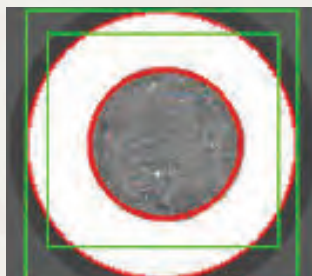# MPM

Momentum® BTB

Back to Back Printing System

Back to Back configuration enables Dual Lane processing, matching printer strategy to dual lane strategy with maximum flexibility and Momentum world-class performance.

Higher Productivity from an Optimized Footprint

MPM

Momentum:

BTB gives the Momentum user greater flexibility in line configuration. Now you can leverage Momentum's superior print performance capabilities into dual lane output with an overall smaller footprint.

Momentum's Patented Technology

- EnclosedFlow™ Print System
- SPI Print Optimizer
- EdgeLoc™ Board Clamping
- RapidClean™
- Paste Height Monitor
- RapidView™ Inspection
- Benchmark™ 4.0
- BridgeVision®
- StencilVision™

Momentum BTB

Space-saving Configuration without Compromise

The MPM Momentum BTB is a space-saving 200 mm shorter than the standard Momentum. Configured for Back-to-Back (BTB) processing, it enables dual lane processing with two machines, conserving floor space and creating a shorter manufacturing line length, but without sacrificing volume or yields. Momentum BTB is also designed with all-front access to the entire electrical system, solvent reservoirs, etc. so that no extra space is required for accessibility between the machines in BTB setup. MPM Momentum BTB printers feature the same 20 micron accuracy, with wet print accuracy of ±20 microns @ 6 sigma, Cpk ≥ 2.0, designed in and independently verified. MPM Momentum printers are fast, precise, and highly reliable, with performance unmatched by any other printer in their class.

Optimizing Productivity through Flexibility

Momentum BTB optimizes operator utilization rates for dual lane lines, and utilization of factory floor space. What's more, individual units can be easily redeployed as needs change. Available with optional shuttle conveyors.

Get More Throughput with Less Space and Less Investment

Momentum BTB features a smaller footprint than the standard Momentum platform. In BTB configuration it offers Dual Lane processing, which adds throughput capacity without adding significantly to the overall equipment footprint in a facility. For example, a Dual Lane line instead of a traditional double-sided reflow line can greatly reduce capital requirements. Dual Lane processing can deliver higher throughput per square foot than single-lane configurations, and has the flexibility to print multiple products in a single SMT line, e.g., top and bottom side, same side, or mother/daughter boards.

With the MPM Momentum BTB, you still get all the accuracy and performance that the proven Momentum platform is known for. Most of the features and options available for Momentum series printers are available with the Momentum BTB. These include our powerful Benchmark software tools, the EnclosedFlow print system, MPM's 'fine pitch printing solution', stencil wiping and cleaning options such as the solvent-based RapidClean, powerful vision and print verification system choices, and more. MPM Momentum BTB printers are offered in two different throughput configurations for optimum flexibility in line balancing.

MPM Momentum BTB

Innovative Standard and Optional Features
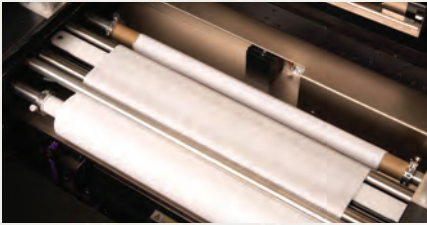
RapidClean

RapidClean is a high speed stencil solvent cleaning innovation that slashes cycle time and improves stencil cleaning performance, especially for fine-pitch. RapidClean reduces 3 wipe strokes to 2 and cuts cycle time by 5 – 6 seconds per print cycle over the standard wiper. And because fewer cleaning cycles are required, RapidClean can save up to $10K USD per annum in paper savings per printer.

