



Print Engine

The Aerosol Jet Print Engine supports a wide array of application specific print requirements and is designed for integration with third party production automation solutions.

Optomec's Aerosol Jet Print Engine has been developed to meet a wide variety of direct-write, non-contact manufacturing requirements in display, semiconductor, solar, fuel cell, life science, and other advanced application areas. The Print Engine consists of a Logic Control Unit (LCU) that controls up to two Process Control Modules (PCM) and up to four Aerosol Jet Print Modules. The LCU features embedded processor controls and Ethernet protocol communications to manage PCM processes such as flow settings and process temperatures along with interface settings with third party automation solutions.

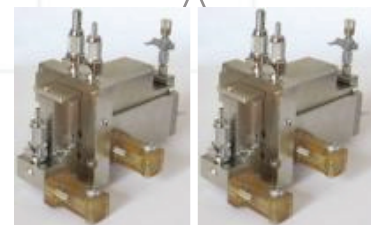
FEATURES

- » Logic Control Unit (LCU)
 - Highly configurable to meet evolving manufacturing requirements
 - Ethernet Protocol facilitates automation integration
 - Supports up to 2 Process Control Modules
- » Process Control Module (PCM)
 - High accuracy digital MFC's plus:
 - On board process temperature control for Printhead & atomizer
 - Improved process stability
 - Each PCM supports up to 2 Printheads
 - Meets production scaling requirements
- » Aerosol Jet Print Modules
 - Sprint & Marathon Series
 - Single & multi-nozzle Printheads for fine line applications
 - Wide nozzle Printheads for coating applications

APPLICATIONS

- » High-density traces for flat panel displays, solar cells, etc.
- » 3D interconnects for stacked die packaging
- » Selective and wide area coating applications

Aerosol Jet Print Engine



Marathon Print Modules

POWERED BY OPTOMEAC



Camalot for 3D Interconnects
Courtesy: Speedline Technologies



NEOSYS-8500 LOR for FPD
Courtesy: Micronics Japan Co.

The Aerosol Jet Print Engine has been integrated into wafer handling, display, semiconductor, and life science automation solutions.

3D IC, LOR & PV SYSTEM FEATURES

- » 15,000+ interconnects/ hour for 3D stacked die applications
- » 10 micron conductors for Line Open Repair (LOR) for displays
- » High throughput metallization for 2400+ photovoltaic wafers/hour
- » Ethernet communications speeds automation platform integration
- » Easy to maintain and service

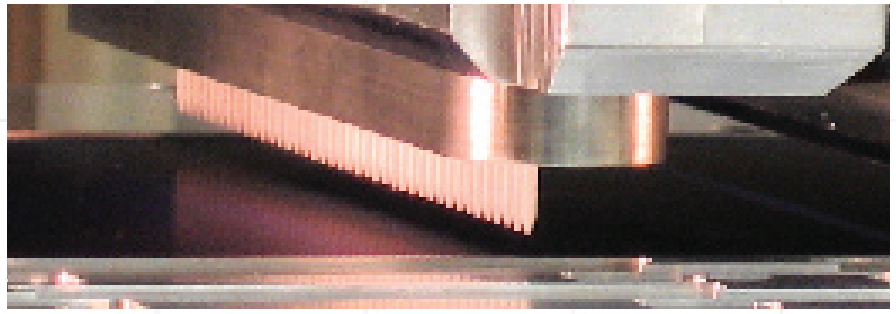
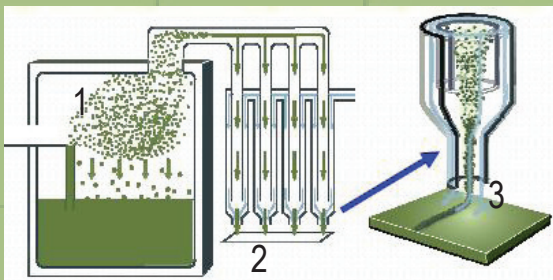
Aerosol Jet Print Process

How the Aerosol Jet process works:

(1) A liquid sample is atomized, creating a dense aerosol composed of droplets with diameters between approximately 1 and 5 microns.

(2) The aerosol is injected into the deposition head using an inert carrier gas.

(3) The aerosol is focused within the deposition head by an annular sheath gas. The resulting high-velocity particle stream is deposited onto the substrate, creating features ranging from 10 microns to 1.5mm with thicknesses from 100 nanometers to 10+ microns.



Aerosol Jet 40 Nozzle Printhead for metallization of solar cells.

Aerosol Jet Print Engine Specifications

LCU (Logic Control Unit)	Ethernet 100MB TCP/IP
PCM (Process Control Module)	Up to 2 per LCU, Supports 2 Printheads per PCM
Process	Gas based print system
Compressed Air	550 to 880kPa
Compressed Air Flow	50 l/min (max with current Printheads)
Ink Viscosity Range	1.0 to 1000 cP for printed contacts
Droplet Size	1-5 microns Ø
Write Speed	Up to 100mm/s
Atomizer	Pneumatic
Aerosol Jet Printheads	Marathon and Sprint Series
Stand-Off Height	Up to 5mm from substrate
Certifications	CE certified
System Dimensions	Rack Mount 6U, 19" W x 24" D
Max Power	1.4 Kw



ABOUT THE COMPANY

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

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