

Exploring Comparator Technologies

Which System is Right for Your Measurement Needs?

The fundamentals of optical comparators have changed very little since they originated over 90 years ago - and for good reason. Their large viewing screens and robust platforms provide a reliable and cost-effective solution to many measurement needs in manufacturing and quality control.

What *has* changed are the many new optical technologies that have improved comparator performance. Innovations like LED illumination, solid state edge detection and digital video cameras have transformed traditional comparators into automated, high-tech measuring systems. VidiProbe™ and the c-vision™ Video Contour Projector® from QVI are two unique systems that blend traditional comparator designs with advanced technology.

Choosing a System

With so many choices of measuring technology available today, it can be difficult to determine which type of system will offer the most benefit to your operation. Both VidiProbe and c-vision are automatic shop floor measuring tools that can improve the speed and accuracy of your measurements. Which one you choose depends on what you need to measure.

Traditional comparators work essentially like a large microscope – presenting an accurately magnified image of a part on its screen. Simple comparators are perfect for inspection, measurement using a master chart gage, or measurement using one of the modern DRO controllers. These techniques handle a wide variety of size and location measurements on machined parts of all sizes.

VidiProbe is an option available exclusively on QVI comparators that adds a digital video camera inside the comparator's optical system, allowing you to “see” a portion of the screen image on the video monitor and perform measurements automatically. VidiProbe offers several advantages. First, it's completely automatic and measures accurately with no reliance on operator skill or judgment. VidiProbe's digital zoom allows measurement of small features that would be too small to measure without changing magnification lenses.



CC-20 Comparator with VidiProbe

Easy to use Measure-X® 2D software is designed for use with comparators and makes it easy to set up measurement routines. Best of all, a Certified Comparator Products (CCP) comparator with VidiProbe is a *hybrid* system which can be used either as a shop-hardened, traditional comparator, or as an automatic vision system – essentially giving you two systems in one.



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c-vision Video Contour Projectors belong to the new breed of large-field-of-view vision measurement systems. c-vision uses the latest telecentric optical system design to image and measure a large area of the part – up to 4 inches – all at once. Megapixel, digital cameras with digital zoom enable highly accurate measurement of features without the need for high optical magnification. c-vision systems excel at measuring parts – weighing up to 250 pounds – with complete automation and a convenient touchscreen control panel. Highly functional Measure-X 2D software combined with the proven design of a profile projector for shop-floor toughness, offers a unique combination for CNC measurement in the machine shop.



c-vision Benchtop

The difference between c-vision and traditional video measurement systems is its large field of view and long depth of focus, which allow it to measure large features in a single snapshot without refocusing on features that are at different heights. With its optional large field metrology camera, c-vision floor model systems can provide a 25% larger field of view than a traditional 30-inch comparator while maintaining a footprint smaller than a typical 20-inch comparator.



c-vision Floor Model

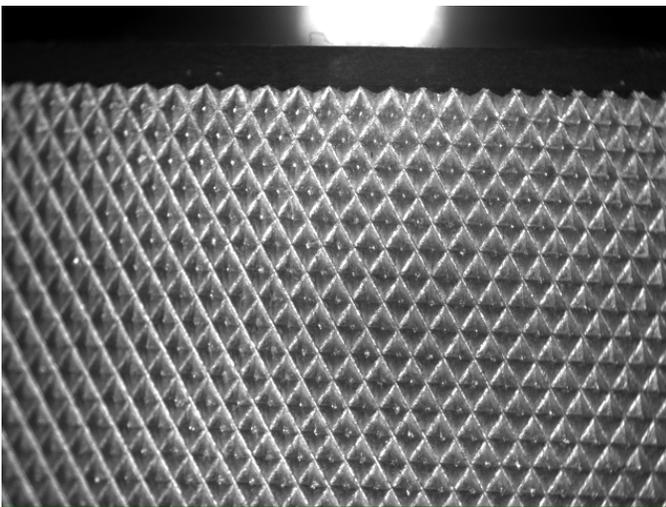
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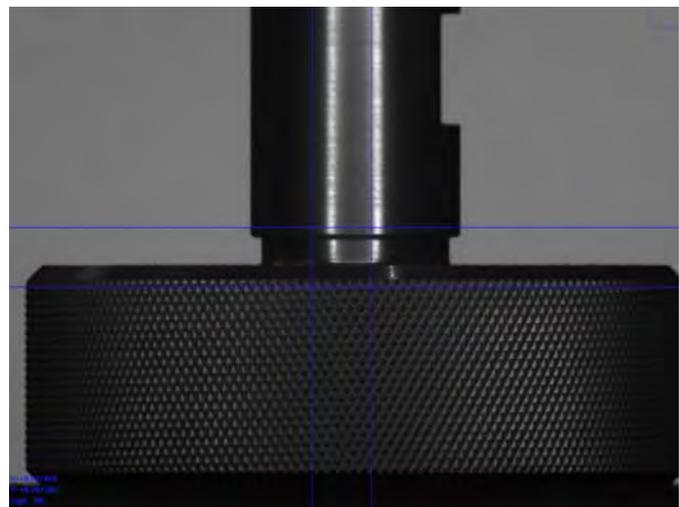
Where c-vision excels at measuring larger features without refocusing, VidiProbe excels at measuring features that require high magnification in order to achieve accurate measurements.



Part Shown Approximately to Scale



VidiProbe System at Low Magnification



c-vision System at Low Magnification

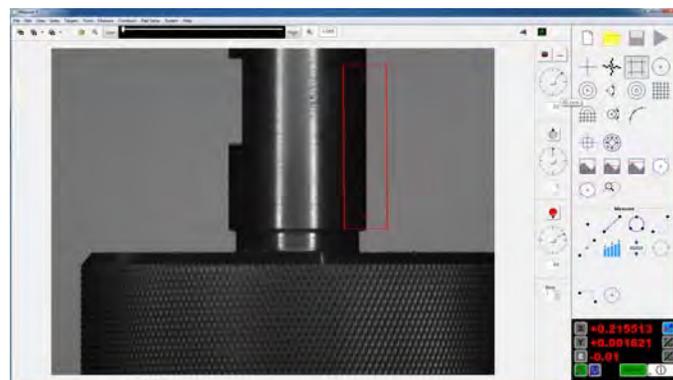


Both VidiProbe and c-vision also offer:



Helix motion – allows off-axis measurement of threads, gears, and gear cutting tool hobs by rotating the part so that the features are presented correctly to the optics and measured normal to the part axis.

Programmable rotary indexer – allows simple staging and measurement of shafts and cylinders.



Swing-away or removable lamp house – allows easy loading/unloading and staging of heavy, oversized parts.

Measure-X 2D Software – provides tools such as FeatureFinder and CAD overlay to make measurements faster, easier, and more accurate.



For more information on VidiProbe and c-vision systems from CCP, visit www.qvii.com/ccp or contact your local representative.

QVI – The Right Choice for Dimensional Measuring Systems

Quality Vision International (QVI®) is the world's largest vision metrology company. QVI brands include Optical Gaging Products (OGP®), RAM Optical Instrumentation (RAM), Certified Comparator Products (CCP), VIEW Micro-Metrology, ShapeGrabber, Kotem and Itaca. Each brand is a leader in its respective markets, ensuring that QVI has the solution to your measurement and inspection needs.

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.

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