EnclosedFlow

The MPM EnclosedFlow Print Head delivers uniform aperture filling and superb printing performance especially for fine pitch devices, with tremendous savings on solder paste over squeegee blade printing – in excess of 50% over blades for dramatically fast ROI. Print fine features such as 01005s and 0.3mm pitch CSPs with up to 50% greater volume and 25% lower deviation than metal blades.
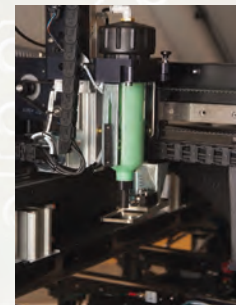

Paste Dispenser

Industry-standard sealed cartridges release precise amounts of solder paste, adhesives, or flux, as a clean bead across the stencil.

Momentum BTB :

Precision and Performance in a Compact yet Flexible Configuration

Momentum BTB leverages all the advantages of dual lane processing to deliver fast, accurate printing of high volume products such as mobile phones, automotive assemblies, PCs and netbooks.
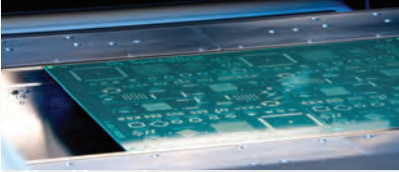

EdgeLoc Board Snugging

The EdgeLoc system securely holds the board during printing using a side snugging technique. Flippers engage to secure the board across the top edge, which ensures board flatness, and removes any warpage from the board. This technique delivers the best print quality and is the most adaptable system for the widest range of applications. A 'must' for thin board printing.

Paste Height Monitor

The Paste Height Monitor is designed to prevent defects caused by inadequate volumes of paste on the stencil. It combines advanced software and sensor technology to accurately monitor the paste bead for volume consistency. The sensor is mounted on the back of the squeegee head and measures solder paste bead diameter during the front-to-rear stroke. It's a non-contact solution that can automatically add more paste to the stencil as it is needed.
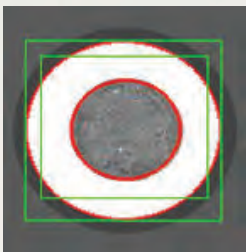

AccuCheck Print Capability Verification

Accucheck Print Capability Verification allows the printer to measure its own print capability. Users can verify the machine's capability at any time or continuously on their own products. AccuCheck measures the actual print deposit position versus the target pad to determine a measured print offset. It is an inexpensive, reliable method of obtaining machine quality and process capability information to ensure repeatable results and optimum printing performance.

SPI Print Optimizer

SPI Print Optimizer brings your Solder Paste Inspection (SPI) machine into communication with your MPM printer through a specially-developed common interface. When the SPI machine 'sees' X, Y and theta offset problems on a just-printed PCB, it analyzes the data virtually instantly and gives the printer instructions to correct those offsets, automatically, and 'on the fly'.
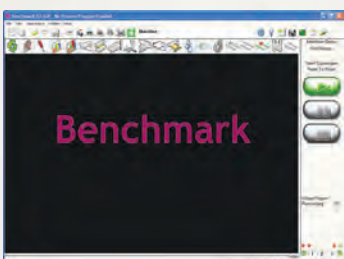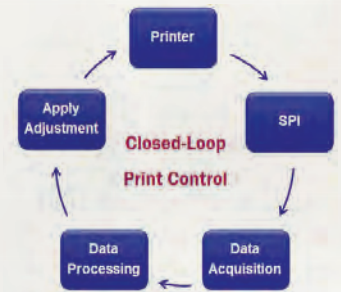
Benchmark 4.0 User Interface

Benchmark 4.0 operates with the Windows 7 operating system and incorporates the familiar Benchmark GUI and functionality, with added improvements in feature function that come from using Windows 7. 4.0 also incorporates a unique, empowering new Open Software Architecture, OpenApps (patent pending), that creates new communication possibilities for easy two-way communication between the printer and Manufacturing Execution System (MES).

Patented, Innovative Features add Capability and Value to your Process
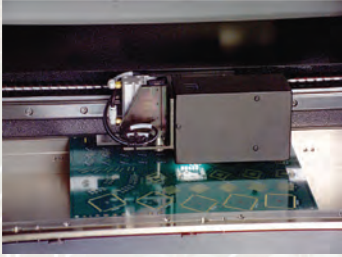

MPM Vision System & Inspection

MPM's patented printer-based Vision and Inspection system is a cost-effective way to verify print and paste deposit results. It's flexible enough to handle the complete range of today's most challenging components. This system measures the amount of paste covering the target pad and compares it with the required coverage. 2D Inspection is integrated directly into the stencil printer to provide an immediate source of data.

