



Quality

M A G A Z I N E

BuyersGuide
eBook

Welcome to the *Quality Buyers* Guide eBook



By Buck Bicek, Publisher

Revamped and refreshed to reflect today's digital reality.

As the go-to source of information for the quality industry, we at *Quality* continually strive to make it easy for you to find the inspection, measurement, and testing equipment suppliers and services that can help your business.

We created this new eBook version of the *Quality Buyers Guide* to mesh with today's digital on-the-go reality. But while the format may have changed to keep up with the times, the reliable, up-to-date information it provides is the most relevant in the quality industry. This comprehensive resource is here to serve you 24/7.

Thank you for the hard work that you do. It's our hope that the following information we've compiled for you makes your jobs that much easier.

INSPECTION EQUIPMENT



MANAGEMENT SERVICES



MEASUREMENT EQUIPMENT



TESTING EQUIPMENT



TESTING, INSPECTION, & MEASUREMENT SERVICES



SOFTWARE



VISION & SENSORS

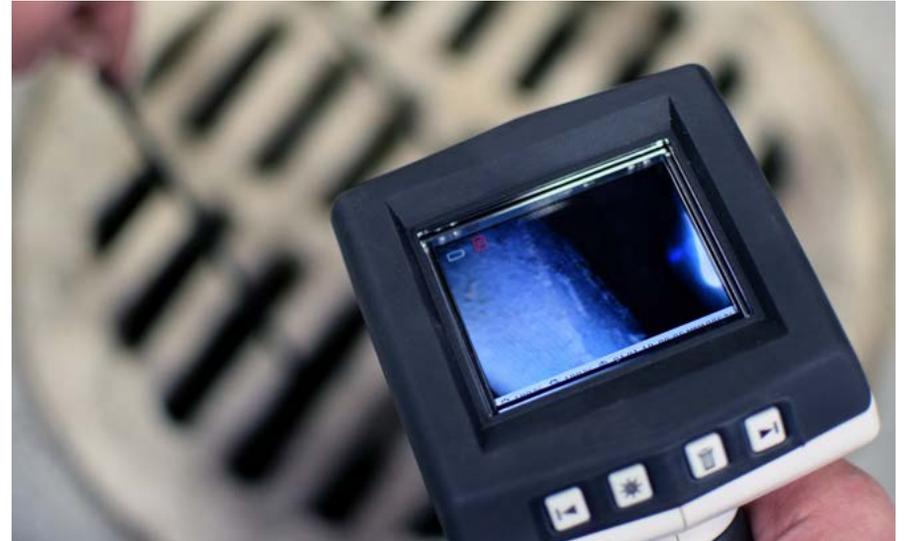


NDT



Quality-related inspection is an essential part of manufacturing. Time and time again, those manufacturers and companies that ignore, or even skirt, the inspection process find themselves at risk of product failure or non-compliance with manufacturing standards, leading to product recalls and irreparable damage to their company's brand and ability to be competitive—or worse.

As the manufacturing process has become increasingly faster and more complex, it has become impossible to rely solely on humans to ensure this essential part of manufacturing. Enter inspection equipment. At its heart, the characteristics of what is produced during the manufacturing process is compared with its original design specifications—or against manufacturing standards—to determine whether the requirements have been met, and today's inspection equipment can do so in astonishingly little time, at incredibly more finite tolerances, and with seemingly little human interaction. Examples of inspection equipment range from common gages, calipers, and micrometers to complex visual inspection systems that can include digital microscopes and laser trackers, just to name a few.





Founded in 1993, Cincinnati Automation is an inspection focused automation company with a history founded on machine vision. Since then, Cincinnati Automation has become a global leader in turnkey inspection, gaging, and robotic automation systems. From benchtop, hand-loaded systems, to pass through inspection machines, to fully automated, robotically loaded, stand-alone systems, Cincinnati Automation has a solution for almost any inspection challenge. By utilizing off the shelf machine vision cameras, laser measuring devices, and 3D profilers Cincinnati Automation has the capability and experience to deploy those devices in custom automation solutions to solve a customer's problem.

For nearly 30 years, Cincinnati Automation's customers have helped take the company in new directions to build a foundation across many industries. Today, Cincinnati Automation services companies in the automotive, medical device, consumer products, and material processing industries among others.

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To view all suppliers and manufacturers of inspection equipment, please click here.



It is no surprise that organizations, particularly manufacturers, can be more effective and efficient with the proper alignment of their management methods. It is no different for an entity's quality operations. Many will be familiar with Six Sigma and Lean Manufacturing as techniques or philosophies that can be part of a Quality Management System, or QMS, and, though focused more on the business processes, Business Process Management (BPM).



