



XY Materials Deposition System

XY Materials Deposition Systems combine precision, reliability, and maintainability in a comprehensive line of ink jet development tools. They provide developers with a flexible, sophisticated platform for the development of ink jet based production processes, jettable fluids, and the analysis of the interaction between fluids and solid substrates.

- Minimizes start-up time for print head integration
- Shortens overall product time to market
- Simplifies development of production equipment with proven hardware and precise motion control software
- Integrates with multiple print head vendors

The XY Materials Deposition System provides highly precise, flexible tools to analyze UV inks, biological fluids, and electronic materials deposition. It accommodates rigid or flexible substrates ranging from 6" x 6" to 16" x 16". Available in table top (TT), floor standing (FS), and floor standing ultraviolet curing (FS/UV) models, all systems allow the jetting of up to four separate materials and/or inks.

For the ultimate flexibility in printing capabilities, users can input process and print head resolutions, desired cross-process resolution, print speed and direction, jog speed, plus print head angle and separation.

The XYMDS is a proven system used in process and fluid development by industrial users, ink developers and print head suppliers. XYMDS has been installed at customer sites since 2002 and has an excellent track record. XYMDS has been used in the development of UV curable inks, conductive fluids and jettable adhesives, among other applications.

Simple solutions. Powerful results.

At imaging Technology international Corporation, we craft deceptively simple solutions to complex challenges in digital ink jet integration and print head development. These breakthroughs deliver outstanding performance and cost-effective operation for high-value production processes. With advanced tools and a proven track record that dates back to 1992, iTi can shape a world-class solution that makes sense for any ink jet challenge.

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Physical Attributes

XYMDS Table Top (TT) and Floor Standing (FS) models:

- High-speed precision Parker Daedal positioning stages for X and Y axis
 - 404 LXR Linear Servo Motor Series
 - 0.5 μm linear encoder standard for both axes
 - Max speed of 1.0 m/sec
 - Max acceleration of 5 G's
 - Positional Repeatability of $\pm 1.0 \mu\text{m}$
 - Positional Accuracy of 8 μm over 150 mm, 14 μm over 300 mm
- Standard print area
 - 150 mm x 150 mm for TT Model
 - 300 mm x 300 mm for FS Model
- Stainless steel and anodized aluminum components
- Ink delivery and system controller integrated into each model
- 1, 2, or 4 print heads easily adjust for resolution and interlace
- Manual Z-axis adjustable from 0 mm to 75 mm
- X, Y, and Theta micrometers on each print head for alignment
- iTi Drop Watcher can be integrated with either model
- Casters and leveling feet on FS Model
- FS Model dimensions – 1829 mm L x 1016 mm W x 2007 mm H (72" x 40" x 79") weighing approximately 566 kg (1250 lbs)
- Leveling feet on TT Model
- TT Model dimensions – 1372 mm L x 610 mm W x 1118 mm H (54" x 24" x 44"); weighing approximately 272 kg (600 lbs)

XYMDS Floor Standing with UV curing option (FS/UV):

- Provisions for mounting a UV lamp, IR, or hot air blower for curing
- Curing station completely enclosed for safety and convenience
- Separate exhaust for curing station
- FS/UV Model comes standard with HEPA filter ventilation and exhaust

Functionality

For all models:

- Print heads mounted on a 2 axis gantry for macro positioning
- Z-axis adjustment to allow substrate materials up to 75 mm thick
- Each print head has x, y, and theta micrometer adjustment for precise alignment
- User manually orients print heads, loads an image, and instructs the system through the graphical user interface to set the following parameters:
 - Process and print head resolution
 - Print speed and print direction
 - Print head separation and saber angle
 - Jog speed and home position
- Platen moves under stationary print heads during printing
- Total print area determined by print head separation, interlacing, and number of materials printed
- Print process allows assignment of color or material to print heads and flexible sequencing of color/material deposits, including multiple passes of the same material

FS/UV model only:

- Unit moves the platen over to the drying/curing area, and then scans the platen at a user-specified speed, ensuring that every pixel printed is exposed directly under the drying/curing device
- Print process allows arbitrary insertion of drying/curing passes into the color/material deposition order. User can set the platen speed during the drying/curing process.
- Software automatically controls platen access into the drying/curing area and shuttering of the drying/curing device. User can power on or expose the cure device at will, provided the external shutters and doors are closed when the system is not printing.

Electrical Specifications

- Maximum 30 A at 220VAC (US single phase, four-wire: 2 line, 1 neutral, 1 ground)
- If a UV curing lamp is selected, it is expected to take up to 3 minutes to warm up for normal operation from a cold start
- System control is through a standard Windows PC and lighted button panel
- Emergency Power Off (EPO) switches immediately cut power to all systems, including the drying/curing device
- Print head drive electronics may be integrated into system cabinet or be stand alone and tethered to the system
- Integrated drying/curing device power supply
- Optional features for all models include vacuum platen, heated platen, motorized z-axis, and integrated Drop Watcher
- Optional features for FS models only include enclosure, lighting, and HEPA filter

FS/UV Model Sample

- UV Curing Device – FusionUV I301M
- UV Cooling Device – FusionUV K300M Modular Blower or similar
- UV Power Supply – FusionUV P300M
- Print heads – fully integrated with all Spectra print heads. The SX-128 requires TDC electronics from Spectra.
- Yellow fluorescent and lighting installed in the enclosure light fixtures for UV control

