SpraySpy® ProcessLine

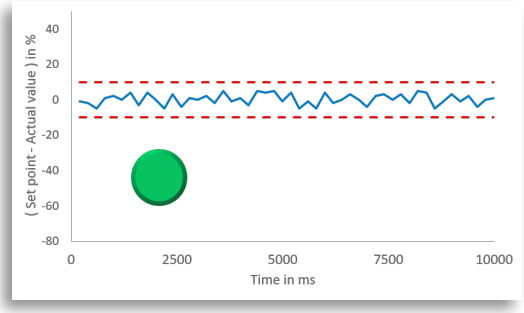
Spray monitoring & digitization

SpraySpy® Model PL100

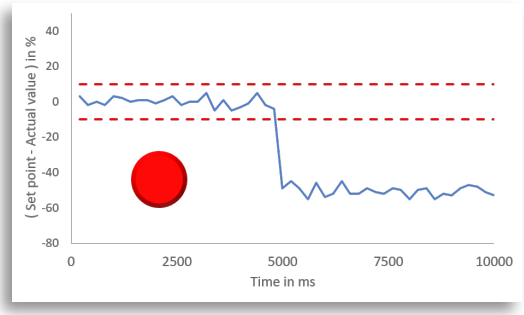
SpraySpy® ProcessLine - for highest process stability

Even small variations within a spray can lead to a significant decrease of coating quality in production processes. For decorative or for functional coatings this can incur unnecessary post-production costs or even rejection of units. Therefore, it is of great interest to insure that a spray is properly functioning and that deviations from nominal operation are kept to a minimum.
The solution for this task is the SpraySpy® ProcessLine. This laser based sensor system monitors the spray and detects even the smallest variations in spray operation, and this is achieved inline and in real time. Deviations from the set-point value of the spray are detected and the operator is immediately notified by the process control system. This allows counteractions to be invoked, before rejections or extra costs are incurred.
The measurement system detects up to 60% of the most common coating defects during the production process. The integrated artificial intelligence Software SprayAI® collects digital process data. This data can be used for further Internet of Things (IoT) applications. The SprayAI® software is easy to use, achieves a high precision of detection rate and is sensitive to anomalies of spray characteristics down to 2%.

SpraySpy® ProcessLine reliable monitoring of spray stability:



Classification of an okay spray



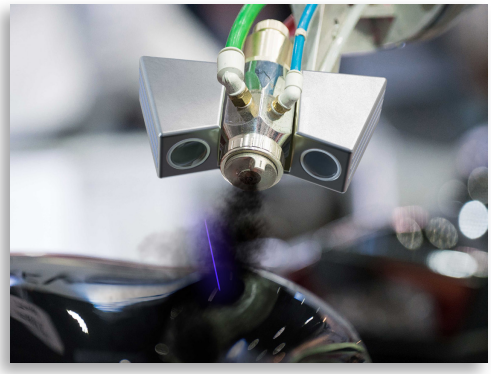
Classification of a not okay spray

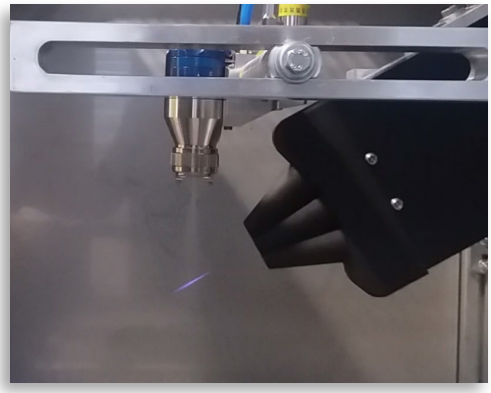
SpraySpy® increases production and decreases costs

With the SpraySpy® ProcessLine, production runs are more stable. The comprehensive data collection allows an ongoing and complete documentation of the product quality, a predictive maintenance, pattern recognition of failures, and the implementation of closed-loop control of the coating process. As a result, SpraySpy® insures a higher Spray quality and lower costs.