A big benefit of management services, for example, could be the alignment of QMS and BPM to a horizontal approach, moving away from a focus on function to an approach that involves staff, customers, suppliers, and clients alike.

And that is just one scenario of how potentially availing yourself of management services could help streamline your manufacturing or business operation.



Stand out with ASNT’s Employer Based Certification Accreditation

ASNT’s Employer Based Certification (EBC) Audit Program provides the NDT industry with a registry program that ensures NDT Service Providers and Inspection Agencies meet the minimum compliance with either SNT-TC-1A or CP-189 through the employer’s Written Practice.

Organizations can secure NDT personnel certification compliance and ensure proper oversight of your employer-based NDT certifications programs with ASNT’s EBC Audit Program.

The benefits of EBC include:

- An effective employer-based certification program can be a critical enabler of growth.
- Receive recognition from ASNT—the industry-recognized, trusted source who developed SNT-TC-1A and CP-189.
- Tackle the challenges faced individually by companies through industry-wide standardization and practices.
- Save time and resources and reap potential cost reductions through fewer site visits to review NDT personnel certification.

According to Lott Inspection who was accredited earlier this year, “The decision to participate in the ASNT Certification Services EBC Audit Program was an easy one for us. Since our founding in 1986, Lott Inspection recognized the importance of ensuring that our in-house training and certification programs met the requirements of ASNT SNT-TC-1A and CP-189. Our clients trust us because they know we diligently follow the recommendations of SNT-TC-1A,” said Kim-Tsew Tee, ASNT NDT Level III, Technical Manager.

EBC Audit Program Process Flow



* The accreditation audit is conducted remotely using real time technology. If the applicant chooses to have an on-site audit, then ASNT will charge extra fees to account for the travelling and accommodation necessary. For further details relating to on-site audit, please contact ASNT ISC.

Registry can be found at:

https://asntcertification.org/Accreditation/EBC_Program/Registry.aspx

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When working in inches or even millimeters, it is easy enough to grab a ruler or tape measure for your measuring needs. But in today's manufacturing environment, parts are created with tolerances less than plus-or-minus .001 inch. With those types of measurements, you need sophisticated measurement equipment.

Quite simply, measurement equipment helps manufacturers build products quicker, of the correct size and shape and in accordance with specific, required tolerances, not only benefitting the manufacturer with rework and scrap and an improved bottom line, but also ultimately benefitting potential customers with higher-quality goods at a less expensive price.

Depending on the quality, quantity, and type of product being made, as well as the capabilities of the manufacturer, there is a host of measurement equipment available beyond the ruler or tape measure, from simple gages, calipers, and micrometers to coordinate measurement machines, laser scanners, and multisensory measurement machines, and more.





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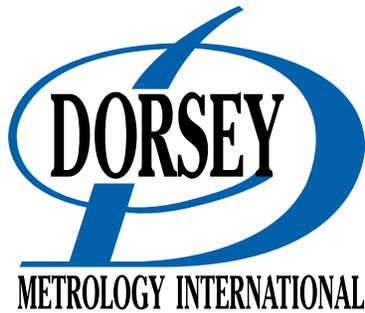
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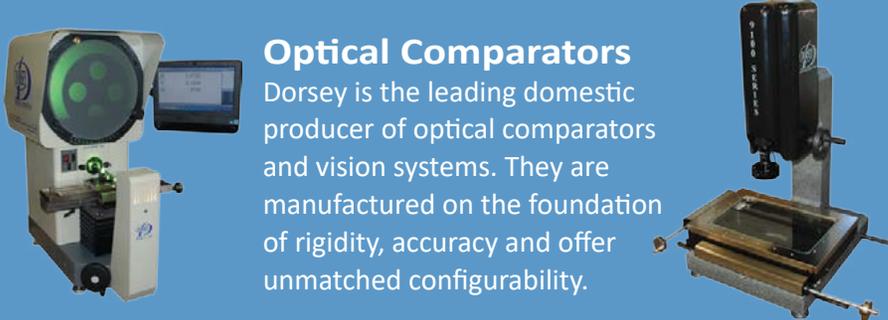
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Mahr Inc., a subsidiary of the Mahr Group, has over 160 years of experience providing dimensional measurement solutions to fit customer application needs.

We manufacture and market a wide variety of dimensional metrology equipment, from simple and easy-to-use handheld gages to technically advanced measurement systems for form, contour, surface finish, length and optics. We also produce custom-designed gages and offer calibration and contract measurement services.

