DROP SHAPE ANALYZER – DSA INKJET

WATCHING OUT FOR PRINTING PRECISION

KRÜSS

Advancing your Surface Science

PROGRESS FROM DROP WATCHING TO AUTOMATED ANALYSIS

- **Live video presentation of drops in flight**
- **Automated image analysis with a vast number of results**
- **Reliable results due to permanent image calibration**

High quality inkjet printing makes the perfect interplay between print head control and the ink indispensable. We have developed the Drop Shape Analyzer – DSA Inkjet to support you in reaching this goal, using a highly innovative optical system for analyzing jet streams of ink droplets produced by the print head. With this direct approach, the DSA Inkjet helps you in optimizing your ink formulations as well as the printing process.

Innovative optical setup for imaging and analyzing drops

Different-colored light flashes in quick succession double-expose the drop in one and the same video frame of a color camera. By separating the color channels, discrete images of the same drop are obtained at intervals of a few microseconds. This opens up unprecedented opportunities of watching the behavior of drops in flight live and to analyze them. Even difficult situations such as overlapping images of ligaments or satellite drops pose no problem for the automated and user-independent image evaluation.

All there is to know about your drop of ink

Each measurement provides a vast number of instructive result parameters:

- Speed of the drop
- Drop volume
- Trajectory (deviation from the vertical)
- Ligament length
- Number of drop parts in case of satellite drops

By receiving these results as a quick feedback to the print parameter settings, you can use them to test a particular ink or to optimize the printing process. Moreover, with easy-to-create automation programs of the ADVANCE software, measurements at controlled conditions with maximum repeatability provide for standardized tests of ink formulations.

No need for manual image scale determination

To measure real drop dimensions such as volume or ligament length as well as accurate drop speed, the image scale is automatically determined with the aid of a calibration grid regularly projected into the camera image. This eliminates the need for image calibration when changing the zoom, saving time and ensuring reliable results.

AS VERSATILE AS INKJET PRINTING ITSELF

- **Watching nozzles to ensure long service life**
- **Equipped for long-term measurements and UV-curing inks**
- **Printing trigger or control of compatible print heads**

MEASURING OPTIONS

- Triggering printing electronics or controlling printing parameters for compatible heads
- Watching the resulting drop behavior live
- Automated image analysis providing results such as volume, speed, trajectory, ligament length, and number of droplet parts
- Parallel video observation of the nozzles from below
- Fully automated image scale determination
- Long-term measurements and analysis of UV-curing inks

Intuitive print head control

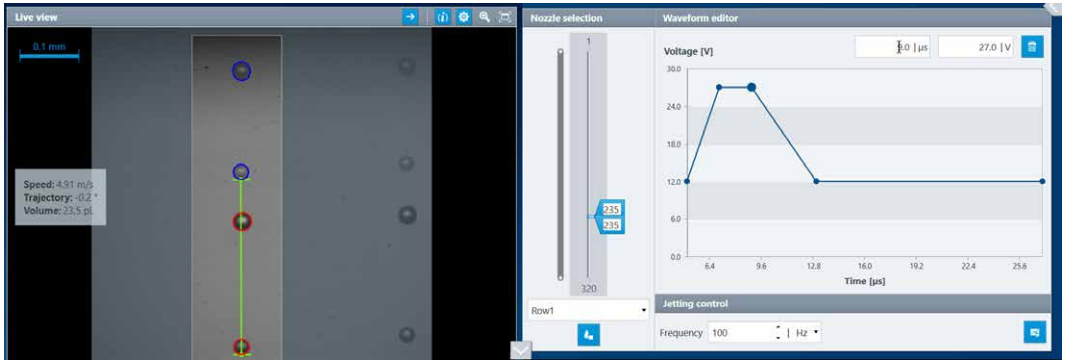
Drop formation and analysis are exactly synchronized by triggering drop generation at the print head. Moreover, integrated printing electronics for compatible print heads and an easy-to-use waveform editor of the ADVANCE software enables electronic control in a real printing process.

Making wetting of nozzles visible

Wetting of the print head during printing can deflect the drop jet and clog the nozzles by drying out. To make ink drops visible at the nozzle rows, separate optics and illumination as well as a second camera provide a video image of the nozzles from below.

Thoughtful setup for practical suitability

The hardware components of the DSA Inkjet provide for safe and versatile use. Inserting the print head and focusing on single nozzles is carried out in a few easy steps thanks to the three-dimensional fine-positioning system. The instrument is also equipped with a storage tank to supply the print head with ink during long-term measurements, whereby the drops are collected in a waste container. A suction device prevents exposure to harmful vapors. Thanks to a UV protection cover, UV-curing inks such as those used for 3D printing can also be examined.

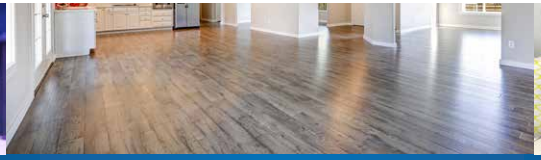


Automated analysis even with split drops

ALWAYS CLOSE TO YOU

At KRÜSS, we combine technical know-how and scientific expertise with plenty of passion. That is why we not only produce high-quality measuring instruments for surface and interfacial chemistry – we offer a unique combination of product and scientific consulting. Our continuous know-how transfer ensures that not only we at KRÜSS keep pace with scientific developments, but also our customers.

In this way, we help you to optimize and make better use of your technologies. This has made us the global market leader in the field of surface and interfacial tension measurement. As a matter of course, we will gladly support you with further information as well. Feel free to ask us about publications, application cases, and helpful information about other KRÜSS products. We are always close to you.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