SpraySpy® ProcessLine highlights:

- Detects anomalies in the spray of 2% or higher, for up to 60% of the most common coating defects
- Inline monitoring of deviations in the spray
- No training time for the operators
- Relays status signals in real time to process control system
- Automated process documentation
- Objective and stable classification of the production quality
- Digitalization of the spray process with server and cloud interfaces
- Applicable for fixed and/or moving nozzles
- Suitable for explosive atmospheres (ATEX / IEC) and high-voltage applications





The SpraySpy®-Technology

The SpraySpy® technology is based on the scattered light from a moving droplet or particle, illuminated by a light beam. The resulting light scattering is separated by the acquisition time into the individual scattering orders and registered by photodetectors. The characteristics of the scattering orders are correlated with the spatial and temporal flux density in the spray. Therefore, even the smallest fluctuations in spray properties are detected.

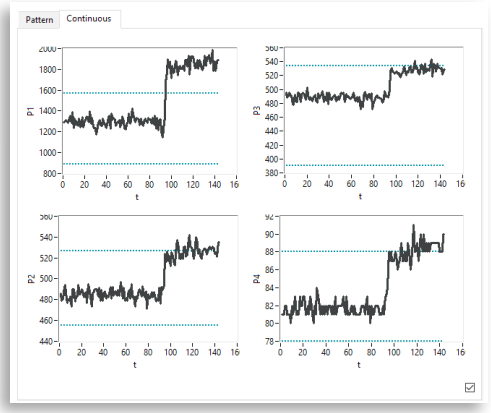
SpraySpy® & SprayAI® application

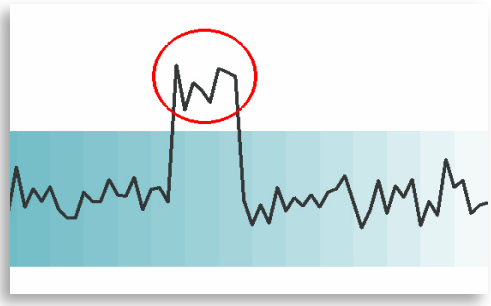
SpraySpy® monitors the droplet size, the droplet velocity, the spray angle and the volume flow rate in the spray by correlating light scattering parameters and assigned set values.

If the parameters of the spray are within the defined ranges, your spray is okay. However, if the integrated artificial intelligence, SprayAI® detects a deviation from the set value, an alarm signal is generated and made available in real time.

The measured spray parameters can be transferred to a local database or to a cloud. Here the data can be automatically analyzed.

The digitization of the spray provides the operator the data-driven certainty for process control and regulation.





SpraySpy® ProcessLine Model Specification

Model	SpraySpy® ProcessLine	
	PL100	PL200
Monitored parameters	**Spray stability via**: • drop size • drop velocity • Number of drops • Spray density & momentum • Spray angle	
Measurement range • Size • Velocity	> 1 µm < 120 m/s	
Conditions • Expolsive Atmosphere (ATEX)	No	ATEX: Zone 1 & 2
Drop characteristics	Transparent, Semi-transparent & Non-transparent	
Repeatability • Drop size • Drop velocity • Number of drops	1,7% 0,6% 1,5%	
Sampling rate	250 MS/s	
Interfaces	Ethernet, WiFi, Current loop, ProfiNet or others	
Database (optional)	SQL database administration & WebApp	
Artificial intelligence	SprayAI®	
Hardware size • Measurement probe • Processing unit	~220 x150 x 50 mm ~600 x 482 x 222 mm	
Operating parameters • Power supply • IP-Class	24 V / 4 A IP 67 (Measurement probe)	

Status Q1 2021

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 development of an easy to use and ATEX conform measurement technology has had a major influence on droplet and spray analytics.

The newly developed ProcessLine for the application 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