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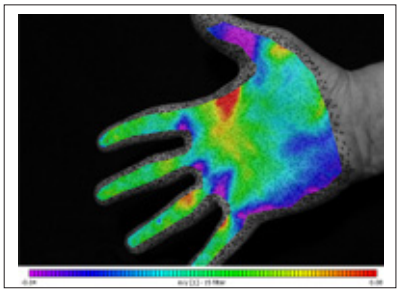
Measure with Confidence

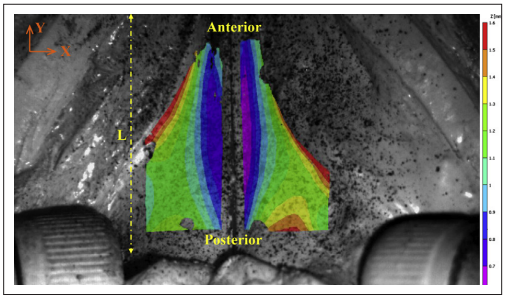
VIC-3D with *iris* for BioEngineering

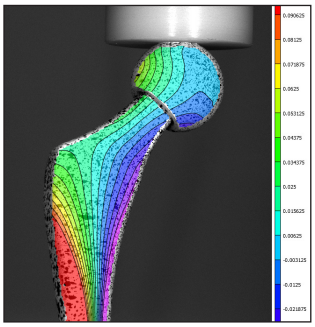
The VIC-3D digital image correlation (DIC) system from Correlated Solutions is the most powerful turnkey system for non-contact measurement of full-field surface shape, deformation, strain, vibration, and much more. With a range of new features including direct data comparison with finite element models (FEA) and a new graphics engine called iris, the VIC-3D system is poised to change the way bioengineers around the world validate models and share their results. Give us a call to find out how you can do better work in less time than you ever thought possible.

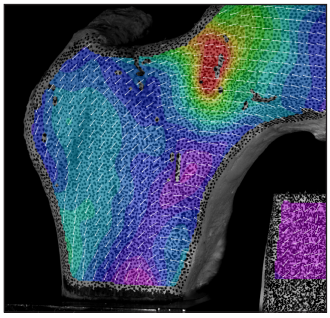
Non-Contacting & Full-Field Measurements

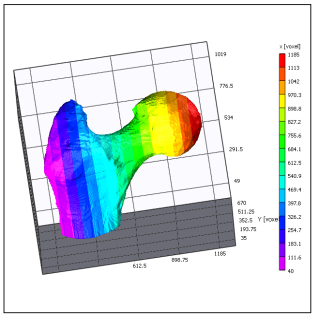
- No mechanical interaction with the sample
- Eliminate the need for strain guages, LVDTs, extensometers, etc.
- Rigid body motion can be easily removed
- Measure dynamic mechanical properties & vibration simultaneously
- Up to 31 million data points possible
- Automatically identify strain concentration locations, even in complex structures under complex loading conditions
- Fast data processing: up to 1,000,000 data points/second and intuitive inspection and extraction tools
- Data can be imported and exported for easy FEA comparison/ validation
- Fully integrated camera control











VIC-3D is still the fastest, most accurate digital image correlation system on the market. Additional key features include:

- Python scripting for customized and repeatable analysis, including batch processing
- Hybrid calibration options for improving calibration via the use of speckle images
- Customizable calibration options for modeling radial, prismatic, and tangential distortions
- Completely integrated and customized turnkey systems with training, system maintenance, and technical support

Contact our Sales Team to explore the range of industry-leading digital image correlation systems from Correlated Solutions.

