VisionGauge®

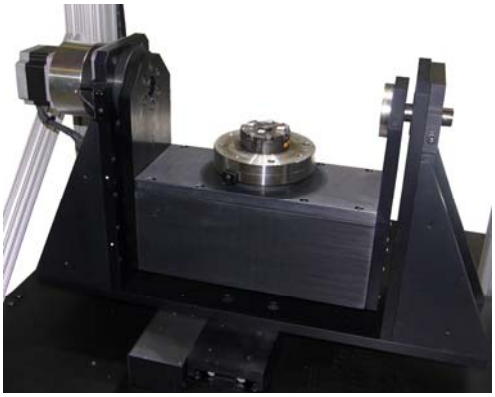
Digital Optical Comparator / Digital Profile Projector
(PATENTED & OTHER PATENTS PENDING)

The Fastest, Easiest, Most Accurate Way to Compare a Part to a CAD File™

VisionGauge® Digital Optical Comparator 700 Series
5-Axis Inspection and Measurement Systems

- **5 axes of motion (X, Y, Z, Rotary, Tilt) to properly view parts from all sides & angles**
- **Fully-automated operation.**
- **No operator-to-operator variation**
- **Easy to program (can use your CAD data directly)**
- **Fast, accurate & easy-to-use**
- **Extensive set of measurement tools**
- **Straightforward operator interface: barcode-reader and joystick**
- **Intuitive software**
- **Able to carry out full 6-point iterative alignment**
- **Patented & patent pending technology**
- **Powerful & innovative software tools for robust feature detection**
- **Sharp, clear & ultra-high resolution image!**
- **Ultra-bright all-LED computer-controlled multi-angle and multi-quadrant illumination is standard!**
- **High-resolution precision optics to make out very fine details with great clarity**
- **Extended optical depth of field and extended working distance for maximum flexibility!**
- **Automatically create reports and collect measurements, statistics, images and other data for complete documentation**
- **Automatic image & data collection with built-in SPC and data-exchange capabilities**
- **Fast and intuitive "operator review" mode to quickly revisit out-of-tolerance areas**
- **Robust shop-floor design**

The 700 Series VisionGauge® Digital Optical Comparator 5-axis inspection and measurement system is the ideal solution for the automatic inspection of parts with complex geometries.



The system comes with an industry-standard chuck mounted on the system's double-rotary stage assembly, setup in trunnion configuration.

Other mounting systems are also supported.

VisionGauge® Digital Optical Comparator 700 Series - Principal Specifications

Number of motorized axes	5 (X, Y, Z, Tilt & Rotary)	
Standard travels (note: extended travels also available)	Model # **VG700DOC-30V-20X**	Model # **VG700DOC-30V-XT1-20X**
	X axis travel = 12" (300 mm) Y axis travel = 12" (300 mm) Z axis travel = 12" (300 mm)	X axis travel = 24" (300 mm) Y axis travel = 24" (300 mm) Z axis travel = 24" (300 mm)
	A (tilt) axis range from - 100 deg to +100 deg. B (rotary) axis range from 0 deg to +360 deg.	
All axes have closed-loop encoder feedback	X axis encoder resolution = 0.25µm Y axis encoder resolution = 0.25µm Z axis encoder resolution = 0.25µm A axis encoder resolution = 0.005 deg B axis encoder resolution = 0.005 deg	
Stage movement	X, Y and Z axes: high-accuracy preloaded crossed-roller movement precision worm gear with high-accuracy preloaded crossed-roller movement with	
End-of-travel limits	Optical (for high repeatability)	
Mounting system	System 3R Macro Chuck (p/n 3R-600.24-S) (Other mounting systems available upon request)	
High-resolution optical system	20X equivalent optical magnification (approx.)	
	Working distance = 9.0" (228 mm)	Working distance = 15.7" (400 mm)
	Depth-of-field = 1.8" (45 mm) Field of view = 2.0" (51mm) x 1.2" (32 mm) = 2.4" (60 mm) diag. Optical system accuracy: better than +/- 0.00015" (4 µm)	
General-purpose dual-source reflected (i.e. front) LED illumination	• Ultra-bright, all-LED based (for stable and repeatable illumination conditions & results as well as long life) • Fully computer-controlled & programmable • Produces very high brightness to easily handle even difficult-to-image areas • The system's dual-source illumination module provides lighting at different angles of incidence (i.e. both near-vertical and low-oblique) for wide applicability across a very broad range of part geometries.	
VisionGauge® Software	• Powerful and easy-to-use • Intuitive, windows-based graphical user interface (i.e. “point & click”) • Full 5-axis transforms • Advanced software corrections with full 3D mapping across the system's entire work envelope • Includes a wide range of powerful inspection and measurement tools • Robust & field-proven, with a broad installed base (over 3500 license in use worldwide)	
5-axis corrections	Chuck offset, fixture height and fixture center-of-rotation (X,Y) offset	
Software feature-detection tools	Extremely powerful "adaptive" software feature-detection tools are able to accurately find and locate features of interest (such as EDM- and LASER-drilled holes) on different surfaces, with different reflectivity, at different viewing angles, etc...	
Digital Read-Out (i.e. DRO)	Yes (on-screen)	
Auto-focus	Yes (with programmable region-of-interest)	
Camera	High-resolution, digital (9 Megapixel)	
Live video “refresh”	Real-time	
Real-time mathematical image processing, enhancement and correction	Yes	
Multi-monitor display	Yes	
Extended set of high-accuracy measurement tools	Yes	
Sub-pixel accurate edge detection	Yes	
Image annotation tools	Yes	
Built-in SPC capabilities, with automatic numerical charts & PASS / FAIL graphs	Yes	
Automatic data export to Excel™	Yes	
Automatic data export to other applications	Yes (through Windows™ DDE and other mechanisms)	
Built-in Dynamic Data Exchange (DDE) support	Yes	
Easy file data import & export	Yes	
Automatic operation & program launch using the system’s barcode reader	Yes	
Barcode reader	Honeywell, industrial grade	
Supervisor-level / operator-level password protection	Yes	
Operating System	Windows™ 10	
Built-in “F1 Help”	Yes	
Power requirements	Either 110V or 220V, 15 Amp (single cord)	
Operating temperature	10 °C - 40 °C	
Clear and easy-to-use documentation (both printed and electronic “pdf” format)	Yes	
Support (by phone, fax & email)	Included for a full year	
Free software updates	Included for a full year	
Warranty	1 year (complete)	

