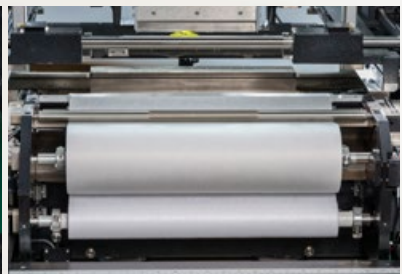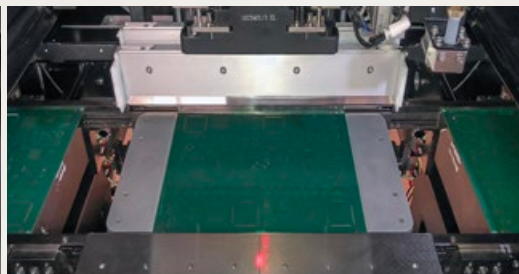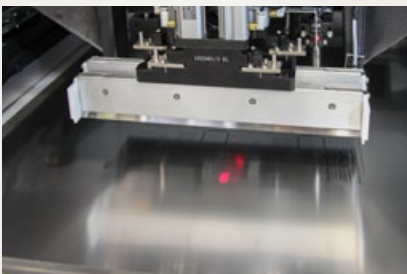# Edison Printing System

Unparalleled throughput and accuracy in an advanced next-generation scalable printer platform.

Outstanding speed, accuracy and performance surpassing best-in-class SMT printers worldwide.

MPM

Edison

Edison is an innovative printer with a scalable set of software, controls, and advanced technologies. Ideally suited for the demanding Automotive, Semiconductor and Smart Device manufacturing markets, Edison is built to excel in every way, with patented features throughout its design.

Unmatched Speed, Accuracy, and Capability

Edison delivers an unheard-of higher throughput than competitive printers –15 seconds total throughput, including print and stencil wipe cycles. That's because individual print process cycle times have been significantly reduced, when possible by design, for a cumulative time savings.

For Accuracy, Edison has no equal. Edison has built-in ±8 micron alignment, and ±15 micron wet print repeatability (≥2 Cpk @ 6 sigma) proven through 3rd party Print Capability Analysis (PCA) testing. This represents a 25% improvement in wet print accuracy over current best-in-class printing machines.

	Left Scope - Microns				Right Scope - Microns		
USL*	8	8	um	USL*	8	8	mm
LSL**	-8	-8	um	LSL**	-8	-8	mm
Cp	5.12022	7.35451		Cp	5.32783	6.8609	

* Upper Statistical Limits
** Lower Statistical Limits

Machine Capability Analysis (MCA) confirms printer performance in term of accuracy and stability using specific tools. Manufacturer specifications are used to qualify the equipment. MCA, tested using a dedicated glass plate testing fixture guarantees that machine performance is within the manufacturer's specifications.
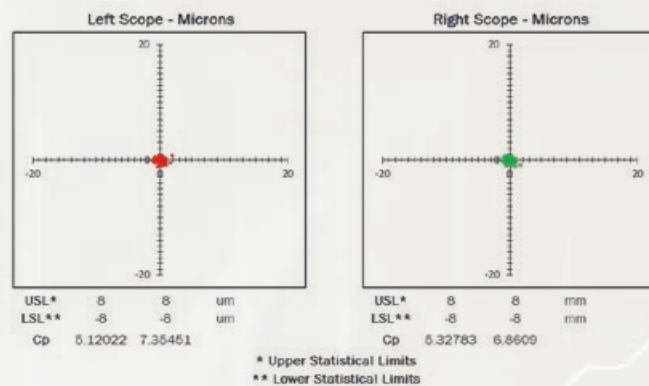
Edison Delivers Exceptional Performance

• **Fast:** Double the throughput of best-in-class printers worldwide

• **Accurate:** 25% improvement in wet print accuracy over current leading machines

• **Fine Pitch Capable:** Proven print process capability greater than 2 Cpk for 0201 metric components

Faster Throughput for a Better Process

Edison's new parallel processing system is extremely fast resulting in a very short cycle time. This helps increase throughput by shortening total time per PCB printed. This leaves more time for key overhead functions that have the biggest impact on print quality:

- Print at slower speeds to decrease variability
- Utilize slow stencil separation for optimal print definition
- Double stroke after wipe
- More frequent wiping resulting in higher yields
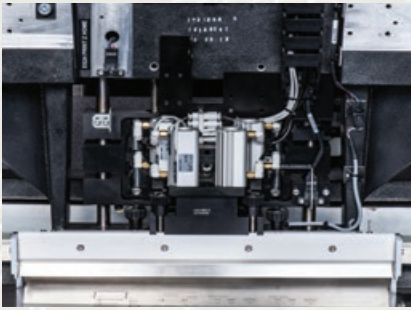- Time leftover to optimize settings for maximum possible yields

Back To Back (BTB) Configurable
BTB is a flexible dual lane solution without adding line length; identical single-lane printers are easily re-deployed to other lines when needed. Use in BTB configuration, or singly as a stand-alone.
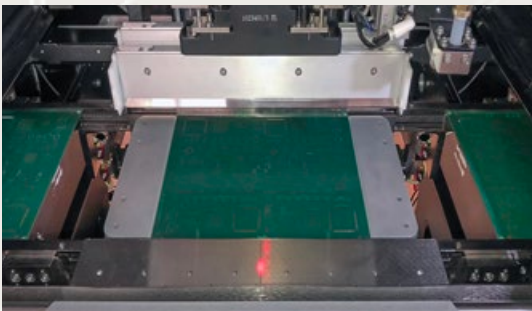
Outstanding Features for Optimum Performance and Value

Advanced Print Head
Single axis closed-loop pressure control for dual squeegee eliminates front-to-back variation; a single high precision load cell provides squeegee force, and a unique algorithm calibrates out non-linearity, maintaining the set pressure across the entire board surface.

