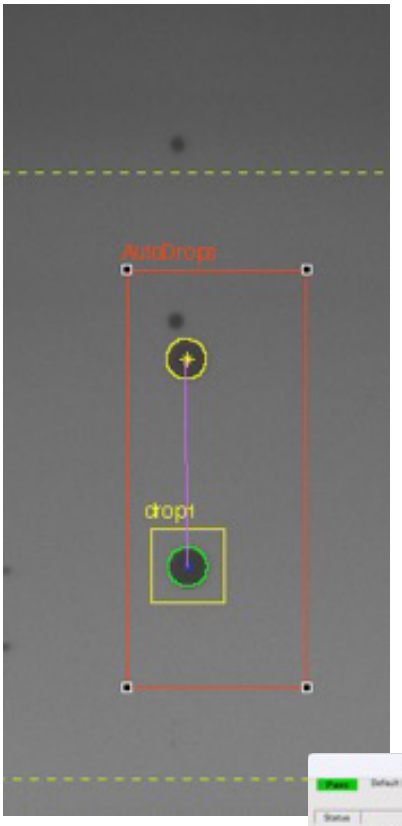
jetXpert™

imageXpert

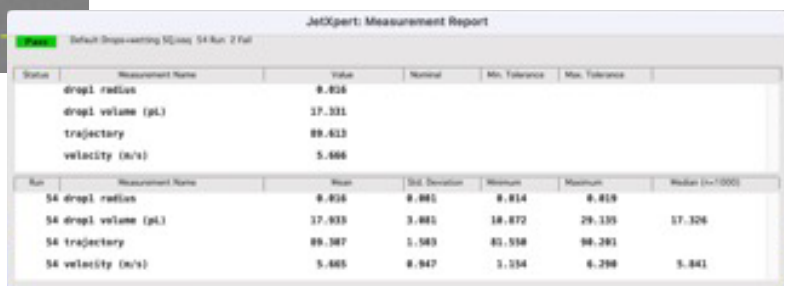
Fully integrated drop-in-flight analysis system

Features and Benefits

Characterize performance and drive optimization of ink, printing systems, and deposition systems



- Visualize drop formation, consistency, and stability
- Measure drop volume, velocity, and trajectory, as well as satellites and ligament volumes
- Produce accurate statistics and capture transient effects with single event imaging of individual drops
- Automate common tests like frequency sweeping, waveform optimization, open time studies, and more
- Work with any printhead or driver in the market



Volume, velocity, and trajectory measurement

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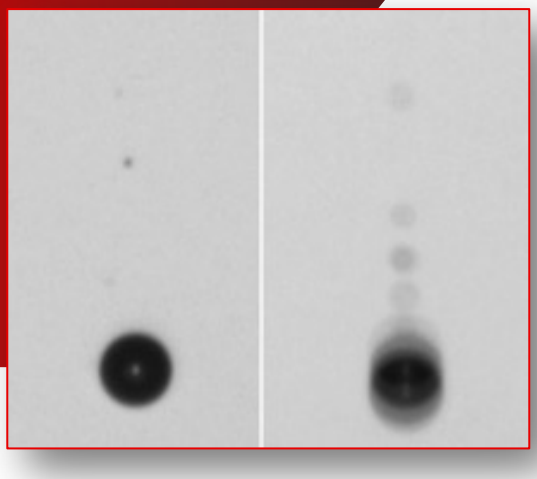
Accurate Measurements of Critical Data

- 0.5 µm resolution imaging of drops, satellites, and mist
- Single strobe event capability for individual drop imaging
- 100 ns minimum strobe pulse width eliminates blur
- Easily calibrated with specialized target
- NIST traceable upon request



Single event image of single droplet (left) vs. 5 drop aggregate droplet image (right)

Works with any Printhead

Fujifilm Dimatix, Xaar, Konica Minolta, Ricoh, Kyocera, Toshiba Tec, HP, Trident, and more

JetXpert uses the firing signal of the printhead to synchronize the strobe and trigger image capture

