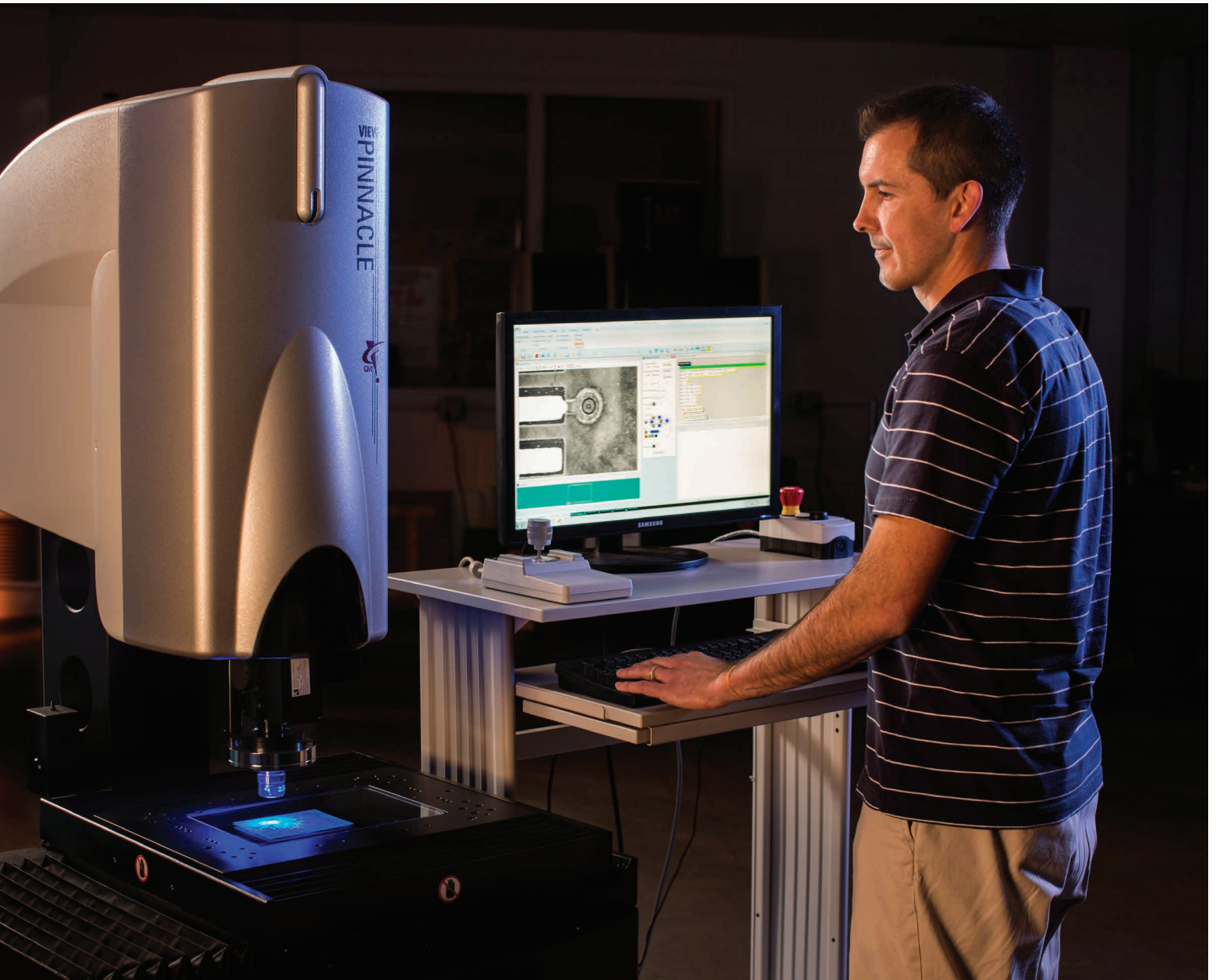


## VIEW Micro-Metrology



Precision Measurement Solutions for Process Control

**VIEW**  
MICRO-METROLOGY

# Measurement Solutions Designed for Your Needs

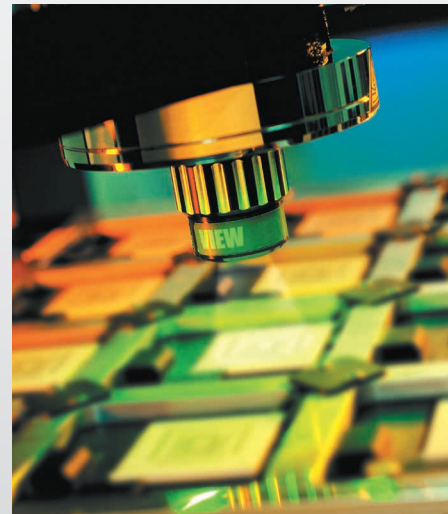
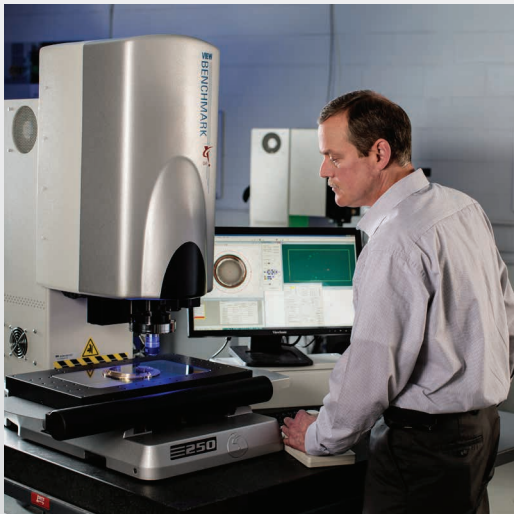
You'll find distinct advantages when you choose VIEW Micro-Metrology as your process metrology partner. VIEW pioneered high-speed dimensional measurement with the world's first vision CMM system in 1976, and our focus on high-productivity measurement continues today.

