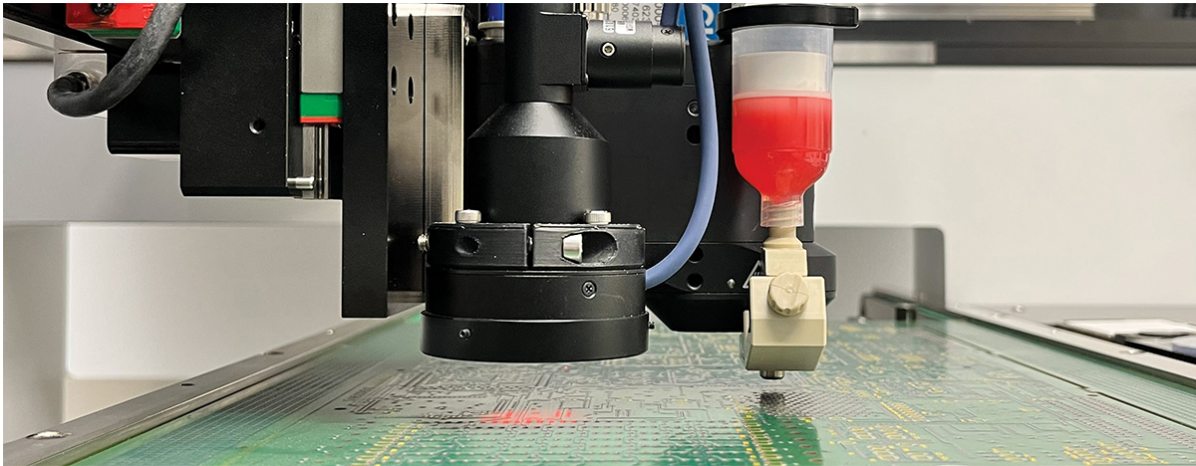




Solder Paste Jetting for Advanced Electronics Manufacturing



Precision Solder Deposition for Next-Generation AI Infrastructure

As artificial intelligence, cloud computing, and high-performance computing continue to push the limits of semiconductor and electronics design, manufacturers require more flexible and precise assembly processes. Solder paste jetting technology helps address these challenges by enabling accurate, non-contact solder deposition for complex electronic assemblies used throughout AI and data center hardware.

Unlike traditional stencil printing methods, solder paste jetting deposits precise volumes of solder paste exactly where needed without physical contact with the substrate. This provides greater flexibility when assembling densely populated circuit boards, advanced semiconductor packages, and high-performance computing systems.

Why Solder Paste Jetting Matters for AI Hardware

Modern AI servers and data center systems depend on increasingly sophisticated electronic architectures, including:

- AI Accelerators
- GPUs
- High-Performance CPUs
- High-Bandwidth Memory (HBM)
- Networking Equipment
- Power Management Modules
- Advanced Storage Systems

As component densities increase and package designs become more complex, conventional stencil-based solder deposition methods can introduce limitations related to tooling, accessibility, and process flexibility.

[Solder paste jetting](#) provides manufacturers with an alternative approach that supports evolving electronics manufacturing requirements while maintaining process accuracy and repeatability.

Benefits of Non-Contact Solder Paste Jetting

Greater Manufacturing Flexibility

Jetting technology eliminates the need for dedicated stencils, allowing manufacturers to quickly adapt to design changes, prototype builds, and production volumes.

Access to Difficult-to-Reach Locations

Non-contact deposition enables placement of solder paste in areas where traditional printing processes may be difficult to implement, supporting increasingly complex PCB and package designs.

Optimize Solder Volume for Boards with Mixed Component Sizes

When a PCB contains a wide range of component sizes, stencil printing can force trade-offs in solder paste volume across the board. Solder paste jetting eliminates these compromises by depositing the precise amount of solder needed at each location. This flexibility supports high-quality solder joints, improved process control, and more reliable assembly of mixed-component designs

Reduced Tooling Requirements

By removing the need for custom stencil fabrication, manufacturers can accelerate product development cycles while reducing tooling costs.

Improved Process Efficiency

Precise volumetric control helps ensure consistent solder deposits while minimizing waste and supporting production repeatability.

Support for High-Mix Manufacturing

AI and networking hardware manufacturers often manage multiple product variants. Solder paste jetting enables faster product transitions without frequent stencil changes or process interruptions.

Supporting Advanced Semiconductor Packaging

As advanced packaging technologies become increasingly important for AI processors and high-performance computing devices, manufacturers require flexible solder deposition solutions capable of supporting evolving package architectures.

Solder paste jetting can support applications involving:

- Advanced Semiconductor Packaging
- Package Substrates
- System-in-Package (SiP) Assemblies
- High-Density Interconnect (HDI) Boards
- Prototype and New Product Introduction (NPI)
- Fine-Pitch Electronic Assemblies
- Pin-in-Paste for Mixed-Technology Boards
- Supplemental Solder Paste to expand the capabilities of an existing SMT line

Combined with precision dispensing technologies used for [underfill](#), [thermal interface materials \(TIMs\)](#), and [conductive adhesives](#), solder paste jetting helps support the manufacturing processes behind next-generation AI hardware.

Applications in Data Center Electronics Manufacturing

Solder paste jetting is commonly used in manufacturing environments that support:

AI Servers

Accurate solder deposition helps ensure reliable assembly of processor boards, accelerator modules, and server electronics designed for continuous operation.

Networking Hardware

Switches, routers, and optical networking systems require highly reliable solder connections to maintain performance within data center environments.

Power Electronics

Power delivery systems supporting modern AI infrastructure depend on robust electronic assemblies capable of handling increasing power densities.

High-Density Electronics

As component spacing decreases and board complexity increases, non-contact jetting helps maintain process precision across intricate assemblies.

Enabling the Future of AI Manufacturing

The rapid expansion of AI infrastructure continues to increase demand for advanced electronics manufacturing technologies. Solder paste jetting provides semiconductor and electronics manufacturers with a flexible, precision-driven solution for assembling the high-performance hardware that powers modern data centers.

By combining non-contact solder deposition with advanced dispensing technologies for [underfill](#), [thermal management](#), [adhesives](#), and [encapsulation](#), manufacturers can improve process control, accelerate product development, and support the next generation of AI-enabled computing systems.