Works with any Driver

Use JetXpert with any drive electronics. Works with Global Inkjet Systems, Meteor, AEWA, OEM, or your own

Small Footprint

JetXpert was designed with a small footprint (24" optical head) for use in lab and production environments where space is at a premium

Statistical Data Collection

- Measure and record real time jetting performance
- Data archived in tab-delimited text or Microsoft Excel files
- Collect measurement over time to measure system stability

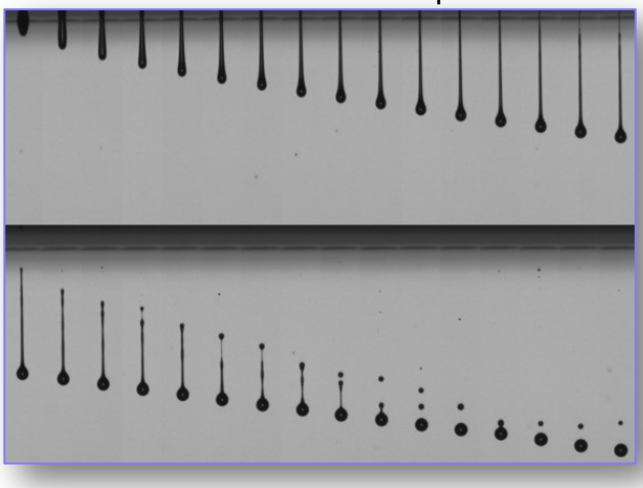
Easy to Use

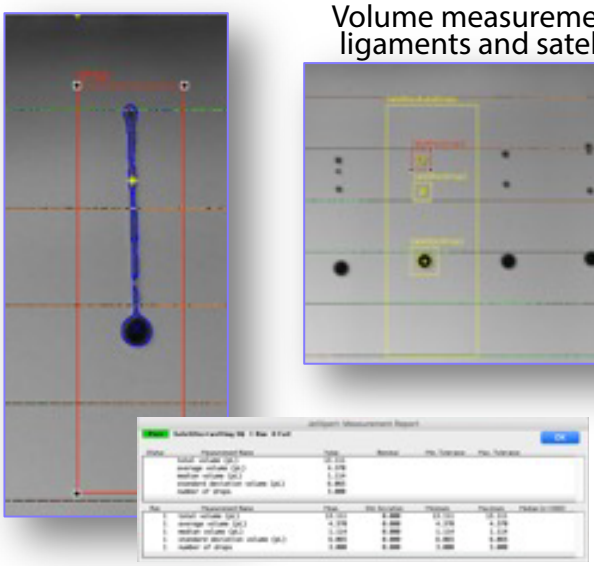
- Intuitive user interface for drop analysis and data collection
- Easy calibration procedure
- Efficient printhead alignment and mounting mechanisms

Performance Characterization

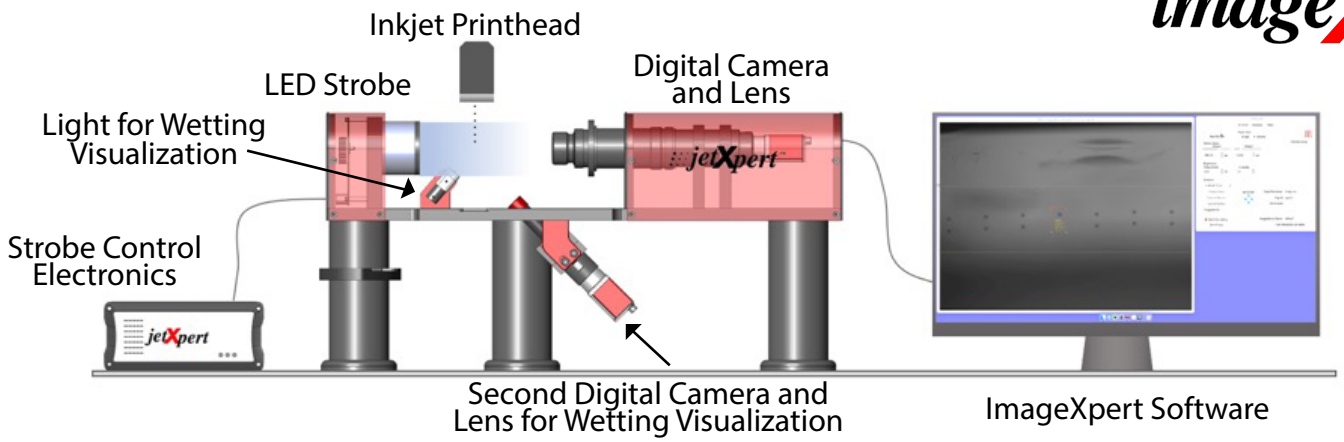
- Measure drop velocity, volume, and trajectory
- Measure ligament length and volume
- Visualize drop formation
- Measure variation in jetting performance