*Productivity = Accuracy at Speed*

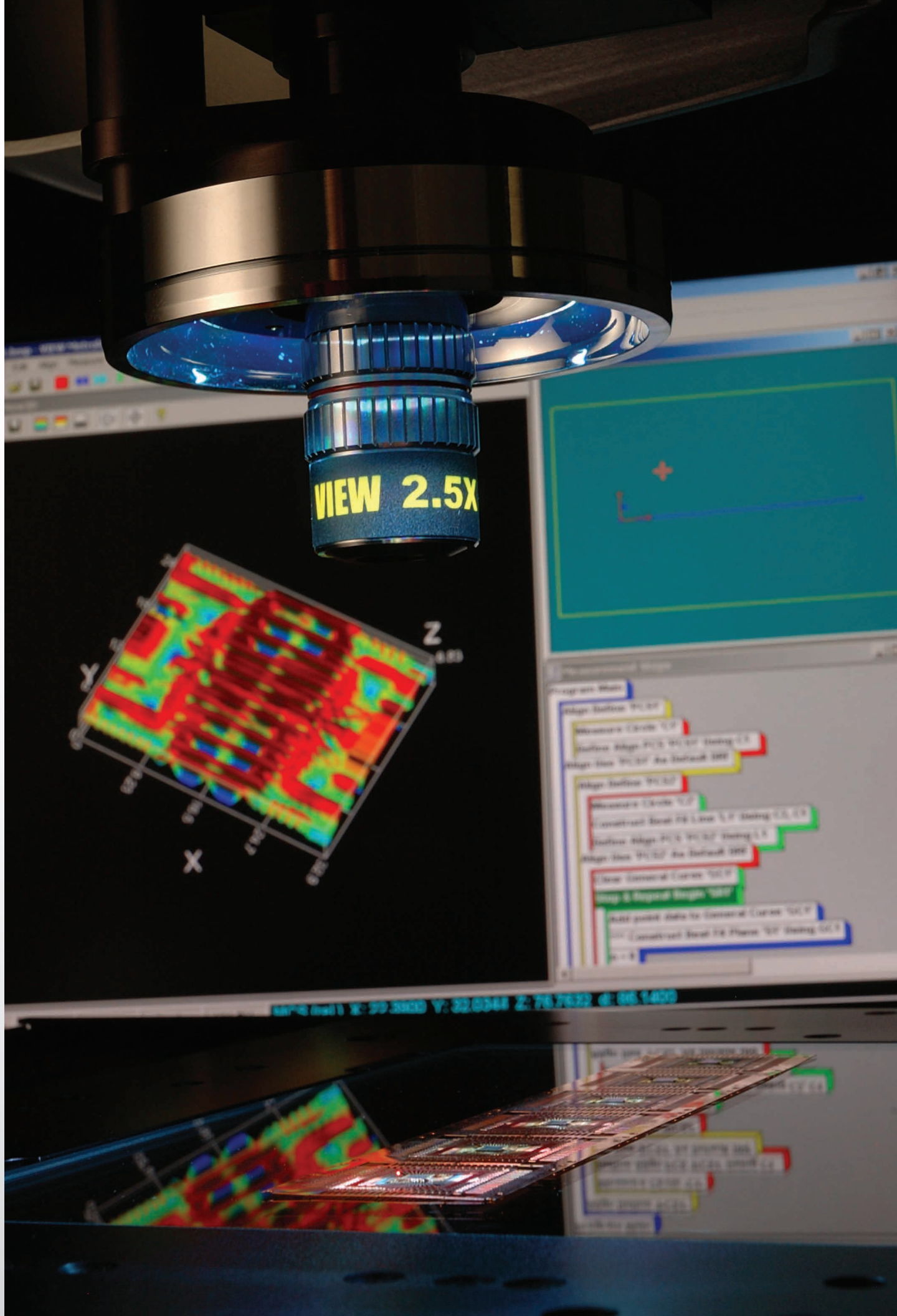
Many measurement techniques offer high accuracy, but few combine precision and high throughput in a production-worthy tool. VIEW's high-productivity platforms combine high-speed sensors and transport technologies with advanced optics and metrology software for unparalleled process capability. No other metrology company offers the productivity and flexibility that VIEW delivers.

VIEW offers a wealth of experience when it comes to integrating metrology systems into precision manufacturing. VIEW's leadership role in developing application-specific metrology solutions over many years has helped to advance critical manufacturing processes in disk drive, consumer electronics, health care, aerospace and other precision industries. We can do the same for you.

With dedicated employees worldwide, and a global network of metrology partners, VIEW delivers precision and productivity across the globe.



