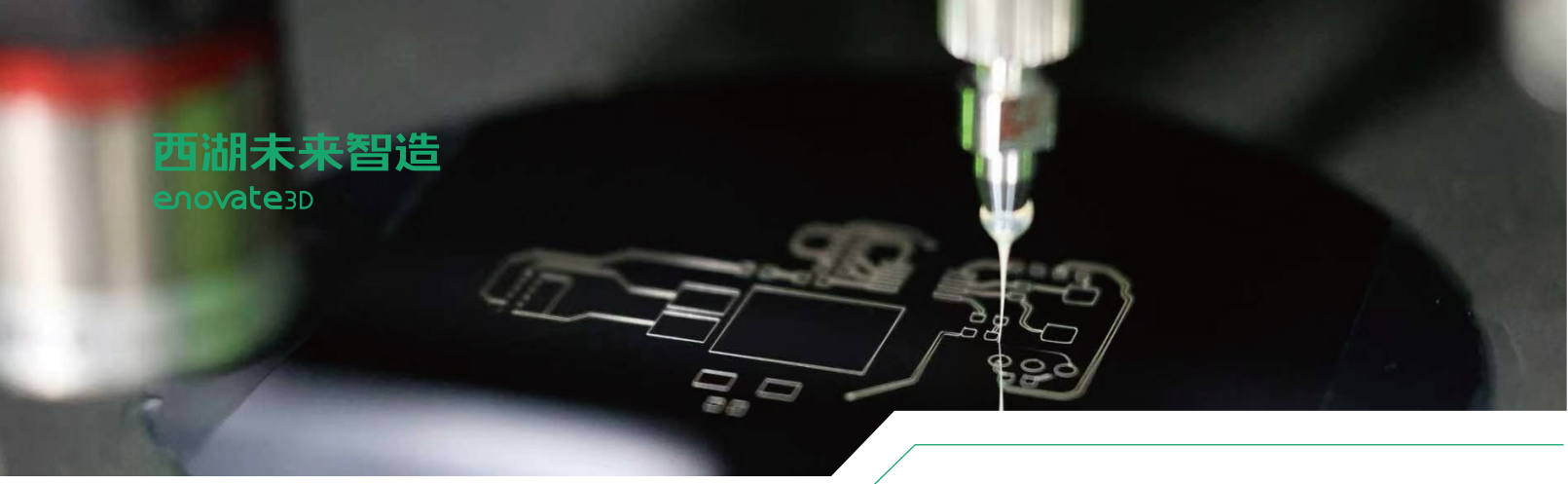
西湖未来智造
enovate3D

Next-Gen Functional AM &
Advanced Device Manufacturing Platform

ULTRA-HIGH PRECISION ADDITIVE MANUFACTURING SOLUTIONS FOR ELECTRONICS

· EP100 · EL400 · EP400 · EP600



KEY FEATURES

- Feature size as small as 1 μm
- Large material library for different applications
- Capable of printing 2D/ 2.5D/3D architectures
- Sharp and well-defined printed patterns with high line width uniformity
- Quick-change printhead modules
- Ultra-high material utilization rate

ULTRA-HIGH RESOLUTION DIRECT INK WRITING

Supports printing on various substrate surfaces: silicon, glass, polymer, ceramics, etc.

Excellent material compatibility. Supports the printing of high-viscosity inks.

Enabling single-pass printing of high aspect ratio and spanning structures.

Compatible with micro/nano metal inks, polymers, dielectrics, photoresists, and composite materials.

Precise topology measurement of substrate surface with real-time dynamic compensation during printing.

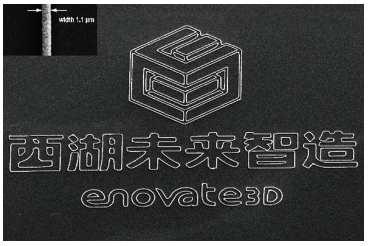
Supports CAD drawing import or parametric programming interface for one-click automated printing.

