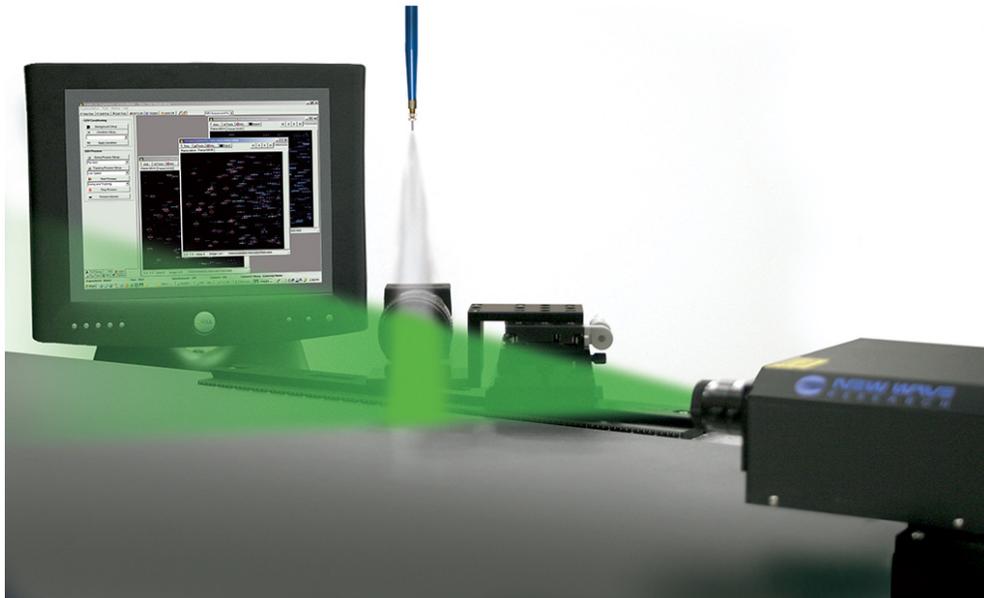


## PIV SYSTEM GLOBAL SIZING VELOCIMETER (GSV)

SKU: GSV-1000

The TSI Global Sizing Velocimeter (GSV) system measures droplet size and velocity simultaneously in sprays and other multiphase flows. The measurement plane is illuminated with a light sheet from a double-pulsed Nd:YAG laser, and a single TSI PowerView™ Plus camera. This single camera, equipped with a standard 105mm camera lens and unique GSV aperture, captures frame-straddled images of the droplets. An interferometric technique measures size with highly accurate results. Velocity is extracted from the frame-straddled image pair using a unique and powerful tracking algorithm.

This technique is simultaneously more accurate and simpler to use than complex, expensive, and potentially error-prone systems employing multiple cameras.



PRODUCT DETAILS

A specially-made camera mount and precision rails allow easy camera setup at the optimum GSV viewing angle and rapid positioning for measurement at multiple locations in the spray. A unique, rapid compensation process accounts for the effects of the optimum viewing angle as well as the specific optical and geometric arrangement of the experiment, minimizing setup and alignment issues. The magnification field is easily measured using a calibration target, and the PM Windowed Algorithm\* automatically incorporates this information to yield accurate size measurements, especially in high concentration measurement situations.

TSI's GSV system is driven by the INSIGHT 4G™ Software Platform, the most powerful global image capture, analysis, and display package available. Providing complete hardware support and turnkey system operation, INSIGHT 4G software couples ease-of-use with unsurpassed performance. Advanced analysis and display options allow a rapid transition from raw data to the graphical representation of higher order statistics such as size-velocity correlations.

Because the GSV system utilizes TSI PIV lasers and cameras, it is a simple matter to upgrade a standard PIV system to perform GSV size and velocity measurements.

\* Patent pending

## APPLICATIONS

- Spray characterization
- Freezing and crystallization studies
- Droplet shedding and stripping studies
- Spray/surface interaction studies
- Atomization studies
- Jet breakup studies
- Measures size and velocity of:
  - Inhomogeneous reacting droplets
  - Reacting or evaporating droplets
  - Droplets of unknown refractive index
  - Droplets of different refractive indices

## INCLUDED ITEMS

- Adjustable camera mount with rails
- Slit aperture
- Bandpass filter
- Neutral density filter
- Manual
- Software and key

To learn more about PIV instrumentation and the many areas of research this system is involved in, attend TSI's Fluid Mechanics Webinar Series presented by our experts.

# FEATURES & BENEFITS

- Single camera operation simplifies measurements and improves accuracy
- Simultaneous measurements of droplet Size and Velocity
- Unique hardware configuration for higher accuracy, even in high-concentration or varying droplet refractive index situations
- Inhomogeneous, reacting, and even absorbing droplets can be measured with no additional corrections required
- Patented processing algorithms have been theoretically and experimentally validated
- Simple system setup and turn-key operation using stored hardware parameters
- Simple upgrade from PIV Systems to perform GSV measurements