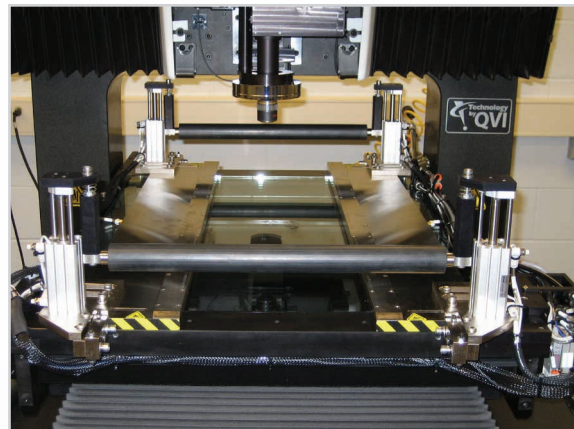




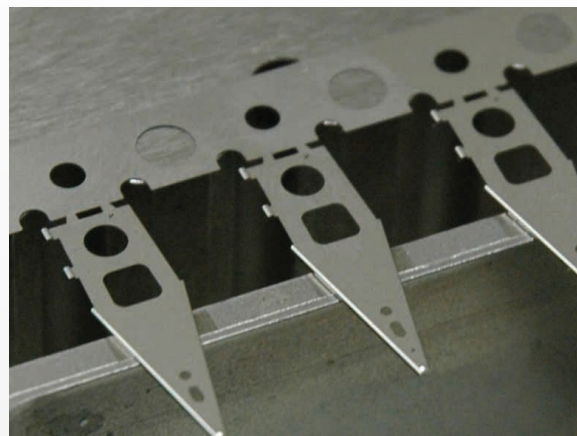


## Experience with Your Process

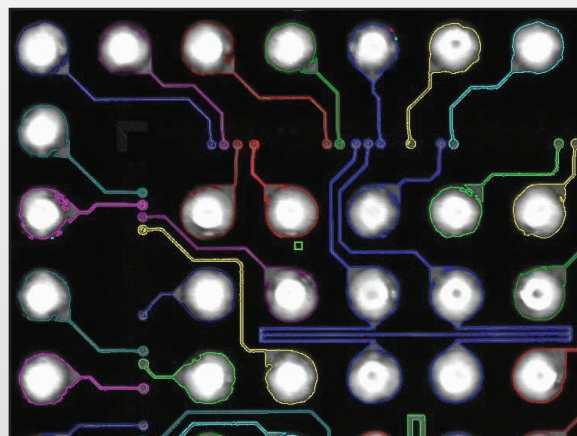
VIEW systems are used to monitor and control a wide range of industrial production where high accuracy for critical dimensions and component positioning are required. VIEW offers a unique blend of optical, software, fixture tooling and application programming to create turnkey solutions for the most demanding manufacturing processes.



VIEW specializes in matching high productivity measurement platforms with application-specific sensors, tooling and software – from simple part holding fixtures, to automatic material conveyors, to factory floor operator interfaces.



VIEW technology offers the capability and precision to measure and control critical micro-machined components used in consumer electronics and computers. VIEW systems are used for process control on more than 80% of the HDD suspensions manufactured worldwide.



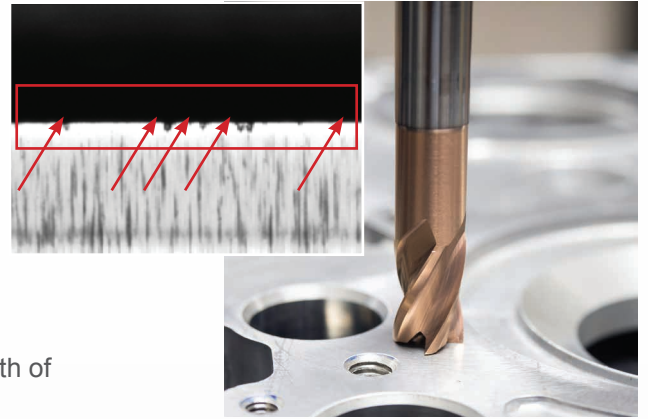
VIEW systems do more than simply measure dimensions. VIEW image processing technology is also used to identify and characterize defects – from scratches and digs in optics, to shorts or opens in micro-flex circuits.



## Precision Micro-Grinding

VIEW optics and software allow dimensional characterization of defects in precision cutting tools. High resolution optics and flexible software allow summing of total incursion area per unit length, or conventional tolerancing of individual defect sizes, enabling quality control for individual parts and feedback to the CNC program to account for tool wear and machine drift.

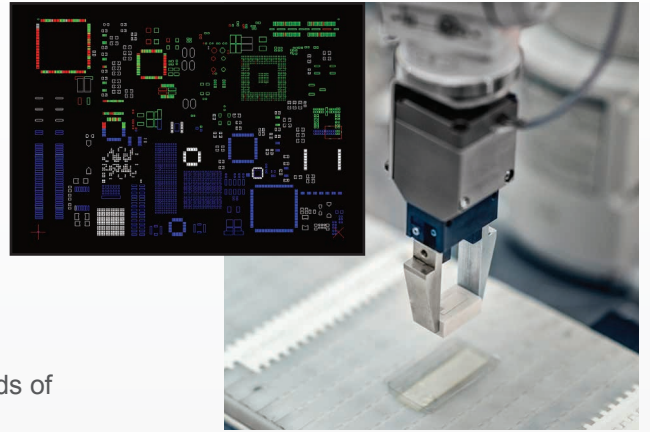
**Application:** End Mills – measurement of length and depth of edge defects on cutting tools.



## Electronic Assembly Calibration & Monitoring

Elements® software provides the optimum capability for measuring complex electronic assemblies. Direct CAD-to-measure programming and rules based programming allow routines to be set up in minutes. Elements quickly measures and compares feature data to the CAD file for rapid process control feedback right on the manufacturing floor.

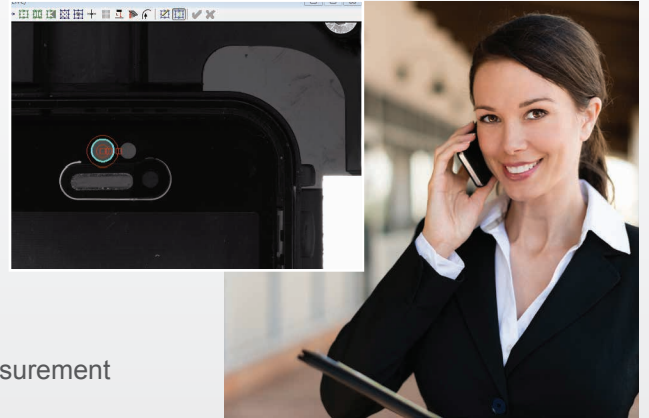
**Application:** Solder Paste Stencil Verification – rapid measurement of position, orientation and size of thousands of individual features on solder paste stencils.



