

MicroVec Mini PIV System

The most economical and simple PIV solution

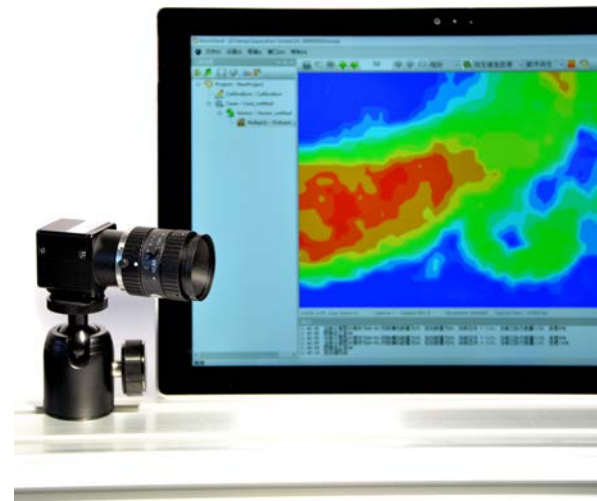
EXPERIMENTAL flow diagnostics often demand huge investments which many research organizations or individuals with limited budgets find challenging. It makes the access to knowledge in basic educational research restricted, and also limits the creation of new knowledge in advanced research. Specially, research and educational institutes that can easily secure smaller departmental funding may not stand a chance to do research using PIV. MicroVec identified this essential need, and has now made experimental flow visualization for research and educational purposes remarkably affordable while retaining the analyzing power of a typical PIV flow diagnostic exercise. Thus, in combination with well-integrated hardware and software, MicroVec offers a Mini PIV system that can be used by researchers from all over the world at an unprecedentedly economical price in the PIV market.



Mini PIV system

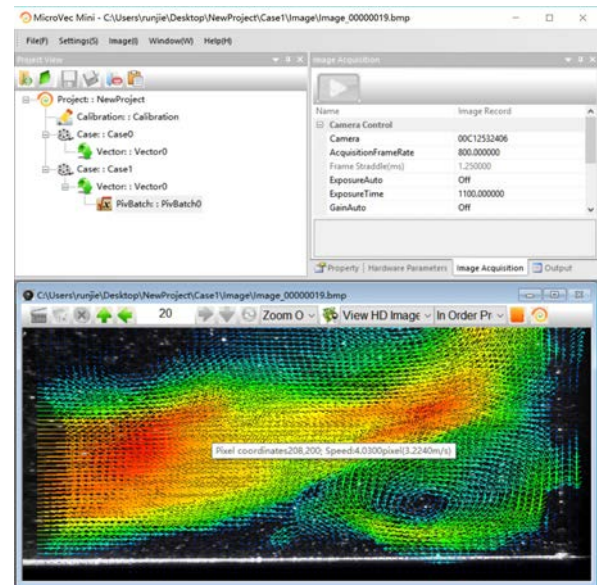
Particle Image Velocimetry (PIV): Mini PIV

Particle Image Velocimetry (PIV) is an optical flow visualization method used in education & research. It can provide instantaneous velocity measurements and related properties in fluids. The fluid is seeded with tracer particles which are illuminated by a laser. The images of illuminated particles are captured by a camera. A sequence of images obtained is then processed for determining the velocity field of the flow observed. Further processing leads to compute vortices, streamlines, or any desired flow parameter. A PIV software is used to process the optical images.

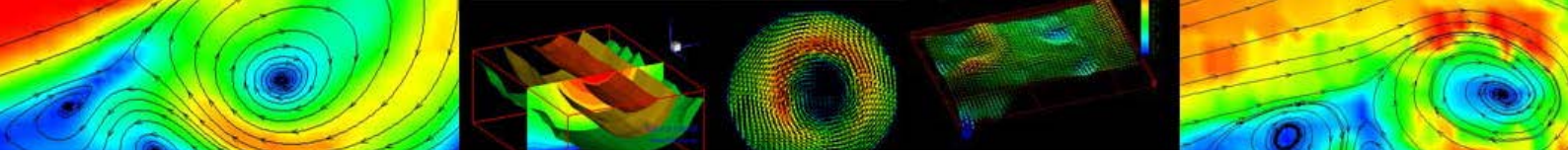


Even though the Mini PIV system is particularly aimed at customers with budget constraints, MicroVec's high precision software package provides a powerful tool characterized by its industry standard algorithms and intuitive interface. Mini PIV system is suitable for both in air and water measurements, whose flow speeds may notch up to 20 m/s.

The system features a fully sealed diode laser (532nm Diode Pumped Solid State (DPSS) green laser, 1W), which is suitable in places where more sensitive Nd:YAG lasers are not recommended (e.g. underwater). The CMOS camera with a USB interface makes the operation extremely easy, and a resolution of 640×480 pixels at 800 fps makes the system suitable for observing rather high speed (or small field of view) situations. Also, apart from being economical and simple, the surface pad comes with the Mini PIV system makes it entirely portable, which completes a range of worthy repertoire in our Mini PIV system.

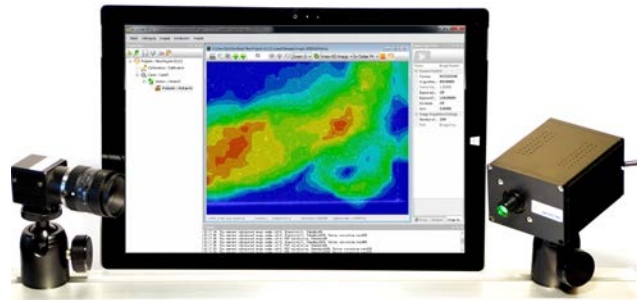


User interface of the software package in mini PIV system



Key features & benefits

- Turnkey Mini PIV system is uniquely affordable and simple to use.
- The mini PIV system is not only limited to simplicity and a low price tag, but also its versatility allows to use in a broad range of applications.
- Control of the system through a surface pad provided makes our system entirely portable.
- Learning fluid mechanical problems through the use of state of the art technology help to create new knowledge and enhance creativity and research skills.
- Intuitive and easy to use software.



Mini PIV system

System components

- Laser: 1W DPSS laser operating at a wavelength of 532nm, supports double exposure mode.
- Camera: CMOS camera with a 640×480 (VGA) resolution and a full frame rate of 800 fps.
- Surface Pad: Surface Pro 4: Intel core m3, 4G RAM, 128 SSD, integrated Graphic card.
- Windows 10 based 2D2C high precision PIV software package: image acquisition and image-processing control; easy control of all hardware components; online particle image-acquisition and velocity-analyses function



Integrated Mini 1W DPSS laser

Applications

A range of applications in water or air can be studied by deploying our system in research laboratories, in field measurements, and even in academic classroom settings. Some of these fundamental topics include shear, vorticity, flow past a body, potential flows, boundary layers, fully developed flows, streamlines.

System performance

Considering PIV systems currently available in the market, performance indicators of our Mini PIV system can be summarized as given below.

- | | |
|--------------|-----------|
| Cost: | ● ● ● ● ● |
| Performance: | ● ● ● ● ● |
| Simplicity: | ● ● ● ● ○ |
| Portability: | ● ● ● ● ● |



Surface pad provided in the system