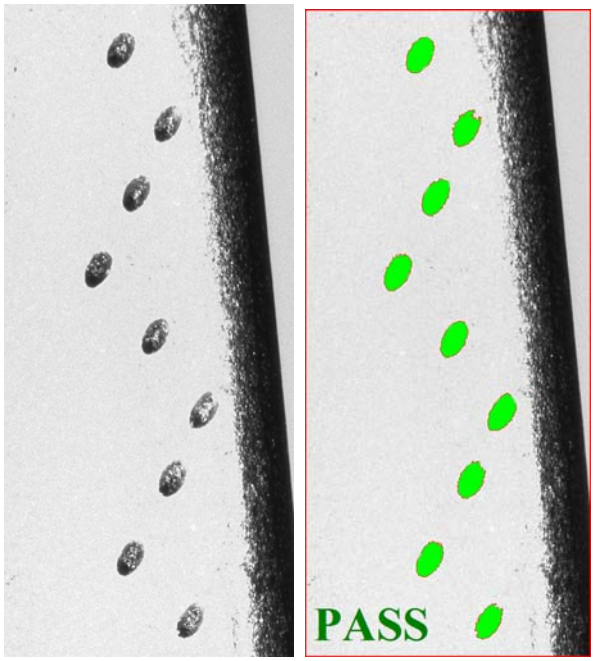
Note: specifications subject to change without notice.

The 700 Series VisionGauge® Digital Optical Comparator is the Perfect Solution for Checking EDM-and LASER-Drilled Holes and Slots

There are many reasons why the VisionGauge® Digital Optical Comparator is widely used by manufacturers across a broad range of industries (including aerospace and power generation) to check EDM- and LASER-drilled drilled holes and slots:

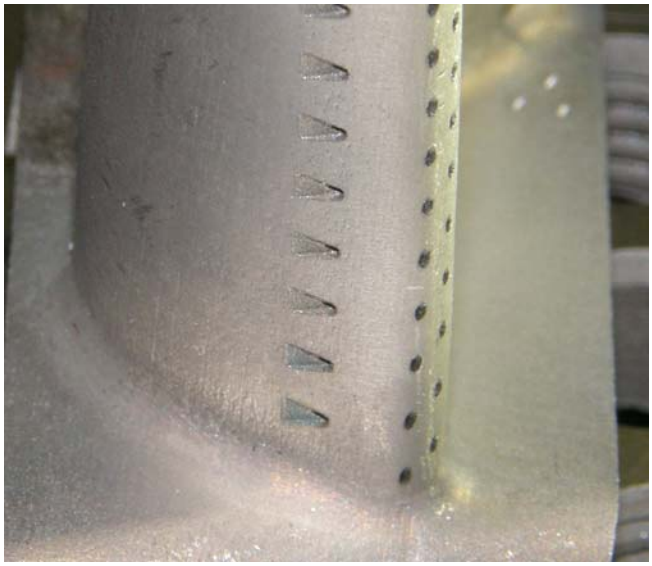
- Automatically verify hole presence & accurately measure hole location
- Supports both round and shaped holes
- 5 axes of motion (X, Y, Z, Rotary, Tilt) to properly view parts from all sides & angles
- Quickly, easily and accurately inspect 100% of the holes on your parts
- Robust shop floor design
- Can output the hole offsets which can be used to modify EDM drilling programs
- Mounting system allows your parts to go directly from the EDM drilling machine to the inspection system without re-fixturing (quick & easy and also minimizes stack-up error, etc...)
- The system can be supplied with the same working envelope as your EDM drill. If you can drill it, we can check it!
- Holes can be checked either one at a time, looking straight down each hole's nominal axis (ideal for coated parts, to minimize errors due to coating thickness variations) or multiple holes can be checked at once, viewing them at an angle (which is even faster and well suited for uncoated parts or parts with a uniform coating thickness)
- The system has an extended depth of field, so that everything is perfectly in focus regardless of the part's geometry (even in areas of very high curvature) as well as a very long working distance (so that there is lots of clearance between the part and the entire optical system to comfortably accommodate large and unusually-shaped parts)
- Extremely powerful "adaptive" feature-detection software tools are able to accurately find and locate EDM-& LASER-drilled holes on different surfaces, with different reflectivity, at different viewing angles, etc...
- Specialized software tools are especially well suited to deal with burrs and splatter
- Automatically create reports and collect measurements, statistics, images and other data for complete documentation
- Fast and intuitive "operator review" mode allows the operator to quickly revisit out-of-tolerance areas, etc...