## Cell Phone, Tablet & Wearable Assembly

Automated assembly of handheld devices places a premium on control of critical dimensions that determine the reliable function and sleek feeling consumers expect. The combination of materials such as glass, plastic and lightweight alloys in a factory floor environment presents unique challenges for the measurement tools. VIEW Benchmark systems offer the rugged stability and precision needed to control tight assembly tolerances.

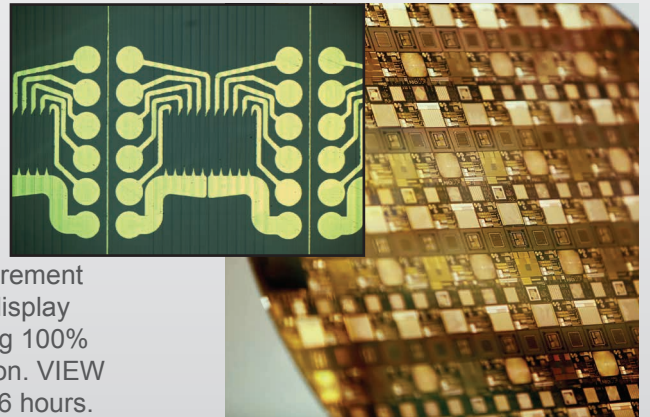
**Application:** Mobile Handset Assembly – shop-floor measurement of feature sizes and locations on smartphone cases.



## Photolithography & MEMs Fabrication

Few manufacturing processes place greater emphasis on precision process control than integrated circuit fabrication. VIEW systems offer high performance tools for wafer and photo level CD measurements for wafer based displays, MEMs and III-V devices. VIEW systems provide extended measurement range and speed for larger display devices with large numbers of features.

**Application:** Touchscreen Display Components – measurement of size and location of over 100,000 holes on a 200 mm display glass wafer. Location patterns change frequently, requiring 100% CAD-based programming and intelligent finder optimization. VIEW equipment reduced inspection time from 7 days to under 6 hours.



# Unmatched Capabilities

VIEW's pioneering work in digital image processing has led to development of a suite of edge detection and area processing functions that are perfectly suited for automated metrology, feature analysis and flaw detection.

## Image Acquisition:

VIEW systems acquire full frame, megapixel, digital images in real time. Exclusive VIEW techniques such as AMF™ Area Multi-Focus and CiC™ Continuous Image Capture acquire image data at extremely high speeds for high production operations.

**AMF** creates a high resolution 3D data set from a normal autofocus pass, offering a high throughput alternative to laser surface scanning. An Extended Depth of Field Image (EDFI) image can also be simultaneously created to provide an image that is completely in focus through the field of view.

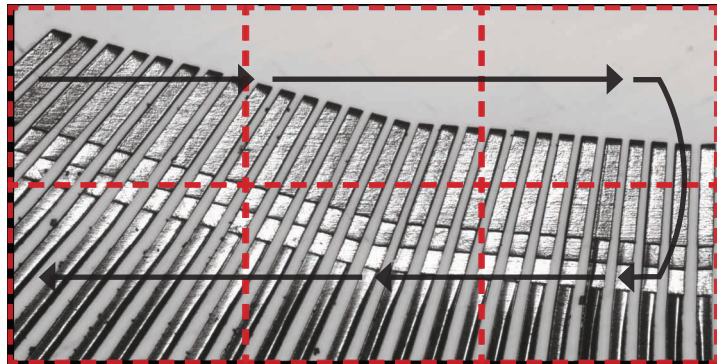
**CiC** synchronizes illumination with camera frame acquisition and stage movement to acquire video images non-stop. For components with densely packed features, throughput improvements of 50% to 200% are typical, compared to standard move and measure techniques.

## Image Filtering:

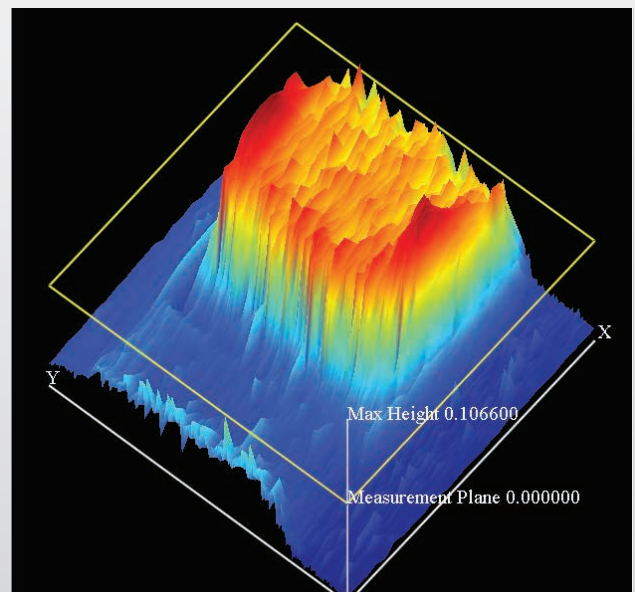
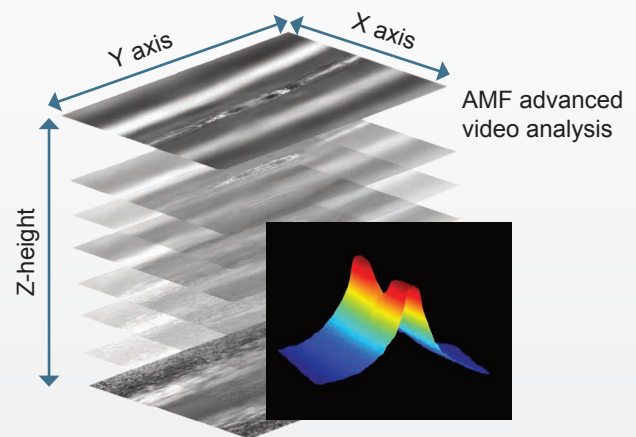
VIEW measurement software offers a variety of image filter functions to process each video snapshot so that features of interest are easily found, while extraneous features are ignored. Image filtering operations include erosion, dilation, smoothing and contrast. Edge tools employ smoothing and outlier removal for reliable and accurate edge processing. Color and hue filters are available on systems equipped with color cameras.

