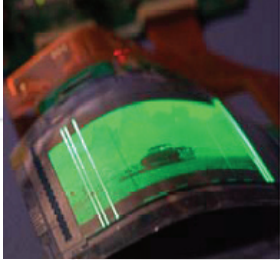


Aerosol Jet®



Display Lab System

Development Platform for Fully Printed Display Applications



Flexible Display

The Aerosol Jet® Display Lab system is ideally suited for research and development of next generation Touch Screen and Display applications, replacing costly photolithographic and vacuum based processes.



Aerosol Jet Display Lab System

The Aerosol Jet Display Lab system is an ideal platform for developing next generation display products. With an expanded work envelope, the system enables printing on a wide variety of flexible and rigid substrates up to GEN 2 size. The system is equipped with patented Aerosol Jet technology enabling high resolution deposition of a wide variety of materials including conductive nano-particle inks, insulators, dielectrics, polymers, adhesives and other advanced materials used to fabricate display products.

The Aerosol Jet process is a breakthrough deposition technology enabling finer feature sizes than traditional ink-jet or screen print processes. The Aerosol Jet process utilizes an innovative Direct-Write, aerodynamic focusing technology that produces high resolution features as small as 10 microns without the need for masks or secondary processing steps. And when it's time to move into volume production, Aerosol Jet technology is available in standard and custom multi-nozzle dispensing configurations to meet your throughput requirements.

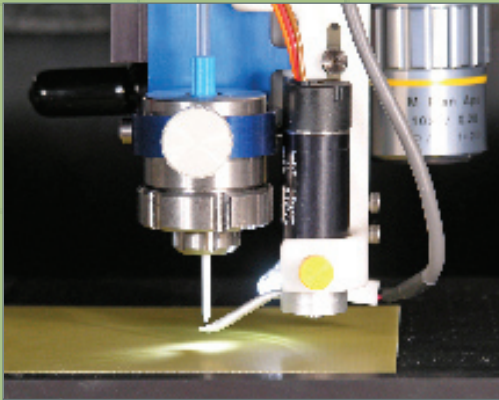
FEATURES

- » Feature Sizes to <10 microns
- » GEN 2 Substrate Support
- » Proven Scalability
- » Wide Variety of Conductive Materials
- » Nanomaterial Deposition Capability
- » Rigid & Flexible Substrates
- » Low Temperature Processing
- » Less Environmental Impact-
Minimal Waste/Chemicals

APPLICATIONS

- » Bus Line Bridge & Jumper Circuits
- » Edge Interconnect Circuits for Mobile Devices
- » Repair & Re-Work of Production Defects
- » Fully Printed Thin Film Transistors

Aerosol Jet Process

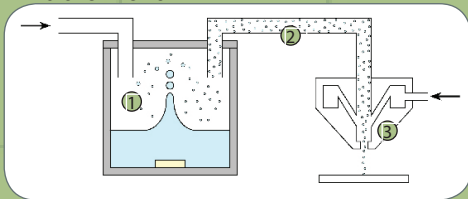


How the Aerosol Jet process works:

(1) Liquid material is placed into an atomizer, creating a dense aerosol of tiny droplets between 1-5 microns in size.

(2) The aerosol is carried by a gas flow to the deposition head (with optional in-flight processing).

(3) Within the deposition head, the aerosol is focused by a second gas flow and the resulting high velocity stream is deposited onto the substrate creating features as small as 10 microns in size.

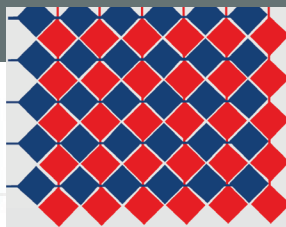


A motion-control system allows for the creation of complex patterns on the substrate. For low-temperature substrates, deposited material can be laser-sintered to achieve properties near those of the bulk material without damage to the surrounding substrate.

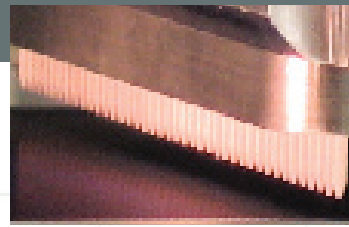
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Bus Line Bridge Jumpers
for Touch Screen Displays



Multi-nozzle dispensing for
high volume production



Edge Interconnect Circuits

The Display Lab comes with a number of options to meet the most demanding process requirements.

Aerosol Jet Display Lab Specifications

Minimum line width	10 μm , 20 μm pitch (material dependent)
Single Pass Layer Thickness	100 nanometers to 2+ μm
Print Speed	100mm/s typical
Mechanical shutter	Response time 2 ms
Ink Viscosity Range	
Ultrasonic Atomizer	5 °C – 50 °C (Temperature stabilized water bath required-see below)
Pneumatic Atomizer	1 to 1000 cP (Heating may be used to reduce ink viscosity to achieve atomization of more viscous inks)
Pneumatic Atomizer heater/stirrer	Controls ink temperature, 25-60°C, Stirrer keeps particles suspended
Platen	370mm x 470 mm; temp control up to 120°C
Laser (Optional)	700mW 830nm IR Multimode Laser System including Class I Laser Safe Hood
Droplet size	1-5 μm \varnothing
Stand-off height	Up to 5mm
Motion accuracy	+/- 6 μm for each axis
Motion repeatability	+/- 1 μm for each axis
Stand alone system dimensions	1020mm x 1375mm x 2240 mm (Does not include dimensions for ErgoArm and monitor)
Stand alone system weight	795 kg
Electrical	220 Volts AC, 30 Amps
Utilities	
Gas	CFM Nitrogen Gas Input @ 80 PSI for atomizer operation
Coolant	Requirements for Ultrasonic Atomizer: Temp Range: 10C – 40C; Heating/Cooling Capacity: 240 W at set point; Pump Flow: 15LPM; ¼ inch tube connection In-House H ₂ O supply is not recommended
Warranty	One year limited warranty

ABOUT THE COMPANY

Optomec[®] is the world leading provider of additive manufacturing systems for high-performance applications in the Electronics, Biomedical, Photovoltaic, and Aerospace & Defense markets. The company's experienced product engineering and process development team is dedicated to creating solutions for breakthrough production capabilities.

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