The VisionGauge® Digital Optical Comparator is a very cost-effective, perfectly adapted solution for checking EDM- and LASER-drilled drilled holes and slots. It is rapidly becoming the new standard in the industry!



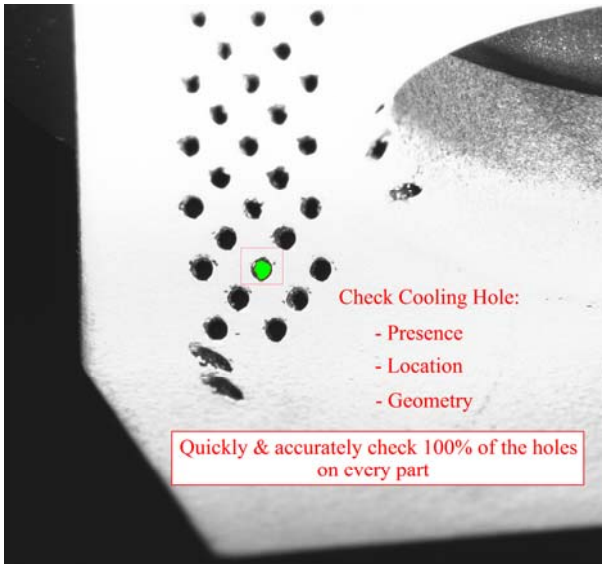
Automatically Verify Hole Presence and Location

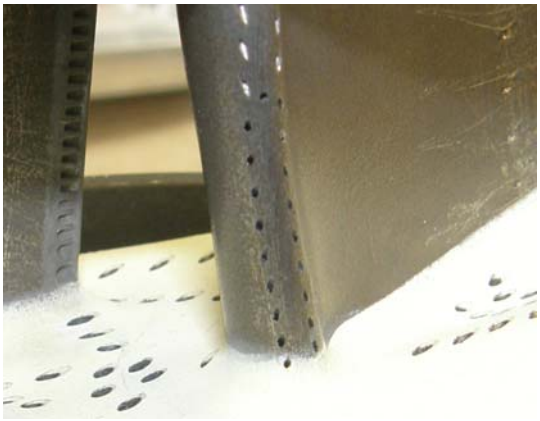
- **Fast!**
- **Accurate!**
- **Easy to operate!**



Supports Both Round & Shaped Holes, Anywhere on the Part!

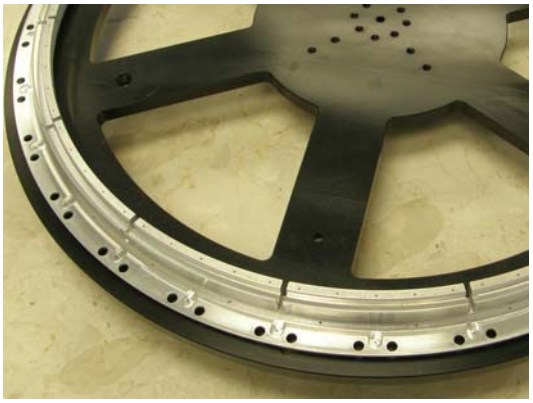
Powerful "adaptive" feature-detection software tools are able to accurately find and locate holes on different surfaces, with different reflectivity, at different viewing angles, etc...





Ideal for both coated & un-coated parts

Extended 24" x 24" x 24" travel machine for big and heavy parts



Ring with cooling holes. For larger rings, it is typical to use an extended-travel 700 series system to check the hole presence and measure the hole location & geometry

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