## Image Analysis:

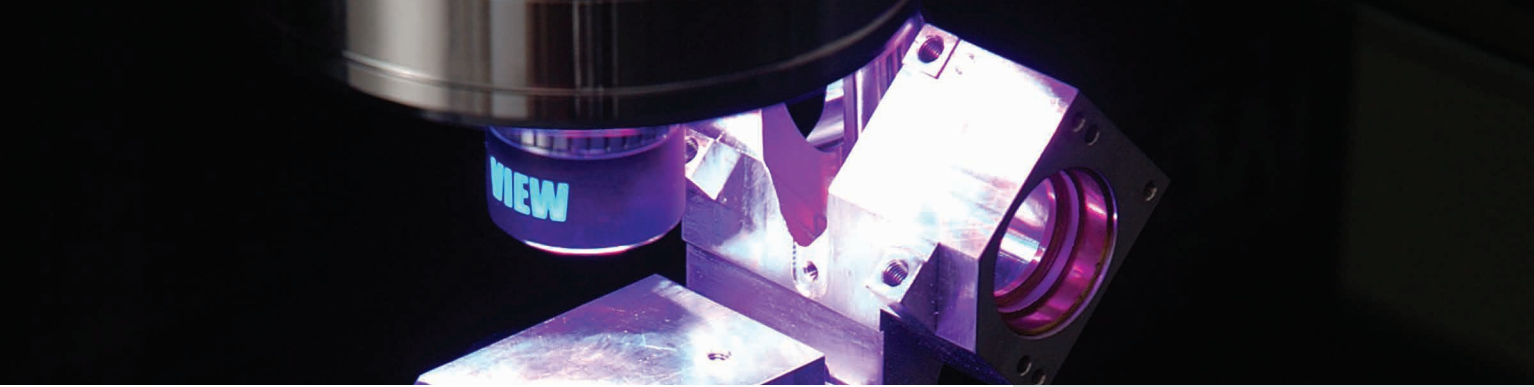
VIEW provides a library of tools for convenient image display and analysis. Native Video® processing capability allows saved images to be measured using the same analysis tools as live images. Re-measure archived part images, or import and measure images from SEMs or other imaging tools.



Stage motion path for continuous image capture.

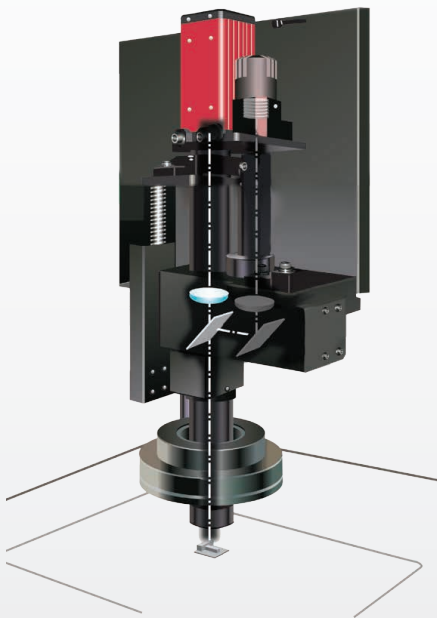






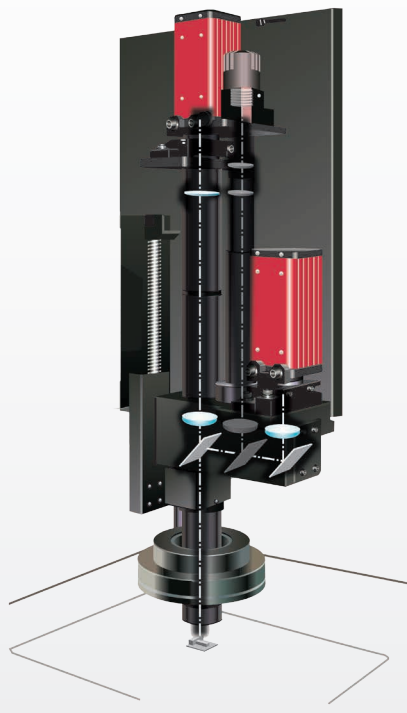
## Optics:

VIEW high performance optics match optical characteristics with feature sizes and throughput requirements. Four unique illumination sources, each designed specifically for the optical system, provide flexibility to measure a wide range of feature types and material characteristics.