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A central graphic featuring the Mahr logo in a red oval, surrounded by a circular arrangement of ten smaller circular images. These images depict various Mahr measurement equipment, including coordinate measuring machines, gages, and optical systems, as well as two people smiling, representing customer service or technical support.

As your global quality assurance partner, we offer products and solutions that combine proven precision with high efficiency. Short measuring times and simple controls speed up work processes. Through a clever combination of different measuring procedures, multiple tasks can be carried out by a single system – and in one setup. At the same time, innovative software tools and a wide choice of interfaces ensure that Mahr metrology is in tune with modern manufacturing requirements. Ensuring the productivity of your quality assurance is our goal.

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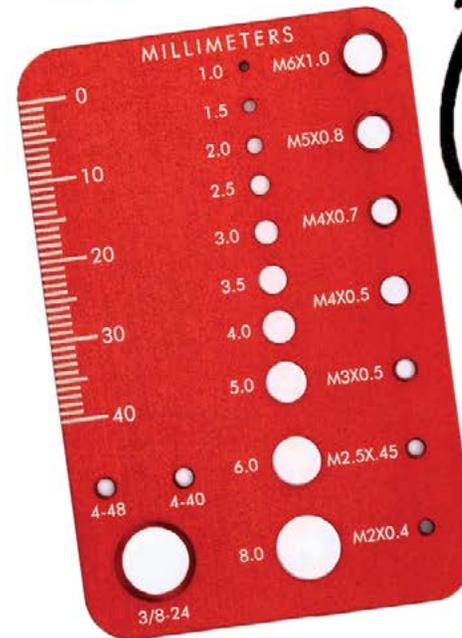
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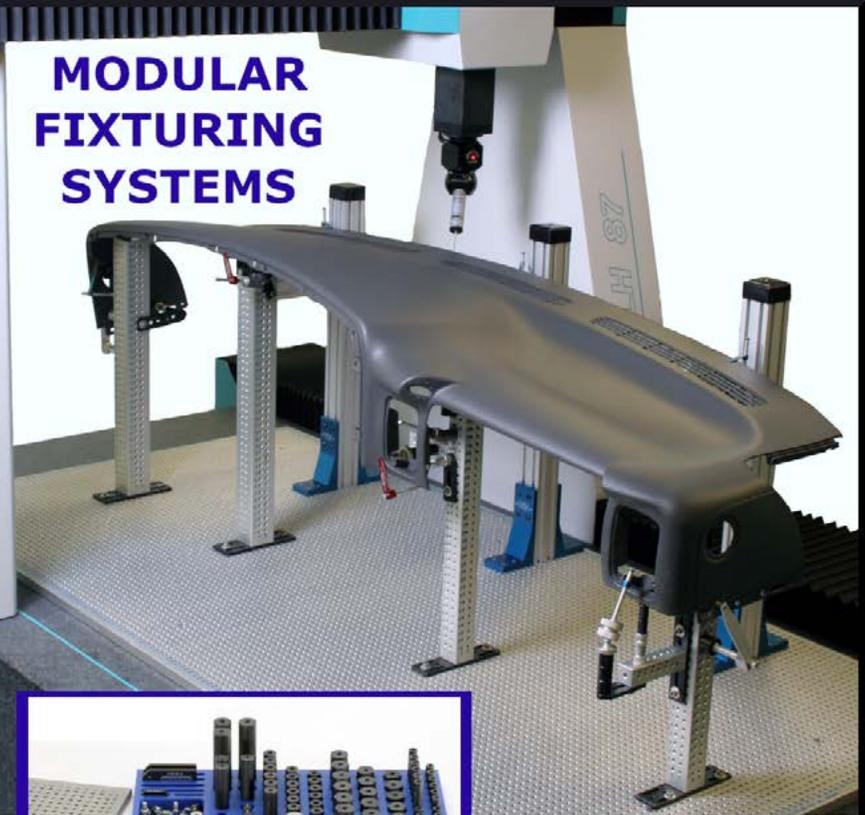
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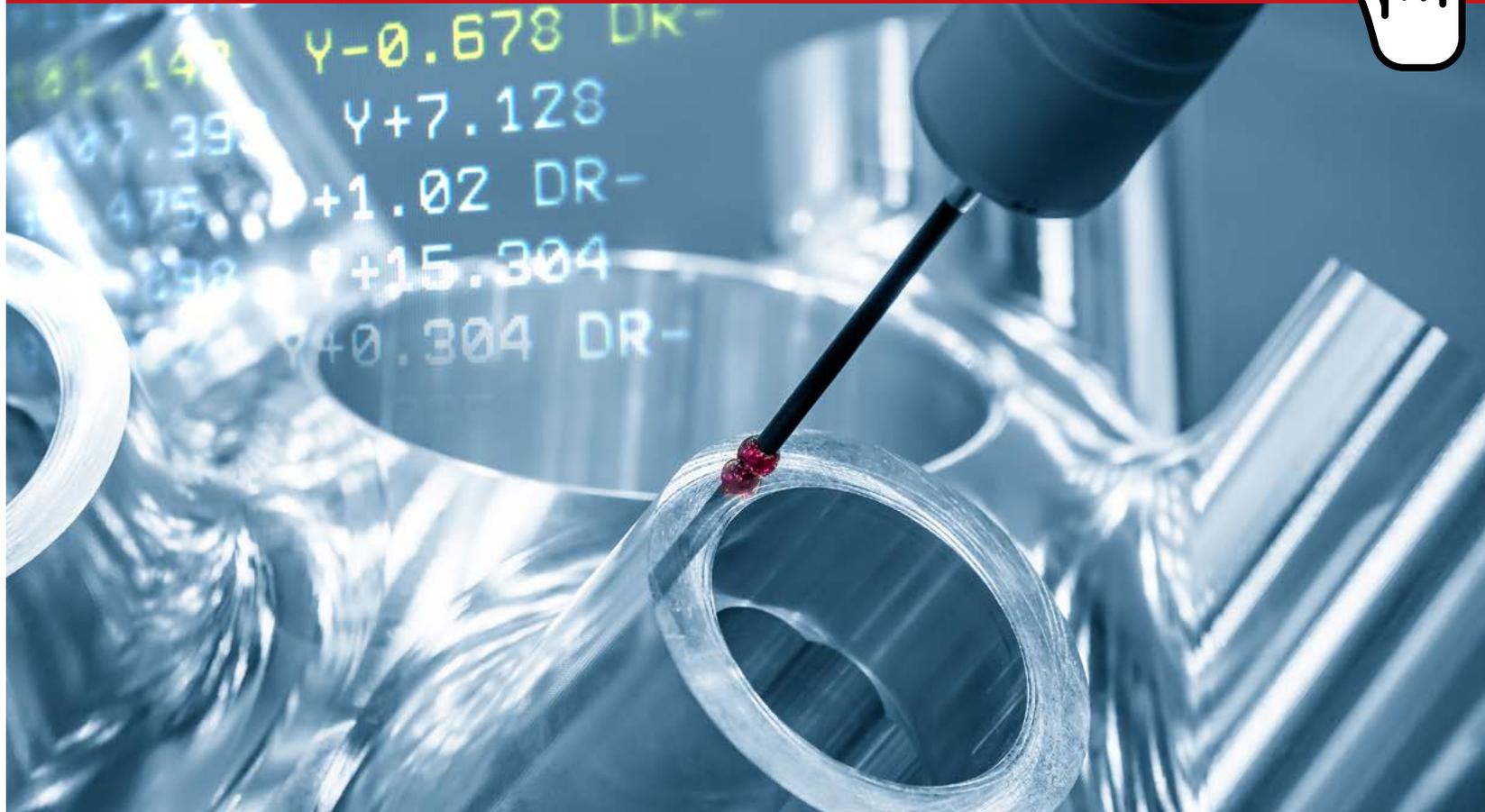


