

A highly reliable printing system that is simple to learn and easy to use, with performance that is unmatched by any other printer in its class.



MPM[®]

Momentum[®] Series Stencil Printer

A cost-effective printing solution with innovative technology and outstanding capability

MPM

Momentum Series

Cost-effective typically implies compromise. That's not the case with the award winning Momentum Series. We've incorporated patented, industry-leading technology and performance into a platform that won't break the budget.

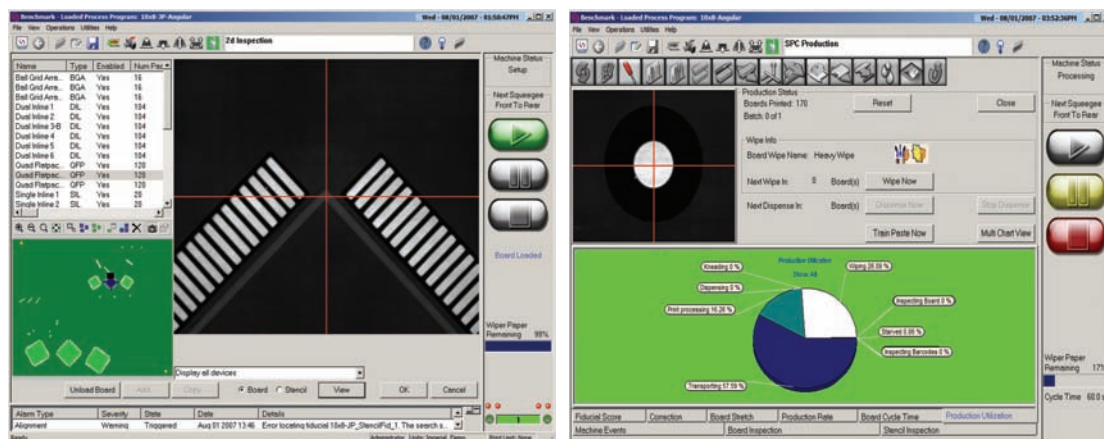
Momentum's Patented Technology

- EdgeLoc board clamping
- Auto pin placement
- Closed-loop print head
- Squeegee compliance routine
- Quick change stencil wiper
- Solvent delivery method
- BridgeVision
- StencilVision

Accurate, Repeatable Performance

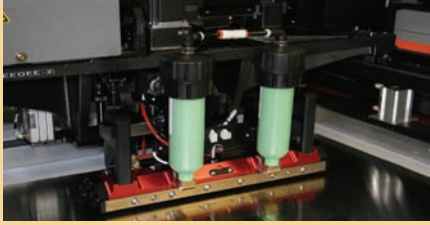
Alignment is the heart of the printing process and Momentum series delivers best in class performance resulting in fewer potential defects.

Momentum's ± 12.5 micron at 6 sigma accuracy is the result of a precision engineered and integrated system. CANopen motion control architecture (originally developed for the award-winning Accela® printer platform) yields exceptional performance in signal communication and high speed motion control while reducing design complexity. The state-of-the-art digital camera, which includes telecentric lenses, advanced optics and lighting techniques, results in unmatched vision performance in both alignment and post-print inspection. Patented designs utilized in the transport and squeegee systems maximize reliability and uptime; and that reduces your cost of ownership.



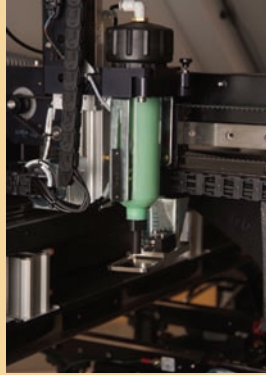
Advanced Inspection and SPC Tools

The Momentum series incorporates expanded 2D inspection capabilities, featuring both MPM's patented contrast and texture-based technologies with BridgeVision® and StencilVision™. Pad-level details can be viewed on-screen and device-level results are stored on a per-board basis as part of the powerful SPC program tools. These tools provide line utilization and detailed process information and, when combined with the expanded inspection capabilities, the fastest quantitative post-print, device-level data gathering in the industry. SpeedVision with GerberEZ Teach now makes the industries most advanced inspection system more powerful and user friendly than ever. 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.



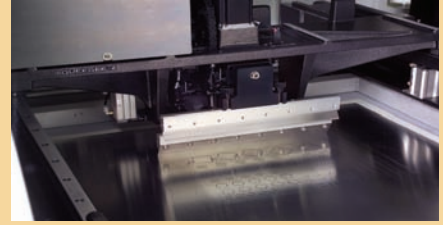
Rheometric Pump

Closed-loop print head pressure control, software controlled paste pressure, and quick changeover capability enables this enclosed print head system to provide enhanced process control, flexibility, and repeatability while reducing paste usage.