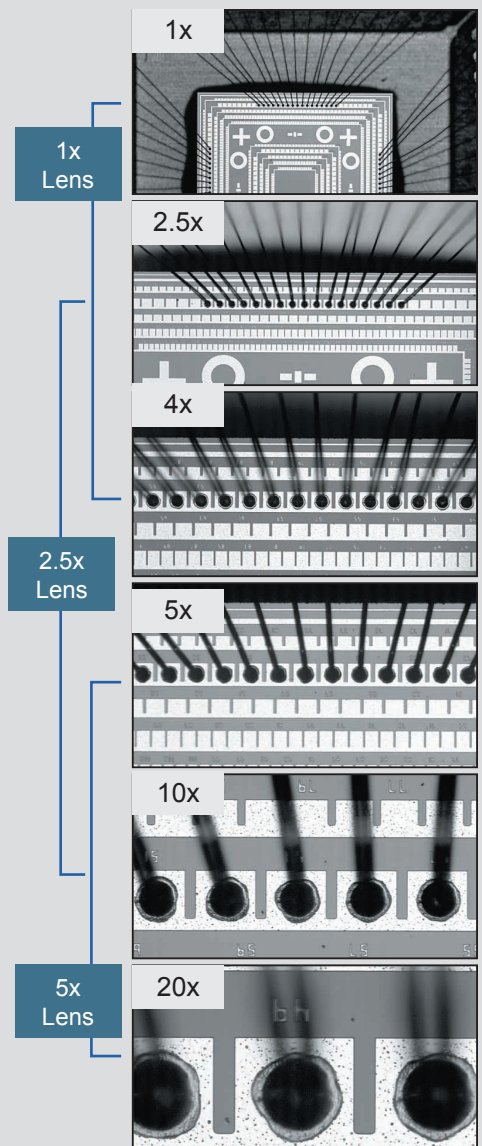
### Single Magnification Optics

The single magnification optics system offers an optical resolution that supports a 5.0 megapixel, digital camera with the standard objective lenses. This system is ideal for high-speed measurement of parts with many similar features, for which a single magnification is sufficient.



### Dual Magnification Optics

The dual magnification optical system consists of two distinct optical paths, each with its own camera. Magnification change is instantaneous, with no moving parts, no latency and no need to recalibrate. Dual magnification systems offer the convenience of a large field of view for locating features, and a high magnification for autofocus and small feature measurement.

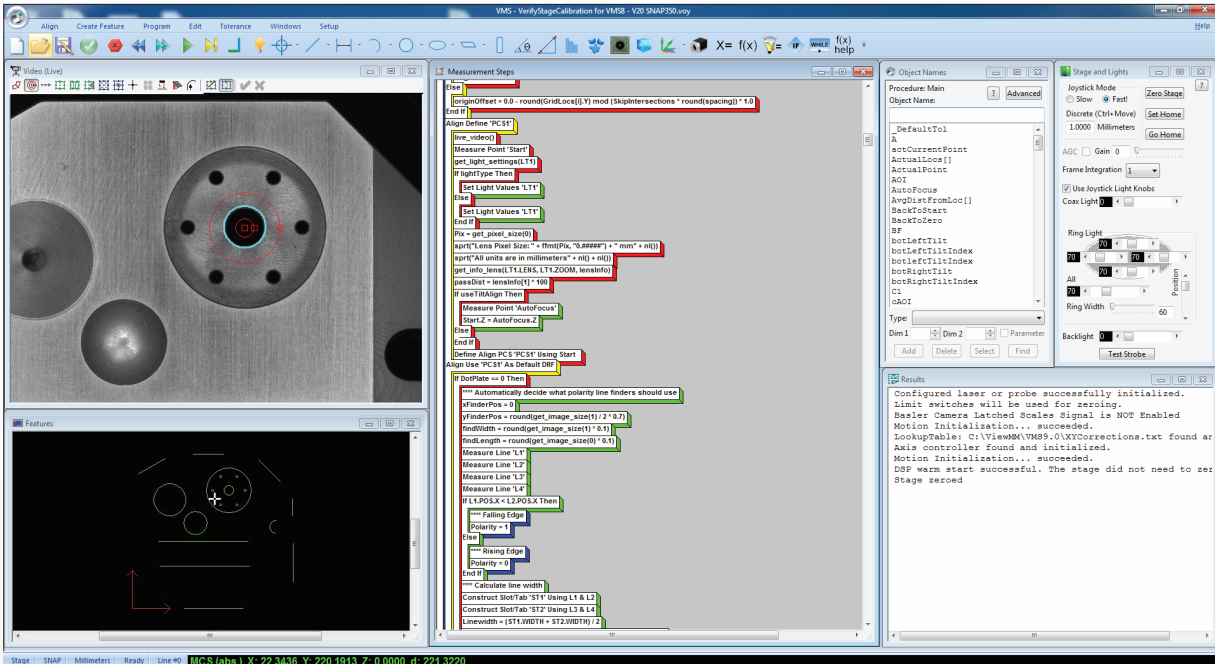


### Match Magnification to Feature Size

Interchangeable objective lenses allow optical resolution and field of view size to be optimized for the application. For dual magnification systems, the internal magnifications are 1X and 4X multiples of the objective lens magnification.

# Innovative Software Capabilities

VIEW offers a choice of metrology software platforms to suit a wide range of measurement and process control situations. Both software packages offer the same high-speed image acquisition and measurement capabilities.



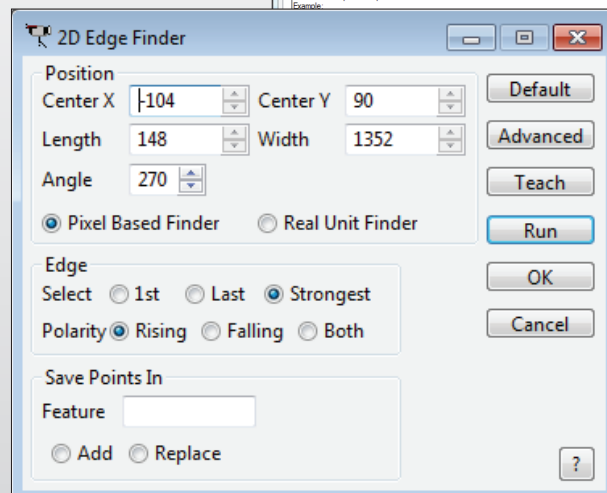
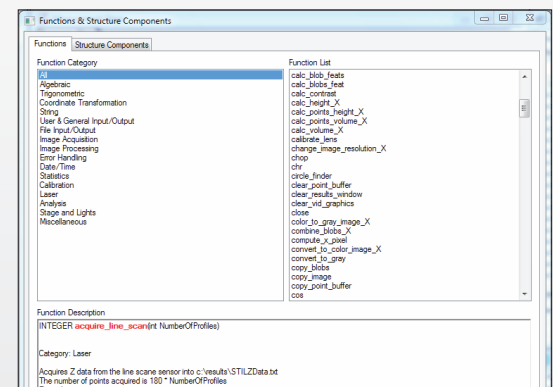
## The VMS™ Experience:

VMS software is a video metrology development environment designed for stand alone applications and integration into automated production settings. VMS allows windows and toolbars to be sized and arranged to suit the user's preferences, enabling the user to tailor the software layout to create turnkey custom applications without modifying the base software. VMS software is the choice for demanding metrology requirements for automated production settings.