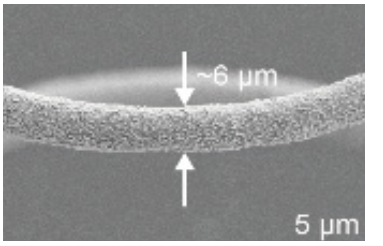
SPECIFICATIONS

Model	EP100	EL400	EP400	EP600
Motion System				
Equipment Frame	Steel Structure Motion Stage	Steel Structure Motion Stage	Granite Motion Stage	Granite Motion Stage
Working Area	100×100 mm	200×200 mm	200×200 mm	300×300 mm
Accuracy	X/Y: ±10 μm; Z1/Z2: ±5 μm	X/Y: ±10 μm; Z1/Z2: ±5 μm	X/Y: ±2 μm; Z1/Z2: ±5 μm	X/Y: ±2 μm; Z1/Z2: ±5 μm
Repeatability	X/Y: ±5 μm; Z1/Z2: ±2 μm	X/Y: ±5 μm; Z1/Z2: ±2 μm	X/Y: ±1 μm; Z1/Z2: ±2 μm	X/Y: ±1 μm; Z1/Z2: ±2 μm
Max Motion Velocity	X/Y: 100 mm/s; Z1/Z2: 100 mm/s	X/Y: 500 mm/s; Z1/Z2: 100 mm/s	X/Y: 500 mm/s; Z1/Z2: 100 mm/s	X/Y: 500 mm/s; Z1/Z2: 100 mm/s
Printing System				
Number of Processing Modules	2 sets of modules	2 sets of modules	2 sets of modules, expandable to 3 sets	2 sets of modules, expandable to 4 sets
Optional Processing Modules	The following replacement processing modules are available as optional extras (marked with a "√")			
Doctor Blade Coating	√	√	√	√
Mechanical Milling	√	√	√	√
Molten Alloy	√	√	√	√
Tilted Printing	—	√	√	√
Piezoelectric Jetting	—	√	√	√
Plasma Jet	—	—	√	√
Ultra-violet Picosecond Laser	—	—	—	√
Printing Nozzles	Glass, ceramic, stainless steel nozzles	Glass, ceramic, stainless steel nozzles	Glass, ceramic, stainless steel nozzles	Glass, ceramic, stainless steel nozzles
Printing Accuracy	Min. line width 10 μm	Min. line width 10 μm	Min. line width 1 μm	Min. line width 1 μm
Printing Materials	Conductive pastes, epoxy resins, silicone resins, UV resins, etc.	Conductive pastes, epoxy resins, silicone resins, UV resins, etc.	Conductive pastes, epoxy resins, silicone resins, UV resins, etc.	Conductive pastes, epoxy resins, silicone resins, UV resins, etc.
Printing Pressure Range	0-100 psi±0.5% FS	0-100 psi±0.5% FS	0-100 psi±0.5% FS	0-100 psi±0.5% FS
Loading System				
Loading Method	Vacuum chuck	Vacuum chuck	Vacuum chuck	Vacuum chuck
High-precision Z-axis movement	—	—	Optional: Z-axis movement with a precision of ±1 μm	Optional: Z-axis movement with a precision of ±1 μm
Auxiliary System				
Vision System	Real-time monitoring of printing status; Automatic fiducial recognition	Real-time monitoring of printing status; Automatic fiducial recognition	Real-time monitoring of printing status; Automatic fiducial recognition	Real-time monitoring of printing status; Automatic fiducial recognition
Height Compensation	Equipped with a laser triangulation sensor	Equipped with a laser triangulation sensor	Equipped with a chromatic confocal distance sensor	Equipped with a chromatic confocal distance sensor
Nozzles Cleaning Unit	Immersion cleaning	Immersion cleaning	Automated wipe cleaning	Automated wipe cleaning
Pre-printing Unit	—	—	Process parameter fine-tuning within pre-print zones	Process parameter fine-tuning within pre-print zones
Curing and Sintering Unit	—	Optional: UV lamp, infrared laser	Optional: UV lamp, infrared laser	Optional: UV lamp, infrared laser
Installation				
Equipment Dimensions & Weight	W860×D860×H1100 mm, 250 kg (approx.)	W1350×D1050×H2190 mm, 1300 kg (approx.)	W1350×D1050×H2190 mm, 1300 kg (approx.)	W1500×D1200×H2190 mm, 1500 kg (approx.)
Electrical Requirements	220 VAC/50 Hz;1.5 kW	220 VAC/50 Hz;4 kW	220 VAC/50 Hz;4 kW	220 VAC/50 Hz;6 kW
Air Supply Pressure	≥0.6 MPa (CDA)	≥0.6 MPa (CDA)	≥0.6 MPa (CDA)	≥0.6 MPa (CDA)
Operating Environment	22±2 °C; ≤65% RH	22±2 °C; ≤65% RH	22±2 °C; ≤65% RH	22±2 °C; ≤65% RH