High Speed Vision Alignment with Ultra-slim Camera
Overall Gantry thickness is only 39 mm featuring 'on the fly' 'POE' (Power Over Ethernet) camera; A single CCD split field provides precision simultaneous up-down image acquisition; FOV 9.0 x 6.0 mm.
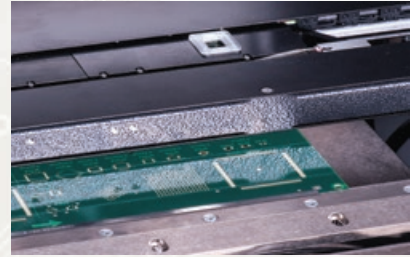

Board Staging
Ability to have three boards in the machine simultaneously, reduced distance on input conveyor by pre-loading the board during the print process results in reduced transfer times and improved cycle time.
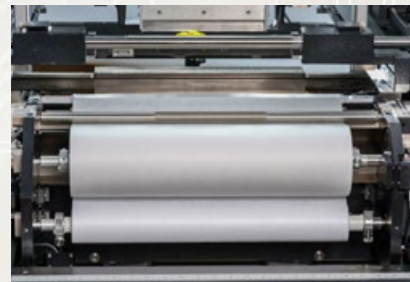

EdgeLoc II Board Clamping
EdgeLoc II holds the board using a side snugging technique that removes the need for top clamps which interfere with the PCB to stencil contact.

Ultra-fast, High Efficiency Wiping System
A super-size 65m paper roll allows 10,000 prints per change. Patented paper tension control provides more effective wiping and a separate wiping and printing zone prevents cross contamination.

Intueri GUI and OpenApps
MPM Intueri is a simple, intuitive operator interface with a flexible, wide array of configuration variables. It is combined with Open Apps for maximum capability and connectivity and provides a portal to Industry 4.0 concepts.

Ergonomic "Walk-in" Printer
Walk-in design allows for easy access to tooling during changeover. All serviceable controls are also located in the front for easy access. Compact design minimizes floor space.

MPM Edison Printer Specifications

BOARD HANDLING

Maximum Board Size (X x Y)	450 mm x 350 mm (17.72" x 13.78")
A dedicated workholder is required for boards with an X size greater than 14"	
Minimum Board Size (X x Y)	50 mm x 50 mm (1.97" x 1.97")
Board Thickness	
Foil Clamps	0.2 mm to 6.0 mm (0.007" to 0.236")
EdgeLoc	0.8 mm to 6.0 mm (0.031" to 0.236")
Maximum Board Weight	4.5 kg (10 lbs)
Board Edge Clearance	3.0 mm (0.118")
Underside Clearance	12.7 mm (0.5") standard Configurable for 25.4 mm (1.0")
Board Hold-Down	EdgeLoc II, centernest vacuum, Optional EdgeLoc+
Board Support Methods	Magnetic pins and blocks

PRINT PARAMETERS

Maximum Print Area (X x Y)	450 mm x 350 mm (17.72 x 13.78")
Print Gap (Snap-off)	0 mm to 6.35 mm (0" to 0.25")
Print Speed	305 mm/sec (12.0"/sec)
Print Force	0 to 20 kg (0 lb to 44 lbs)
Stencil Frame Size	Adjustable Stencil Shelves is standard 584.2 mm x 584.2 mm (23" x 23") to 737 mm x 737 mm (29" x 29") Adapters available for smaller sizes

VISION

Vision Field-of-View (FOV)	9.0 mm x 6.0 mm (0.354" x 0.236")
Fiducial Types	Standard shape fiducials (see SMEMA standards), pad/aperture
Camera System	Single digital camera - patented split optics vision

PERFORMANCE

Total System Alignment Accuracy and Repeatability	±8 microns (±0.0003") at 6 sigma, Cpk ≥ 2.0*
Qualification is performed using production environment process variables; print speed, table lift and camera movement are included in the capability figure.	
Wet Print Deposit Accuracy and Repeatability	±15 microns (±0.0006") at 6 sigma, Cpk ≥ 2.0*
Based upon actual wet printing with positional accuracy and repeatability verified by a 3rd party measurement system.	
Cycle Time	
300	15 seconds including print and wipe
200	20 seconds including print and wipe

Based upon specific set of printing parameters, board size 5"x8".

FACILITIES

Power Requirements	200 to 240 VAC (±10%) single phase @ 50/60Hz, 15A
Air Supply Requirements	100 psi at 4 cfm (standard run mode) to 18 cfm (vacuum wipe) (6.89 bar @ 1.9 L/s to 8.5 L/s), 12.7 mm (0.5") diameter line
Height (excluding light tower)	1580 mm (62.2") at 940 mm (37.0") transport height
Machine Depth	1442 mm (56.77")
Machine Width	1282 mm (50.47")
Minimum Front Clearance	508 mm (20.0")
Minimum Rear Clearance	508 mm (20.0")
BTB Configuration	10 mm (0.39")

* The higher the Cpk, the lower the variability with respect to the process specification limits. In a process qualified as a 6 sigma process (i.e., one that allows plus or minus 6 standard deviations within the specification limits), the Cpk is greater than or equal to 2.0.

Specification is subject to change without notice. Please consult factory for specifics.

ITW EAE maintains an ongoing program of product improvement that may affect design and/or price. We reserve the right to make these changes without prior notice or liability.

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Electronic Assembly Printers

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