西湖未来智造
enovate3D

ULTRA-HIGH PRECISION FLUID DISPENSER

EP600-FD

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Enhance Dispensing Accuracy

Minimize Adhesive Overflow

Optimize Performance in Micro-Volume Dispensing Scenarios

enovate3D's EP600-FD precision dispensing equipment utilizes pneumatic extrusion-based direct writing printing technology, combined with a self-developed adjustable array multinozzle printing module or tilted printing module, to achieve precise dispensing of encapsulation adhesives such as epoxy and UV-curable resins. These adhesives serve critical functions including chip perimeter protection and wafer bonding/encapsulation. Users can automate dispensing operations through CAD-driven programming or parametric programming, replacing traditional jetting solutions to enhance dispensing accuracy, minimize adhesive overflow, and optimize performance in micro-volume dispensing scenarios.

KEY FEATURES

- The system supports substrate-level and wafer-level dispensing operations
- Software interface compatible with DXF and CAD file import or parametric programming
- Self-developed adjustable multinozzle printing module to adapt to diverse product layout
- Optional tilted printing modules
- Dam sealing on device sidewalls integrated in-situ UV curing module
- Self-developed adjustable multinozzle printing module to adapt to diverse product layout
- 12-inch (300 mm) wafer-level specifications

SPECIFICATIONS

Motion System	
Equipment Frame	Granite Motion Stage
Travel Range	600 mm(X) × 600 mm(Y) × 50 mm(Z)
Accuracy	X/Y: ±1 μm ; Z: ±5 μm
Max Motion Speed	X/Y: 500 mm/s ; Z: 100 mm/s
Max Acceleration	X/Y: 1 g ; Z:0.2 g
Printing System	
Printing Valve	DIW printing valve
Ink Volume	3 cc or 5 cc syringe barrels
Printing Nozzles	Ceramic nozzles; Inner diameter: 25 μm~250 μm
Handling System	
Substrate Dimensions	Configurable 8-inch or 12-inch product loading
Carrier Materials	Aluminum vacuum chuck
Handling Methods	Vacuum adsorption clamping; optional automatic loading/unloading module
Auxiliary System	
Vision System	5-megapixel vision camera; visual alignment accuracy: ±5 μm
Laser Rangefinder Sensor	Laser coaxial displacement sensor that supports dynamic height tracking of the print nozzles and substrate
Printhead Cleaning Unit	Automated roller brush cleaning or dust-free wiping for the print nozzles
Purification	Equipped with an FFU
Process Capacity	
Dispensing Accuracy	Smallest dispensing vol.: 1 nL; Variation:<10%; Dispensing accuracy<±15 μm
Operational Efficiency	Typical 75000 dot/h (ex. 250 μm dispensed dot)
Installation	
Equipment Dimensions	W2200 × D1400 × H2200 mm
Equipment Weight	1300 kg (approx.)
Electrical Requirements	220 VAC/ 50 Hz;4 kW
Air Supply Pressure	≥0.6 MPa(CDA)
Operating Environment	Temperature: 22±2 ℃;Humidity: ≤65%

APPLICATIONS

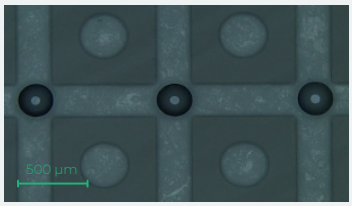
APPLICATION SCENARIOS

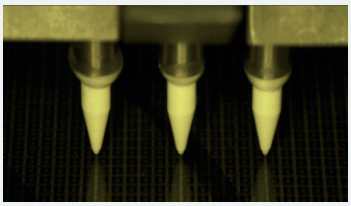
The system is applicable to precision dispensing applications for chips, wafers, glass substrates, and similar components. Compared to traditional jetting dispensing solutions, it demonstrates significant advantages in positional accuracy, dispensing efficiency, and adhesive volume consistency.

PROCESS SOLUTIONS

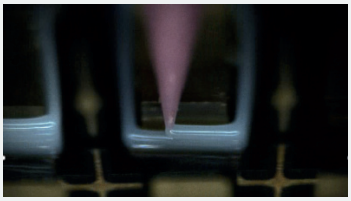
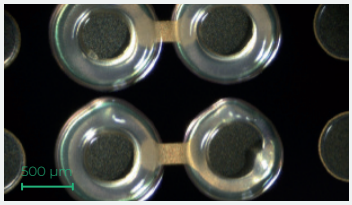
The dispensing materials include thermosetting and UV-curable encapsulation adhesives. Utilize multinozzle direct ink writing (DIW) technology for precise micro-volume fluid dispensing.

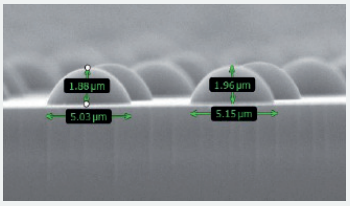
EXAMPLES



Multinozzle adhesive dispensing on silicon and glass wafer surfaces for multi-layer wafer bonding applications



Dam sealing applied to the sidewalls of chips and packaged components to protect the product from encapsulation-induced stress and molding compound infiltration

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