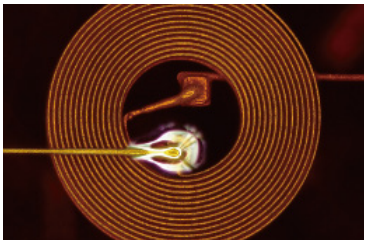
APPLICATIONS

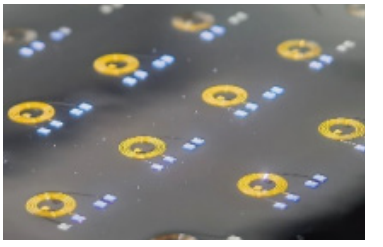
Ultrafine resolution conductive traces, with line width as small as 1 μm（EP400/EP600）



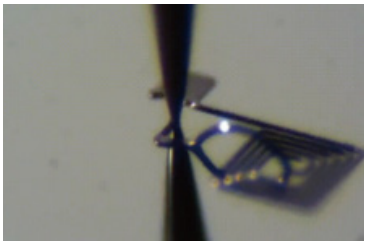


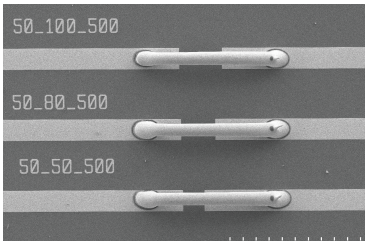
Single/multilayer inductors with line width/spacing of 5 μm/5 μm (EP600)



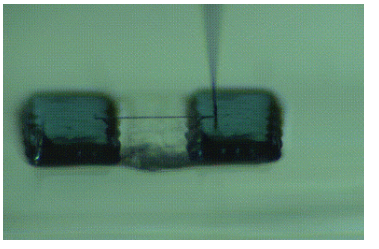


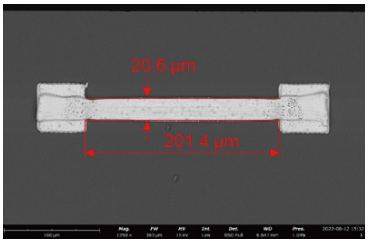
Micro/nano direct-write printing wire bond freestanding interconnect wires (the entire series)



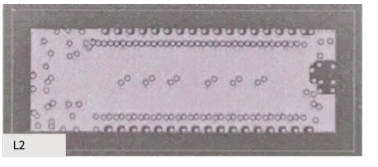


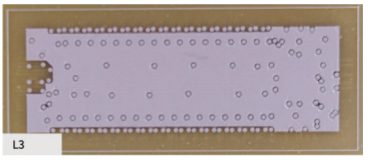
MEMS cantilever conductive structure with cantilever span > 200 μm (the entire series)





3D printed multilayer circuits, with layer number ≥4 (EP400/EP600)





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