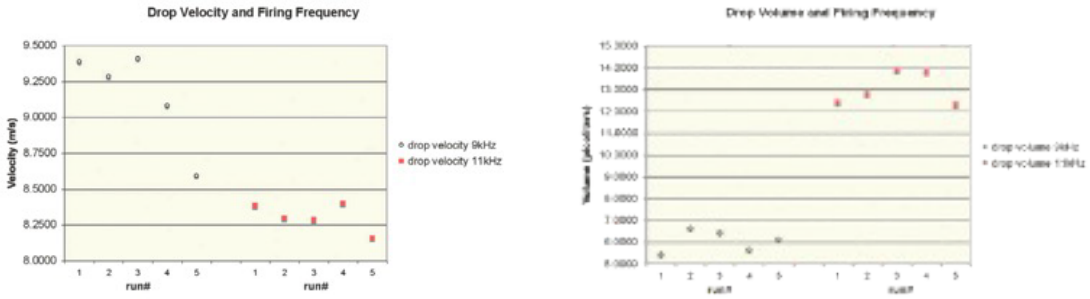
View of Droplet Formation





Volume measurement of ligaments and satellites





Characterize Printhead Performance

System Configuration	
Pulse Width	Minimum pulse width of 100ns, increment by 100ns
Pulse Options	Single event imaging, with single and double drop capabilities. Aggregate imaging available
Min / Max Input Frequency	Minimum: <1 Hz; Maximum: 130 kHz at 50% duty cycle. Ongoing development may increase range. System can read input frequency.
Input Signal Options	5V TTL up to 20V input signal via firing signal or external signal generator
Internal Frequency Generator	Output frequency under 10KHz, step size 1Hz; 10-100kHz, step size 10Hz; 100-130kHz, step size 1kHz. 5V TTL 50% duty cycle
Image / Movie Capture	Images (TIFF); image series and movies (AVI) can be captures and saved
Interface	Strobe parameters set via GUI (or ImageXpert tasks) and communicated via RS232. Digital control of settings for repeatable drop imaging and analysis
Light Source	High Intensity LED Strobe with 475nm wavelength (550nm available upon request)
Camera	Black and white GigE camera, 1292 v 964 pixels, manual focus
Lens	Standard configuration: zoom lens with 1-6mm field of view and 0.8-5.1 micron/pixel resolution. Fixed focal length lens or 0.5 micron/pixel resolution optional
Calibration	Calibration target with 1 micron accuracy. Camera must be recalibrated after changing zoom
Analysis	Equipped with powerful ImageXpert image analysis machine vision software
Printhead Electronics	Printheads powered by separate drive electronics
System Power	Autoswitching 110-220V 50-60Hz