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From the materials used to its components to the finished product, testing is another cornerstone of the manufacturing process. Ensuring that every aspect of a product meets or exceeds the requirements for said product is the job of testing equipment.

Every industry from electronics to aerospace to medical equipment performs rigorous testing. Why? Because their manufactured products, quite simply, have to work and exceed the effects of the environment and its elements to keep the customers who use them safe. Industries that are producing goods for less-intense environments can benefit from testing equipment as well, and those manufacturers can see benefits in the increased quality of their products, improved customer loyalty from products that live up to or exceed customer expectations, and an improved bottom line achieved with less risk of rework, scrap and product recalls.

Just a few of this invaluable testing equipment include force testers, hardness testers, and materials testers.





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A close-up photograph of a silver, handheld hardness tester. The device has a cylindrical body with a handle and a testing tip. Engraved on the side of the body is the text: "WEBSTER INSTRUMENT, INC.", "LOS ANGELES, CALIF.", "SERIAL", and "MODEL". The background is a dark blue gradient.

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Like calibration and management services, there are companies that offer services for testing, inspection, and measurement. For smaller manufacturing operations or large operations with low volume needs, these services can be invaluable, providing the same access to equipment from simple gages, calipers, and hand-held devices to tabletop and high-tech scanners, trackers, testers, and coordinate measurement machines operated by experienced technicians using the latest techniques and processes.