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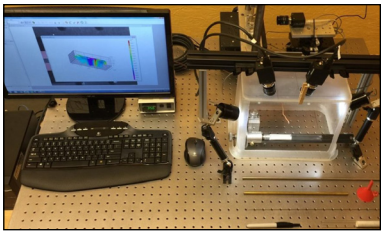
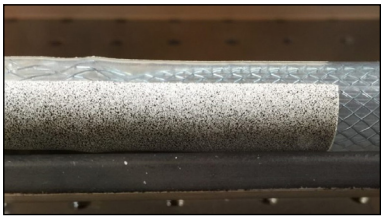
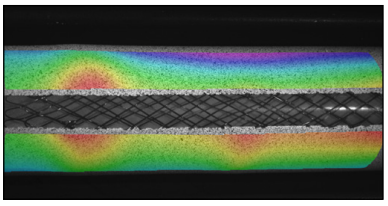
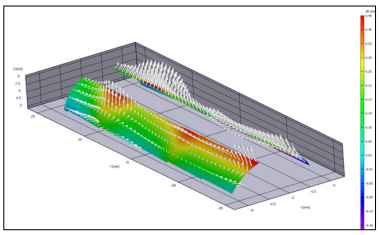
CASE STUDY - Evaluating the Radial Force Profile of a Stent









Dr. Kenneth Perry of EchoBio LLC is an industry leader and expert on the experimental validation of implantable medical devices. Dr. Perry was tasked with evaluating the radial force profile of a braided, self-expanding stent for use in correcting blocked blood vessels, and he specifically needed to examine how the radial force changed from the end of the stent to the middle. This quantitative data is critical to the proper design and function of the stent, and digital image correlation was the only technology that could provide the measurements needed at the required accuracy. Dr. Perry utilized the VIC-3D system to make measurements that could potentially revolutionize the medical device industry.

Dr. Perry began his experiments using custom silicone tubes that were made to have mechanical properties similar to a blood vessel. The experiment involved deploying the stents into the tubes and measuring the resulting deformation. Dr. Perry knew that any simplified point or line measurement on his samples would have been misleading. The VIC-3D system provided Dr. Perry with the full field data he needed to be confident in his measurements and publish accurate results for his client.

The change in radius variable and resulting contour plot was the most valuable data for Dr. Perry because it clearly shows the largest force is located near the end of the stent. This contour plot, shown to the right, also indicates areas of larger radial force that could have gone unnoticed using traditional measurement techniques. Not only did Dr. Perry obtain full-field displacement data, he was also able to easily quantify the radial force profile of the stent and show the circumferential variation that resulted from the underlying woven stent structure. Also shown here are the displacement vectors of the stent in a full-field 3D contour plot showing the magnitude of the resulting deformation.

"VIC-3D was an amazing tool. Any simplified line or point-wise measurement would have been misleading. We needed robust calibration, documentation and high-fidelity measurements, so we designed our experiment accordingly using the VIC-3D system."

-Dr. Kenneth Perry of EchoBio LLC

	VIC-3D LS	VIC-3D QX	VIC-3D HS	VIC-3D UHS
Camera Resolution	2.3 MP - 45 MP	12.3 MP	Up to 4 MP	400 x 250 pixels
Frame Rate	400 Hz - 16 Hz	Up to 335 Hz	Up to 500 KHz *	Up to 5 MHz **
In-Plane Resolution	1/200,000 • FOV	1/200,000 • FOV	1/100,000 • FOV	1/50,000 • FOV
Out-of-Plane Resolution	1/100,000 • FOV	1/100,000 • FOV	1/50,000 • FOV	1/25,000 • FOV
Strain Resolution	down to 10 με			
Strain Range	from 0.005% to > 2,000%			
Analog Data Recording	Up to 32 inputs	Up to 16 inputs	8 inputs	10 MS/s / 4 inputs
Full-field Real-Time Analysis	Yes, up to 10 Hz	Yes, up to 10 Hz	n/a	n/a
VIC-Gauge 3D Real-Time Analysis (output of points, gauges, extensonmeters, etc.)	Yes, up to 100 Hz Up to 4 real-time analog outputs	Yes, up to 100 Hz Up to 4 real-time analog outputs	n/a	n/a
FFT Module	Available	Available	Available	n/a

*Achievable at reduced resolutions. ** Achievable at full resolution.

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