M P M | **S P M**

PRECISION SEMIAUTOMATIC
STENCIL PRINTER

MULTIPLE VISION OPTIONS

AUTOMATIC
STENCIL WIPER

QUICK CHANGE
TOOLING

PENTIUM™ BASED PC
CONTROL SYSTEM

Semiautomatic Stencil Printer Built for Precision

The SPM is a very accurate screen printer built for precision batch printing and prototype work. The standard magnetic tooling and PC-based control system allow for quick changeover and maximum flexibility. Also available are several options that will turn the base SPM into an ultra-fine pitch printer with capabilities matching those of more expensive automatic printers. After adding a few options, the SPM can easily print down to 12 mil pitch, or better in some applications.

Like all Speedline MPM products, the SPM is backed by one of the largest worldwide support structures in the industry. Speedline sets the standard for customer service, with Field Service Engineers who can visit your facility, a 24-hour customer support hotline and applications phone support.

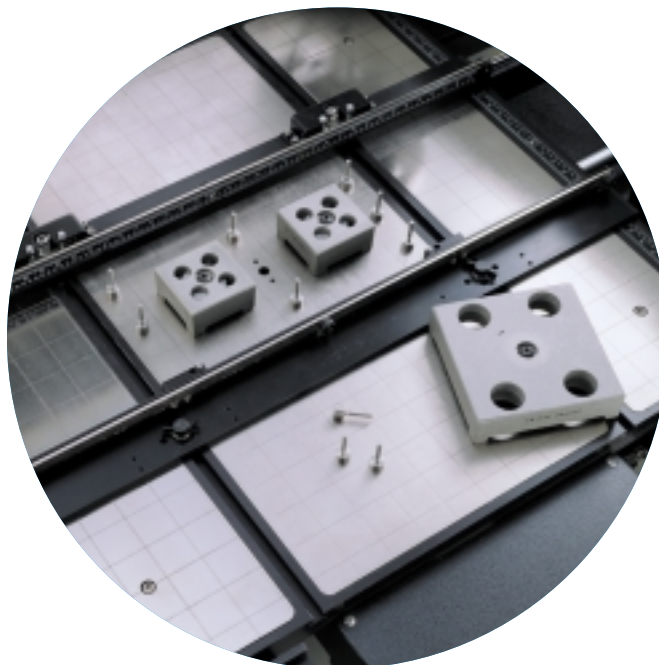# Setting the productivity standard for precise, flexible semiautomatic stencil printing

FLEXIBILITY

The SPM has the flexibility to meet almost any printing need. Multiple vision systems are available as options, in addition to an automatic stencil wiper and pneumatic paste dispenser to give your engineers and operators complete process control. Plus, various tooling and vacuum options can be added so the SPM is ready for any of your printing needs, whether they are surface mount, screen printing inks, green tape, adhesive printing or wafer bumping and encapsulation.

For customers who are trying to develop new processes or modify current ones, our applications engineers can help you with their years of stencil and screen printing experience. Speedline MPM is dedicated to get you up and running whether you are a small manufacturing facility, an international corporation or a research and development center.
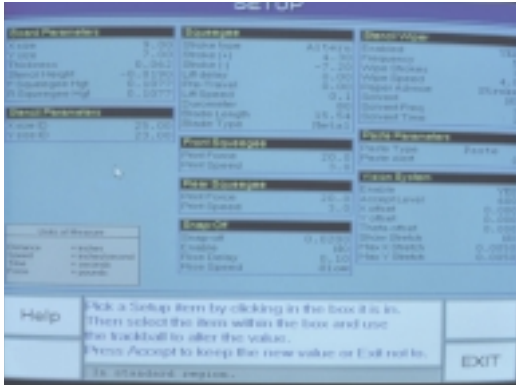
TECHNOLOGY UPGRADE

The SPM is part of Speedline's Technology Upgrade Program. The program allows you to trade in your existing stencil/screen printing equipment for credit toward a new, state-of-the-art in-line MPM printer. Contact Speedline MPM for more information on upgrading to a new in-line printer.

The universal magnetic tooling allows flexibility and quick changeover, while other tooling options allow you to print odd-form boards, ceramics, green tape or even wafers.

Standard features and options
to meet your precision printing needs

Standard Features

Consolidated parameter page

Control System Machine functions are controlled by a Pentium™ computer with a VGA monitor and trackball for quick, easy operation.

> Windows® like software prompts the operator through the setup and changeover sequence, making the SPM very operator-friendly and easy to learn.

> A separate "Teach" routine will walk new operators step-by-step through new substrate setups, while experienced operators can go directly to the on screen setup page.

> A "Tooling Notes Page" allows you to save board support locations for each file. When a new file is loaded, the operator opens the "Notes Page" to see where the board supports should go (a combination of pins and blocks can be used). This makes changeover time even faster saving you valuable production time.

> Setup parameters and control functions for more than 200,000 substrate files can be held in memory to allow for quicker changeover.

Precision Print Head The center pivoting print head is mounted in a rigid alloy casting, and the print carriage moves on precision linear guides to provide outstanding accuracy and repeatability (see photo, above right).

> Dual squeegee system allows precise, independent control of front and rear squeegee pressures and speeds.

> Multiple blades for any application are available, including flood blades for screen printing.

