

Microvec DIC System

Deformation, vibration and strain on almost any material

Digital Image Correlation (DIC) is an optical method of tracking the movement of the naturally occurring, or applied surface pattern during the test or experiment. DIC uses accurate 2D and 3D measurements of changes in image to measure contour, deformation, vibration and strain on almost any material. The maximum correlation in each window corresponds to the displacement, and this gives the vector length and direction for each window.

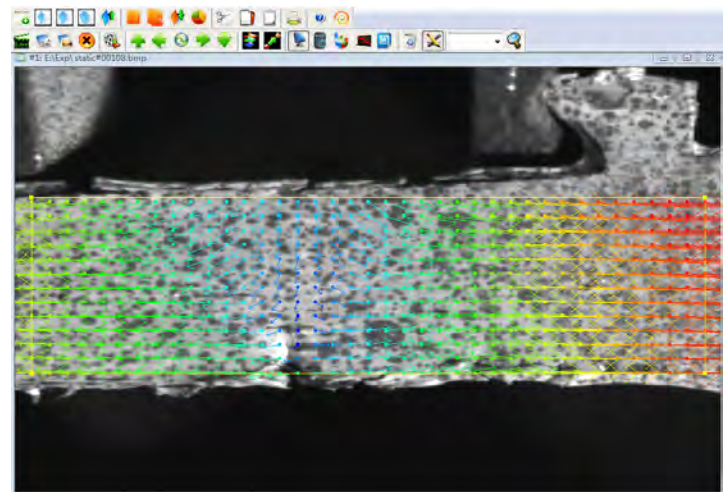
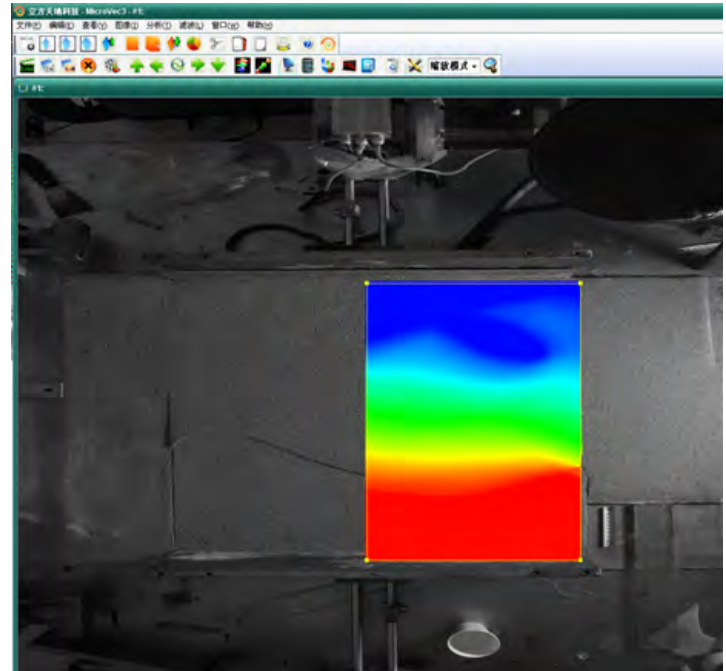
Microvec Digital Image Correlation

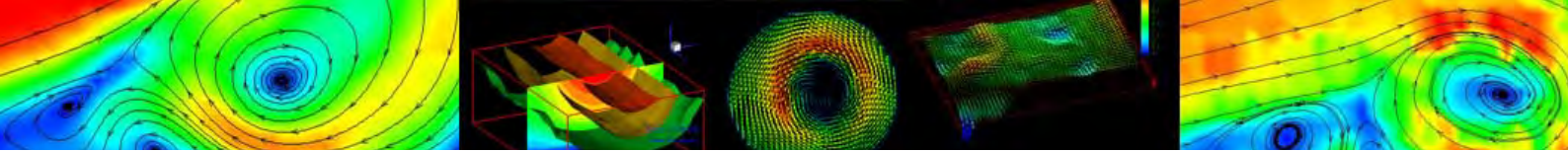
Microvec offers a combination of advanced integrated hardware and software to create a wide range of Digital Image Correlation systems for many different applications. Microvec DIC can consist of one camera for 2D, two cameras for 3D as well as a high speed camera for high speed DIC analysis.

MicroVec uses algorithms use multi-pass multi-grid processing and window deformation for the highest accuracy of measurements. With use of GPU and use of parallel processing, Microvec DIC software can perform the calculations in near real-time.

The MicroVec DIC systems are integrated from world leading CCD cameras from Imperx (USA) or any numbers of CMOS high speed cameras from USA or Japan. All systems are sold as complete solutions, with a multitude of possible configurations depending on selected cameras, lenses, lights and rail sizes.

Microvec DIC systems are used in number of applications from geology to material research and from microscopic areas to large structures.





Standard Components

- CCD cameras: including lens, all interface cables and camera frame grabber. Resolutions from VGA/260fps, 1 MP/148fps, 2 MP/30fps, 4MP/41s, 5MP/16fps, 8MP/21fps, 11MP/6fps, 16MP/4fps or 29MP/4fps
- CMOS cameras: wide range of high speed cameras with speeds from 500 fps to 1,000,000 fps.
- LED Lights
- Rail fixtures and calibration kits
- Software: 2D and 3D high precision DIC software package (Windows 32-bit and 64-bit)

Specifications

- Measurement area: flexible from mm² to m²
- Measurement results: Surface contour, 3D displacement and strains
- Strain Measurement Accuracy: up to 50 $\mu\epsilon$
- Strain Measurement Range: 0.005% to >2000%
- Camera Resolution: VGA to 29 megapixels depending on the camera model
- Camera Speed: up to 1,000,000 fps depending on the camera model
- Exposure time: 100ns - 10 s depending on the camera model
- Multi-pass, multi-grid with window deformation algorithm
- Support Mask function and multi-average function
- Batch processing: single directory or multi-directory auto process
- Automatic Calibration
- Includes GPU parallel processing support improving computing acceleration by factor 10

Applications

- Component testing
- Crack detection
- Fracture mechanics
- Impact testing
- Granular flows
- Material properties
- Material fatigue
- Tensile, compression and buckling
- Vibration analysis
- Thermal deformation analysis
- Geology and geophysics

