



Product Profile: Stencil Marking Processes

ID Integration offers a variety of stencil marking materials to create high-resolution, low-cost, print-on-demand solutions for composite, chemical-etch, and ink silk screen technologies. These process materials provide solutions for components which otherwise can not accept nameplates, labels, or invasive surface marking technologies such as dot peen or laser etch/engraving. Minimal hardware investment, and portability (in the case of ink stencils) allow these techniques to be used for a wide range of both new and legacy marking applications.



Ink Silk-Screen

Our ink stencil system for silk-screening is a significant improvement to existing ink stencil marking processes. It offers users an incredibly simple and low-cost process with high-resolution results.

The stencil roll material has a non-porous wax coating which is burned off by a standard direct thermal printer. Ink is 'pushed' through these porous regions with a common silk-screen squeegee technique.



Nearly any ink suitable for silk-screening can be used with the stencil material. The stencil material itself is disposable, eliminating the need for toxic cleaning fluids.

Add hi-resolution graphics and bar codes to existing stencil artwork, and silkscreen the image onto components with a minimum of tooling. Our system doesn't require any silkscreen frames or expensive application tools – allowing users to mark components in any shop floor or remote field location.

Applications -

- Any existing marking process which use 'punched' paper or vinyl stencils.
- Missiles and ordinance with smooth painted outer shell surfaces.
- High-speed rotating equipment where nameplates or decals can't be used for reasons of mechanical balance or the potential for induced system failure if a nameplate becomes dislodged.

Chemical Etching



There are several stencil materials available for chemical etch processes. These materials vary primarily in cost, width, and resulting mark quality.

Text-only markings might be adequately accomplished with a low-resolution tissue material. But bar code images are best accomplished with higher resolution stencil fabrics.

The process is similar to that for ink stencils in that a wax-coated roll of stencil material is fed through a thermal printer. The printer 'burns' off the wax layer, resulting in porous regions through which an electrolyte can pass to a bare metal marking surface.

Chemical Etching requires that an electrical current be passed through the stencil to the marking surface. It is, therefore, a general requirement that the surface be a bare, uncoated, and metallic.

Applications –

- Any bare, uncoated metallic surface.
- Components with high temperature exposure
- Components which can not have a raised nameplate or decal on the surface.

Composite Marking

We know of no other marking technology for composites that offers the same combination of low-cost, high-resolution, and durability. Although this system still uses thermal print technology, the process for composites is slightly different than that for ink silkscreen or chemical etching.

In contrast to the processes for ink or chemetch, our composite stencils are uncoated, allowing resin to pass between the thread pores. A specially matched thermal transfer ribbon is used to produce the marking pattern (bar code, text, logo) This highly porous stencil is then added to the composite structure prior to heat cure, resulted in a mark that is "baked" into the structure itself.



A variety of thermal transfer ribbon colors are available to maximize contrast to the underlying composite material. Currently, this system has been used to mark black graphite, Kevlar, and fiberglass composite structures.

Our applications engineers can offer a wealth of experience to optimize this marking technology to your own manufacturing process for composite structures.

Applications -

- Black Graphite, Kevlar, Fiberglass unpainted structures with need for high resolution graphics, text, or bar codes.
- Long Stencil lengths (40-100 inch depending on printer model & RAM)



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Ordering Information – Thermal Printer Hardware*

IDI P/N Reference	Description	List Price
HWTPZEB-4C	Zebra GX430t Printer, USB, Serial	\$850
HWTPZEB-4A	Zebra GX430t Printer, USB, Net	\$999
HWTPINT-1	Intermec PM4i Printer, 300dpi, USB, Net	\$2345
HWTPBRD-1	Brady IP300 Printer, USB, Net	\$1929
HWTPBRD-2	Brady IP600 Printer, USB, Net	\$3029

*Cutter options are available on all printer models shown. RFID option on Intermec PM4i. Contact IDI for Service & Warranty Options, Installation & Training Services. Printer/Media bundled orders include FREE starter template with printer settings.

Consumable Stencil Materials for Ink Silk Screen and ChemEtch

(1) Recommended for text-only when using with ink process.

MATPUMS-TS0 ¹	Low-Res Tissue Stencil, 4"x150', 6/pack	\$395
MATPMMI-TS2	Std-Res 203thread/in PolyFabric, 4"x165'	\$400
MATPIDI-TS4	Hi-Res Tissue Stencil, 4"x360'	\$650
MATPMMI-TS20	Hi-Res 305thread/in PolyFabric, 2.5"x165'	\$650

Consumable Stencil Materials for Composite Marking

(2) call for color options

MATPIDI-CS4	Hi-Res 305thread Poly Fabric, 4"x150'	\$850
MATPxxx-RRx ²	4"x500' Thermal Transfer Ribbon	\$50

Ink Starter Kits - Includes quart of Enthone ink, catalyst, application & cleaning materials, sample –TS4 sample stencil pack

SYMAIDI-INK1	Ink Kit, Gloss Black Enthone 50-700R	\$300
SYMAIDI-INK1B	Ink Kit, Matte Black Enthone 50-710R	\$300
SYMAIDI-INK2	Ink Kit, Gloss White Enthone 50-100R	\$300
SYMAIDI-INK2B	Ink Kit, Matte White Enthone 50-110RX	\$300

Warranty

Thermal Printers	A large variety of 1 to 3 year, on-site & depot service plan options are available.
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