

Diffuser optics for shadowgraphy

speckle free ultra-short
illumination



high efficiency diffuser optics



standard diffuser optics

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Mar-06

LaVision offers diffuser optics for various applications. With the diffuser optics an absolute speckle-free backlighting is obtained combined with the benefit of ultra-short light pulses of high intensity. This makes the diffuser optics not only suitable for strobe illumination of transient phenomena, but it is vital for high-magnification sizing of particles or droplets in motion.

Dependent on the existing equipment LaVision provides the ideal solution. All diffuser optics can be directly mounted to common Nd:YAG lasers and provide excellent volume illumination to the measuring object.

High efficiency diffuser optics

The high efficiency diffuser optics yields more than a factor of 10 more light compared to the standard model. As a result, much less laser power is needed for e.g. particle sizing (LaVision's SizingMaster systems). A laser with 15 mJ output power or even less is sufficient to analyse typical field of views of a few mm.

The integrated collimating lens is ideally designed for high-magnification particle sizing applications. A fiber optics cable for remote collimator head and a laser interlock option is available.

Min. recommended laser power:	15 mJ, 527-532 nm
Light output diameter	120 mm
Light output wavelength	550-600 nm
Light output pulse duration (@ 5 ns laser)	20 ns

Standard diffuser optics*

For customers with existing Nd:YAG lasers (e.g. PIV lasers with energies of 100 mJ or more per pulse) we offer a standard diffuser solution. It allows a convenient and cost-effective upgrade of e.g. a LaVision PIV system to LaVision SizingMaster system for particle analysis size based on shadowgraph technique.

Min. recommended laser power:	100 mJ, 527-532 nm
Light output diameter	120 mm
Light output wavelength	550-600 nm
Light output pulse duration (@ 5 ns laser)	20 ns

A version with large laser diameter input (up to 21 mm) or for constrained space conditions (with 56mm outside diameter) are also available.

not available in UK

LaVision GmbH

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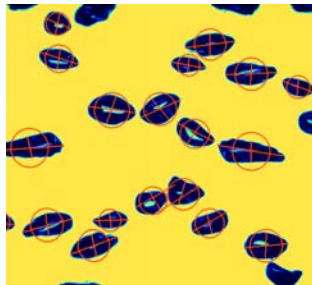
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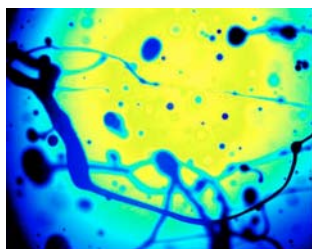
Ordering Information

part number	Description
1108417	High efficiency diffuser optics, 120 mm diameter
1108359	Fiber optics for 1108417 for remote collimator head, 2m
1108802	Laser Interlock for 1108417
1108420	standard diffuser optics, 120 mm diameter
1108418	Standard diffuser optics, 120 mm diameter, laser up to 21 mm
1108419	Diffuser optics small, 56mm outside diameter

SizingMaster Shadow

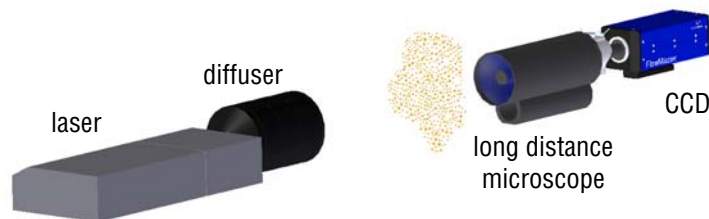


air bubbles in water



droplets and ligaments in air

The **Diffuser Optic** is a component of the SizingMaster Shadow. The system measures all kinds of particles (droplets) with shape information over a large dynamic range. Together with the Shadow DaVis software parameters like particle size, position, shape, velocity, density and mass flux can be evaluated easily.



Applications

- liquid spray analysis (water, fuel, paint and emulsions)
- spray breakup (ligaments, breakup region)
- powder, solid particles (alloys, ceramics)
- bubbles (heat exchangers, industrial processes)

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