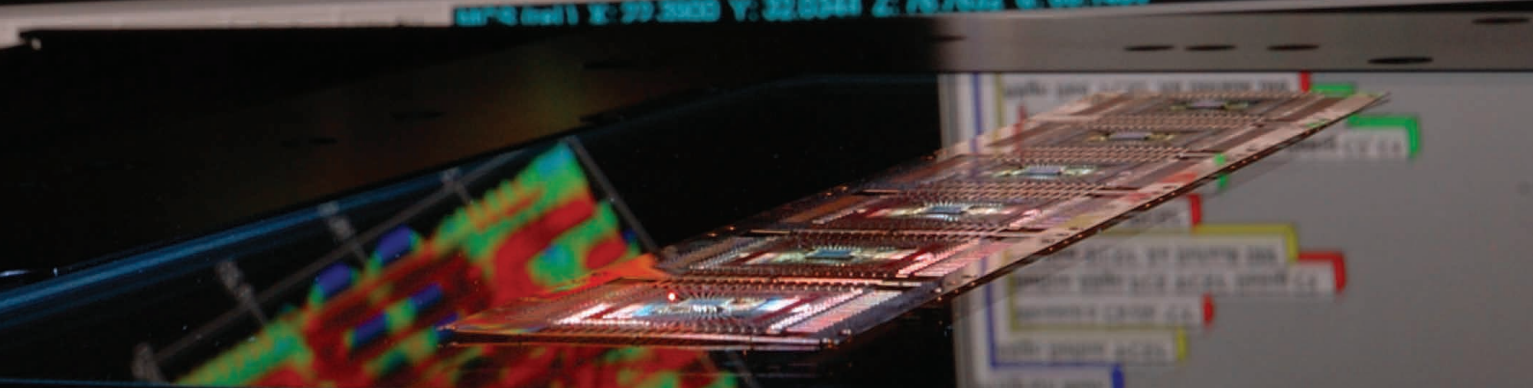
## VMS Functions:

VMS is designed to be easy to use without sacrificing capability. VMS provides full access to data structures and utilizes variables, expressions, loops, logic, file I/O, advanced image processing and custom alignments to solve the world's most demanding metrology applications.

In addition to its advanced programmable measurement capabilities, VMS offers robust exception handling, advanced feature constructions, customized output and control of process automation tooling via digital I/O.

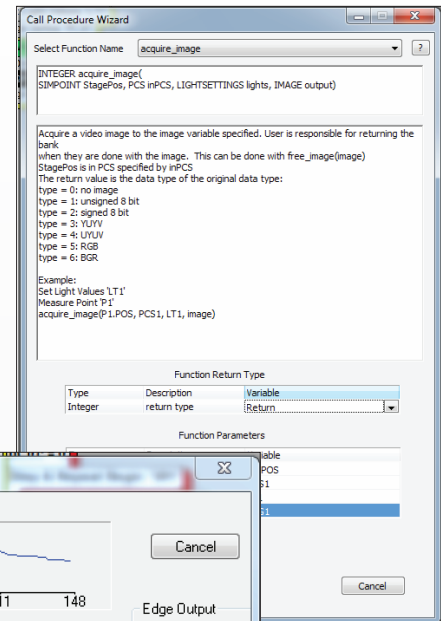






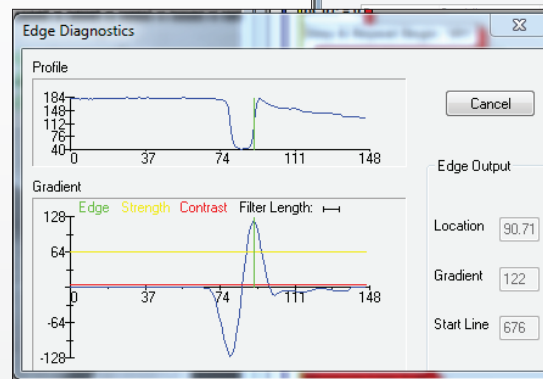
## Advanced Functions Made Easy:

Built-in wizards take the guesswork out of setting up high level sub-routines. For example, the Call Procedure wizard combines the Help text and drop down menus for each of the function's arguments. The Image Acquisition dialog allows the user to quickly acquire images, AMF data sets and create stitched or Extended Depth of Field (EDFI) images. The Edge Diagnostics window shows detailed information about edge finding, thresholds and profiles that are useful for optimizing edge performance in all situations.



## Advanced Edge Processing Tools:

Multi-function tools such as Blob and Centroid enable flaw detection and feature presence or absence checking, in addition to dimensional measurements and feature centering.