Paste Dispenser

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



Programmable Squeegee

Independent, direct motor-driven lead screws for front/rear axes and an integrated compliance routine ensure accurate application of desired force, regardless of variations in squeegee type, length or thickness.



Momentum Elite

With its triple track conveyor rails and servo drive motors, the Momentum Elite provides the greatest throughput capability of the Momentum series, making it the ideal printer for high volume high mix assembly lines.

Easy to Learn, Easy to Use

Low cost of ownership can only be achieved when superior performance is augmented by ease of use. The Momentum series is designed with your operators in mind, so it's easy to learn and even easier to use. Speedline's Benchmark™ software provides a convenient graphical user interface within the familiar Windows® operating system. Built-in wizards provide direction for all machine functions, utilities and error recovery.

Momentum's Technology Delivers Measurable Value

Best in Class Accuracy

Yield improvement of just 0.5% can easily increase profit by 0.8%

Highest Throughput in Class

Enhanced throughput will increase profit by 5.0% or more

Maximum Uptime

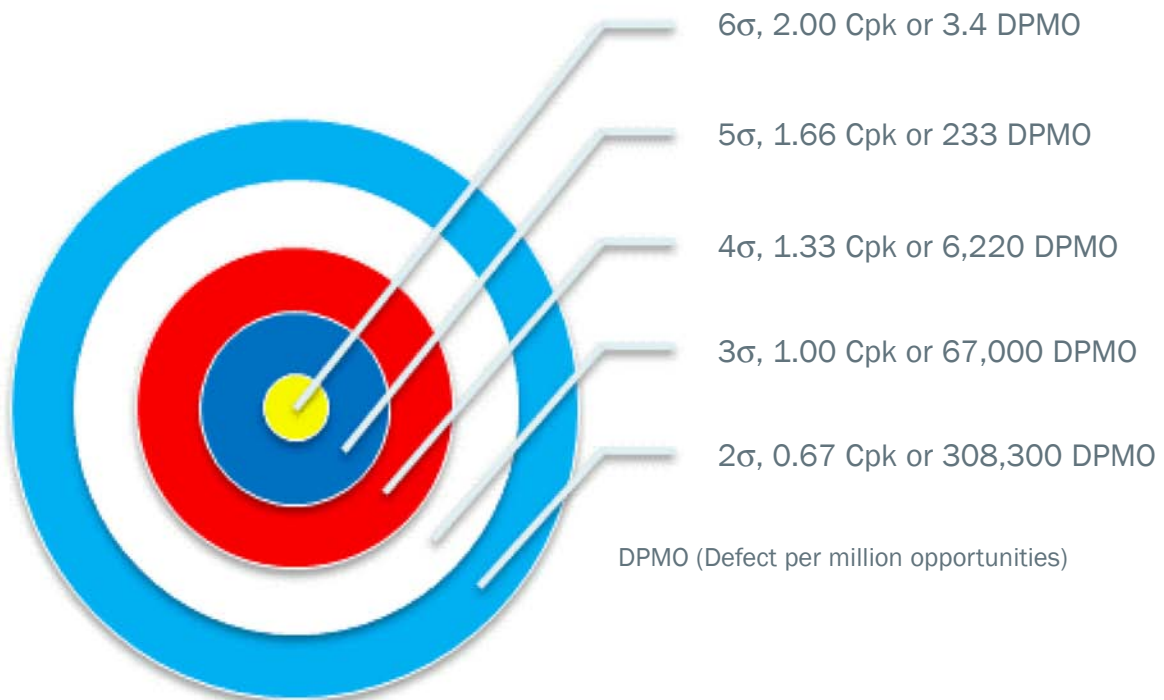
Just 1 additional hour/week of run time can increase profit by 3.0%

Measurable Value

Potential profit increase of 7.3%

High Yield Important to You?

Alignment repeatability ± 12.5 microns at 6 sigma, Cpk of greater than or equal to 2.0

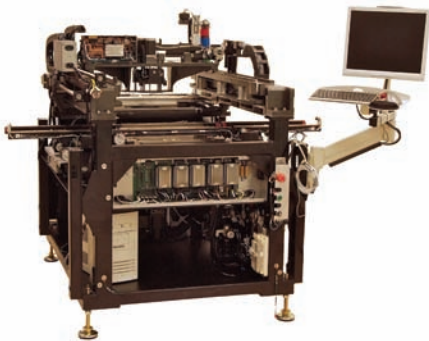


6 σ capability designed in and independently verified



Generate More Profit with Momentum

Momentum's features and capabilities have been designed to deliver measurable value.



Momentum's Solid Foundation

Momentum's welded rigid steel frame provides the foundation for many years of reliability and repeatability. Precision ball screws along with its decoupled worknest and camera gantry provide the basis for its best in class accuracy, exceptional motion stability, and reduced alignment time.

