: 286 kg (630 lbs) Uncrated: 155 kg (340 lbs)
Measuring Accuracy at 20°C (68°F)	● E ₂ (XY plane) = (2.0 + 5L/1000) μm ^{1,2,3,4} ● E _z (Z-axis) = (2.0 + 5L/1000) μm ^{1,2,5} Where L = measuring length in mm.

All specifications apply to a thermally stable machine and a certified artifact at 20°C.

1. Maximum rate of temperature change: 1° C / Hour.
2. Maximum vertical temperature gradient: 1° C / Meter
3. At rated velocity with an evenly distributed load of 5KG.
4. X,Y area accuracy artifact: QVI grid reticle or QVI linescale in the standard measuring plane. Standard measuring plane is defined as within 25mm of the worktable surface.
5. Z axis accuracy artifact: QVI step gage, interferometer or master gage blocks.