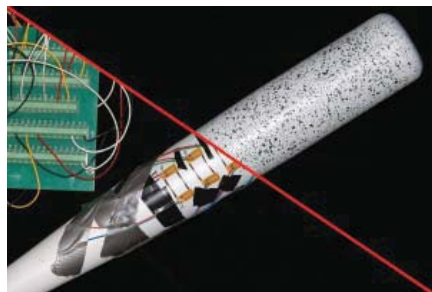
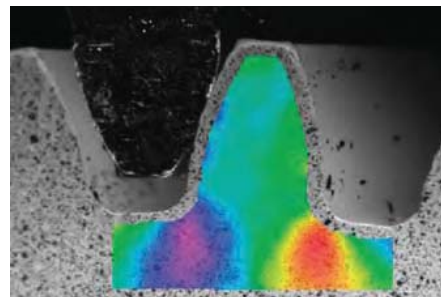


Deformation Measurement

by Correlated Solutions

Full-Field Measurements

- Allows you to see deformations over an entire area
- Measurements are not limited to single points
- Helps you to easily identify critical points, even in complicated structures or under complex loading conditions
- Data can be extracted from previously unrecognized hot-spots without retesting

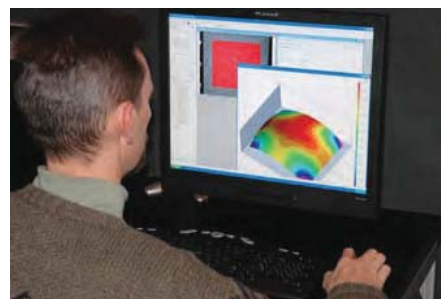


Non-Contact

- Eliminates strain gages, lacquers, gratings and cumbersome wiring
- No mechanical interaction with the sample
- No need for precise placement in order to get valid results
- No influence upon vibrating specimens
- Samples can be prepared in minutes and measured without undesirable influence from clips, gages, or chemical coatings

User-Friendly

- Safe, simple white-light illumination
- No optical isolation table needed for accurate measurements
- System can be recalibrated mid-experiment
- Automated data processing frees up valuable time
- Can cut and paste 3-D graphs into MS-Office applications
- System can be set up and ready to use in minutes



Complete

- Includes all necessary equipment, including the computer, camera(s), data-processing software and fixtures
- Runs on Windows operating systems
- Includes visualization tools for graphing data
- Minimal training and quick start-up allow for a quick Return on Investment

The Correlated Solutions VIC-3D measurement system can save you valuable time while improving the quality of your deformation or strain measurements. Specimen preparation is simple and quick, and your test specimen is not affected by the measurement process. It might sound too good to be true, but it has been field-proven by professionals like you. Give us a call to find out how you can do better work in less time than you ever thought possible.

www.correlatedsolutions.com

Correlated Solutions, Inc.
121 Dutchman Boulevard, Irmo SC 29063
T: 803-926-7272 F: 803-749-7569

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Application Example

Strain Measurement of an Exhaust Manifold Operation

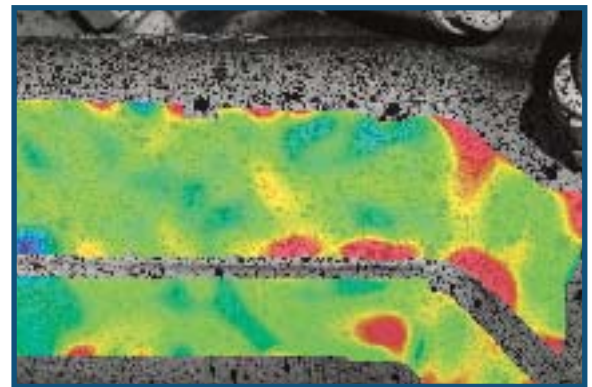
The engineers at Cummins design and test their engines to withstand real-world conditions, ranging from military deployments to heavy-duty industrial sites. Cummins engineers want to know exactly how their parts are deforming under the combination of thermal and mechanical loads. This means they've got to perform their tests with the engines running – and hot.

Because of the complex strain fields produced under these conditions, conventional gages cannot satisfy Cummins' requirements. FEA simulations are also limited, due to the uncertain boundary conditions. With the VIC-3D system, Cummins engineers are able to obtain detailed three-dimensional strain measurements. These measurements are made under real loading conditions while the engine is running. In addition, the VIC-3D system is easy to set up and can measure both small parts and large assemblies.

Paul Gloeckner, senior research engineer at Cummins, explains the usefulness of the VIC-3D system as follows: "This tool allows us to make measurements that were previously not possible. It has also allowed us to considerably reduce the time required for these tests."



Hot Exhaust Manifold Under Test



Detailed View of Strain Field Obtained with VIC-3D

Specifications

	VIC-3D SR/HR/XR	VIC-3D CL	VIC-3D HS	VIC-3D U-HS
Camera Resolution	Up to 29 Megapixels	Up to 4 Megapixels	Up to 4 Megapixels	450 x 250 pixels
Frame Rate	Up to 110 fps	Up to 500 fps	Up to 300,000 fps	Up to 10,000,000 fps
Exposure Time	20µs – 10s	Down to 20 µs	Down to 368 ns	Down to 50 ns
VIC-3D Data Variables	3D displacements, strains tensors, strain rates, velocities, accelerations, and much more			
Analog Data Recording (inputs)	Up to 32 inputs	Up to 16 inputs	Up to 8 inputs	Up to 2 inputs
VIC-3D Full-Field Real-Time Analysis	Yes, up to 10Hz	Yes, up to 10Hz	n/a	n/a
VIC-Gauge 3D Real-Time Analysis (output of points, gauges, extensometers, etc.)	Yes, up to 100 Hz Up to 4 real-time analog outputs	Yes, up to 100Hz Up to 4 real-time analog outputs	n/a	n/a
Camera Disturbance Correction			Included	
Multi-System Stitching (requires multiple camera systems)			Included	
Marker Tracking			Included	
Measurement Area			mm ² to m ²	
Strain Measurement Resolution			50µε	
Strain Measurement Range			0.005% to >2000%	
VIC-3D HS Vibration Analysis Module	Available with VIC-3D Fulcrum	Available	Available	n/a



Edificio Antalia
Albasanz, 16
28037 MADRID
Tel. 91 567 97 00
Fax: 91 570 26 61

Torre Mapfre-Vila Olímpica
Marina, 16 - Planta 11-C2
08005 BARCELONA
Tel. 93 459 42 50
Fax: 93 459 42 62