

QUALITY SCAN



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Measurement Reality

By now everyone knows that quality continues to improve and tolerances get tighter and tighter. Measurement equipment manufacturers extol the virtues of their products as though they are a quality panacea. "You cannot make quality products unless you measure them with our super-duper measuring marvel." But what is the reality in manufacturing today?

Until recently, measurement was the realm of the quality control department. Skilled engineers, trained in the nuances of operating complex measurement equipment, worked in metrology labs that were off-limits to others. The labs had one or two of each measurement machine—expensive, full-featured models that could address any part that might come their way. You brought the parts to be measured to the QC lab and waited hours or days for the results. In the meantime, you continued to produce parts.

You face different demands today. Increased emphasis on quality and constant pressure to reduce costs means that companies are measuring more, to tighter tolerances, with less-skilled equipment operators, closer to the manufacturing process. The person who makes the parts measures them.

Gradually at first, but at a faster rate in recent years, our technology—video measurement machines—has met these changing needs. When the first systems

came out in the 1980s, the new technology required expertise that came with extensive training and experience. This relegated these systems to the QC lab, where experts would measure parts brought to them.

Production requirements for measurement data led to today's broad application and acceptance of video measurement. Forward-thinking measuring-machine companies developed general-purpose machines that were easy to use. Rather than rely on the expertise of the operator to deal with all the variables, today's machines do much of that work automatically.

Efficiency of the entire production process improves when automatic video measurement is used. There are no dedicated measurement machine operators. The people producing the parts simply have an additional value-adding responsibility of loading and unloading the auto-

matic video measuring machine.

Of course no company can randomly choose a video measurement machine, take it out of the box, and start using it. There are several things to consider when selecting an automatic video measurement system.

- Can the machine physically accommodate the part on a fixture? There are bench-top machines with short travel, and large-format machines for large parts or fixtures of multiple parts. Will you measure one part at a time? Consider the available floor space where the machine will be used in this determination.

- What accuracy is required? Performance specifications are important, but are only part of the consideration. Take into account the accuracy necessary to meet today's requirements, while anticipating those of future products that may have tighter tolerances.

- How easy is the machine to use? A low-cost machine that's too complicated to use is a wasted investment. Remember to consider ease of use at two important levels: First, how easy is the system to program? Someone will need to write measurement routines for others to implement. Look for software with smart tools like edge detection that identifies and ignores burrs, and edge-trace tools that automatically trace the perimeter of the part beyond the field of view. Also, how easy is the system to operate? Can all the people who make the parts do the measurements? Remember to consider operators on all shifts, as well as all manufacturing operations around the world.

- Can all the measurements be done with video? Video measurement is great for measuring features that can be imaged. Touch probes access features that are difficult to image. Lasers provide accurate focus and surface profiles. Well-designed metrology software integrates data from all the sensors to give you a thorough dimensional analysis of your most complex parts.

Measurement technology continues to advance. Today it's easier to make more measurements, more accurately.

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