...With GerberEZ Teach

GerberEZ Teach makes the industry's most advanced inspection system more powerful and user-friendly. With its user-friendly tool bar and features like fast component identification, custom device, off angle, and device specific capabilities GerberEZ Teach makes 2D inspection programming a point and click routine.
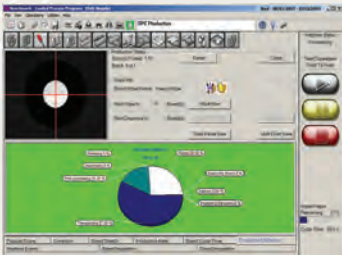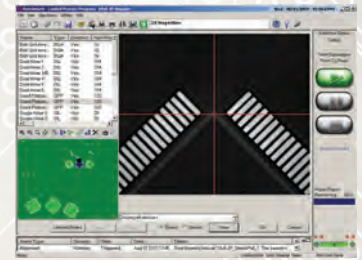

BridgeVision and StencilVision

BridgeVision is a patented method of analyzing bridge defects on circuit boards in the post-print inspection process. This innovative system utilizes texture-based image acquisition algorithms and a digital camera system with telecentric lenses to support the accurate identification of paste deposit defects. StencilVision utilizes texture-based technology to check the underside of a stencil for solder paste contamination. Wiper operation can be driven by the results obtained.

OpenApps

MPM's powerful Benchmark software suite and user interface features OpenApps Open Software Architecture (Patent Pending) that allows your MPM printer to 'talk' to your MES system. You get functionality without custom development, and the ability to create your own apps! ITW EAE is the first SMT company to offer open software architecture.
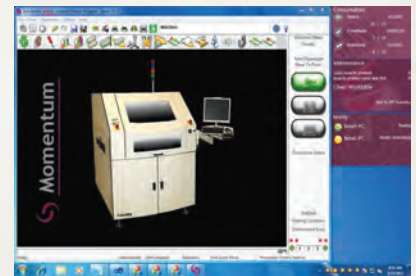
MPM MOMENTUM BTB SPECIFICATIONS

BOARD HANDLING

Maximum Board Size (X x Y)	609.6 mm x 508 mm (24" x 20")
A dedicated workholder is required for boards with an X size greater than 20"	
Minimum Board Size (X x Y)	50.8 mm x 50.8 mm (2" x 2")
Board Thickness	0.2 mm to 5.0 mm (0.008" to 0.20")
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	Fixed top clamps, centernest vacuum
Board Support Methods	Magnetic pins Optional: Vacuum side dams, vacuum pins, support blocks, dedicated fixtures, patented auto tooling, Quik-Tool

PRINT PARAMETERS

Maximum Print Area (X x Y)	609.6 mm x 508 mm (24" x 20")
Print Gap (Snap-off)	0 mm to 6.35 mm (0" to 0.25")
Print Speed	0.635 mm/s - 304.8 mm/s (0.025 in/s - 12 in/s)
Print Force	0 to 22.7 kg (0 lb to 50 lbs)
Stencil Frame Size	737 mm x 737 mm (29" x 29") Adapters available for smaller sizes

VISION

Vision Field-of-View (FOV)	10.6 mm x 8.0 mm (0.417" x 0.315")
Fiducial Types	Standard shape fiducials (see SMEMA standards), pad/aperture
Camera System	Single digital camera - MPM patented look up/down vision

PERFORMANCE

Total System Alignment Accuracy and Repeatability	±12.5 microns (±0.0005") 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	±20 microns (±0.0008") 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	
Momentum BTB	9 seconds standard
Momentum BTB HiE	7.5 seconds standard

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, OD x 9.5 mm (3/8") ID line
Height (excluding light tower)	1589.4 mm (62.57") at 940 mm (37.0") transport height
Machine Depth	1394 mm (54.88")
Machine Width	1195.4 mm (47.06")
Minimum Front Clearance	508 mm (20.0")
Minimum Rear Clearance	508 mm (20.0")
Machine Weight	797 kg (1757 lbs)
Crated Weight	1090.5 kg (2399 lbs)

* 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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