Off-Line Programming Software can be installed on your PC that allows you to program most of the board file parameters off-line. These files can then be saved to a 3.5" disk, transferred to the SPM and uploaded saving you valuable production time.

Optional Features

Top view featuring print head, wiper and dispenser

Automatic Stencil Wiper This wet/dry system is driven by a separate motor with lead screw, and provides additional process control for your application.

> This repeatable cleaner provides consistently clean stencil-to-board gasketing to minimize solder defects.

> Software control gives maximum flexibility and monitors the process so your operators don't have to.
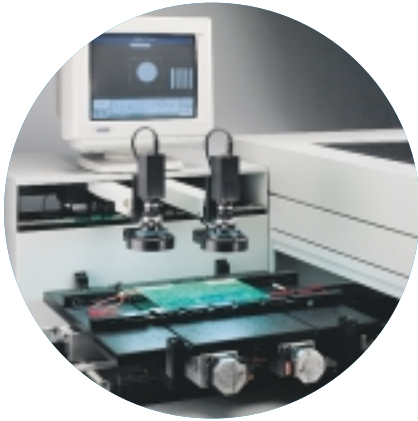
Pneumatic Dispenser The handheld pneumatic dispenser makes dispensing material quick, easy and safe for operators. The dispenser holds a six-ounce cartridge of solder paste or any other printable material and protects it from the atmosphere (see photo above).

Optional Tooling

Dedicated Tooling If you run dedicated lines or want to print green tape, wafers, ceramic, etc., we can build custom tooling for your SPM. Not only does this reduce changeover time, but it also allows you to print just about anything on the SPM.

Vacuum Tooling If you have boards that require vacuum hold down, we have four different vacuum options at your fingertips: Venturi vacuum, vacuum support pins, In-house vacuum and High-Flow venturi vacuum. Each option has different advantages depending on your application and can be used in conjunction with dedicated tooling.
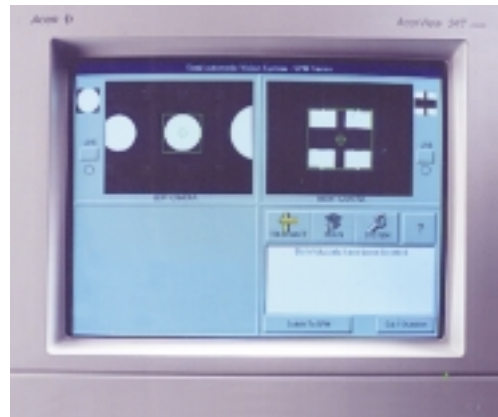
Vision Options

PC automatically aligns substrate

Software guarantees board alignment

Automatic Vision System This powerful vision system uses a Cognex vision processor card that works in parallel with the SPM operating system and eliminates operator intervention in the board alignment process.

> The system quickly aligns each substrate to your stored visual pattern by automatically adjusting to the position of the worktable in X, Y, or Ø.

> The vision card can recognize and store any fiducial or pad styles for alignment and is trackball controlled for quick and easy setup.

Semiautomatic Vision System This Microsoft Windows® based system guarantees all operators will manually align the worktable until the pre-selected alignment accuracy is met.

> Alignment boxes turn from red to green when the board is accurately aligned, taking subjectivity out of the alignment process.

> Quick and easy board model training takes just a few seconds and can use any fiducials or pads on the substrate.

Dual camera images are consolidated into one monitor

Manual Cross-Hair Vision System   This manual system allows the operator to align the live image of the board to a reference on the color monitor. The vision splitter box can use cross-hairs or boxes as reference points, depending on the fiducials or pads used for alignment.

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M P M   S P M   S P E C I F I C A T I O N S

Print area	Up to 20" x 18" (508mm x 457mm) with trailing edge squeegees Up to 20" x 19" (508mm x 483mm) with single edge squeegees
Board size	2.5" x 0.5" (64mm x 13mm) to 20.5" x 18" (521mm x 457mm) (smaller boards using tilt plates, 26.5" x 21" with dedicated tooling)
Frame size	Up to 29" x 29" outer diameter (737mm x 737mm) (Adapter for smaller frames is optional)

S U B S T R A T E   C A R R I A G E

Repeatability	±0.0005" (±12.5 microns)
X-Y adjustment	±0.5" (±12.7mm)
Rotary adjustment	±5°
Squeegee head	Dual Squeegee Blades, Center Pivoting, Software controlled
Print mode	Print/print, Print/flood, Flood/print
Blade length	8.0" – 20.5" (203mm – 521mm)
Print stroke	Up to 19" (483mm)

Speed	0.1" – 12.0"/sec (2.54mm – 305mm/sec)
Pressure	0 – 50 lbs (0 – 23 kg)
Print head registration	Precise 3 point vertical lift
Snap-off adjustment (Z-Axis)	0 – 0.3" (7.6mm)
Bottom side clearance	1.0" rails
Cycle Time	8.5 seconds (excludes print stroke)

S E R V I C E

Power	120V single phase, 50 – 60 Hz @ 4 amps (220V, 50 – 60 Hz @ 4 amps)
Air	80 – 125 psig, clean dry, 3 CFM (5.5 – 8.5 bar @ 1.5 liter/sec)

D I M E N S I O N S

Machine width	72" (1829mm)
Machine depth	56" (1422mm)
Machine height	52" (1321mm) adjustable to 55" (1397mm)
Shipping weight	1,700 lbs (771 kg) crated

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