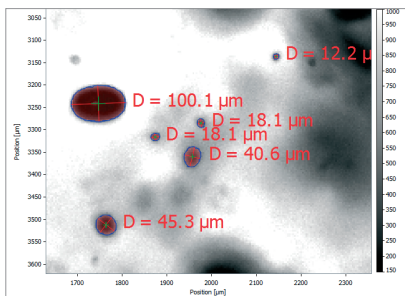
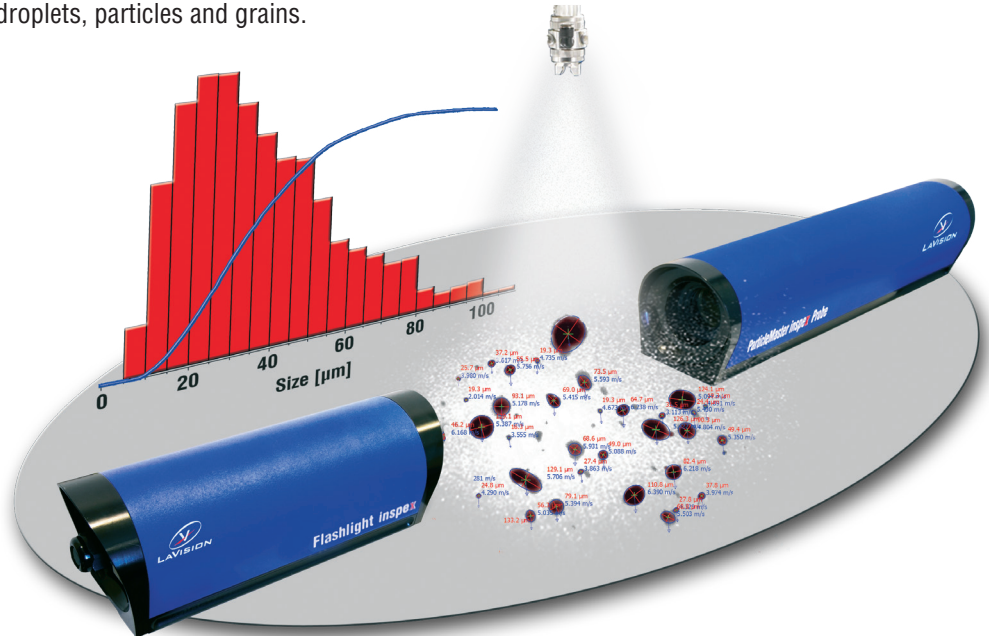


# ParticleMaster *inspex*

In-situ droplet and particle  
analysis

The **ParticleMaster *inspex*** is a new member of the ParticleMaster product family. It serves as a highly integrated laboratory and testing tool for measurement of size, shape and velocity of spray droplets, particles and grains.



- ▶ size, shape, orientation, perimeter of individual particles and droplets
- ▶ velocity and mass flux from dual frame images
- ▶ cumulated statistics D10, D32, percentiles Dv10, Dv50, Dv90
- ▶ size histogram, scatterplots

The **ParticleMaster *inspex*** combines the advantages of high-magnification shadow imaging with an easy-to-use design.

## Features

- ▶ in-situ measurement
- ▶ compact self-contained probes and lights
- ▶ fully factory aligned - no customer calibration required
- ▶ includes size and depth-of-field calibration
- ▶ splash proof (IP54) design
- ▶ eye-safe LED operation without laser

## Laboratory and testing

The compact and highly integrated design of the **ParticleMaster *inspex*** aims for daily laboratory use and Q.C. testing. The system is ready to use out-of-the-box. A well-defined mechanical interface allows the integration into existing test benches.

The **ParticleMaster *inspex*** probe contains a camera and a high-magnification lens. It captures the shadow images of droplets and particles illuminated with the **ParticleMaster *inspex*** LED flashlight. With the "flux" option, the motion of particles is captured from dual frame images.

The **ParticleMaster *inspex*** controller comprises the software, all necessary computing power and electronics to directly run the system without any setup or calibration procedure.

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Size and velocity probes



**ParticleMaster *inspex* Probe**

The probe is available for two different working distances: a model for a convenient 400 mm stand-off distance and a short-distance probe for maximum resolution down to 10 µm.

All probes are available with an option to measure particle velocity, achieved through ultra-fast shutter dual-frame image sensors.

The probes are splash proof (IP54) to be used in direct vicinity of sprays and dust.

Model	PM inspex S25	PM inspex F25	PM inspex S10	PM inspex F10
Size Range	25-5000 µm		10-2000 µm	
Working Distance	400 mm		150 mm	
Velocity	x	✓	x	✓
Sensor	5M pixel, 50 fps	6M pixel, 25 fps	5M pixel, 50 fps	6M pixel, 25 fps
Interface	USB3			
Compliance	IP54 splash proof, CE mark			

Ultra-fast illumination



**ParticleMaster *inspex* Flashlight**

The backlight illumination is optimized for ultra-short exposure time to avoid any motion blur. The LED flashlight allows eye-safe operation without the use of a laser and supports an automatically activated high-power mode for pulses shorter than 10 µs.

LED flashlight	
Optimized working distance	150 mm - 400 mm
Min. exposure time	100 ns
Double pulse	$\Delta t > 100$ ns for velocity measurements
High power mode	up to 10 µs
Max. frequency	10 kHz single & double pulse
Compliance	IP54 splash proof, CE mark

Integrated controller



**ParticleMaster *inspex* Controller**

The **ParticleMaster *inspex*** controller includes the software and all computer and electronics components to run the **ParticleMaster *inspex*** system, including the versatile triggering capabilities of LaVision's PTU X.

- ▶ computer with quad-core CPU, 32 GB RAM, fast system SSD and large data HDD
- ▶ dedicated high-performance USB3 adapter for the **ParticleMaster *inspex*** probe
- ▶ PTU X timing unit for ultra-precise control and versatile triggering
- ▶ power supply and interfaces to the probe and flashlight
- ▶ DaVis 10 software for data acquisition, management and visualization
- ▶ ParticleMaster software package for particle characterization

Data provided by LaVision is believed to be true. However, no responsibility is assumed for possible inaccuracies or omissions. All data are subject to change without notice.

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