Automatic Support Pin Placement

Data driven, flexible and exclusive support system automatically places support pins in a software programmable pattern simplifying both initial setup and product changeover. Video teach capability uses live camera view to assist with pin location on double sided boards. By reducing operator variability, this patented automatic pin placement system ensures quick, easy and repeatable product changeover.



EdgeLoc™ Board Clamping

MPM's EdgeLoc board clamping system takes board handling to the next level. The EdgeLoc system uses software controlled pressure for the optimal board holding force, and automatically adjusts to match the programmed board thickness. This unique solution firmly holds the board without the use of top clamps; delivering optimal stencil to board gasketing which is proven to yield higher paste release efficiency and reduced need for under stencil wiping.

Underside Stencil Wiper

Designed to prevent defects before they happen, this paper over plenum design, with venturi vacuum, patented roller solvent bar delivery system, and full software control, provides precise wet-dry wipe transition and exceptional cleaning results. Unlimited wipe configurations, profile capability, and event driven functionality ensure process reliability. The ability to refill solvent without stopping production maximizes uptime.



Adjustable Stencil Shelf

Adjustable Stencil Shelves allow both cast and tubular frames that have an Outside Dimension of 22" or greater to be used without adapters. This State-of-the-Art system has the rails on linear bearings with an air-brake for easy adjustability.

Traceability and Verification

Process control is the cornerstone of quality production. Among the Momentum's many process control tools is a barcode reading capability for product traceability and process verification. A machine mounted barcode scanner reads and stores board data from anywhere on the substrate to provide traceability for SPC. A handheld barcode reader is offered to scan stencils, paste, blades, tooling, boards, and pump size to provide process verification and prevent entry into production if incorrect materials are scanned.



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MPM MOMENTUM® SERIES SPECIFICATIONS

BOARD HANDLING

Maximum Board Size (X x Y)	609.6 mm x 508 mm (24" x 20")
Staging Mode - Momentum Elite	457 mm x 508 mm (18" x 20")
Minimum Board Size (X x Y)	50.8 mm x 50.8 mm (2" x 2")
Board Thickness	0.2mm (0.008") to 5.0mm (0.20"), up to 6.0 mm (0.24") without top clamp foils
Maximum Board Weight	4.5 kg (9.92 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 Optional EdgeLoc
Board Support Methods	Magnetic pins Optional Gel-Flex, vacuum pins, support blocks, patented auto - tooling or Grid-Lok

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	Up to 305 mm/sec (12.0"/sec)
Print Force	0 to 20 kg (0 lb to 44 lbs)
Stencil Frame Size	737 mm x 737 mm (29" x 29") Adapters available for smaller sizes

VISION

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	±12.5 microns
Accuracy and Repeatability	(±0.0005") at 6 sigma, Cpk of greater than or equal to 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	±25 microns
Accuracy and Repeatability	(±0.001") at 6 sigma, Cpk of greater than or equal to 2.0*
Based upon actual wet printing with positional accuracy and repeatability verified by a 3rd party measurement system.	
Cycle Time	
Momentum	11 seconds standard
Momentum+	9 seconds standard
Momentum HiE	7.5 seconds standard
Momentum Elite	6 seconds standard

FACILITIES

Power Requirements	200 to 240 VAC (±10%) single phase @ 50/60Hz, 15 A
Air Supply Requirements	100 psi at 4 cfm (standard run mode) to 18 cfm (vacuum wipe) (6.89 bar @ 1.9 L/s to 8.5L/s), 12.7 mm (0.5") diameter line
Height (excluding light tower)	1638.4 mm (64.5") at 940 mm (37.0") transport height
Machine Depth	1593.1 mm (62.72")
Machine Width	
Momentum, Momentum+ & Momentum HiE	1202.7 mm (47.35")
Momentum Elite	1675.5 mm (65.96")
Minimum Front Clearance	508 mm (20.0")
Minimum Rear Clearance	508 mm (20.0")
Machine Weight	
Momentum, Momentum+ & Momentum HiE	862 kg (1900 lbs)
Momentum Elite	899 kg (1982 lbs)
Crated Weight	
Momentum & Momentum+ & Momentum HiE	1155.5 kg (2547 lbs)
Momentum Elite	1192.5 kg (2629 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.



ABOUT SPEEDLINE TECHNOLOGIES

Speedline Technologies is the global leader in process knowledge and expertise for the PCB assembly and semiconductor industries. Based in Franklin, Massachusetts, U.S.A., the company markets five best-in-class brands — Accel microelectronics cleaning equipment; Camalot dispensing systems; Electrovert wave soldering, reflow soldering, and cleaning equipment; MPM stencil and screen printing systems; and PROTECT global services, support, and training solutions. For more information, visit us at www.speedlinetech.com.

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Knowledge in Process