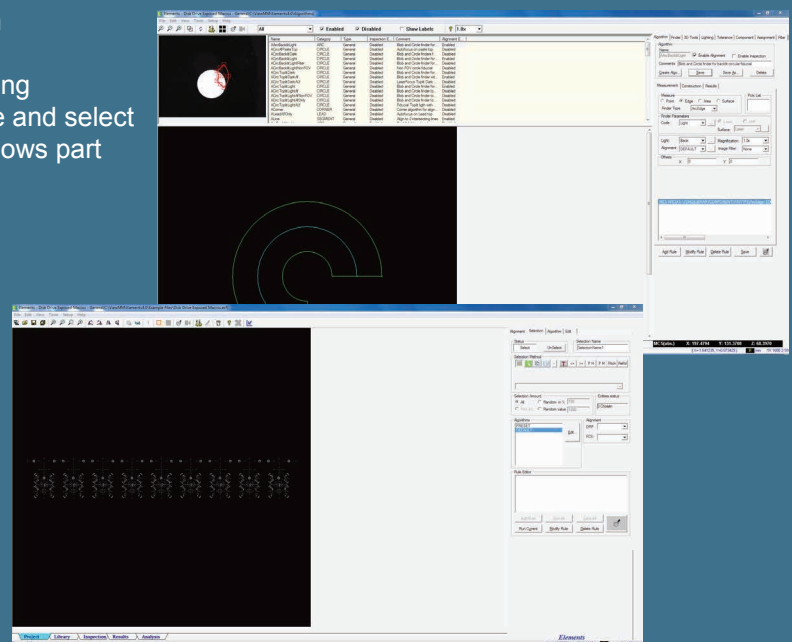
## Elements®:

VIEW Elements software is designed for precision measurements of electronic assemblies in a high mix manufacturing environment. No time consuming programming needed – simply import the CAD file and select the features to measure and inspect. Elements allows part changeovers to be set up in minutes, not hours.

Elements optimizes the entire inspection sequence and routing for the selected features, enabling thousands of features to be measured in minutes.

## CAD Import and Editing:

Elements can import and use a variety of 2D CAD file formats such as DXF or Gerber, or CSV list files as the basis for the measurement routine. Elements' powerful editing capabilities allow for the editing or removal of extraneous features in the CAD file. This tight integration of CAD into the measurement routine saves time and reduces errors in production settings.



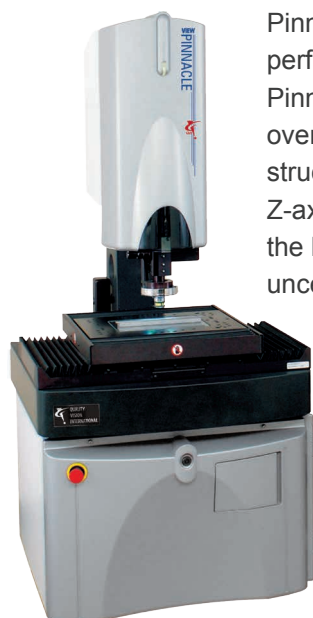


## High Performance Measuring Systems

VIEW's high performance measurement systems combine the key technologies needed for consistent accuracy and productivity in advanced manufacturing operations. VIEW Benchmark, Pinnacle, Summit, Precis and MicroLine systems offer high speed and high reliability for 24/7 operation on the shop floor or the metrology lab.

### VIEW Pinnacle™ 250 | Pinnacle Plus™

The VIEW Pinnacle 250 is an ultra high-performance measurement system delivering exceptional precision and productivity. Pinnacle is designed for applications requiring the highest levels of accuracy, throughput, functionality, and reliability.



Pinnacle Plus elevates Pinnacle performance to the next level. Pinnacle Plus features an oversized granite optical support structure and high performance Z-axis motion assembly to provide the lowest possible measurement uncertainty.

System	XYZ Travel (mm)
Pinnacle 250	250 x 150 x 100
Plus	250 x 150 x 50

### VIEW Summit® 600 | 800

VIEW Summit is designed for components requiring a large work envelope and high accuracy. Based on the same core technologies used in the VIEW Pinnacle, the VIEW Summit features a fixed bridge design.

Available in two ranges of travel, VIEW Summit is ideally suited for large parts with small features and tight tolerances. VIEW Summit provides high accuracy and very high speed.



System	XYZ Travel (mm)
Summit 600	450 x 600 x 150
800	760 x 800 x 150





### VIEW Benchmark™ 250 | 450 | 624 | XLT

VIEW Benchmark is engineered for high accuracy on the production floor. VIEW Benchmark 250 is designed for insertion in production lines and work cells where precision measurements are needed for immediate feedback in the manufacturing process. Its compact size and powerful software make VIEW Benchmark 250 a versatile measurement system.

VIEW Benchmark floor models deliver VIEW performance with generous measuring envelopes. Benchmark handles large form-factor parts with high precision in a rugged shop-floor configuration.



System	XYZ Travel (mm)
Benchmark 250	300 x 150 x 150
450	450 x 450 x 150
624	624 x 624 x 150
XLT	900 x 1500 x 150
	1250 x 1500 x 150
	1500 x 1500 x 150
	1250 x 2000 x 150
	1500 x 2000 x 150

### VIEW MicroLine® 300

VIEW MicroLine 300 is a high performance semi-automatic measuring microscope combining a manual X-Y stage with fully automated focus and image measurement. This critical dimensional measurement system is ideal for wafers, masks, MEMS, and other micro-fabricated devices.



System	XYZ Travel (mm)
MicroLine 300	200 x 200 x 25

### VIEW Precis® 200



VIEW Precis 200 systems are fully automated wafer metrology systems. Precis combines precision stages, proven microscope optics and world class metrology software with a range of automation options, including robotic wafer handling, custom vacuum fixtures and software interfaces.

System	XYZ Travel (mm)
Precis 200	200 x 200 x 5



## QUALITY VISION INTERNATIONAL – Precision for People®

Quality Vision International (QVI®) is the world's largest vision metrology company. Founded in 1945, QVI is the world leader in optical, electronic and software technologies for vision and multisensor measuring systems.

Precision for People is more than just our slogan. It's our commitment to delivering our worldwide customers precision metrology systems designed with the people who use them in mind. Precision for People - it's what we stand for.

# VIEW

MICRO-METROLOGY

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