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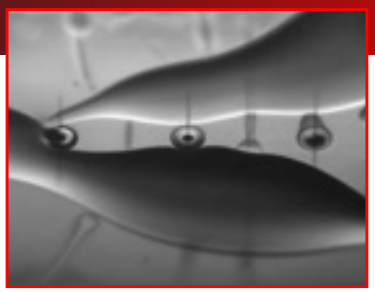
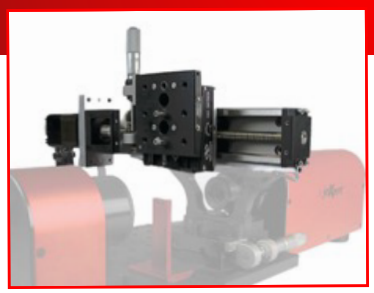
Options and Add-Ons



Nozzle Plate Visualization

A second camera system is angled to image the nozzle plate from below during firing. Single images, image series, and movies can be captured and saved.
Cameras and lenses have easy to clean protective shields

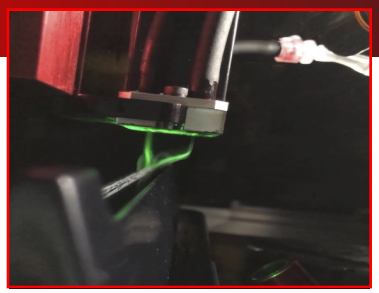


iX Motion

Fully automated sequential analysis of all jets on a printhead is enabled with one axis of motion. Automatically profile jet performance across the printhead, and assess jet drop-outs during sustainability and life testings.

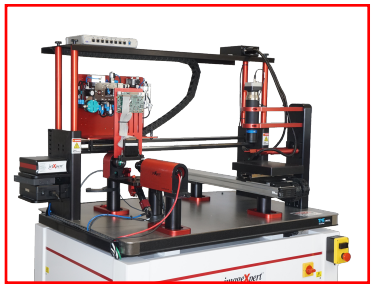
Drivers, Heads, Mounts, and Ink Supplies

Printhead mountings designed specifically for the JetXpert are available for all major printheads. New mountings are always being designed and custom mountings are available. Allow us to integrate the driver, printhead, and ink supply for you! Contact us for more information.



Vacuum Ink Collector

An effective system for managing ink mist in a laboratory environment. Mist passes through a separator and HEPA filter on the way out of the system, leaving the ink behind for easy disposal.
All components are integrated into a mobile workstation creating a completely standalone system.

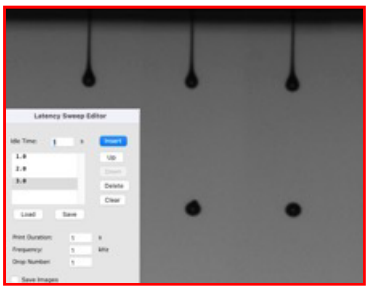


Print Station

Integrate your JetXpert into a Print Station. Analyze drops and print quality together in an all-in-one system. Ideal for optimizing ink formulations, waveforms, substrates, coatings, and jetting conditions. Available as a single pass, roll-to-roll, scanning, or 3D layer printer.

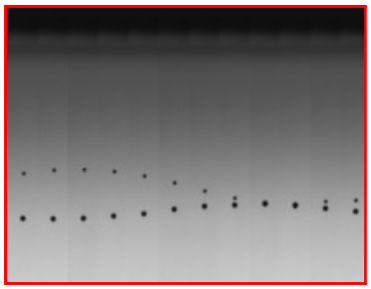
Stitch

The Stitch Analysis Tool for JetXpert automatically records drop formation in a single image, allowing the user to quickly see the impact of changing ink formulations and waveforms on drop formation. It's perfect for marketing and collaboration with both customers and colleagues.



Latency

When ink remains dormant in a nozzle for a period of time, volatile components of the ink can begin to evaporate, resulting in a change in the properties of the ink near the opening. JetXpert Latency provides two powerful tools to analyze the behavior of the inks after periods of non-jetting: Latency MultiDrop and Latency Sweep.



XSweep

Sweep driver settings through a range of user-defined values within JetXpert. Vary parameters such as voltage, pulse width, and frequency to rapidly optimize your jetting parameters. This add-on is great for studying waveforms and the effects that driver parameters have on jetting.

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