AOM-Systems

Your Partner for *Smart Sprays*

AOM SYSTEMS

SpraySpy® LabLine

Spray & Droplet Analysis

for Research & Development

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, like 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 a new, 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:

SpraySpy® LabLine highlights:

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

The SpraySpy®-Technology

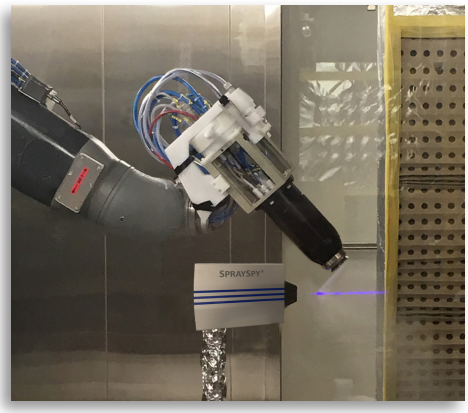
The SpraySpy® technology is based on scattered light from a moving droplet or particle, illuminated by a light beam. The resulting scattered light is separated by the acquisition time into its individual scattering orders and registered by photodetectors. The characteristics of the scattering orders are correlated with the size, velocity, number and opacity of particles in each individual droplet. Therefore, the SpraySpy® technology is a direct counting measurement method.

SpraySpy® Case Studies

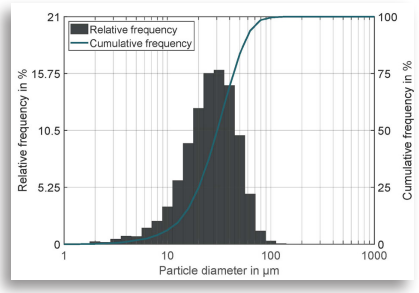
Automotive Coating: Rotary Bell Atomizer

Operating parameters:

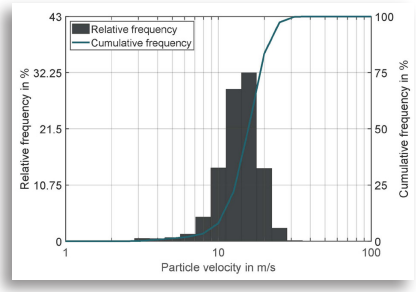
Shaping air 1	= 250 NL/min
Shaping air 2	= 250 NL/min
Paint flow	= 150 mL/min
Rotationfrequency	= 45,000 rpm
Medium	= Base Coat



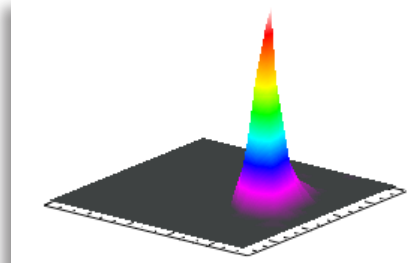
Size



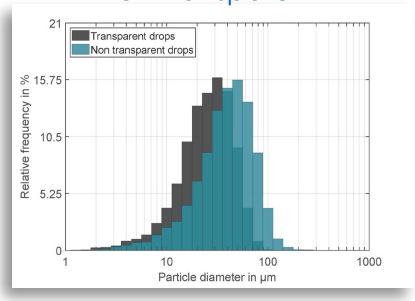
Velocity



Size, velocity & quantity



Size of transparent vs. non-transparent

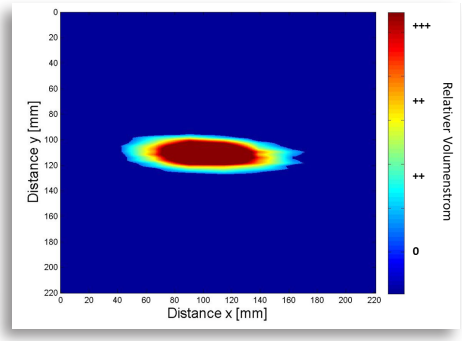


Digital Spray Pattern: Pneumatic Atomizer

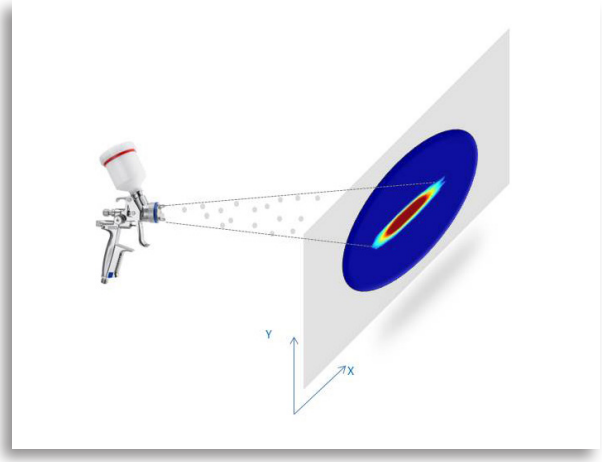
Operating parameters:

Air pressure	= 1,3 bar
Medium	= Base Coat

Volume distribution



Schematical set-up



SpraySpy® LabLine Model Specification

Model	SpraySpy® LabLine		
	LL350	LL450	LL550
Measured parameters	Droplet size Droplet velocity Detection timeline Number of drops	Drop size Drop velocity Detection timeline Number of drops Drop momentum Drop flux density Drop transparency ratio	
Measurement range • Size • Velocity	> 1 µm < 100 m/s		
Conditions • Expolsive Atmo-sphere (ATEX)	No		ATEX: Zone 1 & 2
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	200 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*

Since years, **AOM-Systems** (**A**dvanced **O**ptical **M**easurement Systems) has been involved in droplet and Spray measurements. The company has developed into a renowned address for droplet and spray measurement technology. The development of an easy to use and ATEX conform measurement technology has had a major influence on droplet and spray analytics. The latest innovation from AOM-Systems, the integrated measurement of transparent and non-transparent droplets, makes the development of sprays even more efficient and sustainable.

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