With testing, inspection, and measurement services, manufacturers with no extensive, in-house quality operations can benefit from the same improved customer loyalty and healthy bottom line achieved with increased customer expectations and less risk of rework, scrap and product recalls.

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A background image showing a CMM probe with a red tip inspecting a metallic part. The scene is lit with a blueish tint.

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Software is said to be ubiquitous. Like coffee being available on just about every street corner, software is “in” just about everything we do. Business and manufacturing is no different, particularly for quality. It is the software that helps control all of the hardware and activity, from the shop floor to the boardroom. CAM/CAD and reverse engineering software aid designers and engineers in understanding existing—as well as creating new—technologies and machines. Enterprise resource planning (ERP) and quality management software help us manage and execute a company-wide strategy and its quality operation. Inspection and statistical process control software helps us collect data to improve and manage the actual inspection and metrology happening on the manufacturing floor. And these are just a few of the software options available to a manufacturing operation today....and in the future (AI, machine learning, robotics...).





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Machine vision has been around for quite some time, yet improvements in technology put it on the forefront of some of the most interesting technology talked about today, both in and outside of manufacturing. The forming of a machine vision system requires a few technologies simply working together to provide a high-tech, low-effort, highly accurate inspection process. With proper lighting, staging, and lenses, a combination of sensors and/or cameras capture images of

a product at various stages (often in-process) of production, processing hardware (a simple computer or advanced vision appliance) and software algorithms render (and often analyze) the image and communicate the results.

In addition, the machine vision market is on the front lines of the utilization of automation, robots, machine learning, and artificial intelligence, which could provide machine vision applications for quality inspection including positioning, identification, verification, measurement, and flaw detection. And unlike human inspectors, a machine vision system could work “nonstop” providing 100% online inspection, resulting in improved product quality, higher yields, and lower production costs.

A higher, more consistent product experience will help drive customer loyalty, and the bottom line.



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Nondestructive testing, or NDT, encompasses a wide array of technologies and techniques used in manufacturing to inspect, test, and evaluate the properties of a material, components and entire products without causing damage. Due to the non-invasive nature, as well as the savings of time and money, NDT is a highly sought approach to quality control.

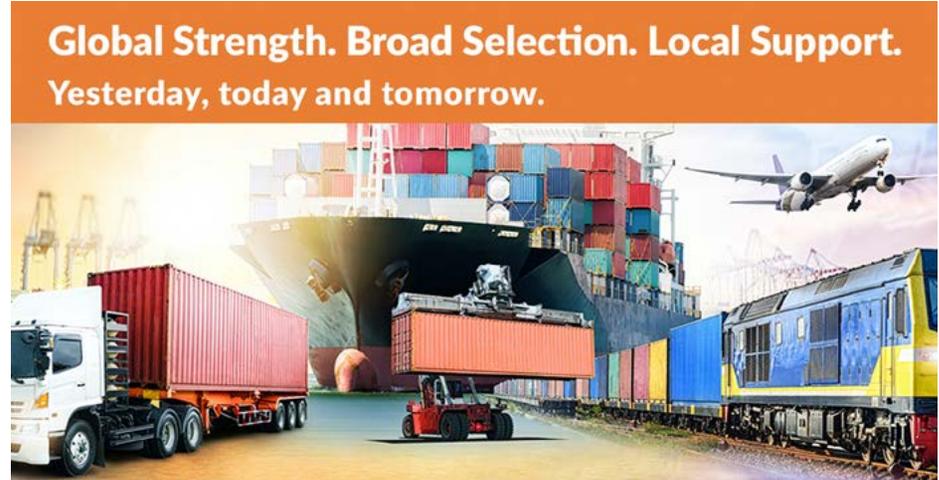
Take, for instance, weld inspection. Welds are commonly used to join two or more metal parts and these welds often encounter stress and fatigue over time. If these welds are not properly created and formed or have defects such as a poor bond or cracks on the inside of the weld not visible to the naked eye, they could fail. For reasons like this, NDT is used in some of the most safety-concerned industries, including transportation, aerospace, medical device, and medical imaging. Some common NDT methods and technologies include eddy-current, magnetic-particle inspection, liquid penetrant, radiography, and ultrasonic, just to name a few.

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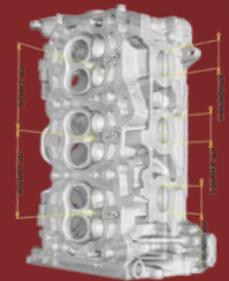
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