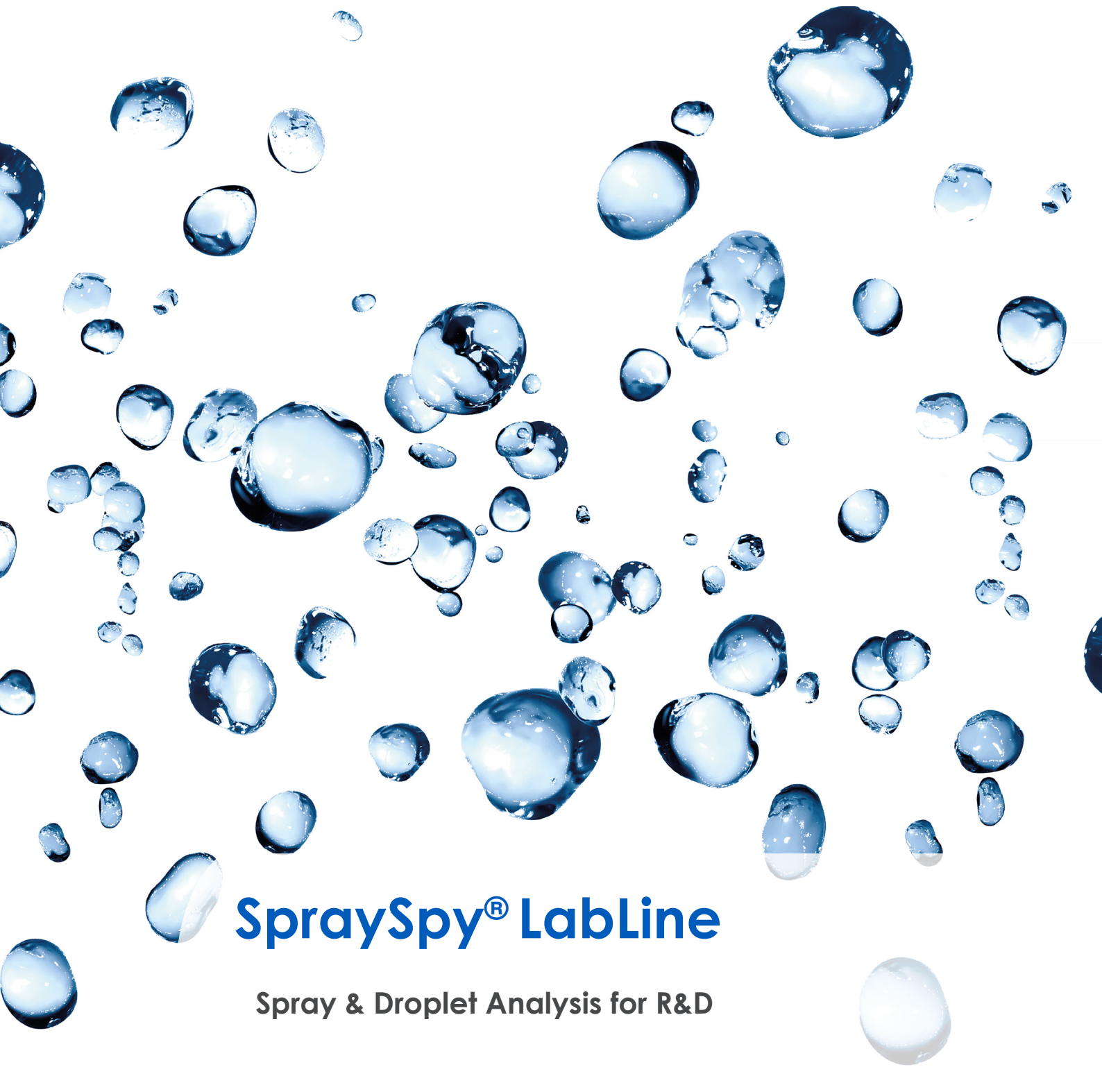
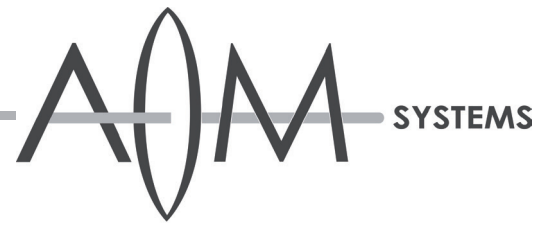


AOM-Systems

Your Partner for *Smart Sprays*



SpraySpy® LabLine

Spray & Droplet Analysis for R&D





SpraySpy® Model LL450

SpraySpy® LabLine - Spray analysis for highest demands in R&D

SpraySpy® LabLine is the next step in droplet and spray analytics, which has long been awaited by the Research & Development community. SpraySpy® LabLine measures the individual size, velocity, opacity, and kinetic energy of droplets, as well as the flux density of the spray.

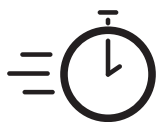
The laser-based system copes with highly demanding liquids, such as automotive effect lacquers, coatings, or bondings - even with the latest application methods, such as ultrasonic atomizers, pneumatic atomizers, or rotating bell atomizers.

Using the patented SpraySpy® technology, atomization in extremely challenging environments, such as explosive atmospheres, can be analyzed. This provides new options in research and development and an in-depth insight into atomization. It increases your knowledge about the spray and therefore the quality of your products, already in the development phase. Consequently, the ratio of rejected to accepted units and the production costs for your customers decrease.

SpraySpy® LabLine measures:



Size



Velocity



Momentum



Flux density



Opacity

SpraySpy® LabLine highlights:

- Single droplet measurement of size and velocity
- Characterization of the momentum and flux density
- Inline measurement of the digital spray pattern
- Analysis of individual transparent and non-transparent droplets
- Storage and analysis of all droplet events
- Easy to use, without the need for adjustment
- Suitable for explosive atmospheres (ATEX)

The SpraySpy®-Technology

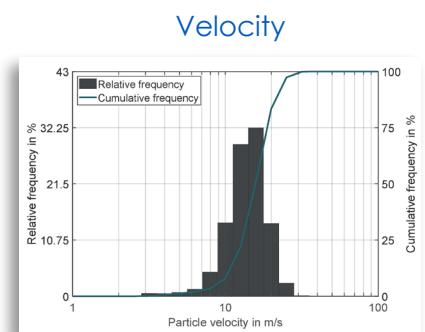
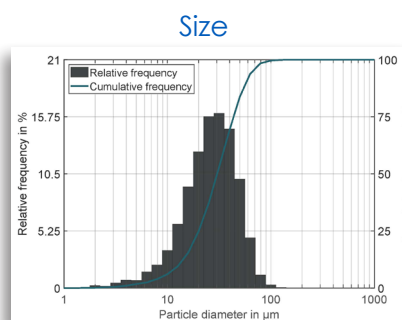
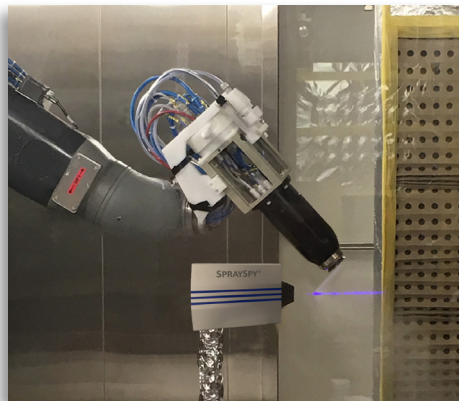
The SpraySpy® technology is based on the scattered light produced when a moving droplet or particle is illuminated by a light beam. The resulting scattered light is separated by the acquisition time into its individual scattering orders and registered by photodetectors. The characteristics of the scattering orders are correlated with the size, velocity, number, and opacity of particles in each individual droplet. In addition, this information can be used to calculate the flux density in the spray, as well as the kinetic energy of the individual droplets. Consequently, SpraySpy® technology is a direct counting measurement method.

SpraySpy® Case Studies

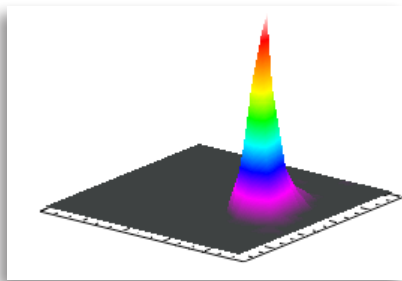
Automotive Coating: Rotary Bell Atomizer

Operating parameters:

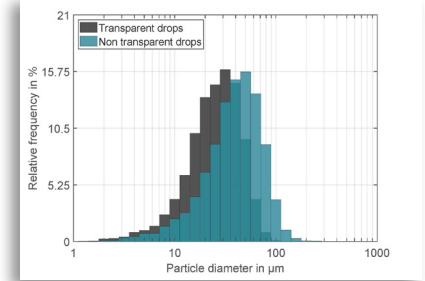
Shaping air 1	= 250 NL/min
Shaping air 2	= 250 NL/min
Paint flow	= 150 mL/min
Rotation frequency	= 45,000 rpm
Medium	= Base Coat



Size, velocity & quantity



Size of transparent vs. non-transparent

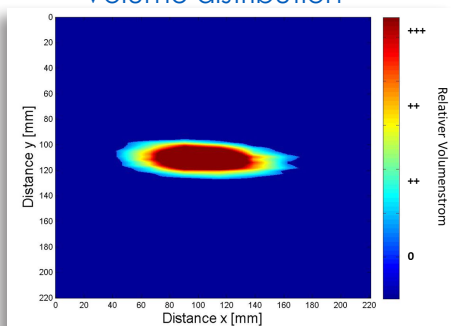


Digital Spray Pattern: Pneumatic Atomizer

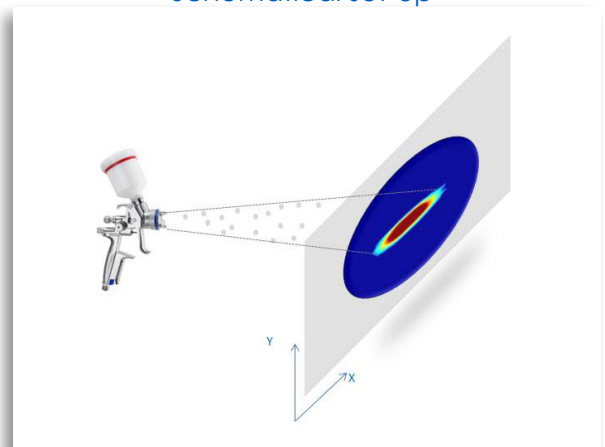
Operating parameters:

Air pressure	= 1,3 bar
Medium	= Base Coat

Volume distribution



Schematic set-up



SpraySpy® LabLine Model Specification

Model	SpraySpy® LabLine		
	LL350	LL450	LL550
Measured parameters	Droplet size Droplet velocity Number of drops	Drop size Drop velocity Detection timeline Number of drops Drop momentum Flux density Transparent/non-transparent ratio	
Measurement range - Size - Velocity	> 1 µm < 100 m/s		
Conditions - Explosive Atmo- sphere (ATEX) - HV-Application	No No		ATEX: Zone 1 & 2 Yes
Repeatability - Drop size - Drop velocity - Number of drops	1,7% 0,6% 1,5%		
Drop characteristics	Transparent	Transparent, Semi-transparent & Non-transparent	
Sampling rate	250 MS/s		
Interfaces	Ethernet, current loop, ProfiNet, others on request		
Hardware size - Measurement probe - Processing unit	220 x 150 x 50 mm 600 x 482 x 222 mm	200 x 167 x 150 mm 600 x 482 x 222 mm	
Operating parameters - Power supply - IP-Class	24 V / 4A IP 67 (Measurement probe)		

AOM-Systems - Your Partner for Smart Sprays

For many years, AOM-Systems (Advanced Optical Measurement Systems) has been involved in droplet and spray measurements. The development of an easy-to-use and ATEX-compliant measurement technology has had a major influence on droplet and spray analytics.

The newly developed ProcessLine for use in production lines monitors spray anomalies and provides digitization data inline and in real time. SpraySpy® is equipped with the artificial intelligence SprayAI® and supports the data-driven coating process of current and future generations of atomization technologies.

AOM-Systems GmbH

Benzstrasse 4 / 64646 Heppenheim / Germany
info@AOM-Systems.com / www.AOM-Systems.com

