SpraySpy®
Spray measurement technology
Product overview
SpraySpy® for R&D and Quality Monitoring

SpraySpy® is a new laser based sensor & measurement system. Each drop is characterized individually by its size and velocity. SpraySpy® is easy to use and measures transparent and non-transparent droplets – even under explosive conditions (ATEX) or during electrostatic atomization.

Applications for the SpraySpy® are in laboratory environment, for example in the development of new nozzles or paints, or in the quality monitoring of atomization processes in production environment, to increase the probability of failure detection in production.

These new R&D and production quality monitoring opportunities offer an increased spray quality for you. Therefore, SpraySpy® supports you in your goal to reach a higher product quality at lower production costs.

This is why AOM-System is your partner for spray quality – and SpraySpy® is your scout in the spray.

**SpraySpy® measures:**

- Droplet size
- Droplet velocity
- Droplet momentum
- Flux density of the spray

**SpraySpy® Highlights:**

- Simultaneous measurement of size and velocity of drops
- Characterization of the momentum and flux density
- Measurement and separate analysis of transparent and non-transparent drops
- Online measurement of the digital spray pattern
- Inline measurement of the spray quality in the production process
- Easy-to-use without adjustment
- Measurement under explosive conditions (ATEX) and during electrostatic atomization
The **SpraySpy**®-Technology

The SpraySpy® technology is a counting measurement technique based on the light scattering of a moving droplet or particle, illuminated by an inhomogeneous light beam. The resulting light scattering is separated by the acquisition time into the individual scattering orders and registered by photon detectors. The characteristics of the scattering orders are correlated with the size, velocity and opacity of the droplet or particle.

**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

**Digital Spray Pattern: Pneumatic Atomizer**

Operating parameters:

- Air pressure = 1,3 bar
- Medium = Base Coat
**SpraySpy® specification**

<table>
<thead>
<tr>
<th>Model</th>
<th><strong>SpraySpy® Process Line</strong></th>
<th><strong>SpraySpy® Lab Line</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PL100</td>
<td>LL350</td>
</tr>
<tr>
<td></td>
<td>PL200</td>
<td>LL450</td>
</tr>
<tr>
<td></td>
<td>LL550</td>
<td></td>
</tr>
<tr>
<td>Measured Parameters</td>
<td>Spray variation via: Drop size, Drop velocity, Amount of drops</td>
<td>Drop size, Drop velocity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Output</td>
<td>Current interface 4-20mA or Ethernet</td>
<td>Ethernet</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>&gt; 1µm, &lt; 100 m/s</td>
<td>&gt; 1µm, &lt; 100 m/s</td>
</tr>
<tr>
<td>Conditions</td>
<td>No, No</td>
<td>Zone 1, Yes</td>
</tr>
<tr>
<td>• ATEX</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>• ESTA</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Drop size: 1.7%, Drop velocity: 0.6%, Drop amount: 1.5%</td>
<td>Drop size: 1.7%, Drop velocity: 0.6%, Drop amount: 1.5%</td>
</tr>
<tr>
<td>Type of Particles</td>
<td>Transparent, Semi-Transparent &amp; Non-Transparent</td>
<td>Transparent, Semi-Transparent &amp; Non-Transparent</td>
</tr>
<tr>
<td>Set-up</td>
<td>Backscatter</td>
<td>Backscatter</td>
</tr>
<tr>
<td>Hardware Size</td>
<td>Sensor Unit: ~220 x 150 x 50 mm, Control Unit: ~600 x 482 x 222 mm</td>
<td>Sensor Unit: ~200 x 167 x 150 mm, Control Unit: ~600 x 482 x 222 mm</td>
